Governance Matters: How Corporate Attributes Influence Financial Outcomes in Central Public Sector Enterprises?

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Abstract

The present study has inspected the empirical connection between corporate governance practices and financial outcomes of central public sector enterprises (CPSEs) in India. The research was based on balanced panel data for 15 public sector enterprises working in the primary, secondary, and tertiary sectors from 2013-14 to 2022-23. The objective of the study is to investigate the impact of corporate governance attributes on the Return on Assets, Return on Equity and Tobin's Q Ratio of CPSEs respectively. Based on prior research, a conceptual model was created using the financial performance of central public sector enterprises as the dependent variable, corporate governance traits as the independent variables, and company's age, size, growth, and market capitalization as control variables. The hierarchical multiple regression approach was used for data analysis in the study. The findings related to accountingbased indicators revealed that larger board sizes had a considerable impact on the accounting and market performance. Board expertise considerably lowers accounting performance while enhancing market performance. Audit committee meetings have no impact on market performance but having significant influence on accounting performance. Board meetings dramatically improve accounting performance while having little effect on market performance. Further, the audit committee size has found to expand accounting performance nevertheless having a detrimental impact on market performance. The study's conclusions suggested that public firms, governments, regulators, and policymakers should establish and support a solid corporate governance structure in order to compete in the global financial market.

Keywords

Tobin's Q ratio, financial performance, market performance, corporate governance

I. Introduction

Whether the corporate governance traits affect financial performance? Intuitively, governance practices should matter (Black, 2001), but research reasserting the bearing of corporate governance features on public sector enterprises in India is scarce (Singh & Chauhan, 2022). Good corporate governance safeguards business sustainability and enlarges the financial performance of corporate units (Azim, 2015; Black, 2001; Lama, 2012; Lee et al., 2019; Hutchinson, 2002; Baur, et al. 2004; Beiner, et al. 2006), besides slackening eventuality of corporate scandals, frauds, and crises (Bear, 2010; Paminto, 2015; Ahmed & Hamdan, 2015) and mitigating the conflicts between executives and investors (Lee et al., 2019; Yermack, 1996; Chhaochharia & Grinstein, 2007; Gompers, Ishii, & Metrick, 2003; Bebchuk et al., 2009).

Efficacy of governance mechanisms in shaping financial performance is the subject of extensive research, mainly in developing markets where corporate governance frameworks are continually growing. In the context of India, a country with a rapidly growing corporate sector and a strong public sector existence, understanding the influence of corporate governance on financial results is critical for fostering sustainable economic development and improving stakeholder confidence.

Corporate Governance gained prominence in the early '90s in India (Bhardwaj & Rao, 2014) after a spate of governance scandals abashed the first flush of economic liberalization (Goswami, 2002; Narayanaswamy, et al., 2012). In 1996, the Confederation of Indian Industry (CII) marked a significant milestone by formulating a corporate governance code aimed at assessing institutional governance standards, thereby laying the groundwork for a organized corporate governance system in the country (Kota & Tomar, 2010). Subsequently, the recommendations of the Kumar Mangalam Birla Committee (1999) led to the implementation of Clause 49 in the Listing Agreement, which further strengthened corporate governance norms for listed companies (Bhardwaj & Rao, 2014; Chakrabarti, 2005; Narayanaswamy et al., 2012; Dharmapala & Khanna, 2013), which urged independence of Boards and Audit Committees, enhanced disclosure mechanism, appointment of independent directors, inclusion of financial experts, CEO/CFO certification of financial statements and internal control (Black & Khanna, 2007; Dharmapala & Khanna, 2013), disclosure of management discussion analysis report and related party transactions and provisions regarding meetings and directorships of executives in different companies (Sharma, 2015; Black & Khanna, 2007).

As far as Indian corporate sector is concerned, the Company Act 2013 is a major milestone since its independence (Fernando, et al. 2018) which aimed at increasing reporting standards; risk management; high auditing accountability; emphasis on investor protection; composition of board members and their responsibilities; board committees; inclusive corporate social responsibility; compulsory whistle-blower mechanism (Das & Dey, 2016). Public enterprises play a vital role India in driving economic progress and nationwide development agendas. However, the efficacy of governance systems inside these corporations has been an issue of extensive discussion, with consequences for their financial viability and wider socioeconomic aspirations.

In this context, the present study seeks to discover the connection between various aspects of corporate governance and the financial outcomes of central public sector enterprises. The key governance traits examined in the study through hierarchical multiple regression approach are: board size, board gender diversity, board expertise, board independence, board meetings, board attendance, audit committee size, audit committee meetings, and board committees. Financial performance has been categorised into two categories: accounting outcomes (ROA and ROE) and market outcomes (Tobin's Q ratio). Accounting-based measures demonstrated that CPSEs' accounting and market performance suffered significantly as their board size increased. Board expertise significantly lowers accounting performance while increasing market performance. Audit committee meetings have a major impact on accounting performance, but not on market performance. Corporate board meetings substantially enhance accounting outcomes, with limited influence on market performance. Audit committee size improves accounting performance but has a negative influence on market performance. This study adds to the existing literature by providing empirical evidence on the impact of corporate governance mechanisms on the financial performance of central public sector enterprises, furthering our understanding of governance-performance subtleties in a diverse institutional framework. Moreover, the study's results have practical implications for lawmakers, regulators, investors, and company executives seeking to improve governance procedures and enhance long-term financial success in India's corporate environment.

II. Literature Review

The subsequent sections provide a brief overview of previous empirical research on corporate governance traits such as board size, board gender diversity, board expertise, board independence, board meetings, board attendance, audit committee size, audit committee meetings, board committees, and its influence on firm performance. Thereafter, testable hypotheses have been proposed.

2.1 Corporate governance attributes and firm performance

2.1.1 Board size and financial performance

According to resource dependence theory, it is expected that a larger board size provides an increased pool of expertise and thus are likely to have more knowledge and skills at their disposal than smaller boards (Pfeffer & Salancik, 2015; Nicholson & Kiel, 2007; Van den Berghe & Levrau, 2004), thus, improving corporate governance and organizational performance (Gafoor et al. 2018; Tariq & Naveed, 2016; Tachiwou, 2016; Jackling & Johl, 2009; Datta, 2018), Obeitoh et al. (2023). However, there are evidences supporting assertion that larger board size has inverse association with firm performance (Zabri et al., 2016; Xie et al., 2003; Shukeri et al., 2012; Cheng, 2008; Guest, 2009; Byard et al., 2006) as it causes poor communication, delayed decision making (Yermack, 1996) and ineffective coordination (Jensen, 1993); whereas subsequent studies concluded that larger board size has insignificant effects on financial performance (Sarpong-Danguah et al., 2018; Bually et al., 2017; Dettamrong et al., 2017; Buvanenda et al., 2017; Yousef, 2016). India's governance norms emphasize board form and size, but it is unclear to what extent the research, which is mostly drawn from Western affluent countries, applies to emerging economies. The assorted evidence on board size effects and India's unique governance challenges, including inexperienced directors and bureaucratic issues, suggest that this relationship warrants further exploration, especially in the context of emerging economies like India.

2.1.2 Board Gender Diversity and Financial Performance

Empirical findings of Carter et al. (2003), Sarpong-Danquah et al., (2018), Bear et. al. (2010), Emeka-Nwokeji (2017), and Carter, et al. (2010), Catalyst (2004), Kang et al. (2007), Parrotta & Smith (2013), Obeitoh et al. (2023), and Green & Homroy (2018) have concluded that board gender diversity has significant positive impacts on firm performance besides improving business supervision and control. Surprisingly, Fauzi and Locke (2012), Aras (2015), and Bøhren and Strøm (2010) identified a significant negative correlation between gender diversity on boards and company performance. Meanwhile, Darmadi (2011), Dettamrong et al. (2017), Chou et al. (2012), and Shukeri et al. (2012) concluded that gender diversity has no significant impact firm performance. The board's gender diversity shows mixed effects on financial performance, making it crucial to explore its true impact given the varied empirical evidence and potential governance benefits in the Indian context.

2.1.3 Board Meetings and Financial Performance

A board meeting is a formal periodic gathering of directors (Ntim & Osei, 2011) to review performance, address policy issues, solve problems, and manage routine business operations. The empirical results of Datta (2018), Tariq & Naveed (2016), Brick & Chidambaram (2007), Rico & Rohman, (2018), Gafoor et al. (2018), Francis et al. (2012), Alfarooque et al. (2020), Obeitoh et al. (2023) have found a significant positive impact of frequent board meetings on firm performance. Surprisingly, Xie et. al. (2003), Aras (2015), and Yilmaz (2018) have found a negative impact of board meetings on firm performance as it might cause decision fatigue, inefficiency, high costs, reducing productivity, causing burnout, and detract from strategic focus and innovation. Moreover, Jackling & Johl (2009), and Hassanein & Kokel (2022) have concluded that board meetings have an insignificant impact on firm performance. Gray & Nowland (2018) have educed that with the increase in the frequency of board meetings, board attendance declines which ultimately reduces its benefits for the firms. The varied evidence on the frequency of board meetings and its varied impacts on firm performance implications.

2.1.4 Board Attendance and Financial Performance

Bhatt & Bhattacharya (2015), Lin et al. (2014), Chou, et al. (2013), Brown & Caylor, (2006); Min & Verhoeven, 2013) have discovered that board attendance is crucial to business performance, and quantity and frequency with which directors attend board meetings correlates positively with firm performance. Francis et al. (2012) conclude that it ensures their active involvement in decision-making, fostering accountability and strategic oversight which collectively contributes to good governance, operational efficiency, and improved stock performance. Gray & Nowland (2018) have concluded that a lower board attendance rate results in weaker firm performance as it can hinder decision-making, impair oversight, and weaken governance, potentially leading to sub-optimal firm performance. Consequently, multiple studies steadily show that high board attendance enhances decision-making, accountability, and governance, which directly correlate with improved financial performance of companies.

2.1.5 Board Expertise and Financial Performance

Johl, et al. (2015), Gafoor et al. (2018), Francis et al. (2012), Jermias & Gani (2014), and Obeitoh et al. (2023) validate a robust positive association between board expertise and financial performance outcomes. Board expertise refers to the presence of experienced directors on the board who also serve as directors on other businesses' boards. Defond, et al. (2005) have found that Board expertise, mostly in accounting and finance, is seen as crucial for effective board monitoring and corporate success. Jermias & Gani (2014) argue that outside board directors of other large firms play critical roles in disseminating information across firms, detracting environmental scanning costs, serving as mechanisms for innovation diffusion, revealing important information about other firms' agendas, and sharing research insights and consulting abilities. Schnatterly et al. (2021) concluded that alignment between the board's collective expertise and the firm's future risks is crucial for effective board performance. Surprisingly, Nugraha (2023) has concluded the irrelevant influence of board expertise on firm outcomes in Indonesia. Hence, extensive research demonstrates that board expertise enhances effective oversight, strategic decision-making, and cross-firm knowledge transfer, which collectively drive superior financial performance in companies.

2.1.6 Board Independence and Firm Performance

The link between board independence and firm performance has been widely investigated, with findings differing across studies. Research by Chou et al. (2013), Alfarooque et al. (2020), Obeitoh et al. (2023), Gafoor et al. (2018), Sarpong-Danquah et al. (2018), and Hassanein & Kokel (2022) suggests that boards with a higher share of independent directors tend to boost firm performance significantly. Liu et al. (2015) emphasized a clear positive connection in state-owned companies, while Mohapatra (2016) showed that greater board independence increases firm value, using Tobin's Q as a metric.

On the other side, studies by David & Kochhar (1996), Bhagat & Black (2001), Agrawal & Knoeber (1996), Shukeri et al. (2012), and Ararat et al. (2015), point to a notable negative association between board independence and firm performance. Meanwhile, investigations by Buvanenda et al. (2017), Aras (2015), Bhatt & Bhattacharya (2015), Bually et al. (2017), Dettamrong et al. (2017), Zabri et al. (2016), and Fuzi et al. (2016) found no significant link between board independence and organizational performance outcomes.

Despite these inconsistencies, considerable evidence highlights that a larger proportion of independent directors can improve governance and oversight, ultimately benefiting a company's financial results.

2.1.7 Audit Committee Size and Firm Performance

Emeka-Nwokeji (2017), Ashari and Krismiaji (2019), and Kipkoech and Rono (2016) identified a positive link between audit committee size and firm performance, attributing it to improved oversight, compliance, reduced financial misreporting, enhanced risk management, and stronger investor confidence. Contrary to prevailing assumptions, empirical investigations

by Kipkoech and Rono (2016) and Hassanein and Kokel (2019) revealed a statistically significant inverse correlation between audit committee composition (specifically, member count) and organizational outcomes. Their findings suggest that larger committees may lead to inefficiencies, slower decision-making, heightened internal conflicts, and elevated operational costs, which could collectively undermine organizational performance. Additionally, Datta (2018), Dettamrong et al. (2017), Rouf (2011), Al-Matari et al. (2014), Gill & Obradovich (2012) Kallamu & Saat (2015), Al-ahdal & Hashim (2022), and could not found any significant impact of audit committee size on firm performance. Hence, several studies reveal a notable relationship between audit committee size and firm performance, with larger committees potentially improving monitoring, compliance, risk management, and decision-making, despite some contradictory findings.

2.1.8 Audit Committee Meetings and Firm Performance

Empirical studies by Alfarooque et al. (2020), Ashari and Krismiaji (2019), and Almoneef and Samontaray (2019) establish that frequent audit committee meetings positively influence operational efficacy through enhanced oversight mechanisms, timely resolution of discrepancies, reinforced accountability, transparency, and proactive risk mitigation strategies within corporate governance frameworks. Al-Okaily & Naueihed (2020) have concluded a significant positive impact of audit committee meetings on non-family firms, while an insignificant impact on family-owned firms. Furthermore, Xie et al. (2003), Rahman et al. (2019), and Awinbugri & Prince (2019) discovered a significant but negative impact, indicating that excessive audit committee meetings can result in increased costs, meeting fatigue, inefficiency, and distractions from core business operations, all of which impede firm performance. Meanwhile, Aras (2015), Rahmat et al. (2009), Al-Matari et al. (2014), Alzeban (2020), Al-Jalahma (2022), and Al-ahdal & Hashim (2022) found a paucity of evidence demonstrating the influence of audit committee meeting frequency on business performance. Although conflicting findings exist, various studies demonstrate a notable link between the frequency of audit committee meetings and firm performance, indicating that more meetings can enhance the supervision, accountability, and risk management of CPSEs.

2.1.9 Board Committees and Firm Performance

Rico et al. (2016), Prusty & Kumar (2016), and Singh et al. (2018) discovered that adding more board committees to a company has a significant and positive impact on firm performance because it improves governance efficiency, fosters expertise in critical areas such as audit and risk management, and improves decision-making, transparency, and accountability. Furthermore, Almoneef & Samontaray (2019) found a significant but negative impact of board committees on firm performance, indicating that increasing the number of board committees in a firm can lead to inefficiency, dilution of accountability, complexity in decision-making, and potential conflicts of interest among board members. The mixed findings and the lack of research in the Indian context underscore the need for further empirical analysis to highlight the importance of board committee structure.

Synthesizing insights from the extensive literature on corporate governance and firm performance reveals that while several studies have been conducted worldwide to test the relationship between corporate governance attributes and firm outcomes, none of them have exclusively focused on the impact of corporate governance traits on CPSE's performance afterward the enactment of the Companies Act 2013. Therefore, the purpose of the current study is to investigate the effects of corporate governance attributes on firm performance in the presence of several control variables. Following a comprehensive literature review, the following abstract model has been formulated (Figure 1).

Figure: 1. Research Conceptual Framework



Model: Impact of Corporate Governance Attributes on Firm Performance

Source: Authors construct

III. Material and Methods

3.1 Scope of the Study

The current study employs the panel data hierarchical multiple regression approach to investigate the impact of corporate governance attributes on the financial performance of the 15 largest central public sector enterprises from 2011–12 to 2020–21 (Table 2). The study is empirical and based on secondary data, with banking businesses omitted owing to their distinctive working systems. For dependent variables, we employed financial performance proxies such as return on assets (ROA), return on equity (ROE), and Tobin's Q ratio. The independent factors for the board were board size, board gender diversity, board expertise, board independence, board meetings, board attendance, audit committee size, audit committee meetings, and board committees. The age, size, growth rate, and market capitalization of the business were included as control variables.

This study seeks to examine how various corporate governance attributes influence the Return on Assets, Return on Equity, and Tobin's Q Ratio of Central Public Sector Enterprises (CPSEs). This study selected firms based on BSE database data and collected pertinent data from annual reports and official company websites. To ensure the accuracy and reliability of the data, a thorough review of the reports was carried out using content analysis focused on specific corporate governance indicators, built on recognized measures (Drisko & Maschi, 2016; Mandzila & Zéghal, 2016; Shrives & Brennan, 2017). The financial data employed in the investigation to determine ROA, ROE, and TQR was obtained from the particular CPSEs' annual reports.

3.2 Sample Size

Central public sector enterprises are the organizations which are directly or through other CPSEs, owned by the Central Government, either with 51% or more of the equity shareholding. As of March 31, 2023, there were 389 CPSEs in India (excluding banking and insurance companies), out of which 255 were operational—comprising 26 in the primary sector, 136 in the secondary sector, and 94 in the tertiary sector. For this study, the 15 largest enterprises were selected based on their net worth as of March 31, 2021, ensuring representation from each sector: five from the primary, secondary, and tertiary sectors (Table 2), resulting in a dataset of 2400 firm-year observations. This selection approach balances manageability with representativeness, enabling focused analysis across sectors and maintaining diversity crucial for robust research outcomes.

3.3 Measuring Corporate Governance

The majority of past research has used a variety of approaches to calculate corporate governance scores. The present study employed a comprehensive 17 traits to compute the corporate governance index of central public sector enterprises, using a 100-point threshold for evaluating corporate governance scores (Das, 2013).

Table 1:	Definition	and Meas	surement of	f variables
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Label	Models Variable	Variable description
Dependent variables	(Financial Performance):	
ROA <i>it</i>	Return on Assets	EBIT/Total Assets
ROE it	Return on Equity	EBIT/Total Equity
TQR it	Tobin's Q Ratio	Market Value of Equity/Book Value of Equity
Independent Variable	es (Corporate Governance Attrib	nutes):
BD_SIZE it	Board Size	Number of people on the board.
BD_GENDER it	Board Gender Diversity	Total number of female board members
BD_MEET it	Board Meetings	Total number of board meetings held
BD_ATTD it	Board Attendance	Average attendance rate of board members
BD_EXPERT <i>it</i>	Board Expertise	Total Number of Directorship held in other companies/Total Directors
BD_IND it	Board Independence	Percentage Independent Directors on the board
AC_SIZE it	Audit Committee Size	Number of Audit Committee Members
AC_MEET it	Audit Committee Meetings	Number of Audit Committee Meetings
BD_COM <i>it</i>	Board Committees	Number of board committees constituted by CPSEs
Control Variables:		
AGE it	Firm Age	Number of years of firm's existence.
SIZE it	Firm Size	Total Assets of the firm.
GROWTH <i>it</i>	Growth Rate	Annual Growth in Total Income of CPSEs
M_CAP it	Market Capitalisation	Outstanding shares*Share market price.

Source: Authors Construct

Table 2: Sample Profile of Selected CPSEs

Primary CPSEs		Secondary	CPSEs	Tertiary CPSEs		
Name of Companies	Net Worth (cr)	Name of Companies	Net Worth (cr)	Name of Companies	Net Worth (cr)	
ONGC	204,558.56	NTPC	118,985.49	PFC	52393.12	
NMDC	29,756.14	IOC	110500.04	REC	43426.37	
OIL	26,210.64	PGCL	69578.84	CONCOR	10777.30	
CIL	16,751.66	GAIL	46611.15	SCIL	8699.30	
NLC	13,574.68	SAIL	43494.88	NBCC	1772.25	

Source: www.moneycontrol.com. Note: Net Worth as on 31-03-2023

3.4 Measurement of Financial Performance

The majority of previous studies have applied three techniques to measure financial performance: accounting ratios, market valuation ratios, and an accounting and market-based combined approach. The current study uses a hybrid approach to investigate the influence of corporate governance attributes on the financial performance of central public sector enterprises. To analyze the influence of corporate governance on the financial performance of CPSEs, return on equity and return on assets as accounting ratios and Tobin's Q ratio as a market valuation ratio were used.

3.5 Empirical Model

To examine the individual impact of Corporate Governance Attributes on Return on Assets/Return on Equity/Tobin's Q Ratio and to assess the impact of Corporate Governance

Attributes in the presence of control variables, the following regression equations have been formulated (Table 1)

- 1. ROA $_{it} = \beta_0 + \beta_1 \operatorname{AGE}_{it} + \beta_2 \operatorname{SIZE}_{it} + \beta_3 \operatorname{GROWTH}_{it} + \beta_4 \operatorname{MCAP}_{it} + \beta_5 \operatorname{BD}_{SIZE}_{it} + \beta_6 \operatorname{BD}_{GENDER}_{it} + \beta_7 \operatorname{BD}_{MEET}_{it} + \beta_8 \operatorname{BD}_{ATTD}_{it} + \beta_9 \operatorname{BD}_{EXPERT} + \beta_{10} \operatorname{BD}_{IND}_{it} + \beta_{11} \operatorname{AC}_{SIZE}_{it} + \beta_{12} \operatorname{AC}_{MEET}_{it} + \beta_{13} \operatorname{BD}_{COMM}_{it} + \varepsilon_{it}.$
- 2. $ROE_{it} = \beta_0 + \beta_1 AGE_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 MCAP_{it} + \beta_5 BD_SIZE_{it} + \beta_6 BD_GENDER_{it} + \beta_7 BD_MEET_{it} + \beta_8 BD_ATTD_{it} + \beta_9 BD_EXPERT + \beta_{10} BD_IND_{it} + \beta_{11} AC_SIZE_{it} + \beta_{12} AC_MEET_{it} + \beta_{13} BD_COMM_{it} + \varepsilon_{it}.$
- 3. $TQR = \beta_0 + \beta_1 AGE_{it} + \beta_2 SIZE_{it} + \beta_3 GROWTH_{it} + \beta_4 MCAP_{it} + \beta_5 BD_SIZE_{it} + \beta_6 BD_GENDER_{it} + \beta_7 BD_MEET_{it} + \beta_8 BD_ATTD_{it} + \beta_9 BD_EXPERT + \beta_{10} BD_IND_{it} + \beta_{11} AC_SIZE_{it} + \beta_{12} AC_MEET_{it} + \beta_{13} BD_COMM_{it} + \varepsilon_{it}.$

where *i* represents individual companies from 1 to 15 and *t* denotes the period from 2013-14 to 2022-23. β_0 Intercept estimates. β_1 to β_{13} are coefficient estimates for independent and control variables. ε_{it} represents the error term for firm *i* at year *t*.

IV. Empirical Results and Discussion

4.1 Descriptive statistics and Correlation Matrix

The average ROA, ROE, and TQR values for all businesses are 0.088, 0.163, and 24.652, with standard deviations of 0.036, 0.055, and 6.822. Unlike TQR (0.340), which reveals deviations to the lower side of the mean, ROA (-0.175) and ROE (-0.290) exhibit negative skewness, indicating variance to the higher side of the mean. In contrast to ROE (0.296) and TQR (0.255), where it is positive and implies leptokurtic kurtosis distribution, ROA (-0.159) is negative, indicating platykurtic kurtosis distribution. The coefficient of variance, which is a relative measure of dispersion, shows that TQR (29.979 percent) is relatively constant when compared to ROE (57.91 percent) and ROA (61.91 percent).

The study depicts that the average board size of CPSEs is 11, with 7 executive directors, 4 non-executive independent directors, and a woman director, and each director holds an average of two directorships in other firms. CPSEs held 11 board meetings, with an average of 91 percent of directors attending and they operate through ten Board Committees, with audit committees consisting of four members on average, who have eight audit committee meetings each year on average. The value of skewness is negative for board size, board attendance, board independence, audit committee size, and board committees, indicating variations to the higher side of mean values, and positive for board gender diversity, board meetings, board expertise, and audit committee meetings, indicating variations to the lower side of mean values. Kurtosis values are negative for board size, board gender diversity, board attendance, audit committee meetings, and board committees, suggesting a platykurtic distribution, but positive for other variables showing a leptokurtic distribution. The average age of CPSEs is 47 years, with a standard deviation of 3.029. The average asset size is 115067.174 crores, with a standard deviation of 31008.003. The average yearly income increase is 8.190 percent, with a standard deviation of 16.948. Furthermore, the average market capitalization was 51350.957 crores, with a standard deviation of 16482.558. As a relative measure of dispersion, the Growth rate of CPSEs varies by 328.676 percent.

Variables	Mean	Std. Deviation	Skewness	Kurtosis	C.V.
ROA it	0.088	0.036	-0.175	-0.159	61.187
ROE it	0.163	0.055	-0.290	0.296	57.910
TQR <i>it</i>	24.652	6.822	0.340	0.255	29.979
BD SIZE it	11.340	2.590	-0.384	-0.558	22.909
BD GENDER <i>it</i>	0.947	0.648	0.391	-0.131	84.264
BD MEET <i>it</i>	11.227	2.130	0.319	0.590	19.247
BD ATTD <i>it</i>	91.242	5.165	-0.364	-0.432	5.732
BD EXPERT it	2.196	0.939	0.835	1.623	46.368
BD IND <i>it</i>	34.565	16.613	-0.332	0.214	50.128
AC SIZE <i>it</i>	3.956	1.026	-0.217	1.085	24.805
AC MEET #	8 093	2 027	0.052	-0.231	25 419

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BD COM it	9.747	2.098	-0.118	-0.459	22.669
AGE it	46.500	3.029	0.000	-1.200	7.132
SIZE it	115067.174	31008.003	0.188	-0.921	23.661
GROWTH it	8.190	16.948	-0.194	0.072	328.676
M_CAP it	51350.957	16482.558	0.346	-0.676	42.954

Source: Author's Construct

4.2 Impact of Corporate Governance Attributes on Financial Performance of Central Public Sector Enterprises

All potential correlations between any two pairs of variables are shown in Table 4. To run regression analysis and verify for multicollinearity in the suggested regression model, correlation analysis has been done on a variety of independent variables. The correlation value was determined to be less than 0.75, indicating that multicollinearity was not present in the investigation. Furthermore, Table 6, Table 9, and Table 12 reveal values of variance inflation factor (VIF) less than 5, indicating the absence of multicollinearity. Hence, the assumption of multicollinearity is satisfied

4.2.1 Analyzing the Impact of Corporate Governance Attributes on Return on Assets

Table 5 explains hierarchical regression model analysis for Model-1 and Model-2. The coefficient of R-square change explains that 55.2 percent variation in ROA can be explained by the control variables, while 8.9 percent variation accounts for corporate governance attributes. The Durbin-Watson value (1.837) falls within the accepted range (1-3), indicating no autocorrelation issue which satisfies the assumption of independence.

Variable	Mean	SD	BD_SIZ	BD_GEN	BD_ME	BD_AT	BD_EXP	BD_IN	AC_SIZ	AC_ME	BD_C
			Е	DER	ET	TD	ERT	D	Е	ET	OMM
ROA <i>it</i>	0.088	0.036									
ROE it	0.163	0.055									
TQR it	24.652	6.822									
BD_SIZE it	11.340	2.590	1.000								
BD_GENDE R <i>it</i>	0.947	0.648	0.291**	1.000							
BD_MEET it	11.227	2.130	0.108	-0.042	1.000						
BD_ATTD it	91.242	5.165	-0.305**	-0.016	-0.019	1.000					
BD_EXPERT	2.196	0.939	-0.224**	-0.290**	0.125	0.053	1.000				
$BD_{IND it}$	34.565	16.61 3	0.627**	0.216**	-0.008	-0.195*	-0.303**	1.000			
AC_SIZE it	3.956	1.026	0.475**	0.244**	0.231**	-0.291**	-0.155	0.431**	1.000		
AC_MEET it	8.093	2.027	0.248**	0.130	0.440**	-0.089	-0.075	0.202^{*}	0.338**	1.000	
BD_COM it	9.747	2.098	0.041	-0.200*	0.219**	-0.091	0.219**	-0.118	0.039	0.278**	1.000

Table 4: Analysis of Descriptive Statistics and Correlation Matrix

Source: Authors construct

Note: *, ** and *** indicates significance at 1%, 5% and 10% levels, respectively

Table- 5: Hierarchical Multiple Regression Model Summary

						Change	e Statist	ics		
Model	R	R	Adjusted R	Std. Error of the	R Square	F	df1	df2	Sig. F	Durbin-
		square	Square	Estimate	change	Change			Change	Watson
1	0.743ª	0.552	0.540	0.03928	0.552	44.686	4	145	0.000*	
2	0.801 ^b	0.641	0.604	0.03645	0.089	3.344	10	135	0.001*	1.837

Note₁: ^a Predictors: Control variables; ^b Predictor: Independent variables; ^c Dependent variable: ROA

Note2: *, ** and *** indicates significance at 1%, 5% and 10% levels, respectively

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Table 6 highlights the overall goodness of fit of the regression models and tests the joint hypotheses. Model-I $\{F(4,145) = 44.686, P-value = 0.000 > 0.05)\}$ and Model-II $\{F(14, 135) = 17.220, P-value = 0.000 > 0.05)\}$ are statistically significant at 5 percent level of significance. This indicates that both regression models are statistically significant and that at least one independent variable has a meaningful linear connection with the dependent variable.

				0	0		
	Model	Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	0.276	4	0.069	44.686	0.000 ^b	Reject Null Hypotheses at $\alpha = 5$
	Residual	0.224	145	0.002			
	Total	0.500	149				
2	Regression	0.320	14	0.023	17.220	0.000°	Reject Null Hypotheses at $\alpha = 5$
	Residual	0.179	135	0.001			
	Total	0.500	149				

Fable-6:	Hierarchical	Multiple	Regression	Model	Significance

Note₁: Dependent Variable: ROA; ^{b.} Predictors control variables; ^{c.} Predictors: independent variables.

Note2: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

The results of Model 1 (Table 7) show that the size ($\beta_2 = -0.036$, P-value = 0.000 < 0.05) of CPSEs has a negative and significant impact on their ROA. The results suggest that if the size of CPSEs increases by 1%, the ROA will decrease by 0.036% at a decreasing rate, while other factors remain constant. Market capitalization ($\beta_4 = 0.035$, P-value = 0.000 < 0.05) has a positive and significant impact on ROA, indicating that with a 1% increase in market capitalization, ROA tends to increase by 0.035 percent. The coefficients of age ($\beta_1 = -0.013$, P-value = 0.218 > 0.05) and growth rate ($\beta_3 = -0.006$, P-value = 0.427 > 0.05) have negative and insignificant effects on ROA.

Model II shows that the coefficients board size ($\beta_5 = -0.031$, P-value = 0.027 < 0.05), board expertise ($\beta_9 = -0.045$, P-value = 0.002 < 0.05) and audit committee meetings ($\beta_{12} = -0.018$), Pvalue = 0.057 < 0.10) have negative and significant effects on ROA, indicating that each increase in board size leads to a decrease in ROA by 0.031%; For every 1% increase in board expertise, ROA tends to decrease by 0.045%. and for every 1% increase in the size of the audit committee, the ROA decreases by 0.018%; whereas the coefficient on board meetings ($\beta_7 =$ 0.032, P-value = 0.021 < 0.05) has a positive and significant impact on ROA, meaning that every 1% increase in board meetings increases ROA by 0.032%. In addition, board gender diversity ($\beta_6 = -0.012$, P-value = 0.357 > 0.10), board attendance ($\beta_8 = -0.007$, P-value = 0.888 > 0.05) and audit committee size (β_{11} = -0.008, P-value = 0.442 > 0.05) have negative effects on ROA; While board independence ($\beta_{10} = 0.022$, P-value = 0.202 > 0.05) and board committees ($\beta_{13} = 0.006$, P-value = 0.614 > 0.05) have a positive influence on ROA, the insignificant p-value do not support these propositions. The standardized beta coefficients in Model II revealed that board meetings have the major impact on predicting variations in the ROA, followed by board independence, board committees, board attendance, audit committee size, board gender diversity, audit committee meetings, board size, and board expertise respectively.

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
Model	В	Std. Error	Beta	— t	Sig.	Tolerance	VIF
1 Cons	0.850	0.062		13.769	0.000		
AGE $_{it}$	-0.013	0.010	-0.070	-1.238	0.218	0.976	1.025
SIZE it	-0.036	0.003	-0.807	-11.209	0.000*	0.596	1.678
GROWTH it	-0.006	0.008	-0.046	-0.796	0.427	0.939	1.065
M CAP it	0.035	0.003	0.856	11.833	0.000*	0.591	1.692
2 Cons	0.915	0.262		3.493	0.001		
AGE it	-0.016	0.012	-0.087	-1.304	0.195	0.598	1.671
SIZE $_{it}$	-0.032	0.004	-0.711	-7.765	0.000	0.317	3.151
GROWTH it	-0.004	0.007	-0.027	-0.489	0.626	0.898	1.114
M CAP it	0.035	0.004	0.842	9.730	0.000	0.355	2.814
\overrightarrow{BD} SIZE <i>it</i>	-0.031	0.014	-0.180	-2.230	0.027**	0.409	2.445
BD_GENDER it	-0.012	0.013	-0.055	-0.924	0.357	0.752	1.330
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BD MEET <i>it</i>	0.032	0.014	0.159	2.333	0.021**	0.573	1.744
$BDATTD_{it}$	-0.007	0.051	-0.009	-0.141	0.888	0.662	1.512
BD EXPERT <i>it</i>	-0.045	0.014	-0.216	-3.135	0.002*	0.558	1.791
BD_{it}	0.022	0.017	0.091	1.281	0.202	0.532	1.880
AC_SIZE it	-0.008	0.011	-0.051	-0.772	0.442	0.608	1.644
AC_MEET it	-0.018	0.010	-0.122	-1.920	0.057***	0.655	1.528
BD_COM <i>it</i>	0.006	0.012	0.053	0.505	0.614	0.241	4.144

Source: Stata output, Dependent Variable: ROA

Note1: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

Note₂: $ROA = \beta_0 + \beta_1 Age + \beta_2 Size + \beta_3$ Growth Rate $+ \beta_4 Market$ Capitalization $+ \beta_3 Board$ Size $+ \beta_6 Board$ Gender Diversity $+ \beta_7 Board$ Meetings $+ \beta_8 Board$ Attendance $+ \beta_9 Board$ Expertise $+ \beta_{10} Board$ Independence $+ \beta_{11} Audit$ Committee Size $+ \beta_{12} Audit$ Committee Meetings $+ \beta_{13} Board$ Committees.

4.2.2 Analyzing the Impact of Corporate Governance Attributes on Return on Equity

Table 8 presented summary statistics of the hierarchical multiple regression, revealing that 0.336% variation in ROE can be explained by the control variables; whereas 0.510% variation is due to control and corporate governance attributes. The differential variation of ROE in R-square change of 0.174% has been produced by corporate governance attributes. Furthermore, the value of Durbin-Watson is 1.904, which fall between 1 to 3 limit, exhibiting no autocorrelation problem.

Table-8: Hierarchical Multiple Regression Model Summary

Change Statistics										
Model	R	R	Adjusted	Std. Error of	R Square	F			Sig. F	Durbin-
		square	R Square	the Estimate	change	Change	df1	df2	Change	Watson
1	0.580 ^a	0.336	0.318	0.05946	0.336	18.337	4	145	0.000*	
2	0.714 ^b	0.510	0.460	0.05291	0.174	4.808	10	135	0.000*	1.904
	D 1	G 1	:11 hp 1		:11 a D	1	DOE			

Note₁: Predictors: Control variables; ^b Predictors: Independent variables; ^c Dependent Variable: ROE Note₂: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

Table 9 summarizes the overall relevance of the regression models and examines the common hypotheses. Model-I $\{F(4, 145) = 18.337, P-value = 0.000 > 0.05)\}$ and Model-II $\{F(14, 135) = 10.049, P-value = 0.000 > 0.05)\}$ are statistically significant at 5% significance level. This indicates that at least one independent variable has a meaningful linear relationship with the dependent variable and the result supports the statistical validity of both regression models.

	Model	Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	0.259	4	0.065	18.337	0.000 ^b	Reject Null Hypotheses at $\alpha = 5$
	Residual	0.513	145	0.004			
	Total	0.772	149				
2	Regression	0.394	14	0.028	10.049	0.000°	Reject Null Hypotheses at $\alpha = 5$
	Residual	0.378	135	0.003			
	Total	0.772	149				

Table-9: Hierarchical Multiple Regression Model Significance

Note: ^a Dependent variable: ROE; ^b Predictors: Control variables; ^c Predictors: Independent Variables.

The influence of control variables (Model I) and corporate governance attributes (Model II) on the ROE of CPSEs is shown in Table 10. Examination of the control variables revealed a significant negative correlation between age ($\beta_1 = -0.036$, P-value = 0.022 < 0.05), size ($\beta_2 = -$ 0.032, P-value = 0.000 < 0.05), and ROE, which indicates that older companies have lower ROE compared to newer companies and for every one crore increase in asset size, there is a 0.032% decrease in ROE. Market capitalization ($\beta_4 = 0.034$, P-value = 0.000 < 0.05) has a significantly positive impact on ROE, showing that for every 1% increase in market capitalization, ROE improves by 0.034 percent. The growth rate ($\beta_3 = -0.005$, P-value = 0.647> 0.05) has an adverse and insignificant effect on the ROE of units under study.

Econometric Model 2 reports the impact of corporate governance attributes on ROE. There are significant negative effects of board size ($\beta_5 = -0.079$, P-value = 0.000<0.05), board expertise ($\beta_9 = -0.074$, P-value = 0.000<0.05) and audit committee meetings ($\beta_{12} = -0.031$, P -value = 0.049<0.05) on ROE, indicating that each board increase results in a 0.079% decrease in ROE;

for each additional expert on the board, the return on investment decreases by 0.074%, and for every 1% increase in audit committee meetings, the return on investment decreases by 0.031%. Furthermore, board meetings ($\beta_7 = 0.051$, P-value = 0.011 < 0.05) and audit committee size ($\beta_{11} = 0.044$, P-value = 0.078 < 0.10) have a significant positive impact on ROE, showing that for every 1% increase in board meetings, ROE increases by 0.051%; And for every 1% increase in audit committee size, ROE increases by 0.044%. Board gender diversity ($\beta_6 = -0.015$, Pvalue = 0.428 > 0.05), board attendance ($\beta_8 = -0.018$, P-value = 0.810 > 0.05) and board committees ($\beta_{13} = -0.009$, P-value = 0.519 > 0.05) have a negative but insignificant impact on ROE; whereas board independence ($\beta_{10} = 0.001$, P-value = 0.961 > 0.05) has a positive but insignificant impact on ROE of CPSEs.

The standard beta coefficient of Model II shows that among the corporate governance attributes, board meetings make the largest contribution to predicting the change in ROE, followed by audit committee size, board independence, board committees, board gender diversity, board attendance, audit committee meetings, board expertise, and board size respectively. The regression equation based on the unstandardized beta coefficients of Model II can be formulated as follows:

	1	Unst Co	Unstandardized Coefficients		_	Sig.	Colline Statist	arity ics
Mo	odel	В	Std. Error	Beta	Т	Sig.	Tolerance	VIF
1	Cons	0.945	0.093		10.121	0.000		
	AGE <i>it</i>	-0.036	0.016	-0.158	-2.307	0.022**	0.976	1.025
	SIZE <i>it</i>	-0.032	0.005	-0.583	-6.652	0.000*	0.596	1.678
	GROWTH <i>it</i>	-0.005	0.011	-0.032	-0.459	0.647	0.939	1.065
	M_CAP <i>it</i>	0.034	0.004	0.658	7.473	0.000*	0.591	1.692
2	Cons	1.041	0.380		2.736	0.007		
	AGE it	-0.034	0.018	-0.149	-1.909	0.058	0.598	1.671
	SIZE <i>it</i>	-0.028	0.006	-0.497	-4.648	0.000	0.317	3.151
	GROWTH <i>it</i>	7.800	0.010	0.000	0.007	0.994	0.898	1.114
	M_CAP <i>it</i>	0.036	0.005	0.716	7.086	0.000	0.355	2.814
	BD_SIZE it	-0.079	0.020	-0.373	-3.960	0.000*	0.409	2.445
	BD_GENDER it	-0.015	0.019	-0.055	-0.794	0.428	0.752	1.330
	BD_MEET $_{it}$	0.051	0.020	0.205	2.582	0.011**	0.573	1.744
	BD_ATTD <i>it</i>	-0.018	0.075	-0.018	-0.241	0.810	0.662	1.512
	BD_EXPERT <i>it</i>	-0.074	0.021	-0.289	-3.589	0.000*	0.558	1.791
	BD_IND <i>it</i>	0.001	0.011	0.006	0.049	0.961	0.207	4.839
	AC_SIZE it	0.044	0.025	0.147	1.777	0.078**	0.532	1.880
						*		
	AC_MEET it	-0.031	0.016	-0.153	-1.983	0.049**	0.608	1.644
	BD_COM it	-0.009	0.014	-0.048	-0.647	0.519	0.655	1.528

Source: Stata output, Dependent Variable: ROE

Note₁: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

Note₂: $ROE = \beta_0 + \beta_1 Age + \beta_2 Size + \beta_3 Growth Rate + \beta_4 Market Capitalization + \beta_3 Board Size + \beta_6 Board Gender Diversity + \beta_7 Board Meetings + \beta_8 Board Attendance + \beta_9 Board Expertise + \beta_{10} Board Independence + \beta_{11} Audit Committee Size + \beta_{12} Audit Committee Meetings + \beta_{13} Board Committees.$

4.2.3 Analyzing the Impact of Corporate Governance Attributes on Tobin's Q Ratio

Table 11 shows model summary for model I and model II about examining the influence of corporate governance attributes and control variables on TQR. The R-square coefficient approves that 0.437% variation in TQR is described by control variables, while 0.610% variation is explained by control and corporate governance attributes, confirming that differential R-square change of 0.173% of the TQR is caused by corporate governance attributes. The Durbin-Watson statistic is 1.610, suggesting that there is no issue of autocorrelation in the data.

 Table 11: Hierarchical Multiple Regression Model Summary

Model	R	R square	Adjusted	Std. Error of	R Square	F Change	df1	df2	Sig. F	Durbin-
		_	R Square	the Estimate	change	C			Change	Watson
1	0.661ª	0.437	0.421	0.62265	0.437	28.105	4	145	0.000^{*}	
				D CE	110 00 44					

				_		
ΡA	GE	L N	0:	20	064	

2	0.781 ^b	0.610	0.569	0.53716	0.173	5.983	10	135	0.000*	1.610
Note ₁ :	Note: Predictors: Control variables: ^{b.} Predictors: Independent variables: ^{c.} Dependent Variable: Tobin's O Ratio									

Note2: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

Table 12 illustrates the overall significance of the regression models and tests the common hypotheses. Model-I {F(4, 145) = 28.105, P - value = 0.000<0.05} and model-II {F(14, 135) = 15.063, P - value = 0.000 < 0.05} are statistically significant at 5% significance level. This suggests that at least one independent variable has a meaningful linear connection with the dependent variable, and the findings support the statistical validity of both regression models.

			1 .	0	0		
	Model	Sum of Squares	Df	Mean Square	F	Sig.	Decision
1	Regression	43.584	4	10.896	28.105	0.000 ^b	Reject Null Hypotheses at $\alpha = 5$
	Residual Total	56.215 99.799	145 149	0.388			
2	Regression	60.846	14	4.346	15.063	0.000°	Reject Null Hypotheses at $\alpha = 5$
	Residual	38.952	135	0.289			
	Total	99.799	149				

Table-12: Hierarchical Multiple Regression Model Significance

Note: Dependent Variable: Tobin's Q Ratio; ^{b.} Predictors: Control variables; ^{c.} Predictors: Independent variables.

Table 13 shows the regression estimates of corporate governance attributes and control variables and their effects on the TQR. Size ($\beta_2 = -0.409$, P-value = 0.000 < 0.05) has a negative and significant correlation with TQR, indicating that for every 1% increase in asset size, there is a 0.409% decrease in TQR while other things remain constant. Market capitalization ($\beta_4 = 0.480$, P-value = 0.000 < 0.05) has a significantly positive impact on TQR, as TQR improves by 0.480% for every 1% increase in market capitalization. In addition, age ($\beta_1 = 0.052$, P-value = 0.753 > 0.05) and growth rate ($\beta_3 = 0.036$, P-value = 0.767 > 0.05) have a positive but insignificant association with the TQR of CPSEs.

Model II reports the regression estimates of the TQR with corporate governance attributes along with control variables. Board size ($\beta_5 = -0.608$, P-value = 0.003 < 0.05) and audit committee size ($\beta_{11} = -0.387$, P-value = 0.017 < 0.05) have significant negative effects on TQR, which As can be seen with every new addition to the board, there is a decrease of 0.608%; And for every 1% increase in audit committee size, the TQR of CPSEs decreases by 0.387%. Board expertise ($\beta_9 = 0.835$, P value = 0.000 < 0.05) exhibits a significant positive influence on TQR, indicating that for every 1% increase in board expertise, TQR increases by 0.835%. Board meetings ($\beta_7 = -0.282$, P-value = 0.165 > 0.05), board attendance ($\beta_8 = -0.170$, P-value = 0.822 > 0.05), board independence ($\beta_{10} = -0.392$, P-value = 0.122 > 0.05) and audit committee meetings ($\beta_{12} = -0.123$, P-value = 0.386 < 0.05) have negative but insignificant effects on TQR. Board gender diversity ($\beta_6 = 0.037$, P-value = 0.849 > 0.05) and board committees ($\beta_{13} = 0.044$, P-value = 0.810 > 0.05) have positive effects on the TQR of CPSEs, however insignificant p-values do not support the propositions.

Standard beta coefficients of Model II show that among corporate governance attributes, board expertise makes the largest contribution to predicting the change in TQR, followed by board committees, board gender diversity, audit committee meetings, board attendance, board meetings, audit committee size, board independence, and board size respectively. Based on the unstandardized beta coefficients of Model II, the regression equation can be formulated as follows:

Table-13: Impact of Corporate Governance Attributes on Tobin's Q Ratio of CPSEs

		Unstar	ndardized	Standardized			Colline	arity			
	Model	Coef	fficients	Coefficients			Statist	ics			
		В	Std. Error	Beta	t	Sig.	Tolerance	VIF			
1	Cons	2.136	0.978		2.184	0.031					
	AGE <i>it</i>	0.052	0.165	0.020	0.316	0.753	0.976	1.025			
	SIZE <i>it</i>	-0.409	0.051	-0.647	-8.011	0.000*	0.596	1.678			
	GROWTH <i>it</i>	0.036	0.120	0.019	0.297	0.767	0.939	1.065			

	M_CAP_{it}	0.480	0.047	0.829	10.223	0.000*	0.591	1.692
2	Cons	2.464	3.863		0.638	0.525		
	AGE it	0.432	0.181	0.166	2.385	0.018	0.598	1.671
	SIZE <i>it</i>	-0.486	0.060	-0.769	-8.054	0.000	0.317	3.151
	GROWTH <i>it</i>	0.080	0.106	0.043	0.756	0.451	0.898	1.114
	M_CAP <i>it</i>	0.621	0.052	1.072	11.883	0.000	0.355	2.814
	BD_SIZE <i>it</i>	-0.608	0.202	-0.253	-3.006	0.003*	0.409	2.445
	BD_GENDER <i>it</i>	0.037	0.192	0.012	0.191	0.849	0.752	1.330
	BD_MEET it	-0.282	0.202	-0.099	-1.395	0.165	0.573	1.744
	BD_ATTD <i>it</i>	-0.170	0.756	-0.015	-0.225	0.822	0.662	1.512
	BD_EXPERT it	0.835	0.210	0.286	3.975	0.000*	0.558	1.791
	BD_IND <i>it</i>	-0.392	0.252	-0.115	-1.557	0.122	0.532	1.880
	AC_SIZE it	-0.387	0.160	-0.166	-2.410	0.017**	0.608	1.644
	AC_MEET $_{it}$	-0.123	0.141	-0.058	-0.869	0.386	0.655	1.528
	BD_COM <i>it</i>	0.044	0.183	0.026	0.240	0.810	0.241	4.144
	a a	* * * * * *						

Source: Stata output. ^{a.} Dependent Variable: Tobin's Q Ratio.

Note1: Asterisks (*, **, ***) represent levels of statistical significance, corresponding to 1%, 5%, and 10% respectively.

Note₂: *Tobin's Q Ratio* = $\beta_0 + \beta_1 \text{Age} + \beta_2 \text{Size} + \beta_3$ Growth Rate + $\beta_4 \text{Market Capitalization} + \beta_5 \text{Board Size} + \beta_6 \text{Board Gender Diversity} + \beta_7 \text{Board Meetings} + \beta_8 \text{Board Attendance} + \beta_9 \text{Board Expertise} + \beta_{10} \text{Board Independence} + \beta_{11} \text{Audit Committee Size} + \beta_{12} \text{Audit Committee Size} + \beta_{12} \text{Audit Committee Size} + \beta_{13} \text{Board Committees.}$

Discussion

Board size has substantially adverse influence on ROA and ROE, supporting the results of Cheng (2008), Xie et al. (2003), Zabri et al. (2016), Guest (2009), Byard et al. (2006), sand Shukeri et al. (2012). Likewise, it negatively affects TQR, which is contrary to the findings of Pearce & Zahra (1992), Emeka-Nwokeji (2017), Danoshana & Ravivathani (2013), Jackling & Johl (2009), Gill et al. (2013), Dalton et al. (1998), Almoneef & Samontaray, (2019), Singh, et al. (2018) and Bhatt & Bhattacharya (2015). It demonstrates that larger board size negatively impacts ROA and ROE due to increased bureaucracy and difficulty in decision-making, leading to inefficiencies. Additionally, it diminishes Tobin's Q Ratio as the market perceives larger boards as less agile and decisive, potentially reducing shareholder value and market competitiveness.

Board expertise has a significant negative impact on ROA and ROE, which contradicts the findings of Gafoor et al. (2018), Francis et al. (2012), DeFond et al. (2005), Johl et al. (2015), and Jermias & Gani (2014). This could be attributed to conservative decision-making, which leads to cautious financial strategies that limit short-term profitability. However, it has a significant positive effect on TQR, which supports the findings of Johl et al. (2015) and Bhatt & Bhattacharya (2015). It implies that market participants believe expert-led boards are capable of successfully navigating obstacles, hence increasing long-term market valuation and investor trust. Audit committee meetings negatively affect ROA and ROE due to increased oversight, potentially leading to conservative financial practices and higher compliance costs, as noted by Alfarooque et al. (2020). However, they have insignificant negative effects on TQR, indicating a limited impact on market perception and valuation, aligning with Xie et al. (2003). Board meetings positively impact ROA and ROE by facilitating effective oversight and timely decision-making, as confirmed by Datta (2018), Baccouche et al. (2014), and Almoneef & Samontaray (2019). This boosts the operational efficiency and profitability of CPSEs. However, their insignificant negative impact on TQR, noted by Bhatt & Bhattacharya (2015), Jackling & Johl (2009), and Almoneef & Samontaray (2019), suggests that frequent meetings don't significantly alter investor perceptions or market valuation, potentially due to the market's focus on other performance indicators. Board gender diversity has a negative but insignificant impact on ROA, ROE, and TQR (rejecting the concerned hypothesis) contrary to findings by Carter et al. (2003), Sarpong-Danquah et al., (2018), Bear et. al. (2010), Emeka-Nwokeji (2017), and Carter, et al. (2010), Catalyst (2004), Kang et al. (2007), Parrotta & Smith (2013), Obeitoh et al. (2023), and Green & Homroy (2018), Fauzi & Locke (2012), Aras (2015), and Bøhren & Strøm (2010) suggests that gender diversity on boards does not directly improve financial metrics in the context of this study, potentially due to integration challenges or ineffective utilization of diverse perspectives.

Board attendance's negative, insignificant effects on ROA, ROE, and TQR suggest that mere attendance does not improve financial performance, likely due to passive involvement or ineffective contributions. This contrasts with studies like Chou et al. (2013), Lin et al. (2014), Francis et al. (2012), Bhatt & Bhattacharya (2015), Brown & Caylor (2006), and Min & Verhoeven (2013), indicating that impactful governance requires active participation and meaningful engagement, beyond just presence at meetings. In contrast to Rouf (2011), Datta (2018), and Almoneef & Samontaray (2019), the favorable impact of audit committee size on ROE supports improved financial monitoring and profitability. Its negative influence on TQR suggests market views of inefficiency with larger committees, which contradicts Emeka-Nwokeji (2017). The negligible impact on ROA verifies Rouf's (2011), Datta (2018), and Almoneef & Samontaray (2019), indicating that asset management has minimal significance for CPSEs. Board independence has an insignificant impact on ROA and ROE, which suggests limited influence on short-term profitability, consistent with Zabri et al. (2016), Chou et al. (2013), Dettamrong et al. (2017), and Bually et al. (2017). Likewise, its negligible effect on TQR contradicts studies like Emeka-Nwokeji (2017), Fauzi & Locke (2012), Garg (2007), Agrawal & Knoeber (1996), Kochar & David (1996), Bhagat & Black (2002), Singh et al. (2018), and Almoneef & Samontaray (2019), indicate that while independence enhances governance, it may not directly drive market valuation or firm performance improvements. The negligible impact of board committees on ROA, ROE, and TQR contradicts findings by Rico et al. (2016), Prusty & Kumar (2016), and Singh et al. (2018), possibly due to variations in governance structures or industry dynamics. This discrepancy may lead to ineffective governance or committees focusing on peripheral issues rather than strategic decisions critical for enhancing financial and market performance.

V. Conclusion and Policy Implications

The present study aims to examine the impact of corporate governance attributes on the financial performance indicators of Indian Central Public Sector Enterprises (CPSEs) from 2011-12 to 2020-21. Using a large dataset of 2,400 firm-year observations from 15 CPSEs, the study presents illuminating outcomes on the significance of various corporate governance attributes in influencing accounting and market performance.

The findings indicate that larger board sizes significantly enhance both accounting (ROA, ROE) and market performance (TQR), suggesting that diverse boards offer broader expertise and viewpoints, leading to improved decision-making and oversight. Interestingly, the study finds a dichotomy in the impact of board expertise: while it negatively affects accounting performance, potentially due to conservative decision-making leading to restrained financial activities, it positively influences market performance, implying that investors may value the presence of experts on the board as a sign of robust governance and future potential, thereby reflecting confidence in the market valuation. Audit committee meetings have emerged as a key driver of better accounting performance. The frequency and thoroughness of these meetings are expected to improve financial reporting quality and internal controls, thereby increasing ROA and ROE. However, this stringent scrutiny does not result in a proportional increase in market performance, suggesting that market players may not place immediate value on internal governance mechanisms. Regular board meetings have been shown to significantly improve financial performance, implying that regular supervision and timely decision-making are critical for CPSEs' financial health. Nonetheless, these meetings had minimal impact on market performance, indicating that board meeting frequency may not be an important component in market value. The analysis also reveals a subtle influence of audit committee size: a larger committee is connected with greater financial performance, but it appears to hurt market performance. This might indicate market worries about possible inefficiencies or complexity associated with larger committees. Contrary to expectations, other board attributes, including board gender diversity, board independence, board attendance, and the number of board committees, do not show a significant impact on the financial performance of CPSEs. This finding suggests that these attributes, while important from a broader governance and PAGE NO: 2067

ethical perspective, may not directly influence the financial outcomes in the context of Indian CPSEs during the study period.

Despite the valuable insights provided, this study has several limitations. First, the focus on CPSEs may limit the generalizability of the findings to other types of enterprises, including private sector firms and state-owned enterprises in different regulatory environments. Second, the study primarily uses quantitative measures and does not delve into qualitative aspects of governance that might offer a deeper understanding of the mechanisms at play. Third, the period under study ends in 2020-21, which does not account for more recent changes in governance policies or the impact of external shocks such as the COVID-19 pandemic.

For future research, there are several promising directions. Researchers could explore the impact of corporate governance on different types of performance metrics, including social and environmental performance, which are increasingly relevant in the current business context. Additionally, comparative studies involving CPSEs and private sector enterprises could provide a more nuanced understanding of how governance impacts vary across different ownership structures.

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