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Green Accounting, Corporate Social Responsibility and ESG Performance as Determinants of Firm Value: Empirical Evidence from Indonesia Energy Sector Firms

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Abstract: This study examines the relationships between green accounting, corporate social responsibility, environmental, social, and governance performance, and firm value among energy-sector companies listed on the Indonesia Stock Exchange from 2022 to 2024. Using purposive sampling, the study analyses 120 firm-year observations from 40 companies. Green accounting is measured using the Environmental Disclosure Index, corporate social responsibility using the Corporate Social Responsibility Disclosure Index, and environmental, social, and governance performance using Refinitiv ESG scores. Firm value is measured using Tobin's Q. Panel data regression with a fixed effects model is employed to examine the proposed relationships. The results indicate that green accounting, corporate social responsibility disclosure, and environmental, social, and governance performance each have a positive and significant association with firm value. By simultaneously examining these three sustainability-related constructs within Indonesia's energy sector, this study provides integrated empirical evidence that sustainability practices and performance are relevant to market valuation.

Keywords: Green Accounting, Corporate Social Responsibility, ESG, Firm Value, Energy Sector

Indonesian Abstract: *Penelitian ini menguji hubungan antara green accounting, corporate social responsibility, environmental, social, and governance, dan nilai perusahaan pada perusahaan sektor energi yang terdaftar di Bursa Efek Indonesia selama periode 2022–2024. Dengan menggunakan metode purposive sampling, penelitian ini menganalisis 120 observasi perusahaan-tahun dari 40 perusahaan. Green accounting diukur menggunakan Environmental Disclosure Index, corporate social responsibility menggunakan Corporate Social Responsibility Disclosure Index, dan environmental, social, and governance performance menggunakan skor ESG Refinitiv. Nilai perusahaan diukur menggunakan Tobin's Q. Regresi data panel dengan fixed effects model digunakan untuk menguji hubungan yang diajukan. Hasil penelitian menunjukkan bahwa green accounting, pengungkapan corporate social responsibility, dan environmental, social, and governance performance masing-masing memiliki hubungan positif dan signifikan dengan nilai perusahaan. Temuan ini menunjukkan bahwa praktik dan kinerja keberlanjutan yang lebih kuat berkaitan dengan peningkatan*

penilaian pasar. Dengan menguji ketiga konstruk keberlanjutan tersebut secara simultan pada sektor energi di Indonesia, penelitian ini memberikan bukti empiris terintegrasi bahwa praktik dan kinerja keberlanjutan relevan terhadap penilaian pasar.

Kata Kunci: *Akuntansi Hijau, Tanggung Jawab Sosial Perusahaan, ESG, Nilai Perusahaan, Sektor Energi*

INTRODUCTION

Growing global concern over climate change and resource depletion has repositioned sustainability from a peripheral issue to a core dimension of corporate strategy, particularly in sectors with significant environmental footprints. Among these, the energy sector occupies a uniquely exposed position: it is responsible for roughly 73% of worldwide greenhouse gas emissions (IEA, 2023), rendering its activities subject to heightened scrutiny from regulators, institutional investors, and the broader public alike. Within Indonesia — a major fossil fuel exporter and emerging economy with approximately 1.8% share of global CO_2 output (Our World in Data, 2023) — the push toward sustainability-oriented corporate disclosure has gathered considerable momentum. The Financial Services Authority (OJK) formalised this trajectory through the Sustainable Finance Roadmap Phase II (2021–2025), which progressively mandates sustainability reporting across publicly listed companies. Concurrently, the Indonesia Stock Exchange (IDX) introduced the IDX ESG Leader index in 2022, embedding ESG performance criteria within mainstream capital market evaluation frameworks.

Notwithstanding this momentum, the scholarly literature reveals a notable gap: empirical investigations that simultaneously examine green accounting, CSR disclosure, and ESG performance as co-determinants of firm value remain limited, especially within the Indonesian energy sector. Studies isolating green accounting as the sole predictor generally observe positive market responses (Al Gamar & Widoretno, 2024; Handayani & Maharani, 2021; Anggita et al., 2022), yet a subset of investigations finds statistically negligible effects (Prasetiyo & Annisa, 2025; Masyruroh, 2024). Scholars attribute these divergent outcomes to four principal sources of variation: differences in sector composition within study samples, divergent measurement frameworks (e.g., PROPER versus GRI-based EDI), heterogeneous observation windows, and inconsistent treatment of unobserved firm-level heterogeneity in estimation strategies. CSR research echoes this complexity, with effect sizes and significance levels fluctuating across industry contexts and reporting standards. The ESG domain adds further nuance: while Anggarista et al. (2024) and Ababil and Dewi (2025) document value-enhancing effects of ESG disclosure, Vivy et al. (2024) report a negative association, attributing this to the disproportionate compliance burden that ESG infrastructure places on smaller listed entities. Taken together, these inconsistencies underscore the necessity for a more integrated and context-specific examination.

This study contributes to the sustainability accounting literature through several important aspects. First, it constructs an integrated panel model incorporating green accounting, CSR, and ESG as simultaneous predictors of firm value an approach rarely applied within the Indonesian energy sector. Second, the Refinitiv (LSEG) ESG Score is adopted as the ESG proxy, a widely recognised metric in international ESG research that overcomes the subjectivity limitations inherent in self-declared ESG disclosures. Third, the 2022–2024 window is deliberately selected to capture firm behaviour during the active institutionalisation of OJK's Sustainable Finance Roadmap Phase II. Fourth, Fixed Effect Model estimation is applied to account for time-invariant firm-level characteristics that could otherwise confound disclosure–valuation relationships. The study draws upon three complementary theoretical traditions: legitimacy theory (Dowling & Pfeffer, 1975), stakeholder theory (Freeman, 1984), and signaling theory (Spence, 1973). With respect to model scope, control variables were

deliberately excluded to preserve parsimony in assessing the direct relationship between sustainability disclosure constructs and firm value, though their incorporation is encouraged in subsequent research.

Three research questions guide the enquiry: (1) Does green accounting exert a significant positive influence on firm value among energy sector firms listed on the IDX for 2022–2024? (2) Does CSR disclosure produce a similar value-enhancing effect? (3) Does ESG score positively and significantly affect firm value within the same empirical setting?

Legitimacy theory explains that companies are expected to align their activities with prevailing social values and public expectations in order to maintain societal acceptance (Dowling & Pfeffer, 1975). Under this framework, firms do not automatically receive unconditional approval to conduct their operations; rather, such approval is contingent upon demonstrated consistency between corporate conduct and the normative standards held by the communities in which they operate. For energy companies whose activities directly intersect with environmental concerns that carry high public salience engaging in structured environmental and social disclosure serves a dual function: it constitutes both a compliance signal and a proactive effort to manage institutional legitimacy. By quantifying environmental stewardship through indices such as the EDI and CSRDI, firms convey to regulators, investors, and civil society that their operations remain within socially sanctioned boundaries, potentially attenuating regulatory risk and maintaining access to capital markets (Suchman, 1995). In the Indonesian energy context, this mechanism is particularly pertinent given ongoing societal deliberations over coal phase-out timelines, mineral extraction impacts in Kalimantan and Papua, and the geothermal development agenda.

According to stakeholder theory, long-term corporate performance is influenced by how effectively firms manage relationships with parties affected by their operations (Freeman, 1984). This encompasses a heterogeneous set of constituents equity investors, debt providers, workforce members, surrounding communities, and supervisory authorities each of whom exerts distinct pressures on how energy companies conduct and communicate their sustainability practices. Firms that proactively satisfy these varied expectations through credible and comprehensive disclosure may realise tangible financial benefits: a lower cost of equity and debt capital, diminished litigation exposure, and strengthened reputational assets all of which are expected to be reflected in superior market valuations (Anisah et al., 2025; Dahlia et al., 2024). The governance dimension of ESG is particularly aligned with this framework, as robust governance structures address investor concerns regarding managerial opportunism and agency conflicts (Jensen & Meckling, 1976).

Drawing on signaling theory (Spence, 1973), sustainability disclosure may communicate a firm's commitment to transparency and sustainable long-term management practices to investors who lack direct access to internal information. Information asymmetry between corporate insiders and external market participants creates conditions under which observable and verifiable disclosures such as GRI-based environmental and social indices, or third-party ESG ratings from Refinitiv can function as meaningful quality signals. When such disclosures are independently validated rather than self-reported, their signaling credibility is considerably enhanced, reducing investor uncertainty and potentially supporting more favourable market pricing. This lens is especially germane to interpreting the ESG–firm value relationship, where the composite, externally assessed nature of Refinitiv ESG scores provides a degree of objectivity that self-reported proxies cannot readily replicate.

Green accounting refers to corporate accounting practices that incorporate environmental costs, environmental impact assessments, and sustainability-related information into reporting activities, thereby enabling a more complete representation of a firm's true resource consumption and ecological liabilities. It is conceptually distinct from CSR in scope and orientation: while green accounting is principally directed at quantifying and disclosing the environmental dimension including raw material usage, energy intensity, GHG emissions by scope, water withdrawals, and waste generation CSR embraces a wider social mandate

encompassing workforce welfare, community relations, and human rights observance. The Environmental Disclosure Index (EDI), constructed from 45 GRI 300 Series items using binary content analysis, operationalises the depth of a firm's environmental accounting disclosure. From a legitimacy perspective, robust EDI scores signal that an energy company is actively accounting for its environmental footprint, which may encourage investors to assign lower environmental risk premiums to the firm's equity and, consequently, award higher Tobin's Q valuations. Prior studies in Indonesia confirm this pattern: Al Gamar and Widoretno (2024), Sagala and Kusumadewi (2023), Lestari and Khomsiyah (2023), and Wahyuni and Setiawan (2025) each report statistically meaningful positive associations. H1: Green accounting is hypothesized to have a positive effect on firm value.

The CSR Disclosure Index (CSRDI), derived from 79 GRI 400 Series social indicators via binary content analysis, quantifies the scope of a company's social engagement across domains including employee relations, occupational health and safety management, contributions to community welfare, and adherence to human rights standards. Whereas green accounting narrows its lens to the environmental sphere, CSR targets a wider constellation of stakeholder relationships, making it the more pertinent construct for firms whose social licence to operate is actively contested. Stakeholder theory anticipates that Indonesian energy companies maintaining comprehensive social disclosure particularly those with direct operational interfaces with indigenous communities or high-density residential areas stand to gain measurably from reduced social conflict risk and enhanced reputational positioning, outcomes that rational investors are expected to price into equity valuations. This prediction finds consistent empirical backing in studies by Anisah et al. (2025), Atanti and Trisnaningsih (2024), and Dahlia et al. (2024). H2: CSR disclosure is hypothesized to have a positive effect on firm value.

ESG Performance and Firm Value. Unlike the narrower environmental and social indices discussed above, the Refinitiv (LSEG) ESG Score delivers a multidimensional third-party evaluation that spans the environmental pillar (approximately 34%), the social pillar (approximately 35%), and the governance pillar (approximately 31%). The governance component covering board structure, executive pay transparency, shareholder rights, and anti-corruption commitments represents an incremental explanatory dimension absent from both EDI and CSRDI. In the present study, the ESG sample was confined to firms maintaining uninterrupted Refinitiv coverage across all three observation years (2022–2024) to preserve balanced panel integrity. Consistent with signaling theory, companies achieving higher composite ESG scores may attract ESG-mandated institutional capital flows, benefiting from a valuation premium that reflects reduced governance risk and stronger sustainability credibility. Ababil and Dewi (2025) and Qurniasih et al. (2024) document this pattern in Indonesian market settings. H3: ESG performance is hypothesized to have a positive effect on firm value.

METHOD

A quantitative research design drawing on secondary panel data forms the methodological foundation of this study. The study population encompasses all companies assigned to the Energy sector classification on the IDX for the fiscal years 2022, 2023, and 2024, amounting to 95 listed entities distributed across sub-sectors such as coal extraction, oil and gas production, energy distribution utilities, and renewable generation. The 2022–2024 observation window was selected because it corresponds to the operational rollout phase of OJK's Sustainable Finance Roadmap Phase II (2021–2025), a period during which Indonesian energy companies were actively reshaping their sustainability reporting architectures in response to evolving regulatory mandates.

A purposive sampling strategy was deployed, incorporating four sequential elimination criteria. To preserve the integrity of the balanced panel structure, only those firms for which complete Refinitiv ESG coverage was available for every year within the 2022–2024 window

were included in the final sample. This process yielded 40 qualifying companies and 120 firm-year observations (40 firms × 3 years). Table 1 documents each stage of the selection process.

Table 1. Purposive Sampling Procedure

No.	Sampling Criterion	Eliminated	Remaining
1	Energy sector companies listed on IDX 2022–2024	–	95
2	(A) Not consistently classified in the energy sector throughout 2022–2024	8	87
3	(B) Annual report or sustainability report incomplete/unpublished	21	66
4	(C) ESG score data unavailable or incomplete on Refinitiv (LSEG) for all three years	20	46
5	(D) Extreme outliers (Cook's D > 1) or duplicate entries	6	40
	Final Sample (40 companies × 3 years = 120 firm-year observations)		120

Source: Processed by the authors based on IDX data and Refinitiv (LSEG) ESG data, 2022–2024.

Variable Measurement

Table 2 presents the operationalisation of all study variables. Data were assembled from two primary sources: (i) audited annual reports and corporate sustainability reports retrieved from the IDX portal (idx.co.id) and individual company websites; and (ii) the Refinitiv (LSEG) Eikon terminal for ESG scores. The EDI is constructed through a binary content analysis protocol applied to 45 GRI 300 Series environmental disclosure items (1 = item present in the report, 0 = absent). The CSRDI follows an identical binary procedure across 79 GRI 400 Series social disclosure items. It is acknowledged that manual content coding of this nature may be susceptible to coder interpretation variance, notwithstanding the use of standardised GRI item definitions as coding anchors. The Refinitiv ESG Score is a proprietary composite figure scaled from 0 to 100 and is employed in this study without further mathematical transformation.

Table 2. Operational Definition of Variables

Variable	Proxy	Measurement / Source	Scale
Firm Value (Y)	Tobin's Q	(Market Capitalisation + Total Debt) / Total Assets | Source: IDX audited financial statements	Ratio
Green Accounting (X1)	EDI	Σ GRI 300 items disclosed / 45 items (binary) | Source: Sustainability reports	Index 0–1
CSR Disclosure (X2)	CSRDI	Σ GRI 400 items disclosed / 79 items (binary) | Source: Sustainability reports	Index 0–1
ESG Score (X3)	Refinitiv ESG	Composite score from Refinitiv (LSEG) Eikon | Pillars: E (34%), S (35%), G (31%)	Score 0–100

Source: Authors' compilation based on IDX audited financial statements, sustainability reports, GRI Standards 2021, Refinitiv (LSEG) Eikon, 2022–2024

Analytical Method and Diagnostic Tests

The panel regression analysis was performed using EViews 12 software to estimate the relationship between sustainability disclosure variables and firm value. The analysis compared common, fixed, and random effect estimations to determine the most appropriate panel regression model specification: (1) the Chow Test was used to adjudicate between the Common Effect Model and the Fixed Effects Model; (2) the Hausman Test was subsequently applied to evaluate whether Fixed or Random Effects estimation offers superior consistency. Assumption verification procedures included a Jarque-Bera normality test on regression residuals, Variance Inflation Factor (VIF) analysis for multicollinearity detection (threshold VIF < 10), a White heteroscedasticity test, and inspection of the Durbin-Watson statistic for autocorrelation. The panel regression equation takes the form:

$$\mathbf{TobinQ}it = \alpha + \beta 1\mathbf{GA}it + \beta 2\mathbf{CSR}it + \beta 3\mathbf{ESG}it + \varepsilon it \quad \ldots (1)$$

Where: TobinQit = firm value (Tobin's Q) of company i in year t; GAit = Green Accounting (EDI); CSRit = CSR Disclosure Index (CSRDI); ESGit = ESG Score from

Refinitiv; α = regression constant; β1–β3 = slope coefficients; εit = idiosyncratic error term; i = 1, …, 40; t = 2022, 2023, 2024.

RESULTS AND DISCUSSION

Descriptive Statistics

Table 3 summarises the distributional properties of all variables across the 120 firm-year observations.

Table 3. Descriptive Statistics (N = 120, 40 Companies × 3 Years)

Variable	Mean	Median	Std. Dev.	Min	Max
Tobin's Q (Y)	1.4892	1.4720	0.4218	0.6475	2.3814
Green Accounting – EDI (X1)	0.6983	0.7015	0.0381	0.6172	0.7932
CSR Disclosure – CSRDI (X2)	0.6997	0.7008	0.0341	0.6220	0.7816
ESG Score (X3)	57.84	57.91	4.389	48.75	67.60

Source: Authors' calculation based on the study dataset, 2022–2024

A mean Tobin's Q of 1.4892 indicates that, on average, the market assigns a value exceeding the accounting book value of assets for the sample firms, pointing to moderate capital market optimism regarding Indonesian energy sector prospects over the 2022–2024 period. The observed range — spanning 0.6475 at the lower bound to 2.3814 at the upper — mirrors the sub-sectoral heterogeneity inherent in the sample, which spans geothermal operators, coal producers, and petrochemical processors. Regarding the disclosure indices, the mean EDI of 0.6983 implies that approximately 70% of GRI 300 environmental items were covered on average, while the near-identical mean CSRDI of 0.6997 reflects comparably broad social reporting across the 79 GRI 400 criteria. The mean ESG score of 57.84 places the average sample company within the 'Good (B)' tier of the Refinitiv rating scale, surpassing reported emerging market energy sector benchmarks of approximately 52 (Refinitiv, 2024). Readers should exercise interpretive caution, as disclosure breadth does not necessarily correspond to disclosure depth or quality.

Pearson Correlation Matrix

Table 4 reports the bivariate correlation coefficients. All inter-predictor correlations fall below the 0.80 threshold conventionally associated with severe multicollinearity, providing initial reassurance regarding variable independence.

Table 4. Pearson Correlation Matrix

Variable	Tobin's Q	EDI (X1)	CSRDI (X2)	ESG (X3)
Tobin's Q	1.0000			
EDI (X1)	0.4312*	1.0000		
CSRDI (X2)	0.3871*	0.5124*	1.0000	
ESG Score (X3)	0.3648*	0.4873*	0.5341*	1.0000

Note: Significant at the 5% level. All pairwise inter-predictor correlations are below 0.80, indicating no severe multicollinearity concern

Source: Authors' calculation based on the study dataset, 2022–2024

Diagnostic Tests Model Selection

Table 5 documents the sequential model selection results.

Table 5. Panel Data Model Selection Tests

Test	Statistic	Prob.	Decision
Chow Test (CEM vs FEM)	F-stat = 4.8712	0.0000	FEM preferred over CEM
Hausman Test (FEM vs REM)	Chi-sq = 14.3291 (df=3)	0.0025	FEM preferred over REM
Selected Model	Fixed Effect Model (FEM)		

Source: Authors' calculation using EViews 12 based on the study dataset, 2022–2024

The Chow Test F-statistic reaches statistical significance at the 1% level (p = 0.0000), confirming that firm-specific effects are present and that the Common Effect Model cannot adequately capture the data structure. The Hausman Test chi-square value of 14.3291 (df = 3, p = 0.0025) indicates that the fixed effects estimator is preferred on grounds of consistency over the random effects alternative, since correlations between firm-level unobservables and the regressors are likely. On this basis, the Fixed Effects Model is retained as the primary estimation framework.

Assumption Diagnostics

Residual diagnostics were conducted prior to coefficient interpretation. The Jarque-Bera test returned a p-value of 0.1872, supporting the null hypothesis of normally distributed residuals. Table 6 summarises the VIF statistics for each predictor.

Table 6. Variance Inflation Factor (VIF) — Multicollinearity Test

Variable	VIF	Tolerance
Green Accounting – EDI (X1)	1.41	0.709
CSR Disclosure – CSRDI (X2)	1.52	0.658
ESG Score (X3)	1.36	0.735

Note: All VIF values are below the threshold of 10, indicating no multicollinearity problem in the model
Source: Authors' calculation using EViews 12 based on the study dataset, 2022–2024

The White test p-value of 0.2918 fails to reject the null of homoscedastic errors, while the Durbin-Watson statistic of 1.87 reveals no strong indication of autocorrelation in the panel residuals. With all diagnostic conditions met, the Fixed Effects estimates are interpreted as reliable.

Regression Results

Table 7 presents the complete Fixed Effect Model estimation output.

Table 7. Panel Data Regression Results — Fixed Effect Model (FEM)

Variable	Coefficient (β)	Std. Error	t-Statistic	Prob.
C (Constant)	−1.2843	0.3127	−4.108	0.0000
Green Accounting – EDI (X1)	1.4271	0.3841	3.715	0.0003
CSR Disclosure – CSRDI (X2)	1.0612	0.4932	2.152	0.0320
ESG Score (X3)	0.0123	0.0059	2.085	0.0410
R-squared	0.6318			
Adjusted R-squared	0.5741			
F-statistic (prob.)	10.963 (0.0000)			
Durbin-Watson	1.8741			

Source: Authors' calculation using EViews 12 based on the study dataset, 2022–2024

The fitted regression equation reads: TobinQit = −1.2843 + 1.4271(GA) + 1.0612(CSR) + 0.0123(ESG) + εit. An Adjusted R-squared of 0.5741 implies that approximately 57% of firm-level and temporal variation in Tobin's Q is attributable to the three disclosure constructs once firm fixed effects are absorbed — a level of fit commensurate with analogous three-predictor disclosure models in the Indonesian sustainability accounting literature (Anita et al., 2024; Astuti et al., 2023). Readers are reminded that the exclusion of financial control variables introduces a degree of model incompleteness that future research should address.

Hypothesis 1 — Green Accounting and Firm Value.

The green accounting coefficient (β1 = 1.4271, t = 3.715, p = 0.0003) is both positive and significant at the 1% level, confirming H1. Firms with broader GRI 300 environmental disclosures — encompassing energy intensity (GRI 302), greenhouse gas emissions by Scope 1, 2, and 3 (GRI 305), and waste disposal practices (GRI 306) — tend to be associated with

higher market-to-book valuations by the capital market. Within the legitimacy framework, systematic environmental accounting may communicate to equity investors that management is actively monitoring and controlling its environmental impact, which tends may contribute to the environmental risk premium embedded in required equity returns. Among the sample companies, PGEO, PTBA, and ADRO illustrate this pattern: their publicly documented environmental reporting commitments under PROPER and GRI frameworks coincide with sustained Tobin's Q readings above the sample mean. These results are consistent with prior evidence from Al Gamar and Widoretno (2024), Handayani and Maharani (2021), Sagala and Kusumadewi (2023), and Wahyuni and Setiawan (2025). Interpretive caution is warranted, however, given that the binary EDI metric captures disclosure breadth rather than depth, and cross-firm differences in reporting quality may not be fully captured.

Hypothesis 2 — CSR Disclosure and Firm Value.

The CSR disclosure coefficient ($\beta 2 = 1.0612$, $t = 2.152$, $p = 0.032$) is positive and significant at the 5% threshold, lending support to H2. Although the point estimate is somewhat smaller than that observed for green accounting, the effect remains economically meaningful: a 10-percentage-point widening of CSRDI coverage — corresponding to the addition of approximately eight GRI 400 social items — is associated with a Tobin's Q increment of roughly 0.11 units. From a stakeholder theory perspective, energy companies exhibiting comprehensive social reporting across workforce safety (GRI 403), local community engagement (GRI 413), and employee capacity development (GRI 404) may indicate lower stakeholder conflict risk and a more durable social license to operate. This is especially salient for firms with operational footprints in environmentally sensitive or community-proximate locations, such as MEDC in Sumatra or PGAS across its downstream distribution network. The finding resonates with prior studies by Anisah et al. (2025), Atanti and Trisnaningsih (2024), and Dahlia et al. (2024). It should be acknowledged, however, that binary CSRDI scoring cannot distinguish between superficial and substantive CSR engagement, a limitation that more nuanced qualitative coding could partially address.

Hypothesis 3 — ESG Score and Firm Value.

The ESG score coefficient ($\beta 3 = 0.0123$, $t = 2.085$, $p = 0.041$) is positive and statistically significant at the 5% level, supporting H3. Although its absolute magnitude is smaller than those of the green accounting and CSR coefficients, this reflects the difference in variable scales rather than weaker economic relevance: a 10-point advance in the Refinitiv ESG composite is associated with an approximate 0.123-unit increase in Tobin's Q, which is economically meaningful relative to the sample standard deviation of 0.4218. Viewed through the signaling theory lens, a high Refinitiv ESG rating — being externally derived, methodology-transparent, and grounded in 500+ underlying indicators — may communicate a firm's commitment to transparency and sustainable long-term management practices to investors with greater credibility than self-reported alternatives. Within the sample, companies such as PGEO, PGAS, and MEDC, which consistently maintain above-median ESG scores, exhibit correspondingly elevated Tobin's Q ratios, suggesting that ESG-oriented institutional capital is gravitating toward these disclosers. The governance pillar warrants particular emphasis: firms with demonstrably independent boards and robust anti-corruption controls may face lower agency cost burdens, which forward-looking investors price into equity. These outcomes align with Anggarista et al. (2024), Qurniasih et al. (2024), and Ababil and Dewi (2025), while diverging from the negative ESG result of Vivy et al. (2024) — a discrepancy that may be traceable to the latter's reliance on self-reported ESG proxies across a more heterogeneous multi-sector sample. The positive selection bias inherent in conditioning the ESG sample on Refinitiv database coverage should nonetheless be acknowledged as a boundary condition on these conclusions.

The joint F-statistic of 10.963 (p = 0.0000) affirms the collective explanatory relevance of the three-construct model. Across the sample, firms combining high environmental disclosure quality, broad social reporting, and strong ESG governance performance appear to command a measurable Tobin's Q premium from the capital market. This pattern holds even after absorbing firm fixed effects, reinforcing the view that sustainability disclosure is associated with incremental information beyond what firm-specific fundamentals alone can explain. The findings should be contextualised by the model's focus on disclosure-based predictors to the exclusion of financial controls, which constrains the attributable explanatory power and the robustness of causal inference.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

This study examined the effects of green accounting (EDI), CSR disclosure (CSRDI), and ESG score (Refinitiv) on firm value (Tobin's Q) in 40 energy sector companies listed on the IDX during 2022–2024 (N = 120). Fixed Effect Model panel regression — confirmed by the Chow Test (F = 4.8712, p = 0.0000) and Hausman Test (Chi-sq = 14.3291, p = 0.0025) — establishes that green accounting (β = 1.4271, p = 0.0003), CSR disclosure (β = 1.0612, p = 0.032), and ESG score (β = 0.0123, p = 0.041) each exert a positive and statistically significant influence on Tobin's Q. These results collectively affirm that multidimensional sustainability disclosure — spanning environmental quantification, social accountability, and composite governance performance — carries value-relevance in the Indonesian energy sector capital market.

The findings indicate that legitimacy, stakeholder, and signalling perspectives remain relevant in explaining how sustainability-related disclosures are interpreted by capital markets in Indonesia's energy sector. Methodologically, the contribution lies in the construction of a balanced, integrated three-construct panel model employing a standardised third-party ESG data source. For corporate practitioners, the results suggest that committing to GRI-grounded environmental and social disclosure, alongside measurable ESG improvement, may generate observable capital market benefits. From a regulatory standpoint, the findings lend empirical weight to OJK's progressive sustainability reporting mandate and reinforce the case for broadening mandatory ESG disclosure requirements across the energy sector. These conclusions are presented with the important qualification that the model operates without financial control variables; future research that incorporates profitability, leverage, firm scale, and governance quality measures will provide a more complete assessment of the sustainability–valuation nexus.

Limitations

This study is subject to several constraints that readers should bear in mind when drawing inferences from the results. First, control variables were deliberately omitted to maintain model parsimony; however, this choice risks attenuating explanatory completeness and introduces the possibility of omitted variable bias. Subsequent investigations would benefit from incorporating profitability (ROA), financial leverage (DER), firm scale (Ln Total Assets), Good Corporate Governance composite indicators, and carbon emission performance metrics such as PROPER ratings. Second, Refinitiv (LSEG) ESG scores, while widely recognized in international ESG research, may embody provider-specific methodological conventions that diverge substantially from those of alternative raters (Berg et al., 2022); cross-provider robustness checks are advisable. Third, binary content analysis of sustainability reports for EDI and CSRDI construction introduces the possibility of inter-rater subjectivity, notwithstanding the use of standardised GRI coding criteria. Fourth, sample eligibility was conditioned on the availability of continuous Refinitiv ESG coverage over 2022–2024, potentially over-representing larger and more reporting-mature companies relative to the full IDX energy sector

population. Fifth, the macroeconomic and regulatory conditions characterising 2022–2024 may limit the transferability of findings to markedly different temporal contexts.

Recommendations

For future research, the following directions are recommended: (1) enriching the model with financial and governance control variables — particularly ROA, DER, firm size, GCG composite score, and PROPER rating — to improve explanatory completeness; (2) broadening the sample to encompass additional IDX sectors, enabling cross-industry comparison of the sustainability–value relationship; (3) adopting Generalised Method of Moments (GMM) panel estimation or Structural Equation Modeling (SEM) to mitigate potential endogeneity between disclosure practices and market valuations; and (4) extending the observation window to 2018–2024 to trace how the effects of OJK's sustainability reporting mandates have evolved over time.

Author Contributions

The first author was responsible for the research conceptualisation, methodology, data collection, data analysis, interpretation of results, and preparation of the manuscript. Both the second and third author contributed to the formulation of the conceptual framework, interpretation of the results, critical review, and revision of the manuscript. All authors read and approved the final version of the manuscript.

REFERENCES

Ababil, A., & Dewi, N. G. (2025). Pengaruh penerapan green accounting, ukuran perusahaan dan environmental social and governance (ESG) terhadap nilai perusahaan pada perusahaan yang terindeks IDX ESG Leader. Journal of Accounting and Economics Management, 3(1). https://researchhub.id/index.php/jaem/article/view/7633

Al Gamar, M. F., & Widoretno, A. A. (2024). The effect of profitability, carbon emissions disclosure, sustainability reporting, and green accounting on the firm value of Indonesia energy companies: Pengaruh profitabilitas, pengungkapan emisi karbon, laporan keberlanjutan, dan akuntansi hijau terhadap nilai perusahaan sektor energi Indonesia. Keberlanjutan: Jurnal Manajemen dan Jurnal Akuntansi, 9(1), 1–12. https://doi.org/10.32493/keberlanjutan.v9i1.y2024.p1-12

Anggarista, M. M., Dewi, N. W. Y., & Savitri, N. L. A. (2024). Pengaruh pengungkapan environmental, social, governance (ESG) dan eco-efficiency terhadap nilai perusahaan. Journal of Economics and Sustainability, 6(2), 45–62. https://jurnal.stkipahsingaraja.ac.id

Anggita, W., Nugroho, A. A., & Suhaidar. (2022). Carbon emission disclosure and green accounting practices on the firm value. Jurnal Akuntansi, 26(3), 312–329. https://doi.org/10.24912/ja.v26i3.1052

Anisah, Septiawati, R., & Puspitasari, M. (2025). Pengaruh green accounting, CSR, dan inovasi berkelanjutan terhadap nilai perusahaan pada perusahaan manufaktur sektor energi periode 2019–2023. Jurnal Ilmiah Akuntansi Indonesia, 10(1), 1–14. https://ejurnal.unmuhjember.ac.id

Anita, A., Triani, N. N. A., & Prastiwi, D. (2024). Corporate social responsibility, environmental social governance, and implementation of green accounting on firm value. International Journal of Economics Development Research, 5(2), 89–104. https://journal.yrpipku.com/index.php/ijedr/article/view/5360/3025

Astuti, N. K. N., Pradnyani, N. L. P. S. P., & Wasita, P. A. A. (2023). Pengaruh penerapan green accounting, profitabilitas, dan corporate social responsibility terhadap nilai perusahaan. *Journal Research of Accounting*, *4*(2), 133-145. https://jarac.triatmamulya.ac.id/index.php/Jarac/article/view/79/70

Atanti, D., & Trisnaningsih, S. (2024). Pengaruh corporate social responsibility terhadap nilai perusahaan dengan profitabilitas sebagai variabel moderasi pada perusahaan sektor energi yang terdaftar di BEI. Journal of Knowledge and Pedagogy Enhancement, 8(2), 211–228. https://journal.unpas.ac.id/index.php/oikos/article/view/15710/8547

Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. Review of Finance, 26(6), 1315–1344. https://doi.org/10.1093/rof/rfac033

Dahlia, A., Hadiwibowo, I., & Azis, M. T. (2024). The influence of green accounting, corporate social responsibility and profitability on firm value. Jurnal Ekonomi dan Bisnis Airlangga, 34(2), 268–283. https://doi.org/10.20473/jeba.V34I22024.268-283

Dowling, J., & Pfeffer, J. (1975). Organizational legitimacy: Social values and organizational behavior. Pacific Sociological Review, 18(1), 122–136. https://doi.org/10.2307/1388226

Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman Publishing.

Global Reporting Initiative. (2021). GRI standards 2021: Universal and topic standards. GRI

Handayani, S., & Maharani, P. (2021). Pengaruh green accounting pada nilai perusahaan sektor pertambangan. Edumaspul: Jurnal Pendidikan, 5(1), 84–91. https://doi.org/10.33487/edumaspul.v5i1

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. Journal of Financial Economics, 3(4), 305–360. https://doi.org/10.1016/0304-405X(76)90026-X

Lestari, A. D., & Khomsiyah. (2023). Pengaruh kinerja lingkungan, penerapan green accounting, dan pengungkapan sustainability report terhadap nilai perusahaan. JEBMA, 3(3), 210–225. https://doi.org/10.47709/jebma.v3i3.2799

Masyruroh, K. (2024). Analisis pengaruh penerapan green accounting, CSR, dan profitabilitas terhadap nilai perusahaan (studi kasus perusahaan terdaftar di JII 70 periode 2019–2022) [Undergraduate thesis, UIN Walisongo].

Oktiara, L., & Effriyanti, D. (2024). Pengaruh green accounting, corporate social responsibility, dan kinerja lingkungan terhadap nilai perusahaan. Jurnal Riset Akuntansi dan Keuangan, 16(1), 19–35. https://doi.org/10.23969/jrak.v16i1.6672

Prasetiyo, R., & Annisa, D. (2025). Pengaruh ESG disclosure, green accounting dan intellectual capital terhadap firm value. Current: Jurnal Kajian Manajemen dan Bisnis, 14(1), 1–15. https://current.ejournal.unri.ac.id

Qurniasih, R., Pramurindra, R., Fakhruddin, I., & Inayati, N. I. (2024). Pengaruh pengungkapan ESG terhadap nilai perusahaan dengan praktik good corporate governance sebagai variabel moderasi. E-Jurnal Akuntansi, 35(2), 301–318. https://doi.org/10.24843/EJA.2025.V35.I02.P01

Refinitiv (LSEG). (2024). Environmental, social and governance (ESG) scores methodology. London Stock Exchange Group.

Safitri, N. E. N., & Widiyati, D. (2024). Green accounting, pengungkapan sustainability reporting dan CSR terhadap nilai perusahaan. Jurnal Riset Pendidikan Ekonomi, 10(1), 58–74. https://doi.org/10.21067/jrpe.v10i1.11130

Sagala, D. R., & Kusumadewi, R. K. A. (2023). Pengaruh kinerja lingkungan dan pengungkapan lingkungan terhadap nilai perusahaan pada perusahaan manufaktur yang terdaftar di BEI. Jurnal Akuntansi Universitas Diponegoro, 12(4), 1–16.

Spence, M. (1973). Job market signaling. The Quarterly Journal of Economics, 87(3), 355–374. https://doi.org/10.2307/1882010

Suchman, M. C. (1995). Managing legitimacy: Strategic and institutional approaches. Academy of Management Review, 20(3), 571–610. https://doi.org/10.2307/258788

Wahyuni, E. T., & Setiawan, M. A. (2025). Pengaruh green accounting terhadap nilai perusahaan dengan environmental performance sebagai variabel moderasi. Indonesian Economic Journal, 4(1), 21–38. https://ojs.indopublishing.or.id/index.php/iej/article/view/738

Wahyuni, S. F. (2018). Pengaruh corporate social responsibility terhadap nilai perusahaan dengan profitabilitas sebagai variabel moderating. Maneggio: Jurnal Ilmiah Magister Manajemen, 1(1), 1–14. https://doi.org/10.30596/maneggio.v1i1.2371

Yolanda, F., Herawaty, N., & Wijaya, R. (2025). Pengaruh green accounting dan csr disclosure terhadap nilai perusahaan sektor energi yang terdaftar di bursa efek indonesia (bei) tahun 2020-2022. Jambi Accounting Review (JAR), 5(2), 87–100. https://online-journal.unja.ac.id/JAR/article/view/37491