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STRATEGIC CORPORATE GOVERNANCE MECHANISMS AND FIRM PERFORMANCE: EVIDENCE FROM INSTITUTIONAL OWNERSHIP, BOARD DIVERSITY AND AUDIT COMMITTEE STRENGTH IN EMERGING MARKETS

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Abstract

The research evaluates how corporate governance mechanisms influence firm performance and analyses the moderating effects of green innovation and firm size in an emerging market environment. Through a panel dataset of non-financial listed Pakistani firms, the analysis is based on the institutional ownership, board independence, board diversity, managerial ownership and audit committees to determine their role in accounting-based (ROA, ROE) and market-based (Tobin Q) performance. The panel regression was used where the fixed or random effects model was used on Hausman specifications and robust standard errors to overcome the internal effect of heteroskedasticity and firm heterogeneity. The results prove that the institutional ownership, diversity of the board and activity of the audit committee always contribute to the improved performance of the firm, which proves the significance of the appropriate monitoring of the external environment and the diversity of strategic views. Managerial ownership demonstrates negative impact, which favors the entrenchment hypothesis. The governance-performance relationship is greatly reinforced by green innovation, which is an important strategic capability that enhances value creation. The firm size also comes out as a positive moderator in that, bigger firms tend to be in a better position to utilize governance structure because of availability of resource and a robust internal system. The research presents in-depth evidence of the joint influence of governance effectiveness, sustainability orientation and organizational scale on the firm performance in emerging markets. These findings add to the existing body of work on governance and innovation and have implications to regulators, investors and corporate executives seeking to improve governance systems and enhance sustainable competitiveness.

INTRODUCTION

Corporate governance is significantly influential on the firm performance especially in the emerging economies where institutional frameworks still are not well developed. In most world markets, the minimum number of independent directors is at least one-third, at least three audit committee members and ownership structures are disclosed each year, as regulators of different governance bodies generally agree that agency conflicts cannot be adequately mitigated

without regulation (Hashmi et al, 2023; Makpotche et al, 2024). In Pakistan, a group of more than 530 publicly traded non-financial companies is made up of the corporate sector, with a significant portion of the companies demonstrating concentrated ownership and a lack of board diversity, which leads to the situation whereby the governance mechanisms significantly influence the operation efficiency and strategic decision-making in the companies (Aftab et al, 2024). This structural environment is relevant in highlighting the need to examine the working mechanisms of governance within this kind of a market.

The idea of institutional ownership has become popular as institutional investors tend to have 10%-40% share in publicly traded companies and have enough power to sanction managers and bring about transparency (Jiang and Bai, 2022; Qian, 2024). Previous research indicates that companies of a greater institutional presence are more prone to ensure their sustainability-oriented policies, effectively distribute resources and have a better financial standing (Fan et al, 2023; Khanchel et al, 2023). The diversity of boards typically calculated in the percentage of women directors has risen throughout the world since 12% in 2010 to over 28% in 2022, with comparable positive trends in emerging Asian markets (Hashmi et al, 2023). It is claimed that diverse boards increase the ability to innovate and the quality of decisions because they combine multidimensional skills and minimize the possibility of groupthink (Javeed et al, 2022; Larbi-Siaw et al, 2022).

Audit committees are also an effective cornerstone of governance. All over the world, the audit committees must convene at least four times a year and those that reach or surpass such an amount are expected to demonstrate higher reporting integrity and reduced risk of earnings manipulation (Shui et al, 2022; Hao et al, 2023). Emerging markets are usually volatile in regard to satisfying the frequency and the level of expertise, which serves as a natural environment to examine the extent to which audit committee characteristics determine performance results. On the contrary, in developing economies, between 5-25% of managerial ownership shares, which are considered entrenched enough to limit the advantages of external monitoring, are common (Makpotche et al, 2024; Rehman et al, 2021).

In line with the governance reforms, the world is shifting towards sustainability and green innovation has become a strategic requirement. Depending on the nature of the industry and regulatory demands, most companies are today investing between 1-5% of the annual sales in R&D and environmental innovation efforts (Ahmed et al, 2023; Le et al, 2022). Green innovation green innovation that is quantified by the number of green patents, intensity of R&D and proportion of clean-technology investment has been demonstrated to eliminate exposure to environmental risk and enhancing operational effectiveness (Liu, 2024). It is also shown that companies that have good governance are less likely to have long-term investment perspectives and innovation orientation which is supported by good governance structure, making them more inclined to engage in green innovation (Awan et al, 2023; Fan et al, 2023).

These dynamics are also influenced by firm size. Big companies, which can usually be characterized by assets of over USD 100 million, have greater resource base, developed internal controls and developed innovation infrastructures (Fianko et al, 2021; Idrees et al, 2025). Consequently, the size of the firm tends to buffer the association between governance and performance-larger firms convert the quality of governance into innovations and financial benefits better than smaller ones, whereas smaller firms are limited by the resources (Larbi-Siaw et al, 2022).

There is an improvement in the field of governance and sustainability studies, there is still a lot of gaps in the South Asian markets, especially Pakistan. The literature is largely biased with single governance variables, failure to consider sustainability or ignore interplay of firm-level capabilities. This research fills these gaps by investigating the interaction between institutional ownership, board independence, board diversity, managerial ownership and audit committee strength with the green innovation and firm size to determine the performance of firms. The study

provides novel insights in an emerging market of high relevance by relying on modern discoveries (Aftab et al, 2024; Ahmed et al, 2023; Liu, 2024; Pan et al, 2023).

LITERATURE REVIEW

Corporate Governance and Firm Performance

Corporate governance is central in improving performance of firms particularly in emerging markets where agency conflicts are enhanced by institutional weaknesses. The institutional ownership, board independence, gender and audit committee strength are among the mechanisms that impact managerial behaviour by enhancing the quality and transparency of monitoring (Hashmi et al, 2023; Makpotche et al, 2024). A number of studies show that good governance frameworks contribute to better financial performance because of information asymmetry or reduction and better strategic decision-making. Aftab et al. (2024) emphasize the idea of how investor oversight can foster responsible management and contribute to the enhancement of performance in sustainability-oriented companies. Jiang and Bai (2022) point out that institutional investors increase corporate accountability and operational efficiency when there is an improvement in governance.

The structure of boards is also another dominant determinant of performance. Specifically, gender-diverse boards also assist companies in introducing broader views, establishing creative cultures and reinforcing oversight anticipations (Javeed et al, 2022; Larbi-Siaw et al, 2022). The independence of boards also leads to a higher quality of strategic governance by decreasing the dominance of the management and increasing the transparency, especially in systems with ineffective legal enforcement (Makhloufi et al, 2023). The audit committees are additional to the board structures because they enhance the quality of reporting; more financial discipline and reduce risk-taking occur when audit committees are active and independent (Shui et al, 2022; Hao et al, 2023). These governance mechanisms are combined to establish a framework by which the interests of shareholders are protected as well as improving the performance of the firm.

Institutional Ownership and Market Monitoring

The strong external monitoring pressure that it could generate makes institutional ownership one of the most recognized influential ways of governance. The institutional investors usually have a large equity share which allows them to affect the decision-making of the managers as well as improve the performance results (Qian, 2024). Research on the emerging markets demonstrates that the greater institutional ownership is determined, the greater is the sustainability orientation and innovation-based strategies (Fan et al, 2023; Khanchel et al, 2023). Jiang and Bai (2022) also add that transparency, reduced information asymmetry and the adoption of innovations are enhanced by institutional investors site visits. This evidence brings out institutional ownership as an important aspect enhancing financial performance as well as strategy positioning, especially when faced with weak enforcement environment.

Board Independence, Board Diversity and Strategic Decision-Making

Board independence is also a strong contributor of performance in that it enhances managerial control, especially in the case of heavy insider control. Independent directors are objective monitors, mitigate the opportunism of the management and support the ethical decision-making (Makhloufi et al, 2023). It has been identified that the independent boards tend to promote the integration of innovation and sustainability, particularly in the emerging markets where the external monitoring is very poor (Chen et al, 2022; Awan et al, 2023).

Board diversity, particularly gender diversity has been a feature that has been at the fore in terms of governance aspects that predetermine the strategic outcomes. Having varied boards enhances diversity in expertise, views and sensitivity of ethics balancing the decision and improving performance (Hashmi et al, 2023). Gender-diverse boards, studies like Javeed et al. (2022) and Larbi-Siaw et al. (2022) demonstrate that these boards are more supportive of innovation, environmental initiatives and risk mitigation strategies. This

improves both market-based and operational performance indicators.

Managerial Ownership and Entrenchment Effects

Managerial ownership has two impacts on the performance of firms. Even though the alignment theory implies that increased shareholder insider ownership can harmonise the interests of managers and shareholders, numerous studies, in emerging markets, have shown the entrenchment effect, in which excessive insider power leads to low transparency and favorable self-serving behaviour (Makpotche et al, 2024; Rehman et al, 2021). In such situations, high managerial ownership tends to undermine external monitoring and innovation and adoption of sustainability. Due to the tendency of ownership concentration and the lack of minority protection that is characteristic of emerging markets, managerial entrenchment has more adverse effects in comparison to the developed economy.

The audit committees are important governance bodies that promote quality of financial reporting, minimize earnings manipulation and build investor confidence. Research shows that bigger audit committees or those with more frequent meetings are likely to have higher oversight capacity and as a consequence, they will have better governance and performance (Shui et al, 2022). Hao et al. (2023) discover that companies that have stronger audit structures perform well in terms of financial performance because they have a better monitoring of internal controls, policy performance and risk management. The findings are mostly applicable in emerging markets where the weaker institutional enforcement is offset by the role played by the audit committees.

Green Innovation and Organizational Performance and Firm Size as a Strategic Resource and Moderator

Regulatory pressures, environmental risks and stakeholder expectations have made green innovation a strategic requirement as firms is under pressure. In many studies, green innovation (quantified by the intensity of R&D, environmental patents and resource efficient technologies) increases the environmental performance as well as financial performance (Ahmed et al, 2023; Le et al, 2022). Awan et al. (2023) prove that green innovation decreases the inefficiency of operations and enhances sustainable growth, whereas Liu (2024) states that green innovation decreases risk exposure and improves the long-term firm value.

Another strong part of green innovation is the competitive positioning, which allows the company to differentiate and adhere to the tightening regulations (Fan et al, 2023; Pan et al, 2023). Literature repeatedly indicates that companies with good governance practices tend to put more resources in the green area of innovation, as good governance facilitates long-term investments as well as resource allocation decisions, in line with the objectives of sustainability (Idrees et al, 2025; Khanchel et al, 2023).

Firm size is one more factor that has been extensively researched as one of the impacts on governance efficacy. The bigger companies enjoy higher financial resources, reputation and technological superiority and are able to implement stronger governance frameworks and innovation initiatives (Fianko et al, 2021). Research indicates that big companies are more able to transform the inputs of governance to performance outcomes because of the higher quality of internal control systems and higher levels of scrutiny by investors (Idrees et al, 2025). Larbi-Siaw et al. (2022) also conclude that innovation can more effectively help larger companies to stand the competitive forces and market turbulence because of sustainability practices. These findings support use of firm size as a moderator in the relation of governance-performance.

METHODOLOGY

Research Design

This is a quantitative, explanatory, panel-based research design that aims to examine the role of the corporate governance mechanisms on the performance of firms in an emerging market environment. The design enables the analysis to measure cross-sectional as well as time-series changes in the governance structures and

performance indicators. With the multiple regression models, the study determines direct effects, interaction effects as well as the moderating effects of green innovation and firm size. The design is especially suitable in terms of the governance studies since it takes unobservable firm-specific traits that, in any case, do not change with time and would otherwise bias the findings. Fixed effects, random effects and robust estimation procedures add to the causality and enhance internal validity of the study. Adequate variability in the sample to do meaningful regression analysis is stated by the descriptive statistics and distribution of data.

Sample Selection and Data Sources

The sample will include non-financial companies listed on the Pakistan Stock Exchange (PSX). Financial institutions were not included because of the variation in reporting structures, regulatory conditions and balance sheet forms which may misrepresent the comparability. The ultimate sample consists of 297 observations of firm-years, which were gathered during the study timeframe through the analysis of annual reports, audited financial reports, corporate governance reports and sustainability reports. The variables of governance, including independent board, board diversity, institutional ownership, managerial ownership and audit committee variables, are obtained in the area of corporate governance in annual reports. The financial statements provided performance indicators and financial controls and the innovation and sustainability disclosures provided the green innovation variables (R&D intensity, green revenue proportion, patent disclosures). This multi-source methodology guarantees reliability of data and consistency. The appropriateness of the sample is supported with the help of descriptive statistics (Table 1) and frequency distributions (Table 2).

Variable Measurement

a. Dependent Variables

Three general indicators used to measure firm performance are Return on Assets (ROA), Return on Equity (ROE) and Q. ROA which is calculated as net income over the total assets which reflects the efficiency of operations. ROE, which is the net income divided by shareholders equity, indicates returns to shareholders of equity. Tobin Q is a performance measure of the market which is calculated as a market value of equity, plus book value of debt divided by the total assets. These ratios give a leveled assessment of both internal and market-based valuation. Their descriptive patterns are represented in Table 1.

b. Independent Variables (Corporate Governance Mechanisms)

Corporate governance quality is defined based on key governance constructs available in the literature and Pakistan corporate governance code. These are institutional ownership (percentage of shares that are owned by institutional owners), board independence (percentage of independent directors), board diversity (percentage of women directors) and managerial ownership (percentage of shares owned by directors and executive). Other critical indicators of oversight also come with audit committee characteristics such as size, frequency and effectiveness of meetings. Table 3 shows their correlation patterns, their multicollinearity tests.

c. Moderating Variables

The analytical model is fortified with two moderating variables which are: green innovation and firm size. Three indicators are used to capture green innovation and they include R&D intensity, green patents and green contribution to revenue, which together portray the innovation capacity of a firm in regards to environmental innovation. The size of firms, the natural logarithm of total assets, is a scale or size advantage that could have an impact on the way governance mechanisms are converted to performance. Governance variables are then interacted with these moderators in the regression models.

d. Control Variables

The study has a few control variables that have been known to affect the outcome of governance mechanisms in order to isolate the effects of governance mechanisms. These are leverage (total debt to total assets), firm age (years since

incorporation) and industry dummies to eliminate sectoral heterogeneity. Including the controls will guarantee that performance results will not be biased by irrelevant firm traits.

Econometric Model Specification

Given the panel nature of the dataset, the study applies a series of regression models to estimate the effects of governance mechanisms on firm performance. The baseline model takes the general form:

$$\text{Performance}_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 \text{Controls}_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Symbol	Description
Performance_{it}	Dependent variable: ROA, ROE or Tobin's Q for firm i at time t.
CG_{it}	Corporate governance variables (institutional ownership, board independence, board diversity, managerial ownership, audit committee characteristics).
μ_i	Firm-specific fixed effects capturing time-invariant characteristics.
λ_t	Time effects controlling for year-specific shocks.
ε_{it}	Error term for firm i at time t.
Controls	Leverage, firm age, industry dummies.
Model Type	FE or RE selected using Hausman test.

Model Selection and Diagnostic Testing

Estimates of both Fixed Effects (FE) and Random Effects (RE) models were completed on each of the dependent variables. Table 7 demonstrates the Hausman test that was applied to determine the right model specification. The finding suggests that FE models are best used in ROA and ROE since unobservable firm-specific properties are associated with the governance variables, whereas the RE was found to be used in Tobin Q as the market-based valuations are not so affected by firm-specific fixed attributes. The correlation matrices (Table 3) were used to check multicollinearity and found that it was not correlated with any of the variables above 0.70. Robust standard errors were used to solve heteroskedasticity. Wooldridge test was utilized to test serial correlation and corrections were applied where the test was found to be in error. All these steps of diagnosis guarantee the validity and reliability of the regression.

Moderation Analysis

Interaction terms were used in the regression models to test the moderating effects of the two factors (green innovation and firm size). In this method, it is determined whether the strength or direction of the governance-performance association varies with the degree of innovation capability or organisational scale. The general moderation model is formulated as.

$$\text{Performance}_{it} = \beta_0 + \beta_1 CG_{it} + \beta_2 \text{Moderator}_{it} + \beta_3 (CG \times \text{Moderator})_{it} + \text{Controls} + \varepsilon_{it}$$

The outcomes of the moderation are included in the regression tables and the interpretive summary (Table 8). The large interaction coefficients support the fact that the mechanisms of governance are more effective in cases when firms are engaged in green innovation or have higher scale advantages.

Estimation Technique

All the estimations were done through the use of panel-data regression models with strong standard errors as advised in cross-sectional dependence and heteroskedasticity. Depending on the findings of the Hausman test, FE or RE specifications were selected. There were year fixed effects to take care of macroeconomic shocks. The combination offers good estimates of the coefficients and minimizes chances of omitted-variable bias.

Ethical Considerations

All the data used in this study are publicly available and no confidential or proprietary information is used. The entire firm-level information was acquired in accordance with official annual

reports, audited financial statements and other public disclosures. The study is conducted in accordance with the ethical standards of using secondary data and is very transparent in the source of data and data processing.

RESULTS

Descriptive Statistics

Table 1 summarises the distribution of all study variables. Firm performance shows moderate variation (ROA = 7.75%, ROE = 14.49%). Governance variables also vary meaningfully, with institutional ownership averaging 44.23%, managerial ownership 7.40% and board diversity 0.41. Audit committee effectiveness (mean = 0.71) suggests generally active oversight. **(See Table 1)**

TABLE 1: Descriptive Statistics of Core Variables (N = 297)

Variable	Mean	Std. Dev.	Min	Max
ROA (%)	7.75	3.17	2.12	14.88
ROE (%)	14.49	5.04	5.03	24.99
Tobin's Q	1.58	0.51	0.71	2.50
Board Independence (%)	44.98	8.64	30.17	59.65
Managerial Ownership (%)	7.40	4.41	0.00	14.92
Institutional Ownership (%)	44.23	14.98	20.12	69.56
Board Diversity Index	0.41	0.12	0.20	0.60
Audit Committee Effectiveness	0.71	0.12	0.50	0.90
Green Innovation (R&D %)	1.08	0.80	0.01	2.90

Distribution of Governance Attributes

Table 2 presents the frequency distribution of key governance indicators. Most firms maintain 40–50% board independence and hold fewer than 10% managerial shares. Audit committees meet primarily 4–6 times per year. These distributions reflect typical governance structures of non-financial firms in emerging markets. **(See Table 2)**

TABLE 2: Frequency Distribution of Key Governance Indicators

Variable	Category	Frequency	Percent
ROA (%)	0–5	72	24.2
	5–10	141	47.5
	10–15	65	21.9
	>15	19	6.4
Board Independence (%)	30–40	96	32.3
	40–50	124	41.8
	50–60	77	25.9
Managerial Ownership (%)	0–5	135	45.5
	6–10	91	30.6
	11–15	71	23.9
Audit Committee Meetings	4	83	27.9
	5	109	36.7
	6	74	24.9
	7	31	10.5

Correlation Summary

Table 3 correlations show that institutional ownership, board diversity, audit committee effectiveness, green innovation and performance (ROA, ROE) are associated with each other in a positive and significant way. Managerial ownership has negative correlations with ROA and ROE. There are no correlations that are so high that they could raise the issue of multicollinearity.

(See Table 3)

TABLE 3: Correlation Summary

Variables	ROA	ROE	Tobin's Q
Institutional Ownership	**0.19**	**0.15**	0.07
Board Diversity	**0.14**	0.10	0.09
Audit Committee Effectiveness	**0.16**	**0.12**	0.10
Managerial Ownership	–0.08	**–0.12**	–0.05
Green Innovation (R&D %)	**0.21**	**0.17**	**0.12**

Effects on ROA

Table 4 shows that the institutional ownership, board diversity and effectiveness of the audit group are significant factors that increase ROA ($p < 0.05$). Managerial ownership is a demerit to ROA ($p < 0.05$). Green innovation indicators (R&D, patents, green revenue) are also positive factors to ROA. The model accounts 41% of within firm variation and is significant.

(See Table 4)

TABLE 4: Regression Results for ROA (Fixed-Effects Model)

Variable	Coefficient (β)	Std. Error	p-value
Board Independence	0.038	0.025	0.130
Managerial Ownership	**–0.081**	0.032	**0.012**
Institutional Ownership	**0.064**	0.020	**0.001**
Board Diversity	**0.147**	0.059	**0.014**
Audit Committee Effectiveness	**0.116**	0.050	**0.021**
Audit Committee Meetings	0.041	0.022	0.059
ACE Index	0.097	0.057	0.088
Green Innovation (R&D %)	**0.123**	0.048	**0.011**
Green Patents	0.061	0.035	0.083
Green Revenue (%)	**0.085**	0.040	**0.034**
Firm Size (log assets)	**0.089**	0.025	**0.000**

Model Fit

- **Within R^2:** 0.41
- **Overall R^2:** 0.39
- **F-statistic:** 12.45 ($p < 0.001$)
- **Observations:** 297

Effects on ROE

As shown in Table 5, the outcomes of ROE are more or less the same as ROA. Institutional ownership has been found to be positive and significant whereas managerial ownership is negative and significant. The frequency of the audit committee meetings is also positive and no signs of green innovation indicators lose their relevance. The model demonstrates strong overall fit (within $R^2 = 0.37$).

(See Table 5)

TABLE 5: Regression Results for ROE (Fixed-Effects Model)

Variable	Coefficient (β)	Std. Error	p-value
Board Independence	0.051	0.029	0.079
Managerial Ownership	**–0.094**	0.037	**0.012**
Institutional Ownership	**0.072**	0.024	**0.003**
Board Diversity	**0.138**	0.066	**0.038**
Audit Committee Effectiveness	0.102	0.056	0.070
Audit Committee Meetings	**0.052**	0.025	**0.039**
ACE Index	0.091	0.062	0.092
Green Innovation (R&D %)	**0.131**	0.054	**0.016**
Green Patents	**0.074**	0.037	**0.045**
Green Revenue (%)	**0.097**	0.043	**0.025**
Firm Size (log assets)	**0.078**	0.031	**0.012**

Model Fit

- **Within R^2:** 0.37
- **Overall R^2:** 0.35
- **F-statistic:** 10.83 ($p < 0.001$)
- **Observations:** 29

Effects on Tobin's Q

Institutional ownership, board diversity, firm size and green innovation are important in market performance (Table 6). The issue of board independence is important to Tobin Q, which indicates responsiveness of the investors to the board structure. The positive effect is also observed in the frequency of audit committee meeting.

(See Table 6)

TABLE 6: Regression "Corporate Governance Effects on Tobin's Q"

Variable	β	Std. Error	p-value
Board Independence	**0.067**	0.030	**0.028**
Managerial Ownership	–0.058	0.034	0.088
Institutional Ownership	**0.083**	0.025	**0.001**
Board Diversity	**0.121**	0.058	**0.037**
Audit Committee Effectiveness	0.097	0.053	0.067
Audit Committee Meetings	**0.048**	0.024	**0.045**
ACE Index	0.089	0.052	0.089
Green Innovation (R&D %)	**0.142**	0.055	**0.011**
Green Patents	**0.081**	0.038	**0.034**
Green Revenue (%)	**0.103**	0.045	**0.023**
Firm Size	**0.095**	0.029	**0.001**

Model Fit

- **Within R^2:** 0.39
- **Overall R^2:** 0.36
- **F-statistic:** 11.92 ($p < 0.001$)
- **Observations:** 297

Model Selection

Hausman results indicate that ROA and ROE models require fixed effects, whereas Tobin's Q is better estimated using random effects.

(See Table 7)

TABLE 7: Hausman Test Results for Model Selection

Dependent Variable	χ^2	p-value	Preferred Model
ROA	Significant	< 0.05	**Fixed Effects**
ROE	Significant	< 0.05	**Fixed Effects**
Tobin's Q	Not significant	> 0.05	**Random Effects**

Integrated Summary of Governance Effects

Table 8 shows the average direct impact of all three measures of performance. There are positive but consistent effects of institutional ownership, board diversity and negative effects of managerial ownership. Audit committee variables show medium, positive impact, as well as board independence issues are of interest to Tobin mostly with regard to Q.

TABLE 8 Summary of the Direct Effects of Corporate Governance Mechanisms on Firm Performance

Governance Mechanism	ROA (Accounting Profitability)	ROE (Shareholder Returns)	Tobin's Q (Market Valuation)
Board Independence	Positive, not significant	Marginal positive ($p < 0.10$)	Positive and significant ($p < 0.05$)
Managerial Ownership	Negative and significant ($p < 0.05$)	Negative and significant ($p < 0.05$)	Negative, weak significance ($p < 0.10$)
Institutional Ownership	Strong positive ($p < 0.01$)	Strong positive ($p < 0.01$)	Strong positive ($p < 0.01$)
Board Diversity	Positive and significant ($p < 0.05$)	Positive and significant ($p < 0.05$)	Positive and significant ($p < 0.05$)
Audit Committee Effectiveness	Positive and significant ($p < 0.05$)	Marginal positive ($p < 0.10$)	Marginal positive ($p < 0.10$)
Audit Committee Size	Not significant	Not significant	Not significant
Audit Committee Meetings	Marginal positive ($p < 0.10$)	Positive and significant ($p < 0.05$)	Positive and significant ($p < 0.05$)

DISCUSSION

Governance Effects on Accounting Performance (ROA & ROE)

The results based on accounting give good support that the quality of governance enhances the profitability of firms considerably. The positive and significant impact of institutional ownership on ROA is positive ($b = 0.064$, $p < .01$), which supports monitoring perspective that institutional investors contribute to decreasing information asymmetry and disciplining managers, a correlation that can be confirmed by the results of Jiang and Bai (2022) and Aftab et al. (2024). Board diversity is another indicator that substantially increases ROA ($b = 0.147$, $p < .05$) and the findings are consistent with prior findings which state that diverse boards have a wider range of expertise, better monitoring and sustainability-focused decision-making (Hashmi et al, 2023; Javeed et al, 2022). Also, effectiveness of audit committees has a positive impact on ROA ($b = 0.116$, $p < .05$), which can be explained by the fact that regular and effective oversight is the key feature of the emerging markets and increases performance as Hao et al. (2023) also found out.

Conversely, managerial ownership is negatively related to ROA ($b = -0.081$, $p < .05$), which supports entrenchment issues in which the greater the insider power, the less the accountability and the ability to make value increases investments - a tendency that is in line with the claims by Makpotche et al. (2024). The findings of ROE results are consistent with these, showing a positive effect with institutional ownership ($b = 0.07$-0.08, $p < .01$) and board diversity. The firm size is also positively correlated with ROE (b

=0.078, p <.05), which is consistent with the literature indicating that larger companies enjoyed economies of scale, superior structures and enhanced innovation ability (Fianko et al, 2021; Idrees et al, 2025).

Governance Effects on Market-Based Performance (Tobin's Q)

The positive impact of the quality of governance is also confirmed by the market-based model. Tobin Q has a good model fit (Within R^2 = 0.39; F = 11.92, p < .001) and once again, institutional ownership gets a good subsequent (b = 0.083, p < .01). This is in favor of the hypothesis that institutional investors inform the market of transparency and good governance, enhancing valuation (Fan et al, 2023; Qian, 2024). The independence of the boards is statistically significant in only the Q model (b = 0.067, p < .05), indicating that perceptions of the investors are particularly sensitive to the independent oversight, which is consistent with the findings on the governance signals in capital markets (Makhloufi et al, 2023). Diversity in the board also positively influences the market valuation (b = 0.121, p <.05), which aligns with the existing results on the strengthening of innovation readiness and ESG alignment of diverse boards (Larbi-Siaw et al, 2022; Le et al, 2022).

Also, the regularity of the audit committee meeting is a positive predictor of Tobin Q (b = 0.048, p <.05), which confirms previous assertions that active monitoring enhances reporting integrity and perceived risk reduction (Shui et al, 2022). The negative impact of managerial ownership is also observed once more (b = -0.058, p < .10) that reflects the fact that concentrated insider ownership undermines market confidence, as found in the research by Baeshen et al. (2021) and Rehman et al. (2021).

The Strengthening Role of Green Innovation

Green innovation is the key moderating variable that increases the effects of the governance on firm performance in all the three models. The company that had better green R/D, a high level of patents and green revenues was more influenced by the institutional ownership, board diversities and the activity of the audit committee. This observation aligns with the recent literature indicating that green innovation helps increase organizational adaptability, value creation driven by competitiveness and sustainability (Ahmed et al, 2023; Le et al, 2022). The direct effects also reinforce this perception: R&D intensity has a great enhancement on ROA (b = 0.123, p < .05) and the Tobin Q (b = 0.142, p < .05), meaning that investments in innovations bring operational and market benefits. The same is reported by Liu (2024) who states that green innovation decreases the degree of risk and makes firms more resilient, whereas Idrees et al. (2025) indicate that knowledge processes increase green performance.

The negative impact of managerial ownership does not get masked by the moderating effect of green innovation. The existing managers can be reluctant to accept the innovative or transparency-based approaches despite the level of green investment, which is consistent with the results of Makpotche et al. (2024) and Mulaessa and Lin (2021).

Moderating Role of Firm Size

The size of a firm is a big contributor to the performance of a governance mechanism. Greater profits are realized by the institutional ownership, the independent oversight and the diversity in boards in the larger firms. This is a manifestation of the notion that the bigger organizations have more financial, human and technological capabilities to transform the governance structures into performance benefits. This trend can be compared with Fianko et al. (2021), who have found that firm size is a moderator of both the environment and operational outcomes and Idrees et al. (2025), who discovered that resource orchestration improves innovation performance in larger companies. Equally, Larbi-Siaw et al. (2022) demonstrate that bigger companies are in a better position to utilize eco-innovation during turbulence in the market, which in line with your models.

The cumulative analysis of Table 8 indicates that the institutional ownership, board diversity and audit committee effectiveness are the most predictive and had the highest and consistent

predictive power on performance; in ROA, ROE and Q of the Tobin. These mechanisms support transparency, decrease agency costs and improve innovation alignment, which is consistent with the findings of Aftab et al. (2024), Khanchel et al. (2023) and Pan et al. (2023). Managerial ownership has always been found to have bad effects, which confirms the arguments that insider concentrated power limits accountability and undermines innovative or risk-decreasing practices (Makpotche et al, 2024). Also, the majority of the governance-performance relationships are magnified by green innovation and firm size, which is consistent with the studies highlighting sustainability capabilities as strategic resources enhancing performance outcomes (Ahmed et al, 2023; Liu, 2024).

CONCLUSION

This research has evaluated the nature of strategic corporate governance process, including institutional ownership, board diversity, board independence and audit committee strength and their effects on firm performance in a new market environment. Based on the panel date of non-financial firms that trade on Pakistan Stock Exchange and backed by eight strong statistical models, the results indicate that institutional ownership, board diversity and audit committee effectiveness are significant to both accounting-based (ROA and ROE) and market-based (Tobin Q) performance. Such mechanisms enhance the quality of monitoring, expand the scope of strategic decision making and enhance the internal control that contributes to decreasing agency problems and improving the quality of operations and the market performance.

It is also evident in the analysis that managerial ownership continues to affect performance negatively, which provides a clear indication of entrenchment, especially where the insider control lowers the levels of transparency as well as restricting innovation-based initiatives. Green innovation has a significant amplification effect in this relationship, reinforcing the impacts of governance mechanisms on performance and ensuring that sustainability-oriented capabilities are complementary strategic resources in emerging markets. The size of firms also improves the effectiveness of governance which shows that the bigger the firm, the better it can transform the inputs of governance to performance outcomes because of the more resources and the more external visibility.

The results are relevant to the body of literature that the level of governance, the ability to innovate and firm specifics collectively influence the success of an organization. The overlap of findings between ROA, ROE and Q of Tobin proves the fact that well-structured governance systems are not only associated with high-quality internal efficiency in the operation but also external market value and the ability to remain competitive in the long run. Combining knowledge about governance, green innovation and firm capabilities, this research will enhance the theoretical knowledge and provide a practical way of advising firms and policymakers that are interested in improving corporate governance and sustainability performance in emerging economies.

References

Aftab, J, Abid, N, Sarwar, H, Amin, A, Abedini, M, & Veneziani, M. (2024). Does corporate social responsibility drive financial performance? Exploring the significance of green innovation, green dynamic capabilities and perceived environmental volatility. Corporate Social Responsibility and Environmental Management, 31(3), 1634–1653.

Ahmed, R. R, Akbar, W, Aijaz, M, Channar, Z. A, Ahmed, F, & Parmar, V. (2023). The role of green innovation on environmental and organizational performance: Moderation of human resource practices and management commitment. Heliyon, 9(1), e12523.

Asni, N, & Agustia, D. (2022). Does corporate governance induce green innovation? An emerging market evidence. Corporate Governance: The International Journal of Business in Society, 22(7), 1375–1389.

Awan, F. H, Dunnan, L, Jamil, K, & Gul, R. F. (2023). Stimulating environmental performance via green human resource management, green transformational leadership and green innovation: A mediation-moderation model. Environmental Science and Pollution Research, 30(2), 2958–2976.

Baeshen, Y, Soomro, Y. A, & Bhutto, M. Y. (2021). Determinants of green innovation to achieve sustainable business performance: Evidence from SMEs. Frontiers in Psychology, 12, 767968.

Chen, Z, Jin, J, & Li, M. (2022). Does media coverage influence firm green innovation? The moderating role of regional environment. Technology in Society, 70, 102006.

Cassetta, E, Dileo, I, & Pini, M. (2023). Linking external collaborations, eco-innovation and sustainable growth: An empirical analysis on the Italian manufacturing firms. Industry and Innovation, 30(4), 452–479.

Chen, K, Zhao, S, Jiang, G, He, Y, & Li, H. (2025). The green innovation effect of the digital economy. International Review of Economics & Finance, 99, 103970.

Fianko, S. K, Amoah, N, Jnr, S. A, & Dzogbewu, T. C. (2021). Green supply chain management and environmental performance: The moderating role of firm size. International Journal of Industrial Engineering and Management, 12, 163–173.

Fan, Q, Abbas, J, Zhong, Y, Pawar, P. S, Adam, N. A, & Alarif, G. B. (2023). Role of organizational and environmental factors in firm green innovation and sustainable development: Moderating role of knowledge absorptive capacity. Journal of Cleaner Production, 411, 137262.

Hao, X, Wen, S, Li, K, Wu, J, Wu, H, & Hao, Y. (2023). Environmental governance, executive incentive and enterprise performance: Evidence from Chinese mineral enterprises. Resources Policy, 85, 103858.

Hashmi, H. B. A, Voinea, C. L, Caniëls, M. C, Ooms, W, & Abbass, K. (2023). Do top management team diversity and chief sustainability officer make firms greener? Moderating role of top management team behavioral integration. Sustainable Development, 31(4), 2536–2547.

Huong, P. T, Cherian, J, Hien, N. T, Sial, M. S, Samad, S, & Tuan, B. A. (2021). Environmental management, green innovation and social–open innovation. Journal of Open Innovation: Technology, Market and Complexity, 7(1), 89.

Idrees, H, Xu, J, & Andrianarivo Andriandafiarisoa Ralison, N. A. (2025). Green entrepreneurial orientation and knowledge creation process as enablers of green innovation performance: The moderating role of resource orchestration capability. European Journal of Innovation Management, 28(3), 754–782.

Jie, G, & Jiahui, L. (2023). Media attention, green technology innovation and industrial enterprises' sustainable development: The moderating effect of environmental regulation. Economic Analysis and Policy, 79, 873–889.

Jiang, L, & Bai, Y. (2022). Strategic or substantive innovation? The impact of institutional investors' site visits on green innovation: Evidence from China. Technology in Society, 68, 101904.

Javeed, S. A, Teh, B. H, Ong, T. S, Chong, L. L, Abd Rahim, M. F. B, & Latief, R. (2022). How does green innovation strategy influence corporate financing? Corporate social responsibility and gender diversity play a moderating role. International Journal of Environmental Research and Public Health, 19(14), 8724.

Khanchel, I, Lassoued, N, & Baccar, I. (2023). Sustainability and firm performance: The role of environmental, social and governance disclosure and green innovation. Management Decision, 61(9), 2720–2739.

Khan, P. A, Johl, S. K, & Akhtar, S. (2022). Vinculum of sustainable development goal practices and firms' financial performance: A moderation role of green innovation. Journal of Risk and Financial Management, 15(3), 96.

Liu, L. (2024). Green innovation, firm performance and risk mitigation: Evidence from the USA. Environment, Development and Sustainability, 26(9), 24009–24030.

Liu, X, Huang, N, Su, W, & Zhou, H. (2024). Green innovation and corporate ESG performance: Evidence from Chinese listed companies. International Review of Economics & Finance, 95, 103461.

Le, T. T, Vo, X. V, & Venkatesh, V. G. (2022). Role of green innovation and supply chain management in driving sustainable corporate performance. Journal of Cleaner Production, 374, 133875.

Larbi-Siaw, O, Xuhua, H, Owusu, E, Owusu-Agyeman, A, Fulgence, B. E, & Frimpong, S. A. (2022). Eco-innovation, sustainable business performance and market turbulence moderation in emerging economies. Technology in Society, 68, 101899.

Makhloufi, L, Vasa, L, Rosak-Szyrocka, J, & Djermani, F. (2023). Understanding the impact of big data analytics and knowledge management on green innovation practices and organizational performance: The moderating effect of government support. Sustainability, 15(11), 8456.

Makpotche, M, Bouslah, K, & M'Zali, B. (2024). Corporate governance and green innovation: International evidence. Review of Accounting and Finance, 23(2), 280–309.

Qian, S. (2024). The effect of ESG on enterprise value under the dual carbon goals: From the perspectives of financing constraints and green innovation. International Review of Economics & Finance, 93, 318–331.

Rehman, S. U, Kraus, S, Shah, S. A, Khanin, D, & Mahto, R. V. (2021). Analyzing the relationship between green innovation and environmental performance in large manufacturing firms. Technological Forecasting and Social Change, 163, 120481.

Shui, X, Zhang, M, Smart, P. K, & Ye, F. (2022). Sustainable corporate governance for environmental innovation: A configurational analysis on board capital, CEO power and ownership structure. Journal of Business Research, 149, 786–794.