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The Moderating Role of Board Independence in the Relationship Between CEO Tenure and Firm Performance in the Gulf Cooperation Council Countries

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ABSTRACT

This study examines the influence of CEO tenure on firm performance. It also investigates the moderating effect of board independence. The sample comprises publicly listed firms in the Gulf Cooperation Council Countries (GCC) stock markets over the period 2014–2023, and the analysis employs panel data techniques to test the proposed relationships. The empirical findings show that CEO tenure is positively and significantly associated with accounting-based performance (ROA), while no statistically significant relationship is found with market-based performance (Tobin's Q). Robustness checks using ROE confirm the positive effect of tenure on accounting outcomes. The moderating role of board independence is evident in the case of ROA, where increased oversight diminishes the benefits of longer CEO tenure. For Tobin's Q, however, the moderating effect of board independence is negative but not statistically significant. This study contributes evidence from an emerging-market environment by distinguishing between accounting and market results and by documenting the moderating role of board independence.

Keywords: CEO tenure, Firm performance, Board independence, Corporate governance, GCC.

INTRODUCTION

In today's dynamic and evolving corporate environment, the function of the Chief Executive Officer (CEO) is of vital importance. The success of a firm is frequently attributed to the leadership and decision-making capabilities of the CEO. The CEO is crucial in determining a company's strategic direction, allocation of resources, and overall performance [1,2]. Among a firm's top managers, the CEO, who typically operates with the least oversight, has the greatest discretion to reflect personal preferences in the firm's actions, which can significantly influence

organizational outcomes [3,4]. Managerial characteristics, particularly CEO tenure, typically defined as the number of years a CEO has served in their current role, have been acknowledged as important indicators of firm results in both academic and professional contexts. In recent years, corporate leadership dynamics have come under increased attention due to a rise in executive turnover; for example, nearly 1,991 CEOs exited from their positions in 2024—a 16% increase from the prior year and the highest yearly total since tracking began in 2002 [5]. This escalation highlights increasing instability in tenure patterns and raises necessary questions on the impact of time in office on performance continuity and effectiveness. Insights on the performance implications of CEO tenure have become increasingly critical for boards, investors, and executive search teams regarding succession planning, governance design, and risk management. Despite this urgency, academic findings on the link between CEO tenure and firm performance remain inconclusive, highlighting the need for a greater understanding of the circumstances under which tenure enhances or hinders firm success.

A growing body of research has investigated the influence of CEO tenure on firm performance, yet the findings are inconclusive. Some studies indicate a positive association [6], others propose a negative impact [7], while some reveal a curved (inverted U-shaped) relationship [6], and hump-shaped [8]. Furthermore, most of these studies focus on developed markets such as the United States and Western Europe, constraining the understanding of how these dynamics appear in emerging economies with different governance frameworks, such as those in the Gulf Cooperation Council Countries GCC.

Established in 1981, the Gulf Cooperation Council (GCC) is an economic union of six Arab Gulf countries: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates (UAE). The GCC countries share common features, including Islam as the dominant religion, Arab ethnicity, monarchical political systems, oil-dependent economies, and similar cultural and traditional values [9,10]. Over the past two decades, these oil-rich countries have experienced substantial financial market growth, attracting local, regional, and foreign direct investment [11]. Therefore, the GCC countries present an environment where improved and more robust governance mechanisms are necessary for active participation in the global financial market [12]. Along with its other features, the GCC region is known for family ownership and royal family ownership of businesses, making strong corporate governance practices essential for building investor confidence. The GCC countries have similar regulations regarding corporate governance such as board independence, with all requiring at least one-third of board members to be independent according to their respective stock market regulations. Therefore, the GCC provides a valuable context for examining the relationship between certain characteristics of CEO, board factors, and firm performance, given its representative features of an emerging market.

The trend of CEO resignations seen globally is equally present in the GCC region. For instance, in 2024, the UAE alone recorded 38 CEO departures [13], demonstrating that leadership turnover in the region aligns with global patterns. However, although CEO exits in the GCC are increasingly observed, academic research exploring how CEO tenure impacts firm success in the region remains notably limited. A study by Ghardallou et al. (2020) examines the effect of CEO tenure on firm performance, but it is limited in scope and duration, covering only firms in Saudi Arabia for four years. As the authors note, this relationship had not been previously studied empirically in the Saudi context. Another study conducted by [NO_PRINTED_FORM] [14] focuses

only on non-financial firms in Oman over a two-year period, limiting the generalizability of its findings across the broader GCC region. Similarly, [NO_PRINTED_FORM] [7] investigates the effect of CEO tenure on firm performance, but the study is limited to non-financial firms in Kuwait and covers only a single year. Moreover, the findings are inconsistent, with some reporting positive effects [14,15] and others negative [7].

This study contributes to the literature on emerging markets, particularly the GCC region, where corporate governance is still a relatively recent and evolving practice. It addresses the growing phenomenon of CEO exits, with a specific focus on the duration of CEO tenure and its potential impact on firm performance. Moreover, the study seeks to deepen the understanding of board independence, a highly emphasized aspect of corporate governance in the GCC, and its potential moderating effect on the relationship between CEO tenure and firm performance. Accordingly, the study has two main objectives: firstly, to investigate the effect of CEO tenure on firm performance, and secondly, to examine the moderating role of board independence in this relationship in the GCC context where it has not been investigated yet. This paper utilizes a comprehensive hand-collected dataset from the GCC markets covering the period from 2014 to 2023 to investigate the study's objectives.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

Firm Performance

Successful firms are considered crucial for the development of emerging economies, acting as engines of economic, social, and political progress, with their performance increasingly studied as a dependent variable in strategic management because it reflects how well firms adapt and succeed in competitive environments [16]. Firm performance (FP) is broadly defined as the extent to which a corporation achieves its financial, strategic, and operational objectives [17]. In corporate governance research, firm performance is typically evaluated using financial indicators, as they offer measurable, comparable metrics of a firm's results across time. These measures are especially valuable for analysing CEO-related aspects, since they provide a means to assess the degree to which executive leadership and board oversight influence a firm's success. Financial performance not only indicates a company's status but also shows the influence of senior management and governance frameworks on organizational results.

Firm performance is commonly evaluated using two main approaches: accounting-based and market-based measurements. Each offers its own strengths and limitations. Accounting-based indicators such as Return on Assets (ROA) and Return on Equity (ROE) are widely used because they provide insight into a firm's past profitability and operational efficiency using financial data [18,19]. However, these measures are often seen as backward-looking and can be affected by differences in accounting standards, especially when it comes to valuing intangible assets [20]. In contrast, market-based measures such as Tobin's Q take a forward-looking view, reflecting how investors perceive a firm's future performance. However, they can also be influenced by external market conditions that may not relate directly to a firm's internal operations [21,22]. In the literature, several studies have examined the impact of CEO tenure on firm performance, using measures such as ROA, ROE, and Tobin's Q [15,23]. Therefore, given the pros and cons of both approaches, this study uses both ROA and Tobin's Q to assess firm performance. This combined approach allows for a more balanced and comprehensive analysis, particularly in examining how CEO tenure influences performance, with board independence considered as a moderating factor.

CEO Tenure

CEO tenure refers to the period during which an individual holds and performs the responsibilities of the CEO position within a particular organization [4,24]. CEO tenure is seen as a crucial element that can influence and reflect both the decision-making patterns and personal attributes of CEOs [25]. Therefore, the impact of CEO tenure on several aspects of corporate performance has received considerable interest in the literature. Some of the dimensions of firm outcomes, that have been examined in relation with CEO tenure, includes corporate social and environmental disclosures [26], the quality of information disclosed [27], earnings management [28], and corporate social responsibility (CSR) performance [29]. Among the various organizational outcomes, business performance stands out as one that can be greatly shaped by CEO tenure.

The link between CEO tenure and firm performance has sparked considerable debate in the corporate governance literature, largely due to the contrasting assumptions underlying agency theory and stewardship theory. Agency theory [30,31] highlights the risk of misalignment between managerial interests and those of shareholders, particularly in the absence of effective monitoring. CEOs with extended tenures typically possess a deeper understanding of the firm's operations, accumulate more context-specific expertise, and cultivate enduring relationships with shareholders, thereby mitigating agency conflicts and enhancing the firm's long-term value [4]. However, excessively prolonged tenures can consolidate CEOs' power, enabling them to resist shareholder demands, thereby intensifying conflicts of interest and undermining the firm's performance [4,32,33]. Extending this logic, some scholars suggest that CEOs who remain in office for extended periods may become entrenched, less responsive to oversight, and resistant to strategic change then potentially to the detriment of firm performance.

On the other hand, stewardship theory presents a more optimistic view, proposing that executives can be trusted stewards of organizational goals [34]. CEOs with longer tenures possess a greater understanding of the organization's objectives and values [35]. From this perspective, longer tenure may enhance performance by allowing CEOs to develop deeper firm-specific knowledge, foster stronger internal relationships, and pursue long-term strategic objectives more effectively. Furthermore, this relationship has also been explained by additional theories, such as upper echelons theory and resource dependence theory. Developed by Hambrick and Mason in 1984, upper echelons theory posits that a CEO's background, personal values, and personality traits significantly influence their strategic decisions and, consequently, the organization's performance [36]. Additionally, resource dependence theory proposes that organizations rely on external resources and strategic relationships as essential drivers of growth [37]. Under this theory, CEOs who have served in their positions for a longer period are likely to have developed more extensive professional networks and gained greater access to valuable resources, which can, in turn, contribute to improved performance for the firm [38].

The literature reports considerable variation in empirical findings concerning the relationship between CEO tenure and firm performance. For instance, several researchers have found a significant positive association [6,39], whereas some other studies have reported negative link between CEO tenure and firm performance [7]. Moreover, some researchers have observed no statistically significant link [40], while a few studies have identified a U-shaped relationship [6,41]. In addition to the inconsistent findings of existing research, most studies are concentrated in

developed countries. For instance, a recent study by [6] examines New Zealand, a developed country operating under a principles-based corporate governance framework. Therefore, it is important to explore the CEO tenure–firm performance link within the GCC economies, where unique institutional and cultural factors may shape the results. Accordingly, the following hypothesis are proposed to examine this relationship in the GCC context.

- **H1:** CEO tenure significantly impacts the performance of firms in the GCC region.

Board Independence as a Moderator

While the CEO is responsible for managing the firm's strategic and operational activities, the board of directors serves as an oversight body that monitors management and protects shareholder interests. Among board characteristics, independence is considered particularly important, as it shapes the board's ability to influence firm-level decisions and outcomes [42]. In corporate governance, board independence describes a board composition in which outside or non-executive directors, unconnected by significant financial or personal relationships to the firm, can monitor and guide management with objectivity. Independent boards enhance the effectiveness of corporate oversight, contributing to more comprehensive monitoring of organizational performance [43]. Board independence is a critical internal mechanism of corporate governance that maintains a balance between managerial power and the protection of shareholders' interests [44]. Moreover, board independence is widely recognized as a critical factor in strengthening corporate governance, as it supports unbiased decision-making and mitigates the influence of personal or conflicting interests [45,46]. This unbiased role is consistent with agency theory, which views board independence as a means of restraining managerial self-interest. By ensuring transparency and prioritizing the interests of stakeholders, independent directors play a pivotal role in mitigating agency problems [47]. The perspective offered by agency theory finds further reinforcement in the principles of resource dependence theory and upper echelons theory [48,49]. Under resource dependence theory, the broader knowledge, specialized expertise, and external networks that independent directors bring are seen as valuable assets that can enhance a firm's overall performance. Independent directors often possess advanced educational qualifications, extensive resources [50], and substantial experience across various companies [51], all of which can enhance their effectiveness in board roles. Moreover, upper echelons theory supports the role of independent directors, as it assumes that board members should have the necessary expertise to contribute effectively [25,47,48].

Empirically, numerous studies have demonstrated that independent directors positively influence firm performance [52–55]. Moreover, the literature has identified board independence as an important moderating variable. This role, as discussed theoretically earlier, highlights the function of independent directors in safeguarding shareholder value. Independent directors limit managers from acting in their own interest by closely reviewing decisions and making sure strategies serve shareholders, which in turn affects how managerial discretion influences company results. Previous research has applied board independence as a moderator in various contexts, including the relationships between CEO tenure and the corporate social and environmental disclosures [26], CEO tenure and the quality of information disclosed [27], CEO confidence and firm performance [56], CEO duality and firm performance [57]. Moreover, as discussed in the previous section, prior research on the relationship between CEO tenure and firm performance has produced inconsistent findings. While some studies report a positive association, others find negative or statistically insignificant effects. These mixed results

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suggest that the effect of CEO tenure may be contingent upon specific contextual or organizational factors. Therefore, the introduction of a moderating variable is justified to help clarify the conditions under which CEO tenure influences firm performance. Therefore, given the empirical evidence on the moderating role of board independence in the relationship between various CEO attributes and firm outcomes, and drawing on the theories discussed above, the following hypothesis is proposed:

- **H2:** Board independence moderates the relationship between CEO tenure and the performance of firms in the GCC region.

Figure 1 presents the framework of this study, illustrating the direct relationship proposed in Hypothesis 1 (H1) and the indirect moderating relationship proposed in Hypothesis 2 (H2).

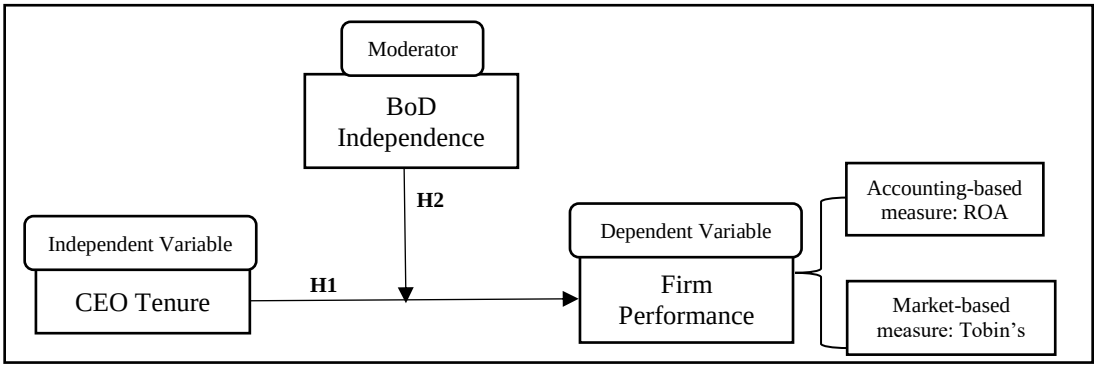

Figure 1: Research Framework.

DATA AND RESEARCH METHODOLOGY

Model Specification and Method of Estimation

This study employs a sequence of models for panel data analysis to examine the effect of CEO tenure on firm performance and the moderating role of board independence. The analysis begins with pooled Ordinary Least Squares (OLS) estimation, followed by the Breusch–Pagan Lagrange Multiplier (LM) test to assess whether a random effects (RE) model is preferred over pooled OLS. If the LM test is significant ($p < 0.05$), both fixed effects (FE) and RE models are estimated and compared using the Hausman specification test. A significant Hausman result ($p < 0.05$) leads to the adoption of the FE model; otherwise, the RE model is retained. The moderating effect is tested with an interaction term between CEO tenure and board independence. Variance Inflation Factors (VIF) are calculated to assess multicollinearity among explanatory variables. For the selected model, diagnostic tests are conducted to ensure validity: heteroskedasticity is assessed using the Modified Wald test for groupwise heteroskedasticity (for FE) or the Breusch–Pagan/White test (for OLS/RE), and serial correlation is examined using the Wooldridge test for autocorrelation in panel data. Additional robustness checks are conducted by re-estimating the main models with alternative measure of firm performance to verify the stability and consistency of the results.

Two measures of the dependent variables were analysed separately. For ROA, the Hausman test indicated that fixed effects were appropriate. Diagnostic tests indicated the presence of heteroskedasticity (Breusch–Pagan/White test) and first-order serial correlation (Wooldridge test) in the panel data. To address these issues, following [58–60], the model was re-estimated using fixed effects with Driscoll–Kraay standard errors, introduced by [61], which are robust to

serial correlation, heteroskedasticity, and cross-sectional dependence [62]. This approach is common when firms are simultaneously exposed to macroeconomic shocks such as GDP growth fluctuations or the COVID-19 pandemic. Furthermore, given the structure of the dataset, large number of firms observed over a relatively short period, Driscoll–Kraay provides a robust method for obtaining valid statistical inference. For Tobin's q, the Hausman test favoured random effects. To address potential heteroskedasticity and within-panel correlation, random-effects models were estimated with cluster-robust standard errors at the firm level. This approach ensures that each specification is correctly adapted to the statistical properties of the data, thereby providing reliable inference.

This study employs the following two baseline model specifications. Model (1) tests the direct relationship between CEO tenure and firm performance. Model (2) extends Model (1) by including board independence as a moderating variable through an interaction term. Each specification is estimated twice, once with ROA and once with Tobin's Q as the dependent variables.

$$FP_{it} = \beta_0 + \beta_1 CT_{it} + \beta_2 FS_{it} + \beta_3 LEV_{it} + \beta_4 GDP_t + \beta_5 IND_i + \beta_6 COV_t + \varepsilon_{it} \quad (1)$$

$$FP_{it} = \beta_0 + \beta_1 CT_{it} + \beta_2 BI_{it} + \beta_3 (CT_{it} \times BI_{it}) + \beta_4 FS_{it} + \beta_5 LEV_{it} + \beta_6 GDP_t + \beta_7 IND_i + \beta_8 COV_t + \varepsilon_{it} \quad (2)$$

In this model, FP_{it} denotes firm performance measured alternatively as ROA_{it} or TQ_{it} for firm i at time t. CT_{it} represents the independent variable CEO tenure, while BI_{it} is the moderating variable board independence. The interaction term $(CT_{it} \times BI_{it})$ captures the moderating effect of board independence on the relationship between CEO tenure and firm performance. FS_{it} denotes firm size, LEV_{it} represents leverage, GDP_t is the gross domestic product at time t, IND_i indicates industry-specific effects, and COV_t is a dummy variable controlling for the impact of COVID-19. The term ε_{it} is the error term.

Sample and Data Sources

This study utilizes a balanced panel dataset comprising 168 publicly listed firms from the GCC countries over a ten-year period, from 2014 to 2023. The sample includes both financial and non-financial firms, reflecting the diverse sectoral composition of the GCC capital markets and enhancing the generalizability of the findings within the regional context. Table 1 details the process used to select the firms included in the study. The final sample includes 168 firms, resulting in 1,680 firm-year observations. Firms were excluded if they were listed after January 1, 2014, lacked annual reports, or had missing financial or governance data.

Table 1: Sample Selection Process (2014–2023)

Step	Number of Firms
Total listed firms (initial sample)	707
Excluded: firms listed after January 1, 2014	(261)
Firms listed during study period (eligible firms)	446
Excluded: firms missing annual reports	(230)
Excluded: firms with missing data	(48)
Net firms included in final sample	168

Source: Authors' calculation

Firm-level financial data, such as return on assets (ROA), Tobin's Q, total assets, and leverage, were obtained from Refinitiv Eikon, ensuring consistency and comparability across firms and countries. Governance-related variables, including CEO tenure and board independence, were manually collected from publicly available annual reports, corporate governance disclosures, and companies' websites. To account for broader economic conditions, macroeconomic indicators such as annual GDP growth rates were sourced from the World Bank's World Development Indicators. Additionally, a COVID-19 dummy variable was constructed for the years 2020 and 2021 to control for the pandemic's potential distortionary effects on firm performance. Table 2 summarizes the variable definitions, measurement methods, and sources of data collection.

Table 2: Summary of Variables and Measurements

Variables	Measurement	Symbol	Data Source
Dependent Variable: Firm Performance			
Return on Assets	Net income after Tax/Average total Assets	ROA	Refinitiv Eikon
Tobin's Q	(Company Market Capitalization+ Total Liabilities)/Total Assets	TQ	Refinitiv Eikon
Independent Variable:			
CEO Tenure	Number of the number of years the CEO has held their position	CT	Annual Reports
Moderating Variable:			
Board Independence	Ratio of independent directors to total board size	BI	Annual Reports
Control Variables:			
Firm Size	Natural log of total assets	FS	Refinitiv Eikon
Leverage	Total debt/Total assets	LEV	Refinitiv Eikon
GDP	Annual real growth rate in gross domestic product of the firm's home country	GDP	World Development Indicators (WDI), World Bank
Industry (dummy)	Equals 1 if the firm operates in the financial sector, and 0 if in a non-financial sector.	IND	The Industry Classification Benchmark (ICB) system used
COVID-19 (dummy)	Equals 1 if the year is 2020 or 2021, and 0 otherwise.	COV	Manually

RESULTS AND DISCUSSION

Table 3 presents the descriptive statistics for the study variables. The dependent variable, ROA, shows a mean of 3.7% with values ranging from –35% to 53%, indicating substantial variation in firm profitability across the sample. As a second measure of firm performance, Tobin's Q (TQ) has a mean of 0.25, with values ranging from –0.91 to 5.36, reflecting wide differences in market valuation relative to assets. The independent variable, CEO tenure (CT), has an average log value of 1.47, corresponding to approximately 4 years, with a minimum equivalent to 1 year and a maximum of about 45 years. The moderating variable, board independence (BI), averages about 4 to 5 independent directors, with a range between 0 and 12. Regarding the control variables, firm size (FS) has a mean logged value of 21.1, leverage (LEV) averages 20%, and industry (IND) and COVID-19 (COV) dummies indicate that 39% of the sample are financial firms and 20% of observations fall within the COVID-19 period. GDP growth (GDP) shows substantial variation, from –5.9% to 7.5%. Taken together, the statistics indicate sufficient variability across variables, supporting their suitability for the subsequent empirical analysis.

Table 3: Descriptive Statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
ROA	1,680	.0369176	.0690809	-.3508033	.5335082
TQ	1,680	.2453803	.8036631	-.908781	5.361535
CT	1,680	1.472574	.9471298	0	3.806663
BI	1,680	4.48869	2.000564	0	12
FS	1,680	21.10486	1.895722	15.51906	26.54562
LEV	1,680	.201734	.1917249	0	.9180475
GDP	1,680	2.491427	3.146747	-5.911363	7.509697
IND	1,680	.3928571	.4885309	0	1
COV	1,680	.2	.4001191	0	1

Table 4 reports the correlation matrix. The two performance measures, ROA and TQ, are positively and significantly correlated (r = 0.34), reinforcing the consistency across alternative indicators of firm performance. The independent variable, CEO tenure (CT), displays a modest positive association with ROA but no meaningful correlation with TQ, suggesting that tenure may be more closely linked to accounting-based than market-based performance. The moderating variable, board independence (BI), shows weak negative correlations with both performance measures, which is consistent with its theorized role as a moderator rather than a direct determinant of performance. Collectively, the correlations among explanatory variables are relatively low, mitigating concerns of multicollinearity, which is further confirmed by the VIF results presented in the following section.

Table 4: Correlation Matrix

	ROA	TQ	CT	BI	FS	LEV	GDP	IND	COV
ROA	1.0000								
TQ	0.3423	1.0000							
CT	0.1539	0.0055	1.0000						
BI	-0.0534	-0.0747	0.0208	1.0000					
FS	0.0007	-0.0771	-0.0813	0.0041	1.0000				
LEV	-0.0979	-0.0061	-0.0557	0.0217	0.0757	1.0000			
GDP	0.0824	0.0172	0.0066	0.0427	-0.0492	-0.0283	1.0000		
IND	-0.1774	-0.1569	0.0872	-0.0369	0.1287	-0.1706	0.0141	1.0000	
COV	-0.0854	0.0161	0.0047	-0.0195	0.0214	0.0033	-0.4106	0.0000	1.0000

To assess potential multicollinearity, variance inflation factors (VIFs) were computed for the full model including the interaction term. As shown in Table 5, the VIF values in this study are all well below the conventional threshold of 10, a level often associated with severe multicollinearity (Kutner et al., 2004). With a mean VIF of 2.88, the results indicate that multicollinearity is not an issue in the analysis.

Table 5: Variance Inflation Factor (VIF)

Variable	VIF	1/VIF
Interaction (CT × BI)	8.29	0.120648
CT	5.65	0.177002
BI	3.53	0.283611
GDP	1.21	0.826951
COV	1.20	0.830233

IND	1.06	0.941061
LEV	1.04	0.959239
FS	1.04	0.962808
Mean VIF	**2.88**	

The regression results reveal that CEO tenure has a significant impact on firm performance, however the magnitude varies depending on the performance measure used. Table 6 shows a significant positive relationship (β = 0.0036, p=0.039) between accounting-based performance (ROA) and the fixed-effects specification with Driscoll-Kraay standard errors. This suggests that longer-serving CEOs enhance operational efficiency and profitability, which is consistent with stewardship theory that CEOs with extended tenures have a deeper comprehension of the organization's goals and values [35] and the claim that accumulated firm-specific knowledge and experience improve decision-making. Furthermore, from a resource dependence viewpoint, long-serving CEOs are likely to have developed extensive professional networks and strong relationships with external stakeholders, thereby enhancing access to essential resources that support performance [38]. This finding is consistent with previous studies that have documented a positive link between CEO tenure and accounting performance, such as [6,39].

In contrast, Table 7 shows that CEO tenure's impact on market-based performance (Tobin's q) is not statistically significant in the random-effects model with cluster-robust standard errors (β = –0.0066, p = 0.646). It suggests that investors do not immediately compensate for extended CEO tenure in valuation measurements, probably due to concerns about managerial entrenchment, as emphasized in agency theory. Agency theory highlights the risk that CEOs with longer tenures can strengthen their power, resist oversight, and exhibit less responsiveness to strategic changes required by shareholders [4,32,33]. This outcome aligns with prior studies that document a negative relationship between CEO tenure and firm performance, such as [7].

The moderating role of board independence provides further insight into this dynamic. Table 6 shows that for ROA, the interaction between CEO tenure and board independence is negative and significant (β = –0.0011, p=0.041), and Table 7 shows that for Tobin's q, the interaction is negative but not statistically significant (β = –0.0061, p=0.256). These results indicate that while longer CEO tenure tends to improve performance, this effect is significantly weakened in terms of accounting-based performance (ROA) for firms with more independent boards. For market-based performance (Tobin's q), the interaction is not statistically significant. These findings are consistent with agency theory, which views independent directors as critical monitors that constrain managerial discretion and prevent CEOs from prioritizing personal goals over shareholder interests [45,46]. From this perspective, independent directors help prevent the benefits of tenure from turning into excessive power, but this also reduces some of the efficiency advantages that come with CEO experience. Resource dependence theory also explains this dynamic. Independent directors contribute expertise and external connections [50]; however, their oversight can limit CEOs' use of firm-specific knowledge acquired over time. This study builds upon earlier research by showing that board independence significantly influences the relationship between CEO tenure and firm performance, a factor that, to the best of the researcher's knowledge, has not been previously examined.

The control variables provide additional support for these patterns. Table 6 shows that firm size has a positive effect on ROA (β = 0.0153, p=0.032), while Table 7 shows a negative but not statistically significant coefficient for Tobin's q (β = –0.0575, p = 0.415), consistent with studies showing that size lifts operating efficiency but lowers valuation due to structural complexity [6,15,56]. Leverage negatively impacts ROA (β = –0.0372, p=0.013), confirming the detrimental role of debt, a result consistent with prior findings that high leverage erodes profitability [15,35]. At the macroeconomic level, GDP growth exerts a positive but not statistically significant effect on ROA (β = 0.0015, p=0.141; Table 6), while it has a positive and statistically significant effect on Tobin's q (β = 0.0132, p=0.000; Table 7), consistent with evidence that firm performance is sensitive to economic conditions [63]. Finally, the COVID-19 dummy reveals an asymmetry: Table 6 shows a negative effect on ROA (β = –0.0114, p=0.023), while Table 7 shows a positive effect on Tobin's q (β = 0.0806, p=0.002), suggesting that although the pandemic affected operations, investors expected a recovery.

Tables 6 and 7 collectively offer partial support for H1, indicating that CEO tenure positively affects accounting-based performance but not market-based performance. They also strongly support H2, indicating that board independence mitigates the link by reducing the advantages of long-tenured CEOs. This dual effect highlights the balance between stewardship advantages and agency expenses. The results align with previous studies highlighting the dual nature of CEO tenure and the governance frameworks that influence its effects, such as [26,27,56].

Table 6: Panel Regression Estimates of Firm Performance (Dependent Variable: ROA)

	ROA		
Variables	**OLS**	**Random Effects**	**Fixed Effects (Driscoll–Kraay SEs)**
Direct Effect			
CT	0.0124*** (0.0017)	0.0057*** (0.0017)	0.00358** (0.00148)
FS	0.0021** (0.0009)	0.0040** (0.0017)	0.0153** (0.00603)
LEV	-0.0464*** (0.0086)	-0.0410*** (0.0133)	-0.0372** (0.01199)
GDP	0.00126** (0.00056)	0.00148*** (0.00043)	0.00152 (0.00094)
IND (dummy)	-0.0314*** (0.0034)	-0.0309*** (0.00741)	Omitted
COV (dummy)	-0.0109** (0.00442)	-0.0103*** (0.00334)	-0.0114** (0.00415)
Constant	-0.0046 (0.0187)	-0.0375 (0.0366)	-0.286* (0.1278)
Observations	1680	1680	1680
R^2 (within)	0.0885	0.0322	0.0384
Breusch–Pagan LM test	0.0000		
Hausman test	0.0011		
Modified Wald test	0.0000		
Wooldridge test	0.0000		
Interaction Effect			

BI	0.00321** (0.00150)	0.000466 (0.00156)	0.000166 (0.000953)
Interaction (CT × BI)	-0.00337*** (0.00077)	-0.00149* (0.00080)	-0.00110** (0.000462)
Constant (interaction model)	-0.0228 (0.0199)	-0.0382 (0.0369)	-0.282* (0.1248)
Observations	1680	1680	1680
R^2 (within)	0.1030	0.0345	0.0407
Breusch–Pagan LM test	0.0000		
Hausman test	0.0003		
Modified Wald test	0.0000		
Wooldridge test	0.0000		

Notes: Standard errors in brackets. Robust Driscoll–Kraay standard errors are reported for ROA. Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01.

Table 7: Panel Regression Estimates of Firm Performance (Dependent Variable: Tobin's q)

	Tobin's q		
Variables	**OLS**	**Random Effects (robust SEs)**	**Fixed Effects**
Direct Effect			
CT	0.0110 (0.0206)	-0.00663 (0.0144)	-0.00647 (0.0113)
FS	-0.0225** (0.0104)	-0.0575 (0.0706)	-0.0798*** (0.0245)
LEV	-0.114 (0.103)	0.0317 (0.2184)	0.0539 (0.109)
GDP	0.00707 (0.00676)	0.0132*** (0.0033)	0.0133*** (0.00267)
IND (dummy)	-0.257*** (0.0401)	-0.227** (0.0919)	Omitted
COV (dummy)	0.0574 (0.0531)	0.0806*** (0.0260)	0.0813*** (0.0209)
Constant	0.799*** (0.224)	1.503 (1.495)	1.881*** (0.516)
Observations	1680	1680	1680
R^2 (within)	0.0298	0.0249	0.0253
Breusch–Pagan LM test	0.0000		
Hausman test	0.9109		
Wooldridge test	0.0000		
Interaction Effect			
BI	0.0277 (0.0180)	-0.00818 (0.0114)	-0.0100 (0.0104)
Interaction (CT × BI)	-0.0367*** (0.0093)	-0.00613 (0.00539)	-0.00477 (0.00530)
Constant (interaction model)	0.631** (0.239)	1.581 (1.448)	2.005*** (0.522)
Observations	1680	1680	1680
R^2 (within)	0.0452	0.0296	0.0302

Breusch–Pagan LM test	0.0000		
Hausman test	0.5268		
Wooldridge test	0.0000		

Notes: Standard errors in brackets. Cluster-robust standard errors are reported for Tobin's q. Significance levels: *p < 0.10, **p < 0.05, ***p < 0.01.

Additional Analysis

The analysis was repeated using an alternative measure of firm performance. In addition to ROA and Tobin's Q employed in the main analysis, ROE was used as an additional accounting-based measure. A firm fixed-effects specification was estimated. A Hausman test rejects random effects in favour of fixed effects ($\chi^2(4)=15.45$, p=0.0039). Diagnostics reveal the presence of groupwise heteroskedasticity and the absence of first-order serial correlation (p=0.868). Therefore, inference relies on Driscoll–Kraay standard errors, which are robust against heteroskedasticity, autocorrelation, and potential cross-sectional dependence. The coefficient on log CEO tenure is both positive and significant (β=0.014, p=0.010), indicating that a 10% increase in tenure is associated with roughly a 0.14 percentage-point increase in ROE. Firm size is positive and significant (β=0.042, p=0.017), leverage is negative (β=−0.137, p=0.005), and the COVID-19 period is associated with a decline in ROE of about 3.4 percentage points. The findings derived from ROE align with those obtained from ROA, thereby reinforcing a significant relationship between CEO tenure and accounting-based performance; however, this relationship is not significant when assessed through the market-based measure of Tobin's Q. The interaction between tenure and board independence is negative but not statistically significant in the fixed-effects model with Driscoll–Kraay standard errors (β = −0.001, p = 0.504), suggesting no moderating impact; this contrasts with the statistically significant moderation observed for ROA (β = −0.0011, p = 0.041). This suggests that the moderation is particular to the measure: board independence mitigates the efficiency channel reflected by ROA but does not affect the equity-based return represented by ROE, which is more responsive to capital structure.

CONCLUSION

This study examined the influence of CEO tenure on the performance of publicly listed companies in the GCC region through 2014-2023. The panel regression analysis was conducted in line with the research objectives. First, it investigated the impact of CEO tenure on firm performance. Secondly, it analysed the moderating influence of board independence. The results revealed that extended CEO tenure improves accounting-based performance, aligning with the perspective that cumulative experience and firm-specific knowledge improve efficiency and decision-making. Nonetheless, this effect does not apply to market-based performance, as investor concerns regarding entrenchment appear to mitigate possible advantages. Furthermore, the findings indicate that board independence significantly moderates this link by limiting the benefits of longer CEO tenure on accounting outcomes, while exhibiting limited impact on market valuation. Taken together, these observations emphasize the dual aspects of CEO tenure and highlight the pivotal role of governance frameworks in shaping its effect on business performance within the GCC context.

The study offers several contributions to the literature and practice of corporate governance. It contributes to the literature by being the first to examine the moderating role of board independence in the CEO tenure–firm performance relationship within the GCC, extending

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stewardship and agency theory to an underexplored regional context. Using a comprehensive sample spanning all GCC countries and industries from 2014 to 2023, the study offers generalizable evidence from an emerging market and incorporates the COVID-19 period to shed light on governance and performance during external shocks. From a practical standpoint, the findings inform firms and policymakers in the developing markets about the need for structured CEO succession processes and balanced governance policies that can ensure an appropriate balance between effective oversight and the strategic value of CEO experience.

Finally, future research could extend the scope of this study by investigating other regions and governance environments to assess the transferability of the results. Further insights may be gained by considering additional governance mechanisms, such as ownership structure or board diversity, and by employing alternative indicators of firm performance. Future work might also examine potential nonlinear patterns in the effect of CEO tenure and apply qualitative methods to capture deeper contextual dynamics within GCC firms.

References

1. Fernández-Temprano, M. A., & Tejerina-Gaite, F. (2020). Types of director, board diversity and firm performance. *Corporate Governance (Bingley)*, *20*(2). https://doi.org/10.1108/CG-03-2019-0096
2. Bandiera, O., Prat, A., Hansen, S., & Sadun, R. (2020). Ceo behavior and firm performance. *Journal of Political Economy*, *128*(4). https://doi.org/10.1086/705331
3. Westerberg, M., Singh, J., & Häckner, E. (1997). Does the CEO matter? An empirical study of small Swedish firms operating in turbulent environments. *Scandinavian Journal of Management*, *13*(3). https://doi.org/10.1016/S0956-5221(97)00011-0
4. Hambrick, D. C., & Fukutomi, G. D. (1991). The seasons of a CEO's tenure. *Academy of Management Review. Academy of Management*, *16*(4). https://doi.org/10.5465/AMR.1991.4279621
5. Hayes II, J. (2024). *CEO turnover soars in 2024: How leaders can adapt and thrive in 2025*. Forbes Media LLC. https://www.forbes.com/sites/julianhayesii/2024/12/22/ceo-turnover-soars-in-2024-how-leaders-can-adapt-and-thrive-in-2025/
6. Chikunda, P., Bhuiyan, M. B. U., Houqe, M. N., & Nguyen, L. T. M. (2025). Long-tenured CEOs and firm performance: too much of a good thing? Evidence from New Zealand. *Pacific Accounting Review*. https://doi.org/10.1108/PAR-09-2024-0235
7. Al-Matari, E. M., Al-Swidi, A. K., Fadzil, F. H., & Al-Matari, Y. A. (2012). The Impact of board characteristics on firm performance: Evidence from nonfinancial listed companies in Kuwaiti stock exchange. *International Journal of Accounting and Financial Reporting*, *2*(2). https://doi.org/10.5296/ijafr.v2i2.2384
8. Brochet, F., Limbach, P., Schmid, M., & Scholz-Daneshgari, M. (2022). CEO tenure and firm value. *Accounting Review*, *96*(6). https://doi.org/10.2308/TAR-2019-0295
9. Shehata, N. F. (2015). Development of corporate governance codes in the GCC: An overview. *Corporate Governance (Bingley)*, *15*(3). https://doi.org/10.1108/CG-11-2013-0124
10. Salman, M. H. A., & Nobanee, H. (2019). Recent developments in corporate governance codes in the GCC region. *Research in World Economy*, *10*(3). https://doi.org/10.5430/rwe.v10n3p108
11. AL Nasser, Z. (2020). The effect of royal family members on the board on firm performance in Saudi Arabia. *Journal of Accounting in Emerging Economies*, *10*(3). https://doi.org/10.1108/JAEE-04-2017-0041
12. Tawfik, O. I., Alsmady, A. A., Rahman, R. A., & Alsayegh, M. F. (2022). Corporate governance mechanisms, royal family ownership and corporate performance: evidence in gulf cooperation council (GCC) market. *Heliyon*, *8*(12). https://doi.org/10.1016/j.heliyon.2022.e12389
13. Argaam. (2025). *UAE markets witness over 35 CEO resignations from publicly listed companies in 2024*. Argaam.Com. https://www.argaam.com/ar/article/articledetail/id/1780609

14. Al-Matari, E. M., Al-Swidi, A. K., & Faudziah, H. B. F. (2014). The effect on the relationship between board of directors characteristics on firm performance in Oman: Empirical Study. *Middle-East Journal of Scientific Research*, *21*(3).

15. Ghardallou, W., Borgi, H., & Alkhalifah, H. (2020). CEO characteristics and firm performance: A Study of Saudi Arabia listed firms. *Journal of Asian Finance, Economics and Business*, *7*(11). https://doi.org/10.13106/jafeb.2020.vol7.no11.291

16. Taouab, O., & Issor, Z. (2019). Firm performance: Definition and measurement models. *European Scientific Journal ESJ*, *15*(1). https://doi.org/10.19044/esj.2019.v15n1p93

17. Richard, P. J., Devinney, T. M., Yip, G. S., & Johnson, G. (2009). Measuring organizational performance: Towards methodological best practice. In *Journal of Management* (Vol. 35, Issue 3). https://doi.org/10.1177/0149206308330560

18. Klapper, L. F., & Love, I. (2004). Corporate governance, investor protection, and performance in emerging markets. *Journal of Corporate Finance*, *10*(5). https://doi.org/10.1016/S0929-1199(03)00046-4

19. Haniffa, R., & Hudaib, M. (2006). Corporate governance structure and performance of Malaysian listed companies. *Journal of Business Finance and Accounting*, *33*(7–8). https://doi.org/10.1111/j.1468-5957.2006.00594.x

20. Kapopoulos, P., & Lazaretou, S. (2007). Corporate ownership structure and firm performance: Evidence from Greek firms. In *Corporate Governance: An International Review* (Vol. 15, Issue 2). https://doi.org/10.1111/j.1467-8683.2007.00551.x

21. Wahla, K. U. R., Shah, S. Z. A., & Hussain, Z. (2012). Impact of ownership structure on firm performance evidence from non-financial listed companies at Karachi Stock Exchange. *International Research Journal of Finance and Economics*, *84*.

22. Shan, Y. G., & McIver, R. P. (2011). Corporate governance mechanisms and financial performance in china: Panel data evidence on listed non financial companies. *Asia Pacific Business Review*, *17*(3). https://doi.org/10.1080/13602380903522325

23. Noémie, van der W. (2019). CEO power and firm performance – the moderating role of board independence. In *Thesis*.

24. Darouichi, A., Kunisch, S., Menz, M., & Cannella, A. A. (2021). CEO tenure: An integrative review and pathways for future research. *Corporate Governance: An International Review*, *29*(6). https://doi.org/10.1111/corg.12396

25. Hambrick, D. C., & Mason, P. A. (1984). Upper Echelons: The organization as a reflection of its top managers. *Academy of Management Review*, *9*(2). https://doi.org/10.5465/amr.1984.4277628

26. Khan, T. M., Gang, B., Fareed, Z., & Khan, A. (2021). How does CEO tenure affect corporate social and environmental disclosures in China? Moderating role of information intermediaries and independent board. *Environmental Science and Pollution Research*, *28*(8). https://doi.org/10.1007/s11356-020-11315-9

27. Muttakin, M. B., & Khan, A. (2025). CEO tenure, board monitoring and competitive corporate culture: How do they influence integrated reporting? *Journal of Accounting Literature*, *47*(1). https://doi.org/10.1108/JAL-02-2023-0030

28. Ali, A., & Zhang, W. (2015). CEO tenure and earnings management. *Journal of Accounting and Economics*, *59*(1). https://doi.org/10.1016/j.jacceco.2014.11.004

29. Chen, W. (Tina), Zhou, G. (Stephen), & Zhu, X. (Kevin). (2019). CEO tenure and corporate social responsibility performance. *Journal of Business Research*, *95*. https://doi.org/10.1016/j.jbusres.2018.08.018

30. Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4). https://doi.org/10.1016/0304-405X(76)90026-X

31. Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control separation of ownership and control. *Journal of Law and Economics*, *26*(2).

32. Cao, X., Im, J., & Syed, I. (2021). A Meta-Analysis of the relationship between chief executive officer tenure and firm financial performance: The moderating effects of chief executive officer pay and board monitoring. *Group and Organization Management*, *46*(3). https://doi.org/10.1177/1059601121989575

33. Miller, D. (1991). Stale in the saddle: CEO tenure and the match between organization and environment. *Management Science*, *37*(1). https://doi.org/10.1287/mnsc.37.1.34

34. Davis, J. H., Schoorman, F. D., & Donaldson, L. (1997). Toward a stewardship theory of management. *Academy of Management Review*, *22*(1). https://doi.org/10.5465/AMR.1997.9707180258

35. Kaur, R., & Singh, B. (2019). Do CEO characteristics explain firm performance in India? *Journal of Strategy and Management*, *12*(3). https://doi.org/10.1108/JSMA-02-2019-0027

36. Naseem, M. A., Lin, J., Rehman, R. ur, Ahmad, M. I., & Ali, R. (2020). Does capital structure mediate the link between CEO characteristics and firm performance? *Management Decision*, *58*(1). https://doi.org/10.1108/MD-05-2018-0594

37. Reitz, H. J., Pfeffer, J., & Salancik, G. R. (1979). The external control of organizations: A resource dependence perspective. *The Academy of Management Review*, *4*(2). https://doi.org/10.2307/257794

38. Wang, G., Holmes, R. M., Oh, I. S., & Zhu, W. (2016). Do CEOs matter to firm strategic actions and firm performance? A meta-analytic investigation based on Upper Echelons Theory. *Personnel Psychology*, *69*(4). https://doi.org/10.1111/peps.12140

39. Diks, J., Rodriguez, J. C., & Driessen, J. (2016). The impact of CEO characteristics on firm value. *Journal of Advances in Economics and Business Studies*, *2*(1). https://doi.org/10.21608/jaebs.2025.424639

40. Kusumasari, L. (2018). Functions, age, education, tenure of CEO, and employee commitment toward firm performance. *KnE Social Sciences*, *3*(10). https://doi.org/10.18502/kss.v3i10.3361

41. Henderson, A. D., Miller, D., & Hambrick, D. C. (2006). How quickly do CEOs become obsolete? Industry dynamism, CEO tenure, and company performance. *Strategic Management Journal*, *27*(5). https://doi.org/10.1002/smj.524

42. Agarwala, N., Pareek, R., & Sahu, T. N. (2023). Does board independence influence CSR performance? A GMM-based dynamic panel data approach. *Social Responsibility Journal*, *19*(6). https://doi.org/10.1108/SRJ-10-2020-0433

43. Fuzi, S. F. S., Halim, S. A. A., & Julizaerma, M. K. (2016). Board independence and firm performance. *Procedia Economics and Finance*, *37*, 460–465. https://doi.org/10.1016/s2212-5671(16)30152-6

44. Agrawal, A., & Knoeber, C. R. (1996). Firm performance and mechanisms to control agency problems between managers and shareholders. *The Journal of Financial and Quantitative Analysis*, *31*(3). https://doi.org/10.2307/2331397

45. Jizi, M. (2017). The influence of board composition on sustainable development disclosure. *Business Strategy and the Environment*, *26*(5). https://doi.org/10.1002/bse.1943

46. Romano, M., Cirillo, A., Favino, C., & Netti, A. (2020). ESG (Environmental, social and governance) performance and board gender diversity: The moderating role of CEO duality. *Sustainability (Switzerland)*, *12*(21). https://doi.org/10.3390/su12219298

47. Pucheta-Martínez, M. C., & Gallego-Álvarez, I. (2020). Do board characteristics drive firm performance? An international perspective. *Review of Managerial Science*, *14*(6). https://doi.org/10.1007/s11846-019-00330-x

48. Terjesen, S., Couto, E. B., & Francisco, P. M. (2016). Does the presence of independent and female directors impact firm performance? A multi-country study of board diversity. *Journal of Management and Governance*, *20*(3). https://doi.org/10.1007/s10997-014-9307-8

49. Rashid, M. M. (2020). "Ownership structure and firm performance: the mediating role of board characteristics." *Corporate Governance (Bingley)*, *20*(4). https://doi.org/10.1108/CG-02-2019-0056

50. Hillman, A. J., Canella, A. A., & Harris, I. C. (2002). Women and racial minorities in the boardroom: How do directors differ? *Journal of Management*, *28*(6). https://doi.org/10.1016/S0149-2063(02)00192-7

51. Cannella, B., Finkelstein, S., & Hambrick, D. C. (2009). Strategic leadership: Theory and research on executives, top management teams, and boards. In *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*. https://doi.org/10.1093/acprof:oso/9780195162073.001.0001

52. Abdullah, S. N., Aziz, A., & Azani, A. (2022). The effect of board independence, gender diversity and board size on firm performance in Malaysia. *Journal of Social Economics Research*, *9*(4). https://doi.org/10.18488/35.v9i4.3226

53. Jwailes, A. R. (2021). The effect of board independence, board size, and CEO duality on Jordanian firm performance. *Journal of Advance Research in Business Management and Accounting (ISSN: 2456-3544)*, *7*(8). https://doi.org/10.53555/nnbma.v7i8.1027

54. Ahmadi, A., Nakaa, N., & Bouri, A. (2018). Chief Executive Officer attributes, board structures, gender diversity and firm performance among French CAC 40 listed firms. *Research in International Business and Finance*, *44*. https://doi.org/10.1016/j.ribaf.2017.07.083

55. Ben Barka, H., & Legendre, F. (2017). Effect of the board of directors and the audit committee on firm performance: a panel data analysis. *Journal of Management and Governance*, *21*(3). https://doi.org/10.1007/s10997-016-9356-2

56. Saini, D., & Singh, B. (2023). CEO confidence and firm performance: Exploring the moderating role of board independence. *Managerial Finance*, *49*(6). https://doi.org/10.1108/MF-07-2022-0354

57. Duru, A., Iyengar, R. J., & Zampelli, E. M. (2016). The dynamic relationship between CEO duality and firm performance: The moderating role of board independence. *Journal of Business Research*, *69*(10). https://doi.org/10.1016/j.jbusres.2016.04.001

58. Rahayuningsih, D. A., Rudyanto, A., & Sintya, S. (2024). CEO POVERTY EXPERIENCE AND CORPORATE SOCIAL RESPONSIBILITY: ANALYSIS IN COVID-19 PERIOD FOR ENVIRONMENTALLY SENSITIVE INDUSTRIES. *JRAK*, *16*(2), 223–234. https://doi.org/10.23969/jrak.v16i2.13949

59. Kaya, N. (2025). Research on the effect of corporate governance and company performance on non-financial information reporting. *Pressacademia*. https://doi.org/10.17261/pressacademia.2025.1975

60. Alhmood, M., Shaari, H., Al-Dhamari, R., & Sani, A. A. (2024). Does ownership concentration matter for the relationship between CEO characteristics and real earnings management: evidence from Jordan. *EuroMed Journal of Business*, *19*(4). https://doi.org/10.1108/EMJB-09-2022-0155

61. Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, *80*(4). https://doi.org/10.1162/003465398557825

62. Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *Stata Journal*, *7*(3). https://doi.org/10.1177/1536867x0700700301

63. Ozkan, A., Temiz, H., & Yildiz, Y. (2023). Climate Risk, Corporate Social Responsibility, and Firm Performance. *British Journal of Management*, *34*(4). https://doi.org/10.1111/1467-8551.12665