

CORPORATE GOVERNANCE QUALITY AND FIRM PERFORMANCE: EVIDENCE FROM THE EMERGING MARKET

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Abstract

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This paper examines the relationship between corporate governance quality (CGQ) and the firm performance of listed companies in Ghana. The CGQ-index was developed based on the Ghana Security and Exchange Commission's six guideline principles, and firm performance is measured by return on assets (ROA) and Tobin's Q (Securities and Exchange Commission [SEC], 2010). A sample of 33 Ghanaian-listed firms from 2009 to 2020 was used. The study employs IBM-SPSS regression to analyse the relationship between CGQ and firm performance. The findings show that elements of CGQ, including board size, gender diversity, remuneration committees, other board committees, and corporate governance (CG) compliance, have a statistically significant influence on firm performance by Tobin's Q. In contrast, the remuneration committee and other board committees were found to have a statistically significant influence on firm performance in terms of ROA (Owusu & Weir, 2016; Coleman & Wu, 2021). Our findings offer practical implications for managers in companies and policymakers seeking to enhance compliance with CG guidelines, thereby improving the integrity and reliability of financial reporting. This study fills a gap in the literature by providing an innovative approach to evidence the effectiveness of CG quality on the performance of listed companies in Ghana, an emerging economy.

Keywords: Corporate Governance Guidelines, Corporate Governance Quality, Firm Performance, SEC 2010, Ghana

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1. INTRODUCTION

The study of corporate governance quality (CGQ) and firm performance has gained prominence in recent decades, particularly following the corporate scandals and collapse of high-profile companies such as Enron, WorldCom, Xerox, and Parmalat (Dike & Tuffour, 2023; Yip & Pang, 2023). Most of these scandals emerged in the USA and the UK, where failures in governance highlighted the critical role of effective oversight structures. Corporate governance (CG) has been at the centre of major international scandals involving unethical practices and accounting fraud (Clarke, 2004; Bhati et al., 2008).

CGQ encompasses the rules, regulations, and best practices that determine whether a firm is effectively controlled or poorly governed (Rahman & Khatun, 2017). The development of CGQ measurement frameworks provides structural tools for assessing governance effectiveness, thereby guiding firms in enhancing performance (Brown & Caylor, 2006; Gompers et al., 2003). Effective governance mechanisms can strengthen firm performance by improving managerial accountability and operational efficiency (Alite et al., 2025; Nguyen Thi & Ho Dai, 2025; Alatawi & Daud, 2022). Moreover, firms with stronger governance are more likely to access external financing, owing to heightened investor confidence and reduced information asymmetry (Shleifer & Vishny, 1997; Claessens & Yurtoglu, 2013). Ding et al. (2016) further demonstrate that higher CGQ increases private firms' access to debt financing while reducing borrowing costs. Similarly, Bajgirani et al. (2025) find that firms with higher governance quality outperform those with weaker governance systems.

Despite extensive empirical research on CG and performance across countries, limited studies examine the role of CGQ and firm performance using country-specific governance code indices. In Ghana, the study of CG has attracted attention following corporate collapses in the 1980s and 1990s, primarily attributed to weak governance and managerial mismanagement. This makes CGQ and its relationship with firm performance a critical area of inquiry. Specifically, this study investigates whether CGQ, measured through the Securities and Exchange Commission (SEC, 2010) six governance principles, influences the performance of listed firms in Ghana. The significance of this focus lies in Ghana's evolving governance framework. As Abor and Biekpe (2007) argue, Ghana's CG system remains at a developmental stage. Similarly, McGee (2009) notes that as an emerging country, Ghana has limited experience in governance practices, both in the public and private sectors.

This study contributes to the literature. First, it provides empirical evidence on the relationship between CGQ and firm performance in Ghana, applying the SEC (2010) compliance guidelines as a measurement framework. Second, it constructs a CGQ index based on SEC (2010) principles and examines its effect on firm performance, measured by return on assets (ROA) and Tobin's Q, for companies listed on the Ghana Stock Exchange (GSE). Third, the study expands our understanding of how CGQ affects firm performance, investment decisions, and corrective actions by regulators and stakeholders.

Specifically, the study examines CGQ mechanisms captured in the SEC (2010) guidelines — board size, board gender diversity, audit committee size, remuneration committees, other board committees, BIG 4 audit firms, codes of ethics, and compliance proxies — and their relationship with firm performance, proxied by ROA and Tobin's Q. The analysis is based on a sample of 33 listed firms on the GSE over the period 2009–2020, using IBM-SPSS regression techniques. This period was deliberately chosen to reflect practices before the amendment of the CG code in 2020, which came into effect in 2021, requiring boards of directors to comprise a minimum of five and a maximum of thirteen members, including at least two non-executive directors (SEC, 2020).

The remainder of this paper is structured as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 outlines the methodology, including variable definitions, measurements, and the statistical model. Section 4 presents the empirical results. Section 5 discusses the main findings. Finally, Section 6 concludes with a summary of findings and directions for future research.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The study examines the relationship between board size, board gender diversity, audit committee size, remuneration committee, other board committees, and CG compliance as independent variables, and ROA and Tobin's Q as dependent variables.

2.1. Board size

Board size refers to the number of members on a board at a given time, facilitating the organisation's decision-making processes. Identifying the appropriate board size to enhance a corporate firm's operational efficiency remains a central concern (Hermalin & Weisbach, 2001). Empirically, board size may affect the firm's value, as the board's role is to control the management of the firm and the chief executive officer, so that it can influence the firm's value (Dallas, 2004). Depending on the country and the board of directors' structure, the board members are one or two tiers. Usually, two-tier board members have larger board members because of the existence of the board of directors and the supervisory board (Zandi et al., 2021; Singh & Harianto, 1989). However, a smaller board can significantly influence performance due to its smaller size (Lipton & Lorsch, 1992). Moreover, other studies have shown that a large board can significantly influence performance and provide better monitoring and effective support (Haynes et al., 2019). A recent study found that board sizes have a positive effect on firm performance (Neralla 2022; Bansal & Singh, 2022). Conversely, other studies demonstrated no such association between board size and firm performance (Hundal et al., 2025; Al-Shaer et al., 2024; Nour et al., 2024).

In Ghana, Boachie (2023), Puni and Anlesinya (2020), and Abor and Biekpe (2007) found a significantly positive relationship with firm performance. However, results from Asante-Darko et al. (2018) and Darko et al. (2016) find no association between board size and firm

performance. The SEC recommends that the board size of the listed company should have at least eight members (minimum) and a maximum of 16. Based on the above explanations, the following hypothesis is proposed:

H1: Board size influences the firm performance of listed companies in Ghana, measured by ROA and Tobin's Q.

2.2. Board gender diversity

Gender diversity is the proportion of women on the board of directors, in line with as a performance enhancement measure (Bernardi & Threadgill, 2010). Tee (2023) and Ajaz et al. (2020) posit that women in the boardroom bring diverse market perspectives for the strategic and financial choices that affect the operation of the firm. In prior literature, board member diversity in terms of gender is sought to improve company performance (Kusumastati et al. 2022). Diversified boards of directors of different genders, skills, and cultural backgrounds may provide more strategic options, resulting in improved company performance (Ujunwa et al., 2012). Quintana-García and Benavides-Velasco (2016) believe that having female directors can benefit a company because they can better manage deliberation and complexity and generate alternatives when solving problems. Looi et al.'s (2025) investigation found that female representation in board positions significantly boosts firm performance. Similarly, Banerjee et al. (2024) found that the presence of female directors on a firm's board beyond a threshold point reduces a firm's risk (Ramadan & Hassan, 2022).

Studies in Ghana found a positive and significant association between board gender diversification and firm performance (Tabash et al., 2021; Ntim, 2015; Darko et al., 2016). On the contrary, results indicated a negative impact of gender on firm performance (Lanchimba et al., 2024; Wang et al., 2024; Al-Shaer et al., 2024; Wang, 2020; Ofoeda, 2017). Based on the above explanations, the following hypothesis is proposed:

H2: Board gender diversity influences the performance of listed companies in Ghana, measured by ROA and Tobin's Q.

2.3. Audit committee size

According to Persons (2009), audit committee size can considerably impact a corporation's performance. Obiyo and Lenee (2011) posit that the audit committee size of an audit committee measures the number of existing audit committee members in a firm. The Committee on the Financial Aspects of Corporate Governance (1992) recommended that a minimum of three audit committee members be supported by the Smith (2003). Braiotta (2000) reported that a larger audit committee leads to greater organisational authority and status. However, Vafeas (1999) argued, the larger an audit committee, the more processes it must follow and the more responsibility it must allocate, leading to ineffective governance.

Empirical studies have shown a significant positive association between audit committee size and firm performance. For example, a study by Karim et al. (2024) in Bangladesh reveals that larger

audit committees are associated with higher firm performance. Likewise, the study by Hezabr et al. (2023) on the Oman Stock Exchange. Similarly, Osman and Samontaray (2022) found that an audit committee size has a significant effect on firm performance. Moreover, studies in Ghana have reported a positive association between the audit committee and firm performance (Boachie, 2023; Musallam, 2020; Ofoeda, 2017; Rahman et al., 2019; Yameen et al., 2019). Moreover, other studies have reported no relationship between audit committee size and firm performance (Bawazir et al., 2021; Omotoye et al., 2021). The SEC (2010) requires listed firms to have an audit committee with three members. Based on the above explanations, the following hypothesis is formulated.

H3: Audit committee size influences the performance of listed companies in Ghana, measured by ROA and Tobin's Q.

2.4. Remuneration committee

This subcommittee was formed to assess senior management's employment terms and conditions. Vafeas (1999) established a remuneration committee to monitor executive directors' remuneration (EDR) terms and conditions. According to Carson (2002), a remuneration committee composed of non-executive directors only lessens the chance of management agreeing with their remuneration. Agyemang (2013) considers that the committee consists of outsider directors and ensures that compensation policies do not benefit management at the expense of shareholders and other stakeholders.

Empirical evidence supported the relationship between the remuneration committee and firm performance. Scholtz et al. (2025) investigated the impact of the transition from King III to King IV on the EDR to performance on the listed firms in South Africa. The results show that the EDR-performance relationship further improved firm performance. Also, Kim et al.'s (2025) exploration on applying pay-for-performance results indicates that there is a stronger focus on pay-for-performance. Bansal and Singh (2022) studied 92 Indian software companies from 2011 to 2018 and reported that remuneration committees have a positive effect on Tobin's Q. However, Nour et al. (2024), Puni and Anlesinya (2020), and Borlea et al. (2017) reported no significant effects on the remuneration committee or financial performance in their respective studies. The SEC (2010) guideline principle requires the establishment of a remuneration committee for publicly traded listed firms on the Ghana Exchange. Based on the above explanations, the following hypothesis is proposed.

H4: The remuneration committee influences the performance of listed companies in Ghana as measured by ROA and Tobin's Q.

2.5. Other board committees

Committees are among the CG mechanisms established to strengthen corporate performance (e.g., audits, remuneration, and nominations). In addition to those mentioned above, other committees (risk management, governance, strategic planning, environmental, technological, public

affairs, information and communication technology (ICT), and sustainability) have been established to enhance corporate performance. According to Spira and Bender (2004), the formation of committees promotes CG and assigns specific functions from the main board to smaller groups. Jiraporn et al. (2009) posit that board committees improve corporate board effectiveness. Boards of directors rely on committees to perform important specialised monitoring and advising tasks (Kolev et al., 2025). According to Bansal and Singh (2022), corporate board committees play an important role in maintaining the quality of internal governance structures.

In recent studies, Aziz et al. (2025) investigated the impact of environmental, social, and governance on the performance of publicly listed firms in the Association of Southeast Asian Nations (ASEAN) and found that sustainability committees contribute to reducing the intensity of ESG controversies. Afrizal et al. (2025) examined the effect of the risk committee and the firm performance relationship of financial companies on the Indonesian Stock Exchange (IDX) that the risk management committee influences firm performance. Likewise, Khan et al. (2024) found that the existence of a corporate social responsibility (CSR) committee enhances firm performance. Conversely, Abu and Ibrahim (2022) find that the risk management committee has a negative and insignificant relationship with firm performance. Based on the above explanations, the following hypothesis is proposed.

H5: Other board committees influence the firm performance of listed companies in Ghana, measured by ROA and Tobin's Q.

2.6. Corporate governance compliance

CG has been at the centre of major world scandals involving unethical behaviour and accounting fraud (Clarke, 2004; Bhagat & Bolton, 2008). Therefore, effective compliance with CG codes and guidelines regarding quality is crucial for measuring a firm's performance. CG compliance studies provide a wide range of qualitative and quantitative analyses that

reveal the extent, scope, and dynamics of compliance as well as its association with firm performance (Shrives & Brennan, 2015; Rose, 2016; Roy & Pay, 2017). Lokman et al. (2012) reported that firms with high-quality CG voluntarily disclose the extent of CG information in an annual report. These firms signal to investors that they have high-quality CG information (Sobhan et al., 2024; Dye, 1983). Studies that have used compliance codes as indices of firm performance have revealed positive relationships with firm performance, including Dissanayake et al. (2021), Asghar et al. (2021), Outa and Waweru (2016), Owusu and Weir (2016), and Roy and Pay (2017). In contrast, Aluchna and Kuszewski (2020) analysed 155 firms listed on the Warsaw Stock Exchange and reported a negative relationship between CG compliance and firm performance. Based on the above explanations, we hypothesise the following:

H6: CG compliance influences the firm performance of listed companies in Ghana as measured by ROA and Tobin's Q.

3. RESEARCH METHODOLOGY

3.1. Data and measurement of variables

We examine 33 of the 39 companies listed on the GSE over the period 2009–2020, with the selection based solely on the availability of complete and audited data. CGQ was measured using the Ghana SEC (2010) guidelines, which consist of six main principles and 108 sub-items, following the approach of Owusu and Weir (2016) and Coleman and Wu (2021). The study period was chosen to evaluate existing practices prior to the introduction of the 2010 and subsequent CG best practices guidelines by the Ghana SEC (2010). The analysis concluded in 2020 to ensure that the changes to the Ghana CG code, which took effect in 2021, did not influence our findings.

A dichotomous scoring (1 = compliance; 0 = non-compliance; non-applicable items excluded) was applied, and the CGQ score was computed as:

$$CGQ = \frac{\text{Total compliance of SEC (2010) achieved by each firm}}{\text{Total compliance of the SEC (2010) that should have been achieved}} \quad (1)$$

The dependent variables (firm performance) were proxied by:

$$ROA = \frac{\text{Net profit}}{\text{Total assets}} \quad (2)$$

capturing accounting-based profitability (Wiengarten et al., 2017):

$$\text{Tobin's } Q = \frac{\text{Market value of equity} + \text{Book value of debt}}{\text{Total assets}} \quad (3)$$

and a market-based performance measure used widely in prior research (e.g., Borlea et al., 2017; Alodat et al., 2021).

The independent variables — board size, board gender diversity, audit committee size, remuneration committee, other board committees, and CG compliance — were selected based on prior literature. An alternative method, which could have

been employed, is a mixed-methods approach, which integrates both quantitative and qualitative techniques to examine the relationship between the independent and dependent variables as indicated above.

In addition, five control variables were included: firm size, firm age, firm growth, leverage, and industry sector. Firm size, often associated with performance measures such as ROA and Tobin's Q, was calculated as the natural logarithm of the market value of equity ($SIZE = \log MVE$). Firm age, measured as the logarithm of the number of years since incorporation ($AGE = \log \text{years}$), reflects the effect of organisational maturity on performance. Firm growth, which may influence firm value, was computed as the natural logarithm of total sales ($GROWTH = \log \text{sales}$). Leverage, representing the extent of debt financing, was measured as long-term liabilities divided by total

assets ($LEV = LTL/TA$). The industry sector, which may moderate governance-performance relationships due to structural differences, was coded as a dummy variable ($SECTOR = 1$ if financial; 0 if non-financial).

Model 1

$$ROA_t = \beta_1 + \beta_2 BOARDSZ_t + \beta_3 BOARDGD_t + \beta_4 AUDITCS_t + \beta_5 REMC_t + \beta_6 BOARDC_t + \beta_9 COMPLY_t + \beta_{10} SIZE_t + \beta_{11} AGE_t + \beta_{12} GROWTH_t + \beta_{13} LEV_t + \beta_{14} SECTOR_t \quad (4)$$

Model 2

$$TOBIN_t = \beta_1 + \beta_2 BOARDSZ_t + \beta_3 BOARDGD_t + \beta_4 AUDITCS_t + \beta_5 REMC_t + \beta_6 BOARDC_t + \beta_9 COMPLY_t + \beta_{10} SIZE_t + \beta_{11} AGE_t + \beta_{12} GROWTH_t + \beta_{13} LEV_t + \beta_{14} SECTOR_t \quad (5)$$

where:

- ROA — return on assets;
- $TOBIN$ — Tobin's Q;
- $BOARDSZ$ — board size;
- $BOARDGD$ — board gender diversity;
- $AUDITCS$ — audit committee size;
- $REMC$ — remuneration committee;
- $BOARDC$ — other board committees;
- $COMPLY$ — corporate governance compliance;
- $SIZE$ — firm size;
- AGE — firm age;
- $GROWTH$ — firm growth;
- LEV — leverage;
- $SECTOR$ — industry type of firms.

The equations are expected to show that commitment to CG quality significantly influences firms' financial performance, ROA , and $TOBIN$, and prove the hypothesis of this study. The model comprises several control variables chosen based on measurements commonly used in previous studies.

3.2. Regression models

The study used 372 firm-year observations from 33 GSE-listed companies over 2009–2020 to assess the effect of CG quality on firm performance. The following regression equations were estimated:

4. EMPIRICAL RESULTS

4.1. Descriptive statistics

Table 1 presents the descriptive statistics for all study variables. For the dependent variables, ROA averaged 0.028 (min = -0.954, max = 0.331), indicating substantial variation in firms' ability to generate returns. $TOBIN$ averaged 1.422 (min = -0.254, max = 7.843), suggesting generally strong market valuations. Among the CG variables, $BOARDSZ$ averaged 8.34 members (min = 1, max = 14), close to SEC (2010) recommendations. $BOARDGD$ averaged 17.7%, reflecting low female representation. $AUDITCS$ averaged three members (min = 2, max = 9), in line with SEC guidelines. The mean for $REMC$ was 0.501, implying that about half of the firms maintained such committees. $BOARDC$ averaged 2 (min = 1, max = 5). $COMPLY$ averaged 0.643 (min = 0.350, max = 0.890), indicating varied adherence to governance principles. For the control variables, $SIZE$ averaged 5.146 (log market value of equity), AGE averaged 1.397 (log years since incorporation), and $GROWTH$ averaged 0.023 (log total sales), with some negative values reflecting newer firms. Average LEV was 0.680 (min = -1.032, max = 1.549), showing that some firms relied heavily on debt financing. $SECTOR$ is reflected in the dummy variable (1 = financial, 0 = non-financial).

Table 1. Descriptive statistics

Variables	N	Mean	Std. deviation	Minimum	Maximum
ROA	372	0.028	0.110	-0.954	0.331
TOBIN	372	1.422	0.894	-0.254	7.843
BOARDSZ	372	8.344	2.148	1.000	14.000
BOARDGD	372	0.177	0.128	0.000	0.630
AUDITCS	372	3.618	1.030	2.000	9.000
REMC	372	0.501	-	0.000	1.000
BOARDC	372	2.065	1.080	1.000	5.000
COMPLY	372	0.643	0.139	0.350	0.890
SIZE	372	5.146	1.106	2.789	7.538
AGE	372	1.397	0.294	0.301	1.845
GROWTH	372	0.023	0.140	-0.847	1.161
LEV	372	0.680	0.270	-1.032	1.549
SECTOR	372	0.387	-	0.000	1.000

Source: Authors' elaboration.

4.2. Correlation matrix analysis

A Pearson correlation analysis was conducted to examine associations among the dependent, independent, and control variables (Table 2). Multicollinearity was assessed using both correlation coefficients and the variance inflation factor (VIF)

with tolerance values. Consistent with prior guidelines, no bivariate correlation exceeded 0.80, and all VIF values were below 10 with tolerance values above 0.1 (Table 3), indicating no multicollinearity concerns (Hossain & Rahman, 1995; Gujarati, 2008; Alqatamin, 2018). The results show that ROA was negatively and significantly correlated

with *AUDITCS* ($r = -0.111^*$, $p < 0.05$), *REMC* ($r = -0.198^{**}$, $p < 0.01$), and *BOARDC* ($r = -0.135^{**}$, $p < 0.01$), suggesting that increases in these variables were associated with lower *ROA*. *TOBIN* was negatively and significantly related to *REMC* ($r = -0.308^{**}$, $p < 0.01$), *BOARDC* ($r = -0.209^{**}$, $p < 0.01$), and *COMPLY* ($r = -0.143^{**}$, $p < 0.01$),

indicating that higher levels of these governance attributes corresponded to lower market valuations. The generally weak correlation coefficients confirm that the variables do not exert undue influence on one another, supporting the reliability of subsequent regression analysis.

Table 2. Correlation analysis of variables

Correlations	1	2	3	4	5	6	7	8	9	10	11	12
(1) <i>ROA</i>	1											
(2) <i>TOBIN</i>	0.209**	1										
(3) <i>BOARDSZ</i>	-0.055	-0.090	1									
(4) <i>BOARDGD</i>	0.007	-0.070	-0.064	1								
(5) <i>AUDITCS</i>	-0.111*	-0.048	0.545**	-0.011	1							
(6) <i>REMC</i>	-0.198**	-0.308**	0.331**	0.000	0.324**	1						
(7) <i>BOARDC</i>	-0.135**	-0.209**	0.542**	-0.058	0.357**	0.394**	1					
(8) <i>COMPLY</i>	0.012	-0.143**	0.549**	-0.084	0.259**	0.442**	0.505**	1				
(9) <i>SIZE</i>	0.098	0.107*	0.603**	-0.165**	0.280**	0.233**	0.505**	0.724**	1			
(10) <i>AGE</i>	0.022	0.084	0.238**	0.198**	-0.012	0.043	0.045	0.107*	0.017	1		
(11) <i>GROWTH</i>	0.381**	-0.002	-0.038	0.013	-0.041	-0.061	-0.010	-0.076	-0.051	-0.066	1	
(12) <i>LEV</i>	-0.304**	-0.189**	0.270**	0.104*	0.225**	0.261**	0.330**	0.101	0.089	0.181**	-0.034	1
(13) <i>SECTOR</i>	0.029	-0.355**	0.302**	0.046	0.150**	0.199**	0.357**	0.358**	0.281**	0.037	-0.029	0.364**

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
Source: Authors' elaboration.

Table 3. Tolerance and VIF test

Variables	Tolerance limit	VIF
<i>BOARDSZ</i>	0.372	2.688
<i>BOARDGD</i>	0.760	1.315
<i>AUDITCS</i>	0.625	1.599
<i>REMC</i>	0.669	1.495
<i>BOARDC</i>	0.473	2.116
<i>COMPLY</i>	0.301	3.320
<i>SIZE</i>	0.350	2.855
<i>AGE</i>	0.766	1.306
<i>GROWTH</i>	0.983	1.018
<i>LEV</i>	0.650	1.539
<i>SECTOR</i>	0.642	1.559

Source: Authors' elaboration.

4.3. Regression analysis

Table 4 reports the results of the multiple regression models estimated in IBM SPSS to test the study's hypotheses. The models assess the predictive power of CGQ variables on firm performance, measured by *ROA* and *TOBIN*. Control variables — *SIZE*, *AGE*, *GROWTH*, *LEV*, and *SECTOR* — were included to account for their potential direct or indirect influence on performance.

Table 4. Regression results

Variables	<i>ROA</i>		<i>Tobin's Q</i>	
	Coefficient	Sig.	Coefficient	Sig.
<i>BOARDSZ</i>	-0.003	0.406	-0.046	0.095*
<i>BOARDGD</i>	0.014	0.742	-0.706	0.029**
<i>AUDITCS</i>	-0.001	0.931	0.059	0.183
<i>REMC</i>	-0.022	0.060**	-0.350	0.000***
<i>BOARDC</i>	-0.017	0.010***	-0.238	0.000***
<i>COMPLY</i>	-0.075	0.231	-2.782	0.000***
<i>SIZE</i>	0.024	0.001***	0.381	0.000***
<i>AGE</i>	0.037	0.051**	0.277	0.047**
<i>GROWTH</i>	0.303	0.000***	0.017	0.946
<i>LEV</i>	-0.115	0.000***	0.373	0.024**
<i>SECTOR</i>	0.042	0.001***	-0.464	0.000***
Adj. R ²	0.297		0.405	
F-statistics	13.041		20.448	
P-values	< 0.001		< 0.001	

Note: ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Source: Authors' elaboration.

The regression models demonstrated satisfactory fit, with adjusted R² values of 0.297 (*ROA*) and 0.405 (*TOBIN*), indicating that the independent variables explain 29.7% and 40.5% of the variation in the respective performance measures. Both F-statistics (*ROA*: 13.041; *TOBIN*: 20.448) were significant at the 1% level. *BOARDSZ* was not significantly related to *ROA*, contrary to the hypothesis and earlier Ghanaian studies reporting positive effects (Boachie, 2023; Abor & Biekpe, 2007). The result is consistent with Darko et al. (2016) and Asante-Darko et al. (2018), as well as negative findings from India (Yameen et al., 2019). For *TOBIN*, *BOARDSZ* had a significant negative effect at the 10% level, consistent with Puni and Anlesinya (2020) and studies showing performance gains from smaller boards.

BOARDGD was insignificant for *ROA*, aligning with Ofoeda (2017), Darko et al. (2016), and other non-significant or negative international evidence (Wang, 2020). However, *BOARDGD* had a significant negative effect on *TOBIN* at the 5% level, consistent with Darko et al. (2016).

AUDITCS was insignificant for both *ROA* and *TOBIN*, aligning with prior studies in Ghana, Thailand, Oman, and Nigeria, suggesting that size alone does not drive performance. *REMC* showed significant and negative effects on *ROA* (5%) and *TOBIN* (1%), consistent with Scholtz et al. (2025) and Kim et al. (2025) of remuneration practices and performance.

BOARDC had a significant negative effect on both *ROA* and *TOBIN* (1%), suggesting that additional committees beyond audit and remuneration may dilute governance effectiveness. *COMPLY* was insignificant for *ROA* but had a significant negative association with *TOBIN* (1%), diverging from positive findings in Ghana and Sri Lanka (Dissanayake et al., 2021).

Control variables revealed that *SIZE* and *AGE* positively and significantly influenced both *ROA* and *TOBIN*. *GROWTH* was positive for *ROA* (1%) but insignificant for *TOBIN*. *LEV* was negative for *ROA* (1%) and positive for *TOBIN* (5%). *SECTOR* was positive for *ROA* (1%) but negative for *TOBIN*.

4.4. Fixed effects vs. random effects

A comparative summary of the fixed effects (FE) and the random effects (RE) panel regression estimate of the relationship between corporate governance mechanisms, firm characteristics, and firm value in terms of *TOBIN* is displayed in Table 5. It shows the first comparison between the FE and the RE models, and this important information can be seen to provide a critical understanding of model choice and the drivers of the firm value. The largest differences are in the coefficients of *AGE* and the code of ethics. The *AGE* in the FE model has a strong negative correlation with the *Q* of Tobin

(coef. = -3.0695, $p < 0.001$), which is insignificant in the RE model. It implies that the age negative effect is associated with the unobserved, time-invariable firm factors, e.g., legacy systems or cultural inertia, which the FE model can effectively account for. On the same note, the code of ethics variable becomes insignificant in the FE model but significant in the RE model. This implies that the visible advantage of having a code is probably due to cross-sectional variations between companies (e.g., superiorly managed companies have codes) as opposed to the causal within-company impact. The significant Hausman test and the rejection of the RE model statistically prove this visual evidence.

Table 5. Fixed effects vs. random effects

Variables	FE	SE	t-value	p-value	RE	SE	z-value	p-value
Intercept	—	—	—	—	-1.000	0.564	-1.775	0.076
BOARDSZ	0.0239	0.0232	1.031	0.303	0.021	0.023	0.904	0.366
BOARDGD	-0.4917	0.3684	-1.335	0.183	-0.594	0.362	-1.639	0.101
AUDITCS	-0.0657	0.0522	-1.258	0.209	-0.067	0.05	-1.339	0.181
REMC	0.148	0.1674	0.884	0.377	-0.101	0.142	-0.712	0.476
BOARDC	0.0181	0.109	0.166	0.868	-0.189	0.083	-2.280	0.023*
BIG 4 audit	—	—	—	—	-0.487	0.297	-1.642	0.101
Code of ethics	-0.0084	0.1566	-0.054	0.957	0.397	0.136	2.911	0.004**
COMPLY	-1.4538	0.5348	-2.718	0.007**	-2.057	0.512	-4.020	0.001***
SIZE	9.3762	1.0994	8.529	0.001***	6.194	0.899	6.891	0.001***
AGE	-3.0695	0.7495	-4.096	0.001***	-0.959	0.593	-1.617	0.106
GROWTH	-0.2018	0.2181	-0.925	0.355	-0.234	0.226	-1.035	0.3
LEV	0.7245	0.1593	4.549	0.001***	0.535	0.16	3.356	0.001***
ROA	0.4995	0.332	1.505	0.133	0.534	0.34	1.57	0.117
R ²	0.234				0.191			
Adj. R ²	0.131				0.161			
F-statistic/ χ^2	8.302				81.17			
Prob > F/ χ^2	< 0.001				< 0.001			

Note: **** 0.001, *** 0.01, and ** 0.05; Dependent variable — *TOBIN*.

Source: Authors' elaboration.

4.5. Model selection tests

Table 6 presents the test of the Hausman specification, which overwhelmingly rejects the null hypothesis (H_0) that the systematic difference between the fixed and RE does not exist, and due to this, a fixed-effects estimator should be used in further analysis. Diagnostic tests also show the existence of heteroskedasticity, serial correlation, and cross-sectional dependence, which are breaches of standard panel regression assumptions. Thus, the corrective actions were taken in the form of heteroskedasticity-robust and cluster-adjusted variance-covariance estimators, cross-sectional dependence corrections. These results of the diagnostic test offer a solid econometric ground for the strength of the regression findings given in Table 6. Each of the tests is concerned with a certain assumption of the classical linear regression model, and the aggregate findings support the complex estimation methods that are eventually adopted. The statistical model selection decision is based on the Hausman test, which has a statistic of 43.653 and a p-value of almost zero (1.75e-05). This test is a formal test that establishes the relationship

between the characteristic, time-free errors of each firm, and the explanatory variables of the model. Accepting the alternative hypothesis (H_a) confirms the presence of such a correlation and thus makes the RE estimator biased and inconsistent. Nevertheless, the use of the FE estimator is not enough. The above diagnostic tests indicate that the standard FE model has all three typical panel data issues, namely, heteroskedasticity, serial correlation, and cross-sectional dependence. The very high values of the significant result of the tests of heteroskedasticity ($p = 2.2e-16$) and serial correlation ($p = 2.2e-16$) of the tests show that the error terms are not constant between the firms and do exhibit a correlation over time within the same firm, respectively. The rejection of the null hypothesis of the Pesaran CD test of cross-sectional dependence ($p = 2.828e-05$) is the most significant diagnosis. The same result suggests that the error terms of the various firms are correlated within the same time interval, most probably because of the shared shocks commonly referred to as macroeconomic events, industry movements, or even simultaneous policy reforms across all sample firms.

Table 6. Panel regression diagnostic and model selection tests

<i>Test</i>	<i>Estimate</i>	<i>p-value</i>	<i>Decision</i>	<i>Action taken</i>
Hausman test	43.653	1.75e-05	Reject H_0	The fixed-effects estimator was used for all subsequent analyses.
Heteroskedasticity	294.94	2.2e-16	Reject H_0	Firm-clustered heteroskedasticity-robust standard errors were applied.
Serial correlation	86.617	2.2e-16	Reject H_0	The variance-covariance matrix was adjusted using cluster-robust estimation.
Cross-sectional dependence test (Pesaran CD)	4.1869	2.828e-05	Reject H_0	A correction for cross-sectional dependence was applied.

Source: Authors' elaboration.

5. DISCUSSION

This paper aims to explore the relationship between CGQ and the firm performance of listed companies in GSE. This study utilised the following characteristics captured in the SEC (2010) guidelines — board size, board gender diversity, audit committee size, remuneration committees, other board committees, BIG 4 audit firms, codes of ethics, and compliance proxies — and their relationship with firm performance, proxied by ROA and Tobin's Q.

Table 4 presents the regression results of the hypotheses, which tested the impact of independent variables on the dependent variables of ROA and Tobin's Q. The findings show that elements of CGQ, including board size, gender diversity, remuneration committees, other board committees, and CG compliance, have a statistically significant influence on firm performance by Tobin's Q as shown in Table 4, which is consistent with the prior studies of board size in Ghana by Puni and Anlesinya (2020), and India by Neralla (2022). Similarly, board gender diversity, with Darko et al. (2016), likewise, compliance guideline with Sri Lanka (Owusu & Weir, 2016; Dissanayake et al., 2021).

Our other findings from the rest of the hypotheses show that remuneration and other board committees were both significantly improved by ROA and Tobin's Q, aligned with the findings of Scholtz et al. (2025), Kim et al. (2025), Aziz et al. (2025), Afrizal et al. (2025), Khan et al. (2024), Dakhli (2022), Derchi et al. (2021), and Hussain et al. (2023).

The results were appropriate, as the results measured by both ROA and Tobin's Q show a statistically significant positive result, which is consistent with the empirical findings.

Conversely, others have found no significant effect of ROA, or both ROA and Tobin's Q, on firm performance, which is contrary to the findings of Karim et al. (2024), Hezabr et al. (2023), Osman and Samontaray (2022), and Boachie (2023). The likelihood is a lack of information on the firm's activities and the effectiveness of commitment, signalling a lack of integrity, transparency, and accountability.

6. CONCLUSION

This study examined the relationship between CGQ and firm performance, among 33 firms listed on the GSE (2010–2020), using an index based on SEC (2010) guidelines and firm performance measured by ROA and Tobin's Q.

The findings reveal mixed results over the period of study, making the independent variables (CGQ) statistically significant with firm performance (particularly Tobin Q), indicating the relative quality of the SEC (2010) mechanisms,

including board size, gender diversity, compliance, remuneration, and other board committee vibrant for accountability and transparency. In contrast, these have negatively influenced firm performance in both ROA and Tobin's Q. Moreover, remuneration and other board committees were both significantly improved by ROA and Tobin's Q, aligned with the empirical findings. Audit committee size had no measurable impact on either performance indicators.

The research identifies several limitations, such as its dependence solely on audited financial statements, which could be influenced by the board's decision on accounting choices. Similarly, using only ROA and Tobin's Q as performance indicators might not fully reflect the entire range of a firm's performance. Furthermore, the CGQ index might not include all the SEC (2010) sub-units within the principles' guidelines, which could be of significant importance. Given an equally weighted measurement of the SEC (2010) sub-unit, it may not fairly present the results. Moreover, the dataset is restricted to only 372 observations, which may not fully capture all aspects of the companies listed on the GSE.

The results have important implications for policymakers, management, and other stakeholders.

For policy makers, the lack of significant relationships between corporate governance quality (CGQ) variables — such as board size (*BOARDSZ*), board gender diversity (*BOARDGD*), audit committee size (*AUDITCS*), remuneration committee presence (*REMC*), board composition (*BOARDC*), and compliance (*COMPLY*) — and financial performance indicators (ROA and Tobin's Q) suggests that the existing SEC (2010) governance provisions may not be effectively enhancing profitability. Therefore, suggests that policymakers should revisit and potentially revise these governance regulations to better align them with mechanisms that can positively impact firm financial outcomes.

For management, there is a need to revisit and enhance governance practices by refining the roles and responsibilities of board members, strengthening oversight functions, and promoting better coordination among governance committees. Additionally, incorporating external factors such as market conditions, macroeconomic variables, microeconomic trends, and competitive dynamics can provide deeper insight into profitability drivers. Aligning governance structures and strategies with these external influences alongside financial performance objectives could lead to more meaningful and sustainable outcomes.

It is recommended that, while refining governance roles and aligning organisational structures with financial performance, incorporating performance measures (ROE, EPS, stock returns) provides an alternative evaluation of outcomes. Moreover, sensitivity analysis excluding the financial

sector can help separate sector-specific effects, refining the assessment of governance impact on financial performance. Finally, investigating external, macroeconomic, and market dynamics as additional non-financial factors enriches the understanding of influences beyond governance, enabling a multi-dimensional approach to performance improvement.

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