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Corporate Governance and ESG Performance in GCC Countries: A Pre-, During-, and Post-COVID-19 Analysis

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Abstract:

This study examines how corporate governance mechanisms—namely board size and board independence—affect Environmental, Social, and Governance (ESG) performance among non-financial firms in Gulf Cooperation Council (GCC) countries. Using 824 observations from 2010 to 2023, spanning periods pre, during, and post the COVID-19 pandemic, this study utilizes panel data methods to analyze trends in ESG outcomes. The findings suggest that larger companies with greater board independence tend to have stronger ESG performance, whereas board size and return on assets (ROA) generally do not exhibit statistically meaningful effects. These findings emphasize the importance of independent oversight and firm scale in driving sustainability practices, notably in the context of worldwide crises exemplified by the COVID-19 outbreak. This study provides valuable empirical insights into ESG practices for investors, corporate leaders, and policymakers in emerging markets. It emphasizes the role of governance structures in promoting ESG performance, which is important for stakeholder trust and sustainable development. By offering empirical insights during a critical transition period, this research enhances academic understanding and provides actionable recommendations for fostering ESG integration in the GCC region.

Keywords: Corporate governance, ESG performance, COVID-19, GCC countries.

JEL Classification codes : G34, M14, Q56, C16, G30.

1. Introduction

Environmental, Social, and Governance (ESG) reporting has become increasingly important for firms and investors seeking to align business operations with broader social and environmental goals. Research reveals that organizations with strong ESG outcomes tend to experience reduced risk exposure, improved operational efficiency, and enhanced profitability (Shaikh, 2021). According to the 2018 Global Sustainable Investment Review (2018), ESG integration has grown significantly, with a 69% increase in ESG-focused assets to $17.5 trillion between 2016 and 2018, reflecting investors' growing emphasis on sustainability in decision-making. Additionally, stakeholders are keen on the transparency of ESG data alongside financial information. Consequently, companies have incorporated ESG concerns into their operations to align with these expectations. ESG has also become a major area of focus for researchers, who have thoroughly examined both its financial and non-financial influences (Sharma et al., 2020; Triyani et al., 2020).

While ESG adoption is a global phenomenon, its implementation varies significantly across regions. Across the Gulf Cooperation Council (GCC) countries, which include Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE)—ESG practices are gaining traction amid economic diversification efforts and national sustainability agendas. For example, initiatives like the UAE's Net Zero 2050 and Saudi Vision 2030 have catalyzed interest in ESG. These nations, traditionally reliant on hydrocarbon economies, now face mounting stakeholder pressure to align with global sustainability standards while balancing regional socio-economic priorities.

ESG serves as a benchmark for assessing a company's environmental, social, and governance activities, consolidating these aspects to produce an overall performance score. This score has been extensively utilized by scholars to examine the influence of corporate governance attributes and ESG performance (Shakil et al., 2020). Environmental performance denotes a company's efforts to conserve resources and reduce greenhouse gas emissions, while social performance reflects the company's commitment to employee safety and health, customer responsibility, and human rights. Governance performance evaluates the company's adherence to anti-corruption practices, risk management, and the protection of both shareholders and stakeholders' rights (Alregab, 2022). ESG scores from rating agencies serve as standards for comparing global sustainability performance. ESG scores are becoming more important to institutional investors and corporations, driving academic research in this area. Scholars call for more sustainability research utilizing ESG scores due to their efficacy in evaluating firm performance and formulating sustainable strategies (Gurol & Lagasio, 2023; Wong, 2024).

The majority of prior research has focused on stakeholder demands and the quality of institutional systems, especially in developed countries, such as the United States and Europe. This topic has been less explored in emerging markets (Al-Okaily et al., 2023). The GCC region, characterized by unique governance structures, state-dominated economies, and evolving regulatory frameworks, presents a critical yet understudied context for examining ESG dynamics.

To fill this gap, this study adopts a quantitative method to investigate how governance practices influence ESG performance. The dataset consists of listed non-financial companies over three periods, which are pre-COVID-19 (2010–2019), during

COVID-19 (2020–2021), and post-COVID-19 (2022–2023) in the GCC countries. Building on prior research, this study aims to broaden academic understanding by offering a structured contribution to existing literature on governance structures and ESG practices within emerging markets, examined across three separate phases. This study investigates two primary dimensions. First, it examines whether corporate governance mechanisms—specifically board size and board independence—are significantly associated with a firm's inclination to adopt sustainability reporting. Second, it assesses the extent to which the COVID-19 pandemic has altered the relationship between governance practices and ESG performance. From an environmental standpoint, firms have intensified their initiatives to reduce greenhouse gas emissions and improve resource efficiency. On the social front, there has been an increased focus on employee health and safety, customer responsibility, and human rights, leading to better social performance. However, governance performance has been challenged by new risks and uncertainties, such as supply chain disruptions and financial instability. Despite these governance challenges, companies' overall ESG performance has improved as they prioritize ethical behavior and compliance with ESG standards. In short, the worldwide outbreak highlighted the critical role of ESG practices, resulting in positive changes in environmental and social performance, although governance remains an area for improvement. This study adds to the expanding body of research on ESG by offering empirical perspectives into the GCC setting during a critical period of transformation. Therefore, this study aims is to answer the following research questions:

RQ1. Does board size affect ESG performance in the GCC?

RQ2. Does board independence affect ESG performance in the GCC?

RQ3. Does the influence of corporate governance mechanisms on ESG performance differ among the pre, during-, and post-COVID-19 periods?

The remainder of this paper is structured as follows. Section 2 reviews the literature review, outlines the theoretical framework, and formulates the hypotheses. In Section 3, the methodology is presented, including the sample, data collection processes, definitions of variables, and the empirical models employed. The findings are discussed in Section 4, and finally the paper is concluded in Section 5.

2. Literature Review

The emergence of the global financial crisis and a series of natural disasters caused by climate change have led to increased interest in ESG issues. Sustainability, encompassing its three dimensions (ESG), is considered a fundamental strategy for long-term investment that companies use to guide stakeholders on the sustainability of their business operations. Sustainability refers to the implementation of corporate management activities that comply with ethics, laws, and responsibilities (Sharma et al., 2020; Wu et al., 2023).

Although financial reports focus on financial performance, they lack the capacity to provide comprehensive information about the company's image, reputation, brand, integrity, quality, culture, and business strategies. This trend has enhanced corporate sustainability activities in financial markets by monitoring both financial and non-financial performance based on sustainable performance across the three dimensions ESG (Alfalih, 2023; Hansen & Xie, 2025; Triyani et al., 2020). Over time, modern companies have shifted their focus from achieving short-term profitability to attaining long-term growth and sustainability to meet the increase in various stakeholders' expectations and needs.

In recent years, the relationship between corporate governance and ESG practices has gained significant attention, particularly in the context of Saudi Arabia and other GCC countries. Several studies have shed light on the specific mechanisms at play within this region. For example, Al-Qudah and Houcine (2024) found that in the GCC countries, firm size, profitability, and board independence are significant factors influencing sustainability reporting. Similarly, Chebbi and Ammer (2022) confirmed that board size and independence have a positive effect on ESG disclosure in Saudi Arabia, with corporate governance reforms strengthening this relationship. Further research by Hussain et al. (2024) on the top non-financial companies in Saudi Arabia revealed a significant positive relationship between ESG disclosure and firm performance, findings that align with both stakeholder and signaling theories. However, results are not always uniform, Umar et al. (2024) reported more complex relationships, noting that while audit committee size positively influences ESG disclosure, board chairman independence can have a negative association. Together, these studies highlight a growing body of regional evidence and demonstrate the nuanced role of different governance mechanisms in shaping corporate ESG behavior in the GCC.

2.1 Theoretical framework

To optimize shareholder value, boards of directors need to understand the impact of a firm's operations on society and the environment. Companies with strong corporate governance emphasize social and environmental responsibilities more than those with weaker governance (Ren et al., 2023). This indicates that the quality of corporate governance should be strongly positively associated with the disclosure of corporate governance information, social matters, and environmental issues.

This study examines the relationship between corporate governance and ESG performance in the GCC countries utilizing agency theory as a foundational framework. Initially developed by Jensen and Meckling (1976), agency theory posits that shareholders may encounter asymmetric information issues as managers often prioritize their personal objectives over maximizing corporate value. The disclosure of corporate ESG practices can address these asymmetric information issues by informing shareholders about how the company engages with its employees, society, and the environment (Bamahros et al., 2022; Dwekat et al., 2022; Thuy et al., 2024). Moreover, independent board members are crucial in mitigating agency issues between management and shareholders. From the perspective of agency theory, this research hypothesizes that board independence is an essential characteristic that can improve board oversight quality, prevent managerial self-interest behaviors, and thus enhance ESG performance. In line with agency theory, it recommends that having independent board members due to their expertise, experience, and impartiality, particularly when the CEO serves as the chairman of the board (Almutairi & Quttainah, 2020).

Beyond agency theory, legitimacy and signaling theories offer complementary perspectives on ESG performance in the GCC context (Golant & Sillince, 2007). Legitimacy theory posits that firms enhance social and environmental disclosures to align with societal and market expectations This is particularly critical for GCC companies transitioning from hydrocarbon-based economies to sustainable models under initiatives like Saudi Arabia's Vision 2030. Similarly, signaling theory suggests that ESG performance act as strategic signals to global investors, demonstrating a firm's commitment to transparency and sustainability, particularly in the GCC, where state-dominated governance and royal family influence may raise concerns about accountability (Carnini Pulino et al., 2022). Therefore, this study argues that strong ESG performance, especially driven by independent boards, serves as a positive signal to attract international capital and build trust. Top management endeavors to inform stakeholders about ESG initiatives and enhance board expertise, fostering superior corporate responsibility and strengthening the relationship between business and society. High-ESG companies are more likely to build trust in capital and debt markets (Bamahros et al., 2022; Dwekat et al., 2022).

2.2. Board size and ESG performance

Board size refers to the number of directors on board in a firm (Ben Fatma & Chouaibi, 2021). According to Mohammadi et al. (2021), board size is a critical component of corporate governance and serves as a proxy for effective monitoring (Dwekat et al., 2022). Several studies have assessed the effect of board size on firm performance and decision-making, yielding mixed findings. From an agency theory viewpoint, larger boards may lead to increased conflicts among board members, reduced communication effectiveness, and coordination issues, thereby limiting director control (Ben Fatma & Chouaibi, 2021). Larger boards are also perceived as heightening conflicts of interest and being more challenging to manage, potentially leading to lower operational efficiency and decision-making effectiveness, and potentially resulting in indifference to corporate ESG practices and related disclosures. Conversely, from legitimacy perspective, larger boards are associated with improved management oversight and regulatory compliance, thus contributing more to corporate ESG practices. They provide a diverse array of knowledge, skills, and experience, enhancing the board's ability to oversee disclosures and improve ESG practices. Empirical studies have presented mixed outcomes regarding the association between board size and ESG performance. Notably, a recent study by Chebbi and Ammer (2022) found a positive relationship between board size and ESG disclosure in Saudi Arabia, which was further strengthened by corporate governance reforms. Saudi governance regulations do not prescribe an exact number of board members but recommend a range of three to eleven, based on the company's size (Al-bassam et al., 2015; Ebaid, 2022). Based on this, the first hypothesis was developed as follows:

H_1: Board size positively impacts ESG performance in the GCC.

2.3. Board independence and ESG performance

Corporate governance mechanisms in the GCC have evolved to meet the changes in economic, social, and regulatory environments, focusing on enhancing transparency, efficiency, and trust between companies and stakeholders. The socio-cultural foundations of the GCC countries are significantly influenced by tribal traditions and Bedouin values (Alhares & Albaker, 2023). These countries are governed by the royal families who are key drivers of the growth and the development of local businesses. Corporate governance mechanisms have developed to include increased transparency through ESG reporting and promoting board diversity in terms of gender and professional backgrounds to foster innovation and improve risk management. GCC companies also rely on digital transformation and artificial intelligence to enhance operational efficiency and cybersecurity (Issa et al., 2022). Additionally, the importance of activating shareholder roles and establishing oversight committees to ensure regulatory compliance has increased. Emphasis has been placed on sustainability and corporate social responsibility has become essential, as companies strive to meet the needs of local and international communities and enhance the sustainability and growth of their operations over the long term (Al-Janadi et al., 2016; Bamahros et al., 2022). All these developments contribute to improved corporate governance and increased trust between companies and stakeholders in the GCC (Issa et al., 2022).

Board independence is a crucial element in corporate governance (Alshdaifat et al., 2024; Khan et al., 2023; Thuy et al., 2024). According to agency theory, independent directors serve a critical function in overseeing management and auditing company operations, thereby increasing transparency and safeguarding the interests of various stakeholders (Ebaid, 2022; El Khoury et al., 2023; Issa et al., 2022). Integrating independent members on the board is seen to improve the transparency of ESG activities, indicating a company's commitment to social welfare and financial success. Research suggest that independent boards are more likely to increase ESG practices and financial disclosures, thus boosting the company’s reputation among investors (Ledi & Ameza–Xemalordzo, 2023). However, the effectiveness of independent directors can be reduced in certain exceptional situations, such as family-owned businesses, where there may be collusion between independent directors and family business owners. These scenarios illustrate circumstances in which the role of independent directors on the board may be less distinct (Thuy et al., 2024). Drawing on agency and signaling theories, this study proposes that independent boards enhance ESG performance by improving oversight and signaling transparency to stakeholders. In the GCC, where family-owned businesses and tribal traditions may limit managerial accountability, independent directors are crucial for aligning firm practices with global sustainability standards. Recent findings from Al-Qudah and Houcine (2024) and Hussain et al. (2024) provide strong support for this, showing that board independence and ESG disclosure are positively related to financial performance, in line with stakeholder and signaling theories. However, it is important to note the nuanced findings of Umar et al. (2024), who reported a negative association between board chairman independence and overall ESG disclosure. Thus, the second hypothesis is:

H_2: Board independence positively influences ESG performance in the GCC.

2.4. Corporate Governance and ESG Performance Across the Pre, During and Post-COVID-19 Periods

The COVID-19 pandemic has significantly affected the economy and society, bringing operational and disruption risks that are less predictable and manageable and may have long-term effects (Burleyson et al., 2021). Short-term measures and regulations implemented during the pandemic to protect essential industries and workplaces risk neglecting long-term environmental concerns (Markard and Rosenbloom, 2020). Some argue that the positive impacts of COVID-19 are temporary, and the future depends on whether firms return to regular operations or transition towards sustainable development (Alkayed et al., 2024; Bodenheimer and Leidenberger, 2020).

Many investors switched to ESG-based investments during the epidemic, demonstrating a growing understanding of the significance of long-term sustainability. According to Hambali and Adhariani (2023), inflows into sustainability investment funds were an anticipated $45.6 billion worldwide in the first quarter of 2020. This trend suggests that investors are seeking safety and now value a company's sustainability performance. Consequently, managers are seizing the opportunity to meet market demand for sustainability information by show casing their companies' performance through websites and annual reports. According to stakeholder theory, the pandemic can be viewed as an external driver encouraging sustainable investment, motivating firms to strengthen their sustainability initiatives (Al Amosh & Khatib, 2023; Hambali & Adhariani, 2023). Based on this, the third hypothesis was developed as follows:

> H_3: The impact of corporate governance mechanisms on ESG performance varies across pre-, during-, and post-COVID-19 periods.

3. Methodology

3.1 Sample

This study employs a quantitative approach to analyze the impact of corporate governance mechanisms on ESG performance in non-financial companies listed in GCC countries. The initial dataset included 1,049 observations from Bloomberg. After excluding observations with missing ESG scores, board size, board independence, or financial data, the final dataset comprises 824 observations: 296 for pre-COVID-19, 260 for during COVID-19, and 268 for post-COVID-19. This study focuses on non-financial sectors and excludes financial sectors due to their distinct regulatory frameworks and governance structures. The final sample size is considered adequate for statistical analysis, as it meets the minimum requirements for robust regression models and ensures reliable estimation of relationships between corporate governance mechanisms and ESG performance.

3.2.Measurments of Variables

This study focuses on board size (BSIZE) and board independence (BIND) as key corporate governance mechanisms, given their prominence in prior ESG research (Moussa & Elmarzouky, 2024) and relevance to GCC regulatory frameworks, which emphasize board composition. Firm size (FSIZE) and return on assets (ROA) are included as control variables to account for scale and profitability effects (Almulhim & Aljughaiman, 2023; Basali & Mohammed, 2025; Moussa & Elmarzouky, 2024). Other mechanisms, such as board diversity or CEO duality, were excluded to ensure model parsimony and data availability. Table 1 summarizes the variables, their definitions, and sources.

Table 1: Operational Definitions of Model Variables

Variable	Label	Measurement/ Source
Dependent Variables		
ESG score	ESG	A score of 0 indicates no ESG data disclosure, while 100 indicates full disclosure. (Almulhim & Aljughaiman, 2023; Moussa & Elmarzouky, 2024). Sources: Bloomberg
Independent Variable		
Board size	BSIZE	Number of members on a company's board of directors (Moussa & Elmarzouky, 2024). Sources: Bloomberg
Board independent	BIND	Number of board members that are independent of the company's management.

		Sources: Bloomberg
Control Variable		
Firm Size	FSIZE	Natural log of the total assets. Sources: Bloomberg & Author's calculation.
Return on assets	ROA	It measures a company's efficiency in generating earnings from its asset base, calculated as net income divided by total assets (Almulhim & Aljughaiman, 2023; Moussa & Elmarzouky, 2024). Sources: Bloomberg

Source: Authors' construction

3.3.Research Model

To examine the impact of corporate governance mechanisms on ESG performance, this study employs a panel regression model (Arena et al., 2015; Moussa, 2024). The model is specified as:

$$ESG_{\ it} = \beta_0 + \beta_1\ (BSIZE)_{\ it} +\ \beta_2\ (BIND)_{\ it} + \beta_3 (FSIZE)_{\ it} + \beta_4 (ROA)_{\ it} + \varepsilon_{it} \qquad (1)$$

Where $ESG_{\ it}$ is the dependent variable and is predicted by a combination of independent and control variables. The independent variables are board size (BSIZE) and board independent (BIND), while the control variables include firm size (FSIZE) and return on assets (ROA). The coefficients (β) indicate the alteration in the dependent variable (ESG) that results from a one-unit alteration in the respective predictor variable. The error term (ε) captures the variability in the dependent variable that is not accounted for by the model.

4. Empirical Results

The statistical analysis included descriptive statistics, correlation, and regression modeling, due to its robust capabilities in econometric and statistical procedures. The integration of these tools facilitated a thorough and effective examination of the dataset.

4.1 Descriptive Statistics

Descriptive statistics provide insights into the central tendencies, dispersion, and distribution of key variables used in this study, including ESG performance (ESG), board size (BSIZE), board independence (BIND), firm size (FSIZE), and return on assets (ROA). These variables are analyzed across three distinct periods: pre-COVID-19, during COVID-19, and post-COVID-19 to assess the evolution of corporate governance mechanisms and their impact on ESG performance in GCC countries. Table 2 shows the descriptive results.

Table 2: Descriptive Statistics Results

Variables	Obs.	COVID-Period	Mean	Max	Min	Std. Dev	Skew	Kur
ESG	296	Pre	29.19	33.00	0.73	21.14	3.34	30.52
	260	During	30.19	81.34	2.16	18.04	0.59	2.58
	268	Post	32.82	83.85	3.00	19.36	0.40	2.31
BSIZE	296	Pre	9	15	6	2.58	1.40	9.29
	260	During	8	16	3	1.98	0.31	3.36
	268	Post	8	15	5	1.93	0.23	2.67
BIND	296	Pre	47.08	100	0.00	25.31	0.33	2.54

	260	During	54.54	100	0.00	23.53	0.28	2.37
	268	Post	55.55	100	0.00	22.46	0.35	2.39
FSIZE	296	Pre	6.58	8.55	3.41	0.78	-0.24	3.10
	260	During	6.19	8.70	3.18	0.77	0.06	4.04
	268	Post	6.25	8.81	4.71	0.76	0.42	3.22
ROA	296	Pre	7.08	46.42	-36.82	9.08	-0.06	9.10
	260	During	5.45	42.12	-35.39	9.40	0.43	7.01
	268	Post	7.00	42.84	-50.49	9.44	-0.13	9.36

Source: STATA results

As shown in Table 2, the pre-COVID-19, the mean ESG_SCORE was 29.19, with a standard deviation of 21.14, indicating substantial variability in ESG performance among firms. The BSIZE had an average of 9 members, with a minimum of 6 and a maximum of 15, while BIND averaged 47.08%, suggesting a moderate level of board independence. FSIZE, measured as the natural logarithm of total assets, had a mean of 6.58, whereas ROA averaged 7.08%, reflecting firms' profitability.

During the COVID-19 period, there was a slight increase in ESG, which rose to 30.19 with a standard deviation of 18.04, possibly reflecting firms' heightened focus on sustainability amid the global crisis. BSIZE decreased to an average of 8, suggesting potential structural adjustments in governance practices during the pandemic. Interestingly, BIND increased to 54.54%, reflecting a shift towards greater independence in corporate boards. FSIZE declined slightly to 6.19, while ROA dropped to 5.45%, indicating financial strain during the pandemic.

In the post-COVID-19 period, firms demonstrated an increased commitment to ESG, with an ESG of 32.82, marking a notable improvement compared to the earlier periods. BSIZE remained relatively stable at 8, while BIND continued to rise, reaching 55.55%. FSIZE showed a marginal increase to 6.25, suggesting firms' recovery from the financial challenges of the pandemic. Meanwhile, ROA improved to 7.00%, indicating a rebound in financial performance as firms adapted to the post-pandemic business environment.

The descriptive statistics indicate a gradual improvement in ESG performance, with scores rising from 29.19 (pre-COVID-19) to 32.82 (post-COVID-19). This trend, particularly evident during and after the COVID-19 crisis, may reflect heightened stakeholder pressure for sustainability and GCC firms' alignment with national agendas like Saudi Arabia's Vision 2030. The increase in board independence (from 47.08% to 55.55%) suggests stronger governance reforms to address pandemic-related risks, aligning with global trends toward responsible business practices.

4.2.Pearson Correlation Matrix

The Pearson correlation matrix was used to determine the relationship between the independent variables and the dependent variables on one hand, and between the independent variables themselves on the other. The correlation coefficient values range between (+1, -1). The closer the correlation degree is to (1), the stronger the positive correlation between the two variables under study. Conversely, if the correlation degree is closer to (-1), there is a strong negative correlation between the two variables under study. However, if the correlation coefficient is (0), it indicates no linear relationship between the two variables. The Pearson correlation matrices for the pre-, during-, and post-COVID-19 periods are presented in Appendices 1–3, respectively, and are available in the supplementary materials.

BSIZE has a weak negative correlation with ESG pre-COVID-19 (-0.147***), but weak positive correlations during (0.159) and post-COVID-19 (0.193). BIND shows a weak negative correlation pre-COVID-19 (-0.032), but weak positive correlations during (0.084) and post-COVID-19 (0.093). FSIZE has strong positive correlations with ESG, from 0.327 to 0.559, across all periods. ROA has a weak negative correlation pre-COVID-19 (-0.065), but weak positive correlations during (0.132*) and post-COVID-19 (0.152). Since the correlations between the variables are weak to moderate and the variance inflation factor values are less than 10, there were no multicollinearity problems, guaranteeing accurate regression findings (Meyers et al., 2016).

4.3.Regression Results

The aim of this study is to examine the impact of corporate governance mechanisms on ESG performance. The dataset consists of listed non-financial companies over three distinct periods: pre-COVID-19, during COVID-19, and post-COVID-19 in the GCC countries. To achieve this, three econometric models were used: pooled ordinary least squares (OLS), Fixed Effects (FE), and Random Effects (RE). These models were chosen to capture the nuances and complexities of the data, providing a comprehensive understanding of the influential variables. The following key variables were focused on board size, independent board, firm size, and return on assets. The significance and impact of each variable was assessed using statistical tests, including the Hausman test, to determine the best-fit model for each period. The results provide valuable insights into how these factors impact ESG performance during different phases of the pandemic. Table 3 presents the regression results for the OLS, FE, and RE models across the pre-, during-, and post-COVID-19 periods, reporting coefficients, p-values, and model fit statistics. The key findings from these models are as follows:

Table 3: Regression analysis results for all models

Variables	Model 1: Pre-COVID-19			Model 2: During-COVID-19			Model 3: After -COVID-19		
	Pooled OLS	**Fixed Effects**	**Random Effects**	**Pooled OLS**	**Fixed Effects**	**Random Effects**	**Pooled OLS**	**Fixed Effects**	**Random Effects**
Coff	-26.70937* (0.0829)	-297.9284* (0.1879)	- 97.09033*** (0.0054)	***-59.97062 (0.0000)	-195.1871** (0.0434)	- 66.27499*** (0.0000)	- 75.33822*** (0.000)	-128.0873* (0.0634)	- 101.6032*** (0.000)
BSIZE	-1.842475* (0.1371)	-0.832082 (0.5668)	-0.811235 (0.3400)	0.946884 (0.3436)	4.319793 (0.6205)	0.672291 (0.5112)	0.375482 (0.7060)	-2.927914 (0.7028)	-1.160443 (0.3093)
BIND	-0.080244* (0.1371)	0.340338*** (0.0004)	0.233260*** (0.0006)	0.169556*** (0.0098)	-0.389245 (0.9127)	0.174182* (0.0088)	0.189886*** (0.0068)	0.342840 (0.8819)	0.256345*** (0.0010)
FSIZE	11.54242*** (0.0000)	46.83697* (0.1648)	18.68216*** (0.0003)	11.37744*** (0.0000)	32.38995 (0.2016)	12.79726*** (0.0000)	14.73207*** (0.0000)	26.53136 (0.2627)	20.74056*** (0.0000)
ROA	-0.175535 (0.3042)	0.048056 (0.9320)	-0.152942 (0.5289)	0.376252* (0.1059)	1.501713 (0.6644)	0.345829* (0.1582)	0.451386* (0.0765)	0.140679 (0.5974)	0.082777 (0.5771)
F-statistic	13.51677*** (0.000)	19.68313*** (0.000)	6.549924*** (0.000)	11.18534*** (0.000)	3.995864*** (0.007)	12.85942 (0.000)	15.02172*** (0.000)	1.645477* (0.127256)	9.844726*** (0.000)
R-squared	0.215640	0.774506	0.070794	0.297257	0.909758	0.350874	0.372810	0.971016	0.588545
Hausman Test			4.022095 (0.4030)			3.313057 (0.5069)			0.600077 (0.9631)

Source: STATA. *, **, *** significant at 10%, 5% and 1%.

Pre-COVID-19 Period

BSIZE did not show a significant impact in most models, with OLS and fixed effects models indicating weak or insignificant effects. However, BIND showed a positive and significant impact on ESG performance in FE (coefficient = 0.340338, p-value = 0.0004) and RE (coefficient = 0.233260, p-value = 0.0006) models. FSIZE had a positive and significant effect on ESG performance, with the OLS model showing the highest significance (coefficient = 11.54242, p-value = 0.0000). Finally, the ROA coefficient did not show a significant effect on ESG performance in any of the models. The F-statistic showed strong significance across all models, indicating that the models explain a significant portion of the variance in the data. According to the Hausman model, if the p-value of the Hausman test is greater than 5%, we accept that the RE estimates are more consistent than the FE estimates.

The Hausman test ($p > 0.05$) indicates that the RE model is more consistent for the pre-COVID-19 period (2010–2019). Results from Table 3 show that board independence (BIND) and firm size (FSIZE) positively affect ESG performance at significance levels of 0.05 (coefficient = 0.233260) and 0.01 (coefficient = 18.68216), respectively, supporting H2. This finding supports agency theory, which suggests that independent directors improve oversight and protect stakeholder interests, leading to better ESG outcomes. This aligns with studies emphasizing independent directors' role in enhancing ESG transparency (Al-Qudah & Houcine, 2024; Dwekat et al., 2022; Ebaid, 2022; Thuy et al., 2024). However, board size (BSIZE) has no significant impact, rejecting H1, possibly due to coordination challenges in larger GCC boards influenced by tribal traditions (Alhares & Albaker, 2023; Thuy et al., 2024). This contrasts with Mohammadi et al. (2021), who found positive effects of board size in Western contexts, and also contrasts with Chebbi and Ammer (2022) who found a positive relationship between board size and ESG disclosure in Saudi Arabia, highlighting the GCC's unique governance dynamics.

During-COVID-19 Period

During the COVID-19 period, the BSIZE variable again did not show a significant impact on ESG performance in most models. The BIND variable had a significant and positive impact on ESG performance in the OLS model (coefficient = 0.169556, p-value = 0.0098) and RE models (coefficient = 0.174182, p-value = 0.0088). The FSIZE variable showed a positive and significant impact on ESG performance in all models, with the OLS model indicating the highest significance (coefficient = 11.37744, p-value = 0.0000). The ROA variable had a weakly significant positive effect in the pooled ordinary least squares model (coefficient = 0.376252, p-value = 0.1059) and a moderately significant positive effect in the random effects model (coefficient = 0.345829, p-value = 0.1582). The F statistic remained significant in all models, indicating that the models continue to explain a significant portion of the variance in the data. According to the Hausman model, if the p-value of the Hausman test is greater than 5%, we accept that the RE estimates are more consistent than the FE estimates.

As shown in Table 3, the p-value is greater than 5%, in which case the RE model is more consistent; therefore, there is a positive effect of BIND, FSIZE and ROA on ESG at the significance level of 0.05, 0.01 and 0.1 by (0.174182) (12.79726) (0.345829) respectively. This supports H2 and aligns with signaling theory, as a company's commitment to independent governance and strong ESG performance serves as a positive signal to investors, particularly during a crisis, building trust and attracting capital. It is clear during the COVID-19 period (2020-2021) that this result supports the second hypothesis “Board independence positively affects ESG performance in GCC countries” as this result agrees with both (Al-Qudah & Houcine, 2024; Dwekat et al., 2022; Ebaid, 2022; Shafira et al., 2021; Shakil et al., 2020; Thuy et al., 2024). However, it does not support the first hypothesis “Board size has a significant impact on ESG performance in GCC countries” as this result agrees with both (Ben Fatma & Chouaibi, 2021).

Post-COVID-19 Period

BSIZE did not have a significant impact on ESG performance in most models in the psot-COVID-19 period. The BIND variable had a significant and positive impact on ESG performance in the OLS model (coefficient = 0.189886, p-value = 0.0068) and RE models (coefficient = 0.256345, p-value = 0.0010). FSIZE showed a strong positive impact on ESG performance in all models, with the highest significance indicated for the OLS model (coefficient = 14.73207, p-value = 0.0000). The ROA variable had a weakly significant positive effect in the pooled ordinary least squares model (coefficient = 0.451386, p-value = 0.0765) but did not show a significant effect on ESG performance in the other models. The F-statistic remained strongly significant in all models, showing that the models explain a significant portion of the variance in the data.

According to the Hausman model, if the p-value of the Hausman test is greater than 5%, we accept that the RE estimates are more consistent than the FE estimates. As shown in Table 3, the probability value is greater than 5%, in which case the RE model is more consistent. Accordingly, the results indicate a positive effect of BIND and FSIZE on ESG at the significance level of 0.05 and 0.01, by (0.256345) (20.74056) respectively. The strengthening positive relationship between board independence and ESG performance post-COVID-19 provides further evidence for legitimacy theory. This suggests that in the aftermath of a global crisis, companies with more independent boards enhanced their social and environmental disclosures to align with heightened societal expectations and to demonstrate a renewed commitment to sustainability. It is clear during the post-COVID-19 period (2022-2023) that this result supports H2 “Board independence positively affects ESG performance in GCC countries” as this result is consistent with both (Al-Qudah & Houcine, 2024; Dwekat et al., 2022; Ebaid, 2022; Shakil et al., 2020; Thuy et al., 2024; Wong, 2024). This stronger effect of BIND post-COVID-19 suggests that independent boards played a critical role in addressing pandemic-induced risks, such as supply chain disruptions, aligning with findings from Al-Qudah and Houcine (2024), who note increased investor demand for ESG transparency during crises. However, the complexity of governance's role is highlighted by studies like Umar et al. (2024), who found a negative association between board chairman independence and overall ESG disclosure, suggesting a need for a nuanced understanding of governance mechanisms in the region. However, it does not support the first hypothesis “Board size has a significant impact on ESG performance in GCC countries” as this result is consistent with both (Ben Fatma & Chouaibi, 2021).

The Hausman test ($p > 0.05$) confirms the random effects model’s consistency for the post-COVID-19 period. Table 3 shows that board independence (BIND) and firm size (FSIZE) positively affect ESG performance at significance levels of 0.05 (coefficient = 0.256345) and 0.01 (coefficient = 20.74056), respectively, supporting

H2. This stronger effect of BIND post-COVID-19 suggests that independent boards played a critical role in addressing pandemic-induced risks, such as supply chain disruptions, aligning with findings from Al-Qudah and Houcine (2024), who note increased investor demand for ESG transparency during crises.

5. Managerial and Policy Implications

This study provides practical insights for investors, corporate leaders, and policymakers in the GCC region. The findings underscore the importance of governance structures in promoting strong ESG performance, which is vital for building stakeholder trust and fostering sustainable development.

For investors and corporate leaders, the study's findings consistently show that greater board independence and firm size are associated with better ESG performance. The positive relationship between board independence and ESG performance across all periods of the COVID-19 pandemic suggests that companies should prioritize appointing more independent directors. This is a critical step for improving transparency and oversight, which helps firms meet global sustainability standards and builds credibility with stakeholders.

For policymakers, the study offers actionable recommendations for encouraging ESG adoption in the GCC. The results indicate that while board size does not have a significant effect, board independence consistently drives better ESG outcomes. This suggests that regulatory efforts should focus on enhancing the quality of board governance, particularly by promoting greater independence, rather than simply mandating a specific number of board members. By encouraging these governance reforms, policymakers can support their nations' transitions to more sustainable, diversified economies, in line with national visions like Saudi Vision 2030 and UAE Net Zero 2050.

6. Conclusion

The primary objective of this study is to examine the influence of board size and board independence on ESG performance across different periods (pre, during, and post-COVID-19) within non-financial companies in the GCC region. This investigation seeks to enrich the academic literature in terms of corporate governance and ESG performance in emerging markets. The author conducted a practical study on a sample of 824 observations from non-financial companies in GCC countries, with financial sectors excluded due to their unique regulatory frameworks. This robust sample size ensures reliable regression models and comprehensive statistical analysis.

The results showed that during the pre-COVID-19 period, board size did not have a significant influence on ESG performance in most models, while board independent had a significant and positive impact on ESG performance. Firm size had a significant positive effect on ESG performance in all models, and ROA did not show a significant effect. During-COVID-19 and post-COVID-19 periods, board independent and firm size continued to have a significant positive impact on ESG performance, The results indicate a consistent positive effect of board independence and firm size on ESG performance across all periods, while board size did not have a significant impact.

This study offers important contributions to the literature of ESG by providing empirical perspectives into the GCC region during a transformative period. However, it has limitations. The focus on non-financial firms excludes the financial sector, which may exhibit distinct ESG dynamics due to its regulatory environment. Additionally, reliance on Bloomberg ESG scores may reflect disclosure quality rather than actual performance. The study also examines only board size and independence, omitting other governance mechanisms like board diversity. Future research could include financial firms, use alternative ESG metrics, or explore additional governance variables. Qualitative studies could further investigate how cultural factors, such as tribal traditions, shape ESG adoption in the GCC.

Appendices: Correlation Analysis Results

Appendix (1): Pre-COVID-19 correlations analysis

Variables	ESG	BSIZE	BIND	FSIZE	ROA
ESG	1				
BSIZE	-0.147***	1			
	0.0113				
BIND	-0.032	-0.105*	1		
	0.5783	0.0707			
FSIZE	0.327***	0.257 ***	-0.280***	1	
	0.0000	0.0000	0.0000		
ROA	-0.065	0.163**	-0.143**8	0.043	1
	0.2626	0.0048	0.0135	0.4641	

Source: STATA results. *, **, *** significant at 10%, 5% and 1%.

Appendix (2): During-COVID-19 correlations analysis

Variables	ESG	BSIZE	BIND	FSIZE	ROA
ESG	1				
BSIZE	0.159***	1			
	0.0104				
BIND	0.084*	-0.205***	1		
	0.1767	0.0009			
FSIZE	0.486***	0.423***	-0.181***	1	
	0.0000	0.0000	0.0034		
ROA	0.132**	-0.054	-0.083*	0.077	1
	0.0330	0.3876	0.1811	0.2163	

Source: STATA results. *, **, *** significant at 10%, 5% and 1%.

Appendix (3): Post-COVID-19 correlations analysis

Variables	ESG	BSIZE	BIND	FSIZE	ROA
ESG	1				
BSIZE	0.193***	1			
	0.0016				
BIND	0.093*	-0.241***	1		
	0.1301	0.0001			
FSIZE	0.559***	0.406***	-0.198***	1	
	0.0000	0.0000	0.0012		
ROA	0.152*	-0.013	-0.044	0.109*	1
	0.0132	0.8302	0.4798	0.0752	

Source: STATA results. *, **, *** significant at 10%, 5% and 1%.

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