CEO Attributes and Firm Performance in Bangladesh

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Abstract:

This study examines the impact of Chief Executive Officer (CEO) attributes on firm performance in Bangladesh. This paper analyzed 156 publicly listed firms in seven nonfinancial industries during the period of 2014–2023. This study analyzes two relationships using the two-step system Generalized Method of Moments (GMM). The findings suggest that firms with foreign CEOs outperform firms with native ones. Additionally, firms with a higher proportion of shareholding by their CEOs perform better than others. It is likely that CEO shareholding can reduce agency problems and enhance company performance. Furthermore, firms with male CEOs outperform firms with female CEOs. Overall, these findings demonstrate that CEO attributes do affect the financial performance of firms. The findings of this research may assist the corporate board in hiring the best CEO to ensure better firm performance. Considering the differences in institutional settings between developed and emerging nations, this study provides new insights into how CEO attributes affect firm performance in an emerging country like Bangladesh.

Keywords: BEP, CEO, CEO Attributes, Firm Performance.

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1.0 Introduction

The CEO, being the center of leadership, influences the firm's performance by shaping its mission, vision, policies, and decisions (Finkelstein *et al.*, 2009; Quigley & Graffin, 2016). Leadership exercised by a CEO is considered to be a crucial element for the profitability, sustainability, and revival of firms (Tichy & Devanna, 1986) as well as countries (House *et al.*, 1990). Based on upper echelons theory (Hambrick & Mason, 1984), researchers suggest that the CEO's background is a significant factor in explaining firm performance (Zhu & Chen, 2014).

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Prior research supporting the resource dependency theory (Pfeffer & Salancik, 1978) suggests that top management's hiring decisions, especially the CEO's, are largely shaped by characteristics such as age, experience, achievements, education, and similar attributes. These factors exhibited a strong association with firms' performance (Wally & Baum, 1994). Moreover, the CEO's shareholding plays a crucial role in reducing agency problems (Jensen, 1986), which in turn ensures the long-term sustainability of the firm (Pawlina & Renneboog, 2005). However, prior research incorporating transaction cost economics suggests that older CEOs with a larger stake in the firm focus more on short-term profitability than long-term sustainability (McClelland et. al., 2011). To achieve better performance in terms of better revenue, gross profit, net profit, total assets, return on equity (ROE), return on assets (ROA), earnings per share (EPS), etc., firms often try to appoint top management with some qualities that make them stand out from others (Peni, 2012). In light of this, this study aims to investigate the relationship between CEO attributes and firm performance.

The inspiration behind this study stems from the importance of understanding the association between CEO attributes and firm performance. Prior researches have highlighted the significant impact of CEOs in shaping an organization's culture, strategic direction, and overall performance. The literature suggests that certain characteristics of CEOs, including age, education, professional experience, and shareholding percentage, influence their leadership style, risk tolerance, decision-making ability, and which in turn can significantly impact the firm's innovation, profitability, and long-term viability.

This paper aims to contribute to the literature by outlining the association between CEO attributes and firm performance. The key research question of this study is "How do the attributes of the CEO affect the firm performance?" Additionally, this research makes an effort to demonstrate "Which of the CEO's attributes most influences performance?". Although considerable research on this topic already exists, most of it has been conducted in developed countries. However, such research may reveal new findings in developing countries, where socio-economic conditions, corporate culture, environment, organizational structure, and legal framework contribute to institutional rigidity in ways that differ significantly from those in developed countries. This paper aims to provide fresh insights into corporate behavior in the economic landscape of an emerging country such as Bangladesh. To our knowledge, there are no studies examining the relationship between CEO attributes and the financial performance of non-financial listed companies in Bangladesh. Moreover, most earlier studies on this topic did not

address the potential endogeneity problem between CEO attributes and firm performance. This study used the Generalized Method of Moments (GMM) to mitigate endogeneity. Thus, the results are expected to be more robust.

The remaining of this article is designed as follows: In Chapter Two, a in-depth review of existing literature is provided, highlighting the relationship between CEO attributes and firm performance. Additionally, the hypotheses of this study are outlined in that section. Chapter Three presents the empirical approach and details the dataset used. The empirical findings are discussed in Chapter Four. Finally, Chapter Five of this article presents the conclusions and policy implications.

2.0 Literature Review and Hypothesis Development

The Chief Executive Officer (CEO) is found to be the most influential organizational figure within a firm (Hambrick & Gregory, 1991). Due to their genuine influence and extensive awareness of the firm, the CEO has a strong impact on the firm's internal processes and strategic direction (Mizruchi, 1983; Roth, 1995). The resource dependency theory posits that CEOs frequently establish friendships with top executives at other firms, which benefits the firm by providing access to new resources, networks, and distribution channels (Westphal *et al*., 2006; Hillman *et al*., 2009). As the 'Corporate Head' of the firm, the CEO is responsible for setting the organizational work environment (Norburn, 1989). The CEO has a significant influence on the firm's operations, investments, and financing decisions. Thus, CEO attributes are a great point of research in the business world.

The upper echelons theory posits that the attributes of top management shape their actions and decisions, which in turn affect the firm's performance (Hambrick & Mason, 1984). The decisions made by top management, especially CEOs, reflect their personality, experience, and values. Thus, the attributes of CEOs can be used as proxies for their cognitions (Hambrick, 2007). Several studies have examined the effect of CEOs on firm performance and found the CEO effect to be significantly more important than the industry effect in certain settings (McGahan & Porter, 1997). Moreover, in smaller firms, the impact of CEO attributes on organizational performance is more evident because such firms are less hierarchical in structure and thus face less organizational inertia (Miller, 1991; Roth, 1995).

Agency theory suggests that managers' self-serving bias often leads them to pursue goals that differ from those of the firm's owners (Meckling & Jensen, 1976). The agency problem is reduced when the CEO has a larger stake (Jensen, 1986), as they become more careful in decision-making and concentrate on wealth maximization (May, 1995). However, the transaction cost economics suggest that older CEOs

nearing their retirement age with a larger stake in the firm become more risk-averse. They systematically reduce long-term investments, which risks firm performance (McClelland et. al., 2011).

Recent researchers have sought to link CEO attributes to firm performance, considering variables such as CEOs' age, gender, education, experience, and functional backgrounds as explanatory variables (Hambrick, 2007; Guillet *et al.*, 2013; Ali *et al.*, 2021). The following segments summarize the literature regarding the aforesaid CEO attributes.

2.1 CEO Age and Firm Performance

Age is considered a crucial variable for top executives, particularly CEOs, as they transform into human capital through years of work (Guillet *et al.*, 2012). Empirical evidence suggests that older CEOs make more prudent decisions as they gather higher experience with age (Sitthipongpanich & Polsiri, 2015). However, in terms of risk-taking, younger CEOs tend to prefer high-risk, high-return projects. In contrast, older CEOs prioritize stability, thus, focus less on high-risk projects (Herrmann & Datta, 2006). This is because older CEOs are more likely to adhere to established policies when making investment decisions to protect their reputation, job security, and pension entitlements (Bertrand & Schoar, 2003; McClelland et *al.*, 2011; Serfling, 2014). Conversely, younger CEOs are more enthusiastic and eager to try new things, and thus are prone to take high risk investment decisions (Li *et al.*, 2017). However, younger CEOs often have limited experience, and their aggressive strategic decisions may fail, resulting in the wastage of capacity and funds. Nevertheless, to survive in the changing business environment, younger CEOs are found to perform well due to their superior information processing capability and quick decision-making ability, which older CEOs often lack (Herrmann & Datta, 2006; Huang, 2012).

Existing literature suggests mixed findings regarding the relation between CEO's age and firm performance. Researchers such as Wang *et al.* (2016) and Ali *et al.* (2021) have observed a positive correlation between CEOs' age and firm performance, which they attribute to their extensive experience. In contrast, Cline *et al.* (2016), McClelland et al. (2011), and Davidson et al. (2007) found an inverse relationship between CEO age and firm performance. McClelland (2011) argued, based on transaction cost economics, that CEOs nearing retirement age are more concerned about their personal wealth and, as a result, often make investment decisions that increase short-term firm performance but decrease long-term firm performance. Nonetheless, Eduardo *et al.* (2016) find no significant association between CEO age and firm performance.

2.2 CEO Experience and Firm Performance

CEOs with higher levels of professional experience are better equipped to make effective strategic decisions and to monitor the firm's operations more effectively, thereby improving the firm's performance (Ghardallou *et al.*, 2020). However, experienced CEOs often replicate strategies that were successful in the past but fail to achieve satisfactory performance, as market dynamics are not static (Hamori & Koyuncu, 2014).

Literature examining the effect of CEO experience on firm performance warrants further investigation. Wang *et al.* (2016), based on their meta-analysis of upper echelons theory, concluded that CEOs' prior experience positively influences firm performance. Moreover, experienced CEOs are found to handle large investments more effectively, which require substantial external funds (Hu & Liu, 2015). However, Morrison & Brantner (1992) and Hamori & Koyuncu (2014) reported that CEOs with high professional experience often suffer from negative transfer of learning, which results in lower firm performance.

2.3 CEO Education and Firm Performance

The formal education of CEO exhibited a considerable influence on their managerial effectiveness and overall performance (Wally & Baum, 1994). Firms with strong educational backgrounds among their top management perform better in the long run as they have valuable human resources that enable them to make informed decisions in challenging situations and to be more open to change (Cheng *et al.*, 2020). Moreover, more highly educated CEOs often have better training, a stronger knowledge base, and greater cognitive growth. Thus, they are better equipped to promote the firm's future growth through well-thought-out decisions and strategic actions. Conversely, higher education may lead to an overconfidence bias, which can cause CEOs to overestimate their actual abilities, ultimately having an adverse effect on firm performance (Kaur & Singh, 2019).

Previous researchers have found evidence of the positive impact of CEO formal education on firm performance (Darmadi, 2013; Saidu, 2019; Urquhart & Zhang, 2022). Alternatively, firms administrated by CEOs with diverse educational qualifications, ranging from academic to professional degrees, are found to show no significant differences in performance (Kimberly *et al.*, 1981). Nevertheless, Malmendier & Tate (2005) and Ben Mohamed *et al.* (2014) reported that CEOs with higher educational qualification are less likely to make impulsive decisions, as they possess better knowledge of the market competitiveness, business environment, and macroeconomic conditions, which subsequently increase the firm's cost efficiency.

2.4 CEO Gender and Firm Performance

One of the most extensively researched attributes of top executives is gender (Peni, 2012), which serves as an excellent indicator of organizational diversity. Prior researchers have observed differences in the firm performance based on the gender of the CEO. In developed countries, female CEOs with exclusive work experience and education perform better than their male counterparts (Francoeur *et al.*, 2008; Jurkus *et al.*, 2011). In fact, female executives tend to prefer lower-risk projects over those of their male counterparts, yet they generate similar returns (Khan & Vieito, 2013). However, studies focusing on developing countries report that male managers strengthen firms' performance better than female managers (Liu *et al.*, 2014; Singhathep & Pholphirul, 2015; Jadiyappa *et al.*, 2019). Nevertheless, some researchers, such as Lee & Marvel (2013) and Vintilă et al. (2015), find that CEO gender is not significantly associated with firm performance.

2.5 CEO Nationality and Firm Performance

Firms often face the dilemma of choosing a CEO from their home country or a foreign company. Foreign executives bring new ideas, techniques, and expertise to the organization, leading to informed decisions and better firm performance. However, they usually are less familiar with local laws, regulations, and protocols, which may hinder firm performance (Kaur & Singh, 2019). Moreover, internal conflict arising from diverse nationalities within management bodies may impact communication and decision-making speed, ultimately affecting firm performance.

In their analysis of the resource dependency model, Ujunwa (2012) finds a significant positive relationship between CEO nationality and firm performance. Elsharkawy *et al.* (2018) and Lai *et al.* (2020) report that foreign CEOs, despite possessing unique expertise, often perform poorly in the long run. Nevertheless, in some instances, the nationality of the CEO does not make any difference in firm performance, more specifically, firms' corporate social responsibility (CSR) and environmental performance (Huang, 2012).

2.6 CEO Shareholding and Firm Performance

CEO shareholding is considered a source of power (Onali *et al.*, 2016). Studies on corporate governance suggest that the agency problem is likely to be reduced as executive shareholding increases which, in turn, enhances firm performance (Kaur & Singh, 2019). Agency theory assumes that CEOs with a larger stake in the firm are long–term oriented (Pawlina & Renneboog, 2005). Generally, CEOs are more enthusiastic and more careful about taking on profitable projects when they own a

larger stake in the firm (May 1995). Hence, with an increase in CEO shareholding, the agency problem is reduced because their goals become aligned with those of shareholders (Jensen, 1986). Moreover, the ownership structure undergoes substantial adjustments following changes in firm performance (Demsetz,1983). Thus, such potential adjustments motivate CEOs to exert greater efforts, thereby enhancing firm performance. Therefore, the bidirectional relation of the CEO shareholding and firm performance may create an endogeneity problem.

Numerous researchers, including Tan *et al.* (2001), Adams *et al.* (2005), and Li *et al.* (2007), have reported that CEO ownership has a significant positive impact on firm performance. Conversely, few studies have found that CEO shareholding adversely affects firm performance (Fama & Jensen, 1983). In fact, Morck *et al.* (1988) find that executives with a larger stock ownership often misuse their power and depart from firms' original goal of wealth maximization. However, Demsetz & Lehn (1985) report no significant association between CEO ownership and financial performance of the firm.

The findings of prior studies regarding the association between CEO attributes and firm performance require further exploration to contribute to the existing literature. Such a lack of conclusiveness provides scope for further research on this issue. Moreover, most research on this topic has been conducted using firms from developed economies. Thus, there is still some scope to study such relationships for firms in developing economies. This study aims to address the gap and make a noteworthy contribution to the literature. The primary hypotheses required to conduct this research are highlighted below.

Table 01 : Hypothesis Development

Hypothesis	Basis	Reference
H1: CEO age has a positive impact on firm performance.	Older CEOs perform better.	Wang *et al.* (2016); Ali *et al.* (2021)
H2: CEO's experience in the company has a positive impact on firm performance.	CEOs with higher professional experience in the company perform better.	Wang *et al.* (2016); Ghardallou *et al.* (2020)
H3: CEO education has a positive impact on firm performance.	CEOs with higher education perform better.	Urquhart & Zhang (2022); Saidu (2019); Darmadi (2013)
H4: Male CEOs have a positive impact on firm performance.	Male CEOs perform better compared to female CEOs.	Li *et al.* (2014); Singhathep & Pholphirul (2015); Jadiyappa et al. (2019)
H5: Local CEOs have a positive impact on firm performance.	Local CEOs perform better compared to foreign CEOs.	Lai *et al.* (2020); Elsharkawy *et al.* (2018)
H6: The CEO shareholding in the company has a positive impact on firm performance.	CEOs with larger shareholding in the company perform better.	Tan *et al.* (2001); Adams *et al.* (2005); Liu *et al.* (2007)

Source: Author's Estimation

3.0 Research Methodology

3.1 Research Design

This study investigates the relationship between CEO attributes and the financial performance of firms. We use the basic earning power (BEP) as a measure of firm's financial performance. The BEP is an indicator of a firm's operating profitability that excludes the effects of non-operating expenses, financial leverage, and taxes. Six CEO-specific attributes, namely CEO age, experience, gender, nationality, education, and CEO shareholding in the company, have been considered to analyze their impact on firm performance. These CEO attributes are among the most investigated variables in research employing the upper echelons theory. Additionally, some firm-specific factors have been controlled in the regression analysis. Since CEO age and

experience are highly correlated, we have employed two separate models to conduct this study. The models analyzed in this study are given below.

Model 01:

$$BEP_{it} = \alpha + \beta_1\ CEO\ Age_{eit} + \beta_2\ CEO\ Education_{it} + \beta_3\ CEO\ Gender_{rit} + \beta_4\ CEO\ Nationality_{it} + \beta_5\ CEO\ \text{Shareholding}_{it} + \beta_6\ Firm\ Age_{it} + \beta_7\ Ln\ \text{TA}_{it} + \beta_8\ Debt\ to\ Total\ Asset_{it} + \beta_9\ CEO\ Turnover_{it} + \varepsilon_{it}$$

Model 02:

$$BEP_{it} = \alpha + \beta_1\ CEO\ \text{Experience}_{it} + \beta_2\ CEO\ Education_{it} + \beta_3\ CEO\ Gender_{it} + \beta_4 CEO\ Nationality_{it} + \beta_5\ CEO\ \text{Shareholding}_{it} + \beta_6\ Firm\ Age_{it} + \beta_7\ Ln\ TA_{it} + \beta_8\ Debt\ to\ TotalAsset_{it} + \beta_9\ CEO\ Turnover_{it} + \varepsilon_{it}$$

This study analyzes a panel model, in line with the existing literature, to assess the influence of CEO attributes on firm performance. Prior studies incorporating ownership structure suggest that CEO shareholding is endogenous and should be modeled likewise to obtain unbiased regression estimates. Thus, endogeneity is tested in the relevant dataset, which indicates the presence of endogenous variables in the analysis (Appendix B). To address the endogeneity problem, this study used the two- step system Generalized Method of Moments (GMM) estimator.

3.2 Definition of Variables

The regression models use six explanatory variables and four control variables in order to examine the association between CEO attributes and firm performance. The variables of concern are outlined in the table below, along with their measurements.

Table 02: Definition of Variables

Variable	Name	Measurement	Type
Basic Earning Power (BEP)	bep	Basic Earning Power = Operating Profit / Total Assets	Dependent Variable
CEO Age	ceo_age	Age of the CEO in terms of years	Explanatory Variable Model 01
CEO Experience	exp_comp	CEO experience in the company in the number of years	Explanatory Variable Model 02
CEO Education	edu	Number of schooling years	Explanatory Variable
CEO Gender	gender	Male = 1, Female = 0	Explanatory Variable
CEO Nationality	national	Local = 1, Foreign = 0	Explanatory Variable
CEO Shareholding	ceo_share	Percentage of company shares owned by the CEO	Explanatory Variable
Firm Age	age	Number of years the firm has been in operation	Control Variable
Total Asset	lnta	Natural logarithm of total asset	Control Variable
Debt-to-Total Asset	debt_ta	The ratio of debt to total assets of the firm	Control Variable
CEO Turnover	ceo_turnover	Appointment of new CEO = 1, Continuation of the existing CEO tenure = 0	Control Variable

Source: Author Generated

Basic earning power (BEP), a measure of the firm's accounting performance, is the dependent variable of this study. This research includes the CEO's age, experience, gender, nationality, level of education, and shareholding as independent variables. The age of a CEO has been measured in years. This paper aims to investigate whether older CEOs outperform their younger counterparts in strategic planning and decision-making. Experienced CEOs are believed to provide valuable expertise and industry knowledge, whereas younger CEOs may offer fresh insights and

creative suggestions. The CEO's professional expertise within the firm is also examined in this paper. With their extensive company experience, the CEOs can impact both short- and long-term operations by overcoming obstacles, seizing opportunities, and developing a motivated staff. To put it simply, in a highly competitive business landscape, the CEO's experience is key to achieving and sustaining top performance. To emphasize the significance of gender balance in leadership, workplace culture, and decision-making and to promote inclusivity and creativity, this study emphasizes gender-based performance analysis. Additionally, the nationality variable has been included to examine the performance of local CEOs compared to foreign ones, with implications for leadership styles, decision-making, and organizational culture. Recognizing and capitalizing on a CEO's nationality can improve organizational adaptation, innovation, and overall success in today's interconnected corporate landscape. Moreover, this study investigates the association between CEO education and firm performance, focusing on the role of education in influencing the firm's performance. The education variable is measured as the number of years of schooling a CEO has attended. Furthermore, because ownership entails a commitment to improving business performance, the CEO's ownership position may significantly impact the company's overall success. Assessing whether firms with larger CEO shareholdings are more innovative, have better long-term planning, and satisfy their shareholders, ultimately reaching higher performance, is one of the objectives of this study. In accordance with the existing literature, CEO shareholding variable in this study has been specified as endogenous, while the other explanatory variables are strictly endogenous. In addition to these explanatory variables, firm age, total assets, debt-to-total asset ratio, and CEO turnover have been included as control variables. By analyzing these variables, this study attempts to shed light on the factors that influence firm performance and the role that CEOs play in driving that performance.

3.3 Sample

This research includes 156 non-financial firms in its sample and spans a ten-year period (2014-2023). This study employs annual rather than quarterly data because the latter are vulnerable to seasonal effects and are not audited. Furthermore, this paper examined seven non-financial industries, comprising 156 companies in total (Appendix A).

3.4 Sources of Data

The primary data sources are firm-specific annual reports and the DSE Archive. Additionally, a variety of websites, including Market Scanner and the Wall Street

Journal, are used to find CEO-specific data. Additionally, certain data has been gathered from the CEOs' LinkedIn profiles.

4.0 Analysis and Findings

4.1 Descriptive Analysis

This study attempts to examine the impact of CEO attributes on firm performance. A descriptive analysis has been conducted to fully comprehend the variables in question. The descriptive analysis results for the variables used in this study are summarized in Table 03.

Table 03 Descriptive Statistics

Variable	Obs	Unit	Mean	Median	Std. Dev.
Basic Earning Power	1383	Fraction	0.07	0.06	0.10
CEO Age	1269	Number of Years	52.53	53.00	10.92
CEO Experience	1297	Number of Years	16.98	16.00	10.39
CEO Education	1299	Number of Years	16.88	17.00	1.84
CEO Gender	1398	Dummy	0.91	1.00	0.29
CEO Nationality	1398	Dummy	0.91	1.00	0.29
CEO Shareholding	1325	Fraction	0.09	0.06	0.11
Firm Age	1500	Number of Years	25.99	21.00	18.40
Ln TA	1385	Fraction	8.13	8.15	1.43
Debt to TA	1384	Fraction	0.29	0.25	0.27
CEO Turnover	1414	Dummy	0.05	0.00	0.23

Source: Author's Estimation

For the concerned dataset, the mean Basic Earning Power (BEP) was found to be around 7%. The mean age of the CEOs is 53 years, with the oldest being 85 and the youngest 22. CEOs have been working in the same company for an average of 17 years. The most senior CEO has around 60 years of professional experience in the same company. Moreover, most CEOs typically finish their postgraduate degrees (17). Within the dataset, approximately 91% of CEOs are native to the country, and 91% are male. On average, the CEO's shareholding accounts for around 9% of the firm's shares. The firms under investigation have been operating for an average of 26 years. The average leverage rate of the companies under study is 0.29. Lastly, roughly 5% of the sample firms appointed new CEOs during the study period.

4.2 Quartile and Categorical Analysis

Initially, we make a quartile analysis to explore the relationship between selected explanatory variables and the explained variable, basic earning power (BEP). First, we rank the explanatory variable in ascending order, then divide the dataset into four quartiles. Next, we estimate the median BEP for each quartile. The median BEPs of the four quartiles indicate the possible relationship with the explanatory variable. Similarly, we estimate the median BEPs for each categorical variable type, such as male, female, local, and foreign. The detailed tables are provided below.

Table 04 Median BEP by CEO Age Quartiles

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Q1 (Youngest)	0.096	0.0863	0.089	0.0744	0.0733	0.0653	0.0509	0.0377	0.0448	0.0328
Q2	0.0851	0.0832	0.0784	0.073	0.0775	0.0648	0.0578	0.0597	0.0633	0.0417
Q3	0.0706	0.0649	0.0609	0.0587	0.0629	0.0651	0.0553	0.0568	0.0534	0.0602
Q4 (Oldest)	0.0668	0.0739	0.0827	0.0619	0.0589	0.0618	0.0393	0.0421	0.0445	0.0377

Source: Author's Estimation

Table 05 Median BEP by CEO Experience Quartiles

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Q1 (Least)	0.0984	0.0951	0.0983	0.0974	0.0898	0.0821	0.0639	0.0579	0.059	0.0313
Q2	0.0909	0.0818	0.082	0.0721	0.0753	0.0604	0.0488	0.0501	0.0574	0.0551
Q3	0.0557	0.063	0.0626	0.0657	0.0612	0.0638	0.0495	0.0435	0.0534	0.0438
Q4 (Most)	0.0642	0.0702	0.0659	0.055	0.0629	0.0578	0.0408	0.0409	0.0445	0.0403

Source: Author's Estimation

Table 06 Median BEP by CEO Gender

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Male	0.0761	0.0711	0.0726	0.0656	0.0653	0.0627	0.0452	0.0474	0.0457	0.0394
Female	0.0868	0.0702	0.08	0.076	0.0704	0.0653	0.0569	0.0582	0.0677	0.0471

Source: Author's Estimation

Table 07 Median BEP by CEO Nationality

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Local	0.074	0.0691	0.0713	0.0656	0.0633	0.0618	0.0452	0.0461	0.0452	0.0368
Foreign	0.1269	0.1651	0.1375	0.0661	0.0822	0.0898	0.0717	0.0764	0.0714	0.0757

Source: Author's Estimation

Table 08 Median BEP by CEO Education

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Above average	0.0918	0.0958	0.0949	0.0995	0.0827	0.0742	0.0588	0.0723	0.0654	0.0574
Below Average	0.0895	0.0914	0.0845	0.0789	0.0650	0.0705	0.0455	0.0384	0.0508	0.0417

Source: Author's Estimation

Table 09 Median BEP by CEO Shareholding

Year	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Above average	0.0740	0.0691	0.0713	0.0656	0.0633	0.0618	0.0452	0.0461	0.0452	0.0368
Below average	0.1269	0.1651	0.1375	0.0661	0.0822	0.0898	0.0717	0.0764	0.0714	0.0757

Source: Authors' Estimation

This analysis suggests that firms with CEOs in their 40s and 50s tend to perform better than those with older CEOs. One possible explanation for this finding is that younger CEOs typically prefer higher risk-higher returns projects. Firms with less-experienced CEOs were found to outperform those with more-experienced CEOs. An attempt by more experienced CEOs to replicate previous successful strategies may be a reason for this, as such strategies often fail to deliver satisfactory performance when market dynamics are not static. Nevertheless, incorporating other variables might yield a different outcome. Firms appointing CEOs with educational qualifications of post-graduation or above perform better in most years. Firms that hire foreign CEOs tend to outperform those that hire local CEOs. However, firms that hire foreign CEOs are mostly larger. Thus, the variable CEO's nationality has been analyzed further in the regression analysis. Firms that hire female CEOs tend to

outperform those that hire male CEOs. Moreover, the association between CEO shareholding and firm performance suggests inconsistent results. Thus, these variables need to be investigated further to reach a conclusion. To more conclusively understand the association between CEO attributes and firm performance, the dataset is analyzed further in the following segments.

4.3 Regression Analysis

Before conducting the regression analysis, we have tested the dataset for multicollinearity issues using the correlation matrix and Variance Inflation Factor (VIF) estimates (Appendix C). Both the estimates suggest that there is no significant multicollinearity problem in the regression model. The results of the estimates from this study are summarized in Table 10, where the Basic Earning Power (BEP), a measure of the firm's accounting performance, is used as the dependent variable. The robust two-step system GMM has been used to specify the estimators. The validity of the instruments at the standard risk levels cannot be ruled out, according to the Hansen over-identification test. Thus, the validity of the instruments has been confirmed in both models. Moreover, the Arellano Bond AR (2) test indicates that the concerned models' residuals in first differences do not exhibit second-order autocorrelation.

Table 10 Two-Step System GMM Regression Estimates on Basic Earning Power

Basic Earning Power	**Model 01**	**Model 02**
CEO Age	-0.0011 (0.137)	
CEO Experience		0.0006 (0.538)
CEO Education	-0.0060 (0.381)	-0.0030 (0.624)
CEO Gender	-0.0056 (0.882)	0.0896* (0.063)
CEO Nationality	-0.1054** (0.042)	-0.1271*** (0.011)
CEO Shareholding	0.1657* (0.080)	0.1670* (0.063)
Firm Age	-0.0015** (0.016)	-0.0011 (0.111)
lnTA	-0.0093 (0.226)	-0.0014 (0.876)

Debt to TA	-0.0934*** (0.008)	-0.7154*** (0.008)
CEO Turnover	-0.0413* (0.060)	-0.0505 (0.118)
Industry Dummy	Yes	Yes
Year Dummy	Yes	Yes
Observations	1200	1215
Number of groups	142	144
Instruments	112	113
Lag	2, 2	2, 2
Hansen: p-value	0.240	0.200
AR (1): p-value	0.098	0.059
AR (2): p-value	0.417	0.313

****, **, and * indicate that the estimate is significant at 1%, 5%, and 10% level respectively*
Source: Authors' Estimation

Model 02 above suggests that firms with male CEOs outperform those with female CEOs. This finding aligns with the conclusions drawn by Li *et al.* (2014), Singhathep and Pholphirul (2015), and Jadiyappa *et al.* (2019) in the context of developing countries. However, Model 01 suggests that the association between CEO gender and firm performance is not significant. Consistent with our results, Lee and Marvel (2013) and Vintilă *et al.* (2015) found insignificant association between firm performance and this variable.

Although earlier studies (Elsharkawy *et al.*, 2018; Lai *et al.*, 2020) suggest that local CEOs outperform foreign CEOs, the model examined in this study yielded contradictory results. The GMM outcomes suggest foreign CEOs achieve better firm performance than domestic ones. The unique expertise of foreign CEOs may be the primary reason for these findings. Moreover, multinational firms with stable performance are usually found to appoint foreign CEOs, which may be a factor behind this finding. Additionally, almost all prior research was based on developed economies, suggesting that local CEOs performed better. Thus, regarding CEO nationality and firm performance, this study posits a departure from the existing literature.

Aligning with the findings of Tan *et al.* (2001), Adams *et al.* (2005), and Li *et al.* (2007), this study found a significant positive association between CEOs' shareholding in the company and firm performance. Such findings are supported by the fact that CEOs with a larger portion of the firm's shares are more enthusiastic and cautious in taking on profitable projects, and are also more long-term oriented. Thus, with an increase in CEO shareholding, agency problems decrease as their goals become aligned with those of the shareholders. Consequently, CEOs with higher shareholdings tend to perform better for the company over the long run. Firm age, financial leverage, and CEO turnover are inversely related to firm performance in the model. On the other hand, CEO turnover negatively affects firm performance.

Overall, among all CEO attributes, CEO nationality and shareholding have significant effects on firm performance in both models. According to Model 02, CEO gender significantly affects firm performance at the 10% level. Nevertheless, this variable is significant in the 2SLS analysis (Appendix B), indicating that firms with male CEOs perform better in Bangladesh.

5.0 Conclusions and Policy Implications

This research aims to investigate the relationship between CEO attributes and firm performance in Bangladesh. In an attempt to establish an association, this study analyzes two models in which Basic Earning Power (BEP) is used to measure the firm performance. Using the outcomes of the GMM estimations, this research concluded that CEO-specific attributes, including CEO gender, nationality, and percentage of shareholding, are significant determinants of firm performance. However, other CEO attributes, specifically, age, experience, and education, are not significant in influencing firm performance.

This study suggests that firms with foreign CEOs outperform those with native ones. Moreover, firms with a higher proportion of CEO shareholding were found to perform better in the regression analysis. Furthermore, firms with male CEOs outperform firms with female CEOs. Nevertheless, the impact of CEO age, company experience, and education on firm performance is insignificant according to this study.

The findings of this research may assist the board of directors and policymakers in making appropriate decisions when appointing a new CEO. Given that most firms in Bangladesh are family-owned businesses with typical CEO succession strategies, this paper encourages stockholders to consider various CEO attributes when making

hiring decisions. Moreover, the performance of the existing CEOs can be evaluated by using this study as a reference.

Further research can be done on this topic by incorporating other variables, such as CEO family relationships with other board members, the total work experience of the CEO, etc. Such inclusion would strengthen the literature on the association between CEO attributes and firm performance, ultimately assisting shareholders in hiring the best CEO to ensure better firm performance.

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Appendix

Appendix – A: Sample Details

Table A1: Sample

Industry	Number of Companies
Engineering	42
Information Technology (IT)	11
Jute	3
Textile	58
Pharmaceuticals and Chemical	32
Telecommunication	3
Cement	7
Total	156

Appendix – B: Endogeneity Test

Table B1: Two - Stage Least Square Analysis

Two - Stage Least Square Analysis				
Instrumented	**CEO Shareholding**			
BEP	1 Lag	2Lag	1 Lag	2Lag
	Model 01	Model 01	Model 02	Model 02
CEO Shareholding	0.038	0.023	0.067**	0.057
	(0.197)	(0.526)	(0.020)	(0.110)
CEO Age	0.000	0.000		
	(0.972)	(0.718)		
CEO Experience			0.000	0.000
			(0.393)	(0.947)
CEO Education	-0.002	-0.002	-0.002	-0.001
	(0.177)	(0.328)	(0.227)	(0.422)
CEO Gender	0.046***	0.049***	0.040***	0.042***
	(0.000)	(0.000)	(0.000)	(0.000)
CEO Nationality	-0.080***	-0.078***	-0.081***	-0.080***
	(0.000)	(0.000)	(0.000)	(0.000)
Firm Age	0.000	0.000	0.000	0.000
	(0.972)	(0.752)	(0.496)	(0.486)
lnTA	0.001	0.001	0.002	0.003
	(0.726)	(0.593)	(0.331)	(0.215)
Debt to TA	-0.078***	-0.078***	-0.077***	-0.077***
	(0.000)	(0.000)	(0.000)	(0.000)
CEO Turnover	0.005	0.007	-0.001	0.002
	(0.699)	(0.592)	(0.950)	(0.909)
Constant	0.138***	0.111***	0.114***	0.090**
	(0.000)	(0.006)	(0.001)	(0.019)
Industry Dummy	Yes	Yes	Yes	Yes

Table B2: Hausman IV Test for Endogeneity

Hausman IV Test for Endogeneity				
Ho: Difference in Coefficients Not Systematic				
	1 Lag	2Lag	1 Lag	2Lag
	Model 01	Model 01	Model 02	Model 02
chi^2 (15)	15.060	32.190	15.790	31.970
Prob>chi2	0.4472	0.0061	0.3959	0.0065
		Endogenous		Endogenous

Appendix – C: Correlation and Heteroskedasticity

Table C1: Correlation Matrix

	BEP	**CEO Age**	**CEO Experience**	**CEO Education**	**CEO Gender**	**CEO Nationality**	**CEO Shareholding**	**Firm Age**	**lnTA**	**Debt to TA**	**CEO Turnover**
BEP	1										
CEO Age	-0.04	1									
CEO Experience	-0.07	0.61	1								
CEO Education	0.05	-0.10	-0.03	1							
CEO Gender	0.08	0.19	0.12	0.04	1						
CEO Nationality	-0.29	0.07	0.17	-0.04	-0.03	1					
CEO Shareholding	-0.02	0.03	0.06	-0.15	0.07	0.16	1				
Firm Age	0.03	0.18	0.44	0.15	0.04	-0.05	-0.14	1			
lnTA	0.08	0.02	-0.06	-0.03	0.09	-0.17	-0.19	0.10	1		
Debt to TA	-0.28	-0.02	0.00	-0.10	-0.08	0.12	-0.03	0.05	0.15	1	
CEO Turnover	0.04	-0.10	-0.14	0.00	-0.05	-0.08	-0.09	-0.01	0.04	0.02	1

Table C2: Breusch Pagan Test

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of bep
chi2(1) = 72.88
Prob > chi2 = 0.0000

Table C3: Variance Inflation Factor

Model 01			Model 02		
Variable	VIF	1/VIF	Variable	VIF	1/VIF
LnTA	1.11	0.90	CEO Experience	1.37	0.73
CEO Shareholding	1.11	0.90	Firm Age	1.34	0.74
CEO Age	1.11	0.90	CEO Nationality	1.11	0.90
Firm Age	1.10	0.91	LnTA	1.11	0.90
CEO Nationality	1.08	0.92	CEO Shareholding	1.09	0.92
CEO Education	1.08	0.92	CEO Education	1.07	0.93
CEO Gender	1.07	0.93	Debt to TA	1.06	0.94
Debt to TA	1.07	0.94	CEO Gender	1.04	0.96
CEO Turnover	1.02	0.98	CEO Turnover	1.03	0.97
Mean VIF	1.08		Mean VIF	1.14	