Chapter-3

Research Methodology

Research methodology is the contextual framework for research. This summarizes the systematic approach of obtaining and confirming new and reliable knowledge. In simple words it is specific procedure or techniques used to identify select, process and analyse information about the research topic.

The present chapter (Research Methodology) has been divided into five sections, which includes the background, the scope, the objectives, the research process and the limitations.

3.1 Background of the Study

CG refers to "system of rules, practices, and processes to direct and control the organisation based on pillars of accountability, transparency and fairness, focusing on serving every stakeholder". It is both a structure and a well-defined system of relationship that gives directions and paves the way for corporate excellence.

In India, the corporate sector is a blend of small, large, family-owned and professionally owned companies. These companies are owned by investors from both domestic and international realms. Investors invest in these corporate entities, with an expectation that the entities will focus on the wealth maximization. Wealth maximization is not only the function of the earnings maximization, but also depends upon various factors including innovative practices of the organization, strategic planning, compliance with laws, corporate social responsibility (CSR) practices, optimum and cordial relations among directors, shareholders, employees and customers. All these factors enable the companies to have good CG that is important for them to sustain and grow in the highly competitive markets efficiently and transparently. Therefore, in simple words, corporate governance revolves around how various stakeholders get fair and equitable treatment as per their expectations.

CG is not a new concept. It has existed since the evolution of corporate entities in various forms. Even in the ancient India, kings used to have their council of ministers who tested on their good governance skills, including ethics, values, principles, and knowledge. The success and popularity of a kingdom was directly linked to good governance practices executed by its ministers. However, in today's scenario good corporate governance is emerging in a well-defined legal framework. The recent introduction of the Companies Act, 2013, and the SEBI Listing Obligations and Disclosure Requirements (LODR), have changed the corporate governance framework in India significantly. The policy makers are required to ensure that corporate governance emerge as a robust instrument to achieve competitiveness and sustainability in the changing business environment. New guidelines are focusing on increasing the importance of women directors, empowering independent directors, electronic voting, internal audit committees, and mandatory CSR committee.

However, the key question that remains and would come to someone's mind is that: What is the use or need for CG? Does the CG practices of a company impact its performance? Does the corporate governance practices really enable wealth maximization? The answer to these questions provides rationale of the present study.

The study on "Impact of Corporate Governance on Firm's Performance – A Study of Select Companies in India" has been carried to determine the link between CG and firm's performance. In this process, the study has also focused and tried to understand as to how well Indian companies comply with the contemporary corporate governance guidelines. The study has benchmarked CG practices of Indian companies with the international standards and examined the areas of improvement.

3.2 Scope of the Study

The scope has been explained in terms of variables used, organisations covered and the time frame involved. The study focuses on Corporate Governance (CG) Practices, and the impact of CG on Financial Performance (FP) and on Corporate Social Performance (CSP). Therefore, three types of variables i.e. Corporate Governance (CG), FP and CSP, have been selected. Scores are allocated to each of the variables as explained in the methodology of the study. The score on CG has been computed using the corporate governance scorecard, developed by "Bombay Stock Exchange (BSE), International Finance Corporation (IFC) and Institutional Investor Advisory Services India Limited (IiAS)". This score has been computed using the data available for FY 2019 for the selected sample companies. The CG scores are calculated for the FY 2019 because of the following:

- As evidenced by available literature as well as BSE, IFC and IiAS, there is not much change in corporate governance practices of Large Cap Indian Firms from 2016 to 2019 years;

- The Companies Act, 2013 and SEBI LODR 2015, were introduced in 2013 and 2015 respectively. It is a general expected norm that the impact of any new regulation should be studied after a gap of couple of years.

Further, the financial performance variables have been considered for a period of five years i.e. from 2015-2019. Social performance scores have been calculated from business responsibility reports (BRR) of the companies.

The study covers NIFTY 100 companies. For data collection, the NIFTY 100 companies base has been taken as listed on October 01, 2018.

3.3 Objectives of the Study

The main objective of the present study is to analyse the impact of CG on firm's performance. Following are the objectives of the study:

1. To examine the corporate governance practices of selected Indian companies.
2. To analyse the corporate governance score of the selected companies.
3. To analyse the impact of corporate governance on the performance of the companies.

3.3.1 Key Research Areas

To achieve these objectives, the following key research areas were identified:

1. To study the corporate governance practices followed by the companies.
2. To measure the corporate governance practices scores by using the standard scorecard.

3. To analyse the impact of corporate governance on the financial performance of the companies.
4. To analyse the impact of corporate governance on the social performance of the companies.
5. To give recommendations based on the findings for good corporate governance practices in the present Indian environment.

3.3.2 Research Questions

The following research questions were formulated and analysis of data carried out accordingly:

- How do Indian companies practice CG?
- What are the best CG practices followed by the sample companies?
- What is the level of compliances to CG norms by Indian companies?
- Which CG practices are followed by Indian companies?
- How much disclosure on CG practices is made by Indian companies?
- What is the impact of CG practices on financial performance such as market capitalisation, ROA, tobins' Q, ROE, etc. and what are the other firm characteristics that do impact financial performance?
- How does the CG practices impact the overall performance of companies?

3.4 Research Process

This section provides a detailed view of the sample size, sources of data and scoring as well as data analysis process of each objective separately. Broadly research methodology has been discussed in the following three sub-sections:

- Identifying the CG practices followed by selected Indian companies;
- Measuring CG score, identifying financial and social performance indicators;
- Analysing the impact of CG on the financial and social performance of the organisations.

3.4.1 Sample Size

NIFTY 100 companies, as on October 1, 2018, have been selected as the sample companies for the study. The list of 100 companies forming part of the NIFTY 100 was retrieved from the National Stock Exchange of India website. These 100 companies were a logical and appropriate choice of the sample size since they represented more than 65 percent of the total market cap of the Indian stock market and included companies from nine sectors (industries) i.e. Information technology; Consumer Staples; Material; Utilities and Telecom; Consumer Discretionary; Industrial; Health care; Energy and Financials.

3.4.2 Sources of Data

Secondary data is used for this research. The corporate governance total score has been measured using BSE, IFC and IiAS (2016) scoresheet by extracting information from their annual reports for the FY 2018-19 and IiAS-Adrian database. After filling the scoresheet for all the companies, total scores were calculated for each company.

The Corporate Social Performance (CSP) score has been measured through a scoresheet following the "Global Reporting Initiative for Sustainability Reporting Standards" (GRI) scoresheet, which is based on ten principles of Business Responsibility Report published along with annual report. The Social Performance scoresheet has been filled from sustainability report from the annual reports of sample 100 companies for the year 2019.

Financial data for all NIFTY 100 Index companies were collected from the CMIE Prowess database for FY 2015-16 to FY 2018-19.This data was collected for sixteen financial variables.

3.4.3 Identifying the Corporate Governance (CG) Practices

The first objective of the study was to examine the CG practices followed by the Indian corporate sector. For its analysis, the process followed three steps:

A Scorecard developed by "BSE, IFC and IiAS" in 2016 is used to compute the CG total score.

The second step was to quantify and measure the corporate governance score of the sample companies. The score allocated to each of the 70 questions was then used to compute the corporate governance total score and to classify the sample companies into four corporate governance practice categories, namely leadership, good, fair and basic practices, based on their level of closeness with the global best practices.

The third step was to analyse the best practices followed by companies in terms of CG score, based on 4 principles of OECD.

3.4.3.1 Scoring of Data

The study calculated *Corporate Governance Total Score (CG)* by adapting CG Scorecard. Based on the "OECD Principles", the scorecard is categorized into four corporate governance practice categories, namely

- "Rights and Equitable treatment of shareholders"
- "Role of Stakeholders"
- "Disclosures and Transparency"
- "Responsibilities of the Board"

This scorecard includes 70 questions. Based on the practices followed by every company, a score of 0, 1 and 2 is allocated for each question. These scores are given based on the below-described criteria:

a) Score = 0 (minimum), if a company fails to meet even the regulatory requirements (i.e. the policy or disclosure is not as per Clause 49 of Companies Act, 2013).

b) Score = 1, if a company meets the requirements of the regulatory framework (i.e. the policy or disclosure is as per Clause 49 of Companies Act, 2013); however, it does not inculcate the relevant international good practices.

c) Score = 2 (maximum), if a company meets the regulatory requirements, has policies "in line with the international standards" and provides disclosures in line with the international standards.

However, since responses to some questions are limited in the form of 'Yes' or 'No', for these question Yes= 2 and No=0 has been allocated.

Further, if the question is 'not applicable' to a particular company, the question has been excluded from the scoring formula.

Table 3.1 – CG Total Score Categories and Scoring Chart

Principle Category	# of questions	Maximum score	Weight (%)
“Category I- Rights and Equitable Treatment of Shareholders”	19	38	30
“Category II- Role of Stakeholders”	9	18	10
“Category III- Disclosure and Transparency”	23	46	30
“Category IV- Responsibilities of Board”	19	38	30
Total	**70**		**100**

To compute the final score of a company, the following steps are performed (based on BSE, IFC and IiAS Questionnaire):

- “Add the scores for all responses under a category and divide it by the maximum attainable score for the category(while considering not applicable questions also)”
- “Multiply the ratio so obtained by the total category weight to give a weighted score for that category.”
- “Sum all weighted scores across all four categories. The final score will be rounded off to the nearest integer.”

“Category score= Aggregate score of all questions under the category/(Number of applicable questions in category x 2) X Category Weight”

“Total Score = Category Score1 + Category Score2 + Category Score3 + Category Score4 Similarly, the score for each category is calculated to get the final overall CG score for a Company.”

3.4.3.2 Variables Explained

Corporate Governance Scorecard which is used to identify CG practices followed by selected companies considers geography relevant issues based on the existing regulatory framework. The CG "G20/OECD Principles" are used to create the scale. These Principles are the internationally recognised standard for CG.

The scorecard is structured into four key principle categories based on these CG Principles and the Indian regulatory environment. Each category corresponds to one of the principles in the "G20/OECD Principles" to measure good CG. The data collected has been complied as scores under all four categories for each company in the sample (Table 3.2).

Table 3.2 - Categories of CG Principles and its Components

"Category I -Rights and equitable treatment of shareholders"	**"Category II- Role of stakeholders"**	**"Category III- Disclosures and transparency"**	**"Category IV- Responsibilities of the board"**
• Quality of shareholder meetings • Related party transactions • Investor grievance policies • Conflicts of interest	• Business responsibility initiatives • Supplier management • Employee welfare • Investor engagement • Whistle-blower Policy	• Ownership structure • Financials • Company filings • Risk Management • Audit integrity • Dividend payouts and policies	• Board and committee composition • Training for directors • Board evaluation • Director remuneration • Succession planning

The calculated CG total score was further classified into CG practices. This has been calculated by classifying the total score into four groups given in Table 3.3.

Table 3.3 - CG Practice Categories and Definition

CG Practices	**Definition**	**Maximum Scores**
Leadership	The companies in the top spectrum of the CG scorecard (scoring over 85 percent) were categorised as the leadership group.	100
Good	The Companies whose CG score was below 85 percent but above 75 percent were categorised as Companies with Good Corporate governance practices.	85
Fair	Companies with CG scores between 65 to 75 are assumed to have a fair level of corporate governance practices	75

Basic	Companies with a score less than 65 fall into the basic level. These are companies that only fulfil the basic level of compulsory compliances for CG.	65

CG practices wise classification has been used for analysis in Chapter 4 and Chapter 5.

3.4.3.3 Statistical Techniques Used

For the first objective, to examine the CG practices of selected Indian companies detailed analysis of principle category I to IV of companies have been carried out. A comprehensive discussion based on these four parameters is done to determine how well a company performs on corporate governance. This detailed analysis attempts to answer the following research questions.

- How much do Indian companies practice corporate governance?
- What are the best corporate governance practices followed by sample companies?
- What are the international best practices on corporate governance?

The analysis has been carried out using basic analysis of scores using tables, percentages and graphs.

3.4.4 Analysis of Corporate Governance Score

This section covers objective two of the study i.e. analyse the CG Total Score (CG) of 100 sample companies, descriptive analysis of their financial performance, and calculate their social performance scores using a scoresheet from their annual reports.

This section has the following sub-parts, including sample size, data sources, scoring of data, variables used, hypotheses tested, and statistical tools used.

3.4.4.1 Scoring of Data

CG Total Score has been calculated using the scoring methodology given in 3.4.3.1. The scoring of the Social Performance Index has been done based on the GRI standards, which follows ten principles of Business Responsibility Reporting (BRR).

Following are the parameters for social performance as per GRI guidelines.

- Environmental
- Labour Practices and Decent work
- Society
- Human Rights
- Product Responsibility

For the CSP score, we have used Business Responsibility Report to get social performance index. The report is divided into ten principles and 27 questions. Scores are assigned to each statement based on the un-weighted index construction technique. Yes indicates that the company complies with that disclosure and No indicates that he company does not comply with that disclosure. 'Yes' is assigned a value of 1, and 'No' is assigned a value of 0.

Table 3.4 - Social Performance Index Scoresheet

Business Responsibility Reporting Principles	**#of questions**	**Maximum score**	**Weight (%)**
"The company publish a BR or a Sustainability Report"	1	1	10%
"Businesses should conduct and govern themselves with Ethics, Transparency and Accountability"	3	3	10%
"Businesses should provide goods and services that are safe and contribute to sustainability throughout their life cycle"	2	2	10%
"Businesses should promote the well-being of all employees"	5	5	10%

“Businesses should respect the interests of and be responsive towards all stakeholders, especially those who are disadvantaged, vulnerable and marginalised”	3	3	10%
“Businesses should respect and promote human rights”	2	2	10%
“Businesses should respect, protect and make efforts to restore the environment”	5	5	10%
“Businesses, when engaged in influencing public and regulatory policy, should do so in a responsible manner”	1	1	10%
“Businesses should support inclusive growth and equitable development”	3	3	10%
“Businesses should engage with and provide value to their customers and consumers in a responsible manner”	2	2	10%
Total	27		100%

“Category score= Aggregate score of all questions under the category/(Number of applicable questions in category) X Category Weight”

“Total Score = Principle 1 Score + Principle 2 Score1 + Principle 3 Score+ Principle 4 Score+ Principle 5 Score + Principle 6 Score+ Principle 7 Score + Principle 8 Score + Principle 9 Score+ Principle 10 Score”

3.4.4.2 Variables Explained

For analysis, five sets of variables have been used.

i. Demographic Characteristics

The sample companies have been classified into five categories.

Table 3.5 - Demographic Classification of Sample Companies

		N	percent
Age	**0-25 Years**	19	19
	25-50 Years	46	46
	50- 75 Years	21	21
	Above 75 Years	14	14
Ownership	**Promoter-owned**	76	76

	Institutional	18	18
	Widely-held	6	6
Private vs PSU	**Private**	79	79
	PSU	21	21
MNC vs Nationally-located	**Nationally-located**	89	89
	MNC	11	11
Industry sector	**HealthCare**	7	7
	Information Technology	6	6
	Financials	25	25
	Consumer Staples	10	10
	Energy	10	10
	Materials	15	15
	Consumer Discretionary	14	14
	Industrials	9	9
	Utilities and Telecom	4	4
Total		**100**	**100**

The demographic-wise differences in all variables have been analysed in Chapter 5.

*ii. **Corporate Governance Total Score***

The CG Total Score has been computed. It explains the overall Score of CG, followed by companies in compliances related to CG in annual reports. Table 3.6 defines the variables

Table 3.6- Corporate Governance Scores Definition

Corporate Governance Scores	Definition	Maximum Scores
Corporate Governance Total Score (CG)	"The scorecard includes 70 questions that are divided into four categories. Primarily, the score is calculated in absolute terms, with each question having a maximum score of 2 and a minimum of 0. Therefore, the maximum score attainable by a Company in the CG scorecard was 140. Based on the scoring methodology of the scorecard, the CG score was converted into a percentage while allocating a 30% weight to category 1, 3 and 4 and a 10% weight to category 2."	100
"Category I- Rights and Equitable Treatment of Shareholders"	"Category I consisted of 19 questions, bring the maximum attainable score to 38. The questions are focused on the quality of shareholder meetings, related party transactions, investor grievance policies and conflicts of interest."	30
"Category II- Role of Stakeholders"	"Category II consisted of nine questions, bring the maximum attainable score to 18. The questions are focused on business responsibility initiatives, supplier management, employee welfare, investor	10

	engagement, and whistle-blower policy”	
“Category III-Disclosure and Transparency”	“Category III consisted of 23 questions, bring the maximum attainable score to 46. The questions are focused on ownership structure, financials, company filings, risk management, audit integrity, and dividend payouts and policies”	30
“Category IV-Responsibilities of Board”	“Category IV consisted of 19 questions, bring the maximum attainable score to 38. The questions are focused on board and committee composition, training for directors, board evaluation, director remuneration, and succession planning.”	30
Given the CG scoring methodology, the score of each of the companies was presented in percentages (before applying weights).		

iii. ***CG Practices***

The CG practices have been classified as Leadership, Good, Fair and Basic practices (refer Table 3.3) followed by companies.

iv. ***Financial Variables***

The study focuses on FP variables that have more strategic relevance and can impact companies' long-term valuation and performance. The study has used sixteen selected variables for the study (Table 3.7). The basis of identifying variables was a review of existing literature and the conceptual relationship of variables with corporate governance. Some variables have been deliberately not chosen for the study, like diluted EPS, interest coverage ratio.

Table 3.7- Definition of financial variables

Variable	Formula and definition	CAGR Values
Beta-Measure of volatility	“Beta is a measure of a stock’s volatility about the overall market. A stock that swings more than the market over time has a beta above 1.0. If a stock moves less than the market, the stock’s Beta is less than 1.0.” (September 2019 data)	The compound annual growth rate (CAGR) values have been calculated for five year change in variables. 2015-2019 period. This indicates long term impact of CG on financial variables.
Closing Price	“The closing price is the final price at which it trades during regular market hours on any given day. This Price is considered the most accurate valuation of a stock or other security until trading resumes on the next trading day.” (September 30, 2019 data)	
Market Capitalisation	“Market capitalisation, commonly called a market cap, is the market value of a publicly traded company’s outstanding shares. Market capitalisation is equal to the share price multiplied by the number of shares outstanding.” (September 2019 data)	
Enterprise Value	“Enterprise value, total enterprise value, or firm value is an economic measure reflecting the market value of a business. It includes the market capitalisation of a company and any cash on the balance sheet, as well as both short-term and long-term debt.” (September, 2019 data)	
Earning Per share (EPS0	“Earnings per share (EPS) is calculated as a company’s profit divided by the outstanding shares of its common stock. In simple words, it is the monetary value of	

	earnings per outstanding share of common stock for a company." (September 2019 data)	.
Price to Earnings ratio (PE)	"The price-earnings ratio, also known as P/E ratio, P/E, or PER, is the ratio of a company's share price to the company's earnings per share. In an apples-to-apples comparison, investors and analysts use P/E ratios to determine the relative value of a company's shares. It can also be used to compare a company against its historical record or to compare aggregate markets against one another or over time." (September, 2019 data)	
Price by book ratio (PB)	"The price-to-book ratio, or P/B ratio, is a financial ratio used to compare a company's current market value to its book value." (September, 2019 data)	
Total Debt ratio	"The debt ratio is defined as total debt to total assets, expressed as a decimal or percentage. It can be interpreted as the proportion of a company's assets that are financed by debt. A ratio greater than 1 shows that assets fund a considerable portion of debt." (September, 2019 data)	
Tobin's Q	"Tobin's Q, is the ratio between a physical asset's market value and its replacement value. This ratio is computed using the following formula: Enterprise Value of Firm / (Total Assets of Firm + Total Debt)" (September, 2019 data)	
Return on Equity ratio (ROE)	"The Return on equity is a measure of the profitability of a business in relation to the equity. This ratio is computed using the following formula: PAT / (Total Assets –Non-Current Liabilities - Current Liabilities)" (September, 2019 data)	
Earnings before Interest and Tax (EBIT)	"It reflects the operating efficiency of the company on the basis of profit earned before paying interest and taxes." (September, 2019 data)	
Return on Capital Employed (ROCE)	"Return on capital employed (ROCE) is a financial ratio that can assess a company's profitability and capital efficiency. In other words, this ratio can help to understand how well a company is generating profits from its capital as it is put to use. This ratio is computed using the following formula: EBIT / (Total Assets - Current Liabilities)"	
Return on Assets ratio (ROA)	"Return on assets (ROA) indicates how profitable a company is relative to its total assets. "	
Return on Sales ratio (ROS)	"Return on sales (ROS) is a ratio used to evaluate a company's operational efficiency. This measure provides insight into how much profit is being produced per rupee of sales. An increasing ROS indicates that a company is growing more efficiently, while a decreasing ROS could signal impending financial troubles." (September, 2019 data)	
Dividend Yield	"The dividend yield, expressed as a percentage, is a financial ratio (dividend/price) that shows how much a company pays out in dividends each year relative to its stock price." (September, 2019 data)	
CSR Spend	"CSR can be defined as companies obligation towards society and its surrounding environment to contribute towards social wellbeing and sustainability.As per the Companies Act, 2013, all companies with net worth > 500 crore or turnover> 100 crore or net profit >5 crore need to form a CSR committee and spend a minimum of 2% of the average net profit made during 3 immediate preceding years." (September, 2019 data)	

For this analysis, five-year data FP variable was used (2015-2019) to calculate the CAGR values (compound annual growth rate of companies). The basic premises that CG practices were made compulsory after 2013 Act, and the companies had adopted CG practices after this time. Since companies were using these practices for a more extended period and corporate governance being a strategic decision is not revised daily. An analysis of CAGR values of five years performance of the company would give a true insight on the effectiveness of CG practices followed by companies. It will also depict whether CG practices have a long term impact on financial performance or not? Thus, five-year CAGR values have been used for the long-term impact of CG on FP.

v. ***Social Performance Score***

Corporate social performance relates to corporate social responsibility practised by the company. The data has been collected from business sustainability reports from companies' annual reports using a social performance scoresheet (Table 3.8).

Table 3.8 - Social Performance Variables Definition

	Definition	**Maximum Scores**
Corporate Social Performance Score (CSP)	The social performance score is a reflection of CSR being fulfilled. Higher spending on CSR helps the company give back to society and impacts the long-term performance of companies. Social performance is related to companies activities and contribution towards economic, environmental and social development.	27
High Social Performance	Companies who score high in social performance score more than 14	27
Low Social Performance	Companies that score less than 14 have been defined as having low social performance	14

The study examines the association between CG and firm performance, using all five variables.

3.4.4.3 Formulation of Hypotheses

To analyze the corporate governance score and its relationship with other variables, nine null hypotheses have been formulated (for a detailed list of hypothesis refer chapter 5).

3.4.4.4 Statistical Techniques Used

Statistical tools such as descriptive statistics, Levene, ANOVA, Duncan's Post-Hoc Test and Chi-square Test have been used to analyse the data. The use of various tools has been made keeping in view the nature of data and objectives of the analysis. SPSS 22 have been used for analysis. These are explained hereunder:

Descriptive Statistics: Measures of central tendencies helps in describing and understanding the characteristics of the data collected. An overview of the sample and data measures is obtained through mean, standard deviation, maximum and minimum score. This helps to explain the nature of the data.

ANOVA: Analysis of Variance is a technique for analyzing the differences among means. ANOVA can be applied to data where a dependent variable is a metric, and an independent variable is a categorical factor. In the present study, ANOVA has been used for studying the relationship between demographic variables groups with corporate governance total scores.

Chi-Square test: It determines whether a "systematic association" exists between the two variables. This has been used for testing the relationship of corporate governance practices with demographic variables.

3.4.5 Impact of Corporate Governance on Financial Performance (FP) and Social Performance

The third objective was to analyse the impact of CG on the performance of companies. The performance of companies has been identified as financial performance and social performance. Collectively it is defined as firm performance. The analysis includes investigating the relationship of CG total score and CG practices with FP variables and corporate social performance score (CSP). to fulfil the third objective. The study also carries out factor analysis to identify important factors from sixteen financial variables taken in the research and reduce them to five factors. Later on, these five financial factors extracted were used to understand their relationship with corporate governance total score, corporate governance practices and social performance score. Further analysis has been carried out to identify ten main corporate governance variables and their relationship with financial variables, corporate governance categories, corporate governance practices, and CSP scores has been studied. This section covers the explanation of variables used, the hypothesis tested, and statistical techniques used.

3.4.5.1 Explanation of Variables Used

The following variables are examined in order to determine the impact of CG on Company's performance.

i. ***Corporate Governance Total Score***

   These variables include CG score and four categories of CG

ii. ***Corporate Governance Practices***

   The companies are classified under four categories of corporate governance practices, namely leadership, good, fair and basic

iii. ***Corporate Social Performance Score(CSP)***

   Social performance score reflects the companies' performance on corporate social responsibility and has been classified into two categories high CSP and low CSP.

iv. ***Sixteen Financial Performance (FP) variables***

   Detailed description of the FP used is given in Table 3.7.

v. ***Five Financial Factors Extracted***

   Exploratory factor analysis has been applied on sixteen financial variables used in the study, and the output has extracted five factors based on them.

Table 3.9 - Five Financial Factors Extracted

F1: Return on Assets Ratios	In this, almost all the Return related ratios like "Return on assets ratio", "return on capital employed", "return on equity" and "return on sales" are loaded
F2: Valuation-related factor	This includes four variables, "market capitalisation", "enterprise value", "Earnings Before Interest and Tax (EBIT)" and "total debt ratio". These four variables reflect the company's valuation and other important ratios used at the time of valuation.
F3: Long-term market growth factor	It includes two important variables that are essentially seen when the long-term market growth of a company is checked: earnings per share and the company's closing price.
F4: Replacement Value factor	This includes three variables: "Price to book ratio"; "Price to earnings ratio", and "Tobin's Q". These ratios are essential when a company wants to check its replacement value or when a company has to replace certain assets
F5: Stakeholder-related factor	It loads three significant variables: CSR spending (how companies giving back to society); dividend yield ratio (how much shareholders returns are in the form of dividend), and Beta, which talks about the volatility of the stock in the market (affect the risk and return relationship of the stakeholder).

The detailed analysis has been discussed in Chapter 6.

vi. *Corporate Governance Variables*

These include ten main corporate governance variables, namely "board size", "board independence", "gender diversity in the board", "CEO duality", "number of board meetings", "audit committee members", :"audit firm category from Big four or non-big four", (Transparency of financial statements), "audit concerns on financial statements", and "concerns of secretarial audits".

Table 3.10- Definition of Corporate Governance Variables

Variables	**Definition**
Board Size	"Board size refers to the total number of directors on the board of each sample firm, including the CEO and Chairman for each accounting year. This will include outside directors, executive directors and non-executive directors.
Board Independence	Board independence is measured through the ratio of independent directors to the total directors (number of independent directors/total directors on the board)."
Gender Diversity	"It is the percentage of women directors in the board of directors"
Board Meetings	"Total number of board meeting held in a year. This reflects the style of decision

	making and the contribution of board members in decision making.”
CEO Duality	“CEO Duality is the situation when a Chief Executive Officer (CEO), besides running the corporation at the highest level, also holds the position of the Chairman of the Board.” (dummy variable)
# of Members in Audit Committees	“The total number of members in the audit committee reflects the transparency in the evaluation of the financial performance of companies.”
# of Independent Directors (IDs) in Audit Committee	“The number of independent directors who are included in the audit committee will also reflect the unbiased work of the committee.”
Audit firm category	“The external audit carried out by the company is from Big-four audit firms or non-big four audit firms.” (dummy variable)
Audit Concerns on Financial Statements	“External auditors are required to state the company's finances and attest to the validity of financial reports that may have been released. If auditors have reported some concerns about financial statements, it is shown as a dummy variable.”
Concerns of Secretarial Audit	“Secretarial Audit is a process to check compliance with the provisions of various laws and rules/ regulations/procedures, maintenance of books, records, etc., by an independent professional to ensure that the company has complied with the legal and procedural requirements and also followed the due process. if secretarial audit has shown some qualified statements about financial statements, it has been identified.” (dummy variable)

3.4.5.2 Formulation of Hypotheses

To analyse the relation between CG, FP, and social performance of a firm, the 49 null hypotheses have been formulated. The hypotheses are detailed in chapter 6.

3.4.5.3 Statistical Techniques Used

For the analysis of data following statistical tools were used in Chapter 6.

Pearson Correlation: High correlation indicates that these corporate governance variables complement each other, whereas low correlation suggests that each variable can be selected independently to represent the right mix of corporate governance index.

Multiple Regression Analysis: Statistical method for examining “associative relationships between a metric dependent variable and more than one independent variable”. To get the best fit model, the independent variables are included to the model and then removed one by one utilising backward elimination of variables. The coefficients of the estimated regression model are the unstandardised coefficients. The t statistic help determine the importance relatively of every variable. The t statistic and its significance value are used to test the null hypothesis. It is used to ensure that the dependent and independent variables have no linear relationship. The value of R and its sign shows the direction of the relationship. The proportion of variance in the dependent variable explained by the independent variable is known as R square. A higher value of the adjusted R square reflects the “goodness of fit” of the model. The F statistic's lower significance value (less than 0.05) indicates that independent factors are effectively explaining the dependent variable's changes.

Durbin Watson test: The Durbin-Watson test is used to determine whether residual autocorrelation exists. If the value is less than two, the autocorrelation of residuals in the assessed model is not a concern.

Kolmogorov-Smirnov test: The cumulative distribution is compared to a specified distribution in a "non-parametric goodness-of-fit" test. It's useful for ensuring that the population is dispersed normally.

Exploratory Factor Analysis: Factor analysis is a multivariate statistical technique that looks at a large number of interconnected relationships. It is primarily used for data reduction and summarization. Factor analysis is helpful in summarising correlations among observed variables and reducing many observed variables (dimension) to a smaller set of factors (broader dimensions). This consolidation of dimensions does not deprive us of information possessed by an original correlation matrix. Factor analysis has been used to analyse the perceptions of stakeholders on web reporting.

Apart from that, ANOVA and Duncan Post-Hoc test has been used in the study.

3.5 Limitations of the Study

Research is a continuous process and every study has some limitations, as there is always a further scope for research work on every subject. In that context, the following limitations of the study may be highlighted:

1. The study could have collected cross-sectional data for more years and conducted a panel regression analysis to carry out a similar study. But with an understanding that corporate governance practices followed by companies do not change every year and are long-term policy decisions, only one-year data of corporate governance score was collected.
2. The study can be expanded to pre and post Companies Act 2013, and the impact of corporate governance practices can be studied for both periods.
3. A study can also be carried out on a larger sample size of Indian companies.