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Research Paper

EXTERNAL ASSURANCE AND SUBSEQUENT ESG PERFORMANCE: EXAMINING FIRM VISIBILITY AND FEMALE DIRECTOR REPRESENTATION

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ABSTRACT

Purpose - This study examines whether external assurance is associated with corporate environmental, social, and governance (ESG) performance in the assurance year and the subsequent year. It also investigates whether firm visibility and female director representation strengthen the relationship between external assurance in the preceding year and subsequent ESG performance.

Research Method - The study employs an unbalanced panel of 89 companies listed on the Indonesia Stock Exchange from 2019 to 2023. The dataset comprises 318 firm-year observations, while the subsequent-period analysis uses 229 observations because assurance information must be available for the immediately preceding year. ESG performance is measured using the Refinitiv ESG Score. Assurance, governance, ownership, and financial data are manually collected from annual and sustainability reports. The hypotheses are tested using ordinary least squares regressions with industry and year fixed effects and heteroskedasticity-robust standard errors.

Findings - External assurance is positively and significantly associated with ESG performance in both the assurance year and the following year. Firms obtaining assurance in the preceding year tend to report higher subsequent ESG scores, supporting the proposed temporal relationship. However, firm visibility and female director representation do not significantly moderate this association.

Implication - The findings suggest that external assurance may contribute beyond reporting credibility by supporting improvements in ESG data systems, internal controls, monitoring, and organizational practices. Companies should therefore treat assurance as a mechanism for learning and performance improvement. Regulators and boards should place greater emphasis on assurance quality, engagement scope, provider competence, and management follow-up in emerging capital markets including Indonesia.

Keywords: External Assurance, ESG Performance, Firm Visibility, Female Director Representation, Indonesia

JEL code: M42, M14, G34

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INTRODUCTION

Environmental, social, and governance (ESG) performance has become increasingly important to investors, regulators, creditors, and other stakeholders seeking to evaluate how companies manage sustainability-related risks and responsibilities. However, the expansion of sustainability reporting has also raised concerns regarding the reliability of corporate ESG information. Extensive disclosure does not necessarily reflect strong underlying performance, as firms may selectively present favourable information or use sustainability reports primarily to protect legitimacy. These concerns have increased demand for independent external assurance as a mechanism for improving the credibility and accountability of sustainability information (Hazaea et al., 2022; Pizzi et al., 2024; Itan & Pratama, 2026).

External assurance involves an independent assessment of sustainability information and the processes used to prepare it. Assurance providers may review reporting boundaries, data-collection procedures, internal controls, supporting documentation, and selected ESG indicators. Its growing institutional relevance is reflected in the issuance of the International Standard on Sustainability Assurance 5000, which provides a comprehensive framework for sustainability-assurance engagements across reporting topics and practitioner types (International Auditing and Assurance Standards Board, 2024). External assurance is therefore increasingly viewed as an important component of credible sustainability reporting.

The potential contribution of assurance may extend beyond improving confidence in the published report. During an assurance engagement, practitioners may identify weaknesses in ESG measurement, internal controls, documentation, information systems, and policy implementation. Management may subsequently use these findings to improve reporting procedures, clarify responsibilities, strengthen monitoring systems, and implement corrective actions (Itan et al., 2025). External assurance can therefore function not only as an ex-post verification mechanism but also as a source of monitoring, external expertise, and organizational learning (Hazaea et al., 2022; Pizzi et al., 2024). Because such organizational changes require time, the consequences of assurance may become more visible in ESG performance during the following period rather than being confined to the assurance year (Gipper et al., 2025; Uyar et al., 2023).

Recent empirical evidence supports this temporal perspective. (Uyar et al., 2023) find that external assurance is positively associated with corporate social responsibility performance in both the assurance year and subsequent periods across an international sample. (Gipper et al., 2025) similarly document positive associations between ESG assurance and subsequent ESG outcomes among US companies. Evidence from emerging economies also indicates that external assurance is associated with stronger ESG performance, although prior studies have often focused on specific sectors such as banking (Tumewang et al., 2025). (Xing et al., 2026) further show that assurance can reduce subsequent greenwashing when companies implement recommendations generated during the assurance process. Collectively, these studies suggest that assurance may operate not only as a credibility signal but also as a source of monitoring, external expertise, and organizational learning.

Nevertheless, the relationship between assurance and subsequent ESG performance may not be uniform across companies. Assurance can be adopted as a substantive mechanism for improving ESG practices, but it may also be used symbolically to protect corporate reputation. (Emma et al., 2026) show that legitimacy threats and negative ESG-related attention influence firms' demand for high-quality assurance. This indicates that the organizational consequences of assurance may depend on firm-level conditions that affect both external pressure and managerial responses.

This study focuses on two such conditions: firm visibility and female director representation. Firm visibility reflects the extent to which companies are exposed to stakeholder attention and public scrutiny. Larger firms generally have broader operations, greater economic and social impacts, and more extensive relationships with investors, regulators, customers, employees, and the media. They may therefore face stronger reputational pressure to address weaknesses identified through assurance and may also possess greater resources to implement corrective actions. (Uyar et al., 2023) find that firm visibility strengthens the assurance-subsequent performance relationship for certain CSR dimensions, although the effect is not uniform across environmental, social, and governance outcomes.

Female director representation may constitute an internal governance condition affecting how firms respond to assurance findings. Female directors can broaden the knowledge, stakeholder perspectives, and experiences considered in corporate decision-making. Recent studies associate greater female representation with stronger ESG practices and performance (Fan et al., 2024; Peng & Chandarasupsang, 2023; Wu et al., 2024;). More directly, emerging evidence indicates that female directors may influence the scope and quality of sustainability-assurance procedures and constrain managerial influence over assurance engagements (Martinez-Ferrero et al., 2025; Obeng et al., 2025;). However, limited research has examined whether female director representation strengthens the relationship between external assurance and subsequent ESG performance.

Indonesia offers a relevant setting for investigating these issues. Sustainability-reporting requirements for listed companies have developed through OJK Regulation No. 51/POJK.03/2017 and OJK Circular Letter No. 16/SEOJK.04/2021. Although these regulations have strengthened sustainability disclosure, external assurance remains selectively adopted. Indonesian listed companies therefore differ in assurance practices, ESG reporting maturity, stakeholder exposure, and governance characteristics. (Kurniawan & Basuki, 2024) also identify continuing challenges in Indonesian sustainability-assurance practice, reinforcing the need to examine whether assurance is associated with substantive ESG outcomes.

This study addresses three related gaps. First, it examines subsequent ESG performance rather than focusing only on assurance adoption, reporting credibility, or contemporaneous outcomes. Second, it provides country-specific evidence from Indonesian listed companies operating within a common regulatory environment. Third, it investigates both an external condition, firm visibility, and an internal governance condition, female director representation, as potential moderators of the assurance-subsequent ESG relationship.

Accordingly, this study examines whether external assurance in the preceding year is positively associated with ESG performance in the subsequent year and whether this relationship is strengthened by firm visibility and female director representation. The analysis uses an unbalanced panel of 89 Indonesian listed companies from 2019 to 2023. ESG performance is measured using the Refinitiv ESG Score, while assurance, governance, ownership, and financial information are obtained from annual and sustainability reports. The study contributes to the assurance literature by providing emerging-market evidence on the temporal relevance of assurance and by examining firm-level conditions that may shape its association with subsequent ESG performance.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Theoretical framework

This study draws primarily on legitimacy theory to explain the relationship between external assurance and subsequent ESG performance. Companies use sustainability reporting to demonstrate that their activities are consistent with stakeholder expectations. However, because sustainability information is prepared by management, stakeholders may question whether reported commitments reflect substantive ESG practices. External assurance can reduce this credibility gap by subjecting sustainability information and its supporting processes to independent examination (Hazaea et al., 2022; Pizzi et al., 2024).

External assurance may also generate organizational learning. Assurance providers can identify weaknesses in ESG data collection, documentation, reporting boundaries, internal controls, and policy implementation. Management may subsequently use these observations to improve ESG systems and operating practices. Because corrective actions require time, the organizational benefits of assurance may become more visible in the following reporting period.

Firm visibility represents an external condition that may influence this process. Highly visible firms face stronger stakeholder scrutiny and greater reputational consequences when inconsistencies arise between sustainability claims and actual performance. Female director representation represents an internal governance condition. Drawing on upper echelons and resource dependence perspectives, female directors may broaden the knowledge, stakeholder orientation, and monitoring capacity applied to assurance findings and ESG decisions (Fan et al., 2024; Peng & Chandarasupsang, 2023).

External Assurance and Subsequent ESG Performance

External assurance provides independent scrutiny of sustainability information and the systems through which it is collected, measured, and reported. In addition to enhancing reporting credibility, assurance engagements may identify incomplete documentation, inconsistent measurement procedures, weak internal controls, unclear reporting boundaries, and gaps between stated ESG policies and their implementation. A systematic review by (Hazaea et al., 2022) indicates that sustainability assurance can strengthen reporting credibility, accountability, monitoring, and stakeholder confidence. (Pizzi et al., 2024) similarly position external assurance as an accountability mechanism that can help restore trust in sustainability reporting amid increasing concerns about selective disclosure and greenwashing (Wati, 2025).

The contribution of assurance may extend beyond validating the information presented in a sustainability report. Assurance providers can generate observations and recommendations that help management identify weaknesses in ESG information systems, clarify organizational responsibilities, improve performance indicators, and strengthen monitoring procedures. When firms act on these findings, assurance can function as a source of external expertise and organizational learning rather than merely as an ex-post verification mechanism. However, the implementation of assurance recommendations may require changes in information systems, internal procedures, employee responsibilities, resource allocation, and operational practices. These changes take time, suggesting that the organizational implications of assurance may become more visible in ESG performance during the following reporting period.

Recent empirical evidence supports this temporal argument. (Uyar et al., 2023) find that external assurance is positively associated with CSR performance in the assurance year and in subsequent periods. (Gipper et al., 2025) similarly document positive associations between ESG assurance and both contemporaneous and subsequent ESG outcomes among US companies. Evidence from emerging economies also indicates that assurance is positively associated with ESG performance, particularly when supported by effective sustainability-governance mechanisms (Tumewang et al., 2025). (Xing et al., 2026) further show that assurance can reduce subsequent greenwashing through a suggestion effect, whereby companies use recommendations arising from assurance to strengthen environmental management, standards, investment, and green innovation.

Taken together, prior research suggests that external assurance can enhance the credibility of sustainability information while also generating knowledge that supports improvements in ESG systems and practices. Because such improvements may require time to implement, firms obtaining assurance in one period are expected to demonstrate stronger ESG performance in the subsequent period.

H1: External assurance in period t-1 is positively associated with ESG performance in period t.

The Moderating Role of Firm Visibility

Firm visibility refers to the extent to which a company attracts attention and scrutiny from investors, regulators, analysts, customers, employees, the media, and the public. In this study, visibility is proxied by firm size. Larger firms generally have broader operations, greater economic and social impacts, and more extensive stakeholder relationships. Their ESG commitments and practices are therefore more likely to be observed and evaluated by external stakeholders (Li et al., 2019; Uyar et al., 2023).

From a legitimacy perspective, visible firms face greater reputational consequences when their sustainability disclosures are inconsistent with their underlying ESG practices. These firms may consequently have stronger incentives to address deficiencies identified during external assurance. Failure to act on assurance findings may raise concerns about symbolic compliance or greenwashing and reduce the credibility and legitimacy benefits expected from obtaining independent assurance (Emma et al., 2026; Uyar et al., 2023).

Recent evidence supports the relevance of reputational pressure to assurance decisions. (Emma et al., 2026) find that negative media coverage of ESG events creates legitimacy threats that influence firms' demand for high-quality sustainability assurance. Their findings suggest that companies use credible assurance as part of their response to threats affecting reputational capital and public image. (García-Sánchez et al., 2026) similarly show that ESG controversies can encourage companies to obtain external assurance as a means of restoring stakeholder confidence and protecting corporate image and market value. These studies indicate that the strategic relevance of assurance is likely to increase when firms are exposed to stronger external attention.

Related evidence is provided by (Kuzey et al., 2023), who find that firm visibility plays an important role in the sustainability-reporting responses of financially distressed companies. More visible firms are more likely to issue sustainability reports, follow recognised reporting guidance, and obtain external assurance. Their findings reinforce the argument that public scrutiny increases corporate incentives to improve the transparency and credibility of sustainability information.

Firm size may also reflect the organizational capacity to translate assurance findings into substantive ESG improvements. Implementing assurance recommendations may require investment in ESG information systems, internal controls, employee training, data-verification procedures, and sustainability programmes. Larger companies generally possess greater financial, technical, and human resources and may have more developed sustainability and internal-audit functions through which assurance findings can be evaluated and implemented.

This argument is consistent with (Martiny et al., 2024), whose systematic review identifies both internal organizational characteristics and external institutional conditions as determinants of ESG performance. The review also shows that ESG findings can vary across national contexts and data providers, supporting the need to examine firm-level conditions within a specific institutional setting.

Firm visibility may therefore strengthen the relationship between external assurance and subsequent ESG performance through two complementary mechanisms. First, greater stakeholder scrutiny increases the reputational costs of failing to address weaknesses identified through assurance. Second, larger firms may possess greater organizational resources for implementing corrective actions and improving ESG systems.

(Uyar et al., 2023) provide the most directly relevant evidence. They find that firm visibility positively moderates the relationship between external assurance and subsequent social and governance performance, although the moderating effect is not significant for environmental performance. Their findings suggest that visibility may strengthen the organizational consequences of assurance, but its influence may differ across ESG dimensions.

Indonesia provides an appropriate setting for re-examining this relationship. Larger Indonesian listed companies are likely to attract greater attention from domestic and international stakeholders and may possess stronger organizational capacity to implement assurance recommendations. External assurance is therefore expected to be more strongly associated with subsequent ESG performance among larger and more visible firms.

H2: Firm visibility positively moderates the relationship between external assurance in period t-1 and ESG performance in period t, such that the positive relationship is stronger among larger and more visible firms.

The Moderating Role of Female Director Representation

Female director representation refers to women's participation in the corporate body responsible for managerial decision-making and the implementation of company strategies. In this study, female director representation is measured as the total number of women serving on the board of directors. Greater representation may broaden the range of knowledge, professional experience, and stakeholder perspectives considered in managerial deliberations and may consequently affect how firms respond to sustainability-related information and accountability mechanisms (Chang et al., 2024; Peng & Chandarasupsang, 2023).

Recent studies generally associate female directors with stronger ESG practices. (Peng & Chandarasupsang, 2023) find that female board representation is positively related to ESG practices. (Fan et al., 2024) report that the proportion of female directors improves ESG performance partly through green innovation. (Wu et al., 2024) similarly document positive relationships with overall, environmental, and social performance, although the effect is less consistent for governance outcomes. (Chang et al., 2024) also find that greater board gender diversity is associated with stronger CSR performance.

Female directors may be particularly relevant to the implementation of assurance findings. Although assurance providers identify weaknesses and recommend improvements, corporate decision-makers determine whether those recommendations are incorporated into internal controls, investments, policies, and operating practices. Greater female representation may strengthen monitoring, broaden stakeholder consideration, and increase management accountability for unresolved assurance findings (Martinez-Ferrero et al., 2025; Obeng et al., 2025).

Emerging evidence directly connects board gender diversity with sustainability assurance. (Obeng et al., 2025) find that greater gender diversity is associated with more extensive assurance procedures, although the relationship varies according to assurance level and provider type. (Martinez-Ferrero et al., 2025) further show that female directors can reduce managerial capture of sustainability-assurance engagements. These findings suggest that female representation may strengthen the independence and substantive value of assurance.

H3: Female director representation positively moderates the relationship between external assurance in period t-1 and ESG performance in period t, such that the positive relationship is stronger when female director representation is greater.

RESEARCH METHODOLOGY

Research Design, Sample, and Data Source

This study employs a quantitative explanatory design to examine the association between external assurance and ESG performance in the assurance year and the subsequent year. It also investigates whether firm visibility and female director representation moderate the relationship between external assurance in the preceding year and current ESG performance.

The population consists of companies listed on the Indonesia Stock Exchange from 2019 to 2023. The sample was selected purposively based on the availability of Refinitiv ESG scores, annual reports, sustainability reports, and the information required to measure all study variables. The final sample comprises an unbalanced panel of 89 companies and 318 firm-year observations. The subsequent-period analysis contains 229 observations because external assurance information must be available for the immediately preceding year.

ESG performance data were obtained from the Thomson Reuters Refinitiv database. All other variables were manually collected or calculated from annual reports and sustainability reports. External assurance was identified from independent assurance statements or explicit disclosures that the sustainability report or selected sustainability information had been verified by an external independent party.

Variable Measurement

The study variables are measured using information obtained from Refinitiv, annual reports, and sustainability reports. ESG performance is measured in period t, while external assurance is examined using both contemporaneous assurance and assurance from the immediately preceding year. Firm visibility, female director representation, and all control variables are measured in period t. Table 1 summarizes the definitions, measurements, data sources, and relevant references for all variables.

Table 1. Variable Definitions and Measurements

Variable	Code	Definition and Measurement	Measurement Reference	Data source
ESG performance	ESG	Refinitiv ESG Score ranging from 0 to 100. A higher score indicates stronger environmental, social, and governance performance.	(Uyar et al., 2023)	Thomson Reuters Refinitiv
External assurance-current period	ASSUR(t)	Dummy variable equal to 1 when the company's CSR or sustainability report in	(Gipper et al., 2025; Uyar et al., 2023)	Sustainability report and annual report

		period (t) is externally assured, and 0 otherwise.		
External assurance-lagged period	ASSUR(t-1)	One-year lag of external assurance, equal to 1 when the company's CSR or sustainability report in period (t-1) was externally assured, and 0 otherwise.	(Gipper et al., 2025; Uyar et al., 2023)	Sustainability report and annual report
Firm visibility	FSIZE	Natural logarithm of total assets. Firm size is used as a proxy for firm visibility.	(Li et al., 2019; Uyar et al., 2023)	Annual report
Female director representation	FDR	Total number of female directors serving on the board of directors.	(Chang et al., 2024)	Annual report
Board size	BSIZE	Total number of directors serving on the board of directors.	(Fan et al., 2024; Uyar et al., 2023)	Annual report
Return on assets	ROA	Income before tax divided by total assets.	(Tumewang et al., 2025; Uyar et al., 2023)	Annual report
Leverage	LEVERAGE	Total debt divided by total assets.	(Tumewang et al., 2025; Uyar et al., 2023)	Annual report
Free float	FFLOAT	Percentage of the company's outstanding shares available for trading by public investors.	(Uyar et al., 2023)	Annual report

Empirical models and Estimation

The hypotheses are tested using ordinary least squares regression with industry and year fixed effects. Industry fixed effects control for systematic differences in ESG exposure and sustainability practices across industries, while year fixed effects capture common changes in economic conditions, regulation, and ESG reporting practices. The association between external assurance in the preceding year and current ESG performance was estimated as follows:

$$ESG_{it}=\alpha+\beta_1 ASSUR_{i,t-1}+\sum\gamma_k Controls_{it}+IndustryFE+YearFE+\varepsilon_{it} \quad (1)$$

where ESG_{it} represents the Refinitiv ESG Score and $ASSUR_{i,t-1}$ equals one when the company's sustainability report was externally assured in the immediately preceding year and zero otherwise. The control variables comprise board size, firm size, female director representation, profitability, leverage, and free float. A separate supplementary model replaces $ASSUR_{i,t-1}$ with contemporaneous assurance, $ASSUR_{it}$.

The moderating effects were tested using the following specification:

$$ESG_{it}= \alpha+\beta_1 ASSUR_{i,t-1}+\beta_2 Moderator_{it}+\beta_3 (ASSUR_{i,t-1}\times Moderator_{it})+\sum\gamma_k Controls_{it} +IndustryFE+YearFE+\varepsilon_{it} \quad (2)$$

Firm visibility, measured by the natural logarithm of total assets, is entered as the moderator for H2, while female director representation is entered for H3. The two interaction effects are estimated in separate models. A positive and statistically significant β_3 supports the corresponding moderation hypothesis.

Before estimation, the continuous explanatory and control variables were winsorized at the 1st and 99th percentiles to reduce the influence of extreme observations. Dummy and count variables were retained in their original form. The analysis also included descriptive statistics and Pearson correlations. All regression models were estimated using heteroskedasticity-robust standard errors. Because external assurance is voluntarily adopted, the results are interpreted as conditional associations rather than causal effects.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 presents the descriptive statistics for the variables included in the analysis. ESG performance has a mean value of 49.677, with a standard deviation of 19.264. The scores range from 13.831 to 85.860, indicating substantial variation in ESG performance across the sampled Indonesian listed companies.

The mean value of contemporaneous external assurance, ASSUR(t) is 0.286. Thus, approximately 28.6% of the firm-year observations involve externally assured sustainability or CSR reports. The mean value of lagged external assurance, ASSUR(t-1), is 0.279, indicating that approximately 27.9% of the observations used in the lagged analysis obtained external assurance in the preceding year. The number of observations decreases from 318 for contemporaneous assurance to 229 for lagged assurance because the latter requires an available observation for the immediately preceding reporting year.

Female director representation has a mean of 1.104 and ranges from zero to six. The average sampled company therefore has approximately one female director, although some companies have no women serving on their board of directors. Board size has a mean of 6.978, with values ranging from two to fifteen directors. The variation in board size supports its inclusion as a control variable because the absolute number of female directors may partly depend on the total number of board positions.

Firm visibility, measured as the natural logarithm of total assets, has a mean of 31.537 and a standard deviation of 1.519. Return on assets has a mean of 0.059, indicating average income before tax equivalent to approximately 5.9% of total assets. Its values range from −0.180 to 0.348, showing that the sample includes both loss-making and highly profitable firms.

Leverage has a mean of 0.526, suggesting that total debt represents approximately 52.6% of total assets for the average company. Free float has a mean of 0.334, indicating that approximately one-third of outstanding shares are available to public investors. Its broad range, from 0.005 to 0.728, reflects considerable variation in public ownership across the sampled firms.

Table 2. Descriptive Statistics

	N	Mean	Standard Deviation	Minimum	Maximum
ESG	318	49.677	19.264	13.831	85.860
ASSUR(t)	318	0.286	0.453	0.000	1.000
ASSUR(t-1)	229	0.279	0.450	0.000	1.000
FDR	318	1.104	1.214	0.000	6.000
BSIZE	318	6.978	2.545	2.000	15.000
FSIZE	318	31.537	1.519	26.325	35.315
ROA	318	0.059	0.083	-0.180	0.348
LEVERAGE	318	0.526	0.230	0.112	0.945
FFLOAT	318	0.334	0.153	0.005	0.728

Notes: The table reports descriptive statistics for the study variables. Variable definitions are provided in Table 1. The smaller number of observations for ASSUR(t-1) results from the requirement for assurance information from the immediately preceding year. Continuous explanatory and control variables are winsorized at the 1st and 99th percentiles.

Correlation Analysis

Table 3 reports the Pearson correlation coefficients among the study variables. ESG performance is positively and significantly correlated with both contemporaneous external assurance and lagged external assurance. The correlation between ESG and ASSUR(t) is 0.597, while the correlation between ESG and ASSUR(t−1) is 0.628; both coefficients are significant at the 1% level. These preliminary results suggest that assured firms tend to exhibit higher ESG performance in both the assurance period and the following period. However, these bivariate relationships do not account for firm characteristics, industry effects, or common time effects and should not be interpreted as evidence of causality.

Table 3. Pearson Correlation

	(1) ESG	(2) ASSUR(t)	(3) ASSUR(t-1)	(4) FDR
ESG	1.000			
ASSUR(t)	0.597^{***}	1.000		
	(0.000)			
ASSUR(t-1)	0.628^{***}	0.869^{***}	1.000	
	(0.000)	(0.000)		
FDR	0.226^{***}	0.227^{***}	0.240^{***}	1.000
	(0.000)	(0.000)	(0.000)	
BSIZE	0.447^{***}	0.435^{***}	0.475^{***}	0.374^{***}
	(0.000)	(0.000)	(0.000)	(0.000)
FSIZE	0.466^{***}	0.420^{***}	0.414^{***}	0.143^{**}
	(0.000)	(0.000)	(0.000)	(0.011)
ROA	0.176^{***}	0.074	0.113^{*}	0.159^{***}
	(0.002)	(0.191)	(0.087)	(0.005)
LEVERAGE	0.125^{**}	0.171^{***}	0.189^{***}	0.152^{***}
	(0.026)	(0.002)	(0.004)	(0.007)
FFLOAT	0.043	0.078	0.087	-0.033
	(0.447)	(0.163)	(0.192)	(0.560)

	(5) BSIZE	(6) FSIZE	(7) ROA	(8) LEVERAGE	(9) FFLOAT
ESG					
ASSUR(t)					
ASSUR(t-1)					
FDR					
BSIZE	1.000				
FSIZE	0.676^{***}	1.000			
	(0.000)				
ROA	0.039	-0.076	1.000		
	(0.483)	(0.175)			
LEVERAGE	0.298^{***}	0.356^{***}	-0.296^{***}	1.000	
	(0.000)	(0.000)	(0.000)		
FFLOAT	0.073	0.105^{*}	-0.127^{**}	-0.031	1.000
	(0.193)	(0.061)	(0.024)	(0.579)	

Notes: Pearson correlation coefficients are reported, with p-values in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively. Variable definitions are provided in

Table 1. Continuous explanatory and control variables are winsorized at the 1st and 99th percentiles. Contemporaneous and prior-year external assurance are estimated in separate regression models.

ESG performance is also positively correlated with female director representation ($r=0.226$, $p<0.01$), board size ($r=0.447$, $p<0.01$), and firm visibility ($r=0.466$, $p<0.01$). These results indicate that firms with more female directors, larger boards, and greater organizational size tend to report higher ESG scores. Profitability is positively correlated with ESG performance ($r=0.176$, $p<0.01$), while leverage has a weaker positive correlation ($r=0.125$, $p<0.05$). Free float is not significantly correlated with ESG performance ($r=0.043$, $p>0.10$).

The correlation between ASSUR(t) and ASSUR(t−1) is relatively high at 0.869. This coefficient indicates substantial persistence in assurance adoption, as companies obtaining assurance in one year are likely to continue doing so in the following year. The two assurance measures are therefore estimated in separate regression models rather than included simultaneously.

Excluding the contemporaneous and lagged assurance measures, the highest correlation among the explanatory variables is between board size and firm visibility ($r=0.676$, $p<0.01$). Although this relationship is moderately strong, it remains below the commonly applied warning level of 0.80. Female director representation is correlated with board size at 0.374, further supporting the inclusion of board size as a control when female representation is measured as an absolute count.

Taken together, the correlation coefficients do not indicate an immediate severe multicollinearity problem. Nevertheless, the correlation analysis provides only preliminary evidence, and the hypotheses are assessed using multivariate regression models.

Regression Results

Table 4 presents the OLS results with industry and year fixed effects and heteroskedasticity-robust standard errors. The first model examines external assurance and ESG performance in the same reporting period, while the second model examines whether assurance in the immediately preceding year is associated with current ESG performance.

Contemporaneous external assurance is positively and significantly associated with ESG performance ($\beta=16.965$, $t=7.75$, $p<0.01$). As external assurance is measured as a binary variable, assured firms have ESG scores approximately 16.97 points higher than non-assured firms, after controlling for board and firm characteristics, industry effects, and year effects.

More importantly, external assurance in the immediately preceding year is positively and significantly associated with current ESG performance ($\beta=17.865$, $t=7.29$, $p<0.01$). Firms obtaining external assurance in the preceding year have ESG scores approximately 17.87 points higher than firms without prior assurance, holding the other variables constant. Therefore, H1 is supported.

The result suggests that the relevance of assurance may extend beyond strengthening the credibility of the sustainability report issued in the assurance year. Assurance practitioners may identify weaknesses in ESG data collection, reporting boundaries, documentation, internal controls, and policy implementation. Management can subsequently use these observations to improve information systems, clarify responsibilities, strengthen monitoring procedures, and implement corrective action. As organizational adjustments require time, their association with ESG performance may become more evident in the following period.

This interpretation is consistent with (Hazaea et al., 2022), who identify credibility, accountability, and monitoring as important potential consequences of sustainability assurance. (Pizzi et al., 2024) similarly emphasize the role of assurance in restoring stakeholder confidence in sustainability reporting. (Uyar et al., 2023) provide direct evidence that external assurance is positively associated with CSR performance in both the assurance year and subsequent periods, while (Gipper et al., 2025) document positive contemporaneous and subsequent ESG outcomes among US companies.

Evidence from emerging economies also supports the relevance of assurance to ESG performance (Tumewang et al., 2025). Moreover, (Xing et al., 2026) show that assurance can reduce subsequent greenwashing through a suggestion effect, whereby firms implement recommendations concerning environmental management, standards, investment, and innovation. The present findings are therefore consistent with the view that assurance may function as a source of independent monitoring and organizational learning rather than solely as an external reporting signal.

Nevertheless, the results indicate an association rather than a definitive causal effect. External assurance is voluntarily adopted, and firms obtaining assurance may already possess stronger sustainability commitments, governance arrangements, reporting systems, or organizational resources than non-assured firms.

Among the control variables, board size is positively associated with ESG performance in both specifications. Firm visibility is also positive and significant, suggesting that larger firms tend to achieve stronger ESG performance. Greater stakeholder scrutiny and more extensive organizational resources may support the development of ESG systems and practices. Free float is negatively associated with ESG performance, whereas profitability and leverage do not show consistent relationships across the models.

Table 4. Regression Result: Association between Assurance and ESG Performance

	(1) **ESG**	**(2)** **ESG**
ASSUR(t)	16.965***	
	(7.75)	
ASSUR(t-1)		17.865***
		(7.29)
BSIZE	1.035**	1.201**
	(2.49)	(2.48)
FSIZE	2.825***	2.700***
	(3.88)	(3.23)
ROA	17.748*	16.365
	(1.87)	(1.52)
LEVERAGE	5.871	6.632
	(1.23)	(1.23)
FFLOAT	-11.469*	-19.524**
	(-1.76)	(-2.50)
CONSTANT	-39.966**	-31.779
	(-1.99)	(-1.34)
Industry FE	Yes	Yes
Year FE	Yes	Yes
F	32.326	77.502
r2_a	0.497	0.527
N	318	229

Notes: The dependent variable is the Refinitiv ESG Score. ASSUR(t) and ASSUR(t-1) are estimated in separate models. All models include control variables, industry fixed effects, year fixed effects, and heteroskedasticity-robust standard errors. Continuous variables are winsorized at the 1st and 99th percentiles. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 5 reports the results for the moderating role of firm visibility. H2 predicts that firm visibility strengthens the positive relationship between external assurance in the preceding year and subsequent ESG performance. However, the interaction between prior-year external assurance and firm visibility is negative and statistically insignificant (β=−1.450, t=−0.91, p=0.364). Thus, the positive association between external assurance and subsequent ESG performance does not vary significantly according to firm visibility. Accordingly, H2 is not supported.

Firm visibility itself remains positively and significantly associated with ESG performance (β=3.130, t=3.09, p=0.002). This finding indicates that larger and more visible firms generally have higher ESG scores. However, the significant direct relationship should be distinguished from the insignificant interaction effect: firm visibility is associated with ESG performance but does not significantly alter the relationship between assurance and subsequent ESG performance.

The result differs from (Uyar et al., 2023), who find that firm visibility strengthens the association between external assurance and subsequent social and governance performance, although the moderating effect is insignificant for environmental performance. The use of an overall ESG score may partly explain the present result. Moderating effects that differ across environmental, social, and governance dimensions may become less visible when the three pillars are aggregated into a composite measure.

Firm size may also capture more than external visibility. It simultaneously reflects organizational resources, operational complexity, reporting maturity, and established ESG capabilities. Larger firms may already possess sustainability departments, internal-control systems, specialized personnel, and formal ESG monitoring procedures before obtaining assurance. Consequently, the additional benefit associated with assurance may not be substantially greater for larger firms.

Furthermore, the binary assurance measure does not distinguish between assurance providers, levels, scopes, standards, or procedures. Recent assurance research indicates that these engagement characteristics may influence the credibility and organizational value of assurance (Gipper et al., 2025). They may therefore be more relevant than general firm size in explaining whether assurance findings are translated into stronger subsequent ESG performance.

Recent studies also indicate that legitimacy threats, adverse media coverage, and ESG controversies affect corporate assurance decisions (Emma et al., 2026; García-Sánchez et al., 2026). However, greater public exposure does not automatically ensure that assurance findings are substantively implemented. The insignificant interaction therefore suggests that firm visibility alone is insufficient to explain variations in the assurance-ESG relationship.

Table 5. Regression Result: Moderating Role of FSIZE

	(1) **ESG**
ASSUR(t-1)	64.467
	(1.26)
FSIZE	3.130***
	(3.09)
ASSUR(t-1) x FDR	-1.450
	(-0.91)
BSIZE	1.191**
	(2.49)
ROA	14.763
	(1.33)
LEVERAGE	6.688
	(1.25)
FFLOAT	-17.660**
	(-2.17)

CONSTANT	-46.458
	(-1.52)
Industry FE	Yes
Year FE	Yes
F	74.942
r2_a	0.526
N	229

Notes: The dependent variable is the Refinitiv ESG Score. ASSUR(t-1) × FSIZE represents the moderating effect of firm visibility. The model includes control variables, industry and year fixed effects, and heteroskedasticity-robust standard errors. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6. Regression Result: Moderating Role of FDR

	(1) **ESG**
ASSUR(t-1)	15.352***
	(4.61)
FDR	1.970
	(1.54)
ASSUR(t-1) x FDR	1.093
	(0.62)
BSIZE	0.744
	(1.49)
FSIZE	2.997***
	(3.46)
ROA	3.967
	(0.32)
LEVERAGE	4.043
	(0.67)
FFLOAT	-18.239**
	(-2.34)
CONSTANT	-36.384
	(-1.45)
Industry FE	Yes
Year FE	Yes
F	79.446
r2_a	0.538
N	229

Notes: The dependent variable is the Refinitiv ESG Score. ASSUR(t-1) × FDR represents the moderating effect of female director representation. The model includes control variables, industry and year fixed effects, and heteroskedasticity-robust standard errors. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Table 6 presents the results for the moderating role of female director representation. H3 predicts that a greater number of female directors strengthens the positive relationship between external assurance in the preceding year and subsequent ESG performance. The interaction coefficient is positive, as predicted, but statistically insignificant (β=1.093, t=0.62, p=0.534). Therefore, H3 is not supported.

The direct coefficient of female director representation is also positive but statistically insignificant (β=1.970, t=1.54, p=0.125). By contrast, prior-year external assurance remains positive and significant (β=15.352, t=4.61, p<0.001). These findings indicate that external assurance continues to be associated with subsequent ESG performance, but the strength of this association does not significantly depend on the number of women serving on the board of directors.

The result differs from studies documenting positive direct relationships between female directors and ESG or CSR outcomes. (Peng & Chandarasupsang, 2023; Fan et al., 2024; Wu et al., 2024; Chang et al., 2024) generally show that greater female representation can contribute to ESG performance through stronger monitoring, broader stakeholder perspectives, green innovation, and more diverse decision-making. However, these studies primarily examine the direct influence of female directors. A positive direct relationship does not necessarily imply that female representation strengthens the effectiveness of another accountability mechanism such as external assurance.

One explanation is that the number of female directors does not fully capture their substantive influence. Female directors may differ in tenure, professional expertise, executive responsibilities, committee membership, authority, and involvement in sustainability-related decisions. The descriptive statistics also show that firms have approximately one female director on average. Such representation may be insufficient to influence collective managerial decisions concerning the implementation of assurance recommendations, particularly when female directors remain a small minority of the board.

Recent studies indicate that female representation may affect particular features of sustainability assurance. (Obeng et al., 2025) find that board gender diversity is associated with more extensive assurance procedures, with the relationship depending on assurance level and provider type. (Martinez-Ferrero et al., 2025) also show that female directors can limit managerial capture of sustainability-assurance engagements. These effects may improve the governance or quality of the assurance process without necessarily producing an observable change in the overall ESG score within one year.

The result therefore does not imply that female directors are irrelevant to sustainability governance. Instead, it indicates that their numerical representation does not significantly change the relationship between prior external assurance and subsequent composite ESG performance in the present sample.

Taken together, the results support the main relationship proposed in H1 but do not support the moderating relationships proposed in H2 and H3. External assurance in the preceding year is positively and significantly associated with subsequent ESG performance. This finding supports the view that assurance may have organizational relevance beyond increasing confidence in the published sustainability report.

However, the positive assurance-ESG relationship does not vary significantly according to firm visibility or female director representation. The association therefore appears relatively consistent across firms with different levels of organizational size and female participation on the board.

The insignificant moderation findings are also informative. They suggest that broad firm characteristics may be less important than more proximate mechanisms in determining the organizational consequences of assurance. Such mechanisms may include assurance scope, provider competence, assurance level, the number of indicators examined, board ESG expertise, sustainability-committee effectiveness, and formal procedures for following up assurance findings. Future research may examine these characteristics to provide a more detailed explanation of when external assurance is followed by stronger ESG performance.

Future studies could distinguish assurance engagements according to provider type, assurance level, engagement scope, standards applied, and the extent of assurance procedures, as these characteristics may determine the credibility and organizational value of the assurance process (Gipper et al., 2025; Obeng et al., 2025).

CONCLUSION AND SUGGESTION

This study examines the relationship between external assurance and ESG performance among 89 Indonesian listed companies during the 2019-2023 period. It also investigates whether firm visibility and female director representation strengthen the association between external assurance in the preceding year and subsequent ESG performance. The findings show that external assurance is positively and significantly associated with ESG performance in both the assurance year and the following year. Accordingly, H1 is supported. This result suggests that the relevance of external assurance may extend beyond enhancing the credibility of sustainability information. Observations and recommendations arising from assurance engagements may help companies improve ESG data systems, reporting procedures, internal controls, monitoring mechanisms, and the implementation of sustainability practices over time. This interpretation is consistent with recent evidence that external assurance can generate organizational-learning benefits and remain associated with sustainability performance after the assurance period (Gipper et al., 2025; Uyar et al., 2023; Xing et al., 2026).

The results do not support the proposed moderating role of firm visibility. Although larger and more visible firms generally record higher ESG scores, firm visibility does not significantly strengthen the relationship between prior external assurance and subsequent ESG performance. H2 is therefore not supported. Similarly, female director representation does not significantly moderate the relationship, and H3 is not supported. The positive association between external assurance and subsequent ESG performance does not vary significantly according to the number of female directors. This finding does not imply that female directors are unimportant to sustainability governance. Rather, an absolute count may not capture their substantive influence, which may depend on their expertise, tenure, authority, committee participation, and involvement in sustainability-related decisions. Overall, the assurance-ESG relationship appears relatively consistent across companies with different levels of visibility and female director representation.

The findings have several practical implications. Companies should treat external assurance as an organizational-improvement mechanism rather than merely as independent verification of a published sustainability report. Management should formally document assurance findings, assign responsibility for corrective actions, establish implementation deadlines, and monitor subsequent progress. Boards should also evaluate the quality of assurance engagements by considering the provider’s competence and independence, the level and scope of assurance, the standards applied, the indicators examined, and any limitations disclosed in the assurance statement. The insignificant interaction with firm visibility further indicates that assurance should not be viewed as relevant only to large companies. Smaller firms may also benefit from external expertise, particularly when their internal ESG systems and specialist resources remain underdeveloped. Likewise, companies should focus not only on increasing the number of female directors but also on ensuring that women have meaningful authority, access to ESG information, relevant expertise, and opportunities to participate in reviewing assurance findings.

For regulators, the results support greater transparency concerning sustainability-assurance engagements. Indonesian listed companies could be encouraged to disclose the identity and professional background of the assurance provider, the assurance standard and level applied, the reporting boundaries and indicators covered, and significant limitations of the engagement. Such disclosures would help investors and other stakeholders distinguish limited-scope assurance from more comprehensive assurance processes and assess whether assurance is likely to contribute to substantive ESG accountability.

This study is subject to several limitations. The sample is restricted by the availability of Refinitiv ESG scores, while external assurance is measured as a binary variable that does not capture provider type, assurance level, scope, procedures, or engagement quality. Firm visibility is proxied by firm size, and female director representation is measured as an absolute number. Future studies could examine environmental, social, and governance pillar scores separately; distinguish assurance engagements by provider, level, and scope; and employ more direct indicators of visibility, such as media coverage, analyst following, or ESG controversies. Female representation could also be measured using board proportion, critical mass, tenure, independence, or ESG expertise. Finally, future research may employ matching techniques to compare assured and non-assured firms with similar observable characteristics. Instrumental-variable approaches may also be considered when a valid instrument is available to address the potential endogeneity of voluntary assurance adoption. In addition, future studies could examine ESG performance over longer subsequent periods, as improvements arising from assurance recommendations may require more than one year to become observable.

REFERENCES

Chang, Y., Wu, K.-T., Lin, S.-H., & Lin, C.-J. (2024). Board gender diversity and corporate social responsibility. *International Journal of Corporate Social Responsibility*, *9*(1), 7. https://doi.org/10.1186/s40991-024-00095-x

Emma, G.-M., Emiliano, R.-B., & Jennifer, M.-F. (2026). High-quality assurance, ESG legitimacy threats and board effectiveness. *The British Accounting Review*, *58*(4), 101385. https://doi.org/10.1016/j.bar.2024.101385

Fan, Y., Li, S., & Yang, W. (2024). The impact of the percentage of female directors on corporate ESG score. *Finance Research Letters*, *63*, 105376. https://doi.org/10.1016/j.frl.2024.105376

García-Sánchez, I.-M., Hussain, N., Aibar-Guzmán, C., & Aibar-Guzmán, B. (2026). ESG controversies and external assurance: Examining their impact on firm value and image. *The British Accounting Review*, *58*(4), 101704. https://doi.org/10.1016/j.bar.2025.101704

Gipper, B., Ross, S., & Shi, S. X. (2025). ESG assurance in the United States. In *Review of Accounting Studies* (Vol. 30, Issue 2). Springer US. https://doi.org/10.1007/s11142-024-09856-2

Hazaea, S. A., Zhu, J., Khatib, S. F. A., Bazhair, A. H., & Elamer, A. A. (2022). Sustainability assurance practices: A systematic review and future research agenda. *Environmental Science and Pollution Research*, *29*(4), 4843–4864. https://doi.org/10.1007/s11356-021-17359-9

International Auditing and Assurance Standards Board. (2024). *International Standard on Sustainability Assurance 5000: General requirements for sustainability assurance engagements.*

Itan, I., Nazara, E. P., & Karjantoro, H. (2025). Research Paper Environmental , Social , And Governance Disclosure. *Global Financial Accounting Journal*, *9*(02), 144–157.

Itan, I., & Pratama, R. P. (2026). The Effect Of Earnings Management On Corporate Social Responsibility With Corporate Governance As. *Global Financial Accounting Journal*, *10*(01), 16–29. https://doi.org/10.37253/gfa.v10i1.11528

Kurniawan, P. S., & Basuki, B. (2024). Sustainability reporting assurance practice in Indonesia: Assuror and academician perspective. *Accounting Research Journal*, *37*(5), 481–499. https://doi.org/10.1108/ARJ-05-2023-0132

Kuzey, C., Uyar, A., Wasiuzzaman, S., Karaman, A. S., & Inwinkl, P. (2023). Financial distress and corporate transparency/opacity: The role of firm visibility. *International Review of Economics & Finance*, *88*, 766–798. https://doi.org/10.1016/j.iref.2023.07.019

Li, F., Morris, T., & Young, B. (2019). The effect of corporate visibility on corporate social responsibility. *Sustainability*, *11*(13), 3698. https://doi.org/10.3390/su11133698

Martinez-Ferrero, J., Sánchez-Sancho, M., & García-Meca, E. (2025). The paradigm of female directors in the managerial capture of sustainability assurance: An analysis supported by natural language processing methods. *Meditari Accountancy Research*, *33*(5–6), 1293–1328. https://doi.org/10.1108/MEDAR-05-2024-2483

Martiny, A., Taglialatela, J., Testa, F., & Iraldo, F. (2024). Determinants of environmental social and governance (ESG) performance: A systematic literature review. *Journal of Cleaner Production*, *456*, 142213. https://doi.org/10.1016/j.jclepro.2024.142213

Obeng, V. A., Farooq, M. B., Miglani, S., & Jalali, F. (2025). Sustainability assurance quality and board gender diversity: Moderating role of assurance level and provider type on the extent of assurance procedures. *Journal of Accounting & Organizational Change*, *21*(7), 90–117. https://doi.org/10.1108/JAOC-07-2024-0214

Peng, H., & Chandarasupsang, T. (2023). The effect of female directors on ESG practice: Evidence from China. *International Journal of Financial Studies*, *11*(2), 66. https://doi.org/10.3390/ijfs11020066

Pizzi, S., Venturelli, A., & Caputo, F. (2024). Restoring trust in sustainability reporting: The enabling role of the external assurance. *Current Opinion in Environmental Sustainability*, *68*, 101437. https://doi.org/10.1016/j.cosust.2024.101437

Tumewang, Y. K., Almarayeh, T., & Alharasis, E. (2025). Sustainability committee, external assurance, and ESG performance: Empirical evidence from banking industry in emerging economies. *Corporate Social Responsibility and Environmental Management*, *32*(2), 2728–2745. https://doi.org/10.1002/csr.3095

Uyar, A., Elmassri, M., Kuzey, C., & Karaman, A. S. (2023). Does external assurance stimulate higher CSR performance in subsequent periods? The moderating effect of governance and firm visibility. *Corporate Governance: The International Journal of Business in Society*, *23*(4), 677–704. https://doi.org/10.1108/CG-04-2022-0188

Wati, E. et al. (2025). Research Paper THE IMPACT OF DIGITAL TRANSFORMATION ON ESG PERFORMANCE : THE MODERATING ROLE OF GREEN. *Global Financial Accounting Journal*, *9*(02), 100–115.

Wu, Q., Shahbaz, M., & Bigerna, S. (2024). Does board gender diversity benefit for corporate ESG performance: Evidence from Germany. *Journal of Environmental Management*, *372*, 123304. https://doi.org/10.1016/j.jenvman.2024.123304

Xing, C., Shan, Y. G., Yang, F., & Zhang, Y. (2026). The effect of CSR assurance on subsequent corporate greenwashing: Suggestion acquisition or opinion shopping? *The British Accounting Review*, *58*(4), 101744. https://doi.org/10.1016/j.bar.2025.101744