

Green-Washing and Degree of Transparency in the Extractive Industry Sector in East and West Java

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Abstract

This study aims to investigate the relationship between greenwashing and information transparency in the context of extraction companies in Indonesia. A mixed qualitative-quantitative approach was used, a SEM-PLS approach to test the relationship between the variables identified in the theoretical framework, then a grounded theory approach to gain an in-depth understanding of greenwashing practices and information transparency. The quantitative approach utilizes a structured survey to collect data from extraction companies in Indonesia, while the qualitative approach involves in-depth interviews with relevant stakeholders. SEM-PLS analysis will be used to test the proposed hypotheses and estimate the structural model at the extractive industry company level. Contextual factors such as environmental dimension, social dimension and governance dimension will be considered in the quantitative analysis. Then the findings of SEM-PLS analysis will be triangulated with qualitative approaches inductively to identify patterns and themes. Various findings at the extractive industry company level will be drawn to form a general abstraction of these companies. The integration of findings from both approaches will provide a holistic understanding of the complexity of the relationship between greenwashing and information transparency in the extraction industry in Indonesia. This research is expected to provide valuable insights for practitioners, policy, and researchers interested in efforts to improve environmental practices and corporate accountability in the extraction industry, as well as promote sustainable natural resource management. The expected output is the implementation of transparency and accountability in the extractive industry sector without any greenwashing practices from the Company. So as to increase substantial democratization in the extractive industry sector.

Keywords: Green-washing; Transparency; Extractive Industries; Corporate Social Responsibility; Sustainable Development.

Introduction

In recent decades, greenwashing has become a crucial topic of discussion due to the responsibility of companies to achieve the Sustainable Development Goals. Increased environmental awareness among investors and consumers has led them to consider a company's environmental responsibility when making decisions on whether or not to use its products (Xie et al., 2024). As awareness of environmental protection and the demand to act sustainably increases, extraction companies, such as mining, petroleum and forestry, are increasingly scrutinized by the public and government for their environmental stewardship practices. This concern can certainly be seen as a positive step taken by the extraction industry sector, which currently tends to pay attention to environmental aspects. However, this still raises the challenge that in the midst of efforts to meet increasingly stringent environmental standards, some companies may engage in greenwashing, which is the practice of misleading the public

about their environmental commitments while continuing environmentally damaging activities (Torelli et al., 2020). Companies engage in greenwashing to gain investor confidence and increase their portfolio returns.

The purpose of greenwashing is related to the image that is built to be able to make the company look sustainable by increasing Environmental, Sustainability, and Governance (ESG) disclosures beyond actual practices to gain profits related to ESG practices. Greenwashing is a corporate strategy to appear 'more environmentally friendly' than it actually is. Greenwashing is defined as strategic decisions made by companies to mislead investors and consumers that the company is committed to environmental, social and governance policies that enhance the value of the company through the products and services it sells (Dagestani et al., 2024). In fact, the impacts resulting from greenwashing tend to be negative and detrimental.

In some previous studies, greenwashing can weaken consumer confidence in environmentally friendly products and services, which can harm and reduce the reputation of truly sustainable corporate brands. One form of greenwashing strategy by issuing green bonds shows no improvement in the company's environmental performance and no real beneficial impact on the environment. Companies that build their image with CSR must also be cautious because the benefits will only be obtained if done in the long term (Delmas & Burbano, 2011). However, when done in the short term, it will cause consumer skepticism and assess that the company is greenwashing because it has ulterior motives and sees the company's environmental performance as not in accordance with reality. In addition, investor skepticism towards companies can also arise in companies that are proven to exaggerate their reports.

From a theoretical perspective, the relationship between greenwashing and information transparency in the context of extraction companies can be clarified through three relevant conceptual frameworks. First, greenwashing theory provides an understanding of how extraction companies can manipulate the image or perception of their environmental commitment. Greenwashing practices occur when companies deliberately deceive stakeholders by announcing non-substantive environmental initiatives or presenting selectively chosen data (Tan-Mullins, 2014). In the context of extraction, these practices can obscure understanding of the true impact of a company's activities on the environment. Second, information transparency theory highlights the importance of open and honest access to information for stakeholders. With adequate information transparency, stakeholders can understand the environmental impacts of company activities and promote corporate accountability. However, greenwashing practices can disrupt this information transparency by presenting misleading or incomplete information about a company's environmental practices. Third, the Political Ecology framework highlights the interplay between political power, economic structures and social dynamics in shaping environmental practices and policies. In the context of extraction, the relationships between extraction companies, governments, and local communities play an important role in determining the level of information transparency and the likelihood of greenwashing (Wang et al., 2023). Factors such as economic interests, access to resources, and political control can influence a company's ability to operate transparently and provide accurate information.

By integrating these theories, we can understand the complexity of the relationship between greenwashing and information transparency in the context of extraction companies. In-depth research on this issue can provide valuable insights into how greenwashing practices affect the level of information transparency in the extraction industry, as well as the implications for environmental stewardship and sustainable natural resource management in Indonesia. Problem solving approach we will formally unravel the complex problem of the interplay between greenwashing and information transparency in the context of extraction companies in Indonesia, using a holistic and integrated approach. The first approach is a normative one where measures are needed that improve oversight and accountability of

extraction companies' practices. This could include strengthening stricter environmental regulations, independent monitoring of companies' environmental reporting, and strict enforcement of laws against environmental violations. These measures will help reduce loopholes for greenwashing practices and encourage companies to provide honest and open information about their environmental impacts.

The second approach is related to the importance of strengthening the role of stakeholders, including local communities, in decision-making processes related to extraction companies. Increased public participation in environmental oversight and monitoring of company activities can help improve information transparency and reduce the risk of greenwashing. This can be achieved through the establishment of multi-stakeholder dialog forums between companies, governments, civil society and local communities, as well as the promotion of wider access to environmental information. By strengthening public control and participation, we can build a more solid foundation for sustainable environmental management practices and ensure that accurate and transparent information is available to all stakeholders regarding natural resource extraction activities (Wang et al., 2023).

In previous literature, there have been many studies on the causes, taxonomy, and consequences of greenwashing behavior in several different industries such as the automotive industry, financial industry, hospitality industry, education industry, electronics industry, and others (Reck et al., 2022). However, there is little research on greenwash behavior in the extractive industry sector, especially in developing countries. To the best of our knowledge, there is no quantitative research that examines the relationship between greenwashing and environmentally friendly extractive industry governance, which incorporates the mediating role of green skepticism and the moderating role of information and knowledge. Almost all previous studies have been conducted in Western countries, mainly in the United States or Europe. Therefore, our study is an attempt to partially fill this gap.

Literature Review

One issue relates to the ever-evolving nature of the concept. Due to the many forms of greenwashing, many have tried to observe it through different lenses based on their respective fields of study. This pluralistic and interpretive research trajectory is beneficial as it can integrate existing theories from different disciplines, enrich existing concepts, and identify critical areas for new research (Lyon & Montgomery, 2015). However, apart from the different greenwashing categorizations of (Reck et al., 2022), there is no standardized tool available to assess potential cases of corporate greenwashing behavior that could help better recognize and determine which ones (Nemes et al., 2022).

The second issue relates to the continuum between the two poles of discourse among academics, with the most prominent debate regarding the direction of influence between greenwashing and its drivers - an issue of possible reverse causality. For example posited the drivers of greenwashing in four groups. They include organizational drivers, individual psychological drivers, external market drivers, and external non-market drivers (Delmas & Burbano, 2011). Yang et al. (2020) agree and add the possibility of environmental regulations, as official resource allocation cannot guarantee the development of greener products (Yang et al., 2020). However, Markham et al. (2014) also warn that companies are less likely to address environmental issues due to the attractiveness of greenwashing options and their ease, given their credibility (Markham et al., 2014). Thus, in their understanding, greenwashing will affect both market and non-market variables.

The third issue is greenwashing as a public policy issue. Various studies agree with the much-cited study that systematically and comprehensively examines the drivers of greenwashing by (Delmas & Burbano, 2011). Nonetheless, other researchers emphasize that firm size and industry classification are factors that influence environmental disclosure (Clarkson et al., 2011). However, Uyar et al. (2020) argued that internal corporate drivers,

including board size, board gender diversity, board independence, CEO duality, CSR committee, and free float percentage, are the main controls for greenwashing.

Other studies only hint that greenwashing is considered as an impact of pro-environmental policies. For example, some researchers state that greenwashing is also a corporate legitimacy issue (Lyon & Montgomery, 2015)(Uyar et al., 2020). Patten (2002) even mentioned that the public policy process is the main tool for monitoring social legitimacy. Therefore, if companies perceive a threat to their social legitimacy, they will be encouraged to engage in the policy process (Patten, 2002).

From exploring various greenwashing concepts from experts, there are at least three types of greenwashing related to public policy. First, “Offensive Political Spin,” which is a type of greenwashing that shows symptoms of influencing regulations or governments to gain benefits that impact sustainability (Contreras-Pacheco & Claasen, 2017). Second, “Defensive Political Spin,” which advertises or talks about a company's “green” commitment while lobbying against pending or current environmental laws and regulations (Di Fiore et al., 2021). Finally, “It's the Law Stupid” refers to asserting sustainability achievements or commitments that are already required by existing laws or regulations (Di Fiore et al., 2021). This greenwashing construct highlights the role and influence of companies in the public policy process to encourage greenwashing or influence regulations or governments to gain advantages that affect their public image.

Furthermore, Cable et al. (2008), Köppl (2012), and Miller & Maxwell (2017) agree that greenwashing is a public policy issue. Their findings confirm that companies seek social license to operate (Maxwell & Miller, 2017), with many heavily involved in public affairs measures as framing and spinning are essential for effective public affairs (Köppl, 2012). Some even cooperate with governments and doctors who select production technologies and control information to establish institutional and organizational tactical leverage by creating an ambiguous climate for public discourse, such as opposing disease claims associated with exposure to risky production technologies with alternative explanations that demonize the victims (Parguel & Johnson, 2021).

From another perspective, other researchers have also argued that public policies in the form of any subsidies that encourage production will increase environmental damage through the by-products of production. For example, subsidies will increase oil-related waste in oil and gas production (Strand & Toman, 2010). Furthermore, Kim & Lyon (2011) found that participants in the Department of Energy's Voluntary Greenhouse Gas Registration program engaged in highly selective reporting. In aggregate, they increased emissions over time but reported reductions (Kim & Lyon, 2011). Interestingly, those that do so tend to be large companies, as measured by revenue. Based on these studies, there is a need to conduct further research on these unique types of greenwashing. Lyon & Montgomery (2015) even encourage research that measures the prevalence of these types of greenwashing, theorizes the social welfare impacts of greenwashing, and identifies the implications of greenwashing on organizations and society more broadly (Lyon & Montgomery, 2015).

Methods

This research uses a comprehensive qualitative-quantitative mixed method where the approach in the quantitative method uses the Partial Structural Equation Model (SEM-PLS), while the approach in the qualitative method uses Grounded Theory. SEM-PLS will be used to test and validate the relationship between the variables identified in the research theoretical framework. Quantitative data will be collected through a structured survey distributed to a representative sample of extraction companies in Indonesia. Quantitative data analysis will use SEM-PLS to test the proposed hypotheses, estimating complex structural models. Meanwhile, a grounded theory approach will be used to gain an in-depth understanding of greenwashing practices and information transparency in the context of extraction companies in Indonesia.

This qualitative research will involve data collection through in-depth interviews with various stakeholders, including company representatives, government, non-government organizations, and local communities. Qualitative data analysis will be conducted inductively to identify patterns, themes, and conceptual frameworks that emerge from the interviews, allowing for the development of theories implied by the field data.

Findings from the quantitative and qualitative approaches will be integrated to provide a holistic understanding of the relationship between greenwashing and information transparency in the extraction industry in Indonesia. This integration of findings will allow researchers to develop a more comprehensive conceptual framework, reflecting the complexity and diversity of factors that influence greenwashing practices and corporate decision-making. Using a mixed qualitative-quantitative approach, this study will combine the strengths of both methods to deeply and thoroughly investigate the relationship between greenwashing, information transparency, and contextual factors in the extraction industry in Indonesia. It is hoped that these two approaches will provide a holistic insight into the complexity and dynamics of environmental practices in the extraction industry in Indonesia, as well as provide a basis for improving more sustainable corporate policies and practices.

Results

Respondent profiles

The respondent profile shows that out of 145 regional origins, 70 respondents (48%) are from East Java and 75 respondents (52%) are from West Java. In terms of employment background, 60 respondents (41%) are in the extractive industry sector, 30 respondents (21%) are in the government agency sector. Non-governmental organizations (NGOs): 20 respondents (14%), Academician/researcher: 20 respondents (14%), Others: 15 respondents (10%). On the one hand, experience in the extractive sector <5 years: 40 respondents (28%), 5-10 years: 55 respondents (38%), 10 years: 50 respondents (34%). Involvement in Environmental Projects or Programs actively involved: 60 respondents (41%) and ever involved: 55 respondents (38%), other than that never involved: 30 respondents (21%). The rest partnered with various stakeholders.

Validity and reliability test

The validity indicator can be measured using the outer loading score, if the outer loading value is more than 0.70 (>0.70) then the indicator can be used. The Average Variance Extracted (AVE) value that meets the minimum criteria is greater than 0.50 (>0.50). If in the test there is an outer loading value below 0.70, the indicator can still be used provided that the minimum loading value is greater than 0.40 ($\text{Loading} > 0.40$) and the AVE value is more than 0.50 ($\text{AVE} > 0.5$) so that the variable can be said to be valid. If it is less than 0.40 then it must be eliminated (Hair et al., 2022, p.126).

Table.1

Indicator validity (Outer loadings) and Convergent Validity (AVE)

Variabel Laten	Variabel Konstruk	Loading (>0.70)	AVE($>0,5$)
X1 Transparansi	X1.1	0.705	0.566
	X1.2	0.800	
	X1.3	0.754	
	X1.4	0.748	
Y Green-Washing	Y1.1	0.750	0.572
	Y1.2	0.768	
	Y1.3	0.724	
	Y1.4	0.745	
	Y1.5	0.796	
	Y1.6	0.754	
Z1 Environment	Z1.1	0.767	0.559

	Z1.2	0.722	
	Z1.3	0.747	
	Z1.4	0.733	
	Z1.5	0.753	
	Z1.6	0.749	
	Z1.7	0.762	
Z2 Social	Z2.1	0.746	0.561
	Z2.2	0.752	
	Z2.3	0.718	
	Z2.4	0.744	
	Z2.5	0.735	
	Z2.6	0.730	
	Z2.7	0.833	
	Z2.8	0.725	
Z3 Governance	Z3.1	0.775	0.581
	Z3.2	0.723	
	Z3.3	0.775	
	Z3.4	0.776	

Source: Research data processed using SmartPLS 4.0.9.5 software in 2024

Based on the results of the construct validity analysis, it can be concluded that each indicator in the measurement model meets the required validity criteria. First, the loading factor value for all indicators is above 0.70. This indicates that each indicator has a strong and consistent relationship with the latent variable it represents. This criterion is important because a loading factor above 0.70 indicates that the indicator is representative enough in describing the construct being measured.

Furthermore, the Average Variance Extracted (AVE) value of each variable in the measurement model also meets the minimum standard, which is above 0.50. An AVE value that exceeds 0.50 indicates that more than half of the variance of the construct can be explained by its indicators. In other words, the tested constructs or variables have sufficient convergent validity, indicating that each latent variable is able to explain the variance of its indicators well. Overall, the calculation results show that all constructs and indicators have met the validity criteria. Therefore, this measurement model can be declared valid and can be used for the next stage of testing.

Construct reliability test measured by composite reliability and Cronbach's alpha. The variable construct is declared reliable if it has a composite reliability value above 0.70 and a Cronbach's alpha above 0.70 (Hair et al., 2022, p.125).

Table. 2

Construct Reliability (Cronbach's Alpha and Composite Reliability)

Variabel laten	Cronbach's alpha	Composite reliability (rho c)	Keterangan
X1 Transparansi	0.744	0.839	reliabel
Y Green-Washing	0.850	0.889	reliabel
Z1 Environment	0.869	0.899	reliabel
Z2 Social	0.888	0.911	reliabel
Z3 Governance	0.760	0.847	reliabel

Source: Research data processed using SmartPLS 4.0.9.5 software in 2024

Based on *Construct Reliability* analysis involving *Cronbach's Alpha* and *Composite Reliability* values, all variables in this research model meet the established reliability criteria.

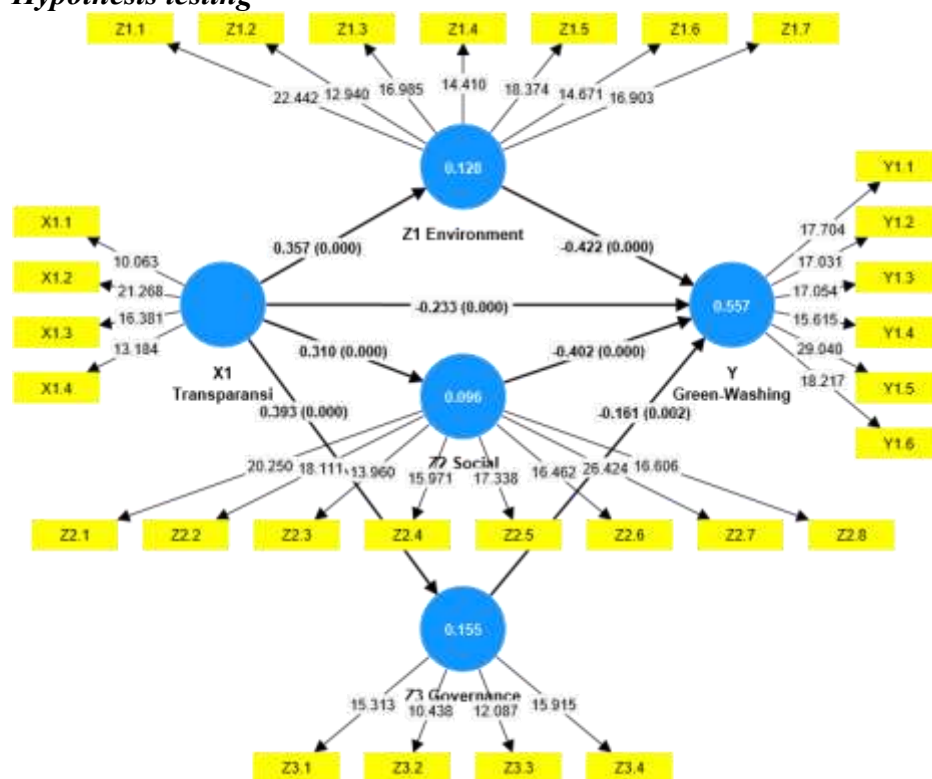
1. Cronbach's Alpha: All variables have *Cronbach's Alpha* values greater than 0.70. This shows that each variable has strong internal consistency, so that the indicators in each

variable can be considered reliable in measuring the same construct. This value indicates that the indicators in each variable are interconnected and support each other consistently.

2. Composite Reliability: The *Composite Reliability* value for all variables is also above 0.70, indicating that the construct has high reliability and is able to produce consistent results in various tests. *Composite Reliability* greater than 0.70 ensures that each construct is measured by indicators that are able to represent the measured concept strongly and accurately.
3. Construct Validity: Other test results, namely *Outer Loading* and *Average Variance Extracted* (AVE), also show that the model meets the validity criteria. With high *Outer Loading* values and AVE greater than 0.50, all indicators are able to explain more than half of the variance of each latent variable.

Overall, with the fulfillment of these validity and reliability criteria, the research model can be considered feasible to proceed to the next stage of testing, because it has shown accuracy in construct measurement and consistency in expected results.

Hypothesis testing



Source: Research data processed using SmartPLS 4.0.9.5 software in 2024

Structural model coefficient analysis is used to test hypotheses by knowing which relationships have a significant effect. If the $p\text{-value} < \alpha$ (0.05) then the relationship is significant, otherwise if the $p\text{-value} > \alpha$ (0.05) then the relationship is not significant (Hair et al., 2022, p.152).

Table. 3.

Hypothesis Test the direct effect of the Research model

Hipotesis	Koefisien Jalur	Original Sample (O)	T Statistics (O/STDEV)	P Values	Keterangan
H1	X1 Transparansi -> Z1 Environment	0.360	4.066	0.000	Diterima
H2	X1 Transparansi -> Z2 Social	0.309	4.015	0.000	Diterima
H3	X1 Transparansi -> Z3 Governance	0.392	4.746	0.000	Diterima

H4	Z1 Environment -> Y Green-Washing	-0.337	5.978	0.000	Diterima
H5	Z2 Social -> Y Green-Washing	-0.451	8.936	0.000	Diterima
H6	Z3 Governance -> Y Green-Washing	-0.189	3.595	0.000	Diterima
H7	X1 Transparansi -> Y Green-Washing	-0.304	4.899	0.000	Diterima

Source: Research data processed using SmartPLS 4.0.9.5 software in 2024

Based on the table above, the following information can be seen:

- X1 Transparency -> Z1 Environment has an Original Sample (O) value of 0.360 and P Values of 0.000 are smaller than 0.05. Based on this value, it can be seen that there is a significant positive effect. Then H1 is accepted and H0 is rejected.
- X1 Transparency -> Z2 Social has an Original Sample (O) value of 0.309 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant positive effect. Then H2 is accepted and H0 is rejected.
- X1 Transparency -> Z3 Governance has an Original Sample (O) value of 0.392 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant positive effect. Then H3 is accepted and H0 is rejected.
- Z1 Environment -> Y Green-Washing has an Original Sample (O) value of -0.337 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant negative effect. Then H4 is accepted and H0 is rejected.
- Z2 Social -> Y Green-Washing has an Original Sample (O) value of -0.451 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant negative effect. Then H5 is accepted and H0 is rejected.
- Z3 Governance -> Y Green-Washing has an Original Sample (O) value of -0.189 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant negative effect. Then H6 is accepted and H0 is rejected.
- X1 Transparency -> Y Green-Washing has an Original Sample (O) value of -0.304 and P Values of 0.000 smaller than 0.05. Based on this value, it can be seen that there is a significant negative effect. Then H7 is accepted and H0 is rejected.

R-square test

The coefficient of determination is used to measure the accuracy of prediction (estimation). In general, the value of R² of 0.75 is considered to have a large estimation accuracy, R² of 0.50 has a medium accuracy estimation, and the value of R² The results of the coefficient of determination can be seen in the following table .

Table.4

The coefficient of determination

variabel Laten	R-square	R-square adjusted	Keterangan
Y Green-Washing	0.632	0.621	Besar
Z1 Environment	0.130	0.124	Kecil
Z2 Social	0.095	0.089	Kecil
Z3 Governance	0.154	0.148	Kecil

Source: Research data processed using SmartPLS 4.0.9.5 software in 2024

Based on the table above, the following information can be seen:

- Y Green-Washing model estimation accuracy 0.632. Based on this value, it has a large estimation accuracy. In other words, X1 Transparency, Z1 Environment, Z2 Social, Z3 Governance affect 31.3% while the remaining 68.7% is influenced by other factors outside the research model.

- Z1 Environment model estimation accuracy 0.130. Based on this value, it has a small estimation accuracy. In other words, X1 Transparency, affects 13.0% while the remaining 87.0% is influenced by other factors outside the research model.
- Z2 Social model estimation accuracy 0.095. Based on this value, it has a small estimation accuracy. In other words, X1 Transparency, affects 9.5% while the remaining 90.5% is influenced by other factors outside the research model.
- Z3 Governance model estimation accuracy 0.154. Based on this value, it has a small estimation accuracy. In other words, X1 Transparency, affects 15.4% while the remaining 84.6% is influenced by other factors outside the research model.

Discussion

The data shows that variables related to transparency, environment, social, and governance have an important role in explaining green-washing practices in extractive industries in East Java and West Java. The following is an analysis of each hypothesis tested:

Effect of Transparency on Environment (X1 -> Z1)

The Transparency variable (X1) has a significant positive effect on the Environment variable (Z1), with an Original Sample (O) of 0.360 and P Values of 0.000, which is smaller than 0.05. This shows that increased transparency in extractive companies correlates with increased attention to environmental aspects. Transparency in this context can be in the form of disclosure of information about environmentally friendly practices, such as the use of materials that are not harmful to the environment or the implementation of measurable environmental programs. With better transparency, companies will be more encouraged to run credible environmental programs, not only as an effort to build a positive image but also as a form of social responsibility. Therefore, hypothesis H1 is accepted, while H0 is rejected.

Effect of Transparency on Social (X1 -> Z2)

The analysis shows that the Transparency variable has a positive and significant influence on the Social variable (Z2), with an Original Sample (O) value of 0.309 and P Values of 0.000, which is smaller than 0.05. This indicates that higher transparency in companies has a positive effect on social aspects, for example, in terms of community involvement and fulfillment of workers' rights. In the extractive industry sector, strong social relationships with surrounding communities are important. Increased transparency in reporting corporate social contributions, such as community development, education assistance, or provision of health facilities, can increase community trust in the company and reduce the risk of social conflict. Thus, hypothesis H2 is accepted, and H0 is rejected.

Effect of Transparency on Governance (X1 -> Z3)

The relationship between Transparency (X1) and Governance (Z3) shows a significant positive effect with an Original Sample (O) value of 0.392 and P Values of 0.000, which is smaller than 0.05. This indicates that transparency in company operations can improve good governance practices. In the extractive sector, effective governance is indispensable as the industry often faces operational risks, including compliance and business ethics issues. High transparency encourages companies to apply good governance principles, such as accountability, participation and integrity. With better governance, the risk of green-washing can also be reduced, as companies tend to be more responsible in communicating their sustainability practices honestly. Therefore, hypothesis H3 is accepted, and H0 is rejected.

Effect of Environment on Green-Washing (Z1 -> Y)

The Environment variable (Z1) has a significant negative effect on Green-Washing (Y), with an Original Sample (O) of -0.337 and P Values of 0.000, which is smaller than 0.05. This shows that greater attention to environmental aspects within the company can reduce the tendency to green-washing. This negative effect suggests that when companies really pay attention to environmental aspects, they tend to be more honest in reporting information related to environmental sustainability. In other words, companies that have good and well-

documented environmental programs will make less effort to create a green image that does not match reality. Therefore, hypothesis H4 is accepted, and H0 is rejected.

Social Influence on Green-Washing (Z2 -> Y)

The analysis shows that the Social variable (Z2) has a significant negative influence on Green-Washing (Y), with an Original Sample (O) of -0.451 and P Values of 0.000, which is smaller than 0.05. This relationship shows that well-managed social aspects, such as programs that involve the community or empower local communities, are associated with a decrease in green-washing practices. This means that companies that are actively involved in tangible social activities are less likely to need to manipulate their green image, as they already have concrete social contributions that they can publicly convey. This emphasizes the important role of credible social programs in building corporate reputation without the need to cover up reality with green-washing. Thus, hypothesis H5 is accepted, and H0 is rejected.

The Effect of Governance on Green-Washing (Z3 -> Y)

The relationship between the Governance variable (Z3) and Green-Washing (Y) also shows a significant negative effect, with an Original Sample (O) value of -0.189 and P Values of 0.000, which is smaller than 0.05. This suggests that good governance within the company contributes to the reduction of green-washing practices. When companies have strong governance, such as strict compliance procedures and high information disclosure practices, companies are less likely to use green-washing strategies to improve their image. Good governance supports the transparency and credibility of corporate sustainability reports. Therefore, hypothesis H6 is accepted, and H0 is rejected.

Effect of Transparency on Green-Washing (X1 -> Y)

The Transparency variable (X1) shows a significant negative effect on Green-Washing (Y) with an Original Sample (O) value of -0.304 and P Values of 0.000, which is smaller than 0.05. This means that the higher the transparency in the company, the lower the tendency to practice green-washing. Transparency plays a key role in increasing public trust and encouraging companies to operate responsibly without the need to manipulate a green image. Transparent companies tend to provide truthful information regarding the sustainability efforts they have made, thus reducing the incentive to engage in green-washing. Therefore, hypothesis H7 is accepted, and H0 is rejected.

Overall, the results of this analysis indicate that transparency, environmental, social, and governance variables have an important role in reducing green-washing practices in the extractive industry sector. Transparency directly and indirectly through environmental, social, and governance variables contribute to reducing the tendency of companies to green-wash. Success in managing environmental, social, and governance aspects can help companies build a positive image without the need to manipulate information related to sustainability.

Conclusion

The concluding statement should contain summary and suggestion. The summary should exemplify the answers provided to the hypothesis and/or research objectives or acquired findings. The summary should not contain repetition of research results and discussions, and it should instead contain a summation of research results and findings as expected in the research objective or hypothesis. The suggestions should present matters that will subsequently be conducted in relation to the research's ensuing concepts.

Overall, the findings suggest that transparency, environmental, social and governance are crucial factors in reducing green-washing practices in the extractive industry sector in East and West Java. Improvements in each of these aspects contribute to a better reputation and encourage companies to communicate their sustainability more honestly. High transparency not only supports public accountability but also helps companies comply with government regulations and international standards related to sustainability.

The implications of these findings for the extractive industry sector in Indonesia are significant. First, companies need to strengthen transparency policies by providing reports that are easily accessible and understood by the public, both regarding environmental impacts, social programs, and governance policies. Second, companies need to increase attention to environmental and social aspects in all operational processes, because attention to these two aspects can help companies build better relationships with surrounding communities and reduce the potential for social conflict. Lastly, good governance and strict supervision of sustainability practices will increase the integrity of the company and suppress green-washing practices that only aim to improve the image without real contribution.

This research makes a significant contribution in understanding green-washing in the context of the extractive industry sector in Indonesia. Through SEM-PLS and grounded theory approaches, this study not only validates the influence of transparency, environmental, social, and governance variables on green-washing but also explores green-washing practices more deeply from the perspective of local stakeholders.

With empirical evidence from data in East Java and West Java, this study can serve as a reference for stakeholders in the extractive industry sector, including regulators, environmental activists, and civil society, in assessing the credibility of corporate sustainability reports. This research also underscores the importance of improving credible and measurable sustainability standards for companies in the extractive industry sector to not only fulfill regulations, but also contribute to sustainable development.

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