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# How Intellectual Capital and Governance Shape Firm Performance: Evidence from Indonesia's Energy Sector

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## ABSTRACT

Amid increasing pressure on firms to enhance financial performance while addressing sustainability and governance challenges, energy sector companies face heightened scrutiny due to their capital intensity, environmental impact, and complex operational structures. This study examines the impact of intellectual capital, environmental performance, and capital structure on corporate financial performance, while investigating the moderating role of independent commissioners. The sample comprises energy sector firms listed on the Indonesia Stock Exchange (IDX) during the 2020–2023 period, yielding 236 firm-year observations selected through purposive sampling. Secondary data were obtained from annual reports and analyzed using panel data regression with EViews 13. The findings reveal that intellectual capital exerts a positive and significant impact on financial performance, whereas environmental performance and capital structure show no significant effect. Furthermore, the independent board of commissioners strengthens the relationship between intellectual capital and financial performance but does not moderate the effects of environmental performance or capital structure. These results underscore the strategic importance of intangible assets and governance mechanisms in enhancing firm performance, while highlighting the need for stronger integration of environmental initiatives and capital structure decisions into business models to achieve sustainable economic value.

## INTRODUCTION

The global energy industry is at a critical juncture, shaped by the transition toward sustainable energy, commodity price volatility, and increasing demands for the adoption of Environmental, Social, and Governance (ESG) principles. These dynamics create substantial pressure on firms to maintain financial performance while simultaneously responding to sustainability and governance expectations. These shifts in the business landscape have encouraged firms to adopt value creation strategies that rely not only on physical assets but also on the effective management of intangible resources and sound corporate governance practices. Within this context, financial performance serves as a key indicator of corporate strategy success, providing an important signal to investors regarding long-term prospects.

Similar challenges are evident in Indonesia, particularly among energy sector firms listed on the Indonesia Stock Exchange (IDX). Despite the sector's strategic role in the national economy, its financial performance has exhibited considerable fluctuations, with several firms reporting significant declines. For instance, PT Gas Negara Tbk (PGAS) recorded a 25% loss in 2020 (Sidik, 2021), PT Humpus Intermoda (HITS) experienced a 9.96% loss in 2021 (Nabila, 2021), and PT Samindo Resources Tbk (MYOH) reported a 48% decline in profit in 2022 (Sandria, 2023). More recently, PT Dian Swastatika Sentosa (DSSA) reported a 15.8% loss in 2023 (Mulyana, 2024), while PT Medco Energi (MEDC) suffered a 37.71% decline in the same year (Fadila & Rahmawati, 2024). These persistent performance declines highlight an urgent need to identify strategic and governance-related determinants that can stabilize and enhance financial performance in the energy sector. In this context, firms are increasingly required to optimize not only intangible strategic resources such as intellectual capital, but also environmental responsibility and financing decisions to sustain competitiveness and investor confidence. These three dimensions represent interconnected strategic responses through which firms seek to maintain financial performance amid growing sustainability pressure, regulatory complexity, and market uncertainty.

One strategic factor that is widely considered to enhance financial performance is intellectual capital (IC). IC encompasses knowledge, skills, and innovation, which function as intangible assets that strengthen a firm's competitive advantage (Zona et al., 2020). However, the empirical literature presents inconsistent findings, indicating an unresolved research issue. Some studies report that IC has a positive effect on financial performance by generating added value and sustainable competitive advantage (Arifin, 2023; Kusniawati & Amin, 2024; Tania & Tjakrawala, 2020). Conversely, other studies find no significant relationship, suggesting that firms may prioritize the efficiency of physical and financial assets over IC (Huwaida et al., 2024; Kusuma & Napisah, 2024; Ndruru & Permatasari, 2024). This inconsistency reveals a clear research gap, particularly regarding the conditions under which IC contributes to financial performance.

In addition to IC, environmental performance has become a critical concern, particularly for industries with direct ecological impacts such as the energy sector. In Indonesia, environmental performance is assessed through the Corporate Performance Rating Assessment Program (PROPER) administered by the Ministry of Environment and Forestry (Rahayudi & Apriwandi, 2023). Several studies find that strong environmental performance enhances corporate reputation and attracts investors (Fadhlurrahman & Zulfikar, 2024; Ramadhani et al., 2022; Widianti et al., 2024). Nevertheless, prior findings remain inconclusive, as other studies reveal no significant relationship, suggesting that environmental initiatives may be symbolic or compliance-oriented and thus fail to generate financial benefits (Asaqdah & Putra, 2021; Ridho & Astuti, 2024; Suryaningrum & Ratnawati, 2024). These mixed results indicate that governance mechanisms may play a crucial role in transforming environmental performance into tangible financial outcomes.

Capital structure is another determinant of financial performance, reflecting the balance between debt and equity financing (Harsono & Pamungkas, 2020). Prior research also presents conflicting evidence. Some studies argue that an optimal capital structure enhances returns and investor appeal (Ayuningtyas & Mawardi, 2022; Ritonga et al., 2021; Tania & Tjakrawala, 2020), whereas others demonstrate that excessive debt increases financial risk and undermines profitability (Farida & Yulazri, 2024; Harsono & Pamungkas, 2020; Jessica & Triyani, 2022; Siregar et al., 2022). The lack of consensus suggests that capital structure decisions may be contingent upon effective monitoring and governance quality.

Despite extensive prior research, existing studies largely examine intellectual capital, environmental performance, and capital structure in isolation, while paying limited attention to the role of governance mechanisms that may condition their impact on financial performance. To address this gap, this study introduces the independent board of commissioners as a moderating variable. The role of independent commissioners is particularly relevant because their monitoring function differs across strategic decisions and organizational resources. In the context of intellectual capital, independent commissioners are expected to encourage transparency, innovation oversight, and effective utilization of intangible resources to enhance firm value. Regarding environmental performance, independent commissioners play an important role in strengthening sustainability accountability and ensuring that environmental initiatives are not merely symbolic compliance mechanisms but are integrated into long-term business strategy. Meanwhile, in capital structure decisions, independent commissioners are expected to oversee financing policies, mitigate excessive risk-taking, and balance debt utilization with shareholder interests.

Therefore, the effectiveness of intellectual capital, environmental performance, and capital structure in improving financial performance may depend on the quality of governance oversight provided by independent commissioners. This moderating perspective represents the novelty of the study, particularly in the context of energy sector firms operating under high regulatory pressure, sustainability demands, and financial uncertainty.

The urgency of this research is further reinforced by the ongoing energy transition and post-pandemic recovery period (2020–2023), during which firms face heightened uncertainty, capital constraints, and stakeholder scrutiny. Understanding how governance mechanisms strengthen or weaken the effects of IC, environmental performance, and capital structure on financial performance is therefore critical for both academic and practical purposes.

This research makes several contributions to the literature. First, it offers an integrated framework that simultaneously examines intellectual capital, environmental performance, and capital structure, moving beyond the fragmented approach of prior studies. Second, it provides novel empirical evidence on the moderating role of independent commissioners, helping to explain inconsistencies in previous findings and enriching the corporate governance literature. Third, by focusing on Indonesia's energy sector during a turbulent period, this study offers timely and context-specific insights relevant to emerging markets.

Based on this background, the study provides two key contributions. From a theoretical perspective, it integrates the Resource-Based View (RBV), legitimacy theory, and agency theory within a unified analytical model, while empirically testing the underexplored moderating role of independent commissioners. From a practical standpoint, the findings are expected to inform investors, corporate managers, and regulators in enhancing financial performance by optimizing intellectual capital, strengthening environmental initiatives, and managing capital structure under effective governance frameworks.

## LITERATURE REVIEW

### Resource-Based Theory

Resource-Based Theory (RBT), as introduced by (Barney, 1991), posits that firms can achieve sustainable competitive advantage through the possession and effective management of resources that are valuable, rare, inimitable, and non-substitutable (VRIN). These resources extend beyond physical assets to encompass intangible assets, including intellectual capital (Kusuma & Napisah, 2024). Within the scope of this study, well-managed intellectual capital fosters value creation and

innovation, thereby enhancing investor confidence and improving financial performance (Bangun et al., 2024; Rifqi & Nurhadi, 2023). Accordingly, RBT provides the theoretical foundation for the hypothesized positive relationship between intellectual capital and corporate financial performance.

**Legitimacy Theory**

Complementing the internal perspective of Resource-Based Theory, this study also incorporates external considerations through Legitimacy Theory, as proposed by (Dowling & Pfeffer, 1975). This theory posits that corporate sustainability is strongly influenced by the extent to which organizational activities align with prevailing societal norms, values, and expectations. A lack of conformity may create a legitimacy gap, which can threaten long-term business continuity (Rahayudi & Apriwandi, 2023). In the Indonesian context, environmental performance commonly assessed through the Corporate Performance Rating Assessment Program (PROPER) serves as a key mechanism for firms to secure public legitimacy (Widianti et al., 2024). Strong environmental performance not only enhances corporate reputation but also improves investor appeal, thereby reinforcing financial performance.

**Agency Theory**

To explain the role of governance in the relationships among the research variables, this study draws on Agency Theory, as introduced by (Jensen & Meckling, 1976). The theory emphasizes the potential conflicts of interest between principals (shareholders) and agents (management), which may give rise to agency costs. To mitigate such conflicts, supervisory mechanisms are required to ensure that managerial decisions remain aligned with shareholder interests (Khairi, 2023). Within this framework, the independent board of commissioners functions as an external governance mechanism responsible for overseeing intellectual capital management, monitoring environmental performance, and guiding capital structure decisions (Siregar et al., 2022). Through effective oversight, independent commissioners can reduce managerial opportunism, enhance transparency, and ensure that corporate strategies contribute positively to financial performance.

**The Influence of Intellectual Capital on the Company's Financial Performance**

Intellectual capital (IC) represents an intangible asset that encompasses the knowledge, skills, technology, and information embedded within a firm, all of which collectively contribute to the creation of a competitive advantage (Janah et al., 2024; Zona et al., 2020). Drawing on the Resource-Based View (Barney, 1991), a firm can achieve sustainable competitive advantage by effectively managing resources that are valuable, rare, inimitable, and non-substitutable. Properly leveraged IC enhances innovation, operational efficiency, and value creation, thereby strengthening financial performance (Agustia et al., 2021).

Consistent with this theoretical perspective, prior empirical studies provide evidence that IC positively influences financial performance, as firms with strong intellectual capital capabilities are better positioned to foster innovation, improve productivity, and generate superior outcomes (Arifin, 2023; Fitriani et al., 2022; Kusniawati & Amin, 2024; Tania & Tjakrawala, 2020). However, empirical findings remain inconsistent due to differences in measurement approaches, industrial characteristics, and governance contexts. Studies employing the Value Added Intellectual Coefficient (VAIC) model generally report a positive contribution of intellectual capital to firm performance, whereas studies using alternative proxies or focusing on highly capital-intensive industries often produce insignificant results. In sectors such as energy, where operational performance is still heavily dependent on physical assets, financing capability, and regulatory compliance, the contribution of

intellectual capital may not automatically translate into improved financial performance without effective governance oversight.

These inconsistencies suggest that the relationship between intellectual capital and financial performance may be contingent upon the quality of corporate governance mechanisms. In this regard, independent commissioners are expected to strengthen managerial oversight, encourage transparency, and ensure that intellectual resources are utilized effectively to support long-term firm performance. Therefore, intellectual capital is expected to serve as an important determinant of corporate financial performance, particularly when supported by effective governance structures.

H1: Intellectual capital has a positive effect on corporate financial performance.

**The Influence of Environmental Performance on the Company's Financial Performance**

Environmental performance reflects a firm's efforts and outcomes in conserving the environment by minimizing the negative impacts of its operational activities (Maharani et al., 2024). According to Legitimacy Theory (Dowling & Pfeffer, 1975), companies seek to secure social acceptance by aligning their practices with societal norms and expectations, including commitments to environmental sustainability. Firms that demonstrate strong environmental performance are more likely to gain public legitimacy, thereby enhancing investor confidence and strengthening their market reputation (Arifbillah & Suhartini, 2020).

Empirical evidence supports the view that environmental performance positively influences financial performance, as structured environmental initiatives signal a company's long-term commitment to sustainability, which attracts both investors and consumers (Fadhlurrahman & Zulfikar, 2024; Ramadhani et al., 2022; Widianti et al., 2024). In Indonesia, environmental performance is primarily assessed through the Corporate Performance Rating Assessment Program (PROPER). A high PROPER rating indicates compliance with regulations and a strong sustainability orientation, both of which contribute to added value and long-term profitability.

However, prior studies have also reported inconsistent findings due to differences in industrial characteristics, environmental performance proxies, and the strategic orientation of sustainability initiatives. In highly regulated sectors such as energy, environmental practices are often driven by regulatory compliance rather than long-term strategic value creation, which may limit their direct contribution to financial performance. These inconsistencies indicate that effective governance oversight is necessary to ensure that environmental initiatives are implemented strategically and translated into financial benefits. In this regard, independent commissioners are expected to strengthen environmental accountability and managerial commitment to sustainability-oriented decision making. Therefore, firms with strong environmental performance are more likely to improve their financial outcomes when supported by effective governance mechanisms.

H2: Environmental performance has a positive effect on corporate financial performance.

**The Influence of Capital Structure on the Company's Financial Performance**

Capital structure refers to the composition of a firm's financing sources, derived from debt and equity, used to support operational and investment activities (Catherine & Nariman, 2020). According to Agency Theory (Jensen & Meckling, 1976), optimal financing decisions can mitigate conflicts of interest between managers (agents) and shareholders (principals). Properly managed capital structures reduce the cost of capital, enhance the efficiency of fund utilization, and ultimately strengthen financial performance (Shofi & Ramdani, 2022).

Empirical evidence suggests that well-structured capital compositions can enhance profitability and attract investor interest, as they signal financial stability and effective risk management (Ayuningtyas & Mawardi, 2022; Ritonga et al., 2021; Tania & Tjakrawala, 2020). Moreover, the prudent use of debt reflects a firm's ability to meet its financial obligations, thereby increasing its market credibility (Erawati et al., 2022). However, prior studies have also produced inconsistent findings regarding the relationship between capital structure and financial performance due to differences in firms' risk characteristics, debt management capabilities, and industrial contexts. In capital-intensive sectors such as energy, excessive reliance on debt may increase financial distress risk and reduce profitability, particularly when firms operate under volatile market conditions. These inconsistencies suggest that the effectiveness of capital structure decisions may depend on the quality of governance oversight. In this regard, independent commissioners are expected to oversee financing policies, mitigate excessive risk-taking behavior, and ensure that debt utilization aligns with the firm's long-term financial objectives. Therefore, an optimal capital structure supported by effective governance mechanisms is expected to enhance corporate financial performance.

H3: Capital structure has a positive effect on corporate financial performance.

**The Role of the Independent Board of Commissioners**

The independent board of commissioners (IBC) is a central component of corporate governance, responsible for objectively overseeing strategic policies and management performance to safeguard the interests of shareholders and other stakeholders (Siregar et al., 2022). From an agency theory perspective, the presence of independent commissioners helps to mitigate conflicts of interest between agents and principals by ensuring the optimal management of intangible assets, environmental initiatives, and capital structure. In line with the Resource-Based View and Legitimacy Theory, independent commissioners also guide firms in aligning resource utilization with business objectives, regulatory requirements, and societal expectations.

Effective oversight by independent commissioners is expected to strengthen the relationship between intellectual capital and financial performance, as they ensure that knowledge, skills, and innovation are transformed into sustainable competitive advantages (Agatha et al., 2020; Fitriaty et al., 2021). This moderating role becomes important because prior studies on intellectual capital have reported inconsistent findings due to differences in industrial characteristics, governance quality, and measurement approaches, such as the use of VAIC and MVAIC proxies. In capital-intensive sectors such as energy, the contribution of intellectual capital may not automatically improve financial performance unless supported by effective governance oversight.

Similarly, in the domain of environmental performance, independent commissioners help ensure that conservation initiatives extend beyond mere compliance and represent genuine commitments to social responsibility, thereby enhancing transparency, reputation, and financial (Ridho & Astuti, 2024). The moderating role of independent commissioners is particularly relevant because previous studies have produced mixed results regarding environmental performance and financial performance, especially across industries with different levels of environmental sensitivity and regulatory pressure. In the energy sector, where environmental practices are often compliance-driven, independent commissioners are expected to ensure that sustainability initiatives are integrated into long-term corporate strategy and value creation.

Concerning capital structure, independent commissioners monitor financing decisions particularly the balance between debt and equity to promote efficient resource management, mitigate financial risks, and maximize long-term shareholder value (Masrifah & Rahayu, 2024). Prior

empirical findings regarding capital structure and financial performance also remain inconclusive due to differences in firms' financial risk profiles, debt management capabilities, and industry characteristics. In highly leveraged and volatile sectors such as energy, governance oversight is essential to prevent excessive risk-taking and ensure prudent financing decisions. Therefore, independent commissioners are expected to strengthen the effectiveness of capital structure decisions in improving financial performance.

H4: The independent board of commissioners strengthens the relationship between intellectual capital and corporate financial performance.

H5: The independent board of commissioners strengthens the relationship between environmental performance and corporate financial performance.

H6: The independent board of commissioners strengthens the relationship between capital structure and corporate financial performance.

## RESEARCH METHODS

This study employs a quantitative research design with an explanatory approach to examine the causal relationships among intellectual capital, environmental performance, and capital structure on corporate financial performance, with the independent board of commissioners as a moderating variable. In addition, solvency, liquidity, and firm size are included as control variables. The research population consists of all energy sector firms listed on the Indonesia Stock Exchange (IDX). The sample was selected using purposive sampling based on the following criteria: (1) the company remained consistently listed during the observation period, (2) published complete annual and sustainability reports, and (3) provided the necessary data for calculating all research variables.

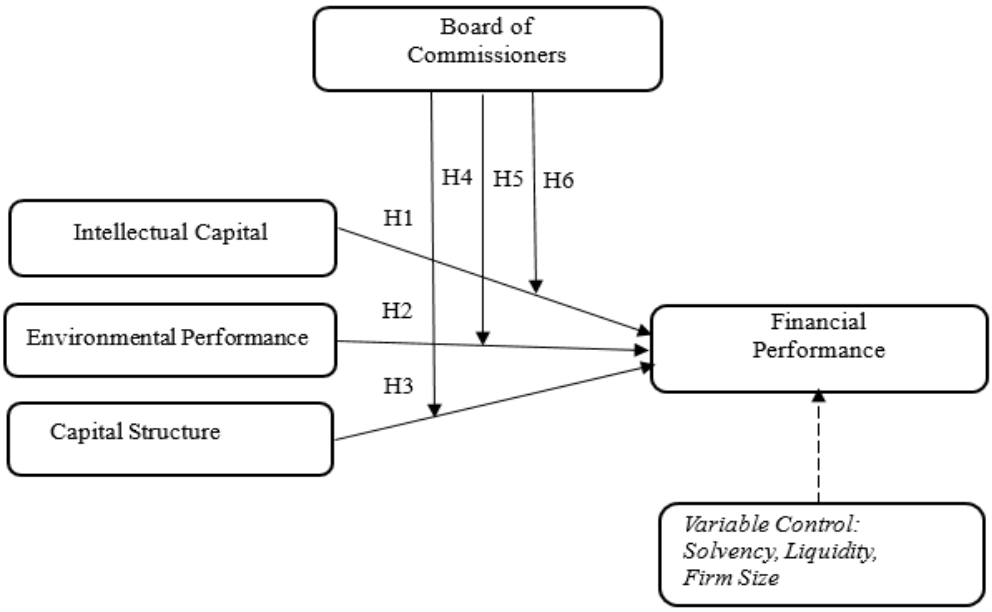


**Figure 1. Conceptual Framework**

**Table 1. Variabel Measurement**

| Variable | Formula | Source |
|---|---|---|
| Financial Performance | $ROA = \frac{Earnings\ after\ tax}{Total\ Asset}$ | (Sedovandara & Mahardika, 2023) |
| *Intellectual Capital* | $VAIC™ = HCE + SCE + CEE$ | (Agustia et al., 2021) |
| Environmental Performance | 5: Gold, 4: Green, 3: Blue, 2: Red, 1 Black | (Widianti et al., 2024) |
| Capital Structure | $DER = \frac{Total\ Debt}{Total\ Equity}$ | (Ningsih & Utami, 2020) |
| Independent Board of Commissioners | $DKI = \frac{Jumlah\ Komisaris\ Independen}{Jumlah\ Anggota\ Dewan\ Komisaris}$ x100% | (Alfiana et al., 2024) |
| Solvency | $DAR = \frac{Total\ Debt}{Total\ aAsets}$ | (Ningsih et al., 2023) |
| Liquidity | $CR = \frac{Current\ assets}{Current\ liabilities}$ | (Erawati et al., 2022) |
| Firm size | $Firm\ size = LN\ (Total\ Assets)$ | (Harsono & Pamungkas, 2020) |

Source: Processed Data

**Data Analysis Techniques**

Hypothesis testing for H1, H2, and H3 was conducted using panel data regression to estimate the direct effects of the variables. At the same time, H4, H5, and H6 were examined using Moderated Regression Analysis (MRA) to assess the moderating role of the independent board of commissioners. All analyses were performed using EViews 12 software. Prior to model estimation, a series of classical assumption tests were conducted, including tests for multicollinearity, heteroscedasticity, and autocorrelation. In addition, the selection of the most appropriate model Common Effect, Fixed Effect, or Random Effect was determined through the Chow test, Hausman test, and Lagrange Multiplier test.

**Equation Model**

Direct influence model:

$KK = \alpha + \beta_1(IC) + \beta_2(KL) + \beta_3(SM) + \beta4(DKI) + \beta_5(SV) + \beta_6(LK) + \beta_7(UK) + \varepsilon$

Moderation influence model:

$KK = \alpha + \beta_1(IC) + \beta_2(KL) + \beta_3(SM) + \beta_4(DKI) + \beta_5(IC*DKI) + \beta_6(KL*DKI) + \beta_7(SM*DKI) + \beta_8(SV) + \beta_9(LK) + \beta_{10}(UK) + \varepsilon$

Description: KK = company's financial performance; CI = intellectual capital; KL = environmental performance; SM = capital structure; DKI = independent board of commissioners; SV = solvency; LK = liquidity; UK = company size; $\alpha$ = constant; $\beta$ = regression coefficient; $\varepsilon$ = error term.

**RESULTS AND DISCUSSION**

As presented in Table 2, the average financial performance of energy sector companies is relatively low (mean = 0.109), close to the minimum value, indicating that most firms have limited ability to generate optimal profitability. The mean value of intellectual capital (8.593), which is also near the lower bound, suggests that the strategic utilization of intangible assets, including employee knowledge, skills, and innovation, has not been fully optimized. Similarly, the average environmental

performance score (1.729) indicates a weak commitment to environmental conservation, which may undermine corporate legitimacy and public reputation.

The capital structure (mean = 1.296), which is close to the minimum threshold, indicates a preference for equity-based financing over debt. Meanwhile, the relatively low proportion of independent commissioners (mean = 0.440) implies limited external oversight in ensuring compliance and effective governance. The solvency ratio (mean = 0.580) indicates a low reliance on debt financing, whereas the liquidity ratio (mean = 1.972) suggests that limited current assets are available to cover short-term obligations. By contrast, firm size (mean = 28.484) is relatively close to the maximum value, indicating that most companies in the energy sector operate with substantial assets and scale.

Table 3 further shows that the correlation coefficients among variables are all below 0.80, suggesting the absence of serious multicollinearity. This finding confirms that each variable contributes relatively independent information to the model, thus validating its suitability for subsequent regression analysis.

**Table 2. Descriptive Statistical Analysis**

| Variabel | Obs | Min | Max | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Financial Performance | 236 | 0.000 | 0.616 | 0.109 | 0.114 |
| Intellectual Capital | 236 | -0.598 | 57.009 | 8.593 | 9.131 |
| Environmental Performance | 236 | 0.000 | 5.000 | 1.729 | 1.903 |
| Capital Structure | 236 | 0.002 | 9.747 | 1.296 | 1.506 |
| Independent Board of Commissioners | 236 | 0.250 | 1.000 | 0.440 | 0.126 |
| Solvency | 236 | 0.000 | 8.942 | 0.580 | 0.940 |
| Liquidity | 236 | 0.201 | 10.074 | 1.972 | 1.645 |
| Firm Size | 236 | 19.564 | 33.365 | 28.484 | 2.303 |

Source: Processed Data

**Table. 3 Correlation Matrix**

| | IC | EP | CS | IBC | SV | Liq | FS |
|---|---|---|---|---|---|---|---|
| IC | 1.000 | | | | | | |
| EP | 0.284 | 1.000 | | | | | |
| CS | -0.044 | 0.044 | 1.000 | | | | |
| IBC | 0.119 | -0.026 | -0.137 | 1.000 | | | |
| SV | -0.065 | -0.148 | 0.033 | 0.013 | 1.000 | | |
| Liq | -0.002 | 0.064 | 0.309 | -0.156 | -0.180 | 1.000 | |
| FZ | 0.250 | 0.566 | -0.072 | 0.116 | -0.099 | -0.099 | 1.000 |

Information:
IC:Intellectual Capital; EP: Environmental Performance; CS: Capital Structure; IBC: Independent Board of Commissioners, SV: Solvency; Liq: Liquidity; IZ: Firm Size

Source: Processed Data

**Table. 4. Hypothesis Test Results**

| Variabel | Model REM | | Model MRA | |
|---|---|---|---|---|
| | Coef | Prob | Coef | Prob |
| *Intercept* | 0.000 | 0.999 | 0.242 | 0.809 |
| *IC* | 0.774 | 0.000 | -0.170 | 0.243 |
| EP | 0.017 | 0.113 | 1.472 | 0.142 |
| CS | 0.004 | 0.666 | -0.174 | 0.862 |
| IBC | -0.071 | 0.178 | -1.598 | 0.112 |
| IC* IBC | - | - | 2.880 | 0.004 |
| EP* IBC | - | - | -1.055 | 0.293 |
| CS* IBC | - | - | 0.187 | 0.852 |
| SV | -0.009 | 0.215 | -1.124 | 0.262 |
| Liq | 0.007 | 0.101 | 1.737 | 0.084 |
| FZ | 0.003 | 0.493 | 0.761 | 0.447 |
| *R-squared* | 0.306 | | 0.330 | |
| *Adjusted R-squared* | 0.285 | | 0.301 | |
| *F-Statistics* | 14.389 | | 11.098 | |
| *Sig. (F-Statistic)* | 0.000 | | 0.000 | |

Source: Processed Data

The estimation results of the Random Effects Model (REM) reveal that intellectual capital (IC) has a positive and significant effect on corporate financial performance ($\beta = 0.774$; $p < 0.01$). This finding suggests that the more effectively intangible assets are utilized, the greater the profitability achieved by firms. In contrast, environmental performance (EP), capital structure (CS), and the independent board of commissioners (IBC) do not have a significant effect on financial performance. Similarly, the control variables solvency (SV), liquidity (LIQ), and firm size (FS) do not show significant influence. The adjusted R-squared value of 0.285 indicates that the model explains 28.5% of the variation in financial performance among energy sector firms.

In the Moderated Regression Analysis (MRA) model, the interaction term IC × IBC has a positive and significant effect ($\beta = 2.880$; $p < 0.01$), demonstrating that the presence of independent commissioners strengthens the impact of IC on financial performance. In other words, effective independent oversight enhances the ability of intellectual capital to generate higher profitability. Conversely, the interaction terms EP × IBC and CS × IBC are not significant, indicating that the moderating role of independent commissioners in the relationships between environmental performance, capital structure, and financial performance is not supported. The adjusted R-squared value rises to 0.301, reflecting an increase in the model's explanatory power when the moderating variable is included.

**The Influence of Intellectual Capital on the Company's Financial Performance**

The results of the first hypothesis test indicate that intellectual capital (IC) has a positive and significant effect on corporate financial performance ($\beta = 0.774$; $p < 0.005$), thereby supporting H1. This finding suggests that the effective management of IC encompassing knowledge, skills, and innovation enhances productivity, operational efficiency, and competitiveness, ultimately leading to higher profitability. The strategic utilization of IC also generates sustainable added value, enabling firms to maintain long-term financial performance.

These results are consistent with the Resource-Based View (RBV), which underscores the importance of managing intangible resources that are valuable, rare, inimitable, and non-substitutable in sustaining competitive advantage. Within this framework, IC functions as a strategic resource that facilitates value creation and strengthens a firm's market position.

The findings of this study align with prior empirical evidence that demonstrates the positive influence of IC on financial performance (Arifin, 2023; Kusniawati & Amin, 2024; Tania & Tjakrawala, 2020). Beyond reinforcing existing literature, this study contributes to the discourse by confirming the relevance of IC in the Indonesian energy sector, which, despite being capital-intensive, faces intense pressures to achieve efficiency and foster sustainable innovation. The practical implication of these findings is the need for firms to prioritize investment in and management of intangible assets as a core strategy for improving financial performance.

**The Influence of Environmental Performance on the Company's Financial Performance**

The results of the second hypothesis test indicate that environmental performance (EP) does not have a significant effect on corporate financial performance ($\beta = 0.017$; $p = 0.113 > 0.05$), thereby rejecting H2. This finding suggests that the environmental initiatives undertaken by energy sector firms have not translated into measurable improvements in profitability. Although some firms have obtained PROPER ratings, environmental policies and programs appear insufficiently integrated into core business strategies, limiting their capacity to generate tangible economic benefits.

These results diverge from the central proposition of legitimacy theory, which posits that adherence to social and environmental norms enhances public acceptance, reputation, and ultimately financial performance. In this context, environmental conservation efforts tend to be symbolic, primarily aimed at regulatory compliance and the avoidance of sanctions, rather than serving as strategic instruments for creating long-term economic value. The descriptive statistics reinforce this conclusion: the average EP score (mean = 1.729) is near the minimum value, reflecting weak implementation of environmental conservation programs across the sector. This outcome may be attributable to the substantial costs of environmental compliance, which reduce resources available for profit-generating activities.

These findings are consistent with prior studies. (Asaqdah & Putra, 2021)reported that EP had no significant effect on financial performance among mining and manufacturing firms listed on the Indonesian Sharia Stock Index (ISSI), as profitability remained the overriding priority. Similarly, (Ridho & Astuti, 2024) found no significant effect of EP on stakeholder confidence in the industrial sector of the IDX. Research by (Suryaningrum & Ratnawati, 2024) in the mining sector also confirmed that PROPER ratings do not provide substantial financial benefits, as firms are primarily motivated by social and legal compliance. Collectively, these findings extend the literature by demonstrating that, in the Indonesian energy sector, environmental legitimacy has yet to be effectively converted into financial gains.

**The Influence of Capital Structure on the Company's Financial Performance**

The results of the third hypothesis test reveal that capital structure (CS) has no significant effect on corporate financial performance ($\beta = -0.022$; $p = 0.666 > 0.05$), thereby rejecting H3. This finding suggests that debt-dominated financing structures have not significantly contributed to profitability. A high proportion of debt increases interest expenses and default risk, which can erode shareholder confidence and heighten the likelihood of financial distress. Consequently, the potential efficiency of debt as a lever for improving financial performance is not realized.

These results diverge from agency theory, which posits that an optimal balance of debt and equity can function as a disciplinary mechanism to reduce managerial opportunism. In the context of this study, debt financing is insufficient for enhancing efficiency or constraining managerial behavior. Conflicting interests between shareholders and managers may reduce transparency in debt utilization, thereby limiting the expected benefits of governance from debt-based financing.

The descriptive statistics further support this conclusion: the mean CS value (1.296) lies close to the lower boundary, suggesting that energy sector firms tend to rely more heavily on internal funding than external debt. While limited use of debt reduces interest burdens, it also constrains opportunities to benefit from financial leverage, which could otherwise enhance profitability.

These findings are consistent with prior studies. (Farida & Yulazri, 2024) reported that debt fluctuations had no significant impact on financial performance among IDX LQ-45 firms. Similarly, (Harsono & Pamungkas, 2020) found that excessive debt in the manufacturing sector reduced financial flexibility and elevated risk. (Jessica & Triyani, 2022) also demonstrated that high interest expenses in the food and beverage sector diminished net profits. Taken together, this study reinforces existing empirical evidence by highlighting that, within Indonesia's energy sector, capital structure has not been effectively leveraged as a strategic instrument for improving financial performance.

**The Moderation Role of the Independent Board of Commissioners**

The results indicate that the moderating role of the independent board of commissioners (IBC) produces varying outcomes across the three main relationships tested. First, regarding the relationship between intellectual capital (IC) and financial performance, the IC × IBC interaction has a positive and significant effect ($\beta = 2.880$; $p = 0.004 < 0.05$), thereby supporting H4. This finding suggests that the presence of independent commissioners strengthens the contribution of IC to financial performance. An effective supervisory mechanism enables independent commissioners to encourage management to optimize the use of intellectual assets including knowledge, skills, and innovation. This aligns with Agency Theory, which posits that independent oversight reduces managerial opportunism and ensures that IC is leveraged to generate sustainable value creation. These findings are consistent with (Siregar et al., 2022), who demonstrated that well managed IC, reinforced by practical supervisory functions, enhances both competitiveness and profitability.

Second, regarding the relationship between environmental performance (EP) and financial performance, the EP × IBC interaction is not significant ($\beta = –0.180$; $p = 0.293 > 0.05$), which leads to the rejection of H5. This result suggests that independent commissioners are unable to mitigate the impact of environmental performance on financial outcomes. In the energy sector, the supervisory role of independent commissioners appears to focus more heavily on financial reporting and governance compliance. At the same time, environmental oversight remains limited and often symbolic in nature. Constraints in expertise or prioritization of environmental issues may explain the ineffectiveness of their moderating role, despite Agency Theory's assumption that stronger environmental accountability could enhance legitimacy and financial performance.

Third, in the relationship between capital structure (CS) and financial performance, the CS × IBC interaction is also not significant ($\beta = 0.016$; $p = 0.852 > 0.05$), resulting in the rejection of H6. Decisions related to capital structure particularly debt utilization are typically within the domain of the board of directors, while independent commissioners are limited to a supervisory function. A conservative approach to debt, aimed at minimizing default risk, restricts the possibility of leveraging financing as a driver of financial performance. This outcome is inconsistent with Agency Theory,

which predicts that independent commissioners could mitigate conflicts of interest through the supervision of financing policies.

Overall, these findings suggest that the effectiveness of independent commissioners as a governance mechanism is highly contextual. While they are effective in strengthening the impact of IC on financial performance, they do not moderate the relationships between environmental performance and capital structure and financial outcomes. These results provide important practical implications for governance in the energy sector, emphasizing the need to broaden the focus and competencies of independent commissioners to include environmental sustainability and financing policies. From an academic perspective, this study contributes to the corporate governance literature by highlighting that the moderating role of independent commissioners is not universal, but somewhat contingent upon the type of resources or strategic decisions under their supervision.

## CONCLUSION

This study provides empirical evidence that intellectual capital (IC) has a positive and significant effect on corporate financial performance, reaffirming its role as a strategic intangible asset that enhances productivity, efficiency, and competitiveness. In contrast, environmental performance and capital structure show no significant effects on financial performance in the energy sector. Furthermore, the independent board of commissioners is shown to strengthen the relationship between IC and financial performance, but it does not moderate the effects of environmental performance or capital structure. From a theoretical perspective, these findings partially support the Resource-Based View (RBV) by confirming the strategic importance of IC in sustaining competitive advantage, and they partially support Agency Theory through the moderating role of independent commissioners in the IC performance relationship. However, the findings do not support Legitimacy Theory in the context of environmental performance, nor do they validate Agency Theory concerning capital structure or the moderating role of independent commissioners in the EP–CS performance relationships. From a practical standpoint, the study offers several implications. For investors, the results highlight the importance of evaluating IC management as a key determinant of financial success. For corporate management, the findings underscore the need to optimize intangible assets while strengthening governance mechanisms to maximize their impact on financial outcomes. For policymakers, the study highlights the importance of strengthening regulations related to financial and non-financial disclosures to enhance corporate accountability and promote long-term value creation. This study is subject to several limitations. The coefficient of determination (adjusted $R^2$) of 30.1% indicates that the model explains only part of the variation in financial performance. In comparison, the remaining 69.9% may be driven by other factors not included in the analysis. Moreover, the insignificant effects of environmental performance and capital structure suggest the need to consider additional variables that may influence financial performance, such as innovation capability, operational efficiency, or market competitiveness. Future research should therefore incorporate a broader set of variables, explore different industry sectors, and extend the observation period to produce more robust and generalizable findings.

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