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The Effect of Green Investment, Leverage, And Profitability on Earnings Management (An Empirical Study of Energy Sector Companies Listed on the Indonesia Stock Exchange for the Period 2020-2024)

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ABSTRACT

This study aims to analyze the effect of green investment, leverage, and profitability on earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024. This study uses a quantitative approach with purposive sampling techniques and obtains 65 company observations. Earnings management is measured using discretionary accruals based on the Modified Jones Model. Green investment is proxied by the ratio of environmental expenditure to total assets, leverage by the Debt to Assets Ratio (DAR), and profitability by Return on Assets (ROA). The analysis is conducted using panel data regression with the Random Effect Model. The results show that green investment, leverage, and profitability simultaneously have a significant effect on earnings management. Partially, green investment has a negative but insignificant effect, leverage has no significant effect, while profitability has a positive and significant effect on earnings management.

Keywords: Energy Sector; Earnings Management; Green Investment; Leverage; Profitability

INTRODUCTION

Indonesia Stock Exchange (IDX) is the official institution that organizes securities trading in Indonesia, bringing together parties that need funds with parties that have funds to invest. In recent years, the Indonesian capital market has experienced significant growth, marked by an increase in the number of issuers and investor participation. One sector that has shown rapid development is the energy sector. IDX data shows that the number of companies in the energy sector increased from 66 companies in 2020 to 89 companies in 2024 (Bursa Efek Indonesia, 2025) This increase is in line with the transformation towards green energy, increased investor interest in sustainable investment, and the government's commitment to achieving the 2060 Net Zero Emission target.

The energy sector plays a strategic role in the national economy as it is the main source for industrial activities, transportation, and public consumption. However, the characteristics of this sector, which are capital-intensive, have long production cycles, and are highly influenced by global commodity price fluctuations, cause high financial performance uncertainty (Kementerian ESDM, 2024). These conditions increase the use of accounting estimates such as asset depreciation, revenue recognition, and provisions, which could potentially open up opportunities for profit management practices, especially when companies face market pressure to maintain performance stability and investor confidence.

Earnings management is the act of managers utilizing the flexibility of accounting policies to influence profit reporting without violating applicable standards. From the perspective of agency theory (Jensen & Meckling, 1976), information asymmetry between management (agents) and shareholders (principals) can encourage opportunistic behavior, including earnings management practices. This phenomenon was reflected in the case of PT Elnusa Tbk (ELSA), which recorded a significant surge in profits in the first half of 2022, raising indications of potential profit management practices due to performance pressure and inconsistencies between operational performance and financial reporting.

Several factors are thought to influence earnings management practices. First, green investment, which is company investment oriented towards environmental and social sustainability. Commitment to green investment can increase transparency, public scrutiny, and company reputation, thereby potentially suppressing earnings management practices (Dani & Harto, 2022). Second, leverage, which reflects the level of debt use in a company's funding structure. High leverage can increase pressure on management to meet contractual obligations and maintain creditor confidence, thereby potentially encouraging earnings management practices (Aldona & Listari, 2020). Third, profitability, which indicates a company's ability to generate profits. Profitability is often used as a key indicator in performance evaluation and management compensation, thereby encouraging managers to maintain stable profit patterns through profit management (Muslih & Caesaria, 2024).

Previous studies have shown inconsistent findings regarding the effect of green investment, leverage, and profitability on profit management. Therefore, this study aims to examine the effect of green investment, leverage, and profitability on profit management in energy companies listed on the Indonesia Stock Exchange for the period 2020–2024. This study is expected to provide empirical contributions to the development of financial accounting literature and serve as a consideration for investors and regulators in improving the quality of financial reporting in the energy sector.

LITERATURE REVIEW

Agency Theory

According to (Jensen & Meckling, 1976), agency theory explains the contractual relationship between shareholders (principals) and management (agents), whereby agents are authorized to carry out the company's operational activities on behalf of the principals (Umah & Sunarto, 2022). In practice, agents are given the authority to make strategic and financial decisions that are expected to add value to the company and meet the owners' expectations. However, this delegation of authority creates a situation where agents have access to more information than principals, giving rise to information asymmetry that can be exploited for personal gain, including through opportunistic actions such as earnings management (Prajitno & Vionita, 2020). This information gap and difference in objectives then give rise to agency conflicts, especially when oversight mechanisms are not effective or when the incentives given to agents are not designed to encourage behavior that is in line with the principal's interests (Safarida et al., 2023).

Earnings Management

Earnings management is an attempt by company managers to influence the information contained in financial statements with the aim of deceiving stakeholders who want to know the company's performance and condition (Fuad et al., 2022). Meanwhile, according to (Al Azeez et al., 2019) earnings management is defined as deliberate actions taken by management to interfere with the financial reporting process for the purpose of obtaining personal gain or benefits for the organization. Based on this perspective, earnings management does not aim to provide transparent or useful information for shareholders, but rather reflects opportunistic behavior on the part of management. In empirical practice, earnings management is divided into two main forms: accrual-based (discretionary accruals), which is the manipulation of accounting estimates such as depreciation or uncollectible accounts receivable, and real activity-based, which is the modification of operational decisions such as overproduction or sales discounts to influence short-term profits. According to (Selfiyan, 2021), there are several factors that encourage management to engage in earnings management practices. One of these factors is the provision of bonuses, where managers attempt to adjust net income to meet targets that can generate incentives. To measure accrual earnings management in the Indonesian capital market, many studies use the Modified Jones Model, which allows for the estimation of discretionary accrual components as a proxy for manipulative behavior across companies and periods (Indriani & Pujiono, 2021)

Green Investment

Green investment is defined as the allocation of capital expenditure and/or financing to projects that directly aim to reduce environmental impact through energy efficiency, greenhouse gas emission reduction, and the application of clean technology. In corporate research, green investment is generally operationalized as the proportion of environmental capital expenditure to total capital expenditure (capex) or the intensity of green investment to total company assets (Putri & Paramita, 2025). From an agency theory perspective, green investment represents capital expenditure allocation decisions made by managers (agents) to maximize personal utility under the supervision of owners (principals). Green investment decisions are more likely to be made if there are contractual benefits such as reduced agency costs and increased access to low-cost financing (Tanasya, 2020). In other words, green investment serves as a mechanism for aligning the interests of agents and principals by reducing information asymmetry and increasing management credibility (Pramana & Dewi, 2023).

H1: Green investment has a negative effect on earnings management in energy sector companies listed on the main board of the Indonesia Stock Exchange for the period 2020–2024.

Leverage

Leverage reflects the extent to which a company utilizes debt-based financing to fund its assets and operational activities (Anindya & Yuyetta, 2020). A high leverage ratio indicates a larger proportion of debt compared to assets or equity, which can increase potential profits for shareholders, but at the same time increases the risk of default and bankruptcy (Shiyammurti, 2020). Companies are suspected of engaging in earnings management practices when they have high leverage ratios, which reflect the large proportion of debt compared to assets owned. In relation to earnings management, agency theory explains that pressure from debt agreements on companies with high leverage levels can encourage management to engage in income-increasing earnings management to avoid breaching debt agreements. However, the extent of this influence depends on the level of external supervision and the effectiveness of the contract structure imposed (Pricillia et al., 2025)

H2: Leverage has a positive effect on earnings management in energy sector companies listed on the main board of the Indonesia Stock Exchange for the period 2020–2024.

Profitability

Profitability describes a company's ability to generate profits from its resources (Muslih & Caesaria, 2024). Agency theory is often used as the basis for performance appraisals, bonus and compensation awards, and management job sustainability evaluations. When a company achieves low profitability in a certain period, this condition may encourage management to engage in earnings management practices by increasing reported earnings in the current period to appear higher than actual earnings. Conversely, when a company has a high level of profitability in a certain period, management tends to engage in earnings management practices by lowering the reported profit so that it is lower than the actual profit (Setiowati et al., 2023). Profitability is generally measured using indicators such as Return on Assets (ROA), Return on Equity (ROE), or net profit margin. These three proxies reflect the level of operational efficiency, business strategy effectiveness, and cost structure in creating economic value for shareholders (Khalifaturofi'ah et al., 2024).

H4: Profitability has a positive effect on earnings management in energy sector companies listed on the main board of the Indonesia Stock Exchange for the period 2020–2024.

RESEARCH METHOD

This study uses a quantitative approach. This approach was chosen because the study focuses on testing the effect of green investment, leverage, and profitability on earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) during the period 2020–2024. The sampling technique used is purposive sampling. The data used in this study is secondary data in the form of annual financial reports of energy sector companies. The data was obtained from the official website of the Indonesia Stock Exchange, the official websites of the companies, and other relevant supporting sources. The type of data used is quantitative data in the form of financial figures listed in the companies' balance sheets, income statements, and cash flow statements during the research period. A total of 65 samples were used in this study. The data collection technique was carried out using the documentation method, which involved collecting and recording financial data related to the research variables from the companies' annual financial reports. The collected data was then processed and arranged in the form of panel data to facilitate the statistical analysis process. The data analysis techniques in this study included descriptive statistical analysis to describe the characteristics of each research variable, classical assumption tests covering multicollinearity and heteroscedasticity tests, and panel data regression analysis as the main analysis model.

The selection of the panel data regression model was conducted using the Chow test, Hausman test, and Langrange Multiplier test to determine the best model between the common effect model, fixed effect model, or random effect model. Hypothesis testing was conducted using the t-test to determine the partial effect of independent variables on earnings management and the F-test to determine the simultaneous effect of independent variables. The entire data processing and analysis process was carried out using statistical software (Eviews).

Earnings Management (Discretionary Accrual – Modified Jones Model)
Total accruals are calculated using the following equation:

$$TAC_{it} = NI_{it} - CFO_{it}$$

The total accrual value is then estimated using the regression equation:

$$\frac{TAC_{it}}{A_{it-1}} = \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{PPE_{it}}{A_{it-1}}\right) + \varepsilon_{it}$$

The non-discretionary accrual (NDA) value is calculated as follows:

$$NDA_{it} = \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{\Delta REV_{it} - \Delta REC_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{PPE_{it}}{A_{it-1}}\right)$$

Discretionary accruals (DA) as a proxy for earnings management are calculated using the formula:

$$DA_{it} = \frac{TAC_{it}}{A_{it-1}} - NDA_{it}$$

Explanation:

TA_{it}-1	:	Total assets of i in period t -1
NIit	:	Net income of company i in year t
CFOit	:	Cash flow from operations of company i in year t
Ait-1	:	Total assets of company i in period t-1
β1, β2, β3	:	Slope of company i in period t
ΔREV_{it}	:	Difference in revenue of company i in period t
ΔREC_{it}	:	Difference in accounts receivable of company i in period t
PPE_{it}	:	Fixed assets of company i in period t
NDAit	:	*Non-discretionary accruals of company i in year t*
DAit	:	*Discretionary accruals of company i in period t*
ε	:	*Error Terms*

Green Investment
Green Investment is measured using the ratio of environmental expenditure to total company assets*:*

$$GI = \frac{\text{Total Environmental Expenditure}}{\text{Total Assets}}$$

Description

GI	:	Green Investment
Total Environmental Expenditures	:	The total expenditures allocated for environmental activities include various expenditures, such as investments in research and development of environmentally-based technologies, waste treatment and pollutant management, purchase and construction of desulfurization and denitrification equipment, as well as implementation of projects oriented towards sustainability and renewable energy utilization.
Total Assets	:	The total assets owned by the company.

Leverage
Leverage is approximated by the Debt to Assets Ratio (DAR):

$$DAR = \frac{\text{Total Debt}}{\text{Total Assets}}$$

Description:
Total Debt: The total liabilities of the company.
Total Assets: The owners' rights after deducting total liabilities.

Profitability

Profitability is measured using Return on Assets (ROA):

$$ROA = \frac{\text{Net Profit}}{\text{Total Assets}}$$

Keterangan:
Laba Bersih: Profit after tax
Total Assets: The owners' rights after deducting total liabilities.

RESULTS

Descriptive Statistics

Table 1. Descriptive Statistics

Keterangan	*Green Investment* (X1)	*Leverage* (X2)	Profitability (X3)	Earning Management (Y)
Mean	0.0045	0.5772	0.0754	-0.1418
Maximum	0.0463	7.8370	0.4543	0.8304
Minimum	0.000	0.1230	-0.0984	-1.6336
Std. Deviasi	0.0085	0.9378	0.0900	0.5754
Observasi	65	65	65	65

Based on the data in Table 1 above, it shows that the Earnings Management variable (Y) has an average value of -0.1418 with a standard deviation of 0.5754. A standard deviation value greater than the mean indicates that profit management practices in energy sector companies have a fairly high level of variation. The maximum earnings management value of 0.8304 was obtained by PT Darma Henwa Tbk and the minimum value of -1.6336 was obtained by PT Wintermar Offshore Marine Tbk. This shows that there are companies that increased their profits (income increasing earnings management) and decreased their profits (income decreasing earnings management) during the research period.

Green Investment variable (X1) has an average value of 0.0045 with a standard deviation value of 0.0085. A standard deviation value that is greater than the mean value indicates that Green Investment data has a fairly high level of variation between energy sector companies for the 2020–2024 period. The maximum Green Investment value of 0.0463 was obtained by PT Indo Tambangraya Megah Tbk and the minimum value of 0.000 was obtained by PT Samindo Resources Tbk., indicating that there are companies that have not made green investments, while other companies have implemented Green Investment in greater proportions.

The Leverage variable (X2) has an average value of 0.5772 with a standard deviation of 0.9378. A standard deviation value greater than the average value indicates that the level of leverage of energy sector companies is quite diverse. The maximum leverage value of 7.8370 was obtained by PT Medco Energi Internasional Tbk and the minimum value of 0.1230 by PT Samindo Resources Tbk. This indicates significant differences in the funding structures between companies, where there are companies with very high debt levels compared to other companies.

The Profitability variable (X3) has an average value of 0.0754 with a standard deviation of 0.0900. A standard deviation value greater than the mean indicates that the profitability level of companies in the energy sector for the 2020–2024 period is quite varied. The maximum profitability value of 0.4543 was obtained by PT Indo Tambangraya Megah Tbk and the minimum value of -0.0984 was obtained by PT Bumi Resources Tbk, indicating that there are companies that suffered losses, while other companies were able to generate fairly high profits.

Classical Assumption Test

Heteroscedasticity Test

Figure 1. Heteroscedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey
Null hypothesis: Homoskedasticity

F-statistic	2.246821	Prob. F(3,61)	0.0919
Obs*R-squared	6.467775	Prob. Chi-Square(3)	0.0909
Scaled explained SS	5.958238	Prob. Chi-Square(3)	0.1137

The heteroscedasticity test is used to determine whether the residual variance in a regression model is constant (homoscedastic) or variable (heteroscedastic). If heteroscedasticity occurs, coefficient estimates become less efficient because the residual variance is unstable. The model is declared free of heteroscedasticity if the probability value of the test result is greater than the specified significance level, which means that the residual variance can still be considered homogeneous.

Based on the decision-making criteria, it is known that the regression model to be formed is free from heteroscedasticity because the value produced is greater than 0.05 (< 0,05), meaning that the model meets the assumptions for testing.

Multicollinearity Test

Figure 2. Multicollinearity Test

Variance Inflation Factors
Date: 02/27/26 Time: 11:12
Sample: 1 65
Included observations: 65

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.012712	2.727320	NA
X1	65.84781	1.295250	1.008189
X2	0.005718	1.471265	1.062450
X3	0.616966	1.811142	1.057224

Multicollinearity testing is used to determine whether there is a strong relationship or high correlation between independent variables in a regression model. Generally, testing is carried out using the Variance Inflation Factor (VIF) and tolerance values as indicators of the level of correlation between variables.
Based on the results presented in the table above, the Green Investment (X1) variable has a VIF value of 1.008189, Leverage (X2) has a VIF of 1.062450, and Profitability (X3) with a VIF of 1.057224. It can be concluded that there is no correlation between the

variables Green Investment (X1), Leverage (X2), and Profitability (X3). This can be seen in the VIF values of the three variables, which are below 10.

Chow Test
Figure 3. Chow Test

Redundant Fixed Effects Tests
Equation: Untitled
Test cross-section fixed effects

Effects Test	Statistic	d.f.	Prob.
Cross-section F	82.036368	(12,49)	0.0000
Cross-section Chi-square	198.173596	12	0.0000

The Chow test is a method used to determine the most appropriate model, namely between FEM and CEM. This test is carried out by establishing two hypotheses, namely H_0, which states that the appropriate model is CEM, and H_1, which states that the better model is FEM. Interpretation of the test results depends on the probability value of the cross-section F.

From the table above, it can be seen that the Prob. F value is 0.0000 < 0.05, which is in accordance with the specified criteria, namely rejecting H_0 and accepting H_1, which means that the fixed effect model is better than the common effect model.

Hausman Test
Figure 4. Hausman Test

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	2.194942	3	0.5329

This test is a method used to determine the most appropriate panel model between FEM and REM. The test is conducted by proposing two hypotheses, namely H_0, which states that the appropriate model is REM, and H_1, which states that the more appropriate model is FEM. The determination of the model depends on the probability value (p-value) of the cross-section random.

From the table above, it can be seen that the Chi-Sq Prob. value obtained is 0.5329 > 0.05, which is in accordance with the specified criteria, namely H0 is accepted and H1 is rejected, which means that the random effect model is better than the fixed effect model.

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Lagrange Multiplier (LM) Test
Figure 5. Lagrange Multiplier (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	103.0550 (0.0000)	2.569307 (0.1090)	105.6243 (0.0000)
Honda	10.15160 (0.0000)	-1.602906 (0.9455)	6.044841 (0.0000)
King-Wu	10.15160 (0.0000)	-1.602906 (0.9455)	3.687644 (0.0001)
Standardized Honda	11.31099 (0.0000)	-1.433505 (0.9241)	3.919372 (0.0000)
Standardized King-Wu	11.31099 (0.0000)	-1.433505 (0.9241)	1.536083 (0.0623)
Gourieroux, et al.	--	--	103.0550 (0.0000)

The Lagrange Multiplier (LM) test is a method used to determine the most appropriate panel model between REM and CEM. This test is carried out by setting two hypotheses, namely H_0, which states that the appropriate model is CEM, and H_1, which states that the more appropriate model is REM. The model selection is based on the probability value of the Breusch Pagan test.

Based on the above test results, the Lagrange Multiplier test shows that the Breusch-Pagan cross-section value is 0.000 < 0.05, indicating that the random effect model is better than the common effect model. Thus, based on the three test results, it can be concluded that the panel data regression model that is appropriate for this study is the random effect model.

Panel Data Regression Equation

Based on the results of testing the most appropriate model for estimating panel data, the best model obtained for this study is the Random Effect Model (REM). Based on the results of data processing, the following are the results of data using the Random Effect Model (REM):

Figure 6. Panel Data Regression

Dependent Variable: Y
Method: Panel EGLS (Cross-section random effects)
Date: 02/27/26 Time: 11:56
Sample: 2020 2024
Periods included: 5
Cross-sections included: 13
Total panel (balanced) observations: 65
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.184708	0.171361	-1.077890	0.2853
X1	-3.722240	3.818810	-0.974712	0.3336
X2	0.018908	0.021160	0.893585	0.3751
X3	0.645329	0.259201	2.489685	0.0155

Effects Specification	S.D.	Rho
Cross-section random	0.602870	0.9531
Idiosyncratic random	0.133696	0.0469

Weighted Statistics

R-squared	0.139337	Mean dependent var	-0.014001
Adjusted R-squared	0.097009	S.D. dependent var	0.139763
S.E. of regression	0.132810	Sum squared resid	1.075956
F-statistic	3.291869	Durbin-Watson stat	1.820285
Prob(F-statistic)	0.026423		

Unweighted Statistics

R-squared	-0.005052	Mean dependent var	-0.141869
Sum squared resid	21.30201	Durbin-Watson stat	0.091942

The regression equation to be formed is as follows:

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$$Y = -0.1847 - 3.7222*X1 + 0.0189*X2 + 0.6453*X3 + e$$

Explanation:
Explanation:

Y	:	Earnings Management
X1	:	Green Investment
X2	:	Leverage
X3	:	Profitability
e	:	Error

The values in the regression equation above can be explained as follows:

a. The constant value of -0.1847 indicates that if the variables of green investment (X1), leverage (X2), and profitability (X3) are zero, then the estimated value of profit management is -0.1847.
b. The regression coefficient for Green Investment is 3.7222, which indicates that if Green Investment (X1) increases by one unit and the values of the other variables remain constant, the value of Green Investment (X1) is predicted to decrease by 3.7222.
c. The regression coefficient for Leverage is 0.0189, indicating that if Leverage (X2) increases by one unit and other variables remain constant, the value of Leverage (X2) is predicted to increase by 0.0189.
d. The regression coefficient for profitability is 0.6453, indicating that if Profitability (X3) increases by one unit and other variables remain constant, then the value of Profitability (X3) is predicted to increase by 0.6453.

Hypothesis Testing

Determination Coefficient Test

The determination coefficient is used to measure the extent to which the model can explain the variation in the dependent variable, namely earnings management, based on the influence of the independent variables Green Investment (X1), Leverage (X2), and Profitability (X3). This coefficient value is indicated by R-square or adjusted R-square, which describes the proportion of changes in profit management that can be explained by the three independent variables. The test results are usually presented in percentage form, ranging from 0 to 1 or equivalent to 0% to 100%. The lower the coefficient of determination, the smaller the contribution of green investment, leverage, and profitability in explaining the variation in earnings management. Conversely, if the coefficient of determination is close to 100%, it indicates that the three independent variables provide strong information and are almost entirely capable of predicting changes in earnings management (Ghozali, 2020).

Figure 7. Determination Coefficient Test

R-squared	0.139337	Mean dependent var	-0.014001
Adjusted R-squared	0.097009	S.D. dependent var	0.139763
S.E. of regression	0.132810	Sum squared resid	1.075956
F-statistic	3.291869	Durbin-Watson stat	1.820285
Prob(F-statistic)	0.026423		

Based on figure 1.7 the Adjusted R-squared value obtained is 0.097009 or 9.7%. This indicates that all independent variables, namely Green Investment, Leverage, and Profitability, are able to explain approximately 9.7% of the dependent variable, namely earnings management. The remaining 90.3% is explained by variables outside the scope of this study.

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Simultaneous Test (f)

The f test or simultaneous regression coefficient test aims to see the extent to which all independent variables jointly affect the dependent variable (Ghozali, 2020). In the F test, the criteria applied are as follows:

H0: β1β2β3 = 0

Green Investment (X1), Leverage (X2), and Profitability (X3) do not have a simultaneous effect on Profit Management (Y).

Ha: β1β2β3 ≠ 0

Green Investment (X1), Leverage (X2), and Profitability (X3) have a simultaneous effect on Profit Management (Y).

a. If the probability value (p-value) > 0.05, then H_0 is accepted and Ha is rejected, which means that the dependent variable is not simultaneously influenced by all independent variables.
b. If the probability value (p-value) < 0.05, then H_0 is rejected and Ha is accepted, so it can be concluded that all independent variables simultaneously affect the dependent variable.

Figure **8.** Simultaneous Test (f)

R-squared	0.139337	Mean dependent var	-0.014001
Adjusted R-squared	0.097009	S.D. dependent var	0.139763
S.E. of regression	0.132810	Sum squared resid	1.075956
F-statistic	3.291869	Durbin-Watson stat	1.820285
Prob(F-statistic)	0.026423		

Based on figure 8 it is known that the probability value (F-Statistic) is 0.026423, which is less than 0.05. Based on these results, it can be concluded that H_0 is rejected and Ha is accepted, which means that Green Investment, Leverage, and Profitability simultaneously have a significant effect on the dependent variable, namely earnings management.

Partial Test (t)

The partial test (t) is conducted to assess the effect of each independent variable on the dependent variable, assuming that the other variables remain constant. The criteria for the t-test are as follows:

a. If the probability value or p-value > 0.05, then H_0 is accepted and Ha is rejected. Thus, the independent variable does not have a partial effect on the dependent variable.
b. If the probability value or p-value is < 0.05, then H_0 is rejected and Ha is accepted. Thus, the independent variable has a partial effect on the dependent variable.

Figure 9. Partial Test (t)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.184708	0.171361	-1.077890	0.2853
X1	-3.722240	3.818810	-0.974712	0.3336
X2	0.018908	0.021160	0.893585	0.3751
X3	0.645329	0.259201	2.489685	0.0155

Based on the results of the hypothesis testing above, it can be explained as follows:

1. The Green Investment variable (X1) has a probability value of 0.3336 > 0.05. This shows that partially, Green Investment does not have a significant effect on profit

management in energy sector companies listed on the Indonesia Stock Exchange (IDX) for the 2020-2024 period.

2. The Leverage variable (X2) has a probability value of 0.3751 > 0.05. This indicates that, partially, Leverage does not have a significant effect on earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020-2024.

The Profitability variable (X3) has a probability value of 0.0155 < 0.05. This indicates that, partially, profitability has a significant effect on profit management in energy sector companies listed on the Indonesia Stock Exchange (IDX) in the 2020-2024 period.

DISCUSSION

The Effect of Green Investment, Leverage, and Profitability on Earnings Management

Based on the simultaneous test (f) results in figure 1.8, the probability value (F-Statistic) obtained was 0.04123 < 0.05. This indicates that Green Investment, Leverage, and Profitability simultaneously have a significant effect on Profit Management in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2020-2024.

The Effect of Green Investment on Profit Management

Based on the partial test results in figure 1.9, the probability value of Green Investment is 0.3336 (0.3336 > 0.05) with a regression coefficient value of -3.7222. This indicates that H_0 is accepted and Ha is rejected, which means that Green Investment has a negative effect on earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2020-2024. This means that the higher the level of Green Investment carried out by a company, the more earnings management practices tend to decline.

The Effect of Leverage on Earnings Management

Based on the partial test results in figure 1.9, the probability value of Leverage is 0.3751 (0.3751 > 0.05) with a regression coefficient value of 0.0189. This indicates that H_0 is accepted and Ha is rejected, which means that leverage does not partially affect earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2020-2024. This shows that the level of corporate debt does not necessarily encourage management to engage in earnings management practices.

The Effect of Profitability on Profit Management

Based on the partial test results in figure 1.9, the probability value of Profitability is 0.0155 (0.0155 < 0.05) with a regression coefficient value of 0.6453. This indicates that Ho is rejected and Ha is accepted, meaning that profitability has a positive effect on earnings management in energy sector companies listed on the Indonesia Stock Exchange (IDX) in 2020-2024. This means that the higher the profitability generated, the greater the opportunity for managers to engage in earnings management

CONCLUSION

Based on the results of the data analysis and subsequent discussion, this study concludes that green investment, leverage, and profitability collectively exert a significant influence on earnings management practices among energy sector companies listed on the Indonesia Stock Exchange (IDX) during the 2020–2024 period. This finding indicates that these three variables, when considered simultaneously, play an important role in shaping managerial decisions related to financial reporting.

Individually, green investment demonstrates a negative effect on earnings management. This suggests that companies with higher levels of green investment tend to engage less in earnings management practices, potentially reflecting a stronger commitment to transparency, sustainability, and ethical financial behavior. In contrast, leverage is found to have no significant effect on earnings management, indicating that the level of debt does not necessarily influence managerial discretion in financial reporting within the observed firms.

Meanwhile, profitability exhibits a positive effect on earnings management. This implies that companies with higher profitability are more likely to engage in earnings management, possibly due to incentives to maintain performance trends or meet stakeholder expectations. Overall, these findings highlight the varying roles of financial and sustainability-related factors in influencing earnings management behavior in the energy sector.

LIMITATION

This study has several limitations that need to be considered when interpreting the results. An adjusted R-squared value of 9.7% indicates that the model can only explain a small portion of the variation in earnings management, with 90.3% being influenced by other variables outside the scope of this study. This indicates that there are still many other factors, such as corporate governance, company size, audit quality, managerial ownership, and macroeconomic conditions, which may play a more dominant role in explaining profit management practices. In addition, this study only focuses on energy sector companies listed on the Indonesia Stock Exchange (IDX) for the period 2020–2024, so the research results have limitations in terms of generalization to other sectors or different time periods. Therefore, further research is recommended to add more relevant variables, expand the research sample, and extend the observation period in order to obtain more comprehensive and robust results.

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DECLARATION OF CONFLICTING INTERESTS

The author declares that there is no conflict of interest in the conduct of the research, writing, or publication of this scientific work. This research was conducted independently without any financial support, commercial involvement, or personal relationships that could influence the results and interpretation of the research.

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