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Exploring the Impact of CEO Characteristics and Board Characteristics on Firm Profitability

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ABSTRACT

This study examines how board characteristics and CEO attributes jointly influence firm profitability in an emerging economy. While prior research on governance-performance relationships has concentrated on developed markets, limited evidence exists for developing contexts such as Pakistan, where institutional voids and governance challenges are more pronounced.We analyze a panel of 180 non-financial firms listed on the Pakistan Stock Exchange from 2016–2021, generating 1,074 firm-year observations. Firm profitability is measured using return on assets (ROA). Board size, board independence, and gender diversity serve as governance indicators, while CEO experience and tenure act as moderators. Models are estimated using Feasible Generalized Least Squares (FGLS) and validated with Prais–Winsten Panel-Corrected Standard Errors (PW-PCSE) to address heteroscedasticity, cross-sectional dependence, and serial correlation.Results reveal that board size and board independence are positively associated with firm profitability, while gender diversity exhibits a negative effect. CEO experience and tenure show direct positive associations with ROA. However, their interaction terms with board size and board independence are significantly negative, suggesting that experienced or long-tenured CEOs may weaken the positive role of board structures. Interestingly, CEO tenure positively moderates the relationship between gender diversity and profitability, while CEO experience does not. Overall, explanatory power is modest (R^2 = 0.08–0.12), but models are statistically significant.By integrating agency and upper echelons theories, this study highlights the conditional nature of governance effects in emerging markets. CEO attributes can either reinforce or constrain board effectiveness, offering a nuanced contribution to governance literature.The findings underscore the importance of balancing board design with CEO oversight in developing economies. Regulators and firms should strengthen governance practices to mitigate entrenchment risks while leveraging CEO tenure to unlock the benefits of board diversity.

Introduction

As one of the largest emerging economies in South Asia, Pakistan's position in the global economy is a source of opportunities. Pakistan's economy is a composite of industrial, agricultural and service sectors set within a developing financial market. Despite opportunities, Pakistan continues to face significant challenges such as regulatory inefficiencies, political instability, infrastructural inadequacies, and safety concerns. The structural constraints impose an unpredictable business environment that determines corporate strategic decisions and survival responses. Studying firm performance in such dynamic environments is a badly needed contribution not only to the understanding of firm performance in Pakistan, but also to the conceptual understanding of firm performance in general, in particular, how organizations in emerging markets react, adapt, innovate, and remain profitable under institutional pressures and environmental hurly-burly.

The importance of firm profitability as an indicator of organizational performance and to evaluate resilience and competitiveness is well recognized. Firm profitability captures the extent to which firms can acquire and utilize resources effectively, comply with existing regulatory frameworks, and respond to uncertainty and volatility in the macroeconomic environment. The firms in Pakistan operate within a difficult climate that encompasses inflationary constraints, fluctuating exchange store value with exchange rates, and policy uncertainty. In this context, understanding how and what constitutes profitability is increasingly vital in respect of a firm's sustainability. Furthermore understanding profitability can provide decision makers with useful signals around the effectiveness of their governance reforms and economic policies but also provide managers and boards of companies with important insights with respect to the practices which can allow firms to continue operating in difficult and challenging markets. The lessons demonstrated in Pakistan also can be abstracted to other developing economies that may face similar constraints making the findings significant with respect to progressing the global dialogue about corporate performance in developing economies in the future.

Factors influencing corporate profitability include matters of corporate governance. Corporate governance is significant because of the important role of boards of directors. Boards of directors are the owners of enterprises, where their stake in firm performance is economically significant. Also, boards of directors add some institutional architecture to promote organizational direction, check compliance, and symbolize the interests of shareholders. Boards oversee the managers when it comes to the managers' duties, approve significant initiatives and programs, and make sure organizational practices are aligned with organizational objectives and initiatives. In an uncertain environment such as Pakistan, where there are not institutional mechanisms to provide accountability to the same extent as there is in a developed economy, boards of directors have an additional responsibility to oversee firms during uncertain times.

The characteristics and autonomy of boards and their orientation can greatly influence firm outcomes through the manner in which organizations adapt to changing, economic or regulatory conditions. Not surprisingly, where boards have a role, so do CEOs. "CEOs are the individuals who are tasked with transforming the board's direction into organizational reality."They are responsible for managing day-to-day operations; operationalizing the strategic vision for the organization and adjusting their business model in response to rapidly changing market conditions." In Pakistan, organizations are currently adjusting to, and adjusting within, increasing and, continuous changes in fiscal policies, regulatory reforms and competitive pressures being faces by firms. So having a good CEO has of an appropriate combination of leadership competencies and context knowledge is of extreme importance. The characteristics of the CEO may also shape how work with boards of directors, engage their employees, and deliver for investors. These characteristics include tenure, experience, education level and leadership style. Research has suggested that a tendency for CEOs to stability and knowledge means the longer they stay in the organization the higher level of strategic decision making they likely achieve.

A functional relationship between the CEO and board, defined by trust, transparency and accountability will help support better decision making, limit agency issues, and enhance corporate governance. However, relationships characterized by secrecy or divergence of objectives could weaken governance mechanisms and dampen firm output. With the ambiguous corporate environment in Pakistan, firms are at once presented with growth opportunities while mitigating systemic risks. This places a premium on how the CEO Board relationship affects, in particularly, firm profitability. Notwithstanding the known importance of these relationships, the research provides limited empirical evidence on (1) how CEO characteristics moderate the relationship between board attributes and firm performance in emerging market contexts.

This research fills this gap by examining the role of CEO characteristics such as tenure and experience in moderating the relationship between board characteristics and firm profitability in Pakistan. Given the focus on the interrelationship between corporate governance and leader characteristics, this research broadens the understanding of corporate governance beyond the context and focus of developed economies, and provides evidence from a context where the challenges of governance are more severe. The examination of CEO characteristics is expected to add to the conceptual and empirical literature on corporate governance by assessing how boards and CEOs collectively influence profitability under uncertainty. For policymakers, this research may identify governance mechanisms and leader characteristics that support stability and profits under uncertainty, while for managers and practitioners this may help with how to select and establish effective leadership in these tough conditions.

The remainder of this paper is structured as follows: the next section reviews the theoretical and empirical literature on corporate governance, CEO characteristics, and firm profitability, with a particular focus on emerging markets. This is followed by the methodology section, which outlines the research design, data, and analytical techniques employed. The subsequent section presents the empirical findings, after which the discussion section interprets the results in light of theory and practice. Finally, the paper concludes with implications for scholars, policymakers, and business leaders, as well as suggestions for future research directions.

Literature Review

Theoretical Foundations

Agency Theory and Corporate Governance

The agency problem, often termed the principal–agent dilemma, arises when shareholders (principals) delegate control of the firm to managers (agents), who may not always act in alignment with shareholder interests (Jensen & Meckling, 1976). While the principal seeks long-term wealth maximization, managers may pursue self-interested goals such as reputation-building, career security, or short-term earnings manipulation. This divergence of objectives, exacerbated by information asymmetry, leads to agency costs (Fama & Jensen, 1983). Corporate governance mechanisms, especially the board of directors, exist to reduce these costs by monitoring management, approving strategic direction, and safeguarding shareholder value.

In emerging economies such as Pakistan, where formal institutions and regulatory enforcement mechanisms are relatively weak, agency conflicts tend to be amplified. Boards of directors in such contexts are expected to play a more active oversight role, ensuring accountability, curbing opportunistic behavior, and aligning managerial actions with shareholder interests. Board characteristics such as independence, diversity, expertise, and size have been shown to influence the extent to which boards can mitigate agency problems and enhance firm profitability.

Upper Echelons Theory and CEO Characteristics

While agency theory provides a structural perspective on governance, it does not fully account for the role of managerial discretion and leadership heterogeneity in shaping firm outcomes. The Upper Echelons Theory (UET), proffered by Hambrick and Mason (1984), fills these gaps by suggesting that organizational outcomes are, in part, the results of the values, experiences and cognitive bases of top executives. In UET, differences in executives' demographic and experiential characteristics such as, tenure, education, previous professional experience, and age influence how executives formulate their conception of strategic choice and navigates environmental exigencies.

During instances of institutional weakness and turbulence, with contextual reference examples such as Pakistan, CEO characteristics are amplified and become larger determinants to the effectuation of firm outcomes. For example, a longer tenured CEO may be able to draw from the institutional knowledge they have of the firm and social networks to make informed decisions and improve the board's oversight. However, a low tenured CEO could face challenges by combining the board expectations with the realities of operating the firm detracting from the board’s governance effect on performance. Thus, CEO characteristics characterize the opportunity for contingent variables to respectively affect how the governance mechanisms function on an entity’s financial performance.

Integrating Agency Theory and Upper Echelons Theory

The connections among UET and between agency theory provide robust pathways to understand the complex interplay of the different dimensions of corporate performance. Agency theory recognizes the importance of creating governance mechanisms, for example, boards of directors, which creates better alignment of incentives between managers and shareholders. UET takes a different perspective recognizing that CEO's will engage the governance mechanisms using their own individual characteristics and characteristics, and thereby applying limitations to the ability of boards of directors, and governance mechanisms, to influence profitability. While the design features of a board of directors, or governance mechanisms, can influence the profitability of a firm; however, after those mechanisms are put into action through the foreseen measures of a CEO's knowledge, experience, skills, and characteristics, that is the focus of the examination. The previous argument, in a developing country such as Pakistan that has governance systems impacted by institutional voids, the leadership of a CEO becomes influential for business sustainability and existence. To examine not only board composition, but also CEO characteristics and characteristics, provides a more robust theoretical lens for studying the paired consideration of structural governance mechanisms and executive characteristics, respectively, when considering firm profitability.

Conceptual Model

[Board Characteristics] ──────────► [Firm Profitability]

Moderated by

[CEO Characteristics]

Hypothesis Development:

The Relationship between Board Characteristics and CEO Experience (CEO_Exp) on Firm Profitability

The relationship between board characteristics and CEO experience is becoming a focal issue in corporate governance research, particularly in 'emerging' contexts where institutional frameworks are in their infancy. The characteristics of boards (size, independence and diversity) are well-established characteristics of a governance mechanism which impact corporate decisions, strategic oversight, and firm financial outcomes. Simultaneously, the CEO frequently carries their own experience package including specific experiences, skills, and network that influences how she translates the board's instruction into corporate action. The extent to which boards are capable of translating board characteristics into increased firm profitability, therefore, often rests on the extent to which the logic of the boards structural characteristics reinforces the CEO's experiential capital (Ameila & Eriandani, 2021).

From an agency theory perspective, board size (Brd_Size), independence (Brd_Ind), and specialized committees are potential mechanisms to lower agency costs through enhanced monitoring and aligning managerial behavior with shareholder interests (Jensen & Meckling, 1976; Fama & Jensen, 1983). Larger boards potentially provide more expertise and resources versus independent directors increase objectivity and reduce conflicts of interest. That being said, these advantages are not guaranteed, and whether they are effective rests on the ability and willingness of the CEO to factor board members' contributions to an organizational strategy. A more experienced CEO utilizing their industry knowledge and decision-making approaches is likely to better replicate the range of views from different board contributions as a means to identify better strategies to enhance profitability compared (Mubeen et al., 2020; Pandey et al., 2023).

Stewardship theory presents a different perspective that adds to agency theory by highlighting trust, common goals and collaboration of boards and executives. In addition, depending on the how strategic and interpersonal the board of directors is, increasing diversity and cohesion on the board can increase communication and help avoid groupthink and innovative decision making. Gender diverse boards have helped produce rich discussion and accountability and had positive performance outcomes for firms (Ivens, 2023; Khatib et al., 2022). A long-term CEO is more likely to value the contribution of diversity as they have a strong ownership and teamwork approaches to the board that drives profitable outcomes (Liu et al., 2020; Kelemen et al., 2023). Alternatively, the inexperienced CEO might have good diversity on the board to take advantage of, but they are not able to draw on the diversity to the low ability of interpretation, to low performance.

When diversity is embedded into the board composition especially with board committees, such as remuneration and audit committees, having independent directors in mind is important for aligning executive incentives with shareholder wealth (Mubeen et al., 2020; Pandey et al., 2023). When the CEO has been in the position for a significant amount of time, it is plausible that these governance mechanisms will enhance transparency, accountability and in turn improve the governance – performance linkage. Conversely, a CEO with less experience is potentially navigating or trying to benefit from such mechanisms leaving them disengaged and diminishing their effectiveness.

Overall agency and stewardship theories establish the essential nature of considering CEO experience (CEO_Exp) as a moderator of the governance–performance relationship. CEO_Exp affects the interpretation of board decisions and the nature of board structural elements effect on profits. Based on this direction we now propose the following hypotheses:

H1: CEO_Exp influences the relationship between Brd_Size and profitability

H2: CEO_Exp influences the relationship between Brd_Ind and profitability

H3: CEO_Exp influences the relationship between Gen_Div and profitability

The Relationship between Board Characteristics and CEO Tenure on Firm Profitability

There has been considerable interest in scholarship relating to Organizational Performance antecedents focusing on CEO tenure (CEO_Ten). In addition to skills and abilities, the length of a CEO's tenure can impact the quality of decision-making, relationships with Boards, and ultimately firm performance. Recent research indicates that there is a positive correlation between CEO tenure and effectiveness. Longer tenured CEOs are using firm-specific knowledge, are better able to predict changes in market conditions, and are able to define complex environments (Dabi et al, 2023; Elkhwesky et al, 2022). Shorter CEO tenure indicates lesser performance due to less organizational awareness of stakeholders and the number of opportunities to build trust as a strategic governance capability (Janani et al, 2022; Won & Bidwell, 2023).

In agency theory terms, long-tenure CEOs may reduce monitoring costs, based on improved alignment with the board that develops over time. With repeated experiences (the board observes the CEO over time), the board is better able to assess the performance of the CEO, and the CEO is more aware of the board expectations. Over time, there is less likelihood of opportunistic behavior by the CEO, because the execution of strategy becomes more habitual. However, long CEO tenure, beyond some threshold, could entrench a CEO to a point of reduced board influence or in a state of managerial influence that agency theorists would identify as an addition to agency cost (Fama & Jensen,1983). Consequently, tenured CEOs could enhance or diminish governance effectiveness based on the context -- it is a double-edged sword.

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H4: CEO_Ten influences the relationship between Brd_Size and profitability

H5: CEO_Ten influences the relationship between Brd_Ind and profitability

H6: CEO_Ten influences the relationship between Gen_Div and profitability

Methodology

Data and sampling

Most studies that examine the profitability of business firms mostly focus on developed countries, with very few studies conducted in underdeveloped countries such as Pakistan. As a result, this research will concentrate on Pakistan. The study used a dataset of non-financial companies that were listed on the Pakistan Stock Exchange from 2016 to 2021, resulting in 1074 observations for analysis. The sample only included non-financial companies because they have distinct regulations and performance indicators. The data was gathered from the annual reports of the listed companies on their websites. The sample size was limited to 180 non-financial firms due to the manual nature of the data collection process.

Measurement of variables

This section will explore the effect of gender diversity, board size, board independence, CEO experience and tenure on corporate profitability. The measurement of variables is detailed in this section.

Firm performance

This research looks at the firm's profitability as dependent variables. Tangngisalu and Jumady (2020) specified that the firm's profitability is explored by return on assets (ROA) formula where the ratios of net profit is to total assets. ROA is provided as the leading indicator of a firm's profitability and the measure of success of the firm (Siddiqui et al., 2023; Abdullah et al., 2022; Ahmed et al., 2020). Also, ROA is also an applicable and understandable measure of company performance.

Key independent and moderating variables

The framework of the study will examine the effects of three independent variables (Brd_Ind, Gen_Div, and Brd_Size) and two moderators (CEO_Exp and CEO_Ten) on the dependent variable of firm profitability. Gen_Div is defined as the percent female representation on a board. The dummy variable indicates level of board membership through boards with females and boards without female members. Boards with no females are given a value of zero; boards with one or more females are assigned a value of one (Ye et al., 2019). Brd.Size is the total number of board members; Brd.Ind is the ratio of independent to total board members (Bhagat & Bolton, 2008). CEO_Exp is determined by the total experience of a CEO not only by years, but by their positions held and successes and failures (Wang et al., 2022). CEO.Ten is simply the number of years served as a CEO (Conte, 2018).

Control variables

Various control variables have been considered in this analysis (and they include firm size, advantage, and age). The firm size is calculated through computing the natural logarithm of total assets. Based on the attributes of this ratio, advantage is calculated by using total debt divided by total assets. The variable FAGE is utilized to offset the amount of time that a company's stock has been publicly traded. Newly public companies may have a propensity to commit financial misconduct in order to satisfy earnings expectations, whereas established public companies have a greater chance of coming into compliance with public market regulations, including board membership requirements. FAGE is calculated as the number of years that a firm's stock has been publicly traded on the PSX.

Model specifications

This section displays the model specifications utilized to determine the relationship among the variables. Models 1-6 validate H1, H2, H3, H4, H5, and H6, respectively, through interaction models. These interaction models test whether CEO_Exp and CEO_Ten moderate the connection between (i) Brd_Size and Profitability, (ii) Brd_Ind and Profitability, and (iii) Gen_Div and profitability. If the coefficients of Brd_Size*CEO_Exp, Brd_Ind*CEO_Exp, and Gen_Div*CEO_Exp, as well as Brd_Size*CEO_Ten, Brd_Ind*CEO_Ten, and Gen_Div*CEO_Ten, are statistically significant, then the findings will support H1, H2, H3, H4, H5, and H6.

$$ROA = \beta_1 + \beta_2 Brd\_Size + \beta_3 CEO\_Exp + \beta_4 Brd\_Size*CEO\_Exp + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (1)$$

$$ROA = \beta_1 + \beta_2 Brd\_Ind + \beta_3 CEO\_Exp + \beta_4 Brd\_Ind*CEO\_Exp + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (2)$$

$$ROA = \beta_1 + \beta_2 Gen\_Div + \beta_3 CEO\_Exp + \beta_4 Gen\_Div*CEO\_Exp + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (3)$$

$$ROA = \beta_1 + \beta_2 Brd\_Size + \beta_3 CEO\_Ten + \beta_4 Brd\_Size*CEO\_Ten + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (4)$$

$$ROA = \beta_1 + \beta_2 Brd\_Ind + \beta_3 CEO\_Ten + \beta_4 Brd\_Ind*CEO\_Ten + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (5)$$

$$ROA = \beta_1 + \beta_2 Gen\_Div + \beta_3 CEO\_Ten + \beta_4 Gen\_Div*CEO\_Ten + \beta_5 Fsize + \beta_6 LEV + \beta_7 Fage + \varepsilon \quad (6)$$

Statistical analysis

In this study, we utilized the Feasible Generalized Least Squares (FGLS) method to analyze the impact of CEO and Board characteristics on a company's performance. FGLS is a very powerful method for analyzing complex datasets related to heteroscedasticity, non-normality, heterogeneity, time-invariant cross-sectional dependence, and serial correlation. We also used the Prais-Winsten Panel-Corrected Standard Errors (PW-PCSE) method, to provide a similar estimation as FGLS. PW-PCSE method considers unit-level heteroscedasticity, variability, and serial correlation which panel data are often faced with when taking into account spherical errors and a far better inference than a linear model allows. (Bailey & Katz, 2011; Beck & Katz, 1995; Afonso et al., 2021; Kmenta, 1997; Le & Nguyen, 2019; Parks, 1967).

Table 1: Variables, Definitions, Measurements, and Sources

Variable	Definition / Proxy	Measurement / Operationalization	Source(s)
Firm Profitability (ROA)	Indicator of firm performance and efficiency	Net Profit ÷ Total Assets	Tangngisalu & Jumady (2020); Abdullah et al. (2022); Ahmed et al. (2020)
Board Size (Brd_Size)	Number of directors on the company's board	Total count of board members	Bhagat & Bolton (2008); Pandey et al. (2023)
Board Independence (Brd_Ind)	Extent of independent oversight on the board	Ratio of independent directors ÷ Total board members	Fama & Jensen (1983); Bhagat & Bolton (2008)
Gender Diversity (Gen_Div)	Representation of women on the board	% of female directors; Dummy variable: 0 = none, 1 = ≥1 female	Ye et al. (2019); Khatib et al. (2022, 2023)
CEO Experience (CEO_Exp)	CEO's accumulated managerial and industry experience	Years of industry experience, prior positions, achievements	Wang et al. (2022); Ameila & Eriandani (2021)
CEO Tenure (CEO_Ten)	Length of time the CEO has served in current position	Number of years as CEO of the firm	Conte (2018); Elkhwesky et al. (2022)
Firm Size (FSize)	Firm's scale of operations	Natural log of total assets	Abdullah et al. (2022)
Leverage (LEV)	Firm's capital structure / financial risk	Total Debt ÷ Total Assets	Bhagat & Bolton (2008); Ahmed et al. (2020)
Firm Age (FAGE)	Age of firm as listed on PSX	Number of years since listing	Mubeen et al. (2020)

Results And Discussion

Descriptive statistics

Table 2: Descriptive statistics

Variable	Mean	Std. Dev.	Variance	Shapiro Wilk Statistic	No of Observations
ROA	2.431	15.153	229.632	15.782	1074
	7.540	2.783	7.745	10.632	1074
Brd_Size					
Brd_Ind	0.716	0.252	0.063	13.266	1074
Gen_Div	0.998	0.939	0.883	8.985	1074
CEO_Exp	9.399	4.490	20.160	1.770	1074
CEO_ten	5.086	7.681	59.005	11.417	1074
Fsize	9.631	1.283	1.646	12.323	1074
Lev	53.581	1201.296	1443112.08	16.121	1074
Fage	38.3147	18.718	350.372	6.903	1074

Table 2 displays the descriptive statistics of all variables in the data collection. The figures provide information on the mean, standard deviation, variance, Shapiro-Wilk statistic, and number of samples for each variable. The average Return on Assets (ROA) is approximately 2.43, which indicates the typical return on assets with a standard deviation of 15.15. The Shapiro-Wilk statistic is 15.782, and there are 1074 records. The average value of the Board Size variable is around 7.54, which represents the average number of individuals on the board with a standard deviation of around 2.78. The Shapiro-Wilk statistic of 10.632. The Board Independence Ratio has a value of about 0.72, indicating how many board members are independent with the standard deviation is approximately 0.25. The Shapiro-Wilk Statistic of 13.266 indicates that the data follows a normal distribution. The average value of the Gender Diversity (Gen_Div) indicator is almost 0.998, with a standard deviation of around 0.94. The Shapiro-Wilk statistic, with a value of 8.985. The CEO Experience has an average value of around 9.39, with a standard deviation of around 4.49 and a Shapiro-Wilk value of 1.77. The CEO Tenure variable indicates that the average tenure of a CEO is around 5.09 years, with a standard deviation of around 7.68. The Shapiro-Wilk statistic of 11.41.

Pairwise Correlations

Table 3: Pairwise Correlations

	ROA	Brd_Size	Brd_Ind	Gen_Div	CEO_Exp	CEO_ten	Fsize	Lev	Fage
ROA	1								
Brd_Size	0.147***	1							
Brd_Ind	0.086***	0.631***	1						
Gen_Div	-0.068**	0.084*	0.062**	1					
CEO_Exp	-0.031	-0.058*	-0.112***	-0.065**	1				

CEO_ten	-0.054*	-0.067**	-0.048	-0.031	0.477	1			
Fsize	-0.278***	0.141***	0.096***	0.068**	0.021	0.033	1		
Lev	0.001	-0.007	0.024	-0.046	-0.034	-0.020	-0.047	1	
Fage	0.012	0.017	-0.136***	-0.067**	-0.090***	-0.010	0.068**	-0.018	1

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

Table 3 indicates a small positive correlation between Return on Assets (ROA) Board Size (0.1479) and Board Independence (0.0868). However, a slight negative correlation (-0.0689) is observed between ROA and Gender Diversity (Gen_Div). Larger companies may have slightly lower ROA, as shown by a significant negative correlation (-0.278) between ROA and company size (Fsize). There is a moderate positive correlation (0.6311) between Board Size and Board Independence, and a modest positive correlation (0.0845) between Board Size and Gen_Div. The relationships among Board Size, CEO Experience (CEO_Exp), and CEO Tenure (CEO_ten) are weak. A modest positive correlation (r = 0.687) exists between Gender Diversity and Firm Size (Fsize), and a significant correlation (0.4773) between CEO Experience and CEO Tenure.

Panel Regression Results:

Table 4: Panel Regression Results – Interaction Models (CEO_Exp as moderator)

	FGLS			**PW-PCSE**		
	-1	**-2**	**-3**	**-1**	**-2**	**-3**
	ROA	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**
Brd_Size	1.453***			1.453***		
	(0.218)			(0.155)		
Brd_Ind		10.261***			10.261***	
		(2.502)			(0.746)	
Gen_Div			-0.833			-0.833**
			(0.575)			(0.415)
CEO_Exp	6.231**	4.083*	-0.886	6.231***	4.083***	-0.885
	(2.527)	(2.695)	(1.339)	(1.779)	(0.785)	(1.166)
Brd_Size*CEO_Exp	-0.877**			-0.877***		
	(0.315)			(0.257)		
Brd_Ind*CEO_Exp		-6.051*			-6.051***	
		(3.554)			(1.605)	
Gen_Div*CEO_Exp			0.054			0.053
			(1.017)			(0.687)
FSIZE	-3.739***	-3.529***	-3.262***	-3.739***	-3.529***	-3.262***
	0.345	0.348	0.348	0.479	0.452	0.494
LEV	0.000	0.000	0.000	0.000	0.000	-0.000
	0.000	0.000	0.000	0.000	0.000	0.000
FAGE	0.024	0.043*	0.020	0.024	0.043**	0.020
	0.023	0.024	0.024	0.023	0.022	0.020124

Constant	26.677 3.538	27.420*** 3.743	34.248*** 3.475	26.677*** 3.860	27.420*** 4.221	34.248*** 4.821
R-squared				0.121	0.095	0.081
Wald statistic	147.230	113.180	95.180	304.040	526.600	78.860
No of Observations	1074	1074	1074	1074	1074	1074

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

In this study, we compared the FGLS and PW-PCSE methods using a panel regression interaction model to analyze the effect of various independent factors on ROA. These factors include Brd_Size, Gen_Div, Brd_Ind, FSIZE, LEV, and FAGE, with CEO_Exp acting as the moderator.

Both the FGLS and PW-PCSE estimates showed that "Brd_Size" has a statistically significant positive coefficient of about 1.453099, indicating that as the size of the board increases, ROA also improves. Similarly, "Brd_Ind" had a positive coefficient of about 10.26103, indicating that as the share of independent board members increases, ROA also increases. However, "Gen_Div" did not have a significant effect on ROA, with its values being close to zero and standard errors being relatively large.

In terms of CEO_Exp, both FGLS and PW-PCSE estimates showed a positive coefficient of about 6.231427, indicating that CEO experience is beneficial for ROA. Additionally, the interaction terms "Brd_Size*CEO_Exp" and "Brd_Ind*CEO_Exp" had statistically significant negative values, indicating that the effect of board size and board independence ratio on ROA changes as the CEO's experience increases or decreases. However, the "Gen_Div*CEO_Exp" interaction term did not have a significant effect on ROA.

The R-squared values, which indicate how much of the change in the dependent variable (ROA) can be explained by the independent factors and their interactions, ranged from about 0.0814 to 0.121. This means that these factors explain between 8.1% and 12.1% of the difference in ROA. The Wald statistics, which measure the importance of the independent factors and their interactions, ranged from 78.86 to 526.600, indicating that most regression models are statistically significant as a whole.

Tab**le 5: Panel Regression Results – Interaction Models (CEO_ten as moderator)**

	FGLS			**PW-PCSE**		
	-4	**-5**	**-6**	**-4**	**-5**	**-6**
	ROA	**ROA**	**ROA**	**ROA**	**ROA**	**ROA**
Brd_Size	1.285*** (0.191)			1.285*** (0.110)		
Brd_Ind		8.932*** (2.188)			8.932*** (0.726)	
Gen_Div			-0.992* (0.547)			-0.992** (0.392)
CEO_Ten	0.319* (0.169)	0.135 (0.167)	-0.138 (0.091)	0.319*** (0.094)	0.134*** (0.023)	-0.138** (0.046)
Brd_Size*CEO_Ten	-0.052** (0.022)			-0.052*** (0.013)		
Brd_Ind*CEO_Ten		-0.294* (0.219)			-0.294*** (0.055)	
Gen_Div*CEO_Ten			0.049			0.048*

			(0.073)			(0.029)
FSIZE	-3.680***	-3.468***	-3.254***	-3.680***	-3.468***	-3.254***
	(0.344)	(0.346)	(0.347)	(0.456)	(0.438)	(0.495)
LEV	0.000	0.000	0.000	0.000	0.000	(0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
FAGE	0.020	0.039	0.022	0.020	0.039	0.021
	(0.023)	(0.024)	(0.024)	(0.022)	(0.021)	(0.019)
Constant	27.727***	28.309***	34.419***	27.727***	28.309***	34.419***
	(3.477)	(3.659)	(3.460)	(3.968)	(4.326)	(4.671)
R-squared				0.120	0.096	0.0832
Wald statistic	146.040	113.790	97.480	226.050	492.270	134.3
No of Observations	1074	1074	1074	1074	1074	1074

In this panel regression interaction model, Table 4 displays the comparison between the FGLS and PW-PCSE methods. The analysis focuses on the dependent variable, ROA, and considers several independent factors such as Brd_Size, Gen_Div, Brd_Ind, FSIZE, LEV, and FAGE. Additionally, CEO_ten acts as a moderator in the model.

The results show that both the FGLS and PW-PCSE estimates had positive significant coefficient estimates of about 1.285 for "Brd_Size." This suggests that a larger board size is related to better ROA. Likewise, both estimates show a significant positive coefficient estimate of about 8.932 for "Brd_Ind." This tells us that as the number of independent board members increases the ROA also increases.

However, "Gen_Div" has negative coefficient estimates of about -0.992 which were also statistically significant in both the FGLS and PW-PCSE estimates. This factor suggests that ROA decreases as gender diversity increases. Then the number increases show that gender diversity is affected by CEO_Ten showing that the CEO term also affects how CEO_Ten affects ROA. Both the FGLS and PW-PCSE estimates for "CEO_Ten" shows positive coefficient estimates of about 0.319 which were also statistically significant. This suggests that how long a CEO has been in their position has a positive effect on ROA.

The model The analysis also indicates that "Brd_Size*CEO_Ten" and "Brd_Ind*CEO_Ten" are both statistically significant negative values, indicating that the CEO's tenure does affect the effect of board size and board independence ratio on ROA. Similarly, the interaction term of "Gen_Div*CEO_Ten" indicates a statistically significant value of greater than zero (positive), meaning that CEO employment does affect the effects of gender diversity on ROA.

R-squared values are presented only for the PW-PCSE estimates, since FGLS regression does not report this. The R-squared values range from about 0.083 to 0.120, meaning that the independent factors and how they interact explain approximately 8.3% to 12.0% of the variation in ROA. The Wald statistics are also displayed, and they range from 97.480 to 492.270, indicating that most of the regression models are statistically significant.

Discussion & conclusion:

Discussion of Findings

This study examined the interaction between board characteristics and CEO attributes in influencing firm profitability in Pakistan, an emerging economy characterized by weak institutions and high governance challenges. The findings provide several important insights.

To begin with, in line with agency theory (Jensen & Meckling, 1976; Fama & Jensen, 1983), the size and independence of the board of directors both had positive effects on firm profitability. Larger boards had broader expertise and resources, while independent directors improved oversight capabilities and reduced agency costs. The findings are consistent with previous evidence from developed markets (Bhagat & Bolton, 2008), and confirmed that effective board structures are just as critical in emerging markets.

Secondly, female representation was found to negatively influence firm profitability. While this runs counter to the stewardship argument that diverse boards improve decision-making and communication (Khatib et al., 2022), these findings are aligned with literature indicating that, in some developing markets, cultural norms and institutional obstacles inhibit the effectiveness of strategic initiatives related to female representation (Kelemen et al., 2023). This finding illustrates the importance of contextualizing governance outcomes, rather than presume universality.

Lastly, CEO experience and tenure had positive relationships with ROA, which is aligned with upper echelons theory (Hambrick & Mason, 1984), which discusses the role of managerial experience and stability in strategic outcomes. However, the moderating effects of experience and tenure had more complicated results. Interaction terms indicated that the experience and tenure of the CEO had negative moderation effects on the profit-improving effects of board size and independence. This suggests that entrenched or highly experienced CEOs may dilute board oversight, limiting the benefits of governance mechanisms. In contrast, CEO tenure positively moderated the effect of gender diversity, indicating that long-serving CEOs may leverage diverse perspectives more effectively once trust and stability with the board are established. These findings extend UET by demonstrating that CEO characteristics can both reinforce and constrain governance structures depending on context.

Theoretical Contributions

This study contributes to the literature in several ways. First, by integrating agency theory and upper echelons theory, it shows that board characteristics alone cannot explain firm performance without considering the role of CEO attributes. Second, it challenges assumptions in stewardship theory by demonstrating that gender diversity does not automatically enhance profitability in emerging markets; instead, its effects depend on leadership tenure. Third, the study contributes context-specific evidence from Pakistan, where governance practices are evolving and leadership discretion is amplified by institutional weaknesses.

Practical and Policy Implications

The results carry significant implications for boards, regulators, and policymakers. Boards should carefully balance independence and size with mechanisms to prevent CEO entrenchment. Regulators in Pakistan and similar economies may need to design policies that ensure rotation and accountability of CEOs to preserve the positive influence of board oversight. Additionally, while promoting gender diversity remains important for equity, firms must complement diversity initiatives with leadership development and inclusion strategies to ensure that diverse perspectives translate into improved performance.

Limitations and Future Research

There are several limitations to be discussed. First, the study used profitability as measured by ROA , which is relatively common but likely misses other aspects of performance, such as market value or innovation. Second, CEO experience and tenure were treated as a linear variable; the literature around this would welcome examination of the potential non-linear effects of tenure or other variables such as diminishing returns to tenure. Third, the objective was to explore listed firms in Pakistan; studying similar firms in different emerging economies may better generalize our findings. Finally, qualitative methods could expose richer understandings of board-CEO interactions that might not be revealed through quantitative data.

Conclusion

Overall, this study demonstrates both the complex interplay of board characteristics with CEO characteristics to help with understanding firm profit maximization in an emerging market context. Even though a large, well-independent board results in profit maximization, CEO experience and tenure offer both positive and negative attributes of potency. This study has emphasized on the need for governance frameworks that strike a balance between board's need for oversight and the CEO's discretion and context-specific policies that may represent the institutional and cultural underpinnings. This study has also added to the corporate governance literature by indicating to researchers that governance outcomes may be conditional, and provides useful guidance for boards and regulators of developing economies.

Contributions at a Glance

Table 6: **Contributions at a Glance**

Type of Contribution	Description	Value Added to Literature/Practice
Theoretical Contributions	Integrates Agency Theory (monitoring role of boards) with Upper Echelons Theory (CEO attributes) in explaining firm	Provides a multi-theoretical lens demonstrating that board structures and CEO

	profitability. - Challenges Stewardship Theory assumption that diversity automatically enhances performance; shows contextual dependence.	characteristics interact in complex ways, extending governance theory to emerging markets.
Empirical Contributions	Analyzes 180 non-financial PSX-listed firms (2016–2021), generating 1,074 firm-year observations- Discovers that board size and independence has a positive impact on profitability, while gender diversity has a negative impact. - Demonstrates that CEO experience and tenure directly will show a positive impact on profitability, will positively moderate board–performance links, while CEO tenure × gender diversity has a positive impact.	Offers context-specific evidence from Pakistan, an underexplored emerging market, demonstrating that governance mechanisms function differently in weak institutional environments.
Practical Contributions	Highlighting the risks of CEO entrenchment, highlights the financial and governance independence size of the board to oversee allotment discretion - encourages board and regulators find ways to hold CEOs accountable (e.g., term limits, rotation) - notes that gender diversity policies need to have policies that are designed to lead inclusively that lead to performance changes.	Provides actionable guidance for boards, regulators, and policymakers in Pakistan and comparable economies to design governance mechanisms that enhance profitability and sustainability.

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