

THE EFFECT OF GREENWASHING TOWARDS FIRM VALUE WITH THE MODERATING FACTOR OF FAMILY OWNERSHIP

Shereen¹, Destinee Amaya Lee², Nieke Febrine Berthly³, Agus Salim^{4*}, and Fransisca Tharia Hartanto⁵

¹²³⁴⁵School of Business and Economics, Universitas Prasetya Mulya, Indonesia

*Email corresponding author: agus.salim@prasetyamulya.ac.id

Abstract

Growing market attention to sustainability has increased pressure on firms to expand ESG disclosure, but disclosure may not always be accompanied by substantive sustainability performance. This study examines the effect of greenwashing on firm value, proxied by price-to-book value (PBV), and evaluates whether family ownership moderates this relationship. The sample consists of 120 non-financial companies listed on the Indonesia Stock Exchange during 2021-2024, resulting in 480 firm-year observations. Greenwashing is measured as the annually normalized gap between ESG disclosure score and ESG performance score, with positive gaps treated as greenwashing. Using panel regression with a random effects specification, this study finds that greenwashing has a negative and significant effect on firm value. Family ownership has no significant direct effect on firm value and does not significantly moderate the greenwashing-firm value relationship. Additional conditional tests show that the market penalty for greenwashing is significant in non-family firms but not in family firms. These findings indicate that investors increasingly value the credibility of ESG performance, while family identity may create a reputational buffer in some firms.

Keywords: greenwashing, firm value, family ownership, price-to-book value, ESG disclosure

INTRODUCTION

Sustainability issues have become increasingly relevant for investors, companies, and regulators because environmental, social, and governance (ESG) information is used to evaluate long-term corporate prospects. This development has encouraged listed companies to expand sustainability disclosure. However, higher disclosure does not always imply stronger sustainability implementation. Greenwashing occurs when firms communicate an environmentally responsible image that is inconsistent with their actual environmental or ESG performance (Delmas & Burbano, 2011; Lyon & Montgomery, 2015; Yu et al., 2020).

The Indonesian context provides a relevant setting for examining greenwashing because sustainability reporting has become more institutionalized through OJK Regulation No. 51/POJK.03/2017, while explicit enforcement mechanisms against misleading sustainability claims remain limited. Under such conditions, investors may face information asymmetry when assessing whether ESG disclosure reflects substantive performance or symbolic communication. This issue is particularly important for non-financial companies because operational activities are more directly connected with environmental impacts such as emissions, waste, and natural resource use.

Prior studies report mixed evidence regarding the impact of greenwashing on firm value. Some studies suggest that greenwashing may temporarily increase market valuation when investors cannot easily verify ESG claims (Freshtriana & Kim, 2025; Li et al., 2023). Other studies show that the market penalizes greenwashing because misleading sustainability communication reduces investor trust and corporate legitimacy (Ghitti et al., 2024; Islahuddin et al., 2026; Monalisa

et al., 2025). These inconsistent findings indicate that the relationship between greenwashing and firm value remains an important empirical question, especially in emerging markets.

This study addresses this gap by examining the effect of greenwashing on firm value, proxied by price-to-book value (PBV), among non-financial companies listed on the Indonesia Stock Exchange during 2021-2024. The study also evaluates the moderating role of family ownership, a dominant ownership structure in Indonesia. The novelty of this study lies in combining a normalized ESG disclosure-performance gap with family ownership to explain whether family identity changes market penalties for greenwashing. Theoretically, the study contributes to agency theory, signaling theory, legitimacy theory, and socioemotional wealth theory. Practically, the findings provide implications for managers, investors, and regulators regarding the importance of credible ESG performance rather than merely extensive ESG disclosure.

LITERATURE REVIEW AND HYPOTHESIS FORMULATION

Theoretical foundation

Agency theory explains conflicts that arise when managers possess better information than shareholders and may act opportunistically (Jensen & Meckling, 1976). In the sustainability context, greenwashing can be interpreted as managerial opportunism because managers may exaggerate ESG commitment to obtain legitimacy, reputation, or financing advantages without improving actual ESG performance. Concentrated ownership may reduce type I agency conflicts through stronger monitoring, but it may also create type II agency conflicts between controlling and minority shareholders (Shleifer & Vishny, 1997; Villalonga & Amit, 2006).

Signaling theory explains how informed parties communicate signals to less-informed parties (Spence, 1973). ESG disclosure can serve as a signal of long-term corporate quality. However, when disclosure is not supported by actual ESG performance, the signal becomes less credible and may damage investor confidence (Connelly et al., 2011).

Legitimacy theory further suggests that firms seek social acceptance by aligning corporate actions with societal expectations (Suchman, 1995). Greenwashing may provide symbolic legitimacy in the short term, but detected inconsistency can lead to reputational damage and lower valuation.

Socioemotional wealth theory explains that family firms consider not only financial returns but also family identity, reputation, control, and intergenerational continuity (Berrone et al., 2012; Gomez-Mejia et al., 2007). This perspective implies two possible market responses. On one hand, family firms may be perceived as more credible because family reputation is attached to corporate behavior. On the other hand, pressure to preserve the family image may encourage symbolic disclosure if substantive sustainability practices are costly (Campopiano & De Massis, 2015).

Greenwashing and firm value

Greenwashing reflects a discrepancy between sustainability claims and actual ESG performance. Investors may initially value ESG disclosure positively, but once the inconsistency between disclosure and performance becomes visible, greenwashing increases perceived information risk and reduces corporate credibility. Empirical evidence from recent studies shows that greenwashing can negatively affect firm value because markets penalize misleading sustainability communication (Ghitti et al., 2024; Islahuddin et al., 2026; Monalisa et al., 2025).

H1: Greenwashing has a negative effect on firm value.

Family ownership and firm value

Family ownership may influence firm value through monitoring, long-term orientation, and reputation preservation. Family owners may have stronger incentives to supervise management and maintain business continuity across generations (Anderson & Reeb, 2003; Berrone et al., 2012). However, concentrated family control may also create concerns regarding entrenchment and

minority shareholder protection (Villalonga & Amit, 2006). Hence, the direct effect of family ownership on firm value remains empirically open.

H2: Family ownership has a significant effect on firm value.

Greenwashing, ownership type, and the moderating role of family ownership

The effect of greenwashing may differ between family and non-family firms. Non-family firms may face stronger penalties because investors may be more skeptical of ESG claims made under dispersed ownership and weaker relational identity. In contrast, family firms may benefit from a reputational buffer because the family name, long-term orientation, and socioemotional wealth considerations can serve as additional credibility signals. This argument is consistent with Sekerci et al. (2021), who find that investors respond more strongly to CSR-related information in family firms, and Zarefar et al. (2022), who show that sustainability disclosure has a stronger impact on firm performance in family-owned companies. Nevertheless, if a family firm is perceived to engage in greenwashing, the inconsistency may also damage both corporate and family reputation. Therefore, the following hypotheses are proposed:

H3: Greenwashing has a negative effect on the firm value of non-family firms.

H4: Greenwashing has a negative effect on the firm value of family firms.

H5: Family ownership strengthens the negative effect of greenwashing on firm value.

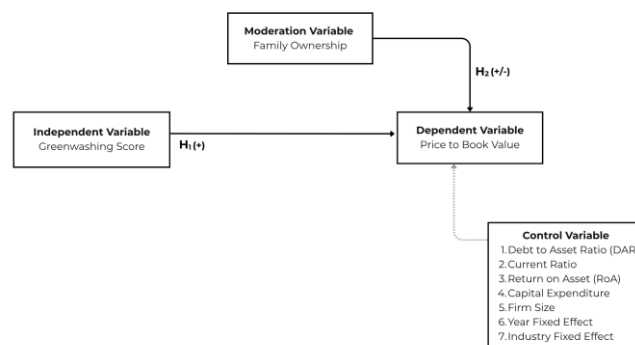


Figure 1. Conceptual Framework 1

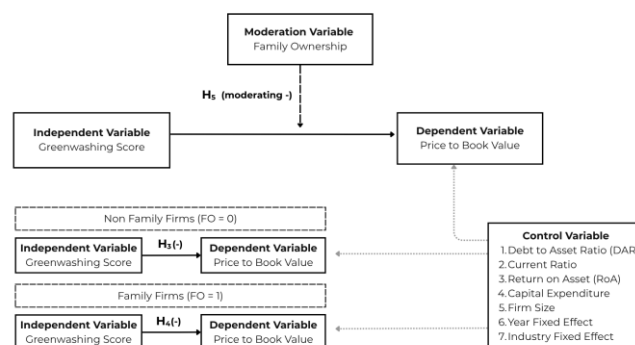


Figure 2. Conceptual Framework 2

RESEARCH METHODS

This study applies a quantitative research design using secondary panel data. The population consists of non-financial companies listed on the Indonesia Stock Exchange (IDX) during 2021-2024. The sample is selected using purposive sampling based on four criteria: (1) listed on the IDX through 2024; (2) classified as a non-financial company; (3) ESG disclosure score and ESG performance score available from Bloomberg; and (4) no missing values for the variables used in the research model. The final sample consists of 120 companies and 480 firm-year observations.

Table 1. Research Sample Selection Process

Criteria	Number of Companies
Companies listed on the IDX in 2024	1,027
Less: financial sector companies	(106)
Less: companies without Bloomberg ESG disclosure and performance scores	(794)
Less: companies with missing values in research variables	(7)
Final sample	120

Source: IDX, Bloomberg, processed by the authors.

Variable measurement

Firm value is measured using price-to-book value (PBV), calculated as market price per share divided by book value per share. PBV is selected because it reflects market valuation relative to reported book equity and is widely used to assess investor expectations regarding firm prospects (Brigham & Ehrhardt, 2020). PBV is winsorized at the 5th and 95th percentiles to reduce the influence of extreme values.

Greenwashing is measured using the difference between standardized ESG disclosure score and standardized ESG performance score. Following the ESG disclosure-performance gap approach, a positive gap indicates that ESG disclosure exceeds actual ESG performance (Kathan et al., 2025; Yu et al., 2020). Negative values are set to zero because they do not indicate greenwashing. Family ownership is measured using a dummy variable equal to 1 for family firms and 0 otherwise. A firm is classified as a family firm when ultimate family ownership exceeds 25% of voting rights, consistent with the ownership threshold used in Indonesian capital market regulation. Control variables include debt-to-asset ratio (DAR), current ratio (CR), return on assets (ROA), capital expenditure (CAPEX), firm size (SIZE), year fixed effects, and industry fixed effects.

Empirical model and data analysis

The greenwashing variable and panel regression models are specified as follows:

$$GW_{it} = \text{normalized ESG disclosure score}_{it} - \text{normalized ESG score}_{it} \dots \dots \dots (1)$$

$$\text{normalized ESG disclosure score}_{it} = \left(\frac{\text{ESG disclosure score}_{it} - \mu \text{ESG disclosure score}}{\sigma \text{ESG disclosure score}} \right) \dots \dots \dots (2)$$

$$\text{normalized ESG score}_{it} = - \left(\frac{\text{ESG score}_{it} - \mu \text{ESG score}}{\sigma \text{ESG score}} \right) \dots \dots \dots (3)$$

$$GW_{it} = \left(\frac{\text{ESG disclosure score}_{it} - \mu \text{ESG disclosure score}}{\sigma \text{ESG disclosure score}} \right) - \left(\frac{\text{ESG score}_{it} - \mu \text{ESG score}}{\sigma \text{ESG score}} \right) \dots \dots \dots (4)$$

$$GW_{it} = \max(\text{normalized ESG disclosure score}_{it} - \text{normalized ESG score}_{it}, 0) \dots \dots \dots (5)$$

$$PBV_{it} = \alpha + \beta_1 GW_{it} + \beta_2 FO_{it} + \beta_3 DAR_{it} + \beta_4 CR_{it} + \beta_5 RoA_{it} + \beta_6 Capex_{it} + \beta_7 Size_{it} + \Sigma \gamma_t Year_t + \Sigma \delta_j Ind_j + \varepsilon_{it} \dots \dots \dots (6)$$

$$PBV_{it} = \alpha + \beta_1 GW_{it} + \beta_2 FO_{it} + \beta_3 (GW * FO)_{it} + \beta_4 DAR_{it} + \beta_5 CR_{it} + \beta_6 RoA_{it} + \beta_7 Capex_{it} + \beta_8 Size_{it} + \Sigma \gamma_t Year_t + \Sigma \delta_j Ind_j + \varepsilon_{it} \dots \dots \dots (7)$$

Greenwashing (GW) is measured as the standardized gap between ESG disclosure and ESG performance scores from Bloomberg, following Yu et al. (2020). Larger positive values indicate greater inconsistency between ESG communication and actual ESG performance. For robustness, an alternative measure based on Kathan et al. (2025) is employed, where negative values are left-censored at zero to capture only cases in which ESG disclosure exceeds ESG performance.

Panel model selection considers the common effects model, fixed effects model, and random effects model. Given the considerable heterogeneity across Indonesian listed firms, the common intercept assumption of the CEM is unlikely to hold. Accordingly, model selection focuses on FEM and REM, both of which account for unobserved firm-specific heterogeneity. While FEM controls for time-invariant firm characteristics through firm-specific intercepts, it is less efficient because it consumes a substantial number of degrees of freedom and cannot estimate the effects of time-invariant variables. Therefore, the Hausman test is employed to determine the appropriate

specification. The Hausman test probability values for Model 1 and Model 2 are above 5%, supporting the use of the Random Effects Model (REM).

This study does not conduct a normality test because the greenwashing variable is measured using a left censoring approach, while residual normality is not a key requirement for panel data estimators. In addition, heteroskedasticity and autocorrelation tests are not performed because the models are estimated using white period standard errors, which provide robust standard errors. For hypothesis testing, this study employs F-tests, t-tests, and Wald tests. The Wald test is specifically used to examine H₄, which concerns the effect of greenwashing on firm value among family-owned firms.

RESULTS AND DISCUSSION

Descriptive statistics

Table 2 presents the descriptive statistics after winsorization. The mean greenwashing score is 0.319, while the median is 0.030, indicating that most firms exhibit relatively low greenwashing levels, although several firms display larger gaps between ESG disclosure and ESG performance. The mean PBV is 2.492, suggesting that the average firm is valued above its book value.

Table 2. Descriptive Statistics of Research Variables

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
GW	0.319	0.030	2.060	0.000	0.447
W_PBV	2.492	1.152	10.600	0.281	2.787
DAR (%)	22.854	21.296	71.374	0.000	17.368
W_CR	2.277	1.651	7.340	0.490	1.781
W_ROA (%)	6.669	5.338	22.107	-2.755	6.478
W_LNCAPEX (ln)	24.724	26.207	28.953	16.962	3.676
SIZE (ln)	28.392	29.793	33.787	18.862	3.845

Source: Bloomberg and authors' calculation.

Regression results

The regression results are summarized in Table 3. Model 1 shows that greenwashing has a negative and significant effect on PBV at the 10% level. Model 2 show that the coefficient of greenwashing becomes more negative and significant at the 5% level. Family ownership and the interaction term are not statistically significant. These results indicate that the market penalizes greenwashing, but family ownership does not significantly moderate the overall relationship between greenwashing and firm value.

Table 3. Regression Results

Variables	Model 1	Model 2
Constant	-0.811 (2.230)	-0.661 (2.232)
GW	-0.399** (0.211)	-0.657** (0.312)
FO	-0.117 (0.561)	-0.277 (0.599)
GW x FO		0.504 (0.433)
DAR	0.053*** (0.021)	0.053*** (0.021)
W_CR	0.077	0.080

	(0.129)	(0.130)
W_ROA	0.082*** (0.019)	0.083*** (0.019)
W_LNCAPEX	0.290* (0.176)	0.301** (0.177)
SIZE	-0.247* (0.157)	-0.257* (0.159)
Year effects	Included	Included
Industry effects	Included	Included
N	480	480
R-squared	0.151	0.154
Adjusted R-squared	0.116	0.118
F-statistic (Prob.)	0.000	0.000

Notes: ***, **, and * indicate significance at 1%, 5%, and 10%, respectively.

Conditional effects by ownership type

This Wald test suggests greenwashing does not have a statistically significant effect on firm value among family firms. Although the combined coefficient is negative, H₄ is not supported.

Table 4. Conditional Effects of Greenwashing by Ownership Type

Ownership Group	Restriction	Coefficient	t-statistic	Probability	Decision
Family firms (FO = 1)	C(2) + C(4) = 0	-0.153	-0.533	0.595	H4 rejected

Source: Wald test results based on Model 2.

Discussion

The acceptance of H1 confirms that greenwashing reduces firm value. This result is consistent with agency theory in which greenwashing reflects opportunistic managerial behavior exploiting information asymmetry (Jensen & Meckling, 1976; Ghitti et al., 2024). From a signaling theory perspective, greenwashing constitutes a dishonest signal that undermines the credibility of corporate information (Spence, 1973), leading to a decline in trust towards the firm and lower valuation. From the legitimacy theory perspective, the market response indicates that symbolic sustainability communication can damage corporate legitimacy when investors perceive an inconsistency between claims and performance.

Secondly, there is insufficient evidence to support H2, suggesting that family ownership does not have a significant direct effect on firm value. This result suggests that investors do not automatically assign a valuation premium to family firms. The potential benefits of family ownership, such as stronger monitoring and long-term orientation, may be offset by concerns regarding concentrated control and minority shareholder protection. Therefore, family ownership alone is not sufficient to explain PBV differences across firms.

The conditional tests support H3 but reject H4. Greenwashing significantly reduces firm value in non-family firms, but the negative effect is not statistically significant in family firms. This difference indicates that ownership structure matters in shaping market interpretation of ESG inconsistency. In non-family firms, greenwashing may be interpreted as a stronger signal of managerial opportunism and without strong long-term commitment mechanisms, greenwashing is more readily identified as a non-credible signal in non-family firms. In family firms, family identity and reputation may partially soften the negative market response, although the coefficient remains negative.

The empirical evidence does not support H5, as the interaction between greenwashing and family ownership is not statistically significant. The positive sign of the interaction coefficient

suggests a tendency for family ownership to attenuate rather than strengthen the negative effect of greenwashing, but the evidence is insufficient to confirm moderation statistically. Overall, the results show that greenwashing is harmful to firm value, while family ownership mainly appears in the conditional pattern rather than as a significant formal moderator.

CONCLUSION

This study examines the effect of greenwashing on firm value and the moderating role of family ownership among 120 non-financial companies listed on the Indonesia Stock Exchange during 2021-2024. Using 480 firm-year observations and a Random Effects Model, the study finds that greenwashing has a negative and significant effect on PBV. This indicates that investors increasingly consider the credibility of ESG performance and penalize firms whose ESG disclosure exceeds actual ESG performance.

Family ownership does not have a significant direct effect on firm value and does not significantly moderate the greenwashing-firm value relationship. However, the conditional analysis reveals that greenwashing significantly reduces firm value in non-family firms but not in family firms. This suggests that family identity may create a reputational buffer, although it does not eliminate the potential risk of greenwashing.

The managerial implication is that firms should avoid symbolic sustainability communication and ensure that ESG disclosure is supported by measurable implementation. Family firms should not rely solely on family reputation, because the negative coefficient among family firms indicates that greenwashing risk remains present. For investors, the findings highlight the importance of evaluating the alignment between ESG disclosure and ESG performance. For regulators, the results support the need for stronger ESG verification standards and clearer oversight of sustainability claims.

This study has several limitations. First, greenwashing is measured using a quantitative ESG gap and does not fully capture qualitative aspects such as narrative framing or managerial intent. Second, family ownership is measured as a dummy variable and does not capture ownership intensity or generational involvement. Third, the study uses Bloomberg data and covers a relatively short period from 2021 to 2024. Future research may extend the observation period, compare multiple ESG data providers, examine non-linear family ownership effects, and combine quantitative analysis with qualitative assessment of sustainability reports.

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