

Green Intellectual Capital and Corporate Governance Influence Firm Value Through Financial Performance in LQ45

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Abstract: This study investigates the influence of Green Intellectual Capital and Corporate Governance toward firm value, where financial performance acts as a mediating factor. The study targets LQ45-listed companies on the Indonesia Stock Exchange from 2022 to 2024. A quantitative causal approach was applied, using purposive sampling to obtain 29 firms with a total of 87 firm-year observations. Analyses were performed using multiple linear regression and Sobel mediation methods employed, and The empirical evidence suggest that Green Intellectual Capital and Sound Corporate Governance practices exert a significant positive effect on financial performance and firm value. In addition, financial performance, proxied by ROA, positively affects firm value and plays a partial mediating role in the relationship with Green Intellectual Capital, Corporate Governance, and firm value. These findings are consistent with signaling theory (Ross, 1977), suggesting that strong green intellectual capital practices and effective corporate governance send favorable signals to investors. This study contributes to sustainable accounting literature and provides practical insights for firms and investors in enhancing firm value.

Key Words: Green intellectual Capital, Corporate Governance, Firm Value, Financial Performance, Index LQ45

Introduction

Global business developments indicate a fundamental shift from a labor-based economy toward a knowledge-based economy, in which intangible assets such as knowledge, innovation, skills, and relationships with stakeholders become strategic factors in value creation (Marjuki & Nofryanti, 2025). Firm value serves as a significant indicator for investors, as it reflects growth prospects, the quality of managerial governance, and the company's ability to create shareholder wealth (Brigham & Houston, 2019a). Although companies listed in the LQ45 Index generally exhibit large scale, strong liquidity, and stable performance, empirical phenomena suggest that market performance does not always align with expectations. In 2024, SMGR and UNVR experienced stock price declines of nearly 50% (Bloomberg Technoz, 2024), while Bukalapak recorded a net loss of IDR 1 trillion (Validnews, 2024), indicating the need for strategic factors that can strengthen firm value.

One of the factors that has been widely examined is Green Intellectual Capital, which refers for the advancement of intellectual capital, which incorporates environmental dimensions through green human, structural, and relational capital components (Safitri, 2024). GIC is believed to enhance energy efficiency, green innovation, and corporate reputation; however, prior empirical findings remain inconclusive. (Astuti & Ahmar, 2025) document a positive effect of GIC on firm value, whereas other studies report no significant relationship (Riyani et al., 2022). This inconsistency indicates the presence of an empirical gap.

In addition, Corporate Governance is a key mechanism in firm value creation. The (OECD, 2015) defines Corporate Governance as a system that governs the relationships among management, commissioners, shareholders, and other stakeholders to ensure

transparent and accountable corporate management. Several studies provide evidence that Corporate Governance enhances corporate performance and firm value (Fitriasih & Prihatini, 2024) however, other studies report inconsistent effects or find that the relationship is mediated by financial performance (Astuti & Suhendro, 2023). This condition reinforces the need for further investigation, particularly among companies included in the LQ45 Index.

The interplay between Green Intellectual Capital, Corporate Governance, and firm value may also be influenced by financial performance. As an indicator of profitability, ROA reflects the firm's capability to efficiently manage its assets in generating profits (Brigham & Houston, 2019). The selection of ROA is particularly relevant given that several LQ45 companies have exhibited asset inefficiencies in recent years. (Silitonga, 2023) finds that financial performance partially mediates how Corporate Governance affects firm value however, other studies report divergent results, thereby necessitating further empirical testing.

Based on prior studies, there remains inconsistency in the context of the relationship between Green Intellectual Capital, Corporate Governance, and firm value, as well as the contribution of profitability as a mediator. Additionally, limited studies have simultaneously examined these three variables in LQ45 companies during the 2022–2024 period. Therefore, this study offers novelty through the integration of Green Intellectual Capital and Corporate Governance into a single model to explain firm value and through the assessment of (ROA) as a mediating variable an approach that has been rarely applied to large and highly liquid companies in Indonesia. Demonstrates that financial performance plays mediating the connection between Corporate Governance and firm value however, Green Intellectual Capital's effect and Corporate Governance on firm value, both directly and indirectly through profitability serving as an intervening variable for companies classified under the LQ45 Index during the 2022–2024 period. These findings are expected to advance the field of study in sustainable accounting as well as offering practical guidance for companies, investors, and regulators in formulating strategies to enhance firm value based on sustainability and effective governance.

Methods

A quantitative causal research design is applied in this study aimed at analyzing the interplay between Green Intellectual Capital and Corporate Governance and firm value, with profitability serving playing a mediating role. The causal approach is adopted because it allows the examination of cause-and-effect relationships among variables empirically through a structured statistical model. The research subjects consist of all companies classified within the LQ45 Index throughout the 2022–2024 timeframe. The research population comprises 66 firms classified under the LQ45 Index throughout the 2022–2024 timeframe.

The research The study employed purposive sampling to select the sample, using specific criteria, namely: (1) companies consistently listed in the LQ45 Index for at least two consecutive years during the 2022–2024 observation period; (2) firms that consistently reported complete annual reports during the observation period; and (3) companies with available data required to measure Green Intellectual Capital, Corporate Governance, Return on Assets, and firm value. Based on these criteria, the final sample consists of 29 companies, yielding a total of 87 firm-year observations.

Table 1. Operational Definition of Variables

Variable	Indicator	Reference Source
Green Intellectual Capital	$GVAIC = GHCE + GSCE + GCEE$	(Al-Amin & Herawaty, 2024)
Corporate Governance	<ol style="list-style-type: none"> 1. Board of Commissioners' size 2. Independent Commissioners' proportion 3. Audit Committee meeting count 4. Institutional Ownership 	(Pujiati, 2022)
Firm Value	Tobin's Q = $\frac{(P \times Q) + D}{A}$	(Utari & Khomsiyah, 2024)
Financial performance	$ROA = \frac{\text{Net Profit After Tax}}{\text{Total Assets}}$	(Nabila & Surasni, 2021)

Data analysis was conducted using SPSS software. Analytical procedures involve descriptive statistics, assumption testing, and multiple regression analysis techniques, mediation analysis using the Sobel test, t-tests, and the coefficient of determination (R^2) test.

Results and Discussion

Descriptive Statistical Analysis

The Residual descriptive statistics indicate that the regression model possesses good estimation quality. In the firm value model, the forecasted values span a range from 0.0382 to 0.1175 with an average of 0.0819, accompanied by residuals whose mean is close to zero and whose standard deviation is negligible (0.00181). In the financial performance model, the forecasted values lie between 1.3485 and 2.5253, with a mean of 2.0169, accompanied by residuals that have a mean of zero and a standard deviation of 0.05735. Overall, these results indicate stable data and confirm demonstrating that the regression model is well suited for hypothesis testing.

Classical Assumption Test

Classical assumption testing was performed to confirm that the regression model met OLS assumptions. Criteria, comprising diagnostic tests for normality and multicollinearity, autocorrelation, and heteroskedasticity. The normality test results based on the Normal Probability Plot (P–P Plot) shows that the residuals are distributed around the diagonal line, which reflects that the residuals conform to a normal distribution. The multicollinearity test reveals Tolerance (<0.10) and VIF (>10) for Green Intellectual Capital, Corporate Governance, and financial performance suggest multicollinearity; however, this condition is considered acceptable given the use of a mediation model. The autocorrelation test produces a Durbin–Watson value of 1.496, suggesting no autocorrelation, while the heteroskedasticity test shows a random dispersion of residuals with no specific pattern. Overall, the regression model is deemed appropriate for further analysis and hypothesis testing.

Multiple Linear Regression Analysis

$$Z = \alpha + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 Z + \varepsilon$$

The linear regression analysis indicates that, for the model with financial performance as the dependent variable, A positive and significant relationship is observed for Green Intellectual Capital, as indicated indicated by a 0.249 coefficient and a significance value of 0.000. Similarly, Corporate Governance also exerts the results show a positive and significant

influence, as reflected showing a coefficient of 1.825 and indicating statistical significance at the 0.000 level. Furthermore, the model with Regression results reveal that Green Intellectual Capital significantly and positively impacts firm value (coefficient = 0.005; $p = 0.000$). Similarly, Corporate Governance shows a statistically significant positive relationship with firm value, showing a coefficient of 0.076 and statistical significance of 0.000. In addition, financial performance demonstrates a positive and statistically significant influence on firm value, as indicated by a coefficient of 0.037. and a significance level of 0.000. These findings indicate that Firm value is enhanced by Green Intellectual Capital and Corporate Governance through the mechanism of both direct channels and indirectly through financial performance, which operates as a mediating factor

T-Test (Partial)

Table 2 partial test results (T test)

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	Sig.
		B	Std. Error	Beta	
1	(Constant)	.129	.042		3.071
	Green Intellectual Capital	.249	.034	.538	7.319
	Corporate Governance	1.825	.295	.455	6.190

a. Dependent Variabel: Kinerja keuangan

Coefficients ^a							
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics Tolerance VIF
		B	Std. Error	Beta			
1	(Constant)	-.049	.001		-34.900	.000	
	Green Intellectual Capital	.005	.001	.172	3.877	.000	.041 24.665
	Corporate Governance	.076	.011	.284	6.779	.000	.046 21.969
	Kinerja Keuangan	.037	.003	.549	10.741	.000	.031 32.717

a. Dependent Variable: Nilai Perusahaan

The t-test The results of the analysis demonstrate that Green Intellectual Capital exerts a significant and positive statistically significant the effect on financial performance, demonstrated by a coefficient of 0.249 and a t-value of 7.319. at the 0.000 significance level, while Corporate Governance also shows demonstrating a significant and positive influence on financial performance, supported by a coefficient of 1.825, a t-statistic of 6.190, and a significance level of 0.000. Within the firm value model, Green Intellectual Capital positively influences and significant effect, with indicated reflected by a coefficient of 0.005, t-statistic of 3.877, and a p-value of significance level of 0.000. Similarly, The results further demonstrate that Corporate Governance exerts a statistically significant positive influence on firm value, demonstrated by a coefficient of 0.076, t-statistic of 6.779, accompanied by a significance level of significance level of 0.000. Moreover, The analysis demonstrates a significant positive linkage between financial performance and firm value, reflected by a coefficient of 0.037, t-statistic of 10.741, and a corresponding p-value of significance level of 0.000. These results demonstrate that all Independent variables significantly and partially influence the dependent variable.

Coefficient of Determination Test (R^2)

Table 3 Coefficient of Determination Test Results

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.985 ^a	.969	.969	.05801

a. Predictors: (Constant), Corporate Governance, Green Intellectual Capital

b. Dependent Variable: Kinerja Keuangan

Model Summary ^b					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.997 ^a	.993	.993	.00184	1.496

a. Predictors: (Constant), Kinerja Keuangan, Corporate Governance, Green Intellectual Capital

b. Dependent Variable: Nilai Perusahaan

The results show that, in the regression model, with financial performance as the dependent variable, the Adjusted R^2 value (0.783) shows that Green Intellectual Capital and Corporate Governance explain 78.3% of financial performance, whereas the remaining 21.7% may be explained by additional determinants not incorporated into the current research model framework. Meanwhile, The regression analysis with firm value as the dependent variable yields an Adjusted R-squared value of 0.907, implying that Green Intellectual Capital, Corporate Governance, in conjunction with financial performance, collectively explain 90.7% accounting for the variability in firm value, with the remaining 9.3% potentially influenced by other determinants not captured within the current research model.

Sobel Test

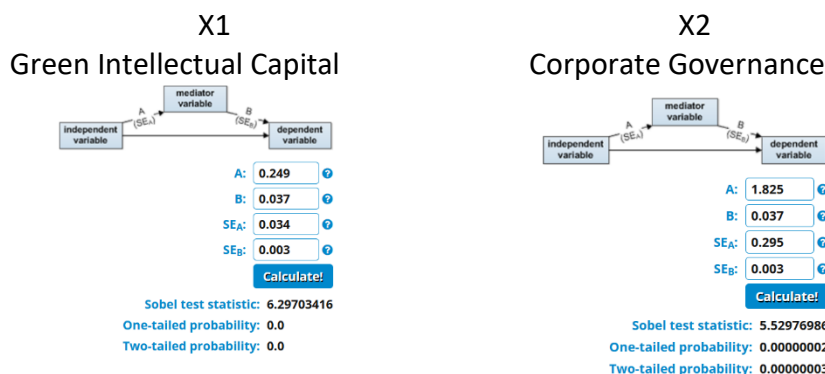


Figure 1 sobel test results

The results of the Sobel test confirm that Return on Assets (ROA), utilized as a proxy for financial performance, plays a significant mediating role in the relationship involving Green Intellectual Capital, Corporate Governance, and firm value. The mediation effect is significant for Green Intellectual Capital ($Z = 6.297$; $p = 0.000$) and for Corporate Governance ($Z = 5.530$; $p = 0.00000003$), confirming significance at the 5% level. These findings demonstrate that financial performance functions serving as a partial mediator, given that both Green Intellectual Capital and Corporate Governance continue to exert direct effects on firm value while also influencing it indirectly through improved financial performance, consistent with signaling theory.

The Effect of Green Intellectual Capital on Profitability

Empirical results reveal a positive and statistically significant link between Green Intellectual Capital and profitability, validating H1 and implying that the proper utilization of Green Intellectual Capital serves to bolster the company's profit-generating capability. This result is consistent with signaling theory proposed by (Ross, 1977), which suggests that the implementation of the presence of Green Intellectual Capital conveys a positive signal regarding managerial competence and operational efficiency. The finding is also supported by (Saputra et al., 2024), who provide evidence that Intellectual Capital exerts a statistically significant positive influence on the profitability of LQ45 companies, implying that more optimal management of intellectual capital components leads to higher corporate profitability.

The Effect of Corporate Governance on Profitability

Based on Analysis shows that Corporate Governance positively and significantly influences profitability, leading to the acceptance of H2. This indicates that effective corporate governance is capable of enhancing corporate profitability. This result is consistent with signaling theory proposed by (Ross, 1977), which suggests that sound corporate governance provides a positive signal of managerial credibility and reliability to investors. The finding is supported by Linda Fauziyah (Mahromatin, 2023), who reports revealing confirming that effective Corporate Governance practices result in a significant positive effect on profitability among LQ45 companies. Effective corporate governance practices enhance managerial efficiency and effectiveness, thereby contributing to improved financial performance.

The Effect of Green Intellectual Capital on Firm Value

Analysis shows that Green Intellectual Capital positively and significantly contributes to firm value. therefore, H3 is accepted. This finding indicates that higher implementation of Green Intellectual Capital positively drives firm value. The result is consistent with signaling theory proposed by (Ross, 1977), in which sustainability practices function as non-financial signals that are positively perceived by investors. The results corroborate (Amirullah et al., 2021), who demonstrated indicating confirming that Intellectual Capital exerts a significant and positive influence on firm value. among companies included in the LQ45 Index. More optimal management of consequently, intellectual capital is positively associated with enhanced firm value.

The Effect of Corporate Governance on Firm Value

Based on the analysis, Corporate Governance significantly and positively influences firm value therefore, H4 is accepted. This implies that good corporate governance improves investor trust and elevates firm value. this result is consistent with signaling theory proposed by (Ross, 1977), which emphasizes that transparency and accountability provide positive signals to the market. The finding is supported by (Puspita, 2023), who reports confirming that Corporate Governance demonstrates a significant positive impact on firm value in LQ45 companies, indicating that effective corporate governance mechanisms contribute to increased firm value.

The Effect of Profitability on Firm Value

The findings reveal that profitability positively and significantly affects firm value therefore, H5 is accepted. This finding indicates that higher levels of profitability lead to an increase in firm value, supporting signaling theory proposed by (Ross, 1977) which suggests that corporate earnings serve as a primary signal for in guiding investors to appraise a company's prospective performance. This evidence supports the findings of line with (Rahayu, 2023), who demonstrates suggesting demonstrating that profitability significantly enhances

firm value. Higher profitability levels are thus reflected in improved investor perceptions in the capital market, ultimately enhancing firm value.

Profitability Mediates the Effect of Green Intellectual Capital on Firm Value

Test results show that profitability mediates the connection between Green Intellectual Capital and firm value, validating H6. Green Intellectual Capital thereby enhances firm value directly and indirectly through improved profitability, supporting signaling theory. proposed by (Ross, 1977), in which profitability strengthens the positive signal conveyed to investors. The finding is supported by (Hamashiah et al., 2025), who report that profitability functions as a mediating factor in the effect of intellectual capital on firm value, given that optimal management of intellectual capital improves profitability, which subsequently leads to an improvement in firm value.

Profitability Mediates the Effect of Corporate Governance on Firm Value

Based on Empirical results reveal that profitability serves operating as an intervening factor in the effect of Corporate Governance on firm value therefore, H7 is accepted. This finding indicates that the applying sound corporate governance practices enhances firm value through improvements in profitability, a result that corroborates signaling theory proposed by (Ross, 1977), which emphasizes that corporate earnings strengthen the credibility of governance-related signals conveyed to investors. The finding is supported by (Silitonga, 2023), who reports that profitability mediates the the association between Corporate Governance strengthens firm value by improving corporate profitability, which acts as a signal to the market and results in increased firm value.

Conclusion

The study demonstrates that Green Intellectual Capital and Corporate Governance exert a positive and significant influence on both profitability and firm value. Profitability, indicated by ROA, also exerts a positive affects firm value and mediates the the connection between Green Intellectual Capital, Corporate Governance, and firm value, indicating that effective green intellectual capital management and sound corporate governance provide positive signals to investors, thereby enhancing profitability and firm value. Accordingly, companies are encouraged to strengthen sustainability and governance practices, while investors are advised to consider these aspects in investment decisions. Future research is recommended to include additional variables and longer observation periods.

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