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Abstract

The study seeks to examine how Environmental, Social, and Governance (ESG) disclosure influences financial performance within energy companies in Indonesia and Malaysia from 2020 to 2023. The study utilizes data sourced from annual and sustainability reports of energy firms listed on the Indonesia Stock Exchange and Bursa Malaysia. Multiple linear regression was applied as the analytical technique, with Price to Book Value (PBV) used as the indicator of financial performance. The findings reveal that overall ESG disclosure does not exert a significant impact on financial performance. Nevertheless, when assessed individually, the governance component shows a statistically significant positive effect on PBV. These outcomes offer valuable insights for regulators and companies to strengthen governance practices in ESG reporting to enhance investor appeal and support long-term firm value.

Introduction

Environmental, Social, and Governance (ESG) principles have gained significant global attention, especially within highly impactful domains like energy. ESG as a concept is increasingly recognized as an indicator of corporate sustainability commitment and stakeholder responsiveness, with evidence showing its contribution to operational efficiency, profitability, and investor attractiveness (Albitar et al., 2021; Naeem et al., 2022). In the energy sector known for its large carbon footprint and social risks ESG adoption is crucial for mitigating long-term risks and creating sustainable firm value (Ismail et al., 2022).

In Southeast Asia, Indonesia's energy industry remains a major contributor to emissions and is frequently associated with social issues, including environmental pollution and land disputes. Numerous coal firms violated ESG principles during 2020–2023, such as river contamination and community criminalization (Lawrence & Wafa, 2024), highlighting how weak ESG practices can elevate reputational and operational risks. Survey results indicate low ESG adoption levels in Indonesia: only 52% of public companies monitor emissions, 45% have reduction strategies, and merely 30% operate comprehensive environmental monitoring systems. Social and governance adoption is also limited, with only 55% prioritizing employee welfare and 60% reporting transparently (CRMS, 2022). To address these issues, the government introduced sustainability-

related rules most notably Presidential Regulation No. 61/2011 and OJK Regulation No. 51/2017 while the Indonesia Stock Exchange reinforced the push by launching ESG-based indices and fostering growing demand for ESG mutual funds, which had reached around IDR 3 trillion by 2020 (Qodary & Tambun, 2021).

Malaysia faces similar challenges. Identified as Southeast Asia's highest CO_2 emitter, the country's electricity and heat production sectors generated 1,525.7 million tons of CO_2 from 2000-2016 (Ishak et al., 2024). Malaysia has set a target to cut its GHG emission intensity by 45% by 2030, a goal anchored in the Malaysian Green Technology Master Plan 2017-2030. Alongside this roadmap, various policy incentives and growing investor attention continue to drive firms toward stronger ESG practices, opening avenues for businesses in both Malaysia and Indonesia to improve ESG disclosure and strengthen long-term value creation (Albitar et al., 2021; Glembotskaya et al., 2020; Triyani et al., 2020; Yunica & Rokhim, 2023).

Although regulatory support continues to expand, findings on how ESG relates to financial performance remain mixed. Several studies report that companies demonstrating stronger environmental and social initiatives often achieve superior ROA, ROE, and Tobin's Q, especially within the energy and mining industries (Rahim et al., 2024). Environmental disclosure and profitability also enhance firm value by strengthening stakeholder trust (Julidha & Izzah, 2024). However, governance effects vary, with some evidence of negative ROA relationships (A. Durlista & Wahyudi, 2023). During the pandemic, ESG improved accounting-based performance (ROA, ROE) yet showed insignificant affected on market indicators (Tanjaya & Ratmono, 2024). In Indonesia, ESG disclosure even negatively affected firm performance in 2015–2019, potentially due to insufficient competitive strategies (Lubis & Rokhim, 2021). These findings indicate that ESG outcomes depend on strategic alignment, industry conditions, governance quality, and regulatory environments.

This study extends prior work, including Firmansyah et al., (2023), A study covering Saudi Arabia from 2010 to 2020 reported that ESG performance was associated with lower Tobin's Q and showed no relationship with ROE. In contrast, the present study centers on energy companies operating in Indonesia and Malaysia for the 2020–2023 period, a timeframe heavily influenced by COVID-19 shocks that shaped corporate outcomes. Both markets mandate ESG reporting (OJK Regulation No. 51/POJK.03/2017; Bursa Malaysia Listing Requirements, 2016), yet their governance cultures and enforcement vary. Previous research often aggregates ASEAN data, masking national differences and introducing measurement inconsistency (Ismail et al., 2022; Lee & Isa, 2023; Sefriyono et al., 2024b). By examining Indonesia and Malaysia separately, this study provides clearer insights into how ESG influences corporate performance under comparable yet institutionally distinct environments.

To reconcile the mixed findings in earlier studies, this work evaluates each ESG dimension environmental, social, and governance separately, emphasizing the post pandemic landscape in which regulatory adjustments and heightened investor attention have become more prominent. With the energy industry facing substantial sustainability and accountability demands, the research offers sharper empirical insights into the ESG performance relationship and provides actionable guidance for stakeholders in formulating more effective sustainability initiatives (Albitar, Gerged, et al., 2021; Tanjaya & Ratmono, 2024).

Literature Review

According to stakeholder theory (Freeman, 1984), firms generate sustainable value when they manage and align the diverse priorities of multiple stakeholder groups, including but not limited to shareholders, employees, customers, regulators, and the broader community. By meeting these expectations through responsible and ethical practices, companies strengthen their legitimacy and long-term viability, which can ultimately support better financial outcomes. However, stakeholder theory alone does not fully clarify the pathways by which ESG actions translate into measurable

economic benefits. To provide a more comprehensive explanation, this study also incorporates signaling theory (Spence, 1973) and the Resource-Based View (RBV) (Barney, 1991; Hart & Dowell, 2011).

Signaling Theory

Signaling theory offers an external, market-focused rationale regarding how ESG performance is connected to firm outcomes. It argues that firms operate amid information asymmetry, where investors and other external parties cannot easily assess a company's true quality or long-term orientation (Connelly et al., 2011; Spence, 1973). To mitigate this gap, firms utilize voluntary disclosures such as ESG reporting as credible signals of transparency, ethical conduct, and prudent risk management.

Within emerging economies such as Indonesia and Malaysia, where institutional oversight and regulatory practices remain in the process of strengthening, the reliability of such signals becomes even more crucial (Alareeni & Hamdan, 2020). When a firm discloses comprehensive ESG information, it conveys managerial capability and commitment to responsible operations, thereby lowering investor uncertainty. The market typically interprets this openness as an indication of stability and reduced risk, which enhances investor confidence and increases the likelihood of improved financial outcomes.

Resource-Based View (RBV)

While Signaling Theory clarifies how firms shape external perceptions, the Resource-Based View frames the explanation around a firm's internal capabilities, suggesting that competitive advantage arises from resources that are valuable, uncommon, hard to replicate, and not easily replaced (VRIN) (Barney, 1991). Within this perspective, ESG initiatives are interpreted as strategic, intangible assets that strengthen long-term performance and enable firms to differentiate themselves from rivals.

For instance, environmental initiatives can improve resource efficiency and reduce operational costs, social engagement strengthens corporate reputation and employee loyalty, and strong governance structures minimize agency conflicts and align managerial incentives (Hart, 1995; Hart & Dowell, 2011). These ESG-driven capabilities enhance the firm's adaptive capacity and resilience in dynamic markets, ultimately contributing to superior financial performance.

When combined, Signaling Theory and RBV provide a holistic framework explaining both the external and internal mechanisms that link ESG performance to financial outcomes. Signaling Theory clarifies how ESG disclosure builds investor confidence through transparency, while RBV explains how ESG engagement internally strengthens firm capabilities and competitiveness.

Environmental, Social, and Governance (ESG) Disclosure and Financial Performance

From the perspective of Signaling Theory, transparent ESG reporting conveys strong managerial capability and a forward-looking strategic stance, which helps diminish informational gaps and lessen the risk perceptions held by outside investors. This encourages greater market confidence and enhances firm valuation. In contrast, the RBV/NRBV perspective argues that ESG practices develop intangible strengths such as refined operational systems, strengthened compliance, and elevated reputational capital that ultimately enhance profitability. Together with Stakeholder Theory, which highlights legitimacy and stakeholder support, these theoretical pathways suggest that higher levels of ESG openness correspond with improved financial results, particularly within energy firms operating in developing markets such as Indonesia and Malaysia (Alareeni & Hamdan, 2020; Barney, 1991; Connelly et al., 2011; Freeman, 1984; Friede et al., 2015; Hart, 1995; Spence, 1973)

Empirical findings concerning the relationship between ESG reporting and financial outcomes among energy companies traded on the Indonesia Stock Exchange during 2020–2023

present mixed conclusions. Some studies report positive connections. For example, Sefriyono et al. (2024b) identified that ESG initiatives produce a significant and favorable effect on Price to Book Value (PBV) for firms throughout the ASEAN region, indicating that companies with stronger ESG assessments tend to receive more positive evaluations from the market. Similarly, Eko Prayitno (2024) documented a significant positive influence of ESG on financial performance, reflected in a regression coefficient of 0.489. Supporting these findings, (Purwitasari et al. (2023) found that comprehensive ESG disclosure increases ROA and ROE among mining companies in Indonesia.

However, contrasting results have also emerged. Tatariyanto (2025) reported that ESG does not significantly influence PBV in multinational consumer goods firms. Likewise, Tanjaya and Ratmono (2024) reported that ESG reporting does not materially influence either financial outcomes or market-based indicators. These differing findings underscore that the ESG performance relationship is not uniform across sectors or geographic settings.

Given these inconsistencies, this study reevaluates how ESG reporting relates to firm performance, concentrating specifically on Indonesian companies, which possess institutional and operational traits distinct from more advanced markets. As an emerging economy with regulatory systems still evolving, Indonesia provides a valuable setting for generating stronger empirical insights. Accordingly, the proposed hypothesis is:

H_1: ESG disclosure has a significant positive effect on financial performance in energy sector companies in Indonesia and Malaysia.

Environmental Disclosure and Financial Performance

Grounded in Resource-Based View (RBV) and Stakeholder Theory, environmental disclosure is expected to enhance corporate financial performance. From an RBV standpoint, environmental management practices constitute VRIN attributes being valuable, scarce, difficult to imitate, and non-substitutable which allow firms to secure long-term competitive advantages by improving efficiency, mitigating environmental risks, and reinforcing corporate reputation (Barney, 1991; Hart, 1995; Hart & Dowell, 2011). Firms that integrate proactive environmental strategies often experience cost savings, regulatory compliance benefits, and stronger market positioning, which translate into improved profitability (Clarkson et al., 2011; Porter & van der Linde, 1995). Meanwhile, Stakeholder Theory posits that environmental disclosure strengthens legitimacy and stakeholder trust by demonstrating accountability and alignment with societal expectations (Deegan, 2002; Freeman, 1984). Transparent communication of environmental initiatives mitigates information asymmetry, enhances investor confidence, and attracts sustainability oriented capital, thereby improving firm valuation and financial performance (Alareeni & Hamdan, 2020; Reverte, 2012). Empirical evidence from emerging markets also supports this logic, indicating that companies with higher environmental disclosure achieve stronger profitability and market value, particularly within the energy sector (Fitriyani & Sungkar, 2024; Hardiningsih et al. 2020a; Julidha & Izzah, 2024; Sefriyono et al., 2024b). Consequently, this study proposes that environmental disclosure will exert a positive and significant effect on the financial performance of energy companies operating in Indonesia and Malaysia.

Research on ESG disclosure and financial performance among energy firms in Indonesia during 2020-2023 likewise presents mixed findings, particularly when the environmental aspect is assessed as an independent component. Several studies report positive effects Julidha and Izzah (2024) observed that environmental disclosure significantly increases firm value. Similarly, Aliyyah Fitriyani and Musa Said Sungkar, (2024), who reported that both environmental performance and green accounting positively and significantly influence profitability. Similarly, Hardiningsih et al. (2020b) showed that environmental disclosure positively affects both ROA and ROE.

Nevertheless, contrasting evidence has been reported in the literature Lubis and Rokhim (2021) documented that environmental disclosure had a negative impact on firm performance over

the 2015-2019 period. Likewise, Gunarsih and Ismawati, (2018) also showed that the environmental component did not significantly influence either book value or market value. These results suggest that investors may respond differently to environmental initiatives, particularly in developing economies like Indonesia.

From an empirical perspective, Stakeholder Theory suggests that firms that emphasize transparent environmental reporting are more likely to achieve stronger financial outcomes because such efforts aim to boost efficiency and lower exposure to environmental risks. Yet, the inconsistent empirical findings highlight the importance of considering contextual factors such as sectoral conditions and the strength of regulatory institutions when evaluating the impact of ESG reporting on the performance of firms traded on the Indonesia Stock Exchange. Building on insights from previous empirical evidence, the second hypothesis formulated in this study is:

H_2: Environmental disclosure positively and significantly affects the financial performance of energy sector firms in Indonesia and Malaysia.

Social Disclosure and Financial Performance

Viewed through the lens of stakeholder theory, social disclosure is crucial for establishing organizational legitimacy, strengthening stakeholder confidence, and supporting long-term financial performance. Companies that openly communicate their social commitments, including programs aimed at employee welfare, community involvement, and consumer protection demonstrate transparency and alignment with stakeholder expectations, reinforcing their reputation and helping minimize social risks (Deegan, 2002; Donaldson & Preston, 1995; Freeman, 1984). In developing contexts like Indonesia and Malaysia, where regulatory frameworks are still evolving, transparent reporting on social initiatives serves as evidence of ethical governance and responsible leadership, which ultimately enhances investor trust and shapes positive public perception (Connelly et al., 2011; Spence, 1973). From the Resource-Based View (RBV), socially responsible initiatives generate intangible resources such as loyal employees, community goodwill, and brand reputation that are valuable, unique, and hard to replicate, thereby supporting long-term competitive advantages and improved performance (Barney, 1991; Hart, 1995; McWilliams & Siegel, 2001). Empirical findings reinforce this reasoning, indicating that companies with more extensive social reporting tend to experience higher profitability and enhanced firm value (Hardiningsih et al. 2020a; Putri & Pramesti, 2024; Thomas et al., 2021b). Accordingly, this research posits that social disclosure has a positive and statistically significant effect on the financial performance of energy firms in Indonesia and Malaysia.

The social (S) dimension of the ESG framework often linked to Corporate Social Responsibility (CSR) has become increasingly important for energy firms listed on the Indonesia Stock Exchange from 2020 to 2023. Prior studies show mixed evidence regarding its influence on corporate performance, although a significant portion of the literature supports a positive association.

Finding from Putri and Pramesti (2024) indicate that the social pillar of ESG exerts a positive and significant influence on the financial performance of companies within the energy sector. Hardiningsih et al., (2020b) also reinforce this finding, stating that social disclosure increases ROA and ROE. Similarly, Thomas et al., (2021) also documented that higher social scores meaningfully improve ROE and Tobin's Q.

Although several studies highlight favorable effects, other empirical works point to different outcomes. Tanjaya and Ratmono (2024) observed that the social component of ESG does not yield a significant impact on firm performance either before or during the pandemic period. Similarly, Julidha and Izzah (2024) found that social disclosure does not produce a meaningful effect on firm value. These differing outcomes imply that the social dimension of ESG may need more substantial implementation and more strategic communication to generate positive market responses.

Based on the evidence from earlier research, it is clear that the effect of social disclosure and broader ESG performance on firm outcomes appears inconsistent. While many studies show beneficial impacts, others reveal variations depending on industry characteristics and the performance indicators utilized. Overall, ESG reporting including its social dimension tends to improve firm outcomes, although the strength and direction of the effect differ across contexts. In light of these diverse findings, this research puts forward the following third hypothesis:

H_3: Social disclosure has a positive and significant effect on the financial performance of energy sector companies in Indonesia and Malaysia.

Governance Disclosure and Financial Performance

Viewed through the lens of Signaling Theory, governance functions as a reliable channel for firms to convey transparency, accountability, and ethical conduct to the market. In contexts such as Indonesia and Malaysia where information asymmetry remains high disclosing governance-related information including aspects like board independence, ownership arrangements, and the effectiveness of audit committee effectiveness sends positive signals about managerial integrity and control quality (Connelly et al., 2011; Spence, 1973). This transparency reduces perceived risk, builds investor confidence, and leads to improved firm valuation and profitability (Alareeni & Hamdan, 2020; Bushman & Smith, 2003). Complementarily, Stakeholder Theory posits that good governance enhances the firm's legitimacy by ensuring that stakeholder interests are protected and that corporate decisions are ethically managed (Donaldson & Preston, 1995; Freeman, 1984). Furthermore, under the Resource-Based View (RBV)**,** strong governance mechanisms represent valuable and rare organizational capabilities that enhance strategic decision-making and long-term competitiveness (Barney, 1991; Hart, 1995). Empirical findings support this reasoning, showing that governance disclosure improves financial performance and firm value, particularly through increased market confidence and risk mitigation (Durlista & Wahyudi, 2023; Thomas et al., 2021). Therefore, this study proposes that governance disclosure exerts a positive and statistically meaningful influence on the financial performance of companies within the energy sector.

Governance disclosure (G) serves as a key mechanism of transparency, enabling stakeholders particularly investors to assess how firms apply governance principles, such as ownership arrangements, board independence, and audit committee composition. This issue is especially pertinent for energy firms listed on the Indonesia Stock Exchange over the 2020–2023 period (Rohmah et al., 2023). Empirical evidence on this topic remains inconclusive; however, several studies report positive associations between governance disclosure and financial performance indicators.

For instance, Durlista and Wahyudi (2023) stated that governance disclosure positively affects ROE and Tobin's Q. Similarly, Thomas et al. (2021) found that governance scores significantly influence Tobin's Q. Furthermore, Lee and Isa (2023) discovered that governance is the most consistent ESG aspect in explaining variations in financial performance, particularly in Sharia-compliant companies in Malaysia.

Evidence from other studies points to differing conclusions. Within the energy sub-sector, Putri and Pramesti (2024) showed that governance disclosure does not exert a significant effect on financial performance. Meanwhile, Tanjaya and Ratmono (2024) documented a negative linkage between governance practices and ROA, alongside insignificant effects on other performance measures. These results indicate that despite the fundamental role of good governance, its contribution to financial outcomes is highly dependent on industry specific conditions and how governance mechanisms are implemented internally.

In general, governance disclosure (G) within the ESG framework tends to enhance firm performance, primarily through improved transparency and investor trust. However, negative effects may arise in cases of ESG-related controversies or when ESG disclosure is perceived as

reducing efficiency in certain companies. With these considerations in mind, the following fourth hypothesis is formulated:

H_4: Governance disclosure has a positive and significant effect on the financial performance of energy sector companies in Indonesia and Malaysia.

Research Method

Population and Sample

The research applies a panel data approach, which enables the analysis of variable relationships by combining cross-sectional and time-series observations. The research sample consists of 50 energy-sector firms from Indonesia and Malaysia over the 2020–2023 period. Secondary data are collected from official sources, namely the Indonesia Stock Exchange (IDX) https://www.idx.co.id/id and Bursa Malaysia https://www.bursamalaysia.com.

The analysis incorporates ESG disclosure along with its environmental, social, and governance components, as well as measures of corporate financial performance. A summary of the sampling criteria and research variables is presented below:

Table 2. Determination of Research Sample

No	Sample Criteria	Sum
1	Total population of energy sector companies in Indonesia	86
2	Total population of energy sector companies in Malaysia	27
3	Annual reports unavailable for 4 consecutive years in IDX	(54)
4	Annual reports unavailable for 4 consecutive years in Bursa Malaysia	(9)
Total Company Sample		50
Year of Observation (2020 – 2023)		4
Amount of Research data		200

Source: IDX and Bursa Malaysia data processed, (2025)

Variable Measurement

This study identifies ESG disclosure as the key independent variable, representing the extent to which firms communicate information related to ESG issues. The level of ESG disclosure is measured using an ESG score that captures the proportion of disclosed sustainability items relative to the total items expected to be reported. This approach is adopted from Abdi et al. (2022) and Aydoğmuş et al. (2022), which emphasize corporate transparency and openness in sustainability reporting.

Corporate environmental disclosure captures how extensively firms communicate their policies and initiatives related to environmental management, such as waste treatment, energy efficiency, and the sustainable use of resources, as emphasized by Nugroho and Hersugondo (2020) and Yuliartanti and Handayani (2022). In parallel, the social dimension represents corporate obligations toward key stakeholders (Amartya & Inawati, 2023; Pulino et al., 2022). Meanwhile, the governance dimension focuses on the application of sound governance principles namely transparency, accountability, and independent oversight based on the frameworks proposed by Alajmi and Worthington (2023), Almoneef and Samontaray (2019), and Lee et al. (2023).

Firm value in this study is represented by Price to Book Value (PBV), which is widely used as an indicator of market valuation. PBV reflects how far a firm's market price exceeds its book value and is calculated as the ratio of market price per share to book value per share, following the research by Sefriyono et al. (2024b).

To strengthen the reliability of the empirical results, this study includes a set of control variables related to board characteristics. Board size is measured by the total number of directors on the board (Albitair et al., 2020; Handriani & Robiyanto, 2018). Board independence is

represented by the proportion of independent commissioners, which reflects the board's effectiveness in carrying out its monitoring role (Handriani & Robiyanto, 2018). In addition, board meetings are measured by the number of board meetings held annually, capturing the intensity of board activity (Agustia et al., 2022; Fauzyyah & Rachmawati, 2018).

"Characteristics of the audit committee are likewise included as control variables. Audit committee size is measured by the total number of individuals serving on the committee, whereas audit committee meetings are captured by the frequency of meetings held each year, which serves as an indicator of the committee's effectiveness in carrying out its monitoring function (Ali, 2021; Altin, 2024; Fariha et al., 2022; Shamsuddin & Alshahri, 2022).

Furthermore, firm size is controlled for by applying the natural logarithm of total assets. Leverage is measured through the long term debt to equity ratio (Ihsani et al., 2023), while liquidity is proxied by the current ratio, which reflects the firm's ability to meet short term obligations by comparing current assets to current liabilities (Ismiyatun et al., 2021; Kijkasiwat et al., 2022).

Table 1. Variable Measurement

No	Variable	Measurement	Reference Sources
1	ESG Disclosure (Independen)	$\text{ESG Disclosure} = \frac{\sum \text{XYi}}{\text{ni}}$	(Abdi et al., 2022; Aydoğmuş et al., 2022)
2	Environmental (E)		(Nugroho & Hersugondo, 2020; Yuliartanti & Handayani, 2022)
3	Social (S)		(Amartya & Inawati, 2023; Pulino et al., 2022)
4	Governance (G)		(Alajmi & Worthington, 2023; Almoneef & Samontaray, 2019; L. C. Lee et al., 2023)
5	PBV (Dependen)	$\text{PBV} = \frac{\text{Market Price per Share}}{\text{Book Value per Share}}$	(Sefriyono et al., 2024a)
6	Board Size (Control)	$\text{BZ} = \sum_{i=1}^{n} \text{Total number of board numbers}$	(Albitar et al., 2020; Handriani & Robiyanto, 2018)
7	Board Independence (Control)	$\text{BI} = \frac{\text{Number of independent commissioners}}{\text{Total number of board members}}$	(Handriani & Robiyanto, 2018)
8	Board Meetings (Control)	$\text{BM} = \text{Total number of board meetings in one year}$	(Agustia et al., 2022; Fauzyyah & Rachmawati, 2018)
9	Audit Committee Size (Control)	Audit Committee Size = Total number of audit committee members	(Ali, 2021; Shamsuddin & Alshahri, 2022)
10	Audit Committee Meetings (Control)	Audit Committee Meetings = Total number of audit committee members	(Altin, 2024; Fariha et al., 2022)
11	Size (Control)	$\text{SIZE}_{i.t} = \text{InTA}_{i.t}$	(Lubis & Rokhim, 2021)
12	Leverage (Control)	$\text{LEV}_{i.t} = \frac{\text{Long} - \text{term debt}_{i.t}}{\text{Shareholder'sequity}_{i.t}}$	(Ihsani et al., 2023)
13	Current Ratio (Control)	$\text{CR} = \frac{\text{Current Assets}}{\text{Current Liabilities}}$	(Ismiyatun et al., 2021; Kijkasiwat et al., 2022)

Data Analysis Method

Theoretically, this study employs a panel data model, which uses internal instruments to overcome bias and autocorrelation while handling heterogeneity among observation units. A dynamic panel model is employed in situations where the dependent variable is influenced by its previous values. This type of model allows researchers to examine relationships between variables over both the short and long term within a panel data framework. The panel data specifications applied in this study are presented as follows:

$$PBV_{it} = \beta_0+\beta_2 ESG_{it}+\beta_3 BS_{it}+\beta_4 BI_{it}+\beta_5 BM_{it}+\beta_6 ACS_{it}+\beta_7 ACM_{it}+\beta_8 SIZE_{it}+\beta_9 LEV_{it}+ \beta_{10} CR_{i.t}+\varepsilon_{it} \quad (1)$$

$$PBV_{it} = \beta_0+\beta_2 ENV_{it}+\beta_3 SOC_{it}+\beta_4 GOV_{it}+\beta_5 BS_{it}+\beta_6 BI_{it}+\beta_7 BM_{it}+\beta_8 ACS_{it}+\beta_9 ACM_{it}+\beta_{10} SIZE_{it} +\beta_{11} LEV_{it}+ \beta_{12} CR_{i.t}+\epsilon it \quad (2)$$

Results and Discussion

Descriptive Statistics

Descriptive statistics for all research variables are summarized in Table 3, providing an overview of their distributional characteristics throughout the observation period. The table reports key indicators, including the mean, minimum, maximum, and standard deviation for each variable, thereby offering a general snapshot of the dataset. The Price to Book Value (PBV) variable records an average of -0.110, with values ranging from -3.859 to 1.051 and a standard deviation of 0.556. Suggesting that, on average, many firms were valued relatively low by the market compared with their book value, with some potentially being perceived as undervalued by investors.

Regarding sustainability reporting, the average ESG disclosure score reached 41.94%, with a minimum of 15.71% and a maximum of 75.46% (SD = 22.46%), suggesting considerable variation among companies. When disaggregated, each ESG component demonstrates distinct characteristics. The Environmental (ENV) aspect recorded an average of –0.189 (min = –1.462, max = 0.845, SD = 0.835), implying that environmental disclosures remain limited. The Social (SOC) dimension showed a mean of -0.449 (range = –1.505 to 0.699, SD = 0.882), indicating low attention toward social responsibility initiatives. In contrast, the Governance (GOV) dimension performed relatively better, with a mean of 0.642 (max = 0.687, SD = 0.031), suggesting greater consistency in governance practices across firms.

In terms of governance characteristics, the Board Size (BS) averaged 0.728 (log value), indicating variation in how firms structure their boards. With an average value of -0.318 and a standard deviation of 0.118, Board Independence (BI) indicates that independent commissioners constitute a relatively limited proportion of total board membership. Meanwhile, the Board Meetings (BM) variable, which has a mean (log) of 0.832, reflects that boards generally convene on a regular basis.

Regarding audit oversight, the Audit Committee Size (ACS) reported an average of 0.513, while the Audit Committee Meetings (ACM) showed a mean of 0.763, indicating that firms generally uphold active audit monitoring practices, although variations persist across companies.

Among the control variables, Firm Size (SIZE) averaged 1.303 (log value), reflecting the diverse asset bases of energy companies in Indonesia and Malaysia. A Leverage (LEV) mean of -0.328 points to relatively low debt dependency, while the Current Ratio (CR) mean of 0.075 (SD = 0.446) suggests liquidity concerns, with several firms experiencing negative short-term liquidity positions conditions that may signal heightened financial risk.

Overall, these results reflect substantial heterogeneity in market valuation, ESG disclosure, governance structure, and financial characteristics among sampled firms. Such variation highlights differences in the extent of sustainability practices and the quality of governance, factors that can play an important role in shaping financial performance and market perceptions.

Table 3. Descriptive Statistics

	PBV	ESG	ENV	SOC	GOV	BS	BI	BM	ACS	ACM	SIZE	LEV	CR
Mean	-0.110096	0.419406	-0.189399	-0.448622	0.641742	0.728425	-0.318194	0.831532	0.512509	0.762710	1.302920	-0.327578	0.074768
Median	-0.059043	0.331488	-0.860338	-0.985277	0.646730	0.778151	-0.301030	0.778151	0.477121	0.698970	1.326541	-0.285654	0.135754
Maximum	1.050553	0.754636	0.845098	0.698970	0.687232	1.380211	0.000000	1.707570	0.778151	1.778151	1.493179	0.755004	0.941648
Minimum	-3.859018	0.157123	-1.462398	-1.505150	0.518514	0.301030	-0.602060	0.000000	0.301030	0.000000	0.905256	-2.463231	-2.888325
Std. Dev.	0.555686	0.224599	0.835447	0.882325	0.030953	0.220378	0.118303	0.236031	0.075710	0.227716	0.120382	0.317689	0.446744
Skewness	-3.023058	0.136196	0.152323	0.177342	-1.035735	-0.435607	0.011743	0.472087	1.571989	1.555401	-1.647422	-2.043532	-3.294877
Kurtosis	20.45137	1.368430	1.189277	1.153805	4.616624	2.755036	2.835255	5.067417	5.480485	7.959662	5.978632	19.13234	20.10200
Jarque-Bera	1748.168	14.02312	17.27908	18.11297	35.38536	4.197490	0.141924	26.47409	82.19167	175.6611	101.1073	1419.401	1721.504
Probability	0.000000	0.000901	0.000177	0.000117	0.000000	0.122610	0.931497	0.000002	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	-13.54182	51.58691	-23.29603	-55.18048	78.93430	89.59631	-39.13789	102.2784	63.03866	93.81327	160.2591	-40.29205	9.196426
Sum Sq. Dev.	37.67207	6.154269	85.15258	94.97669	0.116886	5.925119	1.707459	6.796723	0.699313	6.326279	1.768003	12.31301	24.34877
Observations	200	200	200	200	200	200	200	200	200	200	200	200	200

Source: Data processed through EVIEWS 13, (2025)

Correlation Matrix

Table 4. Correlation Matrix

	PBV	ESG	ENV	SOC	GOV	BS	BI	BM	ACS	ACM	SIZE	LEV	CR
PBV	1.000000	0.130356	0.086217	0.115316	0.171245	-0.092383	-0.065681	0.057023	-0.038713	0.070173	-0.119175	-0.123371	0.121270
ESG	0.130356	1.000000	0.916951	0.906326	0.118438	-0.120452	-0.205309	0.159875	-0.148348	0.267892	0.081173	-0.127675	-0.004100
ENV	0.086217	0.916951	1.000000	0.955788	0.086998	-0.087618	-0.209380	0.169165	-0.136348	0.271714	0.104895	-0.133181	0.024250
SOC	0.115316	0.906326	0.955788	1.000000	0.109935	-0.070501	-0.162840	0.233942	-0.072308	0.346093	0.045506	-0.161429	0.078599
GOV	0.171245	0.118438	0.086998	0.109935	1.000000	0.074139	0.044379	0.158312	0.082073	0.130379	0.001450	-0.034825	-0.108718
BS	-0.092383	-0.120452	-0.087618	-0.070501	0.074139	1.000000	0.134640	-0.209049	0.182069	-0.122769	-0.170159	0.061023	-0.004215
BI	-0.065681	-0.205309	-0.209380	-0.162840	0.044379	0.134640	1.000000	0.021381	0.244682	0.033925	-0.145631	0.016557	-0.163360
BM	0.057023	0.159875	0.169165	0.233942	0.158312	-0.209049	0.021381	1.000000	0.087880	0.536712	0.026169	-0.234659	0.133463
ACS	-0.038713	-0.148348	-0.136348	-0.072308	0.082073	0.182069	0.244682	0.087880	1.000000	0.180950	0.009715	-0.008649	0.042887
ACM	0.070173	0.267892	0.271714	0.346093	0.130379	-0.122769	0.033925	0.536712	0.180950	1.000000	0.009807	0.053803	0.066816
SIZE	-0.119175	0.081173	0.104895	0.045506	0.001450	-0.170159	-0.145631	0.026169	0.009715	0.009807	1.000000	-0.004470	0.042685
LEV	-0.123371	-0.127675	-0.133181	-0.161429	-0.034825	0.061023	0.016557	-0.234659	-0.008649	0.053803	-0.004470	1.000000	-0.448399
CR	0.121270	-0.004100	0.024250	0.078599	-0.108718	-0.004215	-0.163360	0.133463	0.042887	0.066816	0.042685	-0.448399	1.000000

Source: Data processed through EVIEWS 13, (2025)

An examination of the correlation matrix reveals the relationships among the study variables. Overall, most correlation coefficients suggest weak to moderate linkages, whereas the ESG dimensions display particularly strong correlations with one another. The highest correlations are found between ENV and ESG (0.917) and between SOC and ESG (0.906), demonstrating that environmental and social disclosures are strongly aligned with overall ESG reporting. "In addition, the strong correlation coefficient between ENV and SOC (0.956) indicates that firms with higher levels of social disclosure generally also demonstrate consistent reporting on environmental issues.

In contrast, the relationships between financial variables and ESG remain weak. The correlation between PBV and ESG is 0.130, while PBV–ENV and PBV–SOC correlations are 0.086 and 0.115, respectively, indicating that market valuation relative to book value is not strongly linked to sustainability practices. However, PBV and GOV exhibit a slightly higher correlation (0.171), implying that governance practices may have a somewhat stronger association with market valuation than environmental or social factors.

Turning to governance-related factors, Board Size (BS) shows a negative correlation with PBV (-0.092), implying that companies with larger boards are generally associated with lower price-to-book values. Board Independence (BI) likewise exhibits a slight negative relationship (-0.066), indicating that a greater proportion of independent commissioners does not automatically translate into higher market valuation. In contrast, Board Meetings (BM) and Audit Committee Meetings (ACM) are only weakly and positively correlated with PBV, with coefficients of (0.057 and 0.070, respectively**), whereas Audit Committee Size (ACS) has a negative correlation (-0.039), indicating that internal audit oversight does not significantly affect firm valuation.

Among the control variables, firm size (SIZE) is negatively associated with PBV (-0.119) and only weakly related to ESG disclosure (0.081), suggesting that a larger scale does not necessarily correspond to higher market valuation or more extensive sustainability reporting. Leverage (LEV) also shows a negative relationship with PBV (-0.123) and is strongly inversely correlated with the current ratio (CR) (-0.448), consistent with financial theory that increasing debt pressure tends to weaken liquidity. Meanwhile, the relationship between SIZE and CR is negligible (0.043), indicating that company scale has limited influence on short-term liquidity conditions.

Taken together, the correlation results do not signal serious multicollinearity concerns, as correlations among the independent variables remain below the 0.8 threshold, with the exception of the ESG components (ENV, SOC, and ESG), which are inherently interconnected. Consequently, all correlation coefficients fall within acceptable bounds, supporting the suitability of the data for subsequent regression analysis.

Model Selection Testing

Table 5. Panel Data Model Selection

Testing	Prob>Chi2	
	1st Model	2nd Model
Chow	0.0034	0.0010
Hausman	0.1825	0.3262
LM	0.8043	0.7920

Source: Data processed through EVIEWS 13, (2025)

Classical Assumption Testing

Table 6. Classic Assumption Testing

Testing	Result		Conclusion
Normality	0.3047		Data are normally distributed
Multicollinearity	Model 1	Centered VIF values range from 1.08 to 2.91 (< 10)	Multicollinearity does not occur
	Model 2	Centered VIF values range from 1.07 to 4.37 (< 10)	
Heteroscedasticity	Model 1	Prob > Chi² = 0.9070	Heteroscedasticity does not occur
	Model 2	Prob > Chi² = 0.9833	

Source: Data processed through EVIEWS 13, (2025)

Hypothesis Testing

Table 7. Hypothesis Testing

	MODEL 1		MODEL 2		Conclusion
	Coef	Sig	Coef	Sig	
ESG → PBV	-0.0469	0.8380	-	-	Rejected
ENV → PBV	-	-	-0.1041	0.6444	Rejected
SOC → PBV	-	-	0.1535	0.5320	Rejected
GOV → PBV	-	-	3.4002	0.0456	Accepted
BS → PBV	-0.4426	0.0466	-0.3060	0.2131	Accepted (Model 1)
BI → PBV	-0.2172	0.5953	-0.2397	0.6049	Rejected
BM → PBV	-0.0663	0.7962	-0.5747	0.5747	Rejected
ACS → PBV	0.2198	0.3942	0.0953	0.7434	Rejected
SIZE → PBV	-0.5367	0.1936	-0.6646	0.1314	Rejected
LEV → PBV	-0.0830	0.5430	-0.1164	0.5421	Rejected
CR → PBV	0.1770	0.0893	0.1289	0.3341	Rejected
R-squared	0.0708		0.0964		
Adj. R-squared	0.0143		0.0068		
Prob. F-statistic	0.2678		0.3868		

Source: Data processed through EVIEWS 13, (2025)

The empirical results are presented through two regression specifications. Model 1 evaluates ESG disclosure as an aggregate construct, whereas Model 2 separates ESG into its environmental (ENV), social (SOC), and governance (GOV) dimensions to assess their respective

effects on market performance, proxied by Price to Book Value (PBV). Both models are estimated using panel least squares and include board characteristics, audit committee attributes, and firm-level controls namely firm size (SIZE), leverage (LEV), and liquidity as measured by the current ratio (CR).

Results from Model 1 indicate that overall ESG disclosure does not significantly influence PBV ($\beta = -0.0469$, $p = 0.8380$), suggesting that broad sustainability reporting has yet to be reflected in market valuation. A more detailed examination in Model 2 reveals that the environmental component (ENV) carries a negative but statistically insignificant effect ($\beta = -0.1041$, $p = 0.6444$), while social disclosure (SOC) shows a positive yet insignificant association with PBV ($\beta = 0.1350$, $p = 0.5320$). In contrast, governance disclosure (GOV) emerges as both positive and significant ($\beta = 3.4002$, $p = 0.0456$), indicating that governance-related information plays a meaningful role in shaping investor perceptions of firm value.

With respect to board characteristics, board size (BS) is found to have a negative and significant relationship with PBV in Model 1 ($\beta = -0.4425$, $p = 0.0466$), although this effect diminishes and becomes insignificant once ESG is decomposed in Model 2 ($\beta = -0.3060$, $p = 0.2131$). This pattern implies that larger boards may constrain firm value, potentially due to less efficient decision-making processes. Other governance-related variables including board independence (BI), board meeting frequency (BM), audit committee size (ACS), and audit committee meetings (ACM) do not demonstrate significant effects in either specification.

Among the control variables, firm size (SIZE) consistently shows a negative but insignificant coefficient across both models (Model 1: $\beta = -0.5367$, $p = 0.1936$; Model 2: $\beta = -0.6646$, $p = 0.1314$). Leverage (LEV) similarly exhibits a negative yet statistically insignificant relationship with PBV. Liquidity, as captured by the current ratio (CR), presents a positive coefficient that is marginally significant in Model 1 ($\beta = 0.1770$, $p = 0.0893$), implying that stronger liquidity positions may slightly enhance market valuation.

The explanatory power of both models remains limited, as reflected in the R-squared values of 0.0708 for Model 1 and 0.0964 for Model 2. The low adjusted R-squared figures (0.0143 and 0.0068, respectively), together with the insignificant F-statistics (p-values of 0.2678 and 0.3868), indicate that the models as a whole lack strong statistical fit.

Overall, the findings confirm that aggregated ESG disclosure does not significantly affect firm market performance. However, when ESG is analyzed by dimension, governance disclosure stands out as having a positive and significant influence on PBV. This highlights governance as the most influential ESG component in the eyes of investors, reinforcing its central role in determining market valuation and perceived firm quality.

Discussion

The empirical findings reveal that aggregated Environmental, Social, and Governance (ESG) disclosure does not significantly affect the market valuation of energy companies in Indonesia and Malaysia, as reflected by PBV. This result is consistent with earlier studies arguing that, in many emerging economies, ESG reporting is frequently perceived as symbolic compliance rather than a strategic tool capable of enhancing firm value (Albitar, Hussainey, et al., 2021; Firmansyah et al., 2023). Within the framework of Signaling Theory, ESG disclosure is designed to communicate a firm's commitment to sustainability and effective risk management. However, when disclosures lack depth or consistency, their credibility diminishes, weakening the signaling effect and limiting their impact on investor valuation decisions (Friede et al., 2015).

A disaggregated analysis further shows that the environmental (ENV) and social (SOC) components are not significantly related to PBV. This outcome may be attributed to weak regulatory enforcement, the largely voluntary nature of disclosures, and the absence of uniform reporting standards. From a Resource-Based View (RBV) perspective, environmental and social initiatives can serve as sources of intangible advantages such as enhanced efficiency, improved

reputation, and stronger stakeholder relationships but only when implemented continuously and strategically. Many firms in Indonesia and Malaysia have yet to internalize these practices in a sustained manner (Hardiningsih et al. 2020a; Julidha & Izzah, 2024). Consequently, investors may interpret such disclosures as cost burdens with limited short-term financial benefits, leading to a weak market response (Lubis & Rokhim, 2021).

Conversely, the governance (GOV) dimension shows a positive and statistically significant relationship with PBV, underscoring the pivotal role of governance quality in shaping investor confidence and firm valuation. This finding aligns with both Signaling Theory and Agency Theory, which emphasize that transparent and accountable governance structures such as independent boards, effective audit committees, and clear ownership disclosure help reduce information asymmetry and agency costs (Bushman & Smith, 2003; Read, 2014). In contexts where external institutional oversight is relatively limited, robust internal governance mechanisms function as substitutes for weak regulation, thereby reinforcing market trust (Claessens & Yurtoglu, 2013). Consistent with Stakeholder Theory, strong governance also signals a firm's ability to balance stakeholder interests and mitigate conflicts, ultimately supporting legitimacy and long-term value creation (Donaldson & Preston, 1995; Freeman, 1984).

The divergence among ESG components is shaped by the characteristics of the energy sector, which is highly regulated, capital-intensive, and environmentally sensitive. While environmental and social transformations require long-term policy support and measurable outcomes, governance improvements yield quicker and more observable benefits such as better oversight and reduced managerial opportunism making them more influential on investor perceptions (Sefriyono et al., 2024b; Thomas et al., 2021a).

Overall, the findings indicate that investors in emerging markets are more responsive to governance-focused transparency compared to environmental or social reporting, which commonly suffer from inconsistent measurement and limited assurance. To enhance the financial relevance of ESG, companies need to reinforce the depth of their environmental and social initiatives by embedding them into core operational strategies rather than approaching them merely as compliance obligations. Regulators must also improve ESG assurance standards and introduce sector-specific guidelines to increase comparability and credibility. Strengthened ESG implementation grounded in robust governance will ultimately enhance investor trust and foster sustainable value creation (Freeman & McVea, 2005; Hart & Dowell, 2011).

Conclusion

This study concludes that, while aggregate ESG reporting shows no notable impact on the valuation of energy firms in Indonesia and Malaysia, the governance (G) dimension consistently exhibits a meaningful and statistically positive influence on PBV. These results highlight the fundamental importance of governance quality in shaping investor judgments, particularly within emerging markets where regulatory systems are still developing. Nevertheless, several limitations may affect and potentially bias how these findings are interpreted.

To begin with, the analysis depends on secondary ESG information extracted from annual reports and sustainability disclosures, which differ in detail, verification rigor, and reporting consistency across companies. This inconsistency may generate measurement bias, especially for environmental and social metrics that tend to be disclosed symbolically rather than substantively. Second, the exclusive focus on the energy sector restricts generalizability; sector-specific regulatory pressure may amplify governance disclosure effects while dampening environmental and social signals. Third, the relatively short observation period (2020–2023) marked by pandemic-related disruptions may distort market reactions, creating atypical patterns in PBV that are not fully attributable to ESG practices. Finally, the use of PBV as the sole performance proxy may produce model specification bias, as it captures market valuation but not operational or accounting performance.

Recognizing these limitations provides clearer direction for future research. Studies should consider integrating multi-dimensional performance indicators (e.g., ROA, ROE, Tobin's Q) to better capture both accounting-based and market-based responses. Additionally, applying robust methods such as dynamic panel GMM, PLS-SEM, or quantile regression would help account for endogeneity and uncover heterogeneous effects across firm types. Future work should also examine ESG assurance quality, ownership structure, institutional enforcement, and cross-country governance regimes as moderating variables, as these structural factors may explain why governance emerges as the strongest ESG driver. Expanding the sample beyond the energy sector and lengthening the observation period would further improve external validity.

By explicitly acknowledging how methodological constraints may shape or distort the findings, this strengthened conclusion provides a more balanced interpretation and a clearer, theory-driven roadmap for advancing ESG research in emerging markets.

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