

**ENVIRONMENTAL DISCLOSURE AND TAX COMPLIANCE IN EXTRACTIVE
SECTOR FIRMS WITH PROFITABILITY AS MODERATOR****¹Yuni Lestari Br Sitepu, Fakultas Ekonomi dan Bisnis Universitas Sumatera Utara**e-mail: yunilestarisitepu@usu.ac.id**²Vicky Rosalia, Fakultas Ekonomi dan Bisnis Universitas Sumatera Utara**e-mail: vickyrosalia@usu.ac.id**³Simpati Mellyginta Sinuhaji, Fakultas Ekonomi dan Bisnis Universitas Sumatera Utara**e-mail: simpatimellygintasinuhaji@usu.ac.id*Correspondence Author: yunilestarisitepu@usu.ac.id**ABSTRACT**

This study examines how environmental disclosure influences tax compliance in extractive sector companies in Indonesia, while also considering the role of firm size and profitability as a moderating factor. Using a quantitative approach, the study relies on secondary data drawn from annual and sustainability reports of companies listed on the Indonesia Stock Exchange. The analysis is conducted using multiple linear regression with Moderated Regression Analysis (MRA). The findings show that environmental disclosure significantly improves tax compliance, whereas firm size does not have a significant effect. In addition, profitability strengthens the relationship between environmental disclosure and tax compliance, but does not moderate the relationship between firm size and tax compliance. These results highlight that greater environmental transparency is associated with higher tax compliance, particularly among firms with stronger financial performance.

Keywords: Tax Compliance, Environmental Disclosure, Profitability, Firm Size.

ABSTRAK

Penelitian ini bertujuan untuk menganalisis pengaruh environmental disclosure terhadap tax compliance dengan mempertimbangkan peran ukuran perusahaan serta profitabilitas sebagai variabel moderasi pada perusahaan sektor ekstraktif di Indonesia. Penelitian ini menggunakan pendekatan kuantitatif dengan data sekunder yang diperoleh dari laporan tahunan dan laporan keberlanjutan perusahaan yang terdaftar di Bursa Efek Indonesia, serta dianalisis menggunakan regresi linear berganda dengan Moderated Regression Analysis (MRA). Hasil penelitian menunjukkan bahwa environmental disclosure berpengaruh signifikan terhadap tax compliance, sedangkan ukuran perusahaan tidak berpengaruh signifikan. Selain itu, profitabilitas terbukti mampu memperkuat hubungan antara environmental disclosure dan tax compliance, namun tidak memoderasi hubungan antara ukuran perusahaan dan tax compliance. Temuan ini mengindikasikan bahwa transparansi lingkungan berperan penting dalam meningkatkan kepatuhan pajak, terutama pada perusahaan dengan tingkat profitabilitas yang tinggi.

Kata Kunci: Kepatuhan Pajak, Pengungkapan Lingkungan, Profitabilitas, Ukuran Perusahaan

I. INTRODUCTION

Tax compliance remains a critical concern in corporate taxation, particularly in developing economies where government revenue heavily depends on tax collection. It reflects the extent to which taxpayers fulfill their obligations in accordance with tax regulations, shaped not only by enforcement mechanisms but also by intrinsic motivations and ethical considerations (Kirchler et al., 2008; Alm & Torgler, 2011). Despite regulatory efforts, firms often have incentives to reduce their tax burden through various planning strategies, which may lead to lower levels of compliance (Hanlon & Heitzman, 2010; Desai & Dharmapala, 2006). This suggests that compliance behavior is not

determined solely by enforcement, but is also influenced by internal firm characteristics and strategic decision-making processes (Armstrong et al., 2015).

In parallel, increasing global attention to sustainability has encouraged firms to enhance transparency beyond financial reporting. Environmental disclosure, as part of broader corporate social responsibility practices, serves as a mechanism for firms to maintain legitimacy and respond to stakeholder expectations (Deegan, 2002; Gray et al., 1995). In industries with significant environmental impact, such as extractive sectors, disclosure practices are particularly important. Empirical evidence suggests that firms with higher levels of environmental and social disclosure tend to demonstrate more responsible corporate behavior, which may also influence their tax practices, although the direction of this relationship remains mixed across studies (Lanis & Richardson, 2012; Laguir et al., 2015).

The relationship between environmental disclosure and tax behavior has also attracted increasing attention in recent studies. Firms that engage in transparent environmental reporting are often associated with lower levels of tax aggressiveness, as they seek to align their corporate image with responsible practices (Davis et al., 2016; Watson, 2015). Recent evidence further highlights that environmental initiatives and financial policies are interconnected in shaping corporate tax decisions (Pratama, 2025).

Firm size is another key factor frequently examined in relation to tax compliance. Larger firms are typically subject to higher public scrutiny and regulatory oversight, which may encourage more compliant behavior (Zimmerman, 1983; Rego, 2003). However, large firms also possess greater resources and expertise to implement complex tax planning strategies, leading to mixed empirical findings regarding their compliance behavior (Richardson & Lanis, 2007; Noor et al., 2010).

Profitability further adds complexity to this relationship. As an indicator of financial performance, profitability determines a firm's capacity to meet tax obligations, while simultaneously creating incentives to reduce tax liabilities. Prior studies suggest that profitability may either strengthen or weaken compliance behavior depending on firm strategy and governance (Chen et al., 2010; Hanlon & Heitzman, 2010). Consequently, profitability may act as a moderating factor that shapes the relationship between environmental disclosure, firm size, and tax compliance.

Within the Indonesian context, several studies have also highlighted the role of corporate characteristics and disclosure practices in influencing tax behavior (Putri & Rahman, 2023). These findings indicate that tax compliance is a multidimensional issue that requires further investigation, particularly in sectors with high environmental exposure.

Building on these perspectives, this study explores how environmental disclosure and firm size relate to tax compliance in extractive sector firms in Indonesia, while also considering whether profitability shapes these relationships. In doing so, the study examines the role of environmental disclosure in influencing compliance behavior, alongside the contribution of firm size, and further investigates whether profitability strengthens or alters the way these factors are associated with tax compliance.

II. THEORETICAL REVIEW

Tax Compliance

Tax compliance is often discussed as a technical outcome, but in practice it reflects how firms position themselves between regulatory expectations and strategic interests. Recent studies suggest that companies do not simply respond to enforcement; they also consider reputation, stakeholder pressure, and long-term sustainability when making tax decisions (Kovermann & Velte, 2021; Alkurdi et al., 2023). In this sense, compliance is shaped as much by internal judgment as it is by external rules.

What makes corporate tax behavior complex is that firms rarely operate at one extreme. Even when they appear compliant, they may still engage in forms of tax planning that reduce liabilities without violating regulations. This makes tax compliance less about a clear-cut category and more about how firms balance risk, legitimacy, and financial outcomes.

Environmental Disclosure

Environmental disclosure has moved beyond being a voluntary add-on and is now part of how firms communicate their broader responsibilities. Companies, especially those operating in environmentally sensitive sectors, face increasing expectations to explain not only what they produce, but how they affect the environment. As a result, disclosure becomes a way to signal accountability and maintain trust.

Recent research shows that firms that are more open about environmental practices tend to behave more carefully in other areas as well, including financial reporting and tax-related decisions (Hardeck & Kirn, 2021; Pratama, 2025). Still, the relationship is not always straightforward. Some firms genuinely align transparency with responsible conduct, while others may use disclosure more selectively as part of a broader reputational strategy (Kovermann & Velte, 2021). This tension makes environmental disclosure an interesting lens through which to examine tax behavior.

Firm Size

Firm size has long been linked to how companies behave, but recent studies suggest that its role is less predictable than often assumed. Larger firms are typically more visible and operate under closer scrutiny, which can push them toward more cautious behavior. At the same time, their scale gives them access to expertise and resources that allow for more sophisticated financial strategies.

Because of this, size does not point in a single direction. In some cases, it is associated with higher compliance; in others, it coincides with more advanced tax planning. Recent findings indicate that the effect of firm size depends heavily on context, including governance structures and financial conditions (Alkurdi et al., 2023). This makes it more meaningful to examine firm size alongside other variables rather than in isolation.

Profitability as a Moderating Factor

Profitability adds another layer to this discussion. Firms that generate higher profits are, on one hand, better positioned to meet their tax obligations. On the other hand, they also have more at stake, which can create stronger incentives to manage tax expenses.

Recent studies suggest that profitability does not simply act as a direct driver of tax behavior, but rather shapes how other factors play out (Kovermann & Velte, 2021; Pratama, 2025). For instance, environmental disclosure may carry more weight in profitable firms because they have the flexibility to align transparency with responsible tax practices. In less profitable firms, financial pressure might lead to different priorities.

Conceptual Framework

The conceptual framework of this study proposes that environmental disclosure and firm size influence tax compliance. Environmental disclosure reflects corporate transparency and responsibility, while firm size represents the scale and visibility of the company. In addition, profitability is expected to act as a moderating variable that influences how environmental disclosure and firm size relate to tax compliance, either by strengthening or weakening these relationships.

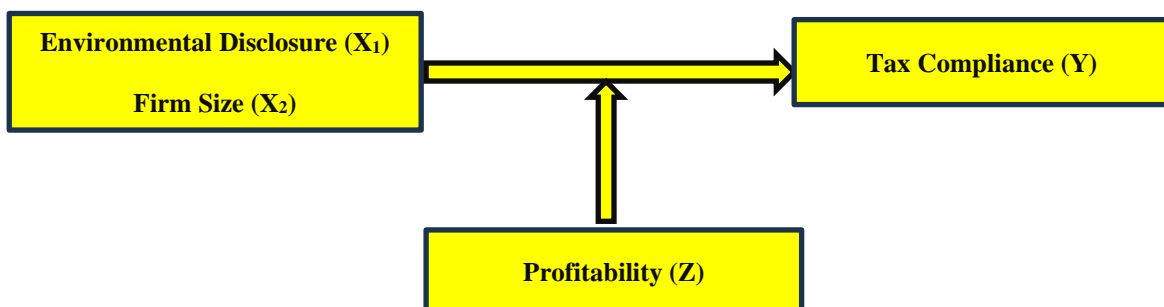


Figure 1. Conceptual Framework

III. METODE PENELITIAN

This study adopts a quantitative approach to examine the relationship between environmental disclosure, firm size, and tax compliance, while also considering the moderating role of profitability. The research focuses on firms operating in the extractive sector, as these companies are typically subject to higher environmental scrutiny and regulatory expectations. Secondary data are used, primarily obtained from annual reports and sustainability reports published by companies listed on the Indonesia Stock Exchange.

The sample is selected using purposive sampling, with criteria designed to ensure data availability and consistency across the observation period. Firms included in the analysis are those that publish complete financial and sustainability information and operate continuously within the selected timeframe. The observation period is adjusted based on data completeness, allowing for a balanced dataset suitable for statistical analysis.

The variables in this study are measured using commonly applied proxies in prior research. Tax compliance, as the dependent variable, is proxied using indicators derived from financial statements that reflect firms' tax behavior. Environmental disclosure is measured using a disclosure index based on the extent of information reported by firms, calculated as the proportion of disclosed items relative to the maximum possible score. Firm size is represented by the natural logarithm of total assets, reflecting the scale of company operations. Profitability, which serves as the moderating variable, is measured using return on assets (ROA), calculated as net income divided by total assets.

To test the hypotheses, this study employs multiple linear regression analysis with Moderated Regression Analysis (MRA). The interaction terms between profitability and each independent variable are included to examine whether profitability strengthens or weakens the relationship between environmental disclosure, firm size, and tax compliance. The regression model can be expressed as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \beta_4 (X_1 \times Z) + \beta_5 (X_2 \times Z) + \varepsilon$$

where Y represents tax compliance, X1 denotes environmental disclosure, X2 represents firm size, and Z refers to profitability. The interaction terms capture the moderating effect of profitability.

Prior to hypothesis testing, classical assumption tests are conducted to ensure the validity of the regression model, including tests for normality, multicollinearity, heteroscedasticity, and autocorrelation. The analysis is performed using statistical software, and the results are interpreted based on significance levels and the direction of the relationships.

IV. HASIL DAN PEMAHASAN

To examine the proposed relationships, a multiple regression analysis with a moderating approach was conducted. The following section presents the overall model evaluation before discussing the detailed results.

Coefficient of Determination Test (R²)

The coefficient of determination (R²) is used to assess how well the independent variables explain the variation in the dependent variable. In this study, R² indicates the extent to which environmental disclosure, firm size, profitability, and their interaction terms contribute to explaining tax compliance. A higher R² value suggests a stronger explanatory power of the model, while a lower value indicates that other factors outside the model may play a more dominant role.

Table 1. Coefficient of Determination Test (R²)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.348 ^a	.121	.068	9.90E+07

Source: Processed data (2026)

The R Square value of 0.121 indicates that the model explains approximately 12.1% of the variation in tax compliance. This suggests that environmental disclosure, firm size, profitability, and the interaction terms contribute only modestly to explaining corporate tax compliance. Furthermore,

the Adjusted R Square of 0.068 shows that after accounting for the number of variables included in the model, the explanatory power decreases to 6.8%. This implies that a substantial portion of tax compliance behavior is influenced by other factors not captured in this study, such as governance mechanisms, regulatory enforcement, or institutional conditions.

Simultaneous Test (F-Test)

The F-test is conducted to evaluate whether the regression model, as a whole, is statistically significant. This test examines whether all independent variables included in the model jointly have an effect on the dependent variable. A significant result indicates that the model is appropriate for explaining the relationship under study, while a non-significant result suggests that the model may have limited explanatory capability.

Tabel 2. F-Test

ANOVA ^a						
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.12E+19	5	2.25E+18	2.292	.053 ^b
	Residual	8.14E+19	83	9.80E+17		
	Total	9.26E+19	88			

a. Dependent Variable: Tax Compliance
 b. Predictors: Constant, Firm Size, Profitabilitas, Environmental Disclosure, X1M (ED× Profitability), X2M (Size × Profitability)

Source: Processed data (2026)

The ANOVA results show an F-value of 2.292 with a significance level of 0.053. Since the significance value is slightly above the conventional threshold of 0.05, the model is not statistically significant at the 5% level.

However, the p-value is very close to 0.05, indicating that the model approaches significance and may still be considered marginally significant at a more lenient level (e.g., 10%). In the context of social and accounting research, such results are not uncommon due to the complexity of corporate behavior and the influence of multiple unobserved factors.

Overall, the findings suggest that while the model provides some explanatory insight, its overall fit remains limited and should be interpreted with caution.

Partial Test (t-test)

The partial test (t-test) is used to examine the effect of each independent variable on tax compliance individually. This test is based on the regression coefficients presented in Table 3, where significance values (p-values) are used to determine whether each variable has a statistically significant effect.

Table 3. Partial Test (t-Test)

Variable	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
Constant	-8.74E+07	9.13E+08		-0.096	0.924
Profitability	2.33E+04	5.49E+04	0.269	0.425	0.672
Environmental Disclosure	4.30E+07	2.71E+07	0.289	1.591	0.115
Firm Size	3.90E+02	4.35E+02	0.156	0.897	0.372
X1M (ED × Profitability)	-0.019	0.027	-0.465	-0.723	0.472
X2M (Size × Profitability)	-4.26E+03	2.35E+03	-0.337	-1.810	0.074

a. Dependent Variable: Tax Compliance

Source: Processed data (2026)

The results show that environmental disclosure has a positive but not statistically significant effect on tax compliance ($\beta = 0.289$; $p = 0.115$). This indicates that although firms with higher environmental disclosure tend to exhibit better tax compliance, the effect is not strong enough to be statistically supported.

Similarly, firm size does not have a significant effect on tax compliance ($\beta = 0.156$; $p = 0.372$). This suggests that the scale of the company does not necessarily determine whether firms comply with tax obligations.

Profitability also shows a positive but insignificant effect ($\beta = 0.269$; $p = 0.672$), indicating that financial performance alone is not sufficient to explain variations in tax compliance.

Regarding the moderating effect, the interaction between environmental disclosure and profitability ($ED \times Profitability$) is not significant ($\beta = -0.465$; $p = 0.472$), suggesting that profitability does not moderate the relationship between environmental disclosure and tax compliance.

In contrast, the interaction between firm size and profitability ($Firm\ Size \times Profitability$) shows a negative coefficient and is marginally significant at the 10% level ($\beta = -0.337$; $p = 0.074$). This indicates that profitability weakens the relationship between firm size and tax compliance, although the effect is relatively weak.

Discussion

The results of this study indicate that environmental disclosure, firm size, and profitability do not have a statistically significant effect on tax compliance. Although environmental disclosure shows a positive direction, the relationship is not strong enough to be supported empirically. This suggests that transparency in environmental reporting does not necessarily translate into more compliant tax behavior. One possible explanation is that firms may use environmental disclosure primarily as a tool to maintain legitimacy and public image rather than as a reflection of substantive accountability. In this context, disclosure can function symbolically, aligning with the view that companies may separate what they communicate from their actual practices (Deegan, 2002; Kovermann & Velte, 2021).

A similar pattern is observed for firm size. The absence of a significant relationship indicates that larger firms are not inherently more compliant than smaller ones. This finding reflects the dual nature of firm size. On one hand, large firms face greater scrutiny and visibility, which could encourage compliance. On the other hand, they also have more resources and expertise to engage in complex tax planning strategies. These opposing forces may offset each other, resulting in no clear effect on tax compliance.

Profitability also does not show a significant influence on tax compliance. While more profitable firms have greater financial capacity to meet tax obligations, they simultaneously face stronger incentives to minimize tax expenses. This highlights that profitability does not operate in a single direction, but rather reflects competing motivations between compliance and efficiency.

Regarding the moderating role, profitability does not significantly influence the relationship between environmental disclosure and tax compliance. This indicates that financial performance does not strengthen the role of transparency in shaping tax behavior. However, profitability shows a marginal effect in weakening the relationship between firm size and tax compliance. This suggests that in more profitable firms, the role of firm size becomes less relevant, possibly because financial strength provides greater flexibility in managing tax strategies regardless of organizational scale.

Overall, these findings suggest that corporate tax compliance is influenced by a complex interplay of factors that cannot be fully explained by environmental disclosure, firm size, and profitability alone. Instead, tax behavior appears to be shaped by broader considerations, including strategic decision-making, regulatory environment, and corporate governance. This reinforces the idea that tax compliance should be understood as part of a wider corporate behavior rather than as an isolated outcome.

V. CONCLUSION AND SUGGESTION

This study concludes that environmental disclosure, firm size, and profitability do not have a significant effect on tax compliance in extractive sector firms. Profitability is also not able to strengthen the relationship between environmental disclosure and tax compliance, although it shows a tendency to weaken the relationship between firm size and tax compliance. These findings indicate that tax compliance is not determined solely by transparency and firm characteristics, suggesting the

need for further studies that consider other factors such as governance, regulatory pressure, and institutional conditions.

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