

Corporate Governance and Firm Performance: A Comparative Study of Indian Public Sector and Private Sector Companies

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Abstract

This paper seeks to make a comparison between Indian public sector companies and private sector companies regarding the relationship between corporate governance and firm performance. The study has been taken over the period 2008 to 2014 and the sample includes 119 companies from 200 companies of BSE Dollex of Bombay Stock Exchange. The study used panel data regression analysis and found private sector companies show significant relationship of corporate governance with return on equity and return on assets while public sector companies show non- significant relationship.

Keywords: Public sector, Private sector, Firm Performance, Corporate Governance

Introduction

The term 'Corporate Governance' finds its genesis in the private sector and conceptions have focussed on relationship of corporation and shareholders. However, definitions of corporate governance place attention on a broader way. It includes the regulatory mechanism and roles and responsibilities among management, board of directors, shareholders and stakeholders. Increasingly, the concept corporate governance is used in the public sector as well as private sector. While there are some similarities between these two sectors in governance terms, there are also significant differences that shape the way Governments departments, authorities, corporations and Government business enterprise are organised and governed (Edwards and Clough, 2005).

There is a stronger focus on stakeholders' interests in public sector than private sector as Government has the other responsibilities also than profitability. Public sector can learn from private sector practices and can gain from the factors which are critical for firm performance. Both sectors have some common governance principles. The legal and organizational forms of public sector companies vary from country to country (Allen and Vani, 2013). Public enterprises, state enterprises, Government owned corporations are legal entities "created by Government to undertake commercial activities on behalf of Government" (Boundless, 2013). These entities are either wholly or through majority shareholding owned by public authority (Basu, 2009). Private firms are

distinguished from public enterprises on the basis of revenue generations (Allen and Vani, 2013).

The paper is organized as follows: In the next section, the study covers literature review and hypothesis development on corporate governance and firm performance. In Section 3, research methodology has been explained. Data analysis and interpretation are given in Section 4. The last section presents the conclusions and managerial implications.

Literature Review and Hypothesis Development

This section presents the literature on differences between public sector companies and private sector companies.

Public enterprises have the effect of their magnitude and strategic positions in the market such as bank credits, borrowing abroad and the balance of payments (IMF, 2014). Public enterprises may have diverse legal and corporate forms (Basu, 2009). Unless the enterprise is not owned by Government, there may be multiple owners such as individuals, financial institutions and foreign institutional investors. Such ownership will become complex and many different interests come together (Thynne, 1998). Public enterprises may suffer from politically motivated ownership (OECD, 2005) and board functioning may suffer as a result. So, Government is asked to establish a transparent and effective policy for ownership, with the necessary degree of professionalism and effectiveness.

Board of directors are commissioned to oversee the management of organisation and also long-term interests of the shareholders (Bozec and Dia, 2005) and are accountable for firm's performance. However, in some cases, some politicians work together with board of directors to make a bridge between management of organisation and stakeholders (Thynne, 1998) and these politicians can influence the decisions and hence firm performance. Bozec and Dia (2005) revealed that more independent directors on board of public enterprise are more efficient and better performing. Public sector companies maintain an active role in society and necessary for economy of a country, it makes a balance between society and business and prevents market failures (Pigou, 1932; Samuelson, 1954). There is not much difference between controlling of public enterprises and private enterprises (Kolbe, 2006). Further, political influence can not be ignored as Government has other responsibilities than profitability. The public sector companies have to fulfil social responsibility towards society other than making profits because they use taxpayer's money for their operations.

Jha and Sahni (1992) used the survey of industries for the period 1960-61 to 1982-83 for industries such as cement, cotton textiles, electricity and iron and steel. The first two industries are owned by private interests and latter two are claimed by public sector. The authors found no evidence of inefficiencies in general and each of them is relatively efficient as one another.

Bhaya (1990) examined time series data from 1981-82 to 1985-86 and used three indicators namely money, material and workforce. The researcher concluded

that management has no control on fixed capital, higher wages and administrative prices and proved to be inferior to private sector.

There are some structural problems in public sector companies which become hurdles in proper functioning of corporate governance, such as conflicting objectives, lack of managerial autonomy, lack of truly independent directors and excessive Government interference. Performance of any organization depends upon the capabilities of top management. Unqualified and unsuitable persons as top management affect the performance. Top management must have the freedom to use intellect, experience, knowledge and ethics (Chattopadhyay, 2011).

Private sector companies performed better than the public sector enterprises on financial performance such as Return on Assets (ROA) and Return on Sales. Past research shows that public sector performed poorly for two reasons. First is low competition in the industry i.e firm acting in monopolistic or oligopolistic environment and result in inferior performance. Second reason is Government ownership, higher the ownership, less the performance (World Bank, 2010).

There are firm specific factors such as marketing, age and size that may have impact on performance in public and private sector companies. The management of these factors can impact the performance, not the ownership of the company. Managerial expertise between two type of structure where public sector appoint civil servants who lack the financial and marketing skills of their counterparts private sector and not given the opportunity to develop such skill (Shirley and Nellis, 1991).

Chhibber and Majumdar (1998) examined the impact of differential ownership levels in the Indian context. In the study that focuses on a cross sectional data of 1100 companies (private, Government and mixed) listed on Bombay Stock Exchange (BSE) in competitive industries and concluded that higher levels of Government ownership has a more detrimental impact on performance than lower levels.

Keeping in view the above arguments, the following research hypotheses are developed:

To compare public sector companies and private sector companies regarding the relationship between corporate governance and firm performance, the following hypotheses are formulated and tested:

- Hypothesis 1 (H_1): Corporate governance in private sector companies generates higher return on assets in comparison to public sector companies.
- Hypothesis 2 (H_2): Corporate governance in private sector companies generates higher return on equity in comparison to public sector companies.
- Hypothesis 3 (H_3): Corporate governance in private sector companies generates higher market to book value in comparison to public sector companies.
- Hypothesis 4 (H_4): Corporate governance in private sector companies generates higher natural log of earning per share in comparison to public sector companies.

To compare corporate governance of public sector companies and private sector companies, the following hypotheses are formulated:

- Hypothesis 5 (H_5): There is no significant difference between corporate governance of public sector companies and private sector companies.
- Hypothesis 5a (H_{5a}): There is no significant difference between promoter ownership of public sector companies and private sector companies.
- Hypothesis 5b (H_{5b}): There is no significant difference between corporate ownership of public sector companies and private sector companies.
- Hypothesis 5c (H_{5c}): There is no significant difference between financial institutional ownership of public sector companies and private sector companies.
- Hypothesis 5d (H_{5d}): There is no significant difference between foreign institutional investors' ownership of public sector companies and private sector companies.
- Hypothesis 5e (H_{5e}): There is no significant difference between board independence of public sector companies and private sector companies.
- Hypothesis 5f (H_{5f}): There is no significant difference between women on board of public sector companies and private sector companies.
- Hypothesis 5g (H_{5g}): There is no significant difference between board meetings of public sector companies and private sector companies.

To compare firm performance of public sector companies and private sector companies, the following hypotheses are formulated:

- Hypothesis 6 (H_6): There is no significant difference between financial performance of public sector companies and private sector companies.
- Hypothesis 6a (H_{6a}): There is no significant difference between return on assets of public sector companies and private sector companies.
- Hypothesis 6b (H_{6b}): There is no significant difference between return on equity of public sector companies and private sector companies.
- Hypothesis 6c (H_{6c}): There is no significant difference between market to book value of public sector companies and private sector companies.
- Hypothesis 6d (H_{6d}): There is no significant difference between natural log of earning per share of public sector companies and private sector companies.

Research Methodology

Research methodology described the sample, data collection methods, measurement of variables and the methods of data analysis used in the study.

Objectives of the Paper

The objective of the present research is to make a comparison between Indian public sector companies and private sector companies regarding the relationship between corporate governance and firm performance.

Sample Methodology and Data Collection

The sample consists of 119 companies which are selected from 200 companies of BSE-Dollex of Bombay Stock Exchange. The study has been taken over the period 2008 to 2014. Banks, finance and insurance companies and companies without having corporate governance reports have been excluded from the sample. The study used secondary data for the data analysis and it has been collected from company annual reports, corporate governance reports and financial database from Prowess, Bombay Stock Exchange, Journals, Articles and Books.

Description of Variables

The variables of the study are presented in the following table:

Table 1 : Description of Variables

Variable	Description/Measurement
Firm Performance Variable	
Return on Assets (ROA)	Ratio of net income to total assets.
Return on Equity (ROE)	Ratio of net income to shareholder equity.
Market to Book Value (MB)	Ratio of current share price to book value per share.
Natural Log of Earning per Share (LOGEPS)	Natural log of ratio of net income to average outstanding common share.
Corporate Governance Variable	
Promoter/Insider Ownership (PO)	Percentage of shares held by promoters.
Corporate Ownership (FO)	Percentage of shares held by corporate bodies.
Financial Institutional Ownership (FIO)	Percentage shares held by Financial institutions.
Foreign Institutional Investors Ownership (FIIO)	Percentage shares held by Foreign institutional investors.
Board Independence (BIND)	Percentage of independent directors on the board.
Women on Board (WB)	Percentage of women on the board.
Board Meetings (BM)	Total number of annual meetings in a year.
Control Variable	
Firm Leverage (LEV)	Ratio of debt to equity.
Firm Growth (FIRMG)	Ratio of difference between current year sales minus previous year sales to previous year sales.
Liquidity (LIQ)	Ratio of current assets to current liability (current ratio).
Firm Age (LOGAGE)	Natural log of difference between the date of inception and the observing year of the company.
Firm Size (LOGTA)	Natural log of total assets.

Model Formulation

The following models have been formulated to compare the public sector companies and private sector companies regarding relationship of corporate governance and firm performance. The same models have been used for both the sectors.

$$\text{ROA} = \beta_1 + \beta_2 \text{LEV} + \beta_3 \text{FIRMG} + \beta_4 \text{LIQ} + \beta_5 \text{LOGAGE} + \beta_6 \text{LOGTA} + \beta_7 \text{PO} + \beta_8 \text{CO} + \beta_9 \text{FIO} + \beta_{10} \text{FIIO} + \beta_{11} \text{BIND} + \beta_{12} \text{WB} + \beta_{13} \text{BM} + \text{eit}$$

$$\text{ROE} = \beta_1 + \beta_2 \text{LEV} + \beta_3 \text{FIRMG} + \beta_4 \text{LIQ} + \beta_5 \text{LOGAGE} + \beta_6 \text{LOGTA} + \beta_7 \text{PO} + \beta_8 \text{CO} + \beta_9 \text{FIO} + \beta_{10} \text{FIIO} + \beta_{11} \text{BIND} + \beta_{12} \text{WB} + \beta_{13} \text{BM} + \text{eit}$$

$$\text{MB} = \beta_1 + \beta_2 \text{LEV} + \beta_3 \text{FIRMG} + \beta_4 \text{LIQ} + \beta_5 \text{LOGAGE} + \beta_6 \text{LOGTA} + \beta_7 \text{PO} + \beta_8 \text{CO} + \beta_9 \text{FIO} + \beta_{10} \text{FIIO} + \beta_{11} \text{BIND} + \beta_{12} \text{WB} + \beta_{13} \text{BM} + \text{eit}$$

$$\text{LOGEPS} = \beta_1 + \beta_2 \text{LEV} + \beta_3 \text{FIRMG} + \beta_4 \text{LIQ} + \beta_5 \text{LOGAGE} + \beta_6 \text{LOGTA} + \beta_7 \text{PO} + \beta_8 \text{CO} + \beta_9 \text{FIO} + \beta_{10} \text{FIIO} + \beta_{11} \text{BIND} + \beta_{12} \text{WB} + \beta_{13} \text{BM} + \text{eit}$$

Where LEV, FIRMG, LIQ, LOGAGE, LOGTA are control variables; PO, CO, FIO, FIIO, BIND, WB and BM are corporate governance variables; ROA, ROE, MB and LOGEPS are firm performance variables. $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7, \beta_8, \beta_9, \beta_{10}, \beta_{11}, \beta_{12}$ and β_{13} are the coefficients and eit is the error term.

Analysis of Data Techniques

The study used descriptive analysis, correlation analysis and panel data regression methods. E-View software has been used for analysis. Panel data eliminate the autocorrelation of variables in time series data and heteroskedasticity of individuals in cross-section (Wu *et al.*, 2009). There are two types of models used by the researchers. These are Random Effects Model and Fixed Effects Model (Gujarati, 2003).

Random Effects Model is preferred due to higher efficiency if it is statistically justified and give consistent results. Fixed Effects Model are comparatively less efficient but always give consistent results. To decide better technique between Fixed Effects Model and Random Effects Model, Hausman test can be used (Hausman, 1978). The null hypothesis underlying Hausman test is that Fixed Effects Model and Random Effects Model estimators do not differ substantially. If P-value is found significant, rejects the null hypothesis and then Fixed Effects Model is used for the analysis and if found insignificant, then Random Effects Model is used (Akbar *et al.*, 2011; Gujarati *et al.*, 2012). Test of equality of means is used to compare the corporate governance and firm performance of Indian public sector companies and private sector companies separately.

Analysis and Interpretation

This section used the panel data of 119 Indian firms to compare the relationship between public sector companies and private sector companies regarding corporate governance and firm performance. The sample includes 15 public

sector companies and 104 private sector companies. Corporate governance variables (Independent Variables) are Promoter Ownership (PO), Corporate Ownership (CO), Financial Institutional Ownership (FIO), Foreign Institutional Investors' Ownership (FIIO), Board Independence (BIND), Women on Board (WB) and Board Meetings (BM). The control variables are Firm Leverage (LEV), Firm Growth (FIRMG), Liquidity (LIQ), Firm Age (LOGAGE), Firm Size (LOGTA) and firm performance variables (Dependent Variables) are Return on Assets (ROA), Return on Equity (ROE), Market to Book Value (MB) and Natural Log of Earning per Share (LOGEPS).

Descriptive Analysis

Table 2 shows the comparison of descriptive statistics of independent variables and firm performance variables of public sector and private sector companies. Table 2 provides the mean, median, minimum, maximum and standard deviation of the variables from year 2008 to 2014.

The descriptive statistics for board independence shows that mean is 40.914 and 52.584 for public sector and private sector companies respectively, which implies that private sector companies have more independent directors on the board than public sector companies. Women on board have mean values 3.301 and 5.403 for public sector and private sector companies respectively which implies that private sector companies have more women on the board than public sector companies. Firm leverage has mean values 0.490 and 0.453 for public sector and private sector companies respectively which shows that public sector companies use more debt for financing the business.

Firm size is measured as natural log of total assets. It has mean value 12.435 for public sector and 10.771 for private sector companies which shows that public sector companies has larger asset size compared to private sector companies. Corporate ownership has mean values 3.713 and 5.100 for public sector and private sector companies respectively which show that private sector companies have more corporate ownership compared to public sector. From the Table 1.2 it has been found that average value of financial institutional ownership for public sector companies (10.416) is less than the private sector companies (11.940) which show that financial institutional ownership is more in private sector companies which further imply that financial institutions have more trust in private sector companies.

Table 2. Descriptive Analysis of Independent and Firm Performance Variables of Public Sector and Private Sector Companies

Variable	No. of Observations		Mean		Median		Maximum		Minimum		Std. Dev.	
	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.	Pub.	Pvt.
BIND	105	726	40.914	52.584	43.000	50.000	64.000	88.000	0.000	22.000	12.685	11.037
WB	105	726	3.301	5.403	0.000	0.000	20.000	33.330	0.000	0.000	5.189	6.910
BM	105	721	9.324	5.978	9.000	5.000	19.000	33.000	4.000	3.000	3.212	2.278
LEV	105	728	0.490	0.453	0.120	0.280	2.480	10.370	0.000	0.000	0.621	0.641
FIRMG	105	727	0.165	0.222	0.135	0.179	1.119	3.891	-0.371	-0.745	0.210	0.336
LIQ	105	728	1.495	1.269	1.300	1.115	4.490	5.550	0.340	0.140	0.924	0.862
LOGAGE	105	728	3.486	3.513	3.638	3.497	4.111	4.710	2.197	0.000	0.546	0.680
LOGTA	105	727	12.435	10.771	12.672	10.706	14.672	14.974	9.908	7.099	1.348	1.283
PO	105	728	69.818	51.074	74.140	52.060	98.380	98.360	37.730	0.000	16.187	18.408
CO	105	728	3.713	5.100	2.490	3.735	14.370	56.830	0.000	0.000	3.585	5.604
FIO	105	728	10.416	11.940	8.320	10.770	29.290	38.980	0.510	0.000	6.799	8.535
FIIO	105	728	8.586	15.732	6.900	14.975	27.890	64.700	0.000	0.000	6.852	10.742
ROA	105	727	0.094	0.115	0.084	0.107	0.311	0.507	0.012	-0.037	0.060	0.073
ROE	105	728	0.193	0.236	0.184	0.211	0.402	1.428	0.050	-0.084	0.085	0.177
MB	105	725	2.830	5.150	2.295	3.724	16.495	36.961	0.602	0.186	2.246	4.861
LOGEPS	105	720	2.172	1.739	2.197	1.609	2.944	3.497	1.386	1.099	0.353	0.295

Regression Analysis

The present research paper used the panel data of Indian firms to compare the relationship between public sector companies and private sector companies regarding corporate governance and firm performance. Table 3 and Table 4 present the results of panel data regression models to make a comparison between public sector companies and private sector companies regarding corporate governance and firm performance.

Table 3 and Table 4 present the results of both Fixed Effects Model and Random Effects Model. Hausman test results are found to be insignificant for public sector companies and found to be significant for private sector companies in case of return on assets (ROA), So Random Effects Model results are taken in consideration for public sector companies and Fixed Effects Model results are taken in consideration for private sector companies for return on assets. Results of the Table 3 shows adjusted R² value is 33.3 per cent and 72.8 per cent for public sector companies and private sector companies respectively in case of ROA. The analysis highlights that only in private sector companies; corporate governance variables show significant relationship with Return on Assets (ROA). Corporate ownership is positively significantly associated with ROA for private sector companies, which favours the hypothesis H₁. Board independence and women on board has significant negative association with ROA for private sector companies, which reject the hypothesis H₁. However, the control variables show significant results for both the sector companies. Liquidity is positively significantly associated with ROA for public sector companies and positively non-significantly related for private sector companies with ROA.

Hausman test results are found to be significant for both public sector companies and private sector companies in case of Return on Equity (ROE), So Fixed Effects Model results are taken in consideration for both public sector companies and private sector companies for return on equity. Results of the Table 3 shows adjusted R² value is 59.1 per cent and 75.6 per cent for public sector companies

and private sector companies respectively in case of ROE, which indicates a good explanatory power of the models. The results show that only in private sector companies; corporate governance variables show significant relationship with Return on Equity (ROE). Corporate ownership is positively significantly associated with ROE for private sector companies, which favours the hypothesis H_2 indicating that corporate ownership is a significant factor in increasing return on equity of private sector companies. Women on board and board meetings are negatively significantly associated with ROE for private sector companies, which reject the hypothesis H_2 . The undesired results for public sector companies are due to hurdles in corporate governance functioning such as conflicting objectives, lack of truly independent directors and excessive Government interference (Bhaya, 1990).

Table 3. Results of Fixed Effects Model and Random Effects Model for Public Sector Companies and Private Sector Companies with ROA and ROE as performance measure

	ROA				ROE			
	Public Sector Companies		Private Sector Companies		Public Sector Companies		Private Sector Companies	
	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect
CONSTANT	0.707* (2.859)	0.221** (2.054)	0.410* (6.610)	0.325* (7.495)	1.026** (2.167)	0.447* (3.949)	1.143* (8.113)	0.905* (8.528)
LEV	-0.027 (-1.151)	-0.035** (-2.141)	-0.009* (-2.696)	-0.015* (-4.576)	-0.098** (-2.151)	-0.090* (-4.095)	0.054* (6.729)	0.046* (6.023)
FIRMG	0.043* (2.739)	0.036** (2.451)	0.025* (5.060)	0.025* (5.201)	0.088* (2.909)	0.099* (3.526)	0.053* (4.781)	0.053* (4.767)
LIQ	0.023* (3.481)	0.019* (3.599)	0.003 (0.958)	0.005** (2.052)	0.026** (2.104)	0.005 (0.647)	-0.003 (-0.558)	-0.007 (-1.087)
LOGAGE	0.037 (0.544)	-0.021 (-0.822)	-0.000 (-0.017)	0.001 (0.219)	0.036 (0.281)	0.047 (1.587)	-0.026 (-0.500)	0.019 (0.988)
LOGTA	-0.056* (-2.892)	-0.016*** (-1.937)	-0.026* (-4.621)	-0.018* (-6.415)	-0.065*** (-1.728)	-0.010 (-1.059)	-0.073* (-5.598)	-0.065* (-8.581)
PO	-0.001 (-0.570)	0.001 (1.172)	0.000 (0.454)	0.000 (0.961)	-0.002 (-0.711)	-0.002 (-1.750)	-0.000 (-0.495)	0.000 (0.063)
CO	-0.000 (-0.316)	0.004 (0.195)	0.001** (2.519)	0.000 (0.844)	-0.003 (-0.058)	-0.001 (-0.577)	0.003* (2.955)	0.002** (1.672)
FIO	0.001 (0.882)	0.001 (0.879)	0.000 (1.064)	0.000 (0.346)	0.000 (0.233)	-0.003 (-1.605)	0.001 (1.022)	0.000 (0.458)
FHIO	0.000 (0.282)	0.001 (0.801)	0.000 (1.330)	-0.000 (-0.186)	0.002 (0.585)	-0.001 (-0.970)	0.000 (0.952)	-0.000 (-0.124)
BIND	-0.000 (-0.779)	-0.000 (-1.221)	-0.000** (-2.042)	-0.000** (-2.139)	-0.000 (-0.173)	-0.000 (-1.443)	-0.000 (-0.975)	-0.000 (-1.577)
WB	0.000 (0.492)	0.000 (0.709)	-0.001** (-2.213)	-0.000*** (-1.673)	0.000 (0.550)	0.001 (1.137)	-0.001*** (-1.693)	-0.001 (-1.049)
BM	0.000 (0.256)	0.001 (0.635)	-0.001 (-1.441)	-0.001 (-1.211)	0.000 (0.141)	0.002 (0.662)	-0.006** (-2.494)	-0.004*** (-1.806)
Adjusted R ²	0.775	0.333	0.728	0.135	0.591	0.262	0.756	0.189
F-statistic	14.832*	5.336*	17.780*	10.373*	6.782*	4.092*	20.349*	14.995*
Hausman test	χ^2 (12) 16.057		χ^2 (12) 70.079*		χ^2 (12) 34.147*		χ^2 (12) 47.020*	

Note:

1. *, ** and *** represents level of significance at 1 per cent, 5 per cent and 10 per cent respectively.
2. Values of t-statistics are provided in parenthesis below the co-efficient estimates.

Table 4 presents the results of both Fixed Effects Model and Random Effects Model for Market to Book Value (MB) and Natural Log of Earning per Share (LOGEPS). Hausman test results are found to be significant for public sector

companies and found to be insignificant for private sector companies in case of MB. So Random Effects Model results are taken in consideration for private sector companies and Fixed Effects Model results are taken in consideration for public sector companies for market to book value. Results of the Table 4 shows adjusted R² value is 43.2 per cent and 10.7 per cent for public sector companies and private sector companies respectively in case of MB.

Table 4 : Results of Fixed Effects Model and Random Effects Model for Public Sector companies and Private Sector Companies with MB and LOGEPS as performance measure

	MB				LOGEPS			
	Public Sector Companies		Private Sector Companies		Public Sector Companies		Private Sector Companies	
	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect	Fixed Effect	Random Effect
CONSTANT	7.287 (0.493)	5.089*** (1.920)	13.748* (3.446)	10.604* (3.587)	0.754 (1.467)	1.008* (7.373)	0.698* (7.162)	0.804* (14.245)
LEV	2.348 (1.650)	-0.665 (-1.192)	1.986* (5.630)	1.406* (4.394)	0.051 (1.049)	-0.006 (-0.243)	0.010*** (1.869)	0.013* (2.721)
FIRMG	1.092 (1.148)	2.264* (2.633)	1.695* (5.320)	1.614* (5.109)	0.023 (0.715)	0.031 (1.019)	-0.017** (-2.294)	-0.022* (-3.002)
LIQ	0.221 (0.558)	-0.076 (-0.315)	-0.143 (-0.726)	-0.292 (-1.599)	0.001 (0.092)	-0.004 (-0.501)	0.001 (0.342)	0.005 (1.435)
LOGAGE	6.032 (1.480)	1.713** (2.328)	-0.235 (-0.159)	1.221** (2.352)	0.012 (0.087)	0.047 (1.321)	0.162* (4.440)	0.031* (4.192)
LOGTA	-3.153* (-2.687)	-0.690** (-2.618)	-1.066* (-2.913)	-1.226* (-5.957)	0.006 (0.148)	-0.003 (-0.286)	-0.035* (-3.853)	-0.000 (-0.269)
PO	0.135 (1.115)	-0.003 (-0.085)	0.039 (1.366)	0.053** (2.580)	0.003 (0.722)	0.000 (0.215)	0.000 (0.844)	0.000 (0.054)
CO	0.031 (0.185)	0.082 (0.912)	0.047 (1.264)	0.009 (0.259)	-0.000 (-0.145)	0.003 (0.996)	0.000 (0.694)	0.000 (1.005)
FIO	-0.012 (-0.099)	-0.109*** (-1.787)	-0.016 (-0.512)	-0.019 (-0.665)	0.002 (0.501)	0.001 (0.439)	-0.000 (-0.198)	0.000 (0.066)
FIIO	0.072 (0.521)	0.036 (0.872)	0.081* (3.189)	0.068* (3.027)	0.002 (0.513)	0.000 (0.449)	-0.000 (-1.126)	-0.000 (-0.876)
BIND	0.041** (2.283)	0.010 (0.690)	0.004 (0.274)	-0.004 (-0.291)	-0.000 (-0.408)	-0.000 (-1.090)	0.000 (0.437)	0.000 (0.601)
WB	0.011 (0.227)	0.079** (2.134)	-0.012 (-0.432)	0.002 (0.096)	-0.000 (-0.082)	0.000 (0.474)	-0.000 (-0.321)	0.000 (0.014)
BM	0.032 (0.293)	0.052 (0.610)	-0.147** (-2.084)	-0.099 (-1.489)	0.110* (28.743)	0.107* (32.274)	0.137 (77.709)	0.137* (90.805)
Adjusted R ²	0.432	0.256	0.741	0.107	0.972	0.945	0.956	0.922
F-statistic	4.048*	3.984*	18.889*	8.199*	140.820*	150.938*	137.26*	709.596*
Hausman test	χ^2 (12) 40.987*		χ^2 (12) 36.137		χ^2 (12) 11.801		χ^2 (12) 43.649*	

Note:

1. *, ** and *** represents level of significance at 1 per cent, 5 per cent and 10 per cent respectively.

2. Values of t-statistics are provided in parenthesis below the co-efficient estimates.

The analysis found that both the sectors show significant results but for the different variables. Promoter ownership and Foreign Institutional investors' ownership are positively significantly associated with MB for private sector companies and positively non-significantly related for public sector companies with MB, which favours the hypothesis H₃. Board independence has non-significant negative association with MB for private sector companies and positively significant association with MB for public sector companies, which

rejects the hypothesis H_3 indicating that public sector companies generates higher market to book value than private sector companies. Public sector companies maintain an active role in society; it makes a balance between business and society and prevents market failures (Samuelson, 1954), thus creating a good image in the market. Firm age, firm growth and firm leverage are positively significantly associated with MB for private sector companies and positively non-significantly related for public sector companies with MB.

Hausman test results are found to be insignificant for public sector companies and found to be significant for private sector companies in case of Natural Log of Earning per Share (LOGEPS). So Random Effects Model results are taken in consideration for public sector companies and Fixed Effects Model results are taken in consideration for private sector companies for Natural Log of Earning per Share (LOGEPS). Results of the Table 4 shows adjusted R^2 value is 94.5 per cent and 95.6 per cent for public sector companies and private sector companies respectively in case of LOGEPS which indicates a very good explanatory power of the models. The results show that only public sector companies have one significant variable indicating association with LOGEPS. However, control variables show significant association with both the sectors. The results found that board meetings (BM) is positively significantly associated with LOGEPS for public sector companies and positively non-significantly related for private sector companies with LOGEPS, which rejects the hypothesis H_4 .

Test of Equality for Means of Corporate Governance

Table 5 presents the results of test of equality for means of corporate governance. From the table, it is evident that promoter ownership, foreign institutional investors' ownership, board independence, women on board and board meetings are significant at 1 per cent. It indicates that null hypotheses H_{5a} , H_{5d} , H_{5e} , H_{5f} and H_{5g} are rejected and it can be concluded that mean of these variables differ in public sector companies and private sector companies. Corporate ownership and financial institutional ownership are significant at 5 per cent and 10 per cent respectively; hence null hypotheses H_{5b} and H_{5c} are rejected and concluded that mean of these variables differ in public sector and private sector companies.

Test of Equality for Means of Financial Performance

Table 6 presents the results of test of equality for means of financial performance. Return on assets, market to book value and natural log of earning per share are significant at 1 per cent and hence hypotheses H_{6a} , H_{6c} and H_{6d} are rejected and it can be said that financial performance corresponding to these variables differ in public sector and private sector companies. Return on equity is significant at 5 per cent and hence hypothesis H_{6b} is rejected and shows that financial performance in terms of return on equity differs in public sector companies from private sector companies.

Table 5 : Results of Test of Equality for Means of Corporate Governance

Variable	Companies	Count	Mean	Std. Dev.	Std Error of Mean	Df	t-statistic	Probability
Promoter Ownership (PO)	Public sector	105	69.818	16.186	1.579	831	9.895	0.000*
	Private sector	728	51.073	18.407	0.6822			
	All	833	53.436	19.172	0.664			
Corporate Ownership (CO)	Public sector	105	3.713	3.584	0.349	831	-2.463	0.014**
	Private sector	728	5.099	5.604	0.207			
	All	833	4.925	5.409	0.187			
Financial Institutional Ownership (FIO)	Public sector	105	10.416	6.798	0.663	831	-1.750	0.080***
	Private sector	728	11.939	8.534	0.316			
	All	833	11.747	8.347	0.289			
Foreign Institutional Investors Ownership (FIO)	Public sector	105	8.585	6.852	0.668	831	-6.622	0.000*
	Private sector	728	15.731	10.741	0.398			
	All	833	14.830	10.598	0.367			
Board Independence (BIND)	Public sector	105	40.914	12.684	1.237	829	-9.929	0.000*
	Private sector	726	52.584	11.036	0.409			
	All	831	51.109	11.900	0.412			
Women on Board (WB)	Public sector	105	3.300	5.189	0.506	829	-2.996	0.002*
	Private sector	726	5.402	6.910	0.256			
	All	831	5.13	6.750	0.234			
Board Meetings (BM)	Public sector	105	9.323	3.212	0.313	824	13.260	0.000*
	Private sector	721	5.977	2.277	0.084			
	All	826	6.403	2.659	0.092			

Note:

*, ** and *** represents level of significance at 1 per cent, 5 per cent and 10 per cent respectively.

Table 6 : Results of Test of Equality for Means of Firm Performance

Variable	Companies	Count	Mean	Std. Dev.	Std Error of Mean	Df	t-statistic	Probability
Return on Assets (ROA)	Public sector	105	0.094	0.059	0.005	830	-2.728	0.006*
	Private sector	727	0.114	0.073	0.002			
	All	832	0.112	0.072	0.002			
Return on Equity (ROE)	Public sector	105	0.193	0.084	0.008	831	-2.451	0.014**
	Private sector	728	0.236	0.176	0.006			
	All	833	0.231	0.168	0.005			
Market to Book Value (MB)	Public sector	105	2.829	2.246	0.219	828	-4.815	0.000*
	Private sector	725	5.149	4.861	0.180			
	All	830	4.856	4.676	0.162			
Natural Log of Earning per Share (LOGEPS)	Public sector	105	2.172	0.353	0.034	823	13.682	0.000*
	Private sector	720	1.739	0.295	0.010			
	All	825	1.794	0.335	0.011			

Note:

*, ** and *** represents level of significance at 1 per cent, 5 per cent and 10 per cent respectively.

Conclusions and Managerial Implications

The study used the panel data of 119 Indian firms to compare the relationship between public sector companies and private sector companies regarding corporate governance and firm performance. There are 15 public sector companies and 104 private sector companies. Private sector companies show significant relationship and public sector companies show non-significant relationship of corporate governance variables with firm performance when Return on Assets (ROA) and Return on Equity (ROE) are taken as firm performance measures. When Market to Book Value (MB) and Natural log of Earning per Share (LOGEPS) are taken into consideration as firm performance measures, mixed results are found for both public sector companies and private sector companies. The study found mixed results for control variables for both public sector companies and private sector companies for all firm performance measures.

The empirical study provides suggestions to public sector companies in India to improve firm performance. Public sector companies should maintain independent directors on the board room to make effective and transparent system in the organization. Public sector companies should hire expert employees of the relevant field neglecting the political influence.

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