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Does Governance compliance score impact firm performance: Evidence from Public sector of global south economy?

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Abstract

Present study analyzed the compliance level of corporate governance (CG) guidelines issued by Department of Public Enterprises in 2010 and its relationship with various performance indicators for the period of ten years using regression analysis. Board structure, ownership structure and audit committee characteristics were considered as CG attributes. Compliance level was measured by corporate governance index (CGI) that was based on five sub-indices covering various dimensions of corporate governance such as board structure, ownership composition, directors, reporting and reporting reliability. Results of the study stated that sampled companies adhere to 86.18 per cent of variables mentioned in CGI. Companies showed highest compliance for disclosure reliability and least compliance for board structure variables. Regression estimates reveal that governance compliance score has a positive relation with return on assets (ROA) and sales growth, however negative relation with return on capital employed (ROCE) and market capitalization. Results of the present study assist shareholders, law makers and management in analyzing and appraising existing framework of governance in regulation and its sound implementations by corporations.

Keywords: Governance compliance score, ROA, ROCE, sales growth, market capitalization, board structure, ownership structure, audit committee, Central Public Sector Enterprises (CPSEs)

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1. Introduction

Corporate governance has emerged as a controlling mechanism in response to the high profile financial scandals that occurs across the world such as Enron, WorldCom, Adelphia in US, Bank of Credit and Commerce International, Maxwell group, Polly Peck, Barings Bank in UK, HIH Insurance in Australia and Parmalat in Italy (Toms, 2019; Raithatha and Bapat, 2012). Financial crises drawn attention to the significance of good corporate governance practices and structures. It identifies from the previous studies that compliance of corporate governance practices result in improving firm performance and long term sustainability (Bhatt and Bhatt, 2017; Singh and Kansil, 2017; Kahveci and Wolfs, 2019). In developed countries, various studies have been conducted to establish relationship between corporate governance and firm performance. However, in India, moderate researches have been conducted that identified the influence of various corporate governance practices on firm performance (Arora and Bodhanwala, 2018; Kandukuri, Memdani and Babu, 2015; Raithatha and Bapat, 2012; Singh and Kansil, 2017; Garg, 2007; Kaur and Vij, 2018). Corporate governance has become norm in India with the adoption of Clause 49 of the listing agreement by SEBI for all listed companies.

Corporate governance has been identified as “the system of checks and balances, both internal and external to companies, which ensures that companies discharge their accountability to all their stakeholders and act in a socially responsible way in all areas of their business activity” (Solomon, 2010). Corporate governance mechanism is an instrument that shareholders exercise in order to direct the actions of professional managers towards maximizing formers’ wealth. Board of directors are representative of shareholders and achieve this endeavour by reducing agency cost. Managers’ gain private profits and face agency problems in case organisation has weak governance structure. As per agency theory, directors are characterised as someone who work in their self-interest and not to be careful with peoples’ money. According to agency theory, corporate governance main function is to provide assurance to shareholders that managers are working in former interests. Another theory, such as, stewardship theory assumes that managers are in role of stewards of company assets who want to do a good job. Here, managers and owners interest are aligned, therefore, managers maximizes shareholders’ wealth via enhancing firm performance. Stakeholder theory view various stakeholders as a mean for achieving firm performance and firm must ensure that interest of stakeholders are in balance. According to resource dependency theory, directors holding directorship of other organisation are viewed as resources, as they establish social and business networks through which one can access information that can be utilised for the benefit of firm. Here, disposal of information with a firm indicates its strength (Hillman, Withers and Collins 2014).

In order to expand the understanding on corporate governance, this study focused on examining the compliance level of corporate governance guidelines for a sample of 21 Indian Public Sector Enterprises for the period of ten years i.e. 2009-10 to 2018-19. The study attempts to testify the different theoretical and empirical aspects, establishing relationship between corporate governance parameters and corporate governance compliance level. The paper has been organised in the following section- Section 1 provided an introduction to the concept, Section 2 reviews the literature on the relationship between corporate governance and business performance, Section 3 outlines the research methodology of the study, Section 4 discusses the results and Section 5 presents the conclusion of the study.

2. Review of Literature

The literature propounded that number of studies have been conducted testing corporate governance parameters individually and as an index. Further, studies have tested their relationship with firm performance in developed and developing countries.

Many studies have developed corporate governance index on the basis of questionnaire or considering several parameters of corporate governance and found mixed results. Peni & Vähämaa (2012) used previously developed CGI and found that during crisis, effective governance system was rewarding companies with high profitability but low market return. But, after crisis, good governance system led to high market return for 62 banks in US Siagian, Siregar, & Rahadian (2013) developed a CGI using CG checklists from OECD principles, IICD (Indonesian Institute for Corporate Director), Standard & Poor's and National University of Singapore and revealed that adherence to corporate governance lead to enhanced firm value in Singapore. Achim, Borlea, & Mare (2016) stated that CGI quality has positive relation with Market value for 76 listed companies of Romania. Here, corporate governance index was developed on the basis of variables such as investor relations, governance structure, disclosure, board and management and CSR. Bhatt & Bhatt (2017) found a favourable relation of CGI and performance for 113 companies of Malaysia. Here, CGI was developed on the basis of board characterises. Shahwan & Fathalla (2020) studied 81 companies of Egypt and found that CG score has significant favourable influence on firm performance. Pintea, Pop, Gavriletea, & Sechel (2021) found significant influence of CGI on Tobin's Q, however, no significant relation of CGI was found on return on equity (ROE), economic value added(EVA) and total shareholder return.

Some studies have reported contrasting results such as Mazzotta & Veltri (2014) constructed a CGI based on board characteristics such as board size, board independence, internal committees and board committees' independence and found that CGI inversely related with equity capital cost. Ararat, Black, & Yurtoglu (2017) studied all listed companies and found that CGI has positively influence firm market value and profitability. Mehrabanpour & Chimeh (2018) studied the relation of CGI with capital cost and systematic risk and found negative relation with former and positive relation with latter for 235 listed companies of Iran.

Some studies have found no relation between CGI and firm performance. Akbar, Poletti-Hughes, El-Faitouri, & Shah (2016) investigated the compliance of corporate governance and its impact on performance for 435 companies listed on London Stock Exchange and found that regulations compliance didn't explain any variation in corporate performance. Mardnly, Mouselli, & Abdulraouf (2018) examined 96 firm year observation from Syria and revealed that overall governance index doesn't significantly explain variation in performance measures, however, one of the sub-indexes, such as ownership structure significantly explain the firm performance. Using data envelopment analysis (DEA) and multiple regression analysis, Kahveci & Wolfs (2019) found there was no relation between corporate rating score and performance for 45 Turkish companies. Furthermore, Al-ahdal, Alsamhi, Tabash, & Farhan (2020) found that board accountability didn't explain any variation in ROE and Tobin's Q and also, audit committee index. Transparency index has inverse relationship with firm performance for 106 companies of India and GCC countries.

Researchers have conducted studies to examine the relation of governance index and various other measures such as, using a sample of 268 companies of UK listed on FTSE-350 index, Mathew, Ibrahim, & Archbold (2017) developed a governance index considering variables related to board such as composition, leadership structure, member's characteristics and process. It revealed from the study that governance index has unfavourable relation with firm risk. Using 21 proxies concerning disclosure, board and ownership structure a CGI was built for textile sector companies of Pakistan, Javaid (2015) propounded that good governance companies have better access to finance compared to poor governance companies. Younas, UdDin, Awan, & Khan (2021) studied 152 non-financial companies of Pakistan for the period 2003-2017 and found that the firm adopting good corporate governance practices reduced their risk of financial distress.

Moreover, various studies have examined the compliance level/score. A study by Hassan (2012) identified that 95 listed companies of UAE disclosed highest information regarding transparency and board structure, however, least information related to auditing in their financial reports. Also, Akinkoye & Olasanmi (2014) studied compliance level of 100 Nigerian companies and concluded that sampled companies complied with average 72.15 per cent of regulations suggested by combined board of CAC and SEC in 2003. CGI was constructed on the basis of annual survey conducted by Korent, Đunđek, & Čalopa(2014) and reported significant relation of CGI with Tobin's Q. Also, Al-Malkawi, Pillai, & Bhatti (2014) stated that companies listed on UAE stock exchange adhere to 69 per cent of corporate governance guidelines for GCC countries companies, especially, compliance related to internal mechanism.

In India, Raithatha & Bapat (2012) found corporate governance compliance score of top 30 companies as satisfactory, however, no relation of compliance score with firm attributes. Kandukuri, Memdani, & Babu (2015) studied 94 mid-cap companies and found significant influence of firm value with corporate governance measured by disclosure index. Presenting similar views, Singh & Kansil (2017) developed a governance score based on Bloomberg ESG score to examine the relationship of foreign shareholding with CG using a set of 201 listed companies. It identified from the study that there was no association between CG and foreign shareholding, in case foreign shareholding has controlling stake, and however, there was impact of CG and foreign shareholding, in case foreign shareholding has no controlling stake. Similarly, Arora & Bodhanwala (2018) documented favourable influence of CGI on financial performance using index that constructed on internal and external measures such as board and ownership structure, external ownership and market competition. The study used a sample of 407 companies and conducted analysis using multivariate regression analysis. Kaur & Vij (2018) identified that higher CGI score enhances firm values significantly and study developed CGI considering 66 attributes of governance via questionnaire method. Al-ahdal, Alsamhi, Tabash, & Farhan (2020) conducted a comparative analysis of corporate governance practices of India and GCC companies. CGI was built on the practices suggested by GCC code of CG and Clause 49 of SEBI. It identified from the analyses that board accountability has no strong effect on performance and similarly of audit committee index. Also, transparency index has unfavourable influence on performance. In terms of CG practices compliance, companies belonging to GCC and India have significant difference. In a more comprehensive study, Mishra, Jain, & Manogna (2021) examined a wide dataset of 500 companies to identify the link of CGI with corporate performance via developing CGI based on various characteristics of board, ownership, directors, external control and market competition. Findings showed that CGI has favourable influence on ROA and RONW, however, unfavourable influence on market return.

Present study made an attempt to fill the gap and expand the existing literature by adding influence of governance compliance score on business performance especially in Central Public Sector Enterprises (CPSEs) in India.

3. Objective of the study

Present study aims to develop corporate governance index based on the guidelines issued by DPE, 2010 and their compliance by Maharatna and Navratna status companies during the period of 10 years. The paper also studies the relationship of governance compliance score and firm performance.

4. Research methodology

Present study conducted a detailed analysis of corporate governance compliance level for Maharatna and Navratna status Central Public Sector Enterprises (CPSEs) of India since the introduction of guidelines by Department of Public Enterprises (DPE) for the period of ten year period, i.e. from 2009-10 to 2018-19. Secondary data is exclusively used in the present study and collected from annual reports, corporate governance reports, websites of respective companies and PROWESS. Initially sample consist of 24 companies, 8 Maharatnas and 16 Navratnas but due to non-availability of governance information 3 companies were dropped and final sample consists of 21 companies.

In order to analyse the relation of various performance parameters with governance compliance score(Arora and Bodhanwala 2018, Javaid 2015), return on assets (ROA)(Mishra, Jain and Manogna 2021), return on capital employed (ROCE), sales growth and market capitalization were used as independent variables. Along with this, firm size, firm age and leverage were used as control variables (Akinkoye and Olasanmi 2014, Hassan 2012, Kaur and Vij 2018).

4.1. Governance compliance score

To identify the abidance status of governance practices by the sampled companies, corporate governance compliance score was calculated. Variables of governance are grounded on the Guidelines of Department of Public Enterprises on Corporate Governance issued in 2010. Governance compliance score consisted of five sub-indices such as board arrangement, committees, directors, reporting and reporting reliability. Dichotomous method has been adopted to construct the score. Assigned score '1' if the required variable is disclosed or '0' otherwise. The compliance score is determined by summing the scores of all variables, dividing by the total number of applicable variables for each company, and multiplying the result by 100.

$$CS_j = \frac{\sum_{i=1} X_i}{R_j} * 100 \qquad (1)$$

4.2. Model specification

The study examines the following model:

$$Performance_{it} = \propto + \beta_1 Governance\ Compliance\ score_{it} + \beta_2 Firm\ age_{it} + \beta_3 Firm\ size_{it} + \beta_4 Leverage_{it} + \varepsilon_{it} \quad (2)$$

Here, $\propto$ = intercept

$\beta_1, \beta_2, \beta_3, \beta_4$ = Slope coefficients

i = firm, t = time

ε_{it} = error term for firm i in the year t.

4.3. Data Analysis

Present study conducts a detailed analysis of the compliance of the 21 companies' in respect of board structure, directors, committees, disclosure and disclosure reliability is conducted.

4.3.1. Compliance Level for Board Structure

Board is the highest body that make strategic decisions and perform the functions of monitoring and advising. The board primarily consists of executive and non-executive directors. The need for an effective board has emerged in response to successive corporate scandals worldwide. According to SEBI and DPE guidelines, at least 50% of the board members should be non-executive directors. Additionally, the guidelines stipulate that the board must convene a minimum of four times per year to carry out its functions efficiently.

Table 1 depicts the level of compliance for board structure variables of corporate governance. Board of 20 companies was chaired by executive director and from 2014 onwards all sampled companies board was held by executive director. Government appoint its representative on the board of PSUs and guideline requires it to be maximum 2 nominee directors. During the period under study, all the sampled companies have complied with the requirement. Similarly, 100 per cent companies have followed with the obligation of having at least four board meeting during the year and for code of conduct. In 2010, number of companies that have familiarization programme for its new directors was 11, which was increase to 21 in 2019.

4.3.2. Compliance Level for Committees

Corporate Governance guidelines have mandated the constitution of board committees for all companies. They are audit committee, remuneration committee and stakeholders committee and for their effective functioning, they should be comprised of expert as well as independent directors. Audit committee ensures that there is information symmetry and quality financial information is being provided to various stakeholders. Remuneration committee requires presence of outside directors on committee to avoid benefitting directors over shareholders interest. Shareholders committee is constituted to resolve various security holders' grievances.

Table 2 presents the abidance level for 'Committees' variable of corporate governance for audit, remuneration and shareholders committee regarding the number of meetings, composition of committees, chairman as independent director, etc. According to the table, all 21 companies in the sample maintain an audit committee during the period under study, except for 2016, in that one company didn't have audit committee. All companies have satisfied the requirement of holding at least four meeting of audit committee except for one sampled company in 2016 and 2019. As per the SEBI listing agreement, formation of remuneration committee is non-mandatory requirement while every CPSEs are required to form the committee as per DPE guidelines. In 2010, remuneration committee was setup by 14 companies and which increased to 21 in 2019. Similarly, remuneration committee of 14 companies was headed by independent director in 2010 and the same was increased to 21 companies in 2019.

4.3.3. Compliance Level for Senior Management

Guidelines requires that information regarding remuneration and other financial benefits, their shareholding, stock option issued, qualification, relations and involvement in firm committees are need to be disclosed of directors whether being executive or non-executive.

Table 1: Compliance and Non-Compliance for Board Structure Variables

Board structure	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
Executive or NON executive director as chairman	1	20	1	20	1	20	1	20	0	21	0	21	0	21	0	21	0	21	0	21
% of Non-Executive Directors on board	19	2	21	0	21	0	18	3	18	3	7	14	13	8	15	6	20	1	20	1
Nominee Directors on board	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
At least 4 board meetings	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Membership of more than 10 committees.	20	1	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Chairmanship of more than 5 committees.	20	1	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Familiarization programme for board member	11	10	12	9	12	9	15	6	14	7	17	4	19	2	19	2	21	0	21	0
Code of conduct for directors and senior management	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0

Source: Authors' compilation. Note: A = adherence, depicts the number of companies that have complied with the guidelines on specific variable and NA = non-adherence, depicts the number of companies that have not complied.

Table 2: Compliance and Non-Compliance for Committees Variable

Committees	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
Audit Committee																				
Exists	21	0	21	0	21	0	21	0	21	0	21	0	20	1	21	0	21	0	21	0
Chairman is Independent Director.	21	0	21	0	21	0	21	0	21	0	19	2	19	2	20	1	21	0	21	0
Two-third of its members as Independent Directors.	21	0	21	0	21	0	20	1	19	2	16	5	17	4	19	2	21	0	20	1
Holds at least 4 meetings	21	0	21	0	21	0	21	0	21	0	21	0	20	1	21	0	21	0	20	1
Presence of invitees for the meetings	15	6	16	5	16	5	16	5	16	5	17	4	17	4	17	4	16	5	14	7
Company secretary acts as the secretary to the committee	18	3	18	3	19	2	19	2	19	2	19	2	18	3	18	3	18	3	18	3
Committee chairman was present in the last AGM.	8	13	8	13	8	13	8	13	8	13	6	15	3	18	3	18	4	17	4	17
Committee includes someone with accounting or finance expertise.	12	9	14	7	14	7	14	7	13	8	12	9	15	6	15	6	16	5	18	3
Remuneration Committee																				
Exists	14	7	17	4	21	0	21	0	21	0	21	0	20	1	21	0	21	0	21	0
Chairman is Independent Director.	14	7	17	4	21	0	20	1	20	1	17	4	19	2	19	2	21	0	21	0
Committee composed of NEDs	5	16	13	8	17	4	17	4	17	4	15	6	16	5	14	7	16	5	15	6
Committee holds meetings	11	10	14	7	15	6	16	5	14	7	19	2	18	3	19	2	19	2	20	1
Shareholders Committee																				
Exists	20	1	21	0	21	0	21	0	21	0	21	0	20	1	21	0	21	0	21	0
Chairman is Independent Director.	19	2	20	1	20	1	20	1	20	1	20	1	19	2	20	1	20	1	21	0
Committee hold meeting	13	8	13	8	16	5	17	4	16	5	20	1	19	2	18	3	19	2	19	2
Compliance officer	20	1	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0

Source: Authors' compilation. Note: A = adherence, depicts the number of companies that have complied with the guidelines on specific variable and NA = non-adherence, depicts the number of companies that have not complied.

Table 3: Compliance and Non-Compliance for Senior Management

Disclosure regarding directors	2010		2011		2012		2013		2014		2015		2016		2017		2018		2019	
	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA	A	NA
Directors' attendance in the last AGM.	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Directors' remuneration	19	2	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Non-executive Directors' fee	17	4	18	3	19	2	18	3	18	3	20	1	20	1	20	1	20	1	20	1
Pecuniary relationship or transactions of NEDs	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Shareholding of NEDs	17	4	18	3	18	3	18	3	18	3	21	0	21	0	21	0	21	0	21	0
Board composition with details of committees, name, qualifications, number of directorship held in companies, etc.	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Directors' details	6	15	9	12	10	11	12	9	12	9	13	8	12	9	12	9	11	10	11	10
Details of directors' seeking appointment/re-appointment.	17	4	18	3	18	3	17	4	16	5	16	5	15	6	13	8	14	7	14	7
Relationship between directors	9	12	9	12	9	12	10	11	10	11	10	11	14	7	15	6	15	6	21	0
Details of stock options issued to directors.	13	8	13	8	13	8	14	7	14	7	21	0	21	0	21	0	21	0	21	0

Source: Authors' compilation. Note: A = adherence, depicts the number of companies that have complied with the guidelines on specific variable and NA = non-adherence, depicts the number of companies that have not complied.

Table 3 presents the abidance level for the 'Disclosure regarding directors' variable. It is evident from the table that all sampled companies disclosed directors' attendance at the last AGM and the pecuniary relationships of non-executive directors in their annual reports. Additionally, the companies reported directors' remuneration and fees paid to non-executive directors. The table also shows that companies provided information on board composition, number of directorships, and other relevant details regarding directors in their annual reports. In 2010, 9 companies disclosed the details of relationship between the directors, which was increase to 21 companies in 2019.

4.3.4. Compliance Level concerning Disclosure

Corporate Governance Guidelines requires disclosure concerning various matters such as related party transactions, Annual General Meeting details and resolution passed, penalties imposed, code of conduct, expenses incurred for directors and top management that were of personal nature, subsidiary company information, whistle blower policy, risk management policies, status of shareholders complaints, compliance of mandatory and non-mandatory requirement, company's philosophy, etc.

The information regarding the compliance of corporate governance guidelines issued by DPE and SEBI concerning 'reporting' variable has been presented in the analytical Table 4.All the sampled companies reported the quarterly financial statements and annual reports on the company's website, information in respect of annual general meetings (AGMs) held during the previous three years, about subsidiary companies, accounting policies and standard followed by company while preparing financial statements in their annual reports. It also identified that maximum businesses have disclosed the related party transactions, information regarding current AGM, special resolution passed in preceding three AGMs and general shareholders information. Further, reported the company's philosophy on corporate governance, information about penalties imposed on company, number of shareholders complaints received, resolved and pending during the year and details regarding compliance of compulsory and non-compulsory provisions of SEBI during the year in their annual report.

Table 4: Compliance and Non-Compliance for Reporting Variables

Reporting: others	**2010**		**2011**		**2012**		**2013**		**2014**		**2015**		**2016**		**2017**		**2018**		**2019**	
	A	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**
Company's philosophy on code of governance.	19	2	19	2	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Quarterly financial statements on website.	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Corporate governance report on website.	4	17	5	16	7	14	7	14	7	14	9	12	9	12	9	12	10	11	9	12
Annual reports on website.	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Non-compliance by the company and penalties imposed by statutory authority	19	2	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Presidential directives	10	11	15	6	16	5	18	3	19	2	19	2	17	4	17	4	18	3	19	2
Details of administrative and office expenses	5	16	9	12	11	10	12	9	12	9	13	8	13	8	12	9	13	8	13	8
Expenditure debited in books of accounts, which are not for the purposes of the business	6	15	10	11	13	8	14	7	14	7	14	7	14	7	14	7	14	7	14	7
Expenses of personal nature incurred for the BODs and top management	6	15	10	11	13	8	14	7	14	7	14	7	14	7	14	7	14	7	14	7
Related party transactions	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Code of conduct on website	18	3	18	3	18	3	19	2	19	2	19	2	20	1	20	1	20	1	20	1
Details of the current AGM.	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Details of the AGMs held in last three years.	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Accounting standard and accounting policies	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Passed special resolution details in the previous three AGMs.	20	1	20	1	20	1	20	1	20	1	21	0	21	0	21	0	21	0	21	0
Management Discussion & Analysis	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Risk management policies and process	13	8	16	5	19	2	19	2	19	2	20	1	21	0	21	0	21	0	21	0
Shareholders complaints received, resolved and pending during the year	19	2	19	2	19	2	19	2	20	1	21	0	21	0	21	0	21	0	21	0

Whistle Blowing Policy	8	13	10	11	15	6	15	6	16	5	20	1	21	0	21	0	21	0	21	0
Compliance with mandatory and non-mandatory requirements	19	2	19	2	19	2	18	3	18	3	20	1	20	1	19	2	19	2	21	0
Subsidiary company.	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
General shareholders information	20	1	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0

Source: Authors' compilation. Note: A = adherence, depicts the number of companies that have complied with the guidelines on specific variable and NA = non-adherence, depicts the number of companies that have not complied.

Table 5: Compliance and Non-Compliance for Reporting Reliability Variables

Reporting reliability	**2010**		**2011**		**2012**		**2013**		**2014**		**2015**		**2016**		**2017**		**2018**		**2019**	
	A	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**	**A**	**NA**
CEO/CFO certification	15	6	16	5	18	3	18	3	18	3	19	2	19	2	20	1	19	2	20	1
Compliance of Corporate Governance	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Declaration for compliance of code of business conduct and ethics	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0
Certificate of Comptroller and Auditor General of India	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0	21	0

Source: Authors' compilation. Note: A = adherencedepicts the number of companies that have complied with the guidelines on specific variable and NA = non-adherence depicts the number of companies that have not complied.

4.3.5. Compliance for Reporting Reliability

Companies are required to provide certain certificates and declaration from the competent authority concerning various compliances. In CEO/CFO certificate concerned authority ensures that all financial information provides true and fair view of company's affairs. Company obtain a certificate from auditor or practicing company secretary concerning their abidance with governance conditions. Here, Chairman & Managing Director ensures that company complied with code of business conduct and ethics in performing business affairs. Being government organisation, every company is required to obtain comments from Comptroller and Auditor General on their financial statements.

Table 5 presents the compliance levels for the 'reporting reliability' variable. The table shows that all sampled companies disclosed the auditor's certificate on corporate governance compliance, declarations by directors and senior management regarding adherence to the code of conduct, and the certificate from the Comptroller and Auditor General.

Table 6: Year-wise Value of Governance compliance score (Maximum=100)

Variables/Years	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Avg.
Board structure	79.17	81.55	81.55	81.55	80.36	76.79	81.55	82.74	86.9	86.9	81.9
Committees	75.3	81.85	86.9	86.9	85.42	84.82	83.63	85.42	88.1	87.8	84.61
Directors	76.19	80	80.95	81.9	81.43	88.1	89.05	88.57	88.57	91.43	84.62
Disclosure	75.97	82.03	86.36	87.45	88.1	91.13	91.34	90.91	91.56	91.99	87.68
Disclosure reliability	92.86	94.05	96.43	96.43	96.43	97.62	97.62	98.81	97.62	98.81	96.67
Compliance score	77.38	82.38	85.63	86.19	85.79	87.46	88.02	88.49	89.92	90.56	86.18

Source: Authors' compilation

Table 6 depicts the year-wise and variable-wise governance compliance score for all sampled companies. Over the period, the compliance score improved for all variables, as the companies increased their compliance. In 2010, the overall compliance score was 77.38 per cent and enhanced to 90.56 per cent in 2019 with average score of 86.18 per cent.

5. Descriptive Statistics

Table 7 depicts the descriptive statistics of the data. It provides the initial description of the observation of the study. It is revealed from the statistics that all sampled companies' governance disclosure score range from 54 to 98.3 per cent with the mean value of 86 per cent. The average value of ROCE and ROA, as accounting measure is 12 and 8.27, respectively. The average value of sales growth, as operating measure is 8.04 and market capitalization, as market measure is 26.2. Finally, regarding control variables, companies' average leverage is 0.26, average firm size is 10.7 and average firm age is 3.76.

Table 7: Summary Statistics

Variable	Mean	Median	Standard Deviation	Minimum	Maximum
Governance compliance score	86	88.3	8.51	54	98.3
ROCE	12	9.43	15.6	-54.1	85.5
ROA	8.27	6.09	14.9	-23.1	136
Sales Growth	8.04	8.44	17.1	-56.6	95.2
Market Capitalization	26.2	26.4	2.31	0	28.9
Firm age	3.76	3.81	0.312	3.04	4.23
Firm size	10.7	10.8	1.17	7.95	12.8
Leverage	0.26	0.203	0.233	0	0.876

Source: Authors' compilation

5.1. Correlation Analysis

Table 8 presents the correlation matrix among the variables. In particular, the results show a positive association between governance compliance score and performance variables. According to Kennedy (2003), correlations above 0.8 typically indicate the presence of multicollinearity. Since the highest observed correlation is 0.62, the relationships among the independent variables remain below this critical level. Hence, the results provide no indication of multicollinearity in the dataset.

Table 8: Correlation Analysis

Governance compliance score	ROCE	ROA	Sales growth	Market capitalization	Firm age	Firm size	Leverage	
1	0.0842	0.0581	0.0975	0.311	0.2613	0.2222	0.0453	Governance compliance score
	1	0.7152	0.183	0.2094	0.1532	-0.1722	-0.4291	ROCE
		1	0.0452	0.1647	0.0717	-0.1941	-0.3284	ROA
			1	-0.0243	-0.1016	0.078	0.0752	Salesgrowth
				1	0.0502	0.4167	0.0189	Market Capitalization
					1	-0.0052	-0.3207	Firm age
						1	0.525	Firm size
							1	Leverage

Source: Authors' compilation

5.2. Appropriate Method of Regression

Poolability test was applied to identify whether the data is poolable or not. The null hypothesis for the test for all groups shall have a common intercept. The outcomes of the tests are depicted through analytical Table 9. The results of the test (p-value) were found to be significant for ROCE, ROA and market capitalization model implying that null hypothesis were rejected or data were not poolable. However, for sales growth model, the p-value of the test was insignificant and therefore, null hypothesis were not rejected and pooled OLS was applied.

Table 9: Poolability Test

Variables	**Test statistic: F**	**P-value**	**Null hypothesis**	**Conclusion**
ROCE	13.6456	8.65E-27	The groups have a common intercept	Data is not poolable
Market capitalization	31.7063	1.02E-47	The groups have a common intercept	Data is not poolable
ROA	9.27179	6.11E-19	The groups have a common intercept	Data is not poolable
Sales growth	1.1426	0.310136	The groups have a common intercept	Data is poolable

Source: Authors' compilation

To identify the individual and time effect in the models, Pesaran CD test and Wald joint test, respectively, were executed. Table 10 outlines the results of the tests. For ROCE model, the Pesaran CD test p-value was found to be significant while Wald joint test p-value was insignificant implying that there was individual effect and not a time effect in the model. For market capitalization model, the Pesaran CD test and Wald joint test p-value were significant implying that there was individual and time effect in the model. For

ROA model, Pesaran CD and Wald joint test p-value were insignificant implying that there was neither individual nor time effect. Therefore, pooled OLS was applied for ROA model.

Table 10: Test for Individual and Time Effect

Variables	Pesaran CD test		Wald joint test		Conclusion
	Test statistic	P-value	Test statistic	P-value	
ROCE	6.17833	6.48E-10	7.99591	0.534559	There is individual but no time effect
Market capitalization	6.07458	1.24E-09	27.4845	0.001163	There is individual and time effect
ROA	0.553058	0.580224	7.05685	0.6312	There is no individual and time effect
Sales growth	N.A	-	N.A	-	

Source: Authors' compilation

Presence of the individual and time effect in ROCE and market capitalization model further requires the study to check whether the Fixed Effect Model is appropriate for the estimation of the equations or the Random Effect Model. Hausman test was conducted to choose the appropriate model under the null hypothesis that REM is appropriate. Test results were presented in the Table 11. The p-value of the test for ROCE and market capitalization model was significant implying that FEM is appropriate. Therefore, Fixed Time Effect Model was applied to ROCE and market capitalization model.

Table 11: Hausman Test

Variables	Test statistic: Chi-square	P-value	Null hypothesis	Conclusion
ROCE	26.246	0.0355149	GLS estimates are consistent	FEM is appropriate
Market capitalization	37.3703	5.05E-07	GLS estimates are consistent	FEM is appropriate
ROA	N.A	-		-
Sales growth	N.A	-		-

Source: Authors' compilation

5.3. Regression Analysis

Based on the above analysis, four models have been estimated. These are:

- Model 1 (ROCE model) – Fixed Effect Regression Model
- Model 2 (Market capitalization model) – Two-way Fixed Effect Regression Model

- Model 3 (ROA model) – Pooled OLS Regression
- Model 4 (Sales growth model) – Pooled OLS Regression

Regression results reveal that governance compliance score negatively impacts ROCE at a 1 per cent level of statistical significance and has a regression coefficient of 4.6. The whole regression model is well fitted as the p-value of the F-test is significant at 0.00000. Moreover, the R-square value of 0.701 shows that the proposed model explains 70 per cent of the variation in ROCE. Leverage and firm age also play a significant negative and positive role, respectively, in improving ROCE but their impact has been controlled for in the regression model of this study. The control variables like firm size has negative impact on ROCE, Next, market capitalization is also found to be significantly adverse relation with compliance score at the 1 per cent level of significance. Firm size and firm age is found to be positively related with market capitalization. Furthermore, control variables like leverage is negatively related with market measure. The market performance improves in case leverage declines. Several time dummies (dt) are significant and indicating that time-specific or macroeconomic factors influence market capitalization beyond firm characteristics. The conclusions align with the views of Arora and Bodhanwala (2018), Bhatt and Bhatt (2017), Kaur and Vij (2018), Mishra, Jain and Manogna (2021), Pintea, et al. (2021), and Raithatha and Bapat (2012).

Table 12: Regression Analysis

	ROCE (Fixed effect)	Market capitalization (Fixed effect)	ROA (Pooled regression)	Sales growth (Pooled regression)
	t-ratio	*t-ratio*	*t-ratio*	*t-ratio*
constant	−1.257	2.471**	0.982	−0.07373
Governance compliance score	−3.851***	−53.49***	0.5799	2.566**
Firm age	1.855*	1.468	−0.8926	−1.725*
Firm size	−1.028	2.469**	−0.4397	0.5292
Leverage	−2.820***	−2.558**	−4.151***	0.1324
dt_2		0.09838		
dt_3		−2.077**		
dt_4		−2.840***		
dt_5		−2.693***		
dt_6		−1.578		
dt_7		−2.378**		
dt_8		−0.9087		
dt_9		−1.664*		
dt_10		−2.116**		
LSDV R-squared	0.70163	0.968374	0.130203	0.057386
Within R-squared	0.117857	0.953863	0.104494	0.034169
LSDV F(34, 175)	16.55127	157.6022	5.064613	2.471732
P-value(F)	2.13E-35	8.30E-114	0.000073	0.033641

Source: Authors' compilation

Furthermore, on the contrary, ROA and sales growth have positive association with governance compliance score, though, the association is notable for latter. Firm size, firm age and leverage have negative relation with ROA, while its relation is significant in case of leverage (Shahwan and Fathalla, 2020; Hassan, 2012). On the other hand, sales growth has negative and significant relation with firm age but positive with firm size and leverage.

6. Conclusion

Present study explores the implication of governance compliance on business performance for a sample of Central public sector enterprises having Navratna and Maharatna status for the years from 2009-10 to 2018-19. Board structure, ownership structure and audit committee characteristics were considered as CG attributes. Compliance level was measured by CGI that was based on five sub-indices covering various elements of corporate governance such as board structure, ownership composition, directors, reporting and reporting reliability. Results of the study stated that sampled companies adhere to 86.18 per cent of variables mentioned in CGI. Companies showed highest compliance for disclosure reliability and least compliance for board structure variables. Regression estimates reveals that governance compliance score has a positive relation with ROA and sales growth, however negative relation with ROCE and market capitalization. Results of the present study assist shareholders, law makers and management in analyzing and appraising existing framework of governance in regulation and its sound implementations by corporations.

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