



# THE ROLE OF CEO POWER IN DRIVING ESG PERFORMANCE AMONG IDX INFRASTRUCTURE COMPANIES

Dina Ockta Irani<sup>1</sup>, Ernie Hendrawaty<sup>2</sup>, Sri Hasnawati<sup>3</sup>, Adli Rikanda Saputra<sup>4\*</sup>

<sup>1,2,3</sup>Department of Management, Faculty of Economics and Business, Universitas Lampung, Bandar Lampung, Indonesia, 35145

<sup>4</sup>Faculty of Economics and Islamic Business, Universitas Islam Negeri Raden Intan Lampung, Bandar Lampung, Indonesia, 35131

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\*Correspondent Email: [adlirikanda@gmail.com](mailto:adlirikanda@gmail.com)



**Abstract:** This study investigates how CEO Power influences Environmental, Social, and Governance (ESG) performance in infrastructure-sector firms listed on the Indonesia Stock Exchange (IDX). It focuses on three dimensions of CEO Power—CEO duality, CEO ownership, and CEO tenure—to assess whether leadership structure and incentives are associated with sustainability outcomes. Using a balanced panel of 24 issuers observed from 2019 to 2023, the study employs Random Effects panel regression with robust standard errors. ESG performance is measured using Refinitiv ESG scores, while CEO attributes are obtained from annual and sustainability reports. The results show heterogeneous effects: CEO duality has a positive but statistically insignificant association with ESG, and CEO ownership is negative and insignificant, suggesting that role concentration and equity stakes do not systematically shape ESG in this sample. By contrast, CEO tenure is positively and significantly related to ESG performance, indicating that longer-serving CEOs are more likely to deliver stronger sustainability outcomes. Overall, the findings highlight that CEO Power explains only part of the variation in ESG, but stable and experienced leadership remains an important internal driver of sustainability alongside external regulatory and stakeholder pressures. **Keywords:** CEO power; ESG performance; corporate governance; infrastructure firms; Indonesia.

## 1. INTRODUCTION

### 1.1 Background

In recent years, corporate sustainability that incorporates Environmental, Social, and Governance (ESG) considerations has increasingly become a key concern for both individual and institutional stakeholders. The ESG framework covers environmental responsibility, social aspects, and sound corporate governance, and it is playing an ever more prominent role in shaping investment choices and corporate strategies. Empirical studies indicate that firms that effectively manage all three ESG dimensions are able to enhance their market value and strengthen investor confidence, while also contributing to social welfare and environmental protection (Bhandari et al., 2022; Disli et al., 2022).

Despite this growing awareness, the implementation of ESG principles still encounters significant obstacles, particularly in sustainability-oriented decision-making processes. A crucial factor in this regard is the role of the Chief Executive Officer (CEO). The CEO acts as the chief architect of corporate strategy, including the design and adoption of ESG policies. CEOs who possess substantial power (CEO Power) can strongly shape the direction of policies and decisions related to ESG, which in turn has direct consequences for firm performance (Abdullah et al., 2024; Kind et al., 2023; Yadav & Jain, 2023).

The experiences of Bank Syariah Indonesia (BSI) and Marvel Comics highlight how pivotal the

CEO's role is in defining corporate values and policy orientations. Under the leadership of Hery Gunardi, BSI successfully executed the merger of several Islamic banks, a process that contributed to higher firm value. Although the most recent share price is not detailed in the available data, this achievement suggests that a CEO with considerable power can guide corporate policies in a positive direction and generate beneficial outcomes for firm value (Gurol & Lagasio, 2023; Haider & Fang, 2018).

In contrast, the case of Marvel Comics under Isaac Perlmutter demonstrates how a CEO endowed with "expert power" can design and implement an effective strategic approach. The combination with Toy Biz not only rescued the firm from financial distress but also showcased the ability to create additional value through strategic decisions rooted in deep experience and knowledge (Alsayegh et al., 2020; Mahran & Elamer, 2024).

A different picture emerges from PT Waskita Karya Tbk, which illustrates that not every CEO succeeds in enhancing firm value. Following the involvement of CEO Destiawan Soewardjono in a corruption case, Waskita Karya's share price plummeted to the lower auto-rejection limit (Auto Rejection Bawah, ARB). This case shows that CEO power can also lead to adverse outcomes when imprudent or unethical policies are implemented (Li et al., 2016). CEO power is closely associated with the ability to influence managerial decisions that directly shape firm value; when a CEO engages in

unethical behavior, reputational risks escalate and overall corporate performance may deteriorate.

Collectively, these phenomena emphasize the need to better understand CEO Power in the formation of corporate policies related to ESG. CEOs who command strong influence within their organizations—through ownership stakes, long tenure, or role duality—are in a position to drive firms toward a more serious engagement with sustainability issues. Accordingly, this study seeks to investigate how CEO Power affects ESG policies in companies listed on the Indonesia Stock Exchange (IDX) during the period 2019–2023.

## 1.2 Theoretical Framework

According to agency theory, when a CEO's personal objectives diverge from those of shareholders, agency conflicts are likely to emerge and may ultimately weaken ESG outcomes. These tensions are particularly pronounced in situations where the CEO commands substantial power, because such dominance can encourage decisions that favor short-term gains rather than long-term sustainability-oriented goals (Abdullah et al., 2024; Jiraporn et al., 2012). Empirical studies further suggest that an extended period in office can result in entrenched leadership, in which CEOs increasingly emphasize their own legacy and personal standing instead of prioritizing overall organizational performance and sustainability initiatives (Chen, 2013; Simsek, 2007). The association between CEO tenure and firm performance is frequently characterized as curvilinear, where intermediate levels of tenure are most conducive to strong outcomes, while very long tenure can slow down or complicate decision-making processes (Abdullah et al., 2024). A similar pattern can be observed in the ESG domain, as long-serving CEOs may be more hesitant to undertake substantial reforms that are necessary to strengthen corporate responsibility and sustainability practices (Khan et al., 2020; Matta & Beamish, 2008).

Upper Echelon Theory argues that the background, experiences, and personal traits of top executives—especially their leadership style—play a decisive role in shaping organizational choices, including decisions related directly to sustainability and ESG strategy (Hambrick, 2007; Velte, 2019). As CEOs remain in their position over time, they are able to develop deeper knowledge of stakeholder expectations and institutional pressures, which can, under the right conditions, contribute positively to ESG performance. Nonetheless, overly long tenure may generate organizational rigidity and inertia, with CEOs placing greater emphasis on safeguarding their personal legacy than on pursuing the firm's long-term strategic and sustainability objectives (Darouichi et al., 2021; Simsek, 2007). Consequently, maintaining a balanced, non-excessive length of tenure is viewed as essential for sustaining the firm's long-run commitment to ESG

and broader sustainability goals (Abdullah et al., 2024).

H1: CEO tenure has a positive relationship with ESG performance.

CEO ownership is another important dimension that shapes ESG outcomes. From an agency theory standpoint, increasing the CEO's ownership stake can help align managerial interests with those of shareholders, thereby motivating a stronger commitment to long-term value creation and sustainability performance (Abdullah et al., 2024; Jiraporn et al., 2012). However, when ownership becomes too concentrated in the hands of the CEO, it can foster entrenchment, whereby personal interests overshadow the organization's strategic needs and encourage overly cautious, risk-averse behavior that undermines innovation and the firm's responsiveness to changing market and stakeholder expectations (Li et al., 2016; Maak et al., 2016). High levels of ownership concentration may also intensify agency problems by weakening monitoring and governance mechanisms, which is particularly problematic for the effective implementation of ESG initiatives (Brookman & Thistle, 2009; Gupta et al., 2018).

Within the Upper Echelon Theory framework, CEO ownership similarly plays a significant role in shaping ESG performance. Higher levels of CEO ownership can reinforce the alignment between the CEO's interests and those of shareholders, thereby encouraging a longer-term orientation and a stronger emphasis on ESG-related outcomes (Hou et al., 2017; Velte, 2019). At the same time, excessive ownership may again result in entrenchment, as the CEO's dominant control over strategic decisions can stifle experimentation, constrain innovation, and diminish the overall effectiveness of ESG strategies (Ali & Zhang, 2015). Therefore, an optimal or moderate level of ownership is needed to ensure that the CEO remains accountable to a broad set of stakeholders and responsive to evolving sustainability challenges and expectations.

H2: CEO ownership has a positive relationship with ESG performance.

CEO duality—the situation in which the same individual serves as both CEO and chair of the board—can streamline and accelerate decision-making processes. However, this structural arrangement also concentrates authority in a single person, which can weaken board oversight and increase the likelihood of misalignment in corporate strategy, including with respect to ESG policies and initiatives (Al-Shaer et al., 2023; Jiraporn et al., 2012). From the perspective of agency theory, a dual CEO may be more inclined to pursue personal interests or short-term financial gains, thereby undermining the pursuit of long-term sustainability and ESG objectives (Li et al., 2016; Yu, 2023). Even so, some empirical studies find that CEO duality can, under certain conditions, promote faster strategic responses and a clearer strategic focus,

which may be advantageous in specific market and competitive environments (Lewellyn & Fainshmidt, 2017; Yadav & Jain, 2023).

Interpreted through the lens of Upper Echelon Theory, CEO duality has inherently mixed implications for ESG performance. The concentration of power in a dual role can skew priorities toward short-term performance metrics instead of long-term sustainability goals, particularly when dual CEOs resist changes that might threaten their personal influence or established interests (Bhatia & Marwaha, 2022; Romano et al., 2020). Nevertheless, in some business contexts, CEO duality can sharpen strategic direction and further accelerate decision-making, which may support the firm's adaptation to dynamic environments and, potentially, to certain ESG opportunities (Hou et al., 2017; Song & Kang, 2019).

H3: CEO duality has a negative impact on ESG performance.

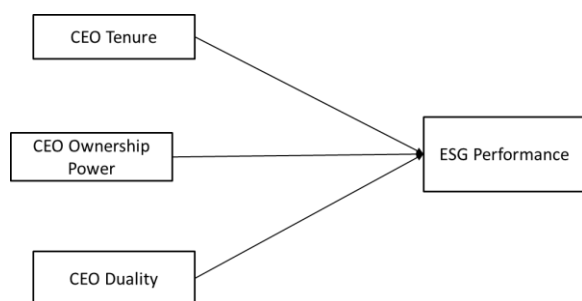


Figure 1. Research Framework

## 2. MATERIALS AND METHODS

### 2.1 Data and Sample

This study adopts a quantitative panel-data design using secondary data from firms listed on the Indonesia Stock Exchange (IDX). The population consists of non-financial issuers that are continuously classified in the IDX Infrastructure-related sectors over the 2019–2023 period. A purposive sampling strategy is applied with two core criteria: (i) firms must remain in the infrastructure sector classifications throughout 2019–2023, and (ii) complete Environmental, Social, and Governance (ESG) scores in the Refinitiv database as well as CEO-attribute disclosures (tenure, ownership, and duality) must be available for the same period. These criteria secure a balanced panel, ensure measurement comparability over time, and allow consistent construction of CEO power variables.

ESG data are obtained from the Refinitiv ESG dataset, while CEO characteristics and financial information are compiled from issuers' annual reports, audited financial statements, and sustainability reports. Sector classifications follow the official IDX taxonomy. The observation window of 2019–2023 is chosen to align with the availability and stabilisation of ESG disclosures and to ensure that CEO attributes can be traced consistently over multiple years.

Applying the sampling criteria yields a balanced panel of 24 issuers observed over five years (2019–2023), resulting in 120 firm-year observations. The firms span energy, basic materials, property–infrastructure, telecommunications, and utilities, and are identified in the study by their ticker symbols only: AKRA, ARI, ANTM, ASII, BRPT, PTBA, BUMI, BSDE, ITMG, INTP, ISAT, JSMR, LPKR, MDKA, PWON, PGAS, TOWR, SMGR, SMRA, TLKM, TBIG, UNTR, INCO, and WSKT.

### 2.2 Variable Measurement

All variables in this study are constructed at the firm–year level for a balanced panel of 24 infrastructure-sector issuers listed on the Indonesia Stock Exchange (IDX) over the 2019–2023 period. The analysis relies exclusively on secondary data obtained from issuers' annual reports, sustainability reports, and audited financial statements, complemented by Refinitiv ESG datasets and IDX sector classifications. This data strategy is intended to ensure consistency, comparability, and reliability of the ESG and governance indicators across firms and over time.

The **dependent variable** is Environmental, Social, and Governance performance (**ESG**). ESG is measured using the Refinitiv combined ESG score, which aggregates information on environmental, social, and governance dimensions into a composite indicator on a 0–100 scale. For ease of interpretation and to maintain comparability over time and across firms, the Refinitiv ESG score is rescaled to a 0–1 interval by dividing by 100. Higher values indicate stronger sustainability performance and more comprehensive ESG disclosure.

The **independent variables** capture three dimensions of CEO Power: CEO Duality, CEO Ownership, and CEO Tenure.

- **CEO Duality (CEO\_D)** reflects the concentration of formal authority when the same individual occupies both the position of Chief Executive Officer and Chair of the Board of Commissioners. CEO\_D is measured as a dummy variable that takes the value 1 if the CEO also serves as board chair in a given year, and 0 if the roles are separated. This indicator aims to capture potential tensions between efficient decision-making and reduced board oversight.
- **CEO Ownership (CEO\_O)** represents ownership-based CEO Power and is measured as the proportion of the company's outstanding shares held directly by the CEO. It is calculated as the number of shares owned by the CEO divided by the total number of shares outstanding, expressed as a ratio or percentage. In addition to reflecting economic alignment with shareholders, CEO\_O can also be interpreted as a structural source of influence that may encourage either long-term commitment to ESG or entrenchment and resistance to change, depending on the context.

- **CEO Tenure (CEO\_T)** captures the experience and stability of leadership by measuring the length of time the current CEO has served in the company. CEO\_T is defined as the number of years between the CEO's appointment date and the fiscal year of observation. Longer tenure may

allow CEOs to accumulate firm-specific knowledge, build relationships with stakeholders, and shape the ESG agenda, but it can also create potential for entrenchment if tenure becomes excessive.

Table 1. Operationalization of Variables

Variable	Symbol	Role	Definition	Measurement	Scale	Data Source
ESG Performance	ESG	Dependent	Overall environmental, social, and governance performance of the firm	Refinitiv combined ESG score (0–100), rescaled to 0–1	Continuous	Refinitiv ESG database; sustainability reports
CEO Duality	CEO_D	Independent	Concentration of authority when CEO also chairs the board	Dummy variable: 1 if the CEO is simultaneously Chair of the Board of Commissioners; 0 otherwise	Dummy (0/1)	Corporate governance section of annual reports
CEO Ownership	CEO_O	Independent	Ownership-based CEO Power and economic stake in the firm	Proportion of shares owned by the CEO: (CEO shares / total shares outstanding)	Continuous	Share-ownership notes in annual reports
CEO Tenure	CEO_T	Independent	Length of CEO's service in the company, capturing experience and leadership stability	Number of years between CEO's appointment year and the observation year	Continuous	Annual reports; company profiles; corporate governance

2.3 Research Model

This study employs a quantitative panel-data approach to examine whether CEO Power influences firms' Environmental, Social, and Governance (ESG) performance. The analysis focuses on infrastructure-related companies listed on the Indonesia Stock Exchange (IDX) over the 2019–2023 period, consistent with the earlier design that tests “the influence of CEO Power dimensions—comprising CEO Duality, CEO Ownership, and CEO Tenure—on ESG performance among infrastructure-sector companies.”

The empirical model is estimated on a balanced panel of 24 issuers (120 firm-year observations), using Refinitiv ESG scores and CEO-attribute disclosures collected from annual reports and sustainability reports.

Following the original operationalization, ESG performance is treated as the dependent variable, while CEO Power is captured through three indicators: ownership power, CEO tenure, and CEO duality. CEO Power is measured by (i) the proportion of shares owned by the CEO (ownership power), (ii) the number of years the CEO has served in the firm (CEO tenure), and (iii) a dummy variable indicating whether the CEO simultaneously serves as Chair of the Board (CEO duality).

In line with the model stated in the proposal document, the core regression specification is:

$$ESG_{it} = \alpha + \beta_1 CEO\_O_{it} + \beta_2 CEO\_T_{it} + \beta_3 CEO\_D_{it} + u_i + \lambda_t + \varepsilon_{it}$$

- $ESG_{it}$  is the ESG performance score of firm  $i$  in year  $t$ ;

- $CEO\_D_{it}$  denotes CEO Duality (1 if the CEO is also Chair of the Board, 0 otherwise);
- $CEO\_O_{it}$  is CEO Ownership, measured as the proportion of shares held by the CEO;
- $CEO\_T_{it}$  is CEO Tenure, measured in years;
- $\alpha$  is the intercept;
- $u_i$  captures unobserved, time-invariant firm-specific effects (e.g., corporate culture, long-standing governance practices);
- $\lambda_t$  represents time effects that are common to all firms in year  $t$  (e.g., macroeconomic conditions, regulatory changes);
- $\varepsilon_{it}$  is the idiosyncratic error term.

3. Results

3.1 Descriptive Statistics

Table 2 reports the descriptive statistics for all variables over 120 firm–year observations.

Table 2. Descriptive Statistics

Variable	Mean	Median	Max	Min	Std. Dev.	Obs
CEO_D	0.1833	0.0000	1.0000	0.0000	0.3886	120
CEO_O	0.0028	0.0000	0.0618	0.0000	0.0124	120
CEO_T	6.3750	4.0000	31.0000	1.0000	6.6914	120
ESG	0.5676	0.5430	0.8880	0.2502	0.1639	120

The descriptive results in Table 2 show that CEO Duality (CEO\_D) has a mean of 0.18 with a median of 0, indicating that only around 18% of sample firms combine the CEO and chair positions. This suggests that, in most cases, Indonesian infrastructure firms still separate management and oversight roles.

CEO Ownership (CEO\_O) averages about 0.0028, which corresponds to roughly 0.28% of outstanding shares held directly by the CEO. The maximum ownership reaches 6.18%, implying that although most CEOs have very small equity stakes, a few firms exhibit relatively high CEO shareholdings.

CEO Tenure (CEO\_T) has an average of 6.38 years with a median of 4 years and a range of 1 to 31 years. This distribution reflects a mix of newly appointed CEOs and very long-serving leaders, providing substantial cross-sectional variation in leadership experience.

Finally, ESG performance (ESG) has a mean of approximately 0.57 (with values ranging from 0.25 to 0.89). This suggests a moderate level of sustainability performance and disclosure among Indonesian infrastructure firms, with noticeable dispersion that indicates some firms are well ahead of others in ESG practices.

### 3.2 Correlation Analysis

Table 3 presents the Pearson correlation matrix among ESG and the three CEO Power variables.

Table 3. Correlation Matrix

	ESG	CEO_D	CEO_O	CEO_T
ESG	1.000	0.174	0.038	0.045
CEO_D	0.174	1.000	0.517	0.600
CEO_O	0.038	0.517	1.000	0.563
CEO_T	0.045	0.600	0.563	1.000

The correlation results show that ESG is positively but weakly related to all three CEO Power dimensions: CEO Duality ( $r \approx 0.174$ ), CEO Ownership ( $r \approx 0.038$ ), and CEO Tenure ( $r \approx 0.045$ ). These small coefficients indicate only limited direct association between ESG performance and CEO authority at the bivariate level.

By contrast, the CEO Power variables are more strongly correlated with one another. CEO Duality is moderately to strongly correlated with CEO Tenure ( $r \approx 0.600$ ) and CEO Ownership ( $r \approx 0.517$ ), while CEO Ownership and CEO Tenure are also substantially correlated ( $r \approx 0.563$ ). This pattern suggests that leadership power attributes tend to cluster within firms (i.e., powerful CEOs often have multiple reinforcing power bases), whereas ESG

outcomes appear relatively independent from these leadership configurations when considered pairwise.

### 3.3 Multicollinearity Diagnostics (VIF)

Variance Inflation Factor (VIF) statistics for the regression variables are summarized in Table 4.

Table 4. Centered VIF Scores (All Models)

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
C	0.005188	1.9529	NA
CEO_D	0.029927	2.0653	1.6867
CEO_O	0.703771	1.8244	1.5800
CEO_T	0.000108	3.4683	1.8108

The VIF diagnostics indicate acceptable levels of multicollinearity across all regressors. Among the centered VIFs, CEO Ownership has the lowest value ( $\approx 1.58$ ), followed by CEO Duality ( $\approx 1.69$ ) and CEO Tenure ( $\approx 1.81$ ). Although uncentered VIFs are slightly higher—especially for CEO Tenure ( $\approx 3.47$ )—all values remain well below the common rule-of-thumb cutoff of 10.

This evidence implies that the three CEO Power variables can be included jointly in the regression model without serious concern that collinearity will inflate standard errors or destabilize coefficient estimates.

### 3.4 Normality Considerations

Normality of residuals is **not treated as a core assumption** for parameter estimation in linear panel-data models. Under the Gauss–Markov framework, pooled OLS, Fixed Effects (FE), and Random Effects (RE) estimators remain unbiased and consistent without requiring normally distributed errors; normality mainly matters for exact small-sample inference, not for consistency (Baltagi et al., 2015).

In practice, panel-data normality tests often function as *diagnostic tools* rather than strict preconditions. Their results can be distorted by typical panel features such as detrending, heteroskedasticity, or cross-sectional dependence, which may reduce test power or lead to misleading conclusions (Atwood et al., 2003). Consequently, normality is **not a prerequisite** for estimating or interpreting panel regressions. Large-sample arguments justify asymptotic normality of estimators, and when non-normality of errors is a concern, **robust or bootstrap standard errors** provide a more practical remedy for maintaining valid hypothesis testing (Alejo et al., 2015; Brennan et al., 1987).

### 3.5 Heteroskedasticity Test

The p-values from the heteroskedasticity test are reported in **Table 5**.

**Table 5. Heteroskedasticity Test – p-values**

Variable	p-value
C	0.0007
CEO_D	0.0658
CEO_O	0.4341
CEO_T	0.8854

The test suggests no strong evidence of heteroskedasticity for the key independent variables. CEO Duality ( $p \approx 0.066$ ), CEO Ownership ( $p \approx 0.434$ ), and CEO Tenure ( $p \approx 0.885$ ) all have p-values above the 5% significance level, indicating homoskedastic residuals with respect to these regressors under the applied procedure.

Although the intercept term (C) shows a p-value below 1%, this does not invalidate the model; instead, it points to some variability in the constant term that can be handled through robust standard errors. Overall, the results do not point to a severe heteroskedasticity problem for the explanatory variables.

**3.6 Model Selection: Chow, Hausman, and LM Tests**

The panel model choice among pooled OLS, Fixed Effects (FE), and Random Effects (RE) is guided by the series of tests summarized in Table 6.

Table 6. Chow, Hausman, and LM Test Results

Selection Test	Statistic / Option	p-value
Chow test	Cross-section F	0.0000
	Cross-section Chi-square	0.0000
Hausman test	Cross-section random	0.4510
LM test (Breusch–Pagan)	Both (random effects)	0.0000
<b>Model selection</b>	<b>Preferred estimator</b>	<b>REM</b>

The Chow test (Cross-section F and Chi-square) rejects pooled OLS in favor of a panel specification with firm-specific effects ( $p = 0.0000$ ). The Hausman test reports a p-value of 0.451, which is greater than 0.05; thus, there is no systematic difference between FE and RE estimates, and the Random Effects estimator is preferred.

The Breusch–Pagan LM test yields a p-value of 0.0000, indicating that random effects are present and that RE dominates pooled OLS. Taken together, these diagnostics clearly identify the Random Effects Model (REM) as the most appropriate specification for the data.

**3.7 Panel Regression Results**

The Random Effects estimation results for the ESG regression are shown in Table 7.

Table 7. Panel Regression Model Results (Random Effects)

Variable	Coefficient	p-value
C	-0.47283	0.0000
CEO_D	0.12674	0.3257
CEO_O	-1.48458	0.1351
CEO_T	0.01238	0.0469
<b>R-squared</b>	<b>0.2028</b>	

Under the selected Random Effects specification, the three CEO Power indicators exhibit differentiated links with ESG performance. The constant term is negative and highly significant ( $C = -0.4728$ ,  $p < 0.001$ ). Substantively, this does not imply that firms have “negative ESG,” but rather that—at the reference levels of the regressors—there are systematic influences on ESG captured by the intercept, reflecting omitted firm characteristics and environmental factors not explicitly modeled (e.g., size, industry nuances, regulatory pressure, disclosure maturity).

CEO Duality (CEO\_D) has a positive but statistically insignificant coefficient ( $\beta \approx 0.127$ ,  $p \approx 0.326$ ). Moving from no duality to duality is associated, on average, with an increase of about 0.127 ESG units (roughly 12.7 points on a 0–100 scale). However, given the large standard error and p-value above conventional thresholds, the effect cannot be distinguished reliably from zero, suggesting that any governance benefits from CEO dual roles may be offset by monitoring risks in terms of ESG outcomes.

CEO Ownership (CEO\_O) shows a negative, though not statistically significant, coefficient ( $\beta \approx -1.485$ ,  $p \approx 0.135$ ). If CEO ownership is measured as a proportion (0–1), a 1-percentage-point increase in CEO shareholding (0.01) would correspond to an approximate decline of 0.0148 in ESG (about -1.48 points on a 0–100 scale). The sign is consistent with a scenario where higher owner–manager alignment may focus more strongly on financial or operational objectives than on broader sustainability initiatives, but the statistical evidence remains inconclusive.

CEO Tenure (CEO\_T) is the only variable that is positive and statistically significant at the 5% level ( $\beta \approx 0.0124$ ,  $p \approx 0.047$ ). Each additional year of tenure is associated with an increase of about 0.0124 in the ESG score (roughly 1.24 points on a 0–100 scale), holding other variables constant. Over a plausible tenure shift (for example, from 4 to 8 years), this would translate into an ESG improvement of nearly 5 points. This finding is

compatible with upper-echelons and experience-based arguments: longer-serving CEOs have more time to understand stakeholder expectations and to implement sustainability agendas.

The R-squared of approximately 0.203 indicates that the three CEO Power dimensions jointly explain about 20% of the variation in ESG performance in the sample. The majority of the variation (around 80%) is therefore attributable to other firm-specific, industry, and institutional factors not included in the model, which is typical in empirical ESG research where many determinants operate simultaneously.

### 3.8 Discussion

This study aims to examine the influence of CEO Power dimensions—comprising CEO Duality, CEO Ownership, and CEO Tenure—on ESG performance among infrastructure-sector companies listed on the IDX during 2019–2023. Using panel-data modeling and Random Effects estimation with robust standard errors, the model is jointly significant, and the R-squared of approximately 0.20 indicates that CEO Power variables explain about one-fifth of the variation in ESG. The remaining variation is driven by other firm-level and institutional factors, highlighting that while CEO leadership matters, external forces such as regulation, investor pressure, and organizational culture also play important roles in shaping ESG outcomes (Bhat et al., 2023; Zhu et al., 2025).

The coefficient for CEO Duality is positive (0.1267) but statistically insignificant ( $p = 0.3257$ ), suggesting that firms in which the CEO also serves as board chair tend to exhibit slightly higher ESG scores, although this effect cannot be confirmed empirically. This ambiguous result is consistent with the mixed evidence in the literature. From an agency-theory viewpoint, CEO duality is associated with weaker board oversight and a higher risk of unmonitored decision-making. By contrast, stewardship theory emphasizes potential efficiency gains from unified and faster decision-making in strategic and sustainability matters (Elsayed, 2007; Velásquez & Cortés, 2020). Empirical studies show that the impact of duality is highly contextual: strong governance mechanisms, such as independent directors and ESG or CSR committees, can mitigate the potential negative consequences of dual roles and may even facilitate more coherent ESG integration (Aricı et al., 2024; Uyar et al., 2021). Evidence from emerging markets similarly suggests that board independence and CSR structures can dampen or reshape the effect of duality on ESG performance (Bui et al., 2019). The findings of this study therefore align with the view that the influence of CEO duality on ESG is not universal but depends on the surrounding governance framework and institutional environment (Appuhami & Bhuyan, 2015; Uyar et al., 2021).

For CEO Ownership, the estimated coefficient is negative ( $-1.4846$ ) with a  $p$ -value of 0.1351,

indicating that higher CEO shareholdings tend to be associated with lower ESG performance, but the relationship is statistically insignificant. The negative sign is in line with the entrenchment hypothesis in agency theory, which argues that increasing managerial ownership can shift CEOs' orientation away from dispersed shareholder and stakeholder interests toward personal or insider interests. This shift may encourage risk-averse behavior that constrains sustainability investments or, alternatively, induce short-term decision-making that overlooks ESG in pursuit of immediate gains. By contrast, other studies highlight an alignment effect, whereby increasing ownership strengthens the congruence between CEO and shareholder interests, potentially fostering long-term performance and ESG commitments (Rath et al., 2020; Wijayanto et al., 2024).

In the Indonesian context, however, average CEO ownership in the sample is very low (around 0.28%), which weakens the relevance of the alignment mechanism. Ownership stakes that are too small may not provide sufficient incentives for CEOs to actively champion sustainability agendas, while very high ownership levels could amplify entrenchment risks. Prior research emphasizes that the impact of ownership on ESG is highly contextual and shaped by governance arrangements, transparency, and the distribution of power within firms (Rath et al., 2020; Wijayanto et al., 2024). The present findings suggest that the hypothesized positive effect of CEO ownership on ESG is not universally supported; instead, the direction and strength of the relationship depend on institutional context and firm-level governance characteristics.

In contrast to the other dimensions, CEO Tenure has a positive and statistically significant coefficient (0.0123;  $p = 0.0469$ ), indicating that longer-serving CEOs are associated with higher ESG performance. This result supports the hypothesis that CEO tenure is positively related to ESG outcomes and underscores the role of tenure as a strategic factor shaping sustainability trajectories. Consistent with Upper Echelon Theory (UET), top executives' experiences and characteristics influence corporate strategy and performance (Wang et al., 2016). Longer tenure allows CEOs to deepen their understanding of markets, refine their reading of stakeholder expectations, and identify opportunities to collaborate with regulators and investors in advancing ESG agendas (Budastra et al., 2023; Sang et al., 2024).

Evidence from Indonesia suggests that CEO tenure can enhance ESG through the design and implementation of sustainability strategies, although the relationship is moderated by governance quality and institutional conditions (Triyani et al., 2020; Triyani & Setyahuni, 2020). Cross-country studies similarly indicate that the impact of CEO traits on ESG is context-dependent and sharpened by governance mechanisms and stakeholder expectations (Triyani & Setyahuni, 2020; Wang et

al., 2016). In this study, the positive and significant association, combined with an average tenure of 6.37 years, suggests that CEOs in the sample operate within a tenure range that is conducive to ESG implementation—long enough to accumulate experience and influence, but not necessarily so long as to guarantee entrenchment.

Overall, the findings indicate that CEO Power, particularly through tenure, plays a meaningful but partial role in explaining ESG performance. The relatively modest R-squared implies that many determinants of ESG lie beyond CEO-specific attributes, including regulatory frameworks, industry norms, investor and public pressure, and internal governance structures. Nevertheless, the results highlight that stable and experienced leadership remains an important internal driver of sustainability in infrastructure firms, complementing external pressures and formal governance arrangements.

Taken together, the R-squared of 0.2027 reinforces the view that CEO Power explains only a modest share of ESG variation, with most determinants lying outside the CEO's immediate control. These may include regulatory frameworks such as Indonesia's sustainability reporting regulation (e.g., OJK Regulation No. 51/2017), industry-level norms, pressure from domestic and foreign institutional investors, and internal governance structures at the board and committee level. Nonetheless, the analysis demonstrates that CEO leadership—especially via the stability and experience embedded in tenure—remains a meaningful lever for ESG performance. In other words, successful ESG implementation in infrastructure firms requires a combination of external drivers and consistent, experienced internal leadership, rather than relying exclusively on external compliance mandates.

#### 4. Conclusion

This study investigates how CEO Power—captured through CEO Duality, CEO Ownership, and CEO Tenure—affects ESG performance among infrastructure-sector companies listed on the Indonesia Stock Exchange (IDX) over the 2019–2023 period. Using a balanced panel of 24 issuers and panel-data estimation, the model selection tests (Chow, Hausman, and LM) identify the Random Effects Model (REM) with robust standard errors as the most appropriate specification. These findings imply that H1 is supported, whereas H2 and H3 are not supported by the empirical evidence in this sample.

The empirical results show that the three CEO Power dimensions have heterogeneous relationships with ESG performance. CEO Duality carries a positive but statistically insignificant coefficient, indicating that combining the CEO and board chair roles is not systematically associated with higher or lower ESG scores in this setting. CEO Ownership exhibits a negative and insignificant relationship with ESG, suggesting that higher CEO equity stakes tend, if anything, to coincide with

lower ESG performance, although the evidence is insufficient to support strong conclusions. These patterns are broadly consistent with the mixed findings in the literature, which highlight the tension between alignment and entrenchment effects of ownership and the context-dependent impact of dual leadership roles.

In contrast, CEO Tenure has a positive and statistically significant association with ESG performance, implying that longer-serving CEOs are more likely to lead firms with stronger ESG outcomes. This finding supports the view, grounded in Upper Echelon Theory, that executive experience and leadership stability can facilitate the integration of sustainability considerations into corporate strategy, stakeholder engagement, and disclosure practices. It also suggests that, within the tenure range observed in the sample, CEOs have sufficient time to understand stakeholder expectations and institutional pressures, and to design and implement ESG initiatives.

The model explains approximately 20% of the variation in ESG performance ( $R^2 \approx 0.20$ ), indicating that CEO Power is an important but incomplete part of the ESG story. A substantial portion of ESG variation remains driven by other factors beyond the CEO's direct control, including regulatory regimes, industry characteristics, investor and societal pressure, and the broader governance architecture at the board and committee level. Even so, the results underscore that ESG success depends not only on external mandates and market forces but also on internal leadership qualities, especially the presence of experienced and relatively stable CEOs who can champion sustainability over time.

This study is subject to several limitations that open avenues for future research. First, the observation period is relatively short (2019–2023), coinciding with evolving ESG regulations and reporting practices in Indonesia. Extending the time span or incorporating pre-regulation periods could provide deeper insight into dynamics over time. Second, the focus on infrastructure-sector issuers limits generalizability; comparative studies across sectors or countries would help assess whether the patterns observed here hold in different institutional settings. Third, potential endogeneity and reverse causality—for instance, high-ESG firms attracting particular types of CEOs—are not fully addressed within the current framework. Future work could employ dynamic panel methods, instrumental variables, or quasi-experimental designs to better identify causal effects and explore nonlinearities or threshold effects in CEO tenure and ownership.

Despite these limitations, the study contributes to the ESG and corporate governance literature by showing that CEO Power, particularly via tenure, matters for ESG performance in Indonesian infrastructure firms, while duality and ownership do not exhibit clear-cut effects. For practitioners and policymakers, the findings point to the importance of combining external governance and regulatory

initiatives with internal leadership development and succession planning to ensure that ESG is embedded in corporate decision-making and creates sustainable value over the long run.

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