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Environmental Performance, ESG, and Profitability: Evidence on Corporate Effective Tax Rates from Profit and Loss Firms

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ABSTRACT

Environmental sustainability and responsible corporate governance increasingly influence corporate financial decisions, including tax behavior. However, limited evidence explains how environmental performance and Environmental, Social, and Governance (ESG) practices affect corporate effective tax rates under different financial conditions, particularly in emerging markets. This study aimed to examine the effects of environmental performance, ESG, and profitability on corporate effective tax rates and to analyze the moderating role of capital structure between profitable and loss-making firms. The study employed a quantitative research design using secondary data from companies in the Basic Materials sector listed on the Indonesia Stock Exchange during 2019–2024. Using purposive sampling, 27 firms that participated in the PROPER environmental performance program were selected, generating 162 firm-year observations. The data were analyzed using multiple regression models to compare relationships across different financial conditions. The results showed that environmental performance significantly influenced corporate effective tax rates and the effect differed between profitable and loss-making firms. ESG was also associated with corporate effective tax rates but did not show a consistent difference between firms with profits and those experiencing losses. Profitability likewise did not significantly differentiate corporate tax outcomes between the two groups. In addition, capital structure strengthened the relationship between environmental performance and corporate effective tax rates, while it did not significantly moderate the relationships involving ESG or profitability. These findings highlight the role of environmental responsibility and financial structure in shaping corporate tax behavior and provide insights for managers and policymakers in promoting sustainability, transparency, and responsible corporate governance.

1. Introduction

Corporations play an essential role in supporting economic development through their business activities and tax contributions ([Wirba, 2024](#)). Governments rely heavily on corporate income taxes as one of the primary sources of public revenue used to finance infrastructure, social programs, and national development initiatives ([Cahyadi, 2024](#)). Therefore, understanding how corporations

fulfill their tax obligations has become an important issue in both policy discussions and academic research. Corporate tax payments are not only influenced by statutory tax regulations but also by corporate financial conditions, governance practices, and strategic decisions related to tax planning ([Suharto, 2023](#)).

Corporate tax burden using the Effective Tax Rate (ETR), which represents the proportion of a company's pre-tax income that

is paid as corporate income tax Click or tap here to enter text. (Schwab et al., 2022). The effective tax rate provides a more realistic representation of corporate tax payments compared to statutory tax rates because it reflects the impact of tax incentives, deductions, and corporate tax strategies implemented by firms. As a result, ETR is widely used in accounting and taxation research to evaluate corporate tax behavior and tax planning practices. The trend of the average effective tax rate during the observation period is presented in Figure 1, which illustrates the fluctuation of corporate tax burdens across different years.

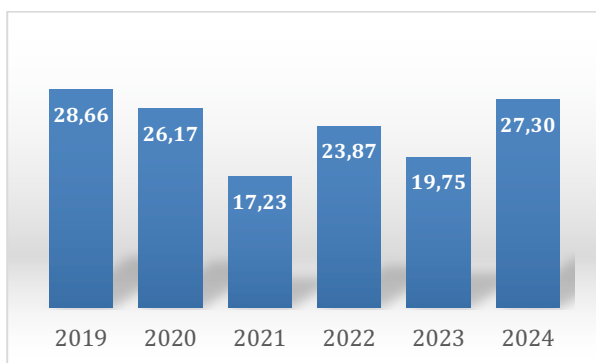


Fig. 1. Average ETR (in percent)
Source: IDX Data Processed, (2026)

Figure 1 illustrates the trend of the average effective tax rate during the period 2019–2024. The figure shows that the average ETR experienced noticeable fluctuations during the observed period. In 2019, the average ETR was recorded at 28.66%, which then declined to 26.17% in 2020. A significant decrease occurred in 2021, where the average ETR dropped sharply to 17.23%. The average ETR increased again to 23.87% in 2022 before declining slightly to 19.75% in 2023. In 2024, the average ETR rose again to 27.30%. These variations indicate that corporate tax outcomes do not remain stable over time and may be influenced by various internal and external factors affecting corporate financial and operational decisions.

Several factors may explain variations in corporate effective tax rates. Companies often implement different financial strategies, operational efficiencies, and tax planning

mechanisms that influence their tax payments (Wibowo, 2024). In addition, corporate governance practices and sustainability commitments may also shape corporate attitudes toward tax compliance and financial transparency. In recent years, stakeholders have increasingly emphasized the importance of responsible corporate behavior, particularly regarding sustainability and environmental responsibility (Purba & Triwibowo, 2025).

Within the ESG framework, environmental performance represents a crucial dimension that reflects firms manage environmental impacts arising from their operations (Asiaei et al., 2023). Environmental performance includes corporate initiatives related to emissions reduction, energy efficiency, resource management, and environmental compliance (Hassan et al., 2024). Companies with stronger environmental performance often demonstrate greater commitment to sustainable development and responsible business practices (Le et al., 2024). Such commitment may also influence corporate financial decisions, including tax reporting and compliance behavior (Ramachandran et al., 2024). Research (Farooq et al., 2023; Long et al., 2022; Shi et al., 2023) confirms that environmental performance affects the corporate tax effective rate, while research (He et al., 2023; Usman & Alola, 2023; Wolde-Rufael & Mulat-weldemeskel, 2023) state otherwise.

Companies currently adopt the Environmental, Social, and Governance (ESG) framework as a comprehensive approach to measure corporate sustainability performance (Yu et al., 2024). The ESG framework evaluates how companies integrate environmental responsibility, social accountability, and governance quality into their operational strategies (Padilla-Rivera et al., 2025). Investors and regulators increasingly use ESG indicators to assess corporate transparency, risk management, and long-term sustainability. Companies that demonstrate stronger ESG performance generally gain higher legitimacy and credibility among stakeholders (Landi et al., 2022). Research (Elamer et al., 2024; Fu &

[Zhang, 2025](#); [Huang et al., 2025](#)) confirm that ESG affects the corporate tax effective rate, while research ([Huang et al., 2024](#); [Peng et al., 2025](#); [Syahputri, 2025](#)) state otherwise.

In addition to sustainability performance, financial performance also plays an important role in determining corporate tax outcomes ([Tackie et al., 2022](#)). Profitability reflects a company's ability to generate income and efficiently utilize its resources ([Anggiyanti & Sormin, 2024](#)). Companies with higher profitability generally face greater taxable income and may implement tax planning strategies to manage their tax burden. Consequently, profitability may significantly influence the effective tax rate reported by firms ([Levia & Wahyudi, 2025](#)). Research ([Alkurdi et al., 2023](#); [Chen et al., 2024](#); [Gschossmann et al., 2026](#)) confirm profitability affects the corporate tax effective rate, while research ([Hossain et al., 2024](#); [Lenny et al., 2024](#); [Zhao, 2023](#)) state otherwise.

Furthermore, the capital structure of a firm may also affect corporate tax outcomes ([Ali et al., 2022](#)). Companies with higher leverage often experience interest expenses that can reduce taxable income, which may influence their effective tax rates ([Coles et al., 2022](#)). Debt to Equity Ratio (DER) becomes an important indicator used to measure the proportion of debt financing relative to equity financing within a company ([Tamam & Tarmidi, 2025](#)). The level of leverage may strengthen or weaken the relationship between corporate characteristics and tax outcomes because companies with higher debt levels may benefit from tax shields resulting from interest deductions.

2. Literature Review

2.1 Agency Theory

Agency Theory explains the relationship between principals (shareholders) and agents (managers), where managers manage company resources to maximize shareholder value ([Jensen & Meckling, 1979](#)). Differences in interests may lead managers to make strategic financial decisions, including tax management.

In this context, profitable companies may implement tax planning strategies that affect the Effective Tax Rate (ETR). Additionally, the capital structure reflected by the Debt to Equity Ratio (DER) can provide tax benefits through interest deductions, potentially moderating the relationship between environmental performance, ESG practices, profitability, and corporate tax outcomes.

2.2 Stakeholder Theory

The Stakeholder Theory, first introduced by [Freeman et al., \(2021\)](#), explains that companies are responsible not only to shareholders but also to various stakeholders such as investors, governments, customers, and society. Companies therefore need to consider stakeholder interests in their strategic and operational decisions. In this context, the implementation of ESG practices and strong environmental performance can enhance corporate transparency and accountability to stakeholders. These practices may influence corporate financial behavior, including tax responsibilities reflected in the Effective Tax Rate (ETR).

2.3 Corporate Effective Tax Rate

The Effective Tax Rate (ETR) represents the proportion of a company's pre-tax income paid as corporate income tax ([Paulus et al., 2025](#)). It is widely used in taxation and accounting research to measure the actual tax burden borne by companies. Compared to statutory tax rates, ETR provides a more comprehensive picture because it reflects tax incentives, deductions, and tax planning strategies implemented by firms. Variations in ETR may therefore indicate differences in corporate tax management and financial decision-making.

2.4 Environmental Performance

Environmental performance reflects a company's ability to manage and reduce the environmental impact of its operations through

practices such as pollution control, efficient resource use, and compliance with environmental regulations ([Safitri et al., 2025](#)). In Indonesia, it is measured using the PROPER program issued by the Ministry of Environment and Forestry, which ranks companies into five categories: Gold, Green, Blue, Red, and Black. These ratings serve as an objective indicator of a company's environmental responsibility and sustainability performance.

2.5 Environmental, Social and Governance

Environmental, Social, and Governance (ESG) is a framework used to evaluate a company's sustainability practices and responsible business conduct ([Aldowaish et al., 2022](#)). In this study, ESG performance is measured through ESG disclosure based on the Global Reporting Initiative (GRI) Standards 2021, which include 97 indicators covering environmental (GRI 300), social (GRI 400), and governance (GRI 2) dimensions. The ESG score is calculated as the proportion of disclosed indicators to the total 97 GRI indicators, where a higher score indicates greater transparency in sustainability practices and governance responsibilities. The ESG disclosure score is calculated using the following formula:

$$ESG = (Total\ Disclosure / 97\ GRI\ Indicators) \times 100\%$$

A higher ESG disclosure score indicates that a company provides more comprehensive transparency regarding its sustainability practices and governance responsibilities ([Wulandari & Akbar, 2025](#)).

2.6 Profitability

Profitability reflects a company's ability to generate earnings from its assets and operations and is commonly used as an indicator of financial performance and efficiency. In this study, profitability is measured using Return on Assets (ROA), which shows how effectively a company utilizes its assets to generate net income ([Alarussi & Gao, 2021](#)).

2.7 Capital Structure

Capital structure is an important financial aspect that may influence corporate financial decisions, including tax management. In this study, leverage is measured using the Debt to Equity Ratio (DER), which shows the proportion of total debt to shareholders' equity. Higher leverage can create tax advantages through interest tax shields that reduce taxable income ([Boateng et al., 2022](#)).

2.8 Environmental Performance on Corporate Effective Tax Rate

Environmental performance reflects how companies manage environmental impacts from their operations and their commitment to sustainability, commonly measured in Indonesia through the PROPER program ([Safitri et al., 2025](#)). Based on Agency Theory, managers make financial decisions, including tax management, to maximize firm value, where firms with higher profitability tend to face higher taxable income and may engage in tax planning that affects the Effective Tax Rate (ETR). In contrast, firms experiencing losses have lower tax liabilities and different incentives in managing taxes. Supported by Stakeholder Theory, companies are also expected to demonstrate accountability to stakeholders through responsible environmental and financial practices, so differences in financial conditions between profit and loss firms may lead to variations in how environmental performance influences ETR ([Tanko, 2023](#)).

Research ([Farooq et al., 2023](#); [Long et al., 2022](#); [Shi et al., 2023](#)) confirms that environmental performance affects the corporate tax effective rate, while research ([He et al., 2023](#); [Usman & Alola, 2023](#); [Wolde-Rufael & Mulat-weldemeskel, 2023](#)) state otherwise.

Research Gap: These inconsistencies highlight the need to further examine the relationship between environmental performance and corporate tax outcomes, particularly by considering differences in firms'

financial conditions such as profit and loss status.

Hypothesis:

H1: There is a difference in the effect of environmental performance on corporate effective tax rates between profit and loss firms.

2.9 ESG on Corporate Effective Tax Rate

Environmental, Social, and Governance (ESG) reflects a company's commitment to sustainable and responsible business practices through disclosures on environmental, social, and governance activities. Higher ESG disclosure indicates greater transparency and accountability in managing business operations (Wulandari & Akbar, 2025). Based on Stakeholder Theory, companies must consider the interests of various stakeholders, including governments and investors, which may influence their tax behavior measured by the Effective Tax Rate (ETR). However, the impact of ESG on tax outcomes may vary depending on a firm's financial condition, as profitable firms face higher tax obligations and may adopt different tax management strategies compared to firms experiencing losses (Flagmeier et al., 2023). Research (Elamer et al., 2024; Fu & Zhang, 2025; Huang et al., 2025) confirm that ESG affects the corporate tax effective rate, while research (Huang et al., 2024; Peng et al., 2025; Syahputri, 2025) state otherwise.

Research Gap: These inconsistencies highlight the need to further examine the relationship between ESG disclosure and corporate tax outcomes by considering differences in firms' financial conditions, particularly between profit and loss firms.

Hypothesis:

H2: There is a difference in the effect of ESG on corporate effective tax rates between profit and loss firms.

2.10 Profitability on Corporate Effective Tax Rate

Profitability reflects a company's ability to generate earnings and efficiently utilize its assets, commonly measured using Return on Assets (ROA) (Tackie et al., 2022). Higher

profitability generally leads to greater taxable income and higher corporate tax obligations (Alarussi & Gao, 2021). According to Agency Theory, managers may implement financial strategies, including tax planning, to manage tax burdens and maximize firm value, which can influence the Effective Tax Rate (ETR) (Paulus & Tarmidi, 2025). However, this relationship may vary depending on a firm's financial condition, as profitable firms face higher tax liabilities, while loss firms typically have lower or no tax obligations. Research (Alkurdi et al., 2023; Chen et al., 2024; Gschossmann et al., 2026) confirm profitability affects the corporate tax effective rate, while research (Hossain et al., 2024; Lenny et al., 2024; Zhao, 2023) state otherwise.

Research Gap: These inconsistencies highlight the need to further examine the relationship between profitability and corporate tax outcomes by considering differences in firms' financial conditions, particularly between profit and loss firms.

Hypothesis:

H3: There is a difference in the effect of profitability on corporate effective tax rates between profit and loss firms.

2.11 Capital Structure Moderator of Environmental Performance on Corporate Effective Tax Rate

Debt creates interest expenses that are tax deductible, which can reduce taxable income and influence the Effective Tax Rate (ETR), thereby moderating the relationship between environmental performance and corporate tax outcomes (Saffanah & Pratama, 2025). Based on Agency Theory, profit and loss firms may adopt different tax and financing strategies, where profit firms tend to manage tax expenses more actively while maintaining environmental performance, whereas loss firms have lower incentives for tax planning due to limited taxable income. In line with Stakeholder Theory, companies also seek to balance economic objectives with stakeholder expectations regarding environmental responsibility and financial transparency (Awa et al., 2024). Research (Farooq et al., 2023; Long

[et al., 2022](#); [Shi et al., 2023](#)) confirms that environmental performance affects the corporate tax effective rate by capital structure, while research ([He et al., 2023](#); [Usman & Alola, 2023](#); [Wolde-Rufael & Mulat-weldemeskel, 2023](#)) state otherwise.

Research Gap: Previous studies on environmental performance, capital structure, and tax behavior show inconsistent results and rarely consider differences in firms' financial conditions, indicating the need to examine the moderating role of DER between environmental performance and ETR by distinguishing between profit and loss firms.

Hypothesis:

H4: There is a difference in the moderating effect of capital structure on the relationship between environmental performance and corporate effective tax rates between profit and loss firms.

2.12 Capital Structure Moderator of ESG on Corporate Effective Tax Rate

Environmental, Social, and Governance (ESG) disclosure reflects a company's commitment to sustainable practices, transparency, and accountability to stakeholders ([Aldowaish et al., 2022](#)). Companies with higher ESG disclosure often aim to demonstrate responsible governance while managing financial policies, including tax strategies that affect the Effective Tax Rate (ETR). From the Agency Theory perspective, managers may use ESG disclosure as a signal of good governance while making financing decisions, where higher leverage creates tax-deductible interest that can influence ETR. In line with Stakeholder Theory, firms also seek to maintain legitimacy and stakeholder trust through responsible financial and environmental practices. However, differences in financial conditions between profit and loss firms may create different incentives in ESG disclosure, financing decisions, and tax planning, causing the moderating role of capital structure in the relationship between ESG disclosure and ETR to vary. Research ([Elamer et al., 2024](#); [Fu & Zhang, 2025](#); [Huang et al., 2025](#))

confirm that ESG affects the corporate tax effective rate by capital structure, while research ([Huang et al., 2024](#); [Peng et al., 2025](#); [Syahputri, 2025](#)) state otherwise.

Research Gap: Previous studies have examined the relationship between ESG disclosure, capital structure, and corporate tax behavior, but the findings remain inconsistent and often do not distinguish firms based on their financial conditions. Therefore, further research is needed to examine the moderating role of capital structure in the relationship between ESG disclosure and the Effective Tax Rate (ETR), particularly by comparing profit and loss firms.

Hypothesis:

H5: There is a difference in the moderating effect of capital structure on the relationship between ESG and corporate effective tax rates between profit and loss firms.

2.13 Capital Structure Moderator of Profitability on Corporate Effective Tax Rate

Profitability reflects a firm's ability to generate earnings from its assets and operations, commonly measured using Return on Assets (ROA). Firms with higher profitability generally have greater taxable income, which may influence the Effective Tax Rate (ETR) ([Paulus et al., 2025](#)). Based on Agency Theory, managers may use financial strategies such as debt financing to reduce tax burdens through tax-deductible interest expenses. In line with Stakeholder Theory, firms must also balance financial performance with stakeholder expectations regarding transparency and responsible financial management. However, differences in financial conditions between profit and loss firms may create different incentives in managing profitability, leverage, and tax strategies, causing the moderating role of capital structure in the relationship between profitability and ETR to vary ([Paulus & Tarmidi, 2025](#)). Research ([Alkurdi et al., 2023](#); [Chen et al., 2024](#); [Gschossmann et al., 2026](#)) confirm profitability affects the corporate tax effective rate by capital structure, while research

([Hossain et al., 2024](#); [Lenny et al., 2024](#); [Zhao, 2023](#)) state otherwise.

Research Gap: Previous studies have examined the relationship between profitability, capital structure, and corporate tax behavior, but the findings remain inconsistent and often do not distinguish firms based on their financial conditions. Therefore, further research is needed to examine the moderating role of capital structure in the relationship between profitability and the Effective Tax Rate (ETR), particularly by comparing profit and loss firms.

Hypothesis:

H6: There is a difference in the moderating effect of capital structure on the relationship between profitability and corporate effective tax rates between profit and loss firms.

3. Research Methods

3.1 Research Design

This study employs a quantitative research design to examine the relationship between environmental performance, Environmental Social Governance (ESG) disclosure, profitability, and corporate effective tax rates, with capital structure acting as a moderating variable. The research aims to analyze whether differences exist in these relationships between firms that report profits and those that report losses. Quantitative methods are used to test the proposed hypotheses through statistical analysis based on secondary data obtained from corporate reports.

3.2 Research Instrument

The research instrument employed consists of secondary data extracted from companies' audited annual reports and sustainability reports. These reports provide information related to financial performance, environmental performance, ESG disclosure, and corporate tax data. The variables in this study are operationalized as follows:

1. Corporate Effective Tax Rate (ETR): measured as tax expense divided by pre-tax income ([Paulus et al., 2025](#)).
2. Environmental Performance (EP): measured using the rating from the Program for Pollution Control, Evaluation, and Rating (PROPER) issued by the Ministry of Environment and Forestry of the Republic of Indonesia ([Wulandari & Akbar, 2025](#)).
3. Environmental, Social, and Governance (ESG): measured using ESG disclosure based on the Global Reporting Initiative Standards 2021 consisting of 97 indicators ([Wulandari & Akbar, 2025](#)).
4. Profitability (ROA): measured as net income divided by total assets ([Alarussi & Gao, 2021](#)).
5. Capital Structure (DER): measured as total debt divided by total equity ([Boateng et al., 2022](#)).

All variables are expressed as ratios or percentages according to the respective measurement formulas.

3.3 Population and Sampel

The population of this study consists of all companies in the Basic Materials sector listed on the Indonesia Stock Exchange (IDX) during the period 2019–2024. Based on data obtained from the IDX, a total of 110 companies were identified as belonging to this sector during the observation period.

This study employs a purposive sampling technique, in which samples are selected based on specific criteria that align with the objectives of the research. The initial population includes all 110 Basic Materials sector companies listed on the IDX during the study period. From this population, companies that did not participate in the PROPER program during the 2019–2024 period were excluded from the sample. This exclusion resulted in the removal of 83 companies from the initial population. After applying the sampling criteria, the final sample consisted of 27 companies that met all the requirements of the study. These companies also had available PROPER environmental performance data, which enabled the analysis of

environmental-related variables within the research framework.

The observation period covers six years, from 2019 to 2024. With 27 sampled firms observed across six years, the study generated 162 firm-year observations. Furthermore, the 162 observations were classified according to the firms' financial performance status. Observations in which companies reported positive profits were included in Model 1 and Model 2, resulting in 131 observations. In contrast, observations in which companies experienced financial losses were analyzed separately in Model 3, comprising 31 observations. This classification enables a more detailed examination of the relationships between the research variables under different financial conditions, particularly between profitable firms and loss-making firms.

3.4 Data Collection Techniques

This study uses secondary data from the annual reports and financial statements of Basic Materials sector companies listed on the Indonesia Stock Exchange (IDX) for the 2019–2024 period. Financial data were obtained from

the IDX and company websites, while environmental performance data were collected from PROPER ratings issued by the Ministry of Environment and Forestry. The data were compiled into a panel dataset for further statistical analysis.

3.5 Data Analysis Techniques

The data in this study were analyzed using panel data regression with the assistance of EViews 13. The analysis included descriptive statistics and model estimation using the Common Effect Model (CEM), Fixed Effect Model (FEM), and Random Effect Model (REM). The best model was selected using the Chow, Hausman, and Lagrange Multiplier (LM) tests. Hypothesis testing was conducted using t-tests and F-tests, while the coefficient of determination (R^2) was used to assess the explanatory power of the model.

4. Results and Discussion

4.1 Research Results

4.1.1 Model Selection Testing

The result of model selection testing are presented in **Table 1** below:

Table 1. Model Selection

Testing	Prob	Result
Chow	0.008	FEM
Hausman	0.889	REM
Langrange Multiplier	0.058	CEM

Source: *EViews 13 Output, (2026)*

Model selection was conducted using the Chow, Hausman, and Lagrange Multiplier tests. The Chow test result ($p = 0.008$) indicates the preference for the Fixed Effect Model (FEM). However, the Hausman test ($p = 0.889$) suggests that the Random Effect Model (REM) is more appropriate. Meanwhile, the Lagrange

Multiplier test ($p = 0.058$) indicates the suitability of the Common Effect Model (CEM).

4.1.2 Descriptive Analysis

The result of descriptive analysis are presented in Table 2 below:

Table 2. Statistics Descriptive

	ETR	EP	ESG	ROA	DER
Mean	23.835	3.395	85.920	3.386	1.067
Median	23.328	3.000	85.066	3.106	0.671
Maximum	287.723	5.000	100.000	26.560	8.232
Minimum	-78.723	1.000	67.796	-18.796	0.070

Std. Dev.	33.278	0.767	7.656	5.970	1.324
Obs	162	162	162	162	162

Source: EViews 13 Output, (2026)

Table 2 shows the descriptive statistics of the research variables based on 162 observations. The Corporate Effective Tax Rate (ETR) has an average value of 23.835 with a median of 23.328, indicating that, on average, companies pay taxes close to the statutory level, although the large standard deviation 33.278 and the wide range from -78.723 to 287.723 indicate substantial variation in tax burden among firms. Environmental Performance (EP) has a mean value of 3.395 with values ranging from 1 to 5, suggesting that most firms achieve a relatively good environmental rating based on the PROPER assessment. Meanwhile, the ESG score records a high average of 85.920 with a minimum of 67.796 and a maximum of 100,

indicating that companies generally demonstrate strong ESG disclosure practices.

In terms of financial performance, Profitability (ROA) has an average of 3.386 with values ranging from -18.796 to 26.560, reflecting that some firms experience losses while others generate relatively high returns on assets. Capital Structure (DER) shows an average value of 1.067, with a maximum of 8.232, indicating that several companies rely heavily on debt financing compared to equity.

4.1.3 Hypothesis Testing

The result of hypothesis testing are presented in **Table 3** below:

Table 3. Hypothesis Testing

Variabel	Model 1 Coef	Prob	Model 2 Coef	Prob	Model 3 Coef	Prob	Information
PROPER → CETR	-3.830	0.032**	-2.732	0.503	17.241	0.003***	Accepted
ESG → CETR	0.870	0.030**	0.637	0.024**	-3.584	0.008***	Rejected
ROA → CETR	0.226	0.107	-1.473	0.029**	0.511	0.001***	Rejected
DER × PROPER → CETR	4.017	0.010***	8.143	0.063	-2.794	0.004***	Accepted
DER × ESG → CETR	-3.514	0.026**	-0.446	0.009***	0.102	0.004***	Rejected
DER × ROA → CETR	-0.463	0.000***	0.825	0.460	0.045	0.567	Rejected
N	162		131		31		
F-Statistic (Prob)	0.000		0.000		0.019		
R-Square	0.392		0.478		0.854		

Source: EViews 13 Output, (2026)

Note: *p < 0.10, **p < 0.05, ***p < 0.01.

Model 1 : All data processed

Model 2: Dawa with profitable firms

Model 3: Data with loss firm

Table 3 presents the regression results for three different models. Model 1 uses all observations (162 observation), Model 2 includes only profitable firms (131 observations), and Model 3 analyzes loss-

making firms (31 observations). The statistical results indicate that all three models are jointly significant, as reflected by the F-statistic probability values of 0.000, 0.000, and 0.019, respectively, which are below the 5%

significance level. This means that the independent variables included in each model collectively explain variations in CETR.

Furthermore, the coefficient of determination (R^2) shows different levels of explanatory power across the models. Model 1 explains 39.2% of the variation in CETR, suggesting a moderate explanatory capacity when all firms are included. Model 2 increases to 47.8%, indicating that the model better explains tax rate variation when focusing on profitable firms. The highest explanatory power appears in Model 3 with an R^2 of 85.4%, suggesting that the independent and moderating variables strongly explain CETR variations among loss- firms, although this may also be influenced by the smaller sample size. These results indicate that the relationships between sustainability performance, financial characteristics, and tax outcomes may vary depending on the firms' financial performance conditions.

4.2 Research Discussion

4.2.1 Environmental Performance on Corporate Tax Effective Rate

The empirical results indicate that environmental performance has a significant effect on the corporate effective tax rate (CETR), and the hypothesis is accepted. Specifically, the findings show that there is a difference in the effect of environmental performance on CETR between profit and loss firms. This result suggests that the relationship between environmental performance and corporate tax behavior is contingent upon the firm's financial condition.

For profitable firms, environmental performance tends to be associated with a higher level of tax compliance, which is reflected in a relatively higher effective tax rate. Companies that generate profits generally face greater public scrutiny and regulatory attention, which encourages them to demonstrate responsible corporate behavior, including compliance with tax obligations. Firms with strong environmental performance are more likely to maintain transparency and

legitimacy by avoiding aggressive tax strategies that could damage their reputation. In contrast, loss firms may have different incentives, as financial pressure may encourage management to pursue tax reduction strategies or utilize tax planning mechanisms to conserve cash flows, thereby influencing the effective tax rate differently.

From the perspective of Agency Theory, the findings can be explained through the conflict of interest between managers (agents) and shareholders (principals). Managers may adopt environmental initiatives as part of a broader strategy to enhance corporate reputation and legitimacy, which can also influence financial reporting and tax decisions. In profitable firms, managers tend to prioritize long-term firm value and reputational benefits, leading to more compliant tax behavior and a higher effective tax rate. Conversely, in loss firms, managers may face pressure to improve short-term financial performance, which could encourage more aggressive tax planning practices in order to reduce tax burdens and preserve firm liquidity.

Furthermore, the results are also consistent with Stakeholder Theory, which emphasizes that firms must consider the expectations of various stakeholders such as governments, regulators, investors, and the community. Environmental performance signals a firm's commitment to sustainability and social responsibility. Firms that perform well environmentally are more likely to align their actions with stakeholder expectations, including fulfilling tax obligations as part of their social contribution. For profitable firms, maintaining good relationships with stakeholders becomes increasingly important, encouraging them to avoid aggressive tax practices. However, for firms experiencing losses, the pressure to maintain financial stability may weaken the influence of stakeholder expectations on tax compliance.

Research ([Faroq et al., 2023](#); [Long et al., 2022](#); [Shi et al., 2023](#)) confirms that environmental performance affects the corporate tax effective rate, while research (He

et al., 2023; [Usman & Alola, 2023](#); [Wolde-Rufael & Mulat-weldemeskel, 2023](#)) state otherwise. This finding supports H1, indicating that there is a difference in the effect of environmental performance on corporate effective tax rates between profit and loss firms, suggesting that firms' financial conditions influence how environmental performance relates to corporate tax outcomes.

4.2.2 ESG on Corporate Tax Effective Rate

The results of this study indicate that the proposed hypothesis is rejected, meaning that there is no consistent difference in the effect of Environmental, Social, and Governance (ESG) on corporate effective tax rates between profitable firms and loss-making firms. Although ESG performance is associated with corporate tax behavior, the findings suggest that ESG does not systematically differentiate how firms manage their tax obligations based on their financial condition.

ESG practices reflect a company's commitment to sustainability, ethical governance, and social responsibility, which can also influence corporate policies related to taxation. Firms that actively implement ESG principles tend to emphasize transparency and accountability in their operations, including financial reporting and tax practices. Companies with strong ESG performance often attempt to align their business strategies with responsible corporate behavior, which includes maintaining credibility and legitimacy in the eyes of regulators, investors, and the broader public.

In profitable firms, ESG performance tends to encourage responsible tax behavior. Companies that generate stable profits usually face greater public scrutiny, which motivates them to maintain a positive reputation by avoiding aggressive tax strategies. Paying taxes in accordance with applicable regulations can therefore be interpreted as part of the firm's commitment to responsible and sustainable business practices. Through this approach, firms aim to strengthen stakeholder trust and demonstrate that their ESG commitments are reflected not only in environmental and social

initiatives but also in their financial responsibilities.

However, a different dynamic can occur in firms experiencing financial losses. Companies under financial pressure may prioritize maintaining liquidity and operational stability. Under such conditions, firms may continue to disclose ESG activities to preserve legitimacy and stakeholder confidence while simultaneously implementing tax planning strategies to reduce their financial burden. This situation suggests that the presence of ESG commitments does not necessarily lead to uniform tax behavior when firms face different financial circumstances.

From the perspective of Agency Theory, the relationship between ESG and corporate tax behavior can be understood through the interaction between managers and shareholders. Managers are responsible for balancing long-term corporate reputation with short-term financial performance. The implementation of ESG practices can reduce information asymmetry and signal responsible governance. However, when firms face financial challenges, managers may adopt different financial strategies, including tax planning, to preserve firm value while maintaining ESG disclosures to signal accountability.

From the perspective of Stakeholder Theory, ESG represents the company's response to the expectations of various stakeholders such as governments, investors, customers, and society. Stakeholders increasingly expect companies to operate sustainably and contribute fairly to society, including through tax payments. In profitable firms, fulfilling tax obligations may strengthen stakeholder trust and corporate legitimacy. Conversely, firms experiencing financial difficulties may prioritize business sustainability, which can influence managerial decisions regarding tax strategies despite the continued presence of ESG commitments.

This result is in line with research ([Huang et al., 2024](#); [Peng et al., 2025](#); [Syahputri, 2025](#)). However, the hypothesis is rejected, indicating that there is no significant difference in the

effect of ESG on corporate effective tax rates between profit and loss firms, suggesting that firms' financial conditions do not significantly influence how ESG practices relate to corporate tax outcomes.

4.2.3 Profitability on Corporate Tax Effective Rate

The results of this study indicate that the proposed hypothesis is rejected, meaning that there is no consistent difference in the effect of profitability on the corporate effective tax rate between profitable firms and loss-making firms. This finding suggests that although profitability is closely related to corporate financial performance, it does not significantly differentiate how firms determine their effective tax burden when comparing companies that generate profits with those experiencing losses.

Profitability reflects a company's ability to generate earnings from its operational activities and is often used as an indicator of financial strength and managerial effectiveness. Firms with higher profitability typically have greater financial capacity and are expected to contribute more to tax payments as part of their fiscal obligations. In this context, profitable companies may face higher expectations from regulators and the public to demonstrate compliance with tax regulations, which can lead to relatively higher effective tax rates.

However, the findings suggest that the relationship between profitability and effective tax rates does not differ substantially between firms in different financial conditions. Companies that experience losses may not necessarily have higher or lower effective tax rates solely due to their profitability condition. This is because firms can utilize various accounting treatments, tax regulations, and fiscal incentives that influence the calculation of taxable income regardless of whether the firm records profits or losses in a given period. As a result, profitability alone may not be sufficient to explain variations in corporate tax outcomes across different firms.

From the perspective of Agency Theory, the relationship between profitability and corporate tax behavior can be explained through the role of managers in making strategic financial decisions. Managers are responsible for maximizing shareholder value while maintaining the company's financial stability. In profitable firms, managers may attempt to balance tax compliance with efficient tax planning strategies in order to optimize net income. Meanwhile, in firms experiencing financial difficulties, managers may adopt strategies that aim to preserve cash flow and support operational continuity, which can also influence tax-related decisions. However, these managerial considerations may occur regardless of the firm's profitability condition, leading to similar patterns in effective tax rates.

From the perspective of Stakeholder Theory, companies are expected to fulfill their responsibilities toward various stakeholders, including governments, investors, and the broader community. Tax payments represent one form of corporate contribution to society and are often viewed as part of responsible corporate conduct. Firms with strong financial performance may seek to maintain legitimacy and trust by demonstrating responsible tax behavior. At the same time, firms experiencing losses may focus on maintaining operational sustainability while still complying with regulatory obligations. Consequently, stakeholder expectations can influence corporate tax behavior across both profitable and loss-making firms.

This result is in line with ([Hossain et al., 2024](#); [Lenny et al., 2024](#); [Zhao, 2023](#)). However, the hypothesis is rejected, indicating that there is no significant difference in the effect of profitability on corporate effective tax rates between profit and loss firms, suggesting that firms' financial conditions do not significantly change how profitability relates to corporate tax outcomes. relates to corporate tax outcomes.

4.2.4 Capital Structure Moderator of Environmental Performance on Corporate Effective Tax Rate

The results of this study indicate that the proposed hypothesis is accepted, meaning that there is a difference in the moderating effect of capital structure on the relationship between environmental performance and the corporate effective tax rate between profitable firms and loss-making firms. This finding suggests that the role of capital structure, particularly the level of corporate leverage, influences how environmental performance affects corporate tax behavior under different financial conditions.

Environmental performance reflects a firm's commitment to sustainable business practices and responsible environmental management. Companies with better environmental performance tend to demonstrate greater transparency and accountability, which may also be reflected in their financial and tax policies. However, the relationship between environmental performance and corporate tax outcomes can be influenced by the firm's financing decisions, particularly the proportion of debt used in the company's capital structure.

In profitable firms, the moderating role of capital structure appears to strengthen the relationship between environmental performance and corporate tax behavior. Companies with higher leverage may utilize debt financing as part of their financial strategy to manage tax liabilities, since interest expenses from debt can reduce taxable income. At the same time, firms that maintain strong environmental performance may seek to balance financial efficiency with responsible corporate behavior to maintain credibility among investors and regulators. As a result, capital structure becomes an important factor that shapes how environmental responsibility interacts with corporate tax planning.

In contrast, the moderating role of capital structure in firms experiencing losses shows a different dynamic. Companies facing financial losses may rely more heavily on debt

financing to support operational activities and maintain liquidity. Under such circumstances, the influence of environmental performance on corporate tax outcomes may be affected by the firm's financial constraints. Firms may continue to demonstrate environmental commitments to maintain legitimacy and stakeholder trust, but the pressure to manage financial obligations may lead managers to prioritize financial sustainability when determining tax strategies.

From the perspective of Agency Theory, capital structure can influence managerial decision-making because the use of debt introduces additional monitoring mechanisms from creditors. Higher leverage increases the scrutiny of financial performance and corporate policies, including tax planning and environmental initiatives. Managers must balance the expectations of shareholders and creditors while maintaining corporate reputation through responsible environmental practices. Consequently, the interaction between environmental performance and capital structure reflects the strategic decisions of managers in managing both sustainability commitments and financial obligations.

From the perspective of Stakeholder Theory, companies are expected to maintain responsible relationships with various stakeholders, including governments, investors, creditors, and the wider community. Environmental performance signals the firm's commitment to sustainability and social responsibility, while tax payments represent a direct contribution to public welfare. Capital structure, particularly the use of debt financing, adds another layer of stakeholder interest because creditors also monitor the firm's financial stability and governance practices. Therefore, the moderating role of capital structure indicates that firms must balance environmental responsibility, financial strategy, and stakeholder expectations when determining their tax policies.

Research ([Farooq et al., 2023](#); [Long et al., 2022](#); [Shi et al., 2023](#)) confirms that environmental performance affects the corporate tax effective rate by capital structure,

while research (He et al., 2023; [Usman & Alola, 2023](#); [Wolde-Rufael & Mulat-weldemeskel, 2023](#)) state otherwise. The findings of this study support H4, indicating that there is a difference in the moderating effect of capital structure on the relationship between environmental performance and corporate effective tax rates between profit and loss firms.

4.2.5 Capital Structure Moderator of ESG on Corporate Effective Tax Rate

The results of this study indicate that the proposed hypothesis is rejected, meaning that there is no consistent difference in the moderating effect of capital structure on the relationship between Environmental, Social, and Governance (ESG) performance and the corporate effective tax rate between profitable firms and loss-making firms. This finding suggests that although capital structure plays an important role in corporate financial decisions, it does not significantly differentiate how ESG influences corporate tax behavior across firms with different financial conditions.

ESG performance represents a company's commitment to sustainable practices, ethical governance, and social responsibility. Firms with higher ESG performance generally emphasize transparency, accountability, and responsible management practices, which may also influence their approach to taxation. Companies that actively implement ESG principles often seek to maintain legitimacy and credibility among investors, regulators, and society by aligning their financial strategies with responsible corporate conduct.

Capital structure, particularly the use of debt financing, is commonly associated with tax planning strategies because interest expenses from debt can reduce taxable income. In theory, companies with higher leverage may have greater opportunities to manage their tax burden through financial structuring. However, the findings of this study suggest that the interaction between ESG performance and capital structure does not create a meaningful difference in corporate effective tax rates

between profitable and loss-making firms. This indicates that ESG commitments may influence corporate governance and reputation, but the presence of debt financing does not necessarily strengthen or weaken this relationship across different financial conditions.

From the perspective of Agency Theory, capital structure can serve as a mechanism to reduce agency conflicts between managers and shareholders. The use of debt introduces monitoring by creditors, which can influence managerial behavior and encourage greater discipline in financial decision-making. Managers who adopt ESG practices may attempt to signal responsible governance and transparency to both shareholders and creditors. However, the absence of a significant moderating effect suggests that managerial decisions regarding ESG and tax strategies may be influenced more by internal governance policies and reputational considerations than by the company's leverage structure.

From the perspective of Stakeholder Theory, ESG initiatives reflect the company's effort to address the expectations of various stakeholders, including investors, regulators, communities, and governments. Stakeholders increasingly expect companies to operate responsibly and contribute to society, including through fair tax payments. While capital structure introduces additional stakeholders such as creditors who monitor financial stability, the findings suggest that this financial dimension does not substantially alter the way ESG performance relates to corporate tax behavior across firms with different profitability conditions.

Research ([Elamer et al., 2024](#); [Fu & Zhang, 2025](#); [Huang et al., 2025](#)) confirm that ESG affects the corporate tax effective rate by capital structure. However, the results of this study reject H5, indicating that there is no significant difference in the moderating effect of capital structure on the relationship between ESG and corporate effective tax rates between profit and loss firms.

4.2.6 Capital Structure Moderator of Profitability on Corporate Effective Tax Rate

The results of this study indicate that the proposed hypothesis is rejected, meaning that there is no consistent difference in the moderating effect of capital structure on the relationship between profitability and the corporate effective tax rate between profitable firms and loss-making firms. This finding suggests that the presence of debt within a firm's capital structure does not significantly alter how profitability influences corporate tax outcomes across different financial conditions.

Profitability represents a firm's ability to generate earnings from its operational activities and is commonly associated with the company's capacity to fulfill its financial obligations, including tax payments. Companies with higher profitability generally possess greater financial resources and may face stronger expectations from regulators and stakeholders to demonstrate responsible tax compliance. As a result, profitability is often considered an important factor in explaining corporate tax behavior. However, the results indicate that the influence of profitability on effective tax rates does not significantly change when considering the role of capital structure in firms with different financial conditions.

Capital structure, particularly the use of debt financing, is frequently linked to corporate tax planning because interest expenses on debt can reduce taxable income. In theory, firms with higher leverage may utilize debt as a financial strategy to manage their tax burden. Nevertheless, the findings suggest that the interaction between profitability and capital structure does not create a meaningful difference in effective tax rates when comparing profitable and loss-making firms. This implies that the tax implications of leverage and profitability may operate independently, rather than interactively, in shaping corporate tax outcomes.

From the perspective of Agency Theory, capital structure can function as a governance mechanism that influences managerial behavior. The use of debt introduces monitoring

by creditors, which can reduce agency conflicts and encourage managers to make more disciplined financial decisions. Managers in profitable firms may attempt to balance tax efficiency with long-term corporate reputation, while managers in firms facing financial challenges may prioritize financial stability and liquidity. However, the absence of a moderating effect indicates that managerial decisions related to profitability and tax strategies may not be significantly influenced by the firm's leverage structure.

From the perspective of Stakeholder Theory, companies are expected to consider the interests of multiple stakeholders, including investors, creditors, regulators, and society. Tax payments are often viewed as part of a firm's contribution to public welfare, while profitability reflects the firm's ability to generate economic value. Capital structure introduces additional stakeholder interests, particularly from creditors who monitor financial performance and stability. However, the findings suggest that the presence of debt does not substantially change how profitability relates to corporate tax outcomes across firms with different financial conditions. This result supported by research ([Hossain et al., 2024](#); [Lenny et al., 2024](#); [Zhao, 2023](#)). The results of this study reject the hypothesis, indicating that there is no significant difference in the moderating effect of capital structure on the relationship between profitability and corporate effective tax rates between profit and loss firms.

5. Conclusion

5.1 Summary of Key Findings

This subsection summarizes the main empirical findings in relation to the research objectives examining the effect of environmental performance, Environmental, Social, and Governance (ESG), and profitability on corporate effective tax rates, as well as the moderating role of capital structure under different firm financial conditions. The results show that environmental performance influences corporate effective tax rates and the

effect differs between profitable firms and firms experiencing losses, indicating that environmental responsibility can shape corporate tax behavior depending on the firm's financial condition. ESG performance is also associated with corporate effective tax rates, but the relationship does not show a consistent difference between profitable and loss firms, suggesting that sustainability and governance practices influence corporate transparency and responsibility but do not necessarily differentiate tax behavior across financial conditions.

In contrast, profitability does not show a consistent difference in its relationship with corporate effective tax rates between profitable and loss-making firms, indicating that tax outcomes are not solely determined by profitability levels. The moderating analysis shows that capital structure strengthens the relationship between environmental performance and corporate effective tax rates and this effect differs between profitable and loss firms. However, capital structure does not significantly moderate the relationship between ESG and corporate effective tax rates nor the relationship between profitability and corporate effective tax rates across firms with different financial conditions.

5.2 Theoretical Contributions

This study contributes to the development of Agency Theory and Stakeholder Theory in explaining corporate tax behavior. The findings extend prior literature by showing that environmental performance influences corporate effective tax rates and that its effect differs depending on the firm's financial condition, indicating that sustainability practices can shape corporate tax decisions under different profitability contexts. The results also refine the discussion on ESG by suggesting that although ESG performance is related to corporate tax outcomes, it does not consistently differentiate tax behavior between profitable and loss firms, implying that ESG functions more as a governance and reputational mechanism rather than a

determinant of distinct tax strategies. In addition, the study highlights the role of capital structure as a moderating factor in the relationship between environmental performance and corporate effective tax rates, supporting the view in Agency Theory that financing decisions can influence managerial policies and financial strategies. However, the absence of moderating effects of capital structure on ESG and profitability relationships indicates that corporate tax behavior is influenced by broader governance considerations and stakeholder expectations rather than solely by financial structure.

5.3 Practical and Policy Implications

The findings provide practical implications for managers, investors, and policymakers regarding the relationship between sustainability practices and corporate tax behavior. For managers, the results highlight the importance of integrating environmental performance and ESG practices into corporate governance and financial strategies, including responsible tax management, to maintain corporate legitimacy and stakeholder trust under different financial conditions. For investors and stakeholders, environmental performance and ESG can serve as indicators of corporate responsibility and governance quality in assessing long-term sustainability and risk. From a policy perspective, the results suggest the need for stronger policies encouraging environmental performance, ESG disclosure, and transparency in corporate tax reporting to enhance corporate accountability and public trust.

5.4 Limitations of the Study

This study has several limitations that should be considered when interpreting the findings. The analysis is limited to companies in the Basic Materials sector listed on the Indonesia Stock Exchange during the 2019–2024 period, which may restrict the generalizability of the results to other industries with different characteristics. In addition, the sample is limited to firms

participating in the PROPER environmental performance program, which reduced the initial population and may not represent companies that do not participate in the program. The classification of observations into profitable and loss-making firms also resulted in an unequal distribution of data, with fewer observations for loss firms, which may influence the comparison across financial conditions. Furthermore, the study relies on secondary data from financial statements and sustainability disclosures, whose quality depends on the consistency and completeness of corporate reporting.

5.5 Directions for Future Research

Future research is recommended to expand the scope of analysis by including companies from different sectors or broader market contexts to improve the generalizability of the findings. Further studies may also consider extending the observation period and increasing the sample size to obtain more balanced data between profitable and loss-making firms. In addition, future research can incorporate additional variables such as corporate governance mechanisms, regulatory factors, or managerial incentives to provide a more comprehensive understanding of corporate tax behavior. Applying alternative methodological approaches or comparative cross-country analyses may also offer deeper insights into how sustainability practices and financial structures influence corporate effective tax rates in different institutional environments.

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