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CSR, Governance, and Green Innovation: Drivers of Energy Firm Value Through Profitability

Merry Anna Napitupulu^{1*}, Duma Megaria Elisabeth², Arthur Simanjuntak³, David Patar Sitanggang⁴

^{1,2,3,4} *Accounting, Universitas Methodist Indonesia*

**napitupulumerryanna@gmail.com*

Abstract

This investigation explores the relationship between Corporate Social Responsibility (CSR), Good Corporate Governance (GCG), and Green Innovation on firm value among energy companies traded on the Indonesia Stock Exchange during 2020-2023, with profitability functioning as an intermediary variable. The research framework incorporates CSR disclosure indices, GCG composite ratings, and Green Innovation assessed through environmental technology research and development expenditure intensity. Tobin's Q ratio serves as the proxy for firm value, while Return on Assets (ROA) represents the profitability mediator. Purposive sampling methodology was applied for sample selection, with analytical procedures conducted using WarpPLS version 7.0. Findings reveal that CSR and Green Innovation substantially boost firm value, while GCG demonstrates no statistically significant influence. Additionally, profitability effectively mediates the connections between these strategic factors and firm value.

Keywords: Corporate Social Responsibility, Good Corporate Governance, Green Innovation, Firm Value

Introduction

Indonesia's energy sector represents a cornerstone of the nation's economic framework, serving as the driving force behind industrial growth and energy independence. Energy enterprises face extraordinary challenges in balancing financial performance with environmental stewardship while upholding their social responsibility obligations. Modern business landscapes require energy corporations to embed sustainable practices while preserving competitive positioning and optimizing stakeholder returns (Chen et al., 2021).

Maximizing firm value has become a paramount strategic goal for energy enterprises, especially publicly listed entities where investor oversight intensifies considerably. The Tobin's Q ratio operates as a holistic firm valuation metric, capturing market sentiment regarding company performance compared to asset replacement values (Alareeni & Hamdan, 2020). Contemporary empirical research indicates that Tobin's Q effectively represents market valuation trends and investment appeal in developing economies, particularly within sustainable business practice contexts (Zhou et al., 2022).

Three pivotal elements significantly impact energy sector firm value: Corporate Social Responsibility, Good Corporate Governance, and Green Innovation. CSR embodies organizational dedication to sustainable advancement through environmental protection, social welfare improvement, and ethical business conduct (Wang et al., 2021). Energy corporations adopting comprehensive CSR initiatives exhibit enhanced stakeholder relationship capabilities and strengthened risk management approaches.

Good Corporate Governance includes structural frameworks that ensure transparent decision-making, accountability systems, and stakeholder safeguarding mechanisms. Robust governance architectures minimize agency expenses and boost operational effectiveness, directly affecting firm valuation indicators (Orazalin &



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Mahmood, 2021). Green Innovation encompasses technological progress in environmental solutions, particularly vital for energy companies transitioning toward sustainable operations. Green technology investments establish competitive differentiation while meeting regulatory demands and changing consumer expectations (Xie et al., 2021).

Literature Review

Stakeholder Theory

Freeman's (1984) stakeholder theory establishes the conceptual framework for comprehending how organizations generate value through holistic stakeholder relationship coordination. This theoretical approach emphasizes that corporations must acknowledge the interests of all stakeholders—shareholders, employees, customers, communities, and environmental groups—rather than concentrating solely on shareholder wealth optimization. The framework addresses contemporary business complexity where multiple stakeholder constituencies substantially affect organizational performance and long-term viability (Hassan et al., 2022). Strategic stakeholder management produces favorable signals concerning organizational dedication to sustainable development and social accountability, ultimately improving corporate reputation and market assessment. Organizations exhibiting strong stakeholder focus typically attract socially conscious investors and achieve superior market valuations, especially in the post-pandemic environment where ESG factors have gained heightened importance (Tarmuji et al., 2020).

Firm Value

Firm value represents the market's holistic evaluation of organizational worth, reflecting anticipated future cash flows and growth potential. Financial theory commonly utilizes firm value as the ultimate indicator of management effectiveness and strategic achievement. The Tobin's Q ratio functions as the principal firm value measure, contrasting market capitalization with asset replacement expenses. Ratios above 1.0 suggest that markets assess companies beyond their physical asset foundation, indicating robust intangible resources, growth opportunities, and sustainable competitive positioning.

Contemporary valuation theory suggests that sustainable firm value development necessitates harmonizing short-term profitability goals with long-term strategic positioning through comprehensive stakeholder value enhancement (Yu et al., 2020).

Corporate Social Responsibility

Corporate Social Responsibility encompasses voluntary organizational practices addressing societal and environmental concerns beyond regulatory mandates. CSR programs demonstrate organizational commitment to sustainable development through environmental conservation, community advancement, employee well-being, and ethical business operations. Research indicates that comprehensive CSR initiatives improve corporate reputation, minimize regulatory exposure, and enhance capital market access (Maqbool et al., 2020). Effective CSR execution creates mutual value for organizations and society, producing competitive advantages through brand distinction, customer commitment, and operational efficiency enhancements. Energy companies with strong CSR foundations typically achieve superior financial outcomes through improved stakeholder confidence and operational excellence, as demonstrated by recent energy sector investigations (Wang et al., 2021).



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Good Corporate Governance

Good Corporate Governance represents comprehensive systems, procedures, and frameworks directing and managing corporate operations to ensure responsibility, transparency, and stakeholder protection. Governance components include board structure, audit committee functionality, ownership arrangements, and disclosure protocols. Governance theory suggests that effective corporate governance minimizes agency expenses, enhances decision-making quality, and strengthens investor trust (Li et al., 2021).

Studies demonstrate that organizations with superior governance practices achieve elevated market valuations through decreased information asymmetry and improved operational effectiveness. Optimal governance frameworks typically incorporate independent board representation, audit committee competence, and transparent reporting systems (Khan et al., 2023).

Green Innovation

Green Innovation encompasses technological advancements addressing environmental challenges through cleaner production methods, renewable energy technologies, and waste minimization solutions. This concept extends beyond conventional R&D to include environmental technology commercialization and sustainable product creation. Green innovation represents strategic responses to environmental regulations, consumer demands, and competitive forces in rapidly changing markets (Liu et al., 2021).

Research indicates that green innovation investments produce long-term competitive benefits through operational cost reductions, regulatory adherence, and improved market positioning (Yang et al., 2023). Energy companies investing in green technologies typically achieve enhanced performance through efficiency improvements and market differentiation approaches.

Hypothesis Development

The Impact of Corporate Social Responsibility on Firm Value

Corporate Social Responsibility reflects organizational dedication to sustainable development and stakeholder value generation. Comprehensive CSR initiatives signal management capability and long-term strategic orientation to investors and stakeholders. Organizations implementing effective CSR programs typically achieve improved reputation, reduced regulatory exposure, and enhanced capital market access, directly influencing firm valuation through Tobin's Q enhancements (Hasan et al., 2020).

H₁: Corporate Social Responsibility positively and significantly affects Firm Value.

The Impact of Good Corporate Governance on Firm Value

Good Corporate Governance creates structural mechanisms ensuring responsibility, transparency, and effective decision-making procedures. Superior governance practices minimize agency expenses and information asymmetry between management and stakeholders. Organizations with robust governance systems typically achieve higher market valuations through enhanced investor confidence and operational effectiveness, resulting in improved Tobin's Q performance (Huang et al., 2020).

H₂: Good Corporate Governance positively and significantly affects Firm Value.

The Impact of Green Innovation on Firm Value

Green Innovation represents strategic investments in environmental technologies and sustainable business practices. Organizations developing green innovations typically gain competitive advantages through operational efficiency, regulatory compliance, and market differentiation. Green innovation signals future



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growth potential and risk management capabilities to investors, positively affecting market valuation and Tobin's Q outcomes (Zhang et al., 2020).

H₃: Green Innovation positively and significantly affects Firm Value.

The Mediating Function of Profitability

Profitability serves as a vital mechanism through which CSR, governance, and green innovation impact firm value. These strategic initiatives produce financial returns through operational efficiency improvements, risk reduction, and market positioning enhancements. Profitability measured through Return on Assets demonstrates management effectiveness in transforming strategic investments into financial performance, subsequently affecting market valuation (Nollet et al., 2020).

H₄: Profitability mediates the relationship between Corporate Social Responsibility, Good Corporate Governance, Green Innovation, and Firm Value.

Results and Discussion

Research Findings

Data analysis utilized SEM-PLS methodology with WarpPLS version 7.0 software. Testing procedures encompassed goodness of fit evaluation, full collinearity Variance Inflation Factors assessment, adjusted R-squared and Q-squared analysis, effect size examination, variance inflation factors review, and significance testing.

Goodness of Fit Assessment

This evaluation determines model suitability for original data representation and overall model quality assessment. Goodness of fit results are displayed in Table 1:

Table 1 Goodness of Fit Results

Criteria	Parameter	Rule of Thumb	Conclusion
Average Path Coefficient (APC)	0.285, P=0.008	Acceptable P<0.05	Accepted
Average R-squared (ARS)	0.342, P=0.006	Acceptable P<0.05	Accepted
Average Adjusted R-Squared (AARS)	0.298, P=0.012	Acceptable P<0.05	Accepted
Average Block VIF (AVIF)	1.125	Acceptable if ≤ 5 , ideally ≤ 3.3	Accepted and Ideal
Average Full Collinearity VIF (AFVIF)	1.156	Acceptable if ≤ 5 , ideally ≤ 3.3	Accepted and Ideal
Tenenhaus GoF (GoF)	0.584	Small ≥ 0.1 , medium ≥ 0.25 , large ≥ 0.36	Accepted Large
Simpson's Paradox Ratio (SPR)	1.000	Acceptable if ≥ 0.7 , ideally =1	Accepted and Ideal



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R-Squared Contribution Ratio (RSCR)	1.000	Acceptable if ≥ 0.9 , ideally =1	Accepted and Ideal
Statistical Suppression Ratio (SSR)	1.000	Acceptable if ≥ 0.7	Accepted
Nonlinear Bivariate Causality Direction Ratio (NLBCDR)	1.000	Acceptable If ≥ 0.7	Accepted

Source: Processed by researcher (2025)

]The goodness of fit evaluation confirms that this research model satisfies acceptability standards for further analysis. The Average Path Coefficient (APC) of 0.285 with significance p-value of 0.008 indicates statistically meaningful relationships among model variables. The Average R-Squared (ARS) of 0.342 ($p=0.006$) and Average Adjusted R-Squared (AARS) of 0.298 ($p=0.012$) demonstrate that independent variables adequately explain dependent variable variation.

Full Collinearity VIF, Adjusted R-Squared and Q-Square Evaluation

Table 2 Full Collinearity VIF, Adjusted R-Squared and Q-Squared Assessment

Variable	CSR	GCG	GREEN_INNOV	ROA	FIRM_VALUE
Full Collin.VIF	1.089	1.142	1.168	1.245	
Adj. R-Squared				0.234	0.298
Q-squared				0.287	0.365

Source: WarpPLS 7.0 (2025)

Table 2 shows that Full Collinearity VIF values for all variables remain below the 3.3 threshold, confirming the absence of multicollinearity issues. The Adjusted R-Squared values indicate that independent variables account for 23.4% of profitability variation and 29.8% of firm value variation.

Significance Testing of Variable Relationships

Table 3 Significance Testing Results

Path Relationship	Path Coefficient	P-Value	Decision
CSR \rightarrow ROA	0.376	0.002	Significant
GCG \rightarrow ROA	0.198	0.156	Not Significant
GREEN_INNOV \rightarrow ROA	0.312	0.018	Significant
CSR \rightarrow FIRM_VALUE	0.294	0.025	Significant
GCG \rightarrow FIRM_VALUE	0.145	0.234	Not Significant
GREEN_INNOV \rightarrow FIRM_VALUE	0.385	0.001	Significant
ROA \rightarrow FIRM_VALUE	0.418	0.001	Significant

Source: WarpPLS 7.0 (2025)



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Mediation Analysis

Table 4 Mediation Analysis Results

Indirect Path	Indirect Effect	P-Value	Mediation Type
CSR → ROA → FIRM_VALUE	0.157	0.012	Partial Mediation
GCG → ROA → FIRM_VALUE	0.083	0.178	No Mediation
GREEN_INNOV → ROA → FIRM_VALUE	0.130	0.028	Partial Mediation

Source: WarpPLS 7.0 (2024)

Research Discussion

The Impact of Corporate Social Responsibility on Firm Value

Corporate Social Responsibility, measured through a comprehensive disclosure framework, signifies organizational commitment to sustainable development and stakeholder value creation. Empirical analysis demonstrates a statistically significant positive association between CSR initiatives and firm value, with a path coefficient of 0.294 and p-value of 0.025, providing strong evidence for the value-enhancing impact of well-executed CSR programs.

This significant relationship shows that comprehensive CSR programs improve market valuation through three primary mechanisms: reputation enhancement that generates measurable market premiums, risk reduction strategies that address regulatory and environmental challenges, and stakeholder trust building that creates collaborative relationships with communities, suppliers, and customers. These mechanisms establish sustainable competitive advantages that directly translate into enhanced market positioning.

The results strongly align with stakeholder theory predictions, suggesting that organizations creating value for all stakeholders produce superior long-term financial performance. This theoretical framework receives support from empirical research demonstrating positive CSR-firm value relationships, particularly within the energy sector where environmental and social considerations carry elevated importance (Rehman et al., 2020).

CSR implementation creates shared value propositions benefiting both companies and stakeholder ecosystems, generating competitive advantages and market premium valuations. These effects have intensified during the post-pandemic period, where sustainability concerns have become critical and organizations with established CSR frameworks have shown greater resilience and attracted increased ESG-focused investment (Wang et al., 2021).

The Impact of Good Corporate Governance on Firm Value

Despite theoretical expectations suggesting a positive relationship between governance quality and firm valuation, empirical results reveal a non-significant influence of Good Corporate Governance on firm value, with a path coefficient of 0.145 and p-value of 0.234. This unexpected finding may reflect several underlying factors within the contemporary business environment.

The non-significant relationship may suggest that governance practices within the studied sample have achieved threshold levels where additional improvements provide diminishing marginal benefits to firm value. In developed markets, basic governance frameworks have become standard expectations rather than distinguishing factors, potentially explaining why enhanced governance measures do not translate into measurable value premiums.



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Furthermore, market participants may emphasize alternative value drivers within energy sector contexts, particularly during periods of rapid environmental transformation. The energy sector experiences unprecedented change driven by decarbonization requirements and renewable energy adoption. In this dynamic environment, investors may prioritize innovation capabilities and environmental compliance over traditional governance metrics.

Timing and industry-specific factors may also influence these results, as governance effects often emerge over extended periods and may interact complexly with other strategic variables in the energy sector context (Yoon et al., 2020).

The Impact of Green Innovation on Firm Value

Green Innovation demonstrates the strongest positive influence on firm value among all independent variables, with a path coefficient of 0.385 and highly significant p-value of 0.001. This robust statistical relationship provides compelling evidence for the critical importance of environmental innovation in contemporary firm valuation processes.

The significant positive relationship reflects sophisticated market recognition of environmental innovation value creation within energy sector contexts. Financial markets increasingly demonstrate capability to identify and appropriately value companies investing in green technologies and sustainable processes. This market sophistication suggests that investors understand the long-term strategic importance of environmental innovation for sustainable competitive advantage.

The findings support research demonstrating that environmental innovations create substantial competitive advantages through comprehensive risk mitigation and operational efficiency improvements. Green Innovation initiatives help organizations reduce exposure to environmental regulations and resource scarcity challenges while generating significant cost savings through energy efficiency and waste reduction. Additionally, green technologies often command premium pricing in environmentally conscious market segments.

The energy sector context amplifies Green Innovation importance, as companies face intense pressure to develop cleaner technologies and reduce environmental footprints. Organizations successfully implementing green innovations position themselves advantageously for future regulatory requirements while capturing first-mover advantages in emerging green technology markets (Ma et al., 2021).

The Mediating Role of Profitability

Analysis reveals that profitability serves as a partial mediator in relationships between Corporate Social Responsibility, Green Innovation, and firm value, providing crucial insights into mechanisms through which sustainable practices create shareholder value. This mediating relationship demonstrates that CSR and Green Innovation initiatives generate tangible financial benefits rather than merely representing cost centers, challenging traditional perspectives viewing sustainability investments as trade-offs against profitability.

The partial mediation confirms that sustainable practices create measurable improvements in financial performance through enhanced operational efficiency, cost reduction, and risk mitigation. CSR programs often generate reduced regulatory compliance costs, improved employee productivity, enhanced customer loyalty, and stronger supplier relationships that translate directly into improved profit margins.

Similarly, Green Innovation investments frequently generate substantial cost savings through energy efficiency improvements and waste reduction. Green technologies often command premium pricing in environmentally conscious market segments, creating revenue enhancement opportunities that improve overall profitability. The



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development of proprietary green technologies also creates valuable intellectual property assets for competitive advantage.

This finding aligns with research demonstrating that ESG performance positively influences financial outcomes through improved operational efficiency, reduced risk profiles, and enhanced access to capital. Organizations with strong sustainability performance often experience lower borrowing costs and improved access to international markets (Bai et al., 2022).

The partial nature of mediation suggests that while profitability serves as an important transmission mechanism, direct effects also exist, indicating that markets value sustainable practices both for immediate financial benefits and long-term strategic value creation.

Conclusions and Recommendations

Conclusions

Based on comprehensive analysis and empirical findings, the following conclusions emerge:

1. Corporate Social Responsibility demonstrates positive and significant impact on firm value among energy sector companies, confirming hypothesis (H₁) acceptance. Companies implementing comprehensive CSR programs achieve superior market valuations through stakeholder trust and operational excellence.
2. Good Corporate Governance shows non-significant influence on firm value, indicating hypothesis (H₂) rejection. While governance remains operationally important, markets may prioritize other value drivers in energy sector contexts during the observation period.
3. Green Innovation exhibits strong positive and significant effect on firm value, confirming hypothesis (H₃) acceptance. Environmental technology investments generate competitive advantages and market premium valuations through sustainability positioning.
4. Profitability partially mediates relationships between CSR, Green Innovation, and firm value, supporting hypothesis (H₄) for these variables. Sustainable practices create both direct market value and indirect value through financial performance improvements.

Recommendations

Based on research findings, the following strategic recommendations are proposed:

1. Energy companies should strengthen CSR programs through comprehensive stakeholder engagement, environmental stewardship, and community development initiatives.
2. Organizations must accelerate Green Innovation investments in environmental technologies, renewable energy solutions, and sustainable operations to achieve competitive positioning and market premium valuations.
3. Future research should examine longer time horizons and incorporate additional variables such as regulatory environment, technological disruption, and market dynamics for enhanced understanding of value creation mechanisms.

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