

Corporate Governance Mechanism – Financial Performance Nexus : Empirical Evidence from Indian Banks

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Abstract

This study empirically analyzed the corporate governance mechanism – financial performance nexus of banks in India. The analysis was based on balanced panel data over the period from 2010 – 11 to 2020 – 21 for 10 public and private sector banks, using a hierarchical multiple regression approach. The study investigated the three aspects of financial performance, namely return on assets, return on equity, and Tobin's Q ratio. Based on previous studies, a conceptual model was developed by taking the financial performance of banks as a dependent variable, corporate governance attributes as independent variables, and age, size, growth, and financial leverage as control variables. Content analysis was applied to derive the Corporate Governance Index. The findings for accounting-based measures revealed that board attendance had a positive and significant impact on ROA and ROE of banks, while board expertise and CEO duality had a negative and significant impact on ROA and ROE. Moreover, board gender diversity had a positive and significant impact on ROE, and board committees had a negative and significant impact on ROE. A study for market-based measures found that board meetings had a positive and significant impact on TQR, whilst board committees and board expertise had a negative and significant impact on TQR. The study's outcomes implied that banks, government, regulators, and policymakers should ensure and promote strong corporate governance mechanisms to compete in the global financial market.

Keywords : corporate governance attributes, financial performance, banks, TQR, ROA, ROE

JEL Classification Codes : C33, C58, G30, G34

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Good corporate governance is one of the key driving forces to improved financial performance, organizational legitimacy, and corporate image. The interest in corporate governance has escalated since the early 1990s (Weekes - Marshall, 2014). The development of corporate culture, globalization of economies, high-profile corporate frauds, and the financial crisis of 2008 were instrumental in bringing the concept of good corporate governance to the center stage of discussion and debate on the policy agenda of

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developed and developing economies uniformly. Corporate governance is a system of structures, rules, and processes that govern the relationship between various stakeholders in the organization for the attainment of corporate objectives (Herdjiono & Sari, 2017). Initially, the goal of corporate governance was to uphold and advance the shareholder's primacy model, but with time, attention turned to addressing the interests of all stakeholders (Jizi et al., 2014). Corporate governance evolved as a concept and area of research for private listed corporations, which later on extended to other sectors like non-listed companies, particularly family companies, state-owned companies, non-profit organizations, and foundations; the idea of corporate governance was also adopted by banks, insurance companies, and other financial institutions such as rating agencies (Hopt, 2021). Good corporate governance facilitates a nation's economic development by enhancing firms' financial performance (Naseem et al., 2017). An organization's economic development depends not only on efficiency, innovation, and quality management but also on compliance with corporate governance principles, codes, and regulations (Goel, 2018). Implementation of corporate governance standards positively impacts companies' financial performance (Tadesse, 2004), while poor governance challenges effectiveness and sustainability. Globally to avoid the corporate crisis, numerous measures are initiated in the form of guidelines, codes, regulations, and acts such as the UK Corporate Governance Code 1992, OECD Code, 1999, Sarbanes-Oxley Act, 2002, and back home introduction of Clause 49 of listing agreement by SEBI and Companies Act, 2013, and so on.

The corporate governance mechanism facilitates the achievement of many policy objectives, namely, mitigating the possibility of corporate frauds, minimization of operational costs, and cost of capital for improving the performance of companies (Naseem et al., 2017). Corporate governance attributes are a significant aspect of the corporate governance mechanism, and most previous studies highlighted the linkages between board attributes and the financial performance of companies (Bashir et al., 2018; Carter et al., 2010; Fratini & Tettamanzi, 2015; Kiel & Nicholson, 2003; Kumar & Sudesh, 2016; Singh & Maurya, 2018). However, the direction of the relationship between board characteristics and a firm's financial performance is not well established even in developed countries (Jackling & Johl, 2009), which is corroborated by the diverse outcomes. Therefore, a study on the impact of corporate governance attributes on a company's financial performance will be useful in understanding the linkages between corporate governance and financial performance. The collapse of a bank is more shocking than the failure of companies as no country can afford the crash of its financial system. Ravi (2015) reported that in case a company fails, implications will be confined to the stakeholders only; if a banking company fails, the impact can be contagious to the financial system with potentially severe ramifications to the economy of the nation and the world as well. The outbreak of the global financial crisis of 2008 has raised many questions about the effectiveness of corporate governance practices (Mirchandani & Gupta, 2018), and the post-recession research confirms that the weak governance of banks was a major cause of the financial crisis (Kirkpatrick, 2009).

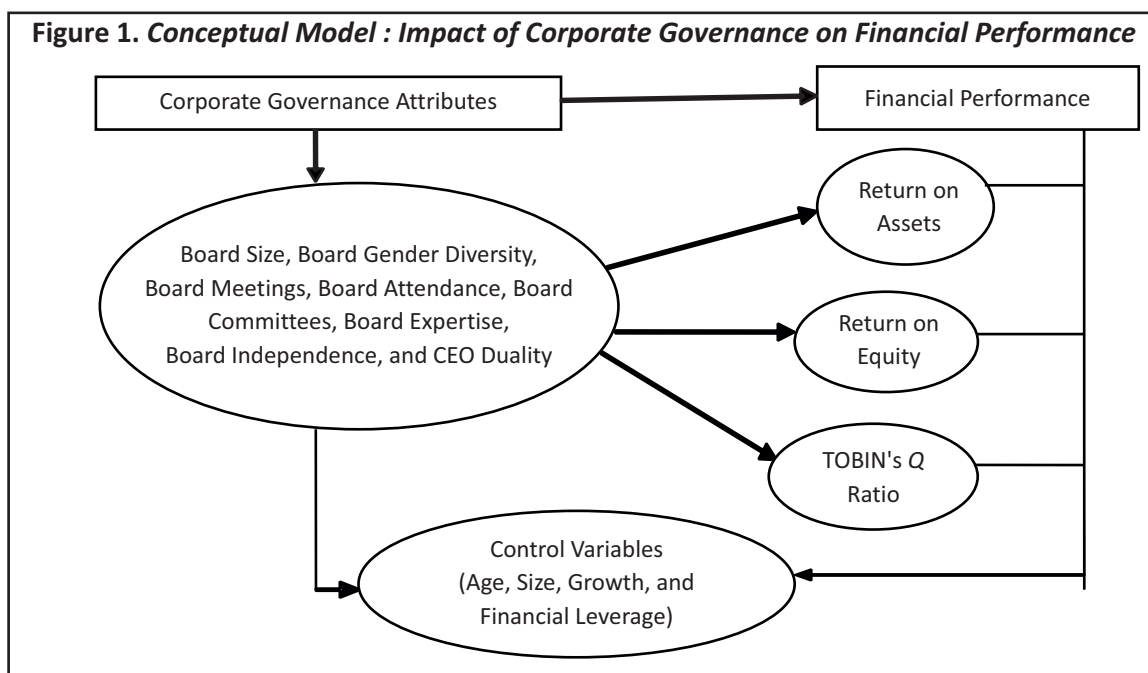
Review of Literature

There have been abundant past research studies on corporate governance's impact on banks' financial performance, especially in the backdrop of board attributes. A review of some important studies has been presented in this sub-section. Basuony et al. (2015) revealed a significant relationship between corporate governance and bank profitability. Board size, board activism, number of outside directors, and bank age significantly affected Tobin's Q . Meanwhile, ROA and profit margin were affected by ownership concentration, audit committee, audit committee meetings, and the age and size of the bank. Ben et al. (2015) indicated that board size had no significant impact on ROA; the audit committee had a significant impact on ROA, while capital adequacy ratio and deposit money bank lending rate had a positive and significant impact, and loan to deposit ratio and cash reserve ratio had a negative insignificant impact on ROA. Ene and Bello (2016) investigated the effect of

corporate governance on the financial performance of banks in Nigeria. The analysis revealed that the board size had a negative and significant impact on banking performance, and the relative size of non-executive directors had a positive and significant impact on banking performance. Herdjiono and Sari (2017) analyzed the impact of board characteristics on financial performance from 2011–2014. The results indicated that the size of the board of directors had a positive effect on financial performance, while the size of the audit committee, institutional ownership, and managerial ownership did not affect the financial performance. Testing of the hypotheses showed that the size of the board of directors, audit committee size, institutional ownership, and managerial ownership influenced financial performance.

Gupta and Sharma (2014) confirmed that board structure, board committees, and disclosures had an insignificant impact on the financial performance of companies. Mirchandani and Gupta (2018) stated that board size and board meetings had a positive impact, and the other variables, board composition and board committees, had a negative impact on ROA. On the other hand, board size had a positive impact on ROE; board meetings had a minimal impact on ROE, and board composition had a negative impact on ROE. Finally, the study found a poor correlation between ownership structure and ROA and ROE. Aktan et al. (2018) reported that board size, ownership concentration, and auditor's reputation had a positive and significant impact on a firm's ROA; whereas the percentage of independent directors and the annual number of board meetings had a negative and significant impact on firm's ROE. CEO duality was found to have no impact on firms' performance. Almoneef and Samontaray (2019) illustrated that board size, audit committee meetings, and bank size had a positive impact on ROE; whereas, board independence had a negative impact on ROE.

Similarly, board size and bank size had a positive relationship with ROA, and board meetings had a negative relationship with ROA. Further, the board size, board independence, and bank size had a positive relationship with Tobin's Q ratio; whereas, the number of board committees and bank age had a negative relationship with Tobin's Q ratio. Warrad and Khaddam (2020) reported a significant effect of the board size, board diligence, audit committee size, and audit committee diligence on ROE, taking firm size and ROA as controlling variables.



As highlighted in the literature review, several studies have been conducted to test the impact of corporate governance, especially of board attributes, on the financial performance of companies. However, none of them empirically studied the impact of corporate governance on the financial performance of the Indian banking sector, especially after the implementation of the Companies Act, 2013. Therefore, the present study's focus is to examine the impact of corporate governance attributes in the presence of control variables. Based on the literature review, the following conceptual model has been proposed (Figure 1).

Objectives of the Study

The following objectives are formulated based on the review of previous studies and the proposed conceptual model:

- (1) To investigate the impact of corporate governance attributes on return on assets of Indian banks.
- (2) To investigate the impact of corporate governance attributes on return on equity of Indian banks.
- (3) To investigate the impact of corporate governance attributes on Tobin's Q ratio of Indian banks.

Research Methodology

Scope of the Study

The present research work focuses on evaluating the impact of corporate governance attributes on the financial performance of the top 10 public and private sector banks, from 2010 – 11 to 2020 – 21, using the panel data hierarchical multiple regression approach. The study is empirical, which is based on secondary data. The proxies of financial performance are taken as dependent variables, namely return on assets (ROA), return on equity (ROE), and Tobin's Q ratio (TQR). The board attributes like board size, board gender diversity, board meetings, board attendance, board committees, board expertise, board independence, and CEO duality have been selected as independent variables; and age, size, growth, and financial leverage have been considered as control variables. The published annual reports were taken from the respective banks' websites as the secondary source of data. The reports were reviewed thoroughly to ensure the accuracy and trustworthiness of the data for conducting the content analysis (Gautam & Singh, 2010; Goel, 2018 ; Quick, 2008; Sandhu & Kapoor, 2010) of selected corporate governance parameters. Financial data used in the present study to compute the ROE, ROA, and TQR were also acquired from the annual reports of the respective banks.

Sample Size

The universe of the current study consists of 34 Indian banks, which were classified into public (12) and private (22) sector banks. To ensure the representation of each category, 5 banks from each category with higher market capitalization have been selected for analysis purposes. Table 1 depicts the list of top public and private sector banks, with their respective market capitalization.

Measuring Corporate Governance

Most of the previous studies have employed various methods to compute the corporate governance scores. The current study has used comprehensive 17 parameters for computing the Corporate Governance Index of the Indian banking sector, based on 100 points criterion for evaluation of the corporate governance score (Das, 2013).

Table 1. Sample Distribution of Selected Banks

Public Sector Banks		Private Sector Banks	
Name of Bank	Market Capitalization (Cr)	Name of Bank	Market Capitalization (Cr)
State Bank of India	182106.70	HDFC Bank	662288.24
Punjab National Bank	26302.71	ICICI Bank	287627.50
Bank of Baroda	20145.67	Axis Bank	272523.03
Union Bank	15248.29	Kotak Mahindra Bank	150911.84
Canara Bank	13001.57	IndusInd Bank	47418.18

Source : www.moneycontrol.com.

Note. Market Capitalization as on 30.09.2020.

Table 2. Expected Signs of Independent Variables and Control Variables

Variable	Description	Past Studies	Expected Sign
Board Size (<i>BS</i>)	Total number of board members	Eisenberg et al. (1998) ; Dwivedi & Jain (2005) ; Huang (2010) ; Basuony et al. (2015) ; Grace et al. (2018)	$B_5 < 0$ or $\beta_5 > 0$
Board Gender Diversity (<i>BGD</i>)	Total number of female board members	Cooray et al. (2020) ; De Villiers (1998) ; Grace et al. (2018)	$B_6 > 0$
Board Meetings (<i>BM</i>)	Total number of board meetings held	Aktan et al. (2018) ; Yilmaz (2018)	$B_7 < 0$
Board Attendance (<i>BA</i>)	Average attendance rate of board members	Basuony et al. (2015) ; Gafoor et al. (2018) ; Eluyela et al. (2018) ; Chou et al. (2013)	$B_8 > 0$
Board Committees (<i>BC</i>)	Number of committees of the board constituted by the bank	Gupta & Sharma (2014) ; Grace et al. (2018)	$B_9 > 0$
Board Expertise (<i>BEx</i>)	Total number of board members who are also holding directorships of other companies	Letting et al. (2012) ; Gupta & Sharma (2014) ; Aktan et al. (2018) ; Grace et al. (2018)	$B_{10} > 0$
Board Independence (<i>BI</i>)	If more than 50% of board members are non - executive/independent directors then = 1; otherwise = 0.	Klein (2002) ; Dulewicz & Herbert (2004) ; Yilmaz (2018)	$\beta_{11} > 0$
CEO Duality (<i>CEOD</i>)	If the functions of Chairman and CEO are performed by different directors (no CEO Duality) then = 1; otherwise (CEO Duality) = 0.	Nahar Abdullah (2004) ; Faleye (2007) ; Peng et al. (2007) ; Ujunwa (2012) ; Alix Valenti et al.(2011); Amaral - Baptista et al. (2011)	$B_{12} < 0$
Age	In years	Basuony et al. (2015) ; Zakaria et al. (2014)	$B_1 > 0$
Size	Total assets of the bank	Barako & Tower (2007) ; Aktan et al. (2018) ; Bashir et al. (2018)	$\beta_2 > 0$
Growth	Annual growth in total income of the bank	Yilmaz (2018) ; Zakaria et al. (2014)	$B_3 > 0$
Financial Leverage	Earnings before interest and taxes/earnings before tax	Zakaria et al. (2014) ; Aktan et al. (2018)	$B_4 > 0$

Note. $\beta < 0$ represents a negative sign. $\beta > 0$ represents a positive sign.

Measurement of Financial Performance

Most of the previous research has used three approaches for measuring financial performance as accounting ratios approach (Bayoud et al., 2012; Goel, 2018; Griffin & Mahon, 1997), market valuation ratios approach (Goel, 2018; Kiel & Nicholson, 2003), and accounting and market based mixed approach (Goel, 2018; Mulyadi & Anwar, 2012). The present study considers the mixed approach to examine the impact of corporate governance on the financial performance of banks. Tobin's Q ratio (Goel, 2018; Klapper & Love, 2004) as market valuation ratio and return on equity (Griffin & Mahon, 1997; Vedapradha & Hariharan, 2017) and return on assets (Aupperle et al., 1985; Bashir et al., 2018; Ben et al., 2015; Tyagi, 2014) as accounting ratios were selected to analyze the impact of corporate governance on the financial performance of banks.

Hierarchical Multiple Regression Model

Three functional models have been formulated to investigate the impact of corporate governance attributes on banks' financial performance. To test the hypotheses, the study adopts the following empirical model (refer to Table 2):

$$(1) ROA = \beta_0 + \beta_1(\text{Board Size}) + \beta_2(\text{Board Gender Diversity}) + \beta_3(\text{Board Meetings}) + \beta_4(\text{Board Attendance}) + \beta_5(\text{Board Committees}) + \beta_6(\text{Board Expertise}) + \beta_7(\text{Board Independence}) + \beta_8(\text{CEO Duality}) \dots\dots (1)$$

$$(2) ROE = \beta_0 + \beta_1(\text{Board Size}) + \beta_2(\text{Board Gender Diversity}) + \beta_3(\text{Board Meetings}) + \beta_4(\text{Board Attendance}) + \beta_5(\text{Board Committees}) + \beta_6(\text{Board Expertise}) + \beta_7(\text{Board Independence}) + \beta_8(\text{CEO Duality}) \dots\dots (2)$$

$$(3) TQR = \beta_0 + \beta_1(\text{Board Size}) + \beta_2(\text{Board Gender Diversity}) + \beta_3(\text{Board Meetings}) + \beta_4(\text{Board Attendance}) + \beta_5(\text{Board Committees}) + \beta_6(\text{Board Expertise}) + \beta_7(\text{Board Independence}) + \beta_8(\text{CEO Duality}) \dots\dots (3)$$

Analysis and Results

Impact of Corporate Governance Attributes on Financial Performance of Banks

This section analyzes the impact of corporate governance attributes on the performance of the Indian banking sector. Table 3 illustrates the analysis of descriptive statistics and correlation matrix. The correlation between two pairs of independent variables is less than 0.75 for all independent variables, indicating that there is no presence of multicollinearity in the regression analysis. Furthermore, the analysis of Table 6, Table 9, and Table 12 also reveals that the values of variance inflation factor (VIF) in case of all variables are less than 5, confirming that there is an absence of multicollinearity. Thus, the assumption of multicollinearity is satisfied.

Analyzing the Impact of Board Attributes on Return on Assets

Table 4 illustrates the model summary of hierarchical regression analysis for Model 1 and Model 2. The coefficients of R -square change explain that 61.6% variation in ROA can be explained by the control variables, while 10% variation is due to corporate governance attributes. The value of Durbin – Watson (1.650) falls within the accepted range (1–3), suggesting that there is no autocorrelation problem. Thus, the analysis satisfies the assumption of independence.

Table 5 reports the overall significance of the regression models and tests the joint hypothesis. Model I [$F(4, 105) = 42.092, p\text{-value} = 0.000 > 0.05$] and Model II [$F(12, 97) = 20.341, p\text{-value} = 0.000 > 0.05$] are statistically

Table 3. Analysis of Descriptive Statistics and Correlation Matrix

Variables	Mean	SD	BS	BGD	BM	BA	BC	BEx	BI	CEOD
ROA	0.94	0.83								
ROE	8.55	9.22								
TOBIN's Q Ratio	127.50	193.50								
BS	11.32	2.01	1.000							
BGD	1.32	0.70	0.310	1.000						
BM	12.17	4.37	0.087	-0.105	1.000					
BA	86.37	9.91	-0.289	-0.080	-0.015	1.000				
BC	13.74	4.88	0.093	0.124	0.193	-0.057	1.000			
BEx	8.29	3.23	0.581	0.383	-0.204	-0.336	-0.058	1.000		
BI	6.97	1.61	0.206	0.056	-0.127	-0.092	-0.089	0.038	1.000	
CEO Du	0.83	0.38	-0.203	0.242	-0.369	0.004	-0.045	0.236	-0.007	1.000

Table 4. Hierarchical Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	0.785 ^a	0.616	0.601	0.52388	0.616	42.092	4	105	0.000*	
2	0.846 ^b	0.716	0.680	0.46900	0.100	4.252	8	97	0.000*	1.650

Note. ^a Predictors' control variables; ^b Predictors' independent variables; ^c Dependent Variable : ROA.

Table 5. Hierarchical Multiple Regression Model Significance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	46.209	4	11.552	42.092	0.000 ^b	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	28.818	105	0.274			
	Total	75.026	109				
2	Regression	53.690	12	4.474	20.341	0.000 ^c	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	21.336	97	.220			
	Total	75.026	109				

Note. ^a Dependent Variable: ROA ; ^b Predictors control variables; ^c Predictors: independent variables.

significant at the 5% level of significance and reject the null hypothesis stating that the independent variables have no impact on ROA. This implies that at least one independent variable has a significant linear relationship with the dependent variable, and the analysis confirms that both the regression models are statistically significant.

Table 6 presents the estimates of the impact of board attributes on ROA with control variables. The analysis of Model 1 reveals that age ($\beta_1 = -0.013$, p -value $0.000 < 0.05$), size ($\beta_2 = -0.170$, p -value $0.000 < 0.05$), and financial leverage ($\beta_4 = -0.004$, p -value $0.039 < 0.05$) of banks have a negative and significant impact on ROA. The

Table 6. Impact of Board Attributes on Return on Assets of the Banking Sector

		Unstandardized		Standardized		Collinearity		
		Coefficients		Coefficients		Statistics		
	Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	3.852	0.794		4.854	0.000		
	Age	−0.013	0.001	−0.648	−10.140	0.000*	0.897	1.115
	Size	−0.170	0.060	−0.187	−2.821	0.006*	0.835	1.197
	Growth	0.007	0.004	0.131	2.055	0.042**	0.902	1.109
	Financial Leverage	−0.004	0.002	−0.128	−2.086	0.039**	0.970	1.030
2	(Constant)	4.078	0.893		4.568	0.000		
	Age	−0.016	0.002	−0.840	−7.733	0.000*	0.248	4.027
	Size	−0.142	0.065	−0.156	−2.184	0.031**	0.575	1.738
	Growth	0.005	0.003	0.091	1.528	0.130	0.823	1.215
	Financial Leverage	−0.004	0.002	−0.132	−2.297	0.024***	0.891	1.123
	Board Size	0.003	0.033	0.008	0.103	0.918	0.457	2.187
	Board Gender Diversity	0.107	0.081	0.091	1.318	0.190	0.616	1.623
	Board Meetings	−0.024	0.018	−0.126	−1.346	0.182	0.333	2.999
	Board Attendance	0.009	0.005	0.102	1.664	0.099***	0.780	1.283
	Board Committees	−0.001	0.010	0.008	−0.140	0.889	0.878	1.139
	Board Expertise	−0.063	0.023	−0.245	−2.794	0.006**	0.380	2.629
	Board Independence	−0.011	0.064	−0.010	−0.171	0.864	0.863	1.159
	CEO Duality	−0.605	0.139	−0.344	−4.347	0.000*	0.468	2.135

Note. ^a. Dependent Variable : ROA.

coefficient of age indicates that new banks have lesser ROA as compared to the old banks. The values of coefficients indicate that every 1% increase in age, size, and financial leverage causes the ROA to decline by 0.013%, 0.170%, and 0.004%, respectively, at the decreasing rate, holding other factors constant. The positive and significant correlation between the growth of banks and ROA ($\beta_3 = 0.007$; p -value $0.042 < 0.05$) reveals that for every 1% increase in growth, there is an improvement in the return on assets by 0.007% at the decreasing rate, keeping other independent variables constant.

The statistics of Model 2 reveal a positive and significant correlation between board attendance ($\beta_8 = 0.009$; p -value = $0.099 < 0.10$) and ROA, which confirms that with every 1% increase in attendance rate, there is an improvement in ROA by 0.009%, however, at the decreasing rate, keeping other independent variables constant. The results of board expertise ($\beta_{10} = -0.063$; p -value = $0.006 < 0.05$) and CEO duality ($\beta_{12} = -0.605$; p -value = $0.000 < 0.05$) reveal a negative and significant impact on ROA. These values indicate that for 1% increase in board expertise and CEO duality, the ROA tends to decline by 0.063% and 0.605%, respectively, which is less than proportionate, holding other independent variables constant. A positive correlation has been found between board size ($\beta_5 = 0.003$; p -value = $0.918 > 0.05$), board gender diversity ($\beta_6 = 0.107$; p -value = $0.190 > 0.05$), and ROA of the banking sector, but the insignificant p -values do not support the hypotheses. The negative association of board meetings ($\beta_7 = -0.024$, p -value = $0.182 > 0.05$), board committees ($\beta_9 = -0.001$, p -value = $0.889 > 0.05$), and board independence ($\beta_{11} = -0.011$, p -value = $0.864 > 0.05$) has been found with return on assets, however, the insignificant p -values do not support the propositions.

The standardized beta coefficient shows the relative contribution of each independent variable in the prediction of the dependent variable. The standardized beta coefficients of Model 2 depict that among board attributes, the board attendance has maximum contribution in predicting the change in ROA of the banking sector, followed by board gender diversity, board size, board committees, board independence, board meetings, board expertise, and CEO duality. The regression equation based on unstandardized beta coefficients of Model 2 can be formulated as under :

$$\text{Return on Assets} = 4.078 + 0.003 (\text{Board Size}) + 0.107 (\text{Board Gender Diversity}) - 0.024 (\text{Board Meetings}) + 0.009 (\text{Board Attendance}) - 0.001 (\text{Board Committees}) - 0.063 (\text{Board Expertise}) - 0.011 (\text{Board Independence}) - 0.605 (\text{CEO Duality})$$

Analyzing the Impact of Board Attributes on Return on Equity

The model summary regarding the impact of board attributes on ROE of the banking sector using hierarchical regression analysis has been presented in Table 7. The coefficients of *R* square report that 0.349% variation in ROE is explained by control variables; whereas, 0.622% variation is described by control and board attributes ; hence, the differential variation in *R* square change, that is, 0.277% in ROE is caused by board attributes. The value of Durbin – Watson statistics is 1.537, which is within the accepted range, suggesting that there is no problem of autocorrelation.

Table 8 reports the overall significance of the regression models and tests the joint hypotheses. Model I [$F(4, 105) = 14.079, p\text{-value} = 0.000 > 0.05$] and Model II [$F(12, 97) = 13.319, p\text{-value} = 0.000 > 0.05$] are statistically significant at the 5% level of significance and reject the null hypotheses stating that independent

Table 7. Hierarchical Multiple Regression Model Summary

Model	<i>R</i>	<i>R</i> Square	Adjusted <i>R</i> Square	Std. Error of the Estimate	Change Statistics					Durbin–Watson
					<i>R</i> Square Change	<i>F</i> Change	<i>df</i> 1	<i>df</i> 2	Sig. <i>F</i> Change	
1	0.591 ^a	0.349	0.324	7.57664	0.349	14.079	4	105	0.000*	
2	0.789 ^b	0.622	0.576	6.00469	0.273	8.771	8	97	0.000*	1.537

Note. ^a Predictors control variables ; ^b Predictors independent variables ; ^c Dependent Variable : ROA.

Table 8. Hierarchical Multiple Regression Model Significance (ANOVA)

Model		Sum of Squares	<i>df</i>	Mean Square	<i>F</i>	Sig.	Decision
1	Regression	3232.833	4	808.208	14.079	0.000 ^b	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	6027.570	105	57.405			
	Total	9260.403	109				
2	Regression	5762.942	12	480.245	13.319	0.000 ^c	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	3497.461	97	36.056			
	Total	9260.403	109				

Note. ^a Dependent Variable : ROE ; ^b Predictors control variables ; ^c Predictors: independent variables.

Table 9. Impact of Board Attributes on Return on Equity of the Banking Sector

		Unstandardized		Standardized		Collinearity		
		Coefficients		Coefficients		Statistics		
	Model	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	24.870	11.477		2.167	0.033		
	Age	−0.092	0.018	−0.423	−5.092	0.000*	0.897	1.115
	Size	−1.033	0.873	−0.102	−1.183	0.239	0.835	1.197
	Growth	0.174	0.052	0.275	3.313	0.001*	0.902	1.109
	Financial Leverage	−0.017	0.030	−0.045	−0.558	0.578	0.970	1.030
2	(Constant)	39.841	11.431		3.485	0.001		
	Age	−0.169	0.027	−0.781	−6.236	0.000*	0.248	4.027
	Size	−2.083	0.834	−0.206	−2.500	0.014**	0.575	1.738
	Growth	0.131	0.043	0.207	3.011	0.003**	0.823	1.215
	Financial Leverage	−0.040	0.025	−0.107	−1.613	0.110	0.891	1.123
	Board Size	0.575	0.422	0.126	1.361	0.177	0.457	2.187
	Board Gender Diversity	2.600	1.042	0.198	2.494	0.014**	0.616	1.623
	Board Meetings	−0.078	0.228	−0.037	−0.345	0.731	0.333	2.999
	Board Attendance	0.149	0.066	0.160	2.266	0.026**	0.780	1.283
	Board Committees	−0.218	0.126	−0.115	−1.732	0.086***	0.878	1.139
	Board Expertise	−0.683	0.289	−0.239	−2.366	0.020**	0.380	2.629
	Board Independence	−0.343	0.817	−0.028	−0.420	0.675	0.863	1.159
	CEO Duality	−12.597	1.783	−0.644	−7.066	0.000*	0.468	2.135

Note. ^a. Dependent Variable : ROE.

variables have no impact on ROE. This signifies that at least one independent variable has a significant linear relationship with the dependent variable, and the analysis confirms that both regression models are statistically valid.

Table 9 presents the results of the impact of control variables (Model 1) and board attributes (Model 2) on the ROE of the banking sector. The study of control variables reveals that growth ($\beta_2 = 0.174$, p -value = $0.001 < 0.05$) has a positive and significant impact on ROE. This implies that with a 1% increase in growth in the banking sector, the ROE will tend to improve by 0.174%, at a decreasing rate, holding other independent variables constant. The age of banks has a negative and significant ($\beta_1 = -0.092$, p -value = $0.000 < 0.05$) impact on ROE, which states that with a 1% increase in the age of banks, ROE will decline by 0.092%, at the decreasing rate, keeping other independent variables constant. Size ($\beta_3 = -1.033$, p -value = $0.239 > 0.05$) and financial leverage ($\beta_4 = -0.017$, p -value = $0.578 > 0.05$) have a negative and insignificant impact on ROE of the banking sector.

The estimates of Model 2 explain the results relating to the impact of board attributes on ROE. The variables : board gender diversity ($\beta_6 = 2.600$, p - value = $0.014 < 0.05$) and board committees ($\beta_8 = 0.149$, p -value = $0.001 < 0.05$) have a positive and significant impact on the ROE. However, the impact of board gender diversity is at an increasing rate ; whereas, for board committees, the impact is at a decreasing rate. The board committees ($\beta_9 = -0.218$, p -value = $0.086 < 0.10$), board expertise ($\beta_{10} = -0.683$, p -value = $0.020 < 0.05$), and CEO duality ($\beta_{12} = -12.597$, p -value = $0.000 < 0.05$) have a negative and insignificant impact on the ROE. The implications of this analysis confirm that with a 1% increase in board committees, board expertise, and CEO duality, the ROE will

tend to decline with 0.218%, 0.683%, and 12.597%, respectively. The composition of board size ($\beta_5 = 0.575$, p -value = 0.177 > 0.05) has a negative and insignificant impact on the ROE, while board meetings ($\beta_7 = -0.078$, p -value = 0.731 > 0.05) and board independence ($\beta_{11} = -0.343$, p -value = 0.675 > 0.05) carry a negative and insignificant impact on the ROE of the banking sector.

The standardized beta coefficients of Model 2 depict that among board attributes, board gender diversity has maximum contribution in predicting the change in ROE, followed by board attendance, board independence, board size, board meetings, board committees, board expertise, and CEO duality. The regression equation based on the unstandardized beta coefficients of Model 2 can be formulated as under :

Return on Equity = 39.841 + 0.575 (*Board Size*) + 2.600 (*Board Gender Diversity*) – 0.078 (*Board Meetings*) + 0.149 (*Board Attendance*) – 0.218 (*Board Committees*) – 0.683 (*Board Expertise*) – 0.343 (*Board Independence*) – 12.597 (*CEO Duality*).

Analyzing the Impact of Board Attributes on Tobin's Q Ratio

Table 10 presents the Model summary for Model 1 and Model 2 regarding examining the impact of board activism and control variables on the TQR. The coefficients of R square report that 0.354% variation in TQR is explained by control variables, while 0.481% variation is described by control and board attributes ; hence, the differential R - square change of 0.127% in TQR is caused by board attributes. The value of Durbin – Watson statistics is 1.270, which is within the accepted range, suggesting that there is no problem of autocorrelation.

Table 11 reports the overall goodness of fit of the regression models and tests the joint hypothesis. Model I [$F(4, 105) = 14.374$, p - value = 0.000 > 0.05)] and Model II [$F(9, 35) = 7.494$, p -value = 0.000>0.05)] are statistically significant at the 5% level of significance and reject the null hypothesis stating that the independent variables have no impact on the dependent variable. Thus, the study confirms that both the regression models are statistically significant.

Table 10. Hierarchical Multiple Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin–Watson
					R Square Change	F Change	$df1$	$df2$	Sig. F Change	
1	0.595 ^a	0.354	0.329	158.47900	0.354	14.374	4	105	0.000*	
2	0.694 ^b	0.481	0.417	147.76222	0.127	2.973	8	97	0.005*	1.270

Note. ^a. Predictors control variables ; ^b. Predictors independent variables ; ^c. Dependent Variable: ROA.

Table 11. Hierarchical Multiple Regression Model Significance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.	Decision
1	Regression	1444091.802	4	361022.950	14.374	0.000 ^b	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	2637137.236	105	25115.593			
	Total	4081229.037	109				
2	Regression	1963362.780	12	163613.565	7.494	0.000 ^c	Reject Null Hypothesis at $\alpha = 0.05$
	Residual	2117866.258	97	21833.673			
	Total	4081229.037	109				

Note. ^a. Dependent Variable : TOBIN's Q Ratio ; ^b. Predictors control variables ; ^c. Predictors: independent variables.

Table 12 highlights the regression estimates about board attributes and control variables and their impact on the TQR of banks. The size of banks ($\beta_2 = 100.704$; p -value = $0.000 < 0.05$) has a positive and significant impact on the TQR of the banking sector. This analysis advocates that with a 1% increase in the size of banks, the TQR will increase by 100.7% at an increasing rate, keeping other factors constant. The age of the banks has a negative and significant ($\beta_1 = -2.368$; p -value = $0.000 < 0.05$) impact on the TQR, and this implies that with a 1% increase in the age of banks, TQR will have a propensity to decrease by 2.368% at the increasing rate, holding other factors constant. The growth ($\beta_3 = -1.035$, p -value = $0.347 > 0.05$) and financial leverages of banks ($\beta_4 = -0.094$, p -value = $0.881 > 0.01$) have a negative impact on TQR, however, the insignificant values do not support the proposition.

Model 2 shows the impact of board attributes on TQR along with the control variables. Board meetings have a positive and significant effect ($\beta_2 = 13.950$; p -value = $0.015 < 0.05$) on TQR, which states that with 1% increase in board meetings, the TQR will increase by 13.95%, which is more than proportion, holding other factors constant. Board committees ($\beta_9 = -5.396$, p -value = $0.084 < 0.05$) and board expertise ($\beta_{10} = -17.422$, p -value = $0.347 > 0.05$) have a negative and significant impact on TQR. The board gender diversity ($\beta_6 = 23.242$; p -value = $0.367 > 0.05$) and board attendance ($\beta_8 = 2.105$; p -value = $0.196 > 0.05$) have a positive impact on the TQR, but the insignificant p -values do not support the hypotheses. Board size ($\beta_4 = -4.149$, p -value = $0.691 > 0.05$), board independence ($\beta_{11} = -1.887$, p -value = $0.925 > 0.05$), and CEO duality ($\beta_{12} = -10.337$, p -value = $0.814 > 0.05$) have

Table 12. Impact of Board Attributes on TOBIN's Q Ratio of Banking Sector

	Model	Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
		B	Std. Error	Beta	t		Tolerance	VIF
1	(Constant)	-1037.322	240.072		-4.321	0.000		
	Age	-2.368	0.377	-0.520	-6.280	0.000*	0.897	1.115
	Size	100.704	18.258	0.473	5.516	0.000*	0.835	1.197
	Growth	-1.035	1.097	-0.078	-0.944	0.347	0.902	1.109
	Financial Leverage	-0.094	0.625	-0.012	-0.150	0.881	0.970	1.030
2	(Constant)	-1233.236	281.293		-4.384	0.000		
	Age	-4.042	0.668	-0.888	-6.049	0.000*	0.248	4.027
	Size	114.804	20.512	0.540	5.597	0.000*	0.575	1.738
	Growth	-0.959	1.070	-0.072	-0.896	0.373	0.823	1.215
	Financial Leverage	0.073	0.608	0.009	0.120	0.905	0.891	1.123
	Board Size	-4.149	10.396	-0.043	-0.399	0.691	0.457	2.187
	Board Gender Diversity	23.242	25.651	0.084	0.906	0.367	0.616	1.623
	Board Meetings	13.950	5.606	0.315	2.488	0.015**	0.333	2.999
	Board Attendance	2.105	1.618	0.108	1.302	0.196	0.780	1.283
	Board Committees	-5.396	3.094	-0.136	-1.744	0.084***	0.878	1.139
	Board Expertise	-17.422	7.101	-0.291	-2.454	0.016**	0.380	2.629
	Board Independence	-1.887	20.110	-0.007	-0.094	0.925	0.863	1.159
	CEO Duality	-10.337	43.869	-0.025	-0.236	0.814	0.468	2.135

Note. ^a. Dependent Variable : TOBIN's Q Ratio.

a negative and insignificant impact on the TQR of banks.

The standardized beta coefficients of Model 2 depict that among board attributes, board gender diversity has maximum contribution in predicting the change in TQR, followed by board attendance, board independence, board size, board meetings, board committees, board expertise, and CEO duality. The regression equation based on the unstandardized beta coefficients of Model 2 can be formulated as under :

Tobin's Q Ratio = $-1233.236 - 4.149 (\text{Board Size}) + 23.242 (\text{Board Gender Diversity}) + 13.950 (\text{Board Meetings}) + 2.105 (\text{Board Attendance}) - 5.396 (\text{Board Committees}) - 17.422 (\text{Board Expertise}) - 1.887 (\text{Board Independence}) - 10.337 (\text{CEO Duality})$.

Conclusions and Policy Implications

The study investigates the impact of corporate governance attributes on the financial performance of the top 10 Indian banks in the public and private sectors, with the help of a hierarchical multiple regression approach. The summary of hypotheses testing is illustrated in Table 13.

The results of the accounting-based measure report that board attendance has a positive and significant impact on ROA and ROE, and the outcomes are consistent with the findings of Mweta and Mungai (2018); board gender diversity has a positive impact on ROE, which is consistent with the findings of Nwokwu et al. (2019), implying that the presence of women directors on the board of banks will tend to improve the ROE. The study finds that board expertise and CEO duality have emerged as significant determinants of a bank's financial performance, but the sad part is that these policy variables are negatively and significantly related to the ROA and ROE of banks. The results of CEO duality are consistent with the finding of Atty et al. (2018), suggesting that in order to improve the financial performance of banks, the positions of chairman and CEO should be held by different directors. The number of board committees negatively and significantly impacts ROE, and the results are inconsistent with the expected signs.

It can be inferred from the analysis of market-based measures that board meetings have a positive and significant impact on TQR and the findings are consistent with the study of Atty et al. (2018). On the other side, board committees and board expertise have a negative and significant impact on TQR. The results of the board committees are consistent with the study of Singh et al. (2018). The present study explores the negative impact of

Table 13. Summary of Hypotheses Testing

Sl. No	Corporate Governance Attributes	Expected Sign	Accounting Valuation		Market Valuation
			ROA	ROE	TOBIN's Q Ratio
1	Board Size	±	+ ve and insignificant	+ ve and insignificant	– ve and insignificant
2	Gender Diversity	+	+ ve and insignificant	+ ve and significant	+ ve and insignificant
3	Board Meetings	–	+ ve and insignificant	– ve and insignificant	+ ve and significant
4	Board Attendance	+	+ ve and significant	+ ve and significant	+ ve and insignificant
5	Board Committees	+	– ve and insignificant	– ve and significant	– ve and significant
6	Board Expertise	+	– ve and significant	– ve and significant	– ve and significant
7	Board Independence	+	– ve and insignificant	– ve and insignificant	– ve and insignificant
8	CEO Duality	–	– ve and significant	– ve and significant	– ve and insignificant

board committees, board expertise, board independence, and CEO duality on ROA, ROE, and TQR; board meetings on ROE; and board size on TQR. Hence, the analysis recommends that the policymakers of the financial sector should identify the reasons for the negative impact and make necessary corrections to send a strong and positive signal to the financial market regarding the effectiveness of the corporate governance mechanism.

The present study contributes to the existing corporate governance literature in three ways. One by examining the impact of corporate governance attributes on the financial performance of banks. Second, it proposes the conceptual model based on previous studies. Third, the findings of CEO duality uphold the agency theory as it proposes that companies with stronger governance are associated with improved financial performance (Grove et al. 2011) and question the stewardship theory, which is resistant to CEO duality (De Villiers & Dimes, 2021). The findings of the study have implications for banks, government, regulators, and policymakers to promote a strong corporate governance mechanism to ensure the sustainability of banks.

Limitations of the Study and Scope for Future Research

The current research work is based on the secondary data taken from the annual reports of 10 public and private sector banks over the period from 2010 – 11 to 2020 – 21. The study analyzes the impact of eight corporate governance attributes in the presence of four control variables on the financial performance of banks in respect of ROA, ROE, and TQR. The study is limited to only the Indian banking sector. The study's findings cannot be generalized, however, these will be useful for policy formulation in the financial sector. Future research should consider all possible corporate governance attributes across the sector and country by taking into consideration the major global events like the COVID-19 pandemic. The impact of corporate governance on economic value added non-financial dimension and external corporate governance mechanism can also be considered in future research. The agency view of the corporation is typically taken into account in studies on corporate governance, however, in the future, stakeholder theory and resource management theory may be worthy of consideration. Finally, it is suggested that the corporate governance of the banking sector should be more effective and stronger so that the banking sector can compete in the global financial market.

Authors' Contribution

Dr. Raj Kumar Singh explored the idea of pursuing a study on the impact of corporate governance on the financial performance of Indian banks. Munish Sharma and Yashvardhan Singh extracted the annual reports from the websites of banks and collected, edited, and coded the data for analysis. Munish Sharma and Ajay Kumar drafted the literature review relevant to the study. Dr. Raj Kumar Singh and Munish Sharma analyzed the data through MS-Excel and SPSS software, and Yashvardhan Singh prepared the tables. Ajay Kumar and Munish Sharma wrote the rough draft of the research paper. Dr. Raj Kumar Singh edited the final manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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