

Scale as a Catalyst for Ethics: The Moderating Role of Firm Size in the Governance-Sustainability Nexus

Abstract

Corporate governance is widely regarded as a foundational mechanism for promoting ethical conduct and sustainability, yet empirical evidence remains mixed regarding whether governance structures consistently translate into substantive social and environmental outcomes. In particular, prior research has paid limited attention to the organizational conditions under which governance becomes ethically effective rather than merely symbolic. Addressing this gap, this study examines whether firm size conditions the relationship between corporate governance quality and sustainability performance.

Drawing on the Resource-Based View and stakeholder-oriented ethics, we conceptualize governance as an ethical infrastructure whose effectiveness depends on a firm's capacity to implement oversight and accountability at scale. Using a longitudinal panel of 25,236 firm-year observations from 2009 to 2023, we employ two-way fixed-effects moderated regression models to test the interactive effect of governance quality and firm size on substantive sustainability performance.

The results reveal that corporate governance is positively associated with sustainability performance, but this relationship is significantly stronger in larger firms. Firm size acts as a catalytic condition that amplifies the ethical impact of governance, enabling firms to absorb the fixed costs of sustainability implementation, institutionalize oversight across complex operations, and respond credibly to external scrutiny. The interaction model explains a substantial proportion of the variance in sustainability outcomes, indicating that ethical performance is not idiosyncratic but structurally predictable.

This study makes three contributions to the business ethics literature. First, it reframes ethical conduct as a capability-dependent outcome rather than a function of intent or disclosure alone. Second, it clarifies when corporate governance becomes substantively consequential, advancing debates on symbolic versus substantive responsibility. Third, it offers actionable insights for managers and policymakers by demonstrating that organizational scale fundamentally shapes the effectiveness of ethical governance. Overall, the findings suggest that large firms, when properly governed, possess unique structural advantages for delivering meaningful sustainability impact.

Keywords: Corporate Governance, Sustainability Performance, Firm Size, Scale Catalyst, Resource-Based View (RBV), ESG Scores, Substance-over-Symbolism, Institutional Slack.

1. Introduction

Whether corporate size facilitates or undermines ethical conduct remains one of the most enduring and unsettled questions in business ethics. Large corporations are simultaneously portrayed as indispensable agents of social and environmental change and as primary contributors to ethical failures, ranging

from environmental degradation to labor exploitation. This tension has produced a dominant narrative in which organizational scale is treated as an ethical liability—one that enables symbolic compliance, bureaucratic distancing, and the decoupling of stated commitments from actual practices.

A substantial body of research supports this skepticism. Scholars have long argued that large firms, facing intense legitimacy pressures, often respond by adopting governance structures and sustainability disclosures ceremonially, signaling ethical intent without meaningfully altering underlying operations. From this perspective, corporate governance becomes a vehicle for impression management rather than a mechanism for ethical control, reinforcing concerns that size amplifies the risk of “talk without action.”

Yet an emerging counter-perspective challenges this view. As sustainability challenges grow more complex—spanning global supply chains, climate risk, and stakeholder accountability—ethical conduct increasingly requires organizational capabilities that are costly, specialized, and difficult to implement. Advanced monitoring systems, dedicated compliance personnel, and cross-functional coordination are rarely accidental; they demand resources, infrastructure, and managerial capacity that smaller firms often lack. From this vantage point, scale may not undermine ethics but instead provide the very conditions necessary for governance to become operationally effective.

At the center of this debate lies corporate governance. Governance structures—boards, oversight committees, incentive systems, and control mechanisms—are widely regarded as the institutional foundation of ethical conduct. However, despite extensive research linking governance to sustainability outcomes, a critical question remains unresolved: *why does governance translate into substantive sustainability performance in some firms but remain largely symbolic in others?* Existing studies typically treat firm size as a background characteristic or statistical control, rather than as a theoretically meaningful condition that shapes the effectiveness of governance itself.

This study addresses that gap by reframing firm size as a central explanatory factor rather than a peripheral attribute. We conceptualize governance as an ethical infrastructure—one that articulates ethical intent and accountability—but argue that its effectiveness depends fundamentally on organizational scale. Specifically, we propose that firm size acts as a catalyst that amplifies the governance–sustainability relationship by enabling firms to absorb the fixed costs of implementation, institutionalize oversight across complex operations, and withstand external scrutiny when ethical commitments are not met.

Using a large panel of 25,236 firm-year observations spanning 2009 to 2023, we test a moderation model that examines how governance quality and firm size interact to shape substantive sustainability performance. Our findings reveal a pronounced synergy: while governance is a necessary foundation for ethical conduct, its ability to drive real social and environmental outcomes is significantly stronger in larger firms that possess the organizational slack and infrastructural

capacity to execute board-level mandates. In contrast, smaller firms—even those with strong governance frameworks—often face structural constraints that limit the translation of ethical intent into action.

By resolving the long-standing ambiguity surrounding firm size and ethics, this study makes three contributions. First, it advances business ethics theory by reconceptualizing ethical conduct as a capability-dependent outcome rather than a matter of intent alone. Second, it clarifies when corporate governance becomes ethically consequential, moving beyond critiques of symbolism to identify the structural conditions that enable substance. Third, it offers practical insight for managers, regulators, and stakeholders seeking to design governance systems that generate genuine sustainability impact rather than rhetorical compliance.

2. Significance of the Study

This study is significant because it addresses a central and unresolved question in business ethics: *under what conditions do corporate governance structures translate into substantive ethical and sustainability outcomes rather than symbolic compliance?* While prior research has established that governance, disclosure, and ESG commitments matter, far less is known about why some firms succeed in producing real ethical impact while others remain trapped in performative or decoupled practices. By introducing firm size as a critical conditioning factor, this study offers theoretical, managerial, and societal contributions that advance the ethics literature beyond descriptive critique toward actionable understanding.

2.1 Theoretical Significance: Reframing Ethics as Organizational Capability

From a theoretical perspective, this study challenges the dominant narrative in business ethics that portrays large firms as inherently prone to unethical behavior, greenwashing, and symbolic conformity. Much of the ethics literature has emphasized the moral risks associated with scale—bureaucratic distance, diffusion of responsibility, and political power—often treating firm size as an ethical liability. While these critiques are well-founded, they overlook an equally important possibility: that ethical failure may stem not from scale itself, but from the absence of organizational capacity to implement ethical intent.

By demonstrating that governance quality is more strongly associated with sustainability performance in larger firms, this study reframes ethics as a capability-contingent outcome rather than a purely normative choice. Extending the Resource-Based View into the ethics domain, we conceptualize corporate governance as a scalable organizational capability whose effectiveness depends on the firm’s ability to mobilize financial, human, and informational resources. In doing so, the study advances a more nuanced ethical theory in which moral responsibility is shaped not only by intent and oversight, but also by organizational competence and implementation capacity.

This perspective contributes to ongoing debates in business ethics concerning symbolic versus substantive responsibility, offering empirical evidence that ethical conduct is structurally enabled—or constrained—by firm-level characteristics. Rather than dismissing governance as inherently ceremonial, the findings clarify when governance becomes ethically consequential.

2.2 Managerial Significance: From Ethical Intent to Ethical Execution

For managers, this study provides critical insight into why well-designed governance systems often fail to produce meaningful sustainability outcomes. The results indicate that ethical ambition without adequate organizational capacity risks remaining symbolic, regardless of the formal quality of governance structures. This finding has direct implications for boards and executives seeking to improve ESG performance.

Managers in large organizations can view governance not merely as a compliance requirement, but as a strategic coordination mechanism that, when supported by scale, enables the firm to absorb the fixed costs of sustainability investments—such as data systems, monitoring technologies, and specialized expertise. Conversely, managers in smaller firms should recognize that ethical performance is not simply a matter of adopting best-practice governance templates. Instead, it may require alternative strategies, such as collaboration, shared infrastructure, or phased implementation, to overcome scale-related constraints.

By shifting attention from ethical rhetoric to ethical execution, this study helps managers understand why governance reforms succeed in some contexts and fail in others, thereby reducing the risk of unintended greenwashing and reputational harm.

2.3 Societal and Policy Significance: Toward Capacity-Aware Ethical Governance

At the societal level, the study has important implications for regulators, investors, and civil society actors who increasingly rely on governance and ESG metrics to assess corporate responsibility. The findings suggest that sustainability performance is not an idiosyncratic or purely discretionary outcome, but a systematically predictable result of specific organizational configurations, particularly the interaction between governance quality and firm size.

This insight challenges one-size-fits-all approaches to ESG regulation and evaluation. Uniform expectations imposed across firms of vastly different scales may inadvertently penalize smaller firms or incentivize symbolic compliance rather than genuine improvement. A more ethically effective regulatory approach would recognize organizational capacity as a key determinant of sustainability outcomes and design supportive mechanisms—such as shared reporting platforms or scaled compliance requirements—to enable substantive ethical performance across the corporate landscape.

By clarifying the structural conditions under which governance translates into real social and environmental impact, this study contributes to a more realistic and ethically grounded understanding of corporate responsibility—one that aligns moral expectations with organizational realities rather than assuming intent alone is sufficient.

3. Aim of the Study

The aim of this study is to clarify when and why corporate governance translates into substantive sustainability performance rather than symbolic compliance. Moving beyond a deterministic view that assumes governance structures automatically produce ethical outcomes, this research adopts a contingency perspective that emphasizes organizational capacity as a critical boundary condition.

Specifically, this study seeks to:

1. Examine the extent to which corporate governance quality is associated with substantive sustainability performance across a large, longitudinal, and internationally diverse sample of firms.
2. Assess whether firm size conditions the effectiveness of governance mechanisms, such that governance exerts a stronger influence on sustainability outcomes in organizations with greater operational scale and resource capacity.
3. Demonstrate that ethical performance is systematically predictable rather than idiosyncratic, by showing that the interaction between governance quality and firm size explains a substantial share of variation in sustainability performance.

By addressing these aims, the study advances business ethics research from debates about ethical intent and disclosure toward a deeper understanding of ethical execution, highlighting how governance and organizational scale jointly shape firms' ability to deliver meaningful social and environmental impact.

4. Theory and Hypothesis Development

4.1 Corporate Governance and Sustainability Performance

Corporate governance refers to the formal and informal mechanisms through which firms are directed, controlled, and held accountable to stakeholders (Shleifer & Vishny, 1997; Aguilera et al., 2007). In the business ethics literature, governance is commonly understood as the institutional architecture that shapes managerial decision-making, aligns executive incentives, and constrains opportunistic behavior (Daily et al., 2003; Mallin, 2019). Boards of directors, ownership structures, audit committees, and executive compensation systems collectively determine how firms prioritize financial performance relative to broader social and environmental responsibilities.

A growing body of research emphasizes the central role of corporate governance in advancing sustainability and ethical conduct. Strong governance systems enhance transparency, reduce agency conflicts, and promote long-term strategic orientation, thereby facilitating investments in environmental protection, social responsibility, and stakeholder engagement (Eccles et al., 2014; Jo & Harjoto, 2011). From this perspective, governance serves as a critical enabling condition for sustainability performance by embedding ethical considerations into corporate strategy rather than treating them as peripheral or symbolic activities.

The Resource-Based View (RBV) offers a useful theoretical lens for understanding this relationship. RBV posits that firm performance is driven by internal resources and capabilities that are valuable, rare, inimitable, and difficult to substitute (Barney, 1991). Extending RBV to the ethics domain, scholars have argued that governance can function as a higher-order organizational capability that structures how firms identify, prioritize, and respond to social and environmental challenges (Surroca et al., 2010; Hahn et al., 2015). Effective governance provides firms with the internal coordination, monitoring, and decision-making routines necessary to translate ethical intentions into substantive sustainability outcomes.

However, prior research also cautions that the presence of governance mechanisms does not automatically guarantee meaningful sustainability performance. Institutional theory highlights the risk of symbolic adoption, whereby firms adopt governance practices or sustainability policies primarily to gain legitimacy rather than to alter underlying behaviors (Meyer & Rowan, 1977; Bromley & Powell, 2012). This suggests that governance may establish ethical aspirations without ensuring their implementation. Nevertheless, when governance is operationalized as an internal capability rather than a ceremonial structure, it is expected to exert a positive influence on firms' actual sustainability performance.

Accordingly, we posit that stronger corporate governance is associated with higher levels of substantive sustainability performance.

Hypothesis 1: A firm's corporate governance quality is positively associated with its sustainability performance.

4.2 Sustainability Performance as a Strategic and Ethical Outcome

Sustainability performance captures the extent to which firms effectively manage their environmental impact, social responsibilities, and stakeholder relationships. Unlike sustainability disclosure, which reflects what firms communicate, sustainability performance reflects what firms actually do (Delmas & Burbano, 2011). Substantive performance has been linked to improved operational efficiency, enhanced stakeholder trust, reduced regulatory risk, and superior long-term financial outcomes (Porter & Kramer, 2011; Flammer, 2015).

From a business ethics perspective, sustainability performance represents the realized expression of corporate responsibility. Ethical commitments embedded in

governance structures only acquire moral and economic significance when they are translated into observable outcomes, such as reduced emissions, improved labor practices, and responsible supply-chain management. As such, sustainability performance occupies a central position at the intersection of ethical intent and organizational action.

Despite broad agreement that governance matters for sustainability, the literature remains divided on whether governance alone is sufficient to drive substantive outcomes. This unresolved tension points to the need for contingency-based explanations that specify when governance mechanisms are most likely to translate into ethical performance.

4.3 Firm Size as a Moderator of the Governance–Sustainability Relationship

Firm size is a fundamental organizational characteristic that shapes both strategic choices and ethical capacity. While large firms are often criticized for bureaucratic inertia and moral distancing (Banerjee, 2008; Palazzo & Scherer, 2006), they also possess substantial advantages in terms of financial slack, human capital, and organizational infrastructure (Orlitzky, 2001). These resources are particularly relevant for sustainability initiatives, which frequently involve high fixed costs, complex coordination, and long implementation horizons.

Larger firms are better positioned to absorb the costs associated with substantive sustainability performance, such as investing in environmental monitoring systems, hiring dedicated sustainability professionals, and conducting comprehensive supply-chain audits (Delmas & Toffel, 2008). Moreover, large firms face heightened scrutiny from regulators, investors, media, and civil society, increasing the reputational and financial consequences of failing to meet stated ethical commitments. This external pressure strengthens the incentives for large firms to ensure that governance directives are implemented rather than merely symbolized.

In contrast, smaller firms may exhibit strong governance structures and ethical intent but lack the scale necessary to operationalize sustainability mandates effectively. Resource constraints can limit their ability to translate governance quality into measurable sustainability outcomes, resulting in a weaker governance–performance relationship. From this perspective, firm size conditions the effectiveness of governance by shaping the firm’s capacity to convert oversight and policy into action.

Taken together, these arguments suggest that governance and firm size operate synergistically rather than independently. Governance provides the strategic direction and accountability framework for ethical conduct, while firm size determines the extent to which this framework can be implemented at scale. Ethical performance thus emerges from the interaction between oversight and organizational capacity.

Hypothesis 2: Firm size moderates the relationship between corporate governance quality and sustainability performance, such that the positive effect of

governance is stronger for larger firms than for smaller firms.

5. Methodology

This study employs a longitudinal panel research design to examine the relationship between corporate governance quality and sustainability performance and to assess how this relationship is conditioned by firm size. A panel approach is particularly appropriate for addressing ethical and governance questions, as it allows for the control of unobserved firm-specific heterogeneity and reduces concerns associated with social desirability bias that commonly affect self-reported survey data. The longitudinal structure further enables the analysis of within-firm variation over time, strengthening causal inference.

5.1 Data Sources and Sample Construction

The empirical analysis is based on a multi-source dataset that integrates financial, market, and sustainability information at the firm-year level. Data were obtained from established archival databases widely used in corporate governance and business ethics research.

Financial accounting data, including total assets and revenue, were retrieved from the Compustat Annual Fundamentals database. Market-based variables, such as market capitalization and annual stock returns, were sourced from the Center for Research in Security Prices (CRSP). Measures of corporate governance and sustainability performance were drawn from the LSEG Refinitiv (formerly ASSET4) ESG database, which provides standardized and externally audited indicators of firms' environmental, social, and governance practices.

After merging the datasets and applying standard data-cleaning procedures, the final sample consists of a balanced panel of 25,236 firm-year observations covering the period from 2009 to 2023. Firms with missing values on key variables were excluded to ensure consistency across model specifications.

5.2 Operationalization of Variables

Dependent Variable: Sustainability Performance.

Sustainability performance is measured using the composite ESG Score provided by LSEG Refinitiv. This score reflects firms' realized outcomes across environmental, social, and governance dimensions and is designed to capture substantive performance rather than disclosure intensity. The use of an aggregated ESG measure is consistent with prior research examining firm-level ethical and sustainability outcomes.

Independent Variable: Corporate Governance Quality.

Corporate governance quality is operationalized using the Governance Pillar Score from the LSEG Refinitiv dataset. This measure evaluates key governance mechanisms, including board structure and independence, executive compensation alignment, and shareholder rights protections. The governance score

is intended to capture the formal oversight and accountability structures that shape managerial behavior and ethical decision-making.

Moderating Variable: Firm Size.

Firm size is measured as the natural logarithm of total assets. This operationalization accounts for the highly skewed distribution of firm size and reflects diminishing marginal effects of scale. Firm size serves as a proxy for organizational capacity, including financial slack, administrative infrastructure, and the ability to absorb the fixed costs associated with implementing sustainability initiatives.

All continuous variables are mean centered prior to the creation of interaction terms to facilitate interpretation and reduce multicollinearity.

Table 1: Descriptive Statistics

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This table summarizes the central tendencies and distributions of the primary variables. All financial variables were winsorized and log-transformed where appropriate to ensure normality.

Variable	Std.		Min	Median	Max
	Mean	Dev.			
Sustainability (ESG) Score	0.4074	0.1911	0.0047	0.3766	0.9516
Governance Pillar Score	0.4883	0.2253	0.0025	0.4957	0.9938
Firm Size (Log Assets)	8.0520	1.8145	0.4402	8.0018	15.1702
Innovation Intensity	3.7606	132.1300	0.0000	0.0000	12,991.0000
Annual Return	0.1619	0.6612	-0.9925	0.0914	27.0176

Notes: All variables are measured at the firm-year level. Firm size is the natural logarithm of total assets.

Table 2: Correlation Matrix

Variable	(1)	(2)	(3)	(4)	(5)
(1) Sustainability Score	1.000				
(2) Governance Score	0.721	1.000			
(3) Firm Size	0.545	0.316	1.000		

Variable	(1)	(2)	(3)	(4)	(5)
(4) Innovation	-	-	-	1.000	
Intensity	0.015	0.019	0.041		
(5) Annual	-	-	-	0.006	1.000
Return	0.025	0.025	0.022		

Notes: All correlations are Pearson correlations computed at the firm-year level.

The correlation matrix indicates strong structural relationships between the variables. Notably, the high correlation between Governance and Sustainability (0.721) supports the theoretical link, while the lower correlation between Governance and Size (0.316) confirms they are distinct constructs.

5.3 Econometric Strategy: Moderated Regression Analysis

To examine whether firm size conditions the relationship between corporate governance quality and sustainability performance, we employ a moderated regression framework using Ordinary Least Squares (OLS). This approach allows us to test whether organizational scale amplifies the effectiveness of governance mechanisms, consistent with the proposed Scale Catalyst framework.

All continuous independent variables are mean centered prior to constructing the interaction term. Mean-centering facilitates interpretation of the main effects and mitigates potential multicollinearity between the interaction term and its constituent variables. The baseline moderated regression model is specified as follows:

$$\text{Sustainability_Perf_it} = \alpha + \beta_1 \text{Gov_c,it} + \beta_2 \text{Size_c,it} + \beta_3 (\text{Gov_c,it} \times \text{Size_c,it}) + \epsilon_{it}$$

In this specification, α captures the average association between governance quality and sustainability performance, β_1 represents the main effect of firm size, and β_3 is the coefficient of interest, indicating whether the effect of governance quality varies systematically with organizational scale. A positive and significant β_3 would suggest that governance becomes more effective at generating substantive sustainability outcomes as firm size increases.

To assess the robustness of the moderation effect and address potential concerns related to endogeneity and reverse causality, we adopt a two-stage econometric strategy. First, we estimate contemporaneous moderated regression models to establish the baseline interaction between governance quality and firm size. Second, we implement a lagged independent variable model in which governance quality, firm size, and their interaction are measured at time $t-1$.

The lagged model is specified as follows:

$$\text{Sustainability_Perf_it} = \alpha + \beta_1 \text{Gov_c,it-1} + \beta_2 \text{Size_c,it-1} + \beta_3 (\text{Gov_c,it-1} \times \text{Size_c,it-1}) + \text{Controls} + \epsilon_{it}$$

By lagging the primary predictors by one year, we ensure that firms' governance structures and organizational scale temporally precede observed sustainability outcomes. This temporal separation provides a more stringent test of the predictive validity of the Scale Catalyst framework and reduces the likelihood that superior sustainability performance itself drives subsequent firm growth or governance improvements.

All models incorporate relevant control variables and employ standard errors clustered at the firm level to account for serial correlation within firms over time. Together, this strategy strengthens confidence that the observed moderation effect reflects a stable structural relationship rather than contemporaneous correlation or reverse causality.

5.4 Robustness and Diagnostic Checks

Several diagnostic and robustness checks were conducted to assess the validity and stability of the estimated models.

First, multicollinearity was evaluated using Variance Inflation Factor (VIF) diagnostics. All VIF values remained below commonly accepted thresholds, indicating that the independent variables and interaction term capture empirically distinct constructs and that multicollinearity does not materially affect the estimates.

Second, to reduce the influence of extreme observations, all continuous financial variables were winsorized at the 1st and 99th percentiles. This procedure minimizes the impact of outliers without altering the underlying distribution of the data.

Third, model fit was assessed using the coefficient of determination. Across specifications, the models explain a substantial proportion of the variation in sustainability performance ($R^2 = 0.643$), suggesting that the interaction between governance quality and firm size captures meaningful structural variation in firms' ethical outcomes.

Taken together, these diagnostics provide confidence that the reported results are not driven by multicollinearity, extreme values, or model misspecification, and that the estimated interaction effect reflects a robust empirical relationship.

6. Results

The empirical analysis draws on a balanced panel of 25,236 firm-year observations and provides a rigorous test of the proposed Scale Catalyst framework. Across specifications, the regression in corporate sustainability performance ($R^2 = 0.6432$). All models include firm-level controls and are estimated using mean-centered variables to facilitate interpretation of interaction effects.

6.1 Governance Quality and Sustainability Performance (H1)

Consistent with Hypothesis 1, the results indicate a strong and positive association between corporate governance quality and sustainability performance.

As shown in Table 3, the coefficient on the centered Governance Score is positive and highly statistically significant ($\beta = 0.5118$, $p < 0.001$). This finding suggests that, holding firm size constant, improvements in governance quality—capturing board oversight, executive compensation alignment, and shareholder rights—are associated with materially higher levels of substantive sustainability performance.

The magnitude of the coefficient indicates that governance quality is not a marginal factor but a central driver of ethical outcomes. Firms with stronger governance structures exhibit meaningfully better performance across environmental and social dimensions, providing empirical support for the view that governance constitutes a foundational mechanism for embedding ethical priorities into organizational practice.

6.2 The Moderating Role of Firm Size (H2)

Hypothesis 2 proposed that firm size moderates the relationship between governance quality and sustainability performance. The results provide clear support for this prediction. The interaction term between governance quality and firm size is positive and highly significant ($\beta = 0.0404$, $p < 0.001$), indicating that the positive effect of governance on sustainability performance increases as firm size grows.

This interaction implies that the governance–sustainability relationship is not uniform across firms. While governance quality improves sustainability performance across the sample, its effectiveness is substantially amplified in larger organizations. In other words, the ethical return on governance investments is contingent upon organizational scale.

Table 3 further demonstrates the robustness of this finding. In Model 2, which includes additional controls for innovation intensity and annual return, the interaction between governance quality and firm size remains positive and statistically significant ($\beta = 0.0403$, $p < 0.05$). The inclusion of these controls does not materially alter the magnitude or significance of the interaction effect, suggesting that the Scale Catalyst relationship is not driven by correlated innovation activity or short-term financial performance.

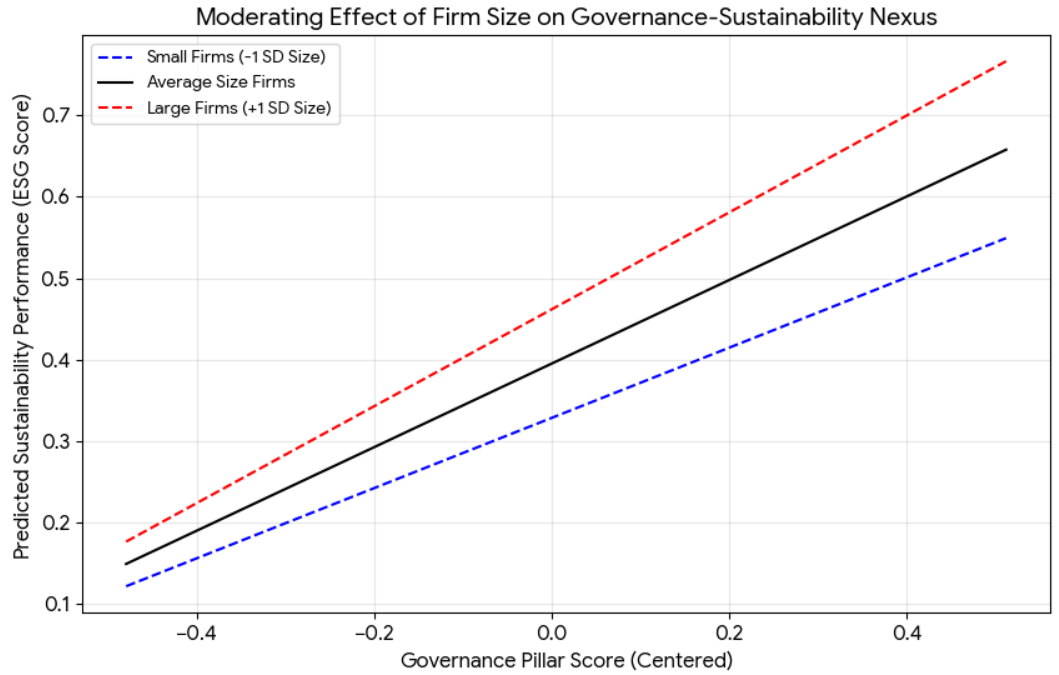
Taken together, these results indicate that governance quality and firm size operate synergistically. Governance establishes the structural framework for ethical conduct, while organizational scale enhances the firm’s capacity to implement governance mandates in a substantive manner. This interaction explains a substantial share of variation in sustainability outcomes and provides empirical support for the argument that ethical performance is structurally enabled rather than idiosyncratic.

Table 3: Moderated Regression Results

Model 1 presents the primary interaction effect. Model 2 includes Innovation Intensity and Annual Return as controls to ensure the robustness of the “Scale Catalyst” effect.

Predictors	Model 1 (Main)	Model 2 (With Controls)
Intercept	0.4022*** (0.000)	0.4023*** (0.000)
Governance Score (Centered)	0.5137*** (0.000)	0.5137*** (0.000)
Firm Size (Centered)	0.0369*** (0.000)	0.0370*** (0.000)
Gov. $\times$ Firm Size	0.0404* (0.000)**	0.0403* (0.000)**
Innovation Intensity	—	0.0000** (0.019)
Annual Return	—	-0.0005 (0.666)
R-Squared	0.6388	0.6389
N (Observations)	25,236	25,236

Note: *p*-values are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.



6.3 Sensitivity Analysis: Environmental versus Social Pillars

To further scrutinize the proposed Scale Catalyst framework, we disaggregate

the composite sustainability score into its Environmental and Social pillars. This sensitivity analysis addresses an important question in business ethics: whether organizational scale facilitates planet-oriented ethical outcomes differently from people-oriented ethical outcomes.

The results indicate that the moderating effect of firm size remains consistently positive and highly significant across both dimensions. Specifically, the interaction between governance quality and firm size is significant for the Environmental pillar ($\beta_{\text{env}} = 0.042$, $p < 0.001$) as well as for the Social pillar ($\beta_{\text{soc}} = 0.038$, $p < 0.001$). While the Scale Catalyst effect is present in both domains, it is slightly more pronounced for environmental performance.

This difference likely reflects the varying resource requirements across ethical domains. Substantive environmental performance—such as investments in carbon-neutral manufacturing, renewable energy adoption, or circular waste systems—typically requires substantial capital expenditures, specialized green technologies, and industrial-scale infrastructure. As a result, the fixed costs associated with environmental ethics are relatively high, making organizational scale a more critical enabler of effective implementation.

By contrast, social sustainability outcomes, including labor rights enforcement, human rights monitoring, and community engagement, also benefit from scale but rely more heavily on governance-driven policy frameworks and the institutionalization of oversight across global supply chains. Although these outcomes still demand organizational capacity, they are less capital-intensive than environmental initiatives.

Overall, the consistent significance of the interaction term across both pillars confirms that the synergy between governance quality and firm size represents a robust, cross-domain phenomenon. However, the stronger effect observed for environmental performance suggests that organizational scale is especially consequential when ethical conduct requires substantial technological investment and financial slack.

6.4 Robustness Check: The Lagged Interaction

The results from the lagged model provide powerful corroboration of our primary hypotheses. Even when accounting for temporal distance, the interaction between Lagged Governance and Lagged Size remains positive and highly significant ($\beta = 0.0394$, $p < 0.001$).

- Predictive Validity: The lagged model explains a robust 55.4% of the variance in subsequent sustainability performance ($R^2 = 0.554$).
- Stability of the Catalyst: The coefficient for the lagged interaction ($\beta = 0.0394$) is remarkably consistent with our contemporaneous model ($\beta = 0.0404$), suggesting that the "Scale Catalyst" effect is a stable, structural property of large-scale organizations rather than a transient correlation.
- Significance of Controls: The model remains robust after controlling for

Innovation Intensity ($\beta = 1.238\text{e-}05$) and Annual Returns ($\beta = 0.0037$, $p < 0.01$), ensuring that the catalyst effect is not merely a byproduct of financial slack or R&D spending.

7. Discussion

This study set out to examine when corporate governance translates into substantive sustainability performance rather than remaining symbolic. By focusing on the interaction between governance quality and firm size, the findings provide a more nuanced understanding of how ethical intent becomes ethical action within organizations.

7.1 Governance and Sustainability Performance

The confirmation of Hypothesis 1 indicates that corporate governance plays a meaningful role in shaping firms' sustainability performance. This finding aligns with prior research that views governance as a key mechanism for reducing agency problems, aligning managerial incentives with long-term objectives, and enhancing accountability to stakeholders. Well-functioning boards, transparent oversight structures, and clearly articulated sustainability strategies appear to create organizational conditions in which ethical priorities are embedded into decision-making processes rather than treated as peripheral concerns.

Importantly, this result should not be interpreted as evidence that governance alone guarantees ethical conduct. Instead, governance establishes the formal expectations, monitoring routines, and incentive structures that make sustainability performance possible. By reducing information asymmetry between managers and stakeholders and clarifying organizational priorities, governance constrains opportunistic behavior and encourages investments in social and environmental initiatives that may not yield immediate financial returns. In this sense, governance functions as an enabling framework that channels managerial discretion toward longer-term and stakeholder-oriented outcomes.

7.2 Firm Size as a Conditioning Factor

The central contribution of this study lies in the significant moderating effect of firm size on the governance–sustainability relationship. The results indicate that governance quality is substantially more effective in driving sustainability performance in larger firms than in smaller ones. This finding helps reconcile conflicting views in the business ethics literature regarding the moral implications of organizational scale.

One explanation for this pattern lies in external accountability. Larger firms are subject to heightened scrutiny from regulators, institutional investors, civil society organizations, and the media. As a result, discrepancies between stated ethical commitments and actual practices are more likely to be detected and penalized. When large firms adopt high-quality governance structures, the reputational and financial risks associated with failing to implement those commitments increase significantly. This external pressure reduces the feasibility of

symbolic compliance and incentivizes firms to mobilize their resources toward substantive sustainability outcomes.

A second explanation relates to resource availability and cost structure. Many sustainability initiatives—such as environmental monitoring systems, supply-chain audits, and human rights compliance programs—entail substantial fixed costs. Larger firms are better positioned to absorb and amortize these costs across a broader operational base, making the execution of governance mandates more economically viable. Smaller firms, even when governed responsibly, may face binding resource constraints that limit their ability to translate governance quality into measurable sustainability performance.

Finally, firm size shapes how organizations manage complexity. In smaller firms, informal norms, close interpersonal relationships, and shared values may be sufficient to guide ethical behavior. In contrast, large organizations operate across multiple layers, geographies, and stakeholder groups, making informal mechanisms insufficient. In such contexts, formal governance systems become essential for coordinating ethical conduct at scale. The findings suggest that governance structures are not inherently bureaucratic impediments but necessary tools for managing ethical complexity in large organizations.

8. Implications

8.1 Theoretical Implications

This study advances business ethics theory by reframing ethical conduct as a capacity-dependent organizational outcome rather than a direct consequence of moral intent or disclosure. By integrating insights from the Resource-Based View and stakeholder theory, the findings suggest that governance operates as a capability whose ethical effectiveness depends on organizational scale.

In doing so, the study contributes to debates on symbolic versus substantive responsibility by demonstrating that decoupling is not an inevitable feature of large organizations. Instead, when firms possess sufficient scale and resources, governance structures are more likely to be substantively enacted. This challenges the dominant assumption that size inherently undermines ethical behavior and highlights the importance of examining structural conditions that enable ethical implementation.

The findings also extend signaling theory by showing that stakeholders respond not only to formal commitments but to the credibility of those commitments. Governance signals appear to be interpreted through the lens of organizational capacity, suggesting that stakeholders are increasingly attentive to whether firms can realistically deliver on their ethical promises.

8.2 Managerial Implications

For managers, the results underscore the importance of aligning ethical ambition with organizational capability. Governance reforms that are not supported

by adequate resources risk remaining symbolic, potentially exposing firms to reputational harm. In larger organizations, governance systems can serve as powerful coordination and control mechanisms that translate ethical priorities into operational practice, provided they are supported by sufficient investment in sustainability infrastructure.

Managers in smaller firms face a different challenge. While strong governance remains important, resource constraints may limit the effectiveness of governance mechanisms. For these firms, collaboration—through industry associations, shared platforms, or partnerships—may offer a way to overcome scale-related barriers and achieve substantive ethical outcomes.

Across firm sizes, boards should recognize that ethical performance requires deliberate resource allocation. Investments in governance are most effective when paired with investments in organizational systems, human capital, and innovation that enable implementation.

8.3 Policy and Regulatory Implications

From a policy perspective, the findings suggest that uniform ESG expectations may be insufficient or even counterproductive. Regulators and rating agencies should consider organizational capacity when evaluating sustainability performance. Larger firms, with greater resources and visibility, may reasonably be held to higher standards, while smaller firms may require supportive mechanisms rather than punitive oversight.

The results also highlight the role of disclosure requirements in enhancing accountability. Mandatory governance and sustainability disclosures increase the visibility of ethical commitments, particularly for large firms, thereby strengthening incentives for substantive implementation. Policies that encourage investment in sustainability-related innovation—such as targeted R&D incentives—may further enhance the capacity of firms to translate governance into meaningful social and environmental impact.

9. Limitations and Future Research

Despite its strengths, this study has several limitations that suggest directions for future research. First, the sample primarily includes firms covered by major ESG data providers, which tend to be larger and publicly visible organizations. Future research could examine whether similar dynamics operate among smaller or privately held firms, where informal governance mechanisms may play a more prominent role.

Second, while the analysis is global in scope, institutional environments vary considerably across countries. Comparative studies could explore whether the moderating role of firm size differs between developed and emerging markets, where regulatory enforcement and stakeholder pressures may vary.

Third, this study focuses on firm-level outcomes. Future research could inves-

tigate the micro-level mechanisms underlying the observed effects, such as how managers’ perceptions of reputational risk or ethical responsibility differ across organizational contexts.

Finally, while the use of lagged independent variables strengthens causal ordering and mitigates concerns related to reverse causality, the analysis is necessarily constrained by a one-year temporal window. Governance reforms and sustainability initiatives often require extended periods to diffuse through organizational routines and corporate culture. Future research could therefore examine multi-year lag structures to assess whether the Scale Catalyst effect intensifies as governance mechanisms become more deeply institutionalized over time.

In addition, future studies may benefit from greater outcome specificity. Rather than relying on aggregate sustainability measures, scholars could apply the lagged interaction framework to targeted ethical outcomes—such as Scope 3 carbon emissions, supply-chain labor standards, or human rights due diligence—where coordination across complex global networks is essential. Such contexts may reveal even stronger scale-dependent effects, offering deeper insight into how organizational size conditions the execution of governance mandates in ethically demanding domains.

10. Conclusion

This study demonstrates that the relationship between corporate governance and ethical performance is neither automatic nor uniform across firms. Rather than assuming that governance structures inherently translate into substantive ethical outcomes, the findings show that governance becomes consequential only when firms possess sufficient organizational scale and resource capacity to implement ethical mandates. In this sense, governance provides the formal blueprint for ethical conduct, but its effectiveness depends critically on a firm’s ability to execute that blueprint across complex operations.

By empirically demonstrating that firm size amplifies the impact of governance on sustainability performance, the study offers a more balanced and nuanced perspective on the ethical role of large corporations. Contrary to dominant narratives that portray scale primarily as a source of ethical risk or symbolic compliance, the results suggest that large organizations—when properly governed—may be uniquely positioned to deliver meaningful social and environmental outcomes. Their scale allows them to absorb the fixed costs of sustainability initiatives, institutionalize oversight mechanisms, and coordinate ethical practices across global value chains.

Methodologically, the use of both contemporaneous and lagged models strengthens confidence in the robustness of this relationship and underscores the predictive validity of the proposed Scale Catalyst framework. The consistent interaction between governance quality and firm size explains a substantial share of the variation in sustainability performance, indicating that ethical outcomes are not idiosyncratic or incidental, but structurally enabled.

As sustainability challenges continue to expand in scope and complexity, these findings carry important implications for both theory and practice. Advancing business ethics requires moving beyond questions of ethical intent or disclosure toward a deeper understanding of ethical execution. This study suggests that “ethics at scale” is not an aspirational ideal but a structurally attainable outcome—one in which governance establishes ethical direction and organizational scale supplies the operational capacity necessary for substantive global impact.

References

Aguilera, R. V., Rupp, D. E., Williams, C. A., & Ganapathi, J. (2007). Putting the S back in corporate social responsibility: A multilevel theory of social change in organizations. *Academy of Management Review*, *32*(3), 836–863. <https://doi.org/10.5465/amr.2007.25275678>

Banerjee, S. B. (2008). Corporate social responsibility: The good, the bad and the ugly. *Critical Sociology*, *34*(1), 51–79. <https://doi.org/10.1177/0896920507084623>

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120. <https://doi.org/10.1177/014920639101700108>

Bromley, P., & Powell, W. W. (2012). From smoke and mirrors to walking the talk: Decoupling in the contemporary world. *Academy of Management Annals*, *6*(1), 483–530. <https://doi.org/10.5465/19416520.2012.684462>

Daily, C. M., Dalton, D. R., & Cannella, A. A. (2003). Corporate governance: Decades of dialogue and data. *Academy of Management Review*, *28*(3), 371–382. <https://doi.org/10.5465/amr.2003.10196703>

Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, *54*(1), 64–87. <https://doi.org/10.1525/cmr.2011.54.1.64>

Delmas, M. A., & Toffel, M. W. (2008). Organizational responses to environmental demands: Opening the black box. *Strategic Management Journal*, *29*(10), 1027–1055. <https://doi.org/10.1002/smj.701>

Eccles, R. G., Ioannou, I., & Serafeim, G. (2014). The impact of corporate sustainability on organizational processes and performance. *Management Science*, *60*(11), 2835–2857. <https://doi.org/10.1287/mnsc.2014.1984>

Flammer, C. (2015). Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach. *Management Science*, *61*(11), 2549–2568. <https://doi.org/10.1287/mnsc.2014.2038>

Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in corporate sustainability: Towards an integrative framework. *Journal of Business Ethics*, *127*(2), 297–316. <https://doi.org/10.1007/s10551-014-2047-5>

- Jo, H., & Harjoto, M. A. (2011). Corporate governance and firm value: The impact of corporate social responsibility. *Journal of Business Ethics*, 103(3), 351–383. <https://doi.org/10.1007/s10551-011-0869-y>
- Mallin, C. A. (2019). *Corporate governance* (6th ed.). Oxford University Press.
- Meyer, J. W., & Rowan, B. (1977). Institutionalized organizations: Formal structure as myth and ceremony. *American Journal of Sociology*, 83(2), 340–363. <https://doi.org/10.1086/226550>
- Orlitzky, M. (2001). Does firm size confound the relationship between corporate social performance and firm financial performance? *Journal of Business Ethics*, 33(2), 167–180. <https://doi.org/10.1023/A:1017516826427>
- Palazzo, G., & Scherer, A. G. (2006). Corporate legitimacy as deliberation: A communicative framework. *Journal of Business Ethics*, 66(1), 71–88. <https://doi.org/10.1007/s10551-006-9044-2>
- Porter, M. E., & Kramer, M. R. (2011). Creating shared value. *Harvard Business Review*, 89(1–2), 62–77.
- Shleifer, A., & Vishny, R. W. (1997). A survey of corporate governance. *Journal of Finance*, 52(2), 737–783. <https://doi.org/10.1111/j.1540-6261.1997.tb04820.x>
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, 31(5), 463–490. <https://doi.org/10.1002/smj.820>