

Analysis of Greenwashing Measurement on Internal Company Factors in Indonesia

Dianto Kurnia Parulian Sinaga, Zuliani Dalimunthe

Universitas Indonesia

Email: dianto.kurnia31@ui.ac.id

ABSTRACT

This research addresses the critical need to understand the relationship between internal company factors and greenwashing practices in Indonesia's emerging ESG landscape. With increasing investor focus on environmental claims and regulatory scrutiny of corporate sustainability reporting, understanding the drivers of greenwashing has become essential for market transparency and investor protection. This research investigates the relationship between internal company factors and greenwashing risk using data from 30 Indonesian-listed firms on the ESG Leader index from 2021-2023. Employing a linear regression panel data model, the research examines the influence of tax ratio, state-owned enterprise status, profit margin, and capital structure on greenwashing, while controlling for firm size, cash flow, and board size. The findings indicate a significant negative relationship between profit margin and greenwashing risk, suggesting that financially healthier companies are less prone to greenwashing. A higher effective tax rate is associated with lower greenwashing activities. Conversely, cash flow from operations and firm size positively correlate with greenwashing risk. No significant influence was found for state-owned enterprise status or capital structure. The research highlights the crucial role of corporate profitability and tax management in mitigating greenwashing, while noting that larger, cash-rich firms may be more susceptible to such practices.

KEYWORDS Corporate Finance, ESG Performance, Greenwashing, Sustainability



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INTRODUCTION

The concept of 'greenwashing' is getting attention from investors and regulators. Peng & Xie, 2024 defined greenwashing as the dissemination of misleading information to give an impression of environmental performance. Greenwashing is an action that misleads consumers about the environmental practices of a company—referred to as company-level greenwashing—or the environmental benefits of a product or service, referred to as product-level greenwashing (Delmas & Burbano, 2011). ESG greenwashing is defined as a phenomenon where companies disclose a great amount of ESG information, but the reality is the contrary (M. Li & Chen, 2024). These days, companies all over the world have adopted greenwashing practices (Taylor & Francis, 2024). Wang et al., 2023 noted that the growth of sustainable development and awareness of ESG are becoming a concern of investors, stakeholders, and businesses. This means that businesses are under pressure to be seen as

running sustainable businesses and supporting environmental and social considerations and good governance (Treepongkaruna, Kyaw, & Jiraporn, 2024).

This research uses data from listed firms in Indonesia to investigate the relationship between the firm's internal factors and its greenwashing risk. The research motivations are as follows. First, prior studies have examined the effect of greenwashing risk on internal factors such as products (Delmas & Burbano, 2011), executive pay (M. Li & Chen, 2024), tax planning (Souguir et al., 2024), and external factors such as investor visits (M. Zhang & He, 2025) and regulations (Delmas & Burbano, 2011). However, in addition to the capital market performance of the firms related to greenwashing, the internal factors of firms' financial performance need to be explored. This research attempts to fill the gap and provide more perspectives and empirical evidence from Indonesia Stock Market firms.

Indonesia, in particular, is participating in the achievement of clean or green energy as outlined in the *Kebijakan Energi Nasional* (KEN) to increase the primary energy mix by 23% or 20.9 Gigawatts (GW) by 2025. The *Dewan Energi Nasional* (DEN) has also released that the potential for renewable energy from solar energy is 3,294 GW, followed by wind energy at 159.9 GW. With the target of achieving net zero emissions by 2060, many companies have participated in shifting to using environmentally friendly materials. Several large companies, such as Semen Indonesia, have innovated their products by providing a "Green Cement" label, which has up to 40% lower carbon emissions than conventional cement (sig.id). Following this, PT Adaro Energy spun off its subsidiary, PT Adaro Andalan Indonesia, a company that runs a thermal coal business, and transformed it into a company that operates green energy projects under the name PT Alamtri Resources Indonesia (reuters.com).

In this research, the definition of "greenwashers" is companies that seem very transparent and publish large quantities of ESG data but perform poorly in ESG aspects. The Bloomberg ESG disclosure score presumes that the firm will disclose large quantities of ESG data as part of a corporate strategy to adopt greenwashing (Dorfleitner & Utz, 2023; Yu et al., 2020). ESG performance scores from previous research used ESG scores published by stock markets in China using Asset 4 (M. Li & Chen, 2024; Yu et al., 2020). This research uses ESG scores from The Indonesia Stock Exchange ESG since it has partnered with Morningstar Sustainalytics to conduct ESG assessments. Sustainalytics' controversy research identifies companies involved in incidents that could negatively impact stakeholders, the environment, or company operations. This assessment focuses more on actual implementation and the specific results achieved by the company (idx.co.id). This research uses a regression panel data model to test the normality of the variables. It also performs heteroscedasticity and multicollinearity tests to ensure the data is normally distributed and free of bias. Findings show that internal factors of the firms, which represent tax ratio (Souguir et al., 2024) and capital structure (Zheng et al., 2023), are significant in influencing greenwashing risk. Also, SOE company status is significant in influencing greenwashing risk (D. Zhang, 2023), and profit margin is significant in influencing greenwashing risk (Farza et al., 2021).

The subsequent sections of this paper are structured as follows. Section 2 details the empirical model employed, including a description of the variables and datasets utilized. Section 3 presents the primary findings, encompassing baseline regressions, analyses of endogeneity concerns, and robustness checks. Finally, Section 4 provides concluding remarks and discusses the implications of the research.

RESEARCH METHOD

A linear regression model is used to analyze the influence of the independent variables on greenwashing, with firm size, cash flow, and board size included as control variables. Due to the limitation of data, the sample consists of 30 companies which have been included in the ESG Leader index. The data used in this research is secondary, derived from the annual financial reports of publicly listed companies on the Indonesia Stock Exchange (*Bursa Efek Indonesia* - BEI) from 2021 to 2023. The research includes companies that have published both sustainability reports and financial statements. The data sources are: S&P Capital IQ for financial data, ESG scores from the Indonesia Stock Exchange in collaboration with Morningstar Sustainalytics, and ESG disclosure data from the Bloomberg database. The ESG score data is consistent with sources used in prior research, such as M. Li & Chen (2024) and Yu et al. (2020).

Dependent Variable

From earlier in this paper, the definition of greenwashing risk as firms will disclose a huge quantities of ESG data but perform poorly in ESG performance to create a positive public image. This paper is using from the previous research to quantify the greenwashing score as follow (Yu et al., 2020):

$$GW = ESG_b - ESG_i$$

where ESG_b represents ESG disclosure score and ESG_i represents ESG performance scores (M. Li & Chen, 2024).

As explained from previous research, The Bloomberg ESG disclosure score measures the amount of ESG data a firm discloses to the public but does not assess its ESG performance. It includes both positive and negative ESG information and is calculated using over 900 key indicators, such as CO2 emissions, energy consumption, workforce diversity, and political donations. Scores range from 0.1 for minimal disclosure to 100 for comprehensive disclosure of all data points tracked by Bloomberg. A higher score indicates greater transparency in ESG reporting (Yu et al., 2020).

The collaboration between the Indonesia Stock Exchange (IDX) and Morningstar Sustainalytics solidifies the validity of using the ESG Risk Rating as an indicator of ESG performance for listed companies on the IDX. Morningstar Sustainalytics' risk-based assessment methodology, which focuses on identifying material ESG risks and evaluating exposure and management quality through comprehensive data analysis, yields a rating that reflects a company's residual ESG risk. This rating, categorized on a scale from Negligible to Severe, offers a transparent and consistent metric, aligning with the needs of investors and stakeholders in measuring and comparing companies' ESG performance effectively in the Indonesian capital market, while also enhancing its attractiveness to global investors who increasingly prioritize sustainability aspects (M. Li & Chen, 2024).

Independent Variable

The independent variables in this research include the tax ratio, state-owned versus non-state-owned company status, profit margin and capital structure. Based on previous research, the tax ratio is defined as the ratio of income tax expense to net income. State-owned and non-state-owned companies are categorized using a binary indicator of 0 and 1. Profit margin indicates operational efficiency. Meanwhile, capital structure is measured by the ratio of total debt to total equity, as reported in the company's financial statements.

2.2 Model

This research applies a quantitative method using linier regression data panel as follow:

$$GW_{it} = \beta_1 + \beta_2 TR_{it} + \beta_3 SOE_{it} + \beta_4 PM_{it} + \beta_5 DER_{it} + \beta_6 Control_{it} + u_{it}$$

Where:

GW_{it}	: Greenwashing risk for company i in year t
i	: Company
t	: Year
TR_{it}	: Tax ratio for company i in year t
SOE_{it}	: BUMN/Non-BUMN status for company i in year t
PM_{it}	: Profit margin for company i in year t
DER_{it}	: Debt-to-equity ratio for company i in year t
$Control_{it}$	: Control variables (firm size, cash flow, board size)
u_{it}	: Error term

As explained by earlier research, firm size typically have a cheaper cost of capital for engage in green investments due to having a better access to capital market. Firm size is using natural logarithm of a firm's total book value. (Liu et al., 2023; Souguir et al., 2024; Yu et al., 2020). Cashflow is measured by natural logarithm from cashflow from operations and board size.

Descriptive statistics and correlations

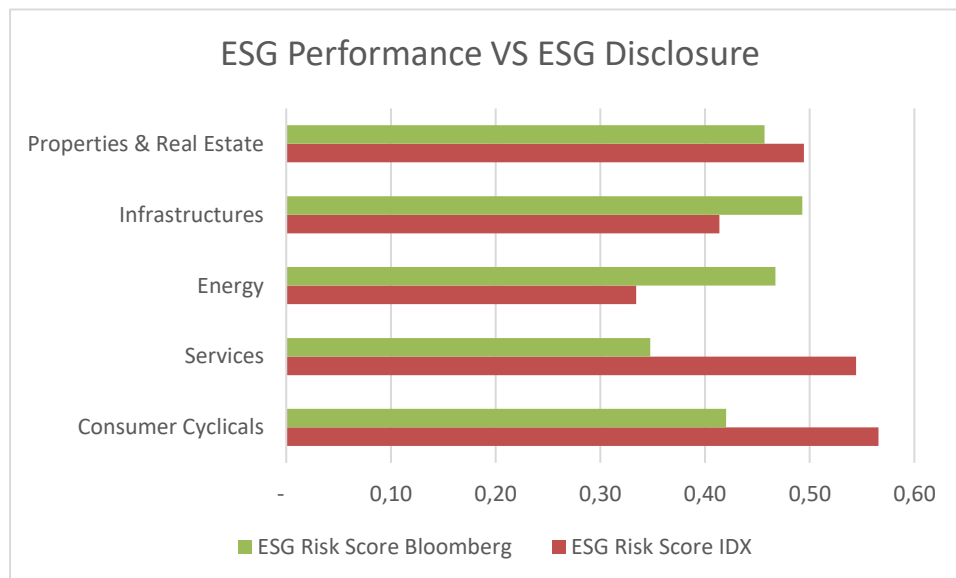


Figure 1. ESG Performance VS ESG Disclosure

Analysis of the sample across five industrial sectors—namely property, infrastructure, energy, services and media, and consumer goods—reveals notable disparities in ESG-related practices. As illustrated in Figure 4.1, the energy and infrastructure sectors, on average, exhibit higher ESG disclosure scores relative to their actual ESG performance. This discrepancy suggests a potential risk of greenwashing, wherein firms may emphasize disclosure and communication over substantive environmental practices. In contrast, firms operating within the services and media sector as well as the consumer goods sector display the opposite trend: their ESG performance tends to exceed the level of disclosure. This pattern implies a stronger commitment to tangible, sustainability-oriented operational practices, likely driven by the need to maintain consumer trust and credibility in their environmental claims. The alignment between action and communication in these sectors indicates a more authentic integration of sustainability into core business strategies.

The observed divergence between ESG disclosure and performance carries significant implications for the interpretation of corporate ESG engagement. Elevated Bloomberg ESG

scores in conjunction with comparatively lower Morningstar ESG scores indicate a potential emphasis on strategic communication of ESG initiatives, possibly aimed at enhancing corporate image, without a commensurate level of tangible ESG achievement. Particularly pronounced discrepancies in the energy and financial sectors warrant scrutiny for potential greenwashing, wherein disclosure serves as a rhetorical tool rather than a reflection of genuine ESG integration within operational frameworks.

Table 1. Descriptive Statistic

Variables	Obs	Mean	Std. Dev	Min	Max
Greenwashing risk	51	-0.047	0.135	-0.226	0.173
Tax Ratio	51	0.232	0.157	0.009	0.554
DER	51	0.806	0.808	0.119	2.428
Profit Margin	51	0.446	0.185	0.110	0.714
SOE/NonSOE	51	0.118	0.325	0	1.000
Firm Size	51	24.186	0.890	22.771	25.604
Cashflow	51	21.632	0.872	19.983	22.810
Board Size	51	11.333	2.903	8.000	17.000

Notes: this table reports the summary statistics of variables in this paper.

Based on the descriptive statistical results presented in Table 1, the average corporate tax burden across the sample is approximately 23% of pre-tax income, slightly above the statutory corporate income tax rate of 22%. However, there is substantial variation in effective tax rates among firms, ranging from a minimum of 0.009 to a maximum of 0.554. This variation suggests the presence of differing tax avoidance strategies across sectors. Notably, several property sector firms report effective tax rates as low as 1%, which can be attributed to the application of final tax rates specific to the real estate sector. Conversely, the highest tax burden, at 55%, is recorded in the energy sector.

Regarding greenwashing risk, negative values in this variable indicate that certain firms demonstrate ESG performance levels that exceed their ESG disclosure scores. This reflects a more genuine engagement with environmental responsibility, wherein companies actively implement sustainable operational practices rather than merely communicating their intentions. This trend is particularly observable in the consumer goods, services, and property sectors, where ESG performance surpasses disclosure. In contrast, the energy and infrastructure sectors exhibit higher disclosure relative to actual ESG performance, implying a greater risk of greenwashing. These findings are consistent with prior research by Yu et al. (2020), which analyzed 1,925 firms across multiple countries and identified similar sectoral patterns in ESG behavior.

The SOE/Non-SOE variable is a firm characteristic denoted by binary coding, where a value of 1 indicates a state-owned enterprise (SOE) and 0 indicates a non-SOE. In the current dataset, two firms are classified as SOEs: PT Telkom Indonesia (*Persero*) Tbk and PT Jasa Marga (*Persero*) Tbk, both operating within the infrastructure sector.

Research Hypothesis

Greenwashing and ESG Performance

This investigation draws on research by Delmas & Burbano (2011), which highlighted three levels of greenwashing drivers: external (market and institutional), organizational, and individual. The external factors include market pressure (from both consumers and investors), weak regulation, and monitoring from NGOs and the media. Incentive structures, ethical

climate, internal communication bottlenecks, and organizational inertia are examples of organizational factors. Individual factors include narrow decision-making, hyperbolic intertemporal discounting, and optimistic bias. Recommendations for reducing greenwashing from this research for managers, policymakers, and NGOs include increased transparency on performance and removal of knowledge gaps regarding greenwashing, as well as aligning internal structures, processes, and incentives within companies.

Dorfleitner & Utz (2023) conducted previous research focusing on the conceptual background of measuring greenwashing at the company level, based on earlier studies comparing apparent green performance and real green performance. This research was conducted on two companies: Zalando, which is a company that has faced greenwashing cases, and Delivery Hero, which is not a company involved in greenwashing cases. The results showed that Zalando's risk of being considered greenwashing was high, while Delivery Hero was a company that had a low risk of being considered greenwashing.

Tax Ratio and Greenwashing

Souguir et al. (2024) emphasized that companies with better environmental performance engage in more tax avoidance, and that this effect is more pronounced in companies characterized by high institutional or family ownership. This suggests that certain businesses practice greenwashing techniques to market themselves as environmentally friendly in their tax strategies.

Based on the findings of Souguir et al. (2024), which suggest a potential link between environmental performance and tax avoidance, it is plausible that a company's tax strategy, as reflected by its tax ratio, could be associated with its greenwashing behavior. Companies seeking to portray a positive environmental image might engage in aggressive tax planning, or conversely, companies with high tax burdens might be less incentivized to invest in genuine environmental practices and resort to greenwashing. Therefore, this research hypothesizes:

H1: There is a significant relationship between a company's tax management and greenwashing risk.

Internal Strategy and ESG Performance

The discussion was based on the research of Y. Li & Xiao (2025), whose research on the impact of institutional investors directly visiting companies indicated that direct investor visits to companies have significantly decreased the risk level of corporate greenwashing. This increased media attention and pressure on corporate reputation from direct investor visits and alignment of corporate values correlates with the proportion of institutional investor share ownership.

This is why M. Zhang & He (2025), in their research on analyst attention and the reduction of corporate greenwashing behavior, found that more attention from analysts on companies has a positive impact on reducing the potential risk of greenwashing. Moreover, this research demonstrated that the book value of the company raised the risk of greenwashing more than the market value of the company.

In follow-up research, M. Li & Chen (2024) investigated the impact of executive pay gaps on companies engaged in greenwashing. The significant findings of this research indicate that executive pay gaps significantly raise the risk of corporate ESG greenwashing. Internal factors—namely, the level of executive awareness of ESG, aggressive earnings management, and financing constraints—along with external factors—namely, environmental regulations—constitute the factors that increase the risk of ESG greenwashing due to the executive pay gap according to this research.

D. Zhang (2023) studied the relationship between green finance development and the quality of ESG performance at the company level, finding that green finance development has a negative impact on greenwashing, and that the development of green finance has more impact on state-owned enterprises (SOEs) and companies with strict environmental regulations (D. Zhang, 2023). This research further found that green finance development could mitigate the risk of greenwashing.

The findings of D. Zhang (2023) suggest that green finance development has a greater impact on SOEs in mitigating greenwashing. This implies that SOEs might face different pressures or have different motivations regarding environmental performance and disclosure compared to non-SOEs. Given the potentially greater public scrutiny and political considerations associated with SOEs, they might be incentivized to project a "green" image, even if it doesn't fully reflect their actual practices. However, green finance has a stronger mitigating effect on SOEs (D. Zhang, 2023). Therefore, the direction of the relationship is not definitively established by the existing literature. This research proposes the following exploratory hypothesis:

H2: There is a significant difference in greenwashing risk between State-Owned Enterprises (SOEs) and non-SOEs.

Gregory (2024) findings raise important considerations for financial analysts, investors, and regulators. A high DER is typically analyzed within the context of financial risk and leverage. However, this research suggests that in the presence of greenwashing, a high DER might also be symptomatic of underlying issues with the transparency and reliability of a company's sustainability reporting. Companies engaging in greenwashing might strategically employ higher levels of debt financing, potentially influencing their perceived risk and consequently their cost of capital. This could create a scenario where the lower cost of capital is not reflective of genuine sustainability performance but rather a consequence of financial structuring that may obscure the true environmental impact and associated risks. Therefore, this research hypothesizes:

H3: A company's capital structure has a significant influence on greenwashing risk.

Profitability and ESG Performance

Recent scholarship has increasingly explored the intersection of environmental, social, and governance (ESG) initiatives, stakeholder legitimacy, and corporate financial performance, particularly in the context of greenwashing. Lee & Raschke (2023) examined the role of stakeholder legitimacy in promoting firm greening and its subsequent impact on financial outcomes. Their research highlights that stakeholder legitimacy significantly enhances a firm's ESG performance. In turn, this improved ESG performance is positively associated with financial performance, underscoring the instrumental value of ESG initiatives beyond compliance or ethical considerations.

In contrast, the research by Purnamasari & Umiyati (2024) provides a different perspective by focusing on Indonesian non-financial firms between 2018 and 2022. Their analysis explores greenwashing's direct relationship with financial performance, incorporating internal audit quality and digital technology adoption as moderating variables. This suggests that, in the Indonesian context, stakeholders may perceive greenwashing as legitimate or credible without robust ESG verification mechanisms. Furthermore, their results imply that greenwashing may be employed deliberately as a short-term business strategy to bolster financial metrics, particularly in emerging markets where ESG standards and oversight might be less stringent.

Adding to this conversation, Farza et al. (2021) explore the role of environmental innovation in shaping firm performance and behavior. Their research reveals that environmentally innovative firms tend to exhibit stronger financial metrics, including improved profit margins. Notably, the research suggests a reverse causality wherein financially successful firms are more likely to invest in environmental innovation, thereby reducing the need or incentive to engage in greenwashing. These findings introduce the idea that authentic environmental commitment—rooted in innovation—may serve as both a driver of financial performance and a deterrent to opportunistic practices such as greenwashing.

H4: There is a significant relationship between a company's profitability and greenwashing activities.

RESULT AND DISCUSSION

Classical Assumption Testing

The results of the classical assumption tests confirmed the appropriateness of the dataset for regression analysis. Multicollinearity was not a concern, as all Variance Inflation Factor (VIF) values were well below the conventional threshold of 10, and corresponding tolerance values exceeded 0.1. The Breusch-Pagan test indicated the absence of heteroskedasticity, evidenced by a p-value greater than 0.05, suggesting homoscedasticity of the error terms. Additionally, the Kolmogorov-Smirnov test supported the assumption of normality, with a p-value above 0.05, thereby validating the normal distribution of the residuals. Collectively, these results demonstrate that the fundamental assumptions for regression analysis were satisfactorily met.

Panel Data Regression Analysis

Panel data regression was conducted using a random effects model, based on the results of the Chow, Hausman, and Lagrange Multiplier tests. The Hausman test indicated that the random effects model was most appropriate.

Coefficient of Determination (R^2)

Based on the results of the coefficient of determination test, as shown in Table 2, the regression model yields an R^2 value of 0.57, indicating that approximately 57% of the variation in greenwashing risk can be explained by the internal corporate factors included in the model. Specifically, the independent variables—tax ratio, debt-to-equity ratio (DER), SOE/Non-SOE classification, and profit margin—jointly contribute to explaining the observed level of greenwashing risk. The model also incorporates firm size, cash flow, and board size as control variables. The remaining 43% of the variance is attributable to other factors not captured within the scope of this research, suggesting the presence of additional internal or external determinants influencing a firm's likelihood to engage in greenwashing.

F Test

As presented in Table 2, the p-value is less than 0.05, indicating that the overall regression model is statistically significant. This suggests that the independent variables—tax ratio, debt-to-equity ratio (DER), SOE/Non-SOE status, and profit margin—along with the control variables, collectively exert a significant influence on the level of greenwashing risk. In other words, these variables, when considered simultaneously, have a statistically meaningful relationship with the factors that determine a firm's propensity to engage in greenwashing practices.

Hypothesis Testing

Table 2. Hypothesis test result

Independent Variables	R ²	Wald Chi2	Prob > Chi2	Coefficient	P-value
Tax Ratio	0.5743	22.93	0.0018*	-0.125	0.109**
DER				0.012	0.660
SOE/NonSOE				0.037	0.655
Profit Margin				-0.258	0.039*
Firm Size				0.060	0.039
Cashflow				0.051	0.005
Board Size				-0.003	0.701

Notes: * and ** indicate significance at the 5% and 10%, respectively. R² is defined as coefficient of determination, Prob>Chi2 indicate the overall regression model or p-value

Table 2 presents the results of the hypothesis testing, including p-values for each independent variable assessed in relation to the dependent variable, greenwashing risk. The z-statistic indicates the number of standard deviations a sample statistic deviates from the population mean. Generally, a p-value less than 0.05 is considered strong evidence against the null hypothesis, suggesting that the corresponding independent variable has a statistically significant effect on the dependent variable.

Based on the results in Table 2, at the 5% significance level, profit margin is found to have a statistically significant influence on greenwashing risk. The negative z-statistic (-2.06) indicates an inverse relationship, whereby an increase in greenwashing risk is associated with a decrease in a firm's profit margin. This finding supports the acceptance of Hypothesis H3.

At the 10% significance level, tax ratio demonstrates a marginally significant positive relationship with greenwashing risk, supporting Hypothesis H1 at the 10% threshold. In contrast, debt-to-equity ratio (DER) and SOE/Non-SOE classification do not show significant effects at either the 5% or 10% levels, suggesting limited explanatory power for these variables in this context.

Among the control variables, both cash flow from operating activities and firm size exhibit significant positive associations with greenwashing risk. This suggests that firms with higher operational cash flows may be more inclined to engage in greenwashing, potentially due to resource availability. Additionally, larger firms—with more extensive asset bases—may be more susceptible to greenwashing behaviors, particularly in the absence of effective monitoring and governance mechanisms to oversee asset utilization and ESG compliance.

Discussion

This research sought to analyze the factors influencing the level of greenwashing risk within Indonesian companies. Drawing upon prior literature, the research examined the impact of internal corporate factors, specifically tax ratio (Souguir et al., 2024), company status (BUMN/Non-BUMN) (D. Zhang, 2023), profit margin (Farza et al., 2021), and capital structure (M. Li & Chen, 2024), on the propensity to engage in greenwashing practices.

The Influence of Tax Ratio on Greenwashing Risk

The analysis revealed a statistically significant, albeit weak (at the 10% significance level), negative relationship between a company's tax ratio and its greenwashing risk. This finding aligns with research by Souguir et al (2024), which posited a positive correlation between tax avoidance behaviors and environmental performance. This suggests that companies actively pursuing strategies to minimize their tax burden may also be inclined to

engage in greenwashing as a means of projecting an environmentally responsible image. This behavior can be interpreted through the lens of agency theory. Managers, acting as agents, may prioritize tax avoidance to enhance the company's short-term financial performance, potentially conflicting with the interests of shareholders who might prefer genuine sustainability initiatives. Greenwashing, in this context, becomes a tool to deflect scrutiny from aggressive tax practices by creating a facade of environmental consciousness. The findings by Nasih et al. (2024) support this interpretation, indicating that sustainability reporting can be used to mask tax avoidance.

The Influence of Company Status (BUMN/Non-BUMN) on Greenwashing Risk

Contrary to expectations and previous research, this research did not find a significant relationship between a company's BUMN/Non-BUMN status and its propensity to engage in greenwashing. Prior studies, have suggested that BUMNs, due to stricter regulatory oversight and greater public scrutiny, are less likely to engage in greenwashing (Peng & Xie, 2024; D. Zhang, 2023). However, the absence of a significant finding in this research implies that the monitoring and enforcement mechanisms aimed at curbing greenwashing may be inadequate across both BUMN and non-BUMN companies in Indonesia. This result could also reflect the complexities of the Indonesian business environment, where ownership structures and governance practices can vary significantly. While BUMNs might face stricter formal regulations, non-BUMNs might be subject to different forms of stakeholder pressure. Further research is needed to explore these nuances and identify the specific factors that drive greenwashing behavior in different types of companies.

The Influence of Profit Margin on Greenwashing Risk

A significant negative relationship was observed between profit margin and greenwashing risk. This suggests that companies with higher profit margins tend to exhibit lower greenwashing risk. This finding aligns with the idea that financially healthy companies possess the resources to invest in genuine sustainability practices and are less likely to engage in deceptive environmental claims to mask poor performance. This finding is consistent with the resource-based view (RBV) of the firm. Companies with abundant resources, as indicated by higher profitability, can allocate those resources to develop environmentally friendly innovations and practices (Farza et al., 2021). These genuine efforts reduce the need for greenwashing, which is often used as a less costly alternative to substantive environmental action. Furthermore, profitable companies are more sensitive to reputational risks. The potential damage from being exposed as a greenwasher outweighs the short-term gains from misleading the public.

The Influence of Capital Structure on Greenwashing Risk

The research found no significant relationship between capital structure, as measured by the debt-to-equity ratio (DER), and greenwashing risk. This contradicts prior research, such as M. Li & Chen (2024) and Peng & Xie (2024), which suggested that financially constrained companies with higher debt levels are more prone to greenwashing to attract investors and secure funding. Several explanations can account for this discrepancy. It is possible that the pressure from creditors to demonstrate long-term stability and social responsibility, as highlighted by Gregory (2024), counteracts the incentive to engage in greenwashing. Additionally, the regulatory framework in Indonesia, which includes debt-to-equity ratio limits, might influence how companies manage their financial structure and sustainability reporting. It's also important to acknowledge that capital structure is a complex issue, and its relationship with greenwashing might be mediated by other variables not included in this research.

The Influence of Control Variables

The control variables, cash flow from operations and firm size, exhibited a significant positive relationship with greenwashing risk. The positive association between higher operating cash flow and greenwashing risk implies that companies with greater financial resources might have more capacity to engage in sophisticated greenwashing practices. They might allocate more resources to create elaborate sustainability reports or marketing campaigns that exaggerate their environmental efforts. Larger firm size is also associated with increased greenwashing risk. Larger companies often face greater scrutiny from a wider range of stakeholders, including investors, regulators, and the public. In response to this pressure, they might be tempted to use greenwashing to manage their public image and maintain legitimacy (Lee & Raschke, 2023). Larger firms also tend to have more complex operations, making it easier to conceal unsustainable practices within their broader activities.

CONCLUSION

This study provides significant insights into the internal corporate factors influencing greenwashing risk among Indonesian companies, revealing that higher corporate tax transparency and greater profitability are negatively associated with greenwashing practices. Companies with higher effective tax rates and stronger profit margins demonstrate lower tendencies toward greenwashing, suggesting that financially robust and transparent firms are more likely to engage in genuine sustainability efforts. However, larger firms with higher operating cash flows show increased greenwashing risk, indicating that resource availability may enable more sophisticated but potentially deceptive environmental strategies. While State-Owned Enterprises showed higher descriptive tendencies toward greenwashing, no statistically significant differences emerged compared to non-SOEs, and capital structure showed no significant influence on greenwashing behavior. These findings contribute to the growing literature on corporate sustainability authenticity and provide practical guidance for investors, regulators, and policymakers in identifying and mitigating greenwashing risks in emerging markets.

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