ESG, INTEGRATED REPORTING, AUDIT AND FIRM VALUE: EVIDENCE FROM ASEAN-5 CARBON-INTENSIVE SECTORS

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Abstract:
Purpose – This study's objective is to probe the nexus of ESG and IR on firm value moderated by audit committee characteristics and auditor tenure.
Methods – The study employed panel data regression across the mining and property sector in ASEAN-5 countries spanning from 2021-2023.
Findings – This study reveals that ESG and IR fail to contribute significantly to firm value creation. Audit committee expertise emerges as the sole significant moderating variable, surprisingly weakening the relationship between ESG, IR, and firm value.
Research Implications – Future studies should refine the measurement of audit committee expertise to better fit the sustainability context. Investors in the ASEAN-5 region appear largely indifferent to ESG and IR information, which discourages mining and property companies from seeking adequate assurance for their non-financial reports. Furthermore, policymakers are urged to devise superior regulations to enhance the credibility of ESG and IR disclosures and establish robust governance mechanisms.
Originality – This study is the first in combining internal and external audit function to moderate the effect of sustainability initiatives on firm value in ASEAN-5 context.

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INTRODUCTION

Climate change mitigation endeavors have grown into compelling topic for shareholders (Budianto et al., 2025), as these practices are currently the main contributors to firm value creation (Yin & Xu, 2025). Traditional financial reports fail to capture all elements that constitute corporate value (Abogazia et al., 2024), thus non-financial (sustainability) reporting has become critical for shaping organizational

value, even though its assurance remains in its infancy (Amoako et al., 2023). Assurance in sustainability reporting has become a paramount necessity because information asymmetry (Angir & Weli, 2024; Maulana et al., 2025) and greenwashing practices (Aini et al., 2025) can obstruct these initiatives. Consequently, this study aims to provide empirical evidence regarding the nexus between sustainability reports, specifically Environmental, Social, and Governance (ESG), Integrated Reporting (IR) and firm value, as moderated by internal and external audit functions.

The impact of ESG and IR on firm value have been extensively investigated in prior literature (Abogazia et al., 2024; Angir & Weli, 2024; Aydoğmuş et al., 2022; Bagh et al., 2024; Eng et al., 2022; Igbinovia & Agbadua, 2023; Kim & Yoon, 2024; Makri & Kabra, 2023; Melinda & Wardhani, 2020; Obeng et al., 2020). However, the majority of these studies rarely incorporate both internal and external assurance dimensions simultaneously. Furthermore, most existing research has been conducted either within a global context (Aydoğmuş et al., 2022; Kuzey et al., 2023) or in a single country (Abogazia et al., 2024; Angir & Weli, 2024), while heavily focusing on multi-sector analyses (Angir & Weli, 2024; Aydoğmuş et al., 2022; Kuzey et al., 2023; Obeng et al., 2020).

We address the limitations of prior studies in three ways. First, we incorporate internal and external assurance as moderating variables to address a critical research gap that remains largely unexplored in the literature. We achieve this by integrating the frameworks of Maulana et al. (2025) and Putri et al. (2026) while adopting the methodology of Kuzey et al. (2023). Second, we position this study within the distinct context of the ASEAN-5 nations—namely Indonesia, Malaysia, Singapore, Thailand, and the Philippines—as this setting offers a more nuanced and comprehensive perspective on the dynamics between ESG, IR, and firm value (Ab Aziz et al., 2025; Chairani & Siregar, 2021; Permatasari et al., 2025). Lastly, we focus specifically on high-environmental-risk sectors, such as mining and property, because these industries provide extensive ESG and IR disclosures (Huang & Ge, 2024; Obeng et al., 2020). This reporting behavior is driven by heightened stakeholder demands for accountability and transparency regarding high-impact, carbon-intensive operations (Fikru et al., 2024; Prasad & Mondal, 2025).

The interplay among ESG, IR and firm value is rooted in the legitimacy theory proposed by Dowling & Pfeffer (1975). This notion posits that companies attempt to maintain their legitimacy by disclosing environmental endeavour and initiative to stakeholders (Jibril et al., 2024). Grounded in the agency perspective (Jensen & Meckling, 1976), the amalgamation of internal and external assurance, represented by audit committee characteristics and audit quality, strengthens stakeholder trust in the credibility of ESG and IR disclosure (Amoako et al., 2023). Utilizing panel data regression on 288 observations of mining and property companies across ASEAN-5 countries, this study yields several noteworthy findings. First, in the ASEAN-5

context, ESG and IR disclosures are found to significantly and negatively affect firm value. Second, among the three moderators examined (audit committee independence, audit committee expertise, and audit quality), only audit committee expertise significantly and negatively moderates the effect of ESG and IR on firm value.

Our study offers several theoretical and practical implications. Theoretically, the findings confirm the inability of legitimacy and agency theories to fully elucidate the dynamics among ESG, IR, firm value, and internal and external audit functions. Consequently, future study could examine other sectors to test the consistency of these findings within the same ASEAN-5 context. Furthermore, because audit committee expertise was found to weaken the effect of ESG and IR on firm value, and its current measurement only requires at least one member to possess financial competency, a measurement gap is highlighted. Future studies should therefore utilize alternative proxies for audit committee expertise that better capture competencies relevant to non-financial disclosures, such as environmental engineering. Practically, the results indicate that ESG and IR are not yet highly valued by investors. To address this, mining and property companies in ASEAN-5 countries need to refine their ESG and IR disclosures so that investors can confidently rely on this information for investment decisions and firm prospect evaluations. Finally, policymakers are urged to establish new regulations regarding audit committee composition and external assurance requirements to enhance corporate governance within the mining and property sectors across the ASEAN-5 region.

THEORETICAL REVIEW

Legitimacy Theory

Legitimacy theory, first introduced by Dowling & Pfeffer (1975), illustrates how firms align their practices with societal needs and expectations (Budianto et al., 2025; Lajmi et al., 2025). By disclosing executed ESG and IR practices, firms can secure organizational legitimacy and societal support, which subsequently enhances their reputation, brand image, and financial performance (Samy El-Deeb et al., 2023). Environmental reporting serves as a critical communication channel to inform stakeholders of corporate endeavours aimed at mitigating the negative externalities of business operations (Jibril et al., 2024). On the other hand, through the publication of ESG and IR disclosures, some firms may resort to symbolic gestures or empty promises to preserve their legitimacy without executing substantial operational shifts (David et al., 2025).

Agency Theory

Agency theory conceptualizes how the conflicting interests between agents (managers) and principals (shareholders) are intertwined within a corporate setting (Ahmad et al., 2024; Jensen & Meckling, 1976). These dynamics give rise to agency

costs, which may hinder a firm's operational well-being and sustainability practices (Obeng et al., 2020). Consequently, agency theory incorporates various monitoring mechanisms to supervise management actions, aiming to align the divergent objectives of agents and principals (Jibril et al., 2024). Alodat & Hao (2025) further demonstrate that the disclosure of financial and non-financial statements reduces agency costs and mitigates friction between these corporate actors. In this regard, ESG and IR information serve as critical tools to mediate agency conflicts, thereby enhancing firm value. However, because managers may behave opportunistically, robust corporate governance structures, such as internal and external audit mechanisms, play an important role in mitigating such opportunistic behaviors (Budianto et al., 2025). Specifically, the independence and expertise of the audit committee (internal) and the tenure of the auditor (external) are essential instruments for reducing information asymmetry.

Shareholder Cost Theory

Sustainability initiatives do not always have a favourable impact on firm value. In some instances these kinds of intiatives, such as ESG and IR, impair market value creation (Abd-Elhaleim et al., 2025; Alhawaj et al., 2023; Ozata Canli & Sercemeli, 2026). Shareholder cost theory is the theoretical basis that explains how negative dynamics between ESG and IR affect firm value. This theory states how firms prioritize social interests instead of shareholders' interests (Alhawaj et al., 2023). It is rooted in neoclassical economic theory, which highlights how sustainability practices hinder short-term profit generation, as these practices have long-term benefits instead of an immediate effect (Abd-Elhaleim et al., 2025). The higher ESG and IR disclosure does not warrant a reciprocal performance escalation in the short-term (Ozata Canli & Sercemeli, 2026).

ESG and Firm Value

Securing legitimacy from the host community where a firm operates represents a central requirement for preserving organizational going concern. Consequently, firms bear an obligation to conduct business operations in an optimal manner that aligns with stakeholder interests (Jibril et al., 2024). In this regard, ESG disclosures serve as a medium through which investors track ethical investments and ascertain the future value of a company (Chairani & Siregar, 2021). Aini et al. (2025) state that ESG reporting encapsulates a corporation's sustainable practices and ethical conduct, highlighting its social and environmental footprint. Furthermore, Agarwal & Rastogi (2025) demonstrate that integrating ESG into a company's strategic goals fosters its resilience in an ever-changing business environment. Ultimately, companies with superior ESG performance tend to achieve better overall outcomes because these practices bolster corporate reputation, brand image, and financial performance (Jao et al., 2022; Samy El-Deeb et al., 2023), thereby enhancing firm value.

Prior studies have documented a favorable impact of ESG performance on firm profitability (Aydoğmuş et al., 2022), growth-option value (Bagh et al., 2024), and operational performance (Buallay, 2019). Specifically, Bagh et al. (2024) provide empirical evidence that ESG performance enhances firm value within two leading global economies (the U.S. and China). In a similar vein, Aydoğmuş et al. (2022) also identified a positive impact of ESG on firm value among the 5,000 largest companies worldwide. Additionally, Eng et al. (2022) state that ESG disclosures furnish incremental corporate value. Furthermore, ESG performance serves as a crucial resilience-building factor during periods of business environment uncertainty, such as the COVID-19 pandemic (Kim & Yoon, 2024). Building on these statements, we offer the first hypothesis:

H1: ESG has significant impact on firm value.

IR and Firm Value

The primary objective of IR is to emphasize a corporation's capacity for sustainable, long-term value generation (Wahl et al., 2020). Consequently, IR disclosure is essential for curbing information asymmetry and mitigating clouded investor judgment regarding corporate performance (Maulana et al., 2025). Companies that achieve high levels of IR integration benefit from enhanced earnings quality and reduced agency costs (Obeng et al., 2020). Furthermore, IR-adopting firms tend to secure superior investment opportunities, thereby enhancing corporate value through the integration of financial and non-financial metrics to maintain environmental legitimacy (Velte, 2022). This outcome is attributable to the fact that IR information content holds greater value relevance for investors when coupled with traditional accounting data (Permatasari & Narsa, 2022).

While Sriani & Agustia (2020) demonstrate that IR fails to empirically mitigate information asymmetry, Velte (2022) suggests that firm value can still be enhanced provided that investors and stakeholders maintain trust in the disclosure. A meta-analysis by Zennaro et al. (2024) verifies that companies focusing on IR enjoy elevated transparency, which reduces information gaps and fosters corporate accountability; consequently, this not only boosts market valuation and financial outcomes but also curbs opportunistic management. Additionally, Abogazia et al. (2024) provide empirical evidence that the extent of IR disclosure positively influences firm value within emerging markets, specifically in Egypt. Thus, the following hypothesis is formulated:

H2: IR has significant impact on firm value.

Audit Committee Independence on the Dynamics Among ESG, IR and Firm Value

The interactions between companies and investors often give rise to information asymmetry (Angir & Weli, 2024), consequently, ESG and IR disclosures can induce skepticism among investors. Although companies publish ESG and IR reports, information misalignment may persist. As a result, another mechanism must

be present to ascertain the credibility of these non-financial disclosures (Rivera-Arrubla et al., 2017). In this regard, Bagh et al. (2024) argue that firm value is not determined solely by internal costs and benefits, but rather by a complex interplay of various external factors, such as ESG and IR disclosure. To remedy information asymmetry and mitigate opportunistic managerial behavior, the audit committee is introduced as a critical intermediary in monitoring corporate conduct (Budianto et al., 2025).

As a key characteristic of the audit committee, independence is widely recognized to bolster the credibility of corporate disclosures (Oussii et al., 2019), particularly regarding ESG and IR reporting. In this regard, Jibril et al. (2024) state that audit committee independence drives environmental disclosures. Kuzey et al. (2023) further contend that audit committee independence serves as a critical monitoring resource for sustainability reporting practices, which consequently impacts organizational outcomes. Ultimately, audit committee independence has been proven to strengthen the relationship between sustainability reports and firm value (Kuzey et al., 2023). Therefore, we propose:

H3a: Audit committee independence moderates the relationship between ESG and firm value.

H3b: Audit committee independence moderates the relationship between IR and firm value.

Audit Committee Expertise on the Dynamics Among ESG, IR and Firm Value

Sustainability reports lack credibility and timeliness (Wahl et al., 2020), consequently, ESG and IR information is frequently subject to credibility issue. Samy El-Deeb et al. (2023) emphasize the need to complement sustainability reporting with rigorous auditing and assurance frameworks to ensure data reliability, accuracy, completeness, and comparability. Grounded in agency theory, managers may mislead investors by deploying merely symbolic ESG and IR initiatives. In this context, audit committee expertise emerges as a vital mechanism to heighten the oversight of ESG and IR disclosures, thereby supplementing these initiatives to foster firm value (Kuzey et al., 2023).

Monitoring ESG and IR practices effectively requires a combination of financial and sustainability expertise within audit committees (Velte, 2022). Accordingly, it is recommended that the audit committee comprise at least one independent director possessing financial expertise to serve as the committee chair (Oussii et al., 2019), thereby improving the oversight of ESG and IR information production. While Jibril et al. (2024) found no significant link between audit committee expertise and environmental disclosure, Kuzey et al. (2023) contend that the expertise of the audit committee enhances the credibility of sustainability practices, which in turn augments firm value. Given the role of audit committee expertise as an assurance mechanism, we hypothesize that:

H4a: Audit committee expertise moderates the relationship between ESG and firm value.
H4b: Audit committee expertise moderates the relationship between IR and firm value.

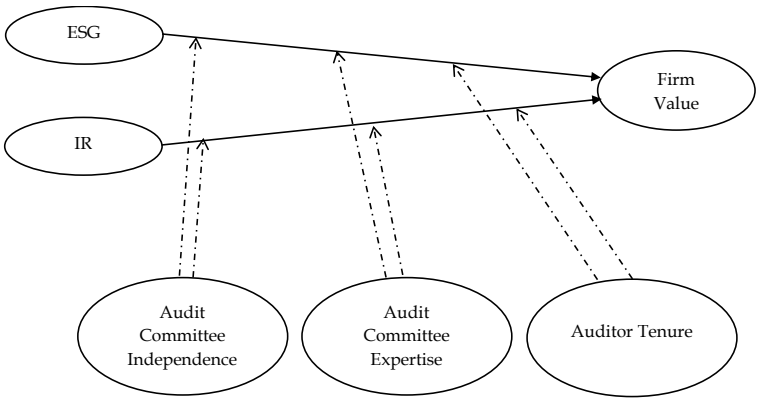
Auditor Tenure on the Dynamics Among ESG, IR and Firm Value

Suboptimal ESG and IR performance signals escalating future risks and informs investors about the volatility of their investments (Chairani & Siregar, 2021). Aini et al. (2025) highlight the necessity of robust and reliable sustainability claims that are endorsed by genuine actions rather than mere 'cheap talk'. In this regard, an external auditor with a long tenure is deemed an essential mechanism to back up the credibility of ESG and IR disclosures (Amoako et al., 2023). Samy El-Deeb et al. (2023) point out that high-quality auditing augments the value-creation potential of sustainability reports by providing investors with verified and accurate performance metrics, thus fostering the trust necessary to translate sustainability initiatives into superior market value.

Regulatory frameworks remain fragmented, with sustainability disclosures frequently lacking independent verification or, at best, receiving only limited assurance (Wahl et al., 2020). However, Kuzey et al. (2023) note that a longer auditor tenure aligns with higher audit quality, as it allows auditors to accumulate client-specific knowledge that enhances the assurance of sustainability disclosures. Consequently, extended auditor tenure and robust audit evidence are instrumental in enhancing firm value, as they facilitate superior assurance quality for ESG and IR information (Kuzey et al., 2023; Samy El-Deeb et al., 2023). Based on this premise, we suggest:

H5a: Auditor tenure moderates the relationship between ESG and firm value.
H5b: Auditor tenure moderates the relationship between IR and firm value.

Figure 1. Research Model



Source: Authors own creation (2026)

RESEARCH METHODS

Our study spans the period from 2021 to 2023 for two distinct reasons: first, to account for the potential confounding biases of the COVID-19 pandemic (Maulana et al., 2025), and second, to ensure data availability within the Bloomberg database. We focus our attention on high-environmental-risk sectors, such as mining and property, across ASEAN-5 countries due to several theoretical and empirical rationales. The mining and property sectors exhibit the most profound environmental impact, which triggers a greater stakeholder demand for companies to disclose their inherent environmental risks (Fikru et al., 2024; Huang & Ge, 2024). Although these sectors are classified as highly carbon-intensive, they tend to provide the most comprehensive ESG and IR disclosures (Obeng et al., 2020; Prasad & Mondal, 2025). The ASEAN-5 countries (Indonesia, Malaysia, Singapore, Thailand, and the Philippines) offer a unique and nuanced institutional setting for this study.

Regarding sustainability reporting, audit mechanisms, and firm value, these nations exhibit diverse governance structures, varying levels of regulatory maturity, and distinct challenges in law enforcement (Ab Aziz et al., 2025; Permatasari et al., 2025). Specifically, Indonesia utilizes a two-tier board system, whereas the remaining ASEAN-5 countries employ a one-tier board system (Ab Aziz et al., 2025). Chairani & Siregar (2021) further note that these countries serve as hubs for regional economic development while sharing social and geographical affinities. Employing a purposive sampling method, this study compiled a final sample of 288 firm-year observations, comprising 96 firms from the mining and property sectors observed over a three-year period. We test the empirical effects of ESG and IR on firm value, using audit committee characteristics and auditor tenure as moderating variables. Table 1 summarizes all the variables and their respective operational measurements.

Table 1. Variable and Measurement Summary

Acronym	Variables	Measurement	Reference
Tobin's Q	Firm Value	$\text{Market Value Equity (MVS)} + \frac{\text{Total Liability}}{\text{Total Assets}}$	Aydoğmuş et al. (2022)
ESG	Environmental, Social, & Governance	ESG Score from Bloomberg Database	Bloomberg Database
IR	Integrated Reporting	IR disclosure levels are represented by a weighted score (0-44) based on the IIRC framework	IIRC (2013)
IND	Audit Committee Independence	Ratio of Independent Members on the Audit Committee	Kuzey et al. (2023)
EXP	Audit Committee Expertise	Dummy variable (1 if the audit committee consists of a minimum of three members, including at least one financial expert; 0 otherwise)	Kuzey et al. (2023)

AT	Auditor Tenure	Annual Auditor-Auditee Engagement Frequency	Kuzey et al. (2023)
ROA	Firm Performance	Net Income/Total Assets	Igbinovia & Agbadua (2023)
ROE	Firm Performance	Net Income/Stakeholders Equity	Melinda & Wardhani (2020)
DER	Leverage	(Total Liability/Total Equity) × 100%	Samy El-Deeb et al. (2023)
FS	Firm Size	Natural Logarithm of Total Assets	Igbinovia & Agbadua (2023)
Grow	Growth	$\frac{Total\ Assets_{(t)} - Total\ Assets_{(t-1)}}{Total\ Assets_{(t-1)}}$	Melinda & Wardhani (2020)

Source: Authors own creation (2026)

To test the hypotheses, we employed hierarchical panel data regression analysis, following the approach of Ab Aziz et al. (2025) and Alodat & Hao (2025). Specifically, Model 1 estimates the baseline regression, whereas Models 2, 3, and 4 capture the interaction effects of the moderating variables—namely audit committee independence, audit committee expertise, and auditor tenure, respectively.

Model 1:

$$\text{Tobin's } Q_{i,t} = \alpha + \beta 1 ESG_{i,t} + \beta 2 IR_{i,t} + \beta 3 ROA_{i,t} + \beta 4 ROE_{i,t} + \beta 5 DER_{i,t} + \beta 6 FS_{i,t} + \beta 7 Grow_{i,t} + \varepsilon$$

Model 2:

$$\text{Tobin's } Q_{i,t} = \alpha + \beta 1 ESG_{i,t} + \beta 2 IR_{i,t} + \beta 3 IND_{i,t} + \beta 4 ESG_{i,t} * IND_{i,t} + \beta 5 IR_{i,t} * IND_{i,t} + \beta 6 ROA_{i,t} + \beta 7 ROE_{i,t} + \beta 8 DER_{i,t} + \beta 9 FS_{i,t} + \beta 10 Grow_{i,t} + \varepsilon$$

Model 3:

$$\text{Tobin's } Q_{i,t} = \alpha + \beta 1 ESG_{i,t} + \beta 2 IR_{i,t} + \beta 3 EXP_{i,t} + \beta 4 ESG_{i,t} * EXP_{i,t} + \beta 5 IR_{i,t} * EXP_{i,t} + \beta 6 ROA_{i,t} + \beta 7 ROE_{i,t} + \beta 8 DER_{i,t} + \beta 9 FS_{i,t} + \beta 10 Grow_{i,t} + \varepsilon$$

Model 4:

$$\text{Tobin's } Q_{i,t} = \alpha + \beta 1 ESG_{i,t} + \beta 2 IR_{i,t} + \beta 3 AT_{i,t} + \beta 4 ESG_{i,t} * AT_{i,t} + \beta 5 IR_{i,t} * AT_{i,t} + \beta 6 ROA_{i,t} + \beta 7 ROE_{i,t} + \beta 8 DER_{i,t} + \beta 9 FS_{i,t} + \beta 10 Grow_{i,t} + \varepsilon$$

RESULTS AND DISCUSSION

Descriptive Statistics

This section presents the results of the descriptive statistical analysis for all research variables, as detailed in Table 2. The sample comprises 288 firm-year observations spanning a three-year period (2021–2023) across ASEAN-5 mining and property companies. Specifically, Table 2 outlines the measures of central tendency and data distribution, including the mean, minimum value, maximum value, and standard deviation.

Table 2. Descriptive Statistics Analysis

Variable	Observations	Mean	Min	Max	Std. Dev.
Tobin's Q	288	0.51	0.02	4.88	0.45
ESG	288	51.37	20.54	77.53	10.22
IR	288	35.35	12.00	44.00	6.41
IND	288	0.91	0.33	1.00	0.17
EXP	288	0.99	0.00	1.00	0.10
AT	288	9.53	1.00	22.00	5.14
ROA	288	3.97	-46.73	55.73	6.62
ROE	288	8.00	-200.80	223.34	20.50
DER	288	1.77	-5.37	205.05	12.06
FS	288	13.86	10.32	16.59	1.19
Grow	288	0.04	-0.31	2.03	0.18

Source: Data processed (2026)

Firm value among mining and property companies within the ASEAN-5 context appears relatively low, as evidenced by a mean Tobin's Q value of 0.51. While certain firms enjoy substantial investor appreciation, reaching a maximum value of 4.88, others perform significantly lower at 0.02. Furthermore, firm value in these sectors demonstrates a relatively narrow dispersion, with a standard deviation of 0.45. Regarding non-financial reporting, the disclosure of ESG and IR among these companies shows moderate progress, with the mean values recorded at 51.37 for ESG performance and 35.35 for IR practices. Interestingly, these companies appear to achieve higher compliance with IR frameworks relative to ESG initiatives when evaluated against full disclosure thresholds. This behavior is apparent from the maximum IR score of 44.00 (representing full disclosure within the adopted index), whereas the maximum ESG score only reaches 77.53 out of 100.00. Furthermore, IR disclosure scores are more uniform than ESG scores, as indicated by a lower standard deviation (IR = 6.41; ESG = 10.22).

Most sampled companies comply with robust governance benchmarks, maintaining a minimum of three audit committee members with at least one financial expert, while ensuring the committee comprises predominantly independent members. The mean values of 0.99 for expertise and 0.91 for independence strongly support this observation. Additionally, the low standard deviations for independence (0.17) and expertise (0.10) indicate a high level of conformity in corporate governance practices within ASEAN-5 high-environmental-risk sectors. Regarding firm-specific control attributes, the sampled companies report a mean return on assets (ROA) of 3.97% and a mean return on equity (ROE) of 8.00%. The leverage analysis yields a mean debt-to-equity ratio (DER) of 1.77, suggesting a reliance on debt financing over equity among mining and property firms in the ASEAN-5 region. Finally, the average firm size (13.86) and the low asset growth rate (0.04) highlight a period of stagnant growth for these capital-intensive industries during the observation window.

Correlation Analysis

Prior to hypothesis testing, a correlation analysis is conducted to provide additional insights regarding the preliminary relationships among the variables. Table 3 outlines several distinct correlational trends that can be observed from this initial analysis.

Table 3. Pearson Correlation Matrix

Variable	Tobin's Q	ESG	IR	IND	EXP	AT	ROA	ROE	DER	FS	Grow
Tobin's Q	1.0000										
ESG	0.1417*	1.0000									
IR	0.0093	0.1056	1.0000								
IND	-0.0051	0.0654	-0.0880	1.0000							
EXP	0.0536	0.0419	-0.0317	0.3447*	1.0000						
AT	-0.0332	0.0702	0.1173*	-0.0238	-0.0894	1.0000					
ROA	0.326*	0.1696*	-0.0028	0.0371	0.0980	0.0204	1.0000				
ROE	0.1352*	0.0804	0.0210	-0.0112	0.0752	0.0096	0.5195*	1.0000			
DER	-0.0734	-0.0388	0.0411	-0.0495	-0.0026	-0.0514	-0.4565*	-0.6234*	1.0000		
FS	-0.1140	0.2570*	0.0545	0.2198*	0.1432*	0.2250*	-0.1330*	0.0072	0.0866	1.0000	
Grow	0.2279*	0.1655*	0.0550	0.0123	0.0583	0.0001	0.3043*	0.1563*	-0.1119	0.0789	1.0000

Source: Data processed (2026)

Several noteworthy correlations are found to be statistically significant at the 5% threshold. The majority of these significant associations are positive, including the correlations between ESG disclosure and Tobin's Q, audit committee expertise (EXP) and audit committee independence (IND), as well as auditor tenure (AT) and IR disclosure. The remaining positive and significant correlations involve the firm-specific control variables. Out of the 18 notably significant correlations identified, three demonstrate a negative and significant relationship, specifically the links between DER and ROA, DER and ROE, and firm size (FS) and ROA. These negative associations are economically logical, as higher financial leverage can ultimately constrain a company's capacity to generate profitability due to the structural obligations of debt principal and interest payments. However, to confirm whether these bivariate relationships translate into statistically significant causal effects, it is necessary to execute the formal hypothesis testing through multivariate regression.

Hypothesis Test

Model specification diagnostics were executed to identify the optimal estimator for each econometric model. For the baseline regression (Model 1), the moderating effect of audit committee independence (Model 2), and the moderating effect of auditor tenure (Model 4), the fixed effects (FE) model was determined to be the most appropriate specification. In contrast, for the moderating effect of audit committee expertise (Model 3), the random effects (RE) model represents the optimal estimation approach. The empirical results of the hypothesis testing for both direct and moderating relationships are summarized in Table 4.

Table 4. Hypothesis Test Results

Description	Model 1		Model 2		Model 3		Model 4	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
ESG	-0.0125	0.072*	-0.0048	0.794	-0.0457	0.000***	-0.0183	0.208
IR	-0.0139	0.079*	-0.0227	0.164	0.1633	0.000***	-0.0237	0.087*
IND	-	-	0.1676	0.881	-	-	-	-
ESG*IND	-	-	-0.0085	0.641	-	-	-	-
IR*IND	-	-	0.0098	0.615	-	-	-	-
EXP	-	-	-	-	4.3176	0.000***	-	-
ESG*EXP	-	-	-	-	0.0459	0.000***	-	-
IR*EXP	-	-	-	-	-0.1660	0.000***	-	-
AT	-	-	-	-	-	-	-0.1126	0.098*
ESG*AT	-	-	-	-	-	-	0.0001	0.273
IR*AT	-	-	-	-	-	-	0.0012	0.214
ROA	0.0145	0.000***	0.0145	0.000***	0.0177	0.000***	0.0150	0.000***
ROE	0.0011	0.038**	0.0011	0.040**	0.0008	0.087*	0.0010	0.038**
DER	0.0039	0.005***	0.0040	0.006***	0.0370	0.005***	0.0038	0.005***
FS	-0.6304	0.125	-0.6281	0.130	-0.0967	0.134	-0.6373	0.128
Grow	-0.0830	0.232	-0.0829	0.228	-0.1774	0.001***	-0.0830	0.216

***Notes**: * p < 0,10; ** p < 0,05; *** p < 0,01*

Source: Data processed (2026)

The empirical evidence presented in Table 4 indicates that both ESG (β = -0.0125, p < 0.10) and IR (β = -0.0139, p < 0.10) exert a negative and statistically significant effect on firm value at the 10% significance level. Thus, H1 and H2, which hypothesize that ESG and IR significantly impact firm value within the ASEAN-5 mining and property sectors, are supported. In contrast, audit committee independence fails to significantly moderate the nexus between ESG, IR, and firm value (p = 0.641 and p = 0.615, respectively), thereby rejecting H3a and H3b. Conversely, audit committee expertise is proven to significantly moderate both the ESG–firm value and IR–firm value relationships, hence supporting H4a and H4b. Specifically, audit committee expertise weakens the negative effect of ESG on firm value (β = 0.0459, p < 0.01), but reinforces the negative IR–firm value nexus (β = -0.1660, p < 0.01).

Consistent with the findings on independence, auditor tenure does not exert a significant moderating influence on the relationships between ESG, IR, and firm value, leading to the rejection of H5a and H5b. These interaction results document diverging directions for the moderating effects on ESG versus IR. This divergence is attributable to the distinct informational characteristics of the two frameworks; while ESG scores exclusively capture the non-financial aspects of a firm, IR integrates both financial and non-financial dimensions, causing audit committee expertise to moderate these two disclosure types differently. Finally, regarding the firm-specific control attributes, ROA, ROE, and DER consistently exert positive and statistically significant effects on

firm value across all four models. In contrast, firm size and asset growth generally show no significant impact, with the sole exception of asset growth in Model 3.

The Effect of ESG on Firm Value

The empirical results demonstrate that the firm value of mining and property companies in the ASEAN-5 nations is adversely impacted by ESG disclosures, indicating that an increase in ESG reporting leads to a decline in market valuation. Consequently, our findings fail to support legitimacy theory, which posits that ESG disclosure serves as a strategic tool to secure organizational legitimacy (Samy El-Deeb et al., 2023) and foster corporate going-concern. Our results lend credence to shareholder cost theory by indicating how shareholders view ESG initiatives as a financial burden with no immediate benefit to profit generation (Abd-Elhaleim et al., 2025; Ozata Canli & Sercemeli, 2026). Furthermore, ESG reporting formats are highly diverse and lack a unified global standard, they pose significant interpretation challenges for investors (Angir & Weli, 2024). Buallay (2019) further underscores that the lack of standardized ESG formatting remains a persistent global issue. As a result, extensive disclosures may inadvertently increase cognitive complexity for investors, transforming ESG information into 'information noise' that obscures the core underlying substance of the reports.

The Effect of IR on Firm Value

IR disclosures were found to impact firm value negatively and significantly, thereby contradicting the tenets of legitimacy theory. This indicates that IR is far from becoming a cornerstone for garnering and bolstering positive investor sentiment regarding companies' future prospects. Our result is in line with Ayem et al. (2024), who documented that an increase in published IR information corresponds to a decrease in firm value among Indonesia's LQ45 companies. This suggests that another theory, such as shareholder cost theory, may play a role in elucidating these findings such as shareholder cost theory. This theory implies that the cost of disclosing IR endeavours does not commensurate with the short-term benefit (Alhawaj et al., 2023). IR frameworks, which synthesize financial and non-financial data, are often perceived as a compliance burden, leaving investors cognitively overwhelmed. This is supported by the findings of Putri et al. (2026), which confirm that non-financial reports frequently vary in structure and contain complex data that is difficult to comprehend, thereby exacerbating information overload for market participants.

The Moderating Effect of Audit Committee Independence on the Relationship between ESG, IR and Firm Value

The independence of the audit committee is widely recognized as a critical mechanism to ensure the impartiality of committee members in verifying the credibility of ESG and IR disclosures (Jibril et al., 2024; Sun & Huang, 2024). However, our empirical findings contradict the assumptions of agency theory and these prior assertions, demonstrating that audit committee independence fails to significantly

moderate the relationships between ESG, IR, and firm value. This divergence suggests that investors within the ASEAN-5 region may not highly value independent governance structures in the context of non-financial reporting. This notion is supported by Sun & Huang (2024), who found that investors in Eastern nations tend to view sustainability reports with skepticism. Consequently, it is plausible that the monitoring capacity of the audit committee has not yet reached its full potential regarding ESG and IR assurance, as audit committees within the ASEAN-5 mining and property sectors may still restrict their oversight solely to traditional internal financial controls (Rakipi & D'Onza, 2024).

The Moderating Effect of Audit Committee Expertise on the Relationship between ESG, IR and Firm Value

Based on our empirical results, we conclude that audit committee expertise significantly moderates the relationships between non-financial disclosures and firm value within the ASEAN-5 mining and property sectors. These findings contradict Kuzey et al. (2023), who documented that audit committee expertise strengthens the relationship between sustainability reporting and firm value within a global context. Similarly, Jibril et al. (2024) confirm that audit committee attributes, such as expertise, fail to amplify environmental disclosures, which represent an essential component of both ESG and IR reporting. Thus, our study provides no empirical support for agency theory. Velte (2022) argues that it is crucial for audit committees to be equipped with both traditional financial and specialized sustainability expertise. Because our study operationalizes audit committee expertise based on financial competency, this qualification, while well-suited for traditional financial auditing, is less effective for evaluating the technical complexities of non-financial reporting. Despite the growing maturity of sustainability disclosures in emerging ASEAN-5 markets, audit committees in high-risk sectors remain focused on routine internal controls rather than specialized sustainability assurance (Rakipi & D'Onza, 2024).

The Moderating Effect of Auditor Tenure on the Relationship between ESG, IR and Firm Value

Auditor tenure is not proven to significantly moderate the relationships between ESG, IR, and firm value. These findings are not aligned with Kuzey et al. (2023), who documented that auditor tenure plays a significant role in boosting sustainability–firm value dynamics. Within environmentally sensitive sectors, extended auditor tenure appears to be neither valued nor considered a credible signal for the quality of sustainability reporting. This phenomenon may be attributable to the extensive length of auditor tenure in these sectors, as evidenced by our sample's mean value of nine years. Such a prolonged duration is long enough to potentially impair auditor judgment due to the development of social and economic attachments with the client (Kuzey et al., 2023). Consequently, this excessive tenure tends to diminish investors' perceived audit quality (Abu Afifa et al., 2023; Kuzey et al., 2023;

Saleh Aly et al., 2026). In practice, many mining and property firms across the ASEAN-5 maintain prolonged professional relationships with their external auditors; this extended tenure acts as an institutional barrier, preventing non-financial disclosure channels like ESG and IR from effectively enhancing firm value (Maulana et al., 2025).

CONCLUSION

This study endeavors to elucidate the complex relationships between ESG, IR, and firm value dynamics, while examining audit committee characteristics and auditor tenure as moderating variables within the ASEAN-5 mining and property sectors. The most notable empirical finding is that audit committee expertise significantly alters the relationship between these non-financial disclosures and firm value. Specifically, the high intensity of unstandardized ESG and IR disclosures may inadvertently impair investors' capacity to comprehend true corporate performance. Conversely, audit committee independence and auditor tenure do not exert significant moderating influences on the dynamics among ESG, IR, and firm value.

Based on these findings, several key theoretical and practical recommendations are proposed. Theoretically, our research serves as a cornerstone for exploring the implementation of ESG and IR practices and their market relevance within emerging economies. Practically, corporate managers within the ASEAN-5 mining and property sectors must collaborate to devise standardized reporting formats that deliver concise and comprehensible non-financial disclosures, backed by robust assurance from both internal and external governance bodies. Furthermore, investors should exercise greater prudence when digesting ESG and IR information, actively evaluating the credibility of a firm's assurance mechanisms before committing capital to mining and property companies in this region. Finally, there is an urgent necessity for policymakers to mandate standardized sustainability disclosure formats and modernize assurance practices, thereby restoring investor confidence across the environmentally sensitive sectors of the ASEAN-5.

This study has three main limitations that warrant attention in future research. First, using financial expertise as an audit committee proxy yielded a 99% compliance rate, reducing the statistical power to detect moderating effects. Future research should utilize more informative, continuous metrics, such as the proportion of board members with sustainability expertise, to avoid spurious moderation. Second, our ASEAN-5 cross-country analysis suffered from a small sample size per country and overlooked structural differences, namely Indonesia's two-tier governance system versus the one-tier systems in the rest of the ASEAN-5 nations. Future studies should expand the sample size and include a dummy variable to control for these governance variations. Lastly, this study lacks inter-coder reliability and endogeneity tests. Future analyses should adopt Cohen's Kappa or Krippendorff's Alpha to ensure coding

consistency, alongside endogeneity diagnostics like a two-step GMM to mitigate potential estimation bias.

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