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Corporate governance and financial performance of Indian public sector insurance companies: Does corporate social responsibility matter?

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Abstract

Purpose – The main purpose of this study is to investigate the impact of corporate governance on the financial performance of public sector insurance companies in India, as well as the moderating effect of Corporate Social Responsibility (CSR).

Design/methodology/approach – The study uses an ex-post facto research design with purposive sampling methods to collect secondary data from annual reports of public sector insurance companies in India over the period of 10 years, from 2013–14 to 2022–23. Corporate governance is considered as an independent variable, Return on Equity as a dependent variable, firm size and age as control variable and CSR as a moderator. Generalized Least Square (GLS), Fixed-effects robust regression models are used for statistical analysis with the help of SPSS and STATA software.

Findings – The study reveals that most corporate governance attributes exhibit a positive but statistically insignificant relationship with financial performance (ROE), except for CEO duality. Moderating variable CSR and its interaction with CEO duality have a significant impact on financial performance. However, equity holders' returns are also contingent upon the scale or size of the public insurer's business.

Practical implications – The study advocates that policymakers and regulators should design ethical governance mechanisms that give equal priority to social responsibility and sustainability practices. Emphasizing a unified leadership structure with a clear sustainability vision can enhance governance effectiveness and improve the financial performance of insurers, which operate under stringent regulatory oversight.

Originality/value – The study provides empirical evidence of CSR contribution in synergizing the relationship between corporate governance mechanisms and the financial performance of the Indian Insurance industry.

Keywords Corporate governance, CSR, Financial performance, Insurance industry

Paper type Research article

1. Introduction

In the last few decades, all corporate houses universally accepted the importance of corporate governance concepts for ethical management and control of business operations in the best interest of stakeholders. It establishes rules and regulations to uphold ethical corporate practices and global alignment of four governance principles, i.e. ethics, transparency, accountability, and fairness. This governance structure not only sets the code of standards but also issues the fiduciary duties of individuals for attaining and monitoring organizational activities in a more structured and definite manner. It has been demonstrated ethical behavioral approach of board members and senior executive officers to fairly implement the organizational policies, monitoring and control mechanisms against corporate discrepancies. In emerging markets, both financial and non-financial sectors globally are critically assessed and are structuring their governance framework in a strategic manner to enhance the financial stability and sustainable viability in the long run (Almashhadani, 2021). The insurance business is the backbone of every country's economy by providing financial

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protection against unforeseen losses and protecting livelihood through assuring economic uncertainty. In a general governance framework, the key aspect of every sector especially insurer ethically handle uncertainty losses and sustainably meet the policyholders' confidence. One of the recent studies (Abebe and Dhaliwal, 2024) says that the corporate governance mechanisms are accountable for reducing insurance risk, such as operational and liquidity risks, in the emerging market through the strategic formation of various board committees and taking independent decisions without the intervention of a superior authority or biased power. Moreover, governance strengthens the corporate administration's power to ethically conduct routine activities and to meet the needs and demands of the community transparently. Thanigaimani (2024) demonstrates that insurance agencies also incorporate more standardized corporate administrative policy to enjoy the monetary benefit in general and particularly legitimate concern for economic development by protecting the remaining partners, including policyholders, loan bosses, workers, government, and the wider local areas.

Sustainability is the more fashionable concept in the current era of the economy. In recent decades, every corporate sector has logical balances of environmental, social, and governance challenges tactically for long-term value creation and meet the needs of a sustainable future. However, integrated reporting practices disclose both financial and non-financial information to enable the holistic view of transparency, accountability, and sustainability for a more stable and prosperous economy. This reporting practice can enhance stakeholder value through protecting from uncertain financial losses as well as engaging in community development programs. Corporate governance acts as a key indicator to achieve the Sustainable Development Goals through the formulation of ethical behavior along with socially responsible activities (Aras and Crowther, 2008). Corporate Social Responsibility (CSR), along with governance practices, interconnects a huge sustainable gap between ethical transformations and community development programs in the form of social security and protection against uncertain events and losses in the insurance industry (Van den Berghe and Louche, 2005). CSR disclosure not only enjoys the market goodwill but also imposes the moral suasion of the community for long run survival of the enterprise by obeying standard codes and practices. Additionally, it also observed that corporate governance indicators such as board diversity, audit committee size, number of board meetings, CEO duality, board independence, sustainability committee and CSR disclosure mutually connect to amplify the major impact on financial operation and achieve the goals and targets of sustainability positions in any organization (Sari *et al.*, 2020; Jasman *et al.*, 2023). Integrating corporate governance mechanisms with Corporate Social Responsibility to ethically manage corporate crises, optimize financial outcomes, and maximize the value of stakeholders in the uncertain economy. So, the primary purpose behind this study is to examine the role of corporate governance on financial performance and the moderating effect of CSR in the Indian public sector insurance company.

A well-designed framework has been drawn considering existing literature and considering sustainability practices, i.e. CSR as key moderators influence the relationship between governance framework and financial performance of Indian public insurance sectors (Figure 1). Following that, an econometric model has been formulated to test the hypothesis and efficacy of our proposed analysis results and outcomes to meet research objectives. Meanwhile, the outcomes were contrasted with those of prior studies that resulted in similar contexts. The study also segregated limitations, recommendations, and scope for further research.

2. Literature review

2.1 Corporate governance and financial performance

Corporate governance is a system to formulate ethical rules and regulations for well-managing corporate affairs and also enhances the operational activity in the best interest of all

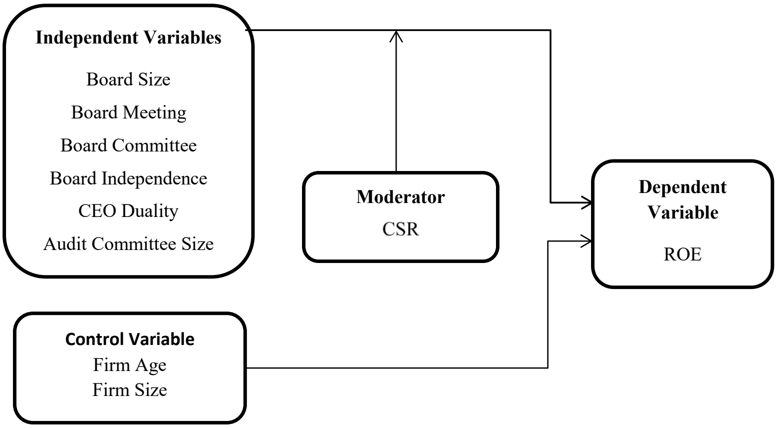

Figure 1. Framework of the study. Source: Authors' compilation

stakeholders. Tjahjadi *et al.* (2021) recommended that economic, social, and environmental sustainability performance can be achieved through a good corporate governance structure, which includes independence of the board structure, CEO education, mandatory board committee formulation, and a systematic audit program. Thus, the governance principle requires all companies, specifically the insurance sector, to provide financial protection and transparent management of the uncertain risk of policyholders' life and property. AbebeZelalem *et al.* (2022) opined that the discretionary powers of the board are more flexible in non-financial institutions, while more stringent regulations are adopted in financial institutions. They also concluded that board size, management soundness, board remuneration, and financial disclosure had a positively significant impact on financial performance in Ethiopian insurance companies by applying the random effect estimation technique. Sethi *et al.* (2023) established an interrelationship between governance and financial indicators of the listed non-financial firms in the National Stock Exchange from the period 2010–2019. By applying the panel data regression model, they found that financial parameters were not influenced by board meetings and board independence, while the asset utilization ratio established a positive and significant relationship with board independence. Further, Mondal and Sahu (2024) also confirmed the influence of corporate governance indicators on the financial performance of the Indian manufacturing companies listed on the Bombay Stock Exchange. According to this study, more serious concerns for the board formation, including women and independent directors, enhancing the size of the board, and restricting the monotonous duality role of the CEO, were necessitated for organizational survival and integrity.

One of the studies conducted by (Wanyama and Olweny, 2013) stated that there was a strong association between the governance system and the financial returns of listed insurance companies in Kenya, in which financial performance was influenced negatively by board size and positively impacted through leverage and board composition, whether they were executive or non-executive directors. Further, Datta (2018) found a positive significant relationship between the financial performance measure in terms of ROE of the insurance firm listed on the Dhaka Stock Exchange, Bangladesh and board size and board meetings and a negative relation with board structure and audit committee. Hence, governance promotes compliance with the law in letter and spirit and demonstrates ethical conduct on board structure, CEO activities, and validation of mandatory board committee formulation. Moreover, it was also seen that the corporate governance variables highly influence the financial performance of a firm as compared to the marketing measure performance (Arif, 2019). In his study, he found that board size, board independence, institutional ownership, CEO duality, and firm size affect the ROA & ROE of listed insurance firms in Pakistan and the diverse nature of the relation with market measure performance. Wadesango *et al.* (2020) witnessed that corporate governance variables such as board size, board composition, subcommittees, and leverage also affect the financial performance of commercial banks in turbulent economic and political environments. Further, it was also revealed that the earnings management influences positively as well as negatively, depending upon the governance framework of the entity (Nguyen *et al*., 2024). They suggested some key prospects, such as ownership structure, foreign management control, and excessive focus on growth perspective, liable for earnings management principles and policies. To maintain the stability and integrity of the country's economy, they should formulate an ethical bureaucracy policy in their governance structure to remove the political pressure and enjoy a free flow of sustainable operation and adequate financial return in any corporate sector.

The expanding literature on corporate governance clearly encompasses the significant contribution to reducing agency issues and conflicts of interest between the principal and agent. Unlike other sectors, the insurance industry faces more potential agency problems due to the addition of a stakeholder group—policyholders. These internal conflicts are successfully managed by agency theory, which is to logically balance the interests of shareholders and policyholders by limiting the opportunistic actions of managers (Goyal and Gulati, 2025). On the contrary, the stewardship theory advocates alignment of the manager and the firm's principal interest in pursuing a common goal. It recommends appointing more executive directors with the dual roles of CEO and chairman to oversee daily operations and strategic decisions independently. These theoretical ambiguities have evolved due to different governance structures and institutional frameworks in developed and underdeveloped economies. Furthermore, there has been limited literature exploring the significant linkage between governance mechanisms and the financial performance of the public insurance companies in India. The following hypothesis is formulated to address this research gap.

H01. Corporate governance has no significant impact on the financial performance of public sector insurance companies in India.

2.2 Corporate governance, financial performance and CSR moderator

Nowadays, the primary objective of every organization is to shift from earning more returns to achieving sustainability targets in the near future. CSR is the crucial path to achieving this target through the reduction of environmental degradation and maximizing the wealth of stakeholders in this VUCA economy. Every entity should understand the importance of these two concepts and also conduct ample research work regarding ethical governance formulation while considering social responsibility across institutional contexts (Zaman *et al.*, 2022). In the year 2019, Silitonga and Simanjuntak (2019) found that corporate governance indicators such as Ownership Structure in organizations, Audit Committees, and Independent Commissioner were intervening effect on corporate social responsibility and simultaneously on the financial performance of manufacturing companies listed in the Indonesian stock exchange. They confirmed the presence of triangular relations among corporate governance, CSR, and financial performance for a sustainable future. Meanwhile, these practices are a core consideration in any organization's growth and development. A firm with well-established corporate governance system encompasses strategic monitoring and counseling programs to generate additional value for the firm, and also acts as a crucial moderator between the sustainability performance and the financial operations (Lu, 2021). In the year 2018 Fiandrino *et al.* (2019) found that corporate governance practices and CSR influenced each other inversely for maximizing the financial outcome, improving corporate reputation, pursuing social benefit, and customizing stakeholder relationships transparently. CSR plays an important role after major financial crises and corporate scandal as concluded by Farooq *et al*. (2024). CSR played a catalytic role in the sustainable enhancement of the firm's value along with a stringent enterprise risk management framework and a good corporate governance system.

Moreover, CSR also acts as a moderator to establish a relationship between corporate governance and financial performance. Further, (Suteja *et al.*, 2017) studied a sample of banking companies listed in the Indonesia Stock Exchange from 2010 to 2014, revealing that the audit committees and board meetings had a positive impact on financial operations, but board commissioner meetings interacted with CSR practices to optimize the financial outcomes. Ghosh *et al.* (2022) opined that the large-sized board with more independent directors concentrates on the environmental disclosure practices beyond the policy formulations and implementation. In addition, Ghosh *et al*. (2023a, b) illustrated that a U-shaped relationship exists between the environmental performance and financial performance of non-financial Indian companies. The long-term value of any entity will be enhanced through the environmental disclosure score, being the core dimension of social responsibility. It was also seen that the CSR activity interacts with other governance indicators, such as board size, equity concentration, and CEO duality, and also have positive impact on the financial return of Chinese listed companies (Pasko *et al.*, 2022). However, CSR is one of the important pillars of ESG reporting practices and trends in the current era. So policymaker and regulators are integrating their environmental, social, and governance challenges to reduce corporate controversies and sustainable access investment portfolios in the best interest of the corporation and stakeholders' benefits (Zubeltzu *et al.*, 2018). However, the key governance theories also support the social dimension and sustainability practices in a VUCA economy. Stakeholder theory directly influences CSR activity by assessing the impact of all environmental factors on all stakeholders' engagement and value creation in the long run. Hence, in the changing economic scenario, all legal regulations are formulated to align with societal rules and regulations to achieve the sustainability target in the near future. These theoretical approaches signify the establishment of multi-layer relationships between governance, CSR, and performance in the insurance market, whose core aims to societal security beyond profit generation. Considering the paramount importance of the moderation effect of CSR, we formulated the following hypothesis.

H02. CSR does not moderate the relationship between corporate governance practices and the financial performance of public sector insurance companies in India.

3. Objective of this study

(1) To examine the impact of corporate governance on the financial performance of public sector insurance companies in India.

(2) To study the moderating effect of CSR to establish the relationship between corporate governance and the financial performance of Public sector insurance companies in India.

4. Research methodology

4.1 Research design

The study adopted an ex post facto research design and applied statistical tools and techniques such as descriptive statistics, correlation, diagnostic tests, and multiple linear regressions with SPSS & STATA software. The panel data regression analysis depends on two estimators, Ordinary Least Square (OLS) or Generalized Least Squares (GLS) techniques. There are two mandatory conditions fulfilled to apply OLS regression, i.e. no autocorrelation and heteroskedasticity among the variables. If one of these conditions is not fulfilled, then we would employ the GLS (Fixed effect or Random effect) estimator. For deciding the correct estimator, the study has conducted diagnostics and model specification tests.

4.2 Sample and data collection

The population in this research is the Indian Insurance sector. The nonprobability sampling technique consists of purposive and convenience methods were applied to select the sample insurance companies. We have considered all seven public insurance sector companies as sample namely, Life Insurance Corporation of India, General Insurance Corporation of India, The New India Assurance Company Limited, United India Insurance Company Limited, The Oriental Insurance Company Limited, National Insurance Company Limited, and Agriculture Insurance Company of India Limited. Secondary data was collected from sample insurance companies' annual reports covering a period of ten years, i.e. 2013–14 to 2022–23.

4.3 Variable Identification

In our study, Return on Equity (ROE) is the dependent variable for financial performance. It measures profitability relative to shareholders' equity; in other words, the efficiency of the company to utilize shareholder funds to generate profit and maximize the wealth of shareholders. We have considered six corporate governance indicators as independent variables. They are Board Size (BS), Board Meeting (BM), Board Committee (BC), Independence Director (ID), CEO Duality (CEOD), Audit Committee Size (ACS), and firm size and age are taken as control variables. The control variable is intentionally kept constant to observe changes in the dependent variable solely due to variations in the independent variables. It leads to more valid and reliable results by limiting the influence of confounding and extraneous variables (independent variables) and also avoids research biases. Seeking the importance of sustainability initiatives, we have taken CSR as a moderator to measure the extent and direction of effect between corporate governance and financial indicators. The rationale for using CSR as a moderating variable is supported by the regulatory landscape, particularly the IRDAI Corporate Governance Guidelines, 2024. This guideline emphasizes the integration of social responsibility into the governance framework within the insurance sector to promote sustainable, ethical, and risk-resilient business in the uncertain economy. Further, to mitigate the effect of the extreme value, ROE financial performance was winsorized at the 10th and 90th percentiles, while other variables were used in their original form. Table 1 provides a brief description of all the variables used in this study and their measurement.

4.4 Model specification

For measuring the moderating effect of CSR spending on the association between corporate governance and financial performance, we propose the following regression model

$$
\begin{aligned}
(ROE)_{it} = {} & \alpha + \beta_1(BS)_{it} + \beta_2(BM)_{it} + \beta_3\,(BC)_{it} + \beta_4\,(ID)_{it} + \beta_5(CEOD)_{it} + \beta_6(ACS)_{it} \\
& + \beta_7(CSR)_{it} + \beta_8\,(BS{*}\mathrm{CSR})_{it} + \beta_9(\mathrm{BM}{*}CSR)_{it} + \beta_{10}(\mathrm{BM}{*}CSR)_{it} \\
& + \beta_{11}\,(\mathrm{ID}{*}CSR)_{it} + \beta_{12}\,(\mathrm{CEOD}{*}\mathrm{CSR})_{\mathrm{it}} + \beta_{13}\,(\mathrm{ACS}{*}\mathrm{CSR})_{\mathrm{it}} + \beta_{14}\,(\mathrm{FA})_{\mathrm{it}} \\
& + \beta_{15}\,(\mathrm{FS})_{\mathrm{it}} + \varepsilon_{\mathrm{it}}
\end{aligned}
\qquad \text{(Model 1)}
$$

Here, ROE is the dependent variable, which is jointly affected by the independent governance factors like BS, BM, BC, ID, CEOD, ACS, and interaction with CSR to measure the moderation effect between dependent and independent variables. Respectively, "i" and "*t*" show the firm and time factor of the sample study. "ε_{it}" Represent the error term of firm "i" at time *t*.

5. Analysis and result

5.1 Descriptive statistics

We start our data analysis from a descriptive study, which is in Table 2. There were a total of 70 observations taken from ten years of data from sample seven public sector insurance

Table 1. Description of variables

Variables	Abbv.	Measurement	Authors
Board size	BS	Number of directors on the board	Connelly and Limpaphayom (2004), Kufo and Shtembari (2023)
Board meetings	BM	Number of board meeting in a year	Hezabr *et al.* (2020)
Board committees	BC	Total number of committees formed by the Board	Shaheen and Jaradat (2019)
Independent director	ID	Number of independent directors on the board	Aluchna *et al.* (2020), Mishra (2023)
CEO duality	CEOD	Dummy variable, equals 1 if the same person holds the position of CEO and chairman and 0 for otherwise	Mubeen *et al.* (2021), Singh and Sharma (2024)
Audit committee size	ACS	Number of directors in the audit committee at the end of a financial year	Fadun (2013), Hezbar *et al.* (2023)
Return on equity	ROE	(Net profit/$NetWorthShareholders'Equity$) $\times$ 100	Osman and Samontaray (2022), Grofčíková (2020)
Firm age	FA	Natural logarithm of number of years since Establishment	Kiptoo *et al.* (2021)
Firm size	FS	Natural logarithm of total assets at the end of a financial year	Okoye *et al.* (2020)
CSR spending	CSR	Natural logarithm of total CSR spending at the end of a financial year	Hamad and Cek (2023), Suteja *et al.* (2017)

Source(s): Authors' compilation

Table 2. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation	Skewness	Kurtosis
BS	70	4	17	8.9	2.64931	0.674	0.758
BM	70	4	15	7.2714	2.47258	1.271	1.588
BC	70	6	13	9.5571	1.62084	−0.4	0.12
ID	70	0	9	2.6714	1.7588	1.36	3.569
CEOD	70	0	1	0.9714	0.1678	−5.784	32.381
ACS	70	3	10	4.8714	1.46378	0.743	0.827
ROE	70	−125.01	213.70	11.3642	86.04112	0.800	1.250
FA	70	1.11	2.06	1.787	0.2571	−1.295	0.789
FS	70	4.8	8.59	7.3381	1.13307	−1.09	−0.021
CSR	70	0	7.73	2.7092	2.33493	0.79	−0.66

Source(s): Authors' compilation

companies. The minimum board size was four, while the maximum value was 17, with a mean of 8.9 and a deviation of 2.64 during the sample period. Board meeting was conducted a minimum of 4 times to a maximum of 15 times in a year. The average score of the board committee is (9.5571), which is more than all indicators, and the committee was formulated with a minimum of 6 members and a maximum of 13 members. That indicates public insurance sectors are more concerned to formulate different board committees to readdress the grievances in a timely manner and manage risk appropriately. It has also been seen that some sample company were not fulfill their minimal requirement regards to appointment of an independent director, and CSR spending for sustainability achievement as prescribed in the regulatory guidelines, which impacts negatively in the long run. Since the minimum CSR value is zero and its logarithm is undefined, a value of zero was assigned for analytical purposes in years when no CSR expenditure was recorded. Additionally, due to the high market volatility, the winsorized value of ROE (minimum = −125.01 & maximum = 213.70) generates both positive and negative returns to the equity holders and is highly deviated from the central value. This variability provides scope for examining whether corporate governance mechanisms may play a significant role in influencing insurer financial performance or not.

5.2 Correlation analysis

Table 3 represents the Pearson correlation value between two explanatory variables at 1% and 5% level of significance. All the correlation results are less than 0.70, there is no possibility of multicollinearity among the variables. It can be seen that the largest value occurs between ID & BM (0.524) and the smallest value between CSR with CEOD (−0.359), where the sign of these relations is significant at 1% level. The financial performance ROE is positively associated with most of the governance indicators, such as BS, ID, CEOD, and ACS. In addition, CSR positively correlates with major governance indicators such as BS, BM, BC, ID, and also with control variables. This suggests that firms with strong governance mechanisms enhance insurers' performance and social welfare. However, CSR also shows a positive correlation with ROE, indicating that insurers' financial performance is positively influenced by socially responsible activities and sustainability practices.

5.3 Collinearity statistics

To examine the presence of multicollinearity among the independent variables, we have applied correlation analysis and VIF (Variance Inflation Factor) statistical measures. Table 4 shows the VIF value and its tolerance limit of all governance indicators to know the multicollinearity status between the explanatory variables and accuracy for further processing the data. The setup limit of the VIF value is less than 10, and the tolerance limit (1/VIF) lies between 0 and 1. A high tolerance limit represents low multicollinearity. This standard limit is supplemented by existing literature (Hair *et al.*, 2013; Dey and Sharma, 2021). Hence, all the independent, control, and moderating variables satisfy this limit and prove that there was no multicollinearity problem in the dataset.

5.4 Diagnostic tests and model specification test

To finalize the regression estimator, i.e. OLS or GLS technique, we have employed certain diagnostic and model specification tests. The results are presented in Table 5. The OLS estimator is preferred when the panel data must be free from serial correlation and heteroskedasticity. For this purpose, we have applied the Wooldridge test and the Breusch–Pagan test, respectively.

As evident from the results of the Wooldridge test, the significance value is more than 5% level of significance. So we accept the null hypothesis, which means auto-correlation problem does not exist in the dataset. But in the Breusch-Pagan/Cook-Weisberg test for heteroscedasticity, the null hypothesis is rejected because the significance value is less than 0.05, and there is evidence of a heteroscedasticity problem. In other words, a regression model is free from serial correlation, but the presence of heteroscedasticity across the observations. Hence, these diagnostic tests do not fulfill both conditions of OLS estimators. Therefore, we will prefer GLS regression estimators. In the GLS estimator, the researcher must determine whether to employ fixed-effect estimators or random-effect estimators. For this ground Hausman Specification Test has been employed. Based on the Hausman test result in Table 5, we reject the null hypothesis ($p = 0.000$) and select the fixed effect estimator for our present study. Next, it is crucial to assess whether a simple fixed effect or a robust fixed effect will be employed. For this purpose, the Modified Wald test for heteroscedasticity is conducted in

Table 3. Correlation matrix

	BS	BM	BC	ID	CEOD	ACS	ROE	FA	FS	CSR
BS	1									
BM	0.208	1								
BC	0.452**	0.294*	1							
ID	0.248*	0.524**	0.07	1						
CEOD	−0.007	0.054	−0.154	0.017	1					
ACS	0.161	0.142	−0.159	0.248*	0.103	1				
ROE	0.046	−0.355**	−0.035	0.016	0.118	0.181	1			
FA	−0.264*	0.320**	0.056	0.206	−0.17	−0.138	−0.176	1		
FS	0.045	0.075	0.372**	−0.147	−0.095	−0.049	−0.324**	0.336**	1	
CSR	0.109	0.174	0.387**	0.016	−0.359**	−0.221	0.066	0.419**	0.031	1

Note(s): **Significant at the 0.01 level, * at the 0.05 level

Source(s): Authors

Table 4. Collinearity statistics

Variables	VIF	Tolerance (1/VIF)
BS	1.665	0.601
BM	1.699	0.589
BC	2.070	0.483
ID	1.730	0.578
CEOD	1.187	0.842
ACS	1.226	0.816
FA	2.255	0.443
FS	1.715	0.583
CSR	1.919	0.521

Source(s): Authors' compilation

Table 5. Diagnostic tests and model specification test

		ROE
Wooldridge test for autocorrelation	*F*- statistics	2.167
	Pro > F	0.194
	H0: There is no autocorrelation	
Breusch-Pagan/Cook-Weisberg test for heteroscedasticity	Chi-square	20.64
	Pro > chi^2	0.038**
	H0: Constant variance	
Hausman specification test	Chi-square	36.49
	Pro > chi^2	0.000**
	H0: RE is appropriate than FE	
Modified wald test for heteroscedasticity	Chi-square	314.74
	Pro > chi^2	0.000**
	H0: Heteroskedasticity does not exist	

Note(s): **Significant at 5%
Source(s): Authors' compilation

Table 5. The result of this test signifies rejecting the null hypothesis and mandating the use of a robust fixed effect estimator for regression analysis.

Table 6 shows the GLS fixed effect robust regression estimators with their moderator effects on outcomes. The *R*-squared value is 0.499, which means about 50% variation of dependent variables, i.e. ROE are explained by all independent variables, i.e. corporate governance indicators and CSR moderator. Due to the use of robust standard error in the fixed effect framework, the conventional *F*-test of joint significance is not reported. Because the robust standard error violates the assumption of the *F*-test in the long run. Hence, statistical inference relies on robust *t*-test values that are used for individual coefficients. Among all the independent variables, only CEOD has a positive and significant effect on ROE at 1% and 5% level of significance. As far as the moderating variable CSR has positively and the interaction variable (CSR*CEOD) has negatively influenced the financial performance ROE. We can say that CSR moderates the influence of the relationship between CEOD on ROE. In addition, the control variable firm size has a significant impact on the ROE of the sample companies.

6. Discussion

In this study, we discuss the influence of corporate governance on financial performance, i.e. ROE of public insurance companies, as well as the moderating effect of CSR. We found that

Table 6. Model summary (GLS fixed-effects robust regression)

ROE_w	Coef	St. err	*t*-value	*p*-value	[95% Conf	Interval]	Sig
BS	−3.591	3.229	−1.11	0.309	−11.492	4.31	
BM	−4.588	4.301	−1.07	0.327	−15.113	5.936	
BC	2.439	4.956	0.49	0.64	−9.689	14.567	
BIND	0.628	4.242	0.15	0.887	−9.753	11.008	
CEOD	4851.741	1255.718	3.86	0.008	1779.11	7924.373	***
ACS	9.923	11.211	0.89	0.41	−17.51	37.357	
CSR	681.645	151.773	4.49	0.004	310.269	1053.021	***
BSCSR	−0.885	0.66	−1.34	0.229	−2.499	0.73	
BMCSR	−1.012	0.823	−1.23	0.265	−3.026	1.003	
BCCSR	−4.671	2.712	−1.72	0.136	−11.308	1.966	
BINDCSR	1.092	1.739	0.63	0.553	−3.162	5.347	
CEODCSR	−637.148	165.938	−3.84	0.009	−1043.183	−231.114	***
ACSCSR	1.372	2.638	0.52	0.622	−5.083	7.827	
AGE	−198.982	103.179	−1.93	0.102	−451.453	53.488	
Size	103.326	16.52	6.25	0.001	62.901	143.75	***
Constant	−5225.186	1427.183	−3.66	0.011	−8717.377	−1732.994	**
Mean dependent var	11.364	SD dependent var	86.041				
R-squared	0.499	Number of obs	70				
F-test		Prob > F					
Akaike crit. (AIC)	715.825	Bayesian crit. (BIC)	729.316				

Note(s): ***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Source(s): Authors' compilation

ROE is significantly influenced by CEOD while other studied governance variables do not show significant effects. In other words, insurer financial performance is more affected by duality functions (when the CEO also serves as board chair) than by the formal governance structure. It signifies that the decision-making power in a single hand has incredible enhances the equity shareholders' returns in public insurance firms. Strong regulatory oversight in public insurance firms reduces the risk of unified leadership power and ensures strategic decision-making, better coordination, and effective monitoring programs to ultimately enhance equity holders' return. In addition, CEO duality sets a common goal as per managerial and board objectives, which can reduce the agency cost and generate a good rate of return to maximize profitability in the insurance industry. Further, moderator CSR has a significant positive effect on ROE. Insurance is a trustworthy business; better CSR engagement improves the firm's public image and credibility, reduces risk, and improves long-term profitability in insurance firms. This result shows that sustainability practices are the key indicator to enhance financial operations in the insurance context. However, CSR acts as a moderator to negatively influence the relationship between CEOD and ROE of sample companies. If the top managerial authority has engaged in CSR spending, that will constrain or offset its effectiveness in enhancing ROE. In other cases, CSR interactions with governance indicators such as BS, BM, BC, ID, and ACS fail to statistically attenuate their influence, which may be due to the enforcement of greater monitoring and control mechanisms rather than stakeholder value creation. Therefore, inappropriate CSR policies fail to moderate the influence of governance mechanisms on public insurer financial performance. However, the effect of firm size on ROE is particularly ambiguous due to strict regulatory capital requirements and the need to maintain solvency margins, which can dilute equity returns as firms grow. Subsequently, our result is also supported by the research work of Uyar *et al.* (2021), Lu *et al.* (2021), Hasan *et al.* (2025), Abiad *et al.* (2025) and Alharasis *et al.* (2026) in a similar context across the emerging economy of developed and underdeveloped nations.

7. Conclusion

This study tries to bring new insights and understanding regarding governance practices and their interaction with social responsibility for enhancing the financial operation of public sector insurance companies. The result reveals that the financial performance of sample insurance companies is not significantly influenced by the governance system; rather, their performance may depend upon other factors such as the volume of premium collection, claim settlement amount and investment decisions in diversified portfolios. The concentration of leadership through CEO duality has a significant impact on insurers' financial performance, as it enhances decision-making speed, strengthens strategic coherence, and reduces coordination costs. This implies that by enjoying the centralized power of decision-making, an individual can focus on sustainable viability for long-term return rather than short-term gains. Moreover, due to sustainability initiatives at the global level, CSR plays a crucial role in enhancing the long-term value of the entity by strengthening stakeholder trust and long-term competitiveness. The top-level authorities of public insurers should take strategic decisions in CSR activities, which simultaneously enhance the value of the entity and its stakeholders' interests. Furthermore, it is suggestive for regulators and policymakers enact a separation leadership structure with a visionary goal of sustainability initiatives, which may strengthen governance effectiveness and improve financial performance in the insurance context. Through a more stringent governance framework, socially responsible activities will indirectly help to manage uncertain risks, financial well-being, and achieve sustainability targets at the same time.

8. Policy recommendation

Corporate governance is a contemporary issue, and it requires continuous deliberations by various regulatory authorities. The policymakers and regulators should focus on sector-specific governance challenges in order to achieve the four pillars of governance principles - Accountability, Transparency, Responsibility, and Fairness at the global level. This study recommends a unique structure of governance framework in the insurance sector, unlike other corporate entities due to its risk perseverance, highly regulated, and capital-intensive industry. However, the findings lend support to stewardship theory in the public sector, suggesting that unified leadership may enhance the long-term value of the industry, where stability, reputation, and regulatory compliance are crucial. It contends that unified leadership can strengthen strategic unity, facilitate timely decision-making, and reduce agency risks by preventing excessive concentration of power. Moreover, a well-structured corporate governance structure with active fulfillment of social responsibility mitigates legal risk and ethical transformation of both state and non-state owned enterprises (Wang *et al*., 2025). Meanwhile, stakeholder theories are the emergence of a new thematic integration of governance mechanisms with CSR disclosure standards to optimize social legitimacy and meet the public trust through sustainable reassessment of unforeseen risk and losses appropriately. Unlike generic corporate governance frameworks, IRDAI's regulatory approach must intrinsically emphasize solvency margin requirements and the dynamic linkage between underwriting and investment decisions to ensure insurers' financial stability, curb excessive risk-taking, and safeguard policyholder obligations in the long run. Thus, this paper emphasizes the prominent integration of strategic operations with better compliance regulation in order to enhance financial performance and achieve a sustainable target in the insurance context.

9. Limitations and scope for further research

We have used a single financial performance indicator for analysis, which may produce inadequate results and lacks strong theoretical generalization. Adding more financial performance indicators can robustly produce more reliable results and remarkable conclusions in this literature. The study uses limited-period data, which restricts the generalizability of the results. A further longitudinal study is necessary. Besides, these governance variables can be used further as moderator to assess their impact on financial performance that interacts with sustainability practices. We also recommend further research work with the collaboration of two crucial terms, i.e. corporate governance and sustainability practices, to effectively handle uncertain corporate crises and climate-changing scenarios in the VUCA economy.

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