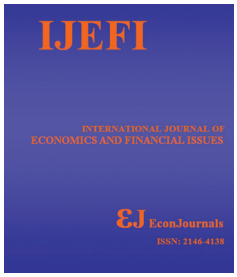

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Does the ESG Performance Differ Across Sectors? An Insight into the Indian Corporate Landscape

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ABSTRACT

In the present corporate landscape, the ESG score is a yardstick for corporate sustainability performance. This study compares the ESG score across selected sectors operating in India using cross-sectional data based on 260 top companies by the market capitalization across 26 selected sectors operating in India. Data relating to ESG scores have been taken from CRISIL for the year 2022. Descriptive statistics were employed to summarize the ESG performance across the sectors. Whereas, One-way ANOVA were applied to ascertain significant differences in ESG and sub-dimensional scores across selected sectors. The findings demonstrate that the IT sector recorded the highest score on GOV dimensions, whereas the banking sector outperformed the other sectors in the ENV and SOC dimensional scores and the aggregated ESG score. Moreover, the findings also reveal that polluting sectors, such as the Metals and Chemical sectors, are less responsive towards ESG performance due to their inherent nature of production. Furthermore, ANOVA result reveals a remarkable difference in ESG performance among the selected sectors. This study provides insights for investors to identify socially responsible sectors and offers a wake-up call for regulators and legislators to frame stringent regulations for industries that disregard social, environmental and governance norms.

Keywords: ESG Performance Score, Multisector, CRISIL, Emerging Indian Market
JEL Classifications: G11, G24, M14, Q56

1. INTRODUCTION

The World is heading towards a sustainable future and the most exigent issue in today's World is sustainability (Kumar et al., 2021; Gupta et al., 2022) because, in the present era, we have been witnessing a severe environmental crisis, social challenges like increasing social disparities, an unprecedented health crisis, growing economic spillover effects, a global climate crisis, acceleration of environmental degradation and innumerable governance and transparency issues across worldwide (KPMG, 2022). It is worth mentioning that the Government alone cannot mitigate or eliminate these issues as corporates being the major players in the upliftment of our economy, play a pivotal role in converting the dream of a sustainable future into a reality. Since the last decade, due emphasis has been given to sustainable development (Gupta et al., 2022), as there has been major progress towards sustainable development, citing a few of them like in 1987 World Commission on Environmental and Development (WECD) published a report named Our Common Future (Maji and Lohia, 2022) which is also popularly known as Brutland Report which mentioned that meeting the present needs but without compromising the ability of the future generation to meet their needs. Thereupon, subsequent progress has been made in achieving the dream of a Sustainable Future.

The United Nations has constituted the 8 Millennium Development Goals (MDG), subsequently replaced by 17 Sustainable

Development Goals (SDG). Despite all these efforts, the World is still grappling with several global threats (Gupta et al., 2022; Rakshit and Paul, 2022). As a result, there has been a paradigm shift in the behavior of investors. They have also become socially conscious as they are not only lured to short-term profit; rather investors are also attracted towards companies making significant contributions to a sustainable future (Adhikari and Ghosh, 2022; Rakshit and Paul, 2022). So before making a crucial investment decision, prospective investors not only go through the annual report to see whether the company is declaring steady dividends or not and about the prospects but also make a critical study on Business Responsibility and Sustainability Report (BRSR) to see the ESG performance of the companies (Adhikari and Ghosh, 2022; Rakshit and Paul, 2022). Depending on the BRSR reporting or the practices adopted by the companies towards sustainability, every company is being assigned with a score by the various rating agencies known as the ESG score and dimensional (ENV, SOC, GOV) score. Therefore, these scores may also be termed as "intangible assets" for the companies because they help to build a good corporate image in society and enhance the goodwill of the company as it is used by the numerous stakeholders, especially the investors, to measure the impact of business on resources related to sustainability or society (Bala, 2022). However, compliance with ESG standards does not imply substituting non-financial parameters with financial parameters; instead, striking a balance between these two parameters (Bala, 2022). There are several ESG parameters depicted in Table 1 that investors consider while making investment decisions.

Plethora of studies has been conducted on various aspects of ESG, its determinants, and its impact on financial performance across India and worldwide. However, more research must be conducted exclusively to concentrate on the ESG performance of specific sectors and the variation of ESG performance across sectors. Driven by the impetus of filling this gap in the existing body of literature, the present study is a modest attempt to contribute to the existing literature by critically examining the variation of overall ESG performance and sub-dimensional ESG performance across sectors in Indian corporates. This investigation has the potential to enhance the existing literature in multiple aspects. Firstly, to the best of contemporary literature, surveys from emerging economies are one of the first studies to assess the variation of ESG performance of multiple sectors with a large sample from Indian emerging economies. Secondly, unlike the previous studies, the novelty of this study is that it has taken ESG scores from CRISIL to demystify the variation across sectors. The findings of the study will undoubtedly make a significant contribution to the body of literature already in existence because it is evident from the study that not all sectors are performing at the same level. So, before making any significant investment decisions, prospective investors will surely benefit from knowing which sectors significantly contribute to ESG dimensions and which do not. Furthermore, the study findings will be a wake-up call for regulators and legislators to frame stringent regulations for industries that disregard social and environmental norms.

Table 1: ESG and sub-parameters

Environmental parameters	Social parameters	Governance parameters
Waste management	Health and Safety	Board composition
Energy efficiency	Human rights	Shareholders rights
Water usage	Board diversity	Internal control
Climate Change	Customer satisfaction	Company's leadership
Deforestation	Gender Equity	Whistleblower programs
Carbon footprint	Labor standards	Lobbying
Biodiversity	Social and racial justice	Bribery and corruption

Source: CRISIL ESG Report

2. EVOLUTION OF ESG IN INDIA

The emergence of the ESG regime in India can be traced back to 2007 when the Reserve Bank of India issued a circular for all commercial banks about their responsibility towards sustainable development, corporate social responsibility, and non-financial financial reporting. As a first step towards mainstreaming the concept of business responsibility, the "Voluntary Guidelines on Corporate Social Responsibility" were issued in 2009. Subsequently, in 2011, following a series of modifications, the Ministry of Corporate Affairs (MCA) released the National Voluntary Guidelines (NVG) on Social, Environmental, and Economic Responsibilities of Business, which are incongruent with the UN Millennium Development Goals (UNMDG). Using the NVG as inspiration, the Security and Exchange Board of India (SEBI) introduced the Business Responsibility Report (BRR) in 2012. The BRR is India's first Environment, Social, and Governance (ESG) regulatory disclosure framework – it precedes the current Business Responsibility and Sustainability Reporting (BRSR) requirement. BRR was based on NVG and was mandatory for the top 100 listed companies (by market capital). Gradually, the coverage of BRR increased, and by 2015 it became mandatory for the top 500 listed companies. Global trends led to a gradual decline in the significance of BRR. Furthermore, according to an NSE report (2018), the deficient quality of the BRR Reports made the reporting untrustworthy. Moreover, the BRR was prepared by NVGs, which does not align with sustainable development goals (SDGs). Recognizing this issue, in the year 2020, the Ministry of Corporate Affairs (MCA) published guidelines known as National Guidelines on Responsible Business Conduct (NGRBC), which is in sync with the Sustainable Development Goals (SDGs) and, subsequently, the reporting practice which is prevalent in corporate landscape, i.e. BRR was replaced with modified version of reporting framework known as Business Responsibility and Sustainability Reporting (BRSR) which is considered as the new avatar of ESG reporting regime in India and from the financial year 2022-2023, it was made mandatory for the Top 1000 listed companies by market capitalization (Debnath and Kanoo, 2022), thereby reducing asymmetry information and in turn assisting the prospective socially conscious investors for choosing viable investment option. However, for the unlisted companies, a lite version of BRSR has been released where they can disclose their ESG Reporting (CRISIL Year Book, 2022).

The evolution of ESG in India is depicted below in Table 2.

Table 2: Evolution of ESG in India

Year	Major Steps	Description
2009	National Voluntary Guidelines (NVGs)	Ministry of Corporate Affairs (MCA) issued NVGs on Corporate Social Responsibility (CSR).
2012	Business Responsibility Report (BRR)	SEBI mandated that the top 100 listed companies by market capitalization file BRR based on NVGs along with their annual report.
2015	Extension to top 500 listed companies	Requirement for filing BRR was extended to the top 500 listed companies by market capitalization.
2017	Integrated Reporting	SEBI circular advised that integrated reporting may be adopted on voluntary basis from FY 2017-18 by the top 500 companies which are required to prepare BRR.
2019	National Guidelines on Responsible Business Conduct (NGRBC)	NGRBC replaced NVGs because it was aligned with UN SDG and GRI.
2021	Business Responsibility and Sustainability Report (BRSR)	BRSR replaced the BRR because it was aligned with NGRBC. SEBI mandated top 1000 listed companies by Market Capitalization file BRSR along with their annual report

Source: PWC Report (2021)

3. LITERATURE REVIEW

ESG reporting is crucial to evaluating a company's long-term sustainability and resilience. The three key focus areas are environmental impact, social responsibility, and corporate governance practices. Unfortunately, India has a long way to go in achieving sustainable development goals, ranking 121 out of 163 countries according to the Global Sustainable Development Report. Numerous studies have been undertaken to study the relationship between sustainability practices and their influence on financial performance worldwide. However, there is a dearth of research in the Indian context. Literature showed a mixed relationship between ESG performance and financial performance. Chelawat and Trivedi (2016) conducted a study to examine the effect of ESG Performance on their FP using a panel regression model and they have taken both the measures, i.e. accounting-based measures - ROCE, and market capitalization measures – Tobin's Q as financial performance indicators and found that good corporate ESG performance enhances the financial measures. Abdi et al. (2022) attempted to examine the impact of ESG score on the value and FP of the airline industry, and it is crystal clear from their study that the increased degree of financial efficiency extensively and favorably rewards businesses for their involvement in social and environmental initiatives. Laskar and Maji (2017), Laskar et al. (2017), and Laskar (2018) revealed that in the contexts of South Korea, Japan, and India, corporate disclosure performance positively affects FP. Studies also report no relationship between sustainability and financial performance (Fauzi et al., 2007; Weston and Nnadi, 2021).

In contrast, Rahi et al. (2021) conducted a study on the financial industry of the Nordic Region comprising countries like (Sweden, Denmark, Finland, and Norway) to understand whether sustainability practices influence financial performance using static and dynamic estimators. They have taken ROC, ROE and EPS as the indicators of FP and found a negative relationship between ESG Practices and Financial performance. In contrast, their study revealed a positive relationship between Governance and ROA. Ameer and Othman (2012), Bodhanwala and Bodhanwala (2018), and Lopez et al. (2007) found that Sustainability practices require a long-term investment that inversely affects FP. Menicucci and Paolucci (2022) investigate the impact of ESG on bank performance in the Italian banking sector by taking ROE, ROA, Tobin's Q and Stock market return as indicators of bank performance, and their findings showed that ESG policies negatively affect the operational and marketing performance. Bullay et al. (2021) attempted to investigate the effect of ESG scores on bank performance by using ROA, ROE, and Tobin's Q as bank performance indicators. Their study exhibits a negative relationship between ESG and operational performance (ROA), financial performance (ROE) and market performance (Tobin's Q). Wahyuningtyas et al. (2022) noted the insignificant relationship between sustainable reporting and financial performance in the Indonesian context. La Torre et al., (2021) analyzed the link between ESG factors and financial benchmarks by considering different dimensions of financial performance, i.e. accounting measures (ROA and ROE) and market-based measures (Capitalization to book value, Tobin's Q) and value-based metrics (EVA Spread) were also explored in their study.

Unlike the other studies which have obtained ESG Score data from the Thompson Reuters Eikon Database or Refinitiv Database (Abdi et al., 2022; Ersoy et al., 2022; Menicucci and Paolucci, 2022; Rahi et al., 2021; Birindelli et al., 2018) and Bloomberg and ACE Analyzer Database (Ray and Goel, 2022; Azmi et al., 2021), MSCI ESG Stats Dataset (Kim and Li, 2021), S and P Global Market Intelligence Database provided by GRESB (Global Real Estate Sustainability Benchmark) (Feng and Wu, 2021), Fortune 500 Rankings, Content Analysis of CSR Report (Chelawat and Trivedi, 2016), this is the only study to be conducted which have gathered ESG Score data from CRISIL Rating Agency. This paper has a significant contribution to the existing literature. From the literature review, it is evident that though a plethora of studies have been conducted on various ESG aspects, including its causes and effect on financial performance, but research has yet to be conducted to make a comparative study on companies' ESG performance scores across different sectors. This present study aims to bridge this gap.

3.1. Objective of the Study

1. To compare the environmental, social and governance performance scores of sample companies across selected sectors in India.
2. To compare these sample companies' overall ESG performance scores across selected sectors in India.

3.2. Hypothesis of the Study

The following hypotheses have been formulated to realize the objectives of our study:

H_1: There is a significant difference in terms of the subdimensions of ESG, i.e., the Environmental, Social, and Governance scores of the sample companies across selected sectors in India.

H_2: The overall ESG score of the sample companies across selected sectors in India is significantly different.

4. RESEARCH METHODOLOGY

4.1. Data Sources

So far as the data source, data have been collected from the CRISIL ESG compendium, 2022, which encompasses the overall ESG score and sub-dimensions of ESG (i.e. Environmental, Social and Governance Scores). CRISIL Sustainability year book, 2022, scores ESG score of 997 companies spread over 63 sectors in India. CRISIL has computed the ESG score of these companies by considering the information available in the public domain like annual reports, sustainability reports, i.e. Business Sustainability and Responsibility Reporting (BRSR) and the relevant information available on the company website.

4.2. Sample Selection Criterion

As per the objectives of our study, i.e. examining the multisectoral comparison in terms of sub-dimensional ESG score and overall ESG score, the following sample companies have been considered. Here, we have considered those companies for which CRISIL has assigned ESG scores. As per the CRISIL Sustainability yearbook, 2022, we have found that CRISIL has computed ESG scores of 997 companies spread over 63 sectors.

Out of 997 companies spread over 63 sectors, 260 companies were selected for the study based on the following criteria in two stages:

- Selection of sectors: Out of 63 sectors, those with at least 15 companies have been selected for the study. This resulted in 26 sectors comprising 795 companies.
- Selection of companies: The top 10 companies (based on market capitalization as of (March 31st, 2023) from each of the 26 selected sectors have been selected in this manner. The data regarding market capitalization was retrieved from the NSE's official website.

4.3. Sample Size

A total of 260 companies across 26 sectors were taken as the sample for this study. The selected sectors are:

1. Auto Ancillary, 2. Banks, 3. Building Material, 4. Cement, 5. Chemicals - Bulk and Polymers 6. Chemicals - Speciality Chemicals, 7. Construction EPC, 8. Consumer Retail, 9. Durables and Electricals, 10. Financial Services (others), 11. FMCG, 12. Healthcare, 13. Heavy Engineering, 14. Holding Company, 15. Industrials, 16. Internet, 17. IT, 18. Logistics, 19. Media, 20. Metals - Ferrous, 21. Metals - Linked Products, 22. NBFC 23. Pharmaceuticals, 24. Real Estate, 25. Telecom, 26. Textile.

4.4. ESG Scoring Methodology of CRISIL

To create the ESG score, CRISIL has considered more than 100 parameters and 350+ data points across different sectors' environmental, social, and governance aspects. The weightage of each dimension varies across sectors, depending on what is considered material and relevant. Various environmental aspects are evaluated to compute the Environmental score, including water and energy consumption, recycling of scarce resources, waste management, resources and biodiversity. Likewise, the social score has been assessed in various aspects, including wage equality, gender diversity, employee safety, training, customer satisfaction, supply chain management, CSR activities, and community engagement. The parameters for Governance scores were board diligence, diversity and independence; financial and non-financial disclosure and shareholder's relations.

In order to integrate risk factors into the computation of the ESG score, CRISIL has taken into account negative parameters, such as penalties for environmental degradation, notices issued by pollution control boards, and compliance lapses (Environmental); sale of sin goods, employee protests, and engagement of child labour (Social); and regulatory action on directors (Governance). It is worth noting that these factors vary in materiality and relevance across sectors, except for governance, which is comparable across all sectors. The environmental score is calculated using 40% from sector-specific issues and 60% from individual companies, while the social score is determined by taking 25% from the sector score and 75% from individual entities. However, there is no sector-specific score for the Governance dimension, as it is comparable across all sectors. To arrive at the final ESG score for individual companies, relative weights have been assigned to sub-dimensions to reflect their relative significance in the overall score. The Governance factor has been given the highest weightage of 40%, followed by the Environmental aspect at 35% and the social aspect at 25% because it is believed that governance is what directs the company towards its goals while satisfying the interests of all stakeholders, including environmental and social dimensions (Table 3). The final ESG score is calculated on a scale of 1-100, with 100 denoting best-in-class ESG performance. The businesses are categorized into several groups based on the total ESG score determined. Companies are categorized as "Leadership" when their ESG score is 71-100. "Strong" signifies when the ESG score falls between 61 and 70, while "Adequate" is considered when the overall score lies between 46 and 60. A firm is classified as "Below Average" if its score is between 31 and 45. While anything <31 is labelled as "Weak." By factoring in risk and negative parameters,

Table 3: ESG assessment framework of CRISIL

Dimensions	Sector score	Company score	Weightage of dimensions
Environmental	40%	60%	35%
Social	25%	75%	25%
Governance	No sector scoring for governance as it is comparable across sectors	100%	40%

Source: CRISIL

the ESG score computation becomes more comprehensive and reflects a more accurate picture of a company's overall ESG performance. Investors, policymakers, and other stakeholders can use the resulting scores to make informed decisions and drive positive change.

4.5. Description of Variables

For comparing the components of ESG, i.e. Environmental (ENV), Social (SOC) and Governance (GOV) scores of sample companies across selected sectors, individual parameters of ESG, i.e. ENV, SOC, and GOV scores, have been taken as dependent variables and all those, 26 selected sectors were taken as independent variables. Likewise, for comparing the overall ESG score of sample companies across selected sectors, overall ESG scores were taken as dependent variables and selected sectors were taken as independent variables.

4.6. Statistical Techniques

Various statistical tools and techniques like Mean, Standard Deviation, and One-way ANOVA have been employed in this study to present the complicated data structure in a simplified form. In this study, one-way ANOVA has been employed to determine whether significant differences exist among the selected sectors, as one-way ANOVA is supposed to measure whether significant differences exist between the means of two or more independent groups. Thus, the null hypothesis formulated under One-way ANOVA is:

H0: $\mu 1 =$ ----- μ 26 (i.e., the selected sectors' means are the same).

Whereas the alternate hypothesis is:

H1: $\mu 1 \neq$----- μ 26 (i.e., the selected sectors' means are not the same).

4.7. Testing of Assumptions under One-way ANOVA

To use one Way ANOVA, certain prerequisites must be met, including normality and homogeneity of variance. Failure to meet these assumptions can result in biased and misleading estimates. To ensure these assumptions are met, we conducted a few diagnostic tests. We used the Shapiro-Wilk test to verify whether the dependent variable is normally distributed. Additionally, we relied on the Levene Test to ensure homogeneity of variance. If the data set violates the assumption of homogeneity of Variance, Welch ANOVA or Robust Test of Equality of Means would be employed.

5. ANALYSIS AND DISCUSSION

5.1. Dimension-based Score Analysis

To realize the first objective of our study, we have compared the mean score of three dimensions of ESG across selected sectors. The results are depicted below in Table 4.

It is evident from Table 1 that the mean of the IT sector is highest across all the dimensions of ESG among all the sectors, followed by the financial services sector (Gupta et al., 2022). Among all the dimensions, the metals and chemical sector has the lowest score (Gupta et al., 2022), thereby implying that the operation of these sectors causes great damage to the environment and society as a whole and these sectors are not also adhering to environmental standards framed by the competent authorities regarding environmental safeguard and hence causing detrimental impact on the environment and society. Furthermore, among all the dimensions of ESG, it is noted that the cement sector has the highest variation (Adhikari and Ghosh, 2022), whereas the media sector has the lowest variation.

Further from the dimension-based summary statistics, it is apparently noted that the banking sector has the highest environmental score among all the selected sectors, thereby implying that banks, being the major players in the financial sector, are increasingly integrating ESG factors into their core operation because ESG is no longer only an ethical issue but has also become an economic concern (Menicucci and Paolucci, 2022). It is widely accepted that financial institutions should be perceived as agents of sustainable development and creators of financial values (Menicucci and Paolucci, 2022). Nevertheless, Metals - Ferrous has the lowest environmental score, implying that this sector's production process involves "emissions of various toxic gases, particulate matter, dust, noise, a bad odour which poses a great threat to the environment." This result is corroborated by the findings of (Adhikari and Ghosh, 2022; Gupta et al., 2022). There may be numerous reasons for a high environmental score, like the amount of greenhouse gas emissions, i.e. the company having a low carbon footprint is supposed to have a high ENV score and vice versa; in addition, the companies which prefer renewable energy sources might have high ENV score that those companies which rely on fossil fuels, moreover companies that have a better mechanism of waste management and efficient water management and giving due priority for water conservation may have high ENV score.

Further, in terms of variation, it is crystal clear that the cement sector has the highest variation, indicating that companies in the cement sector need to be more consistent in their environmental initiatives during the year under consideration. This result is corroborated with the findings of (Adhikari and Ghosh, 2022). The media and consumer retail sector has the lowest variation, implying that companies in these sectors have consistently taken environmental initiatives during the year under consideration.

Regarding the social dimensions of ESG, again, the banking sector has the highest social score, followed by the pharmaceutical sectors across all the selected sectors during the year under consideration. A high social score reflects companies' behavior and attitude towards society. It may be for various reasons like whether the company donate a certain percentage of profit towards the upliftment of the local community, whether the company encourages their employees to perform voluntarily for the betterment of the community, whether the company treat their employees fairly and provides safe working conditions, whether the companies respect human rights and do not indulge in unethical practices such as forced labour. These are some areas where companies can work to enhance their social score. Whereas, from the dimension-based analysis, it is seen that the chemicals- Bulk and Polymers sector has the lowest social score during the year

Table 4: Summary statistics of ESG dimensional scores among selected sectors

Sectors	Environmental		Social		Governance	
	Mean	Standard deviation	Mean	Standard deviation	Mean	Standard deviation
Auto Ancillary	28.80	6.71	37.70	6.63	66.90	2.56
Banks	57.50	6.54	54.50	4.74	67.40	8.96
Building material	33.30	9.09	41.70	6.40	67.80	3.29
Cement	33.50	14.38	42.60	9.29	64.10	6.40
Chemicals - Bulk and Polymers	22.50	6.35	32.90	3.67	67.20	3.33
Chemicals - Speciality Chemicals	25.30	8.64	43.30	10.20	64.40	4.99
Construction EPC	28.60	6.62	43.80	5.12	62.20	3.82
Consumer Retail	30.40	2.07	42.50	2.22	66.80	2.74
Durables and Electricals	33.60	9.14	43.90	9.88	66.20	5.59
Financial Services (Others)	40.50	5.52	47	6.72	70.80	8.12
FMCG	38.10	10.22	44.40	9.57	66.50	4.03
Healthcare	38.10	9.89	50.20	10.12	67.50	5.46
Heavy Engineering	34.80	8.36	44.80	7.91	64	3.65
Holding Company	45.80	9.53	48.80	7.08	59	13.90
Industrials	33	8.16	43	4.67	65.10	4.12
Internet	37.80	4.44	44.90	5.82	66.80	4.34
IT	44.30	9.43	47.80	5.63	71.30	3.65
Logistics	28.50	4.70	39.60	5.46	64.40	8.50
Media	38.20	1.75	42.60	2.88	63.50	4.17
Metals-Ferrous	20.80	7.86	38.90	6.01	65.10	3.78
Metals- Linked Product	24.40	5.60	40.90	8.05	67.90	3.63
NBFC	52.50	4.30	49.80	6.91	68.40	5.85
Pharmaceuticals	38.50	8.78	53.30	6.68	67	1.76
Real Estate	33.20	11.18	37.20	7.24	66.90	3.54
Telecom	34.90	11.41	42.90	9.93	65.10	5.26
Textile	30	8.38	46.50	9.50	66.80	5.67

Source: Authors' calculation

under consideration, thereby indicating that companies in this sector are not socially responsible. Again, for variation in social score, it was found that the chemical sector has the highest variation followed by the healthcare sector, thereby indicating that companies under these sectors need to be consistent in their initiatives taken for the betterment of society. The consumer retail and media sectors again had the lowest variation in social score, implying that the actions of the companies in these sectors have been consistent with society.

According to the dimension-based summary statistics, there is a clear winner in terms of Governance score, with the IT sector emerging on top, followed by the NBFCs. These findings underscore the critical significance of effective governance in the IT sector and emphasize the need for NBFCs to aim for higher governance standards to remain competitive in the industry. A high Governance score reflects the ethical actions of the company, i.e. whether it is disclosing every affair of the organization transparently and honestly, whether the company can be trusted, whether the company has diverse and independent board members, whether the company is giving due respect to rights of their shareholders and engage in transparent reporting practices. That is why, so far as the computation of ESG and its dimensional score by the CRISIL is concerned, the highest weightage was given to the governance factor because it is believed that governance is what directs the company towards its goal while satisfying the interest of all stakeholders including environmental and social dimensions. Further, in terms of variation, it was found that the pharmaceutical sector has the lowest variation among all the selected sectors, thereby implying that they have been consistent in their initiatives taken for better governance during the year under consideration. Additionally, it was discovered that regardless of the sector, companies' environmental performance trailed behind their social and governance performance (Gupta et al., 2022).

5.2. Overall ESG Score Analysis

Figure 1 illustrates the distribution of ESG (Environmental, Social, and Governance) performance across various sectors, highlighting key trends. This spider chart uses various key metrics to illustrate the performance, such as the blue line representing the average ESG performance of each Sector. In contrast, the Orange line indicates the variability or consistency in ESG score within each sector. In addition, the yellow and grey line represents the highest and lowest ESG score achieved in each sector respectively. Sectors like Banks, Pharmaceuticals, and Specialty Chemicals exhibit high mean and maximum scores, indicating strong ESG practices. In contrast, sectors like Logistics, Real Estate, and the Internet show lower mean scores, reflecting weaker performance. High variability, seen in sectors like Metals-Linked Products and NBFCs, suggests inconsistent ESG adoption, while sectors like FMCG and IT demonstrate more uniform performance with lower standard deviation. This disparity underscores the need for targeted interventions in underperforming sectors and the potential for high-performing sectors to serve as benchmarks for driving ESG improvements across industries.

To realize the second objective of our study, we have compared the mean score of overall ESG across selected sectors. The results are depicted below in Table 5.

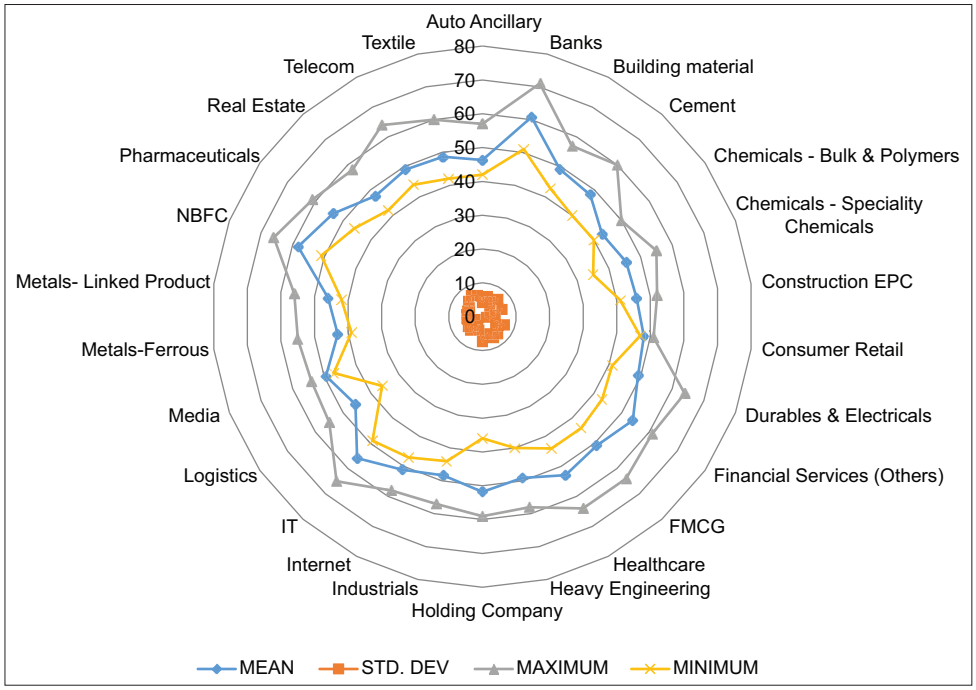
Table 5 demonstrates the mean, standard deviations, maximum and minimum values of the overall ESG score across 26 selected

Table 5: Summary statistics of overall ESG scores among selected sectors

Sectors	Mean	Standard deviation	Maximum	Minimum	CV
Auto Ancillary	46.30	4.22	57	42	9.11
Banks	60.80	6.09	71	51	10.02
Building material	49.20	4.83	57	43	9.82
Cement	48.10	6.89	60	40	14.32
Chemicals - Bulk and Polymers	43	2.71	50	40	6.30
Chemicals - Speciality Chemicals	45.50	6.19	55	35	13.60
Construction EPC	45.90	3.78	52	41	8.24
Consumer Retail	48.10	1.20	51	47	2.49
Durables and Electricals	49.20	6.92	64	41	14.07
Financial Services (Others)	54	4.76	61	43	8.81
FMCG	50.90	6.82	64	44	13.40
Healthcare	52.90	6.97	64	44	13.18
Heavy Engineering	49.10	5.24	58	40	10.67
Holding Company	51.80	7.42	59	36	14.32
Industrials	48.30	4.08	57	44	8.45
Internet	51.10	3.07	58	47	6.01
IT	55.90	5.34	65	49	9.55
Logistics	45.60	5.15	55	36	11.29
Media	49.50	2.27	54	47	4.99
Metals-Ferrous	43.10	4.58	55	39	10.63
Metals- Linked Product	46	4.69	56	42	10.20
NBFC	58.30	4.74	66	51	8.13
Pharmaceuticals	53.70	4.62	61	46	8.60
Real Estate	47.70	6.20	58	42	13.00
Telecom	49.10	7.06	64	44	14.38
Textile	48.70	6.48	60	42	13.31

Source: Authors' calculation

Figure 1: Overall ESG Performance Distribution with the help of Spider Chart



Source: Authors' calculation

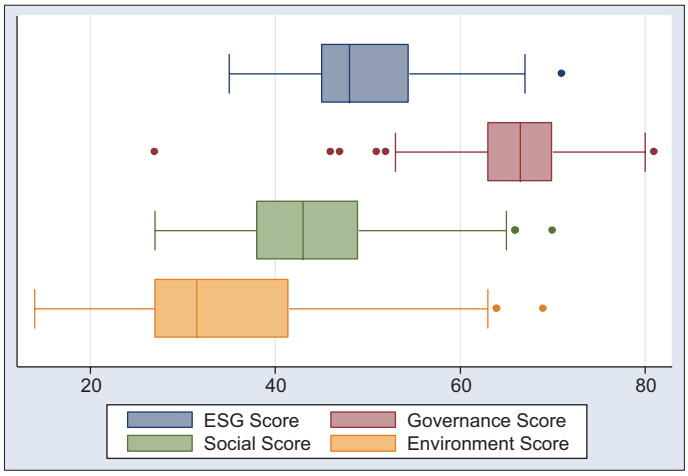
sectors. The banking sector has secured the highest overall ESG score, followed by NBFC across all the selected sectors. This result is corroborated with the findings of (Gupta et al., 2022). Our four-dimension-based analysis shows that the banking sector has also secured the highest environmental and social score. Bank and NBFCs, being essential pillars in the financial sector, play a pivotal role in sustainable development. With ESG ratings now serving as a benchmark, banks and other financial institutions are increasingly integrating ESG factors into their core operation and prioritizing their investment in the infrastructure and processes aligned with the ESG requirements. So, for socially conscious investors, banks that firmly commit to ESG principles stand out as a viable investment option. On the contrary, it is found that the chemical and metal sector has the lowest overall ESG score

Table 6: Rank-wise sectoral distribution (Top 3 and Bottom 3 Sector) of ESG dimensions

Rank	Sector	ENV	Sector	SOC	Sector	GOV
H1	Banks	57.5	Banks	54.5	IT	71.3
H2	NBFC	52.5	Pharmaceuticals	53.3	Financial Services (Others)	70.8
H3	Holding Company	45.8	Healthcare	50.2	NBFC	68.4
L3	Metals- Linked Product	24.4	Auto Ancillary	37.7	Media	63.5
L2	Chemicals - Bulk and Polymers	22.5	Real Estate	37.2	Construction EPC	62.2
L1	Metals-Ferrous	20.8	Chemicals - Bulk and Polymers	32.9	Holding Company	59

Source: Authors Calculation

Figure 2: ESG score boxplot



Source: Authors' work

due to the inherent nature of the production process. This result is corroborated with the findings of (Gupta et al., 2022). Because their production process results in the release of toxic elements, particulate matter and hazardous waste that have a detrimental impact on water, air and soil (S and P Global Ratings, 2019) and a high propensity for energy and power usage (Gupta et al., 2022). Further, with respect to the variation, it is crystal clear from the analysis that the Telecom and cement sector has the highest variation, indicating that these sectors still need to consistently take up the ESG initiatives during the year under consideration. On the contrary, the consumer retail sector was found to have the lowest variation, meaning thereby that companies in this sector have been consistent in their actions towards ESG aspects.

To obtain a clear understanding of the ESG performance, including its three components, a visual representation using boxplots has been utilized in Figure 2. The results in Figure 2 indicate that the overall ESG score is symmetrically distributed, with the median value serving as an indicator of the centre of the distribution. Additionally, governance scores are the highest among the sub-dimensions, with a few outliers on the lower end of the spectrum, signifying that some firms have scored low on governance. The Social score boxplot also has a symmetrical distribution with no outliers. However, the Environmental score boxplot has a wider range of values with negligible outliers on the upper side. This indicates that even though the average score is low, some sample firms demonstrate higher environmental reporting.

Table 6 displays the result of the top three performing sectors (H1, H2, H3) and the bottom three performing sectors (L1, L2, L3) in terms of sub-dimensional ESG performance in the Indian corporate landscape scenario. Regarding the ENV score, the banking sector has the highest ranking, followed by NBFCs, indicating that the financial sector is highly responsible for the environment. In contrast, the Metals sector has the lowest rank among the selected sectors, followed by the Chemical sector, indicating that these sectors have the lowest contribution towards the environment and that the operation of this sector has a detrimental effect on the environment by their very nature of production process. In contrast, in terms of SOC score, the banking sector has again achieved the top rank among the selected sectors, followed by the Pharmaceutical and Health Care sector, thereby implying that these sectors significantly contribute to society's uplift. In contrast, the Chemical sector has the lowest rank in the SOC dimension, followed by the Real Estate and Auto Ancillary sectors. Among the selected sectors, the IT sector has secured the highest score in GOV, followed by the financial service sector and NBFC, indicating better governance and transparency.

Table 7 displays the result of the top performing sectors (H1, H2, H3) and the bottom three performing sectors (L1, L2, L3) in terms of overall ESG performance in the Indian corporate landscape scenario. With respect to ESG score, the banking sector has achieved the top rank, followed by the NBFC and IT Sector, thereby indicating that banks and NBFC, being the financial sector, have the highest contribution towards the environment. In contrast, the Chemical sector has the lowest rank among the selected sectors, followed by the Metal sector, indicating that these sectors have the lowest contribution towards the environment and society at large and that the operation of this sector has a detrimental effect on the environment by their very nature of production process.

In the next stage, to check whether statistically significant variation exists across sectors or not, One Way ANNOVA/Welch ANNOVA or Kruskal Wallis test would be employed depending on the result of some diagnostic tests like Levene Test and Shapiro Wilk Test.

Firstly, the Shapiro-Wilk test was employed to check for normality. Table 8 exhibits the results of the Shapiro-Wilk Test. It is evident from the test that in the case of overall ESG and sub-dimensional ESG, the P value is found to be insignificant at 0.05 level, thereby indicating that the dataset follows the normality as the Shapiro Wilk test presupposes that if the P value below O.05, then the data significantly deviate from a normal distribution. As a result, for examining the multisectoral comparison, One-way ANNOVA or Welch ANNOVA would be applied depending on the result of the Levene Test. If the data do not follow normality, then the Kruskal Wallis Test would be preferred for assessing the significant variation across sectors.

Table 7: Rank-wise sectoral distribution (Top 3 and Bottom 3 Sector) of overall ESG score

Rank	Sector	ESG
H1	Banks	60.8
H2	NBFC	58.3
H3	IT	55.9
L3	Chemicals - Speciality Chemicals	45.5
L2	Metals-Ferrous	43.1
L1	Chemicals - Bulk and Polymers	43

Source: Authors' calculation

Table 8: The result of the Shapiro-Wilk test

Variables	Shapiro-Wilk Test		
	Statistic	df	P-value*
ENV	0.958	260	0.096
SOC	0.970	260	0.542
GOV	0.924	260	0.178
ESG	0.968	260	0.283

Source: Authors' Calculation derived from SPSS 28 Version. *P-value indicates significance level at 5%

Table 9: Levene test result

Variables	Levene Test			
	Statistic	df_1	df_2	P-value
ENV	4.375	25	234	0.000*
SOC	2.053	25	234	0.003*
GOV	3.566	25	234	0.000*
ESG	2.166	25	234	0.002*

Source: Authors' Calculation derived from SPSS 28 Version. * P-Value indicates significance level at 5%

Table 10: Welch ANOVA (Robust tests of equality of means)

Variables	Robust Tests of Equality of Means (Welch ANOVA)			
	Statistic	df_1	df_2	P-value
ENV	19.074	25	83.811	0.000*
SOC	7.303	25	84.054	0.000*
GOV	1.979	25	84.125	0.011*
ESG	7.300	25	83.822	0.000*

Source: Authors' Calculation derived from SPSS 28 Version. *P-Value indicates significance level at 5%

Next, to ensure whether one-way ANOVA or Welch ANOVA will be employed, the Levene test has been performed to see the homogeneity of variance:

Secondly, the Levene test was performed to check the homogeneity of variance. Table 9 exhibits the results of the Levene Test. It is crystal clear from the Levene Test that all the variables selected in our study, i.e. overall ESG and Sub dimensions of ESG, were found to be significant at 0.05 level. As a result, the formulated null hypothesis, which presupposes the homogeneity of variance, has been rejected in the case of all our selected variables. As a result, instead of One Way ANNOVA, we have employed Welch ANNOVA.

Table 10 summarizes the results of the Robust Test of Equality of Means (Also known as Welch ANOVA). It can be traced from that table that overall ESG and sub-dimensions of ESG were found to be significant at 0.05 level as the $P < 0.05$ in the case of all the variables, thereby indicating that there exists a significant difference in terms of overall ESG as well as Sub dimensional ESG across the selected sectors. As a result, the formulated null hypothesis, which presupposes that there is no significant difference among the selected sectors, has been rejected, which led to the validation of the alternative hypothesis (H_1 and H_2), which presupposes that there exists a significant difference in terms of overall ESG and sub-dimensions of ESG across selected sectors.

6. CONCLUSION

The ESG score is a yardstick for measuring the sustainability performance of the corporates. In the present study, an attempt has been made to demystify the variation of overall ESG and sub-dimensional ESG Performance scores across selected sectors. Some of the significant findings can be traced from this study; with respect to the environmental score, it is apparently noted that the Banking sector has secured the highest score, whereas the Metal sector has the lowest score due to the inherent nature of the production process. Further, regarding the social score, the banking sector has again secured the highest score, reflecting that the banking sector, the major player in financial sectors, is increasingly integrating ESG factors into their core operation. In contrast, the chemical sector has the lowest social score.

Moreover, in terms of governance score, the IT sector has the highest Governance score, and it is also worth mentioning that it has the highest score among all the dimensions of ESG, implying that among the selected sectors, IT sectors are giving much more emphasis on governance issues. Furthermore, in terms of overall ESG score, the banking sector again has secured the highest ESG score, followed by the NBFC sector (Gupta et al., 2022), as banks and NBFC, being the essential pillars in the financial sector, play a pivotal role in sustainable development. The findings of the study will undoubtedly make a significant contribution to the body of literature already in existence because it is evident from the study that not all sectors are performing at the same level. So, prior to making any significant investment decisions, prospective investors will surely benefit from knowing which sectors have a significant contribution to ESG dimensions and which have not.

Furthermore, the study's conclusions will assist regulators and legislators in creating strict regulations for industries that disregard social and environmental norms. Moreover, this study will be beneficial for society at large as the world moves towards a sustainable future, so to transform this dream into reality, Our Government is making significant efforts to achieve the SDG goals by 2030 and along with the Government, corporations also play a vital role in achieving these goals by integrating ESG practices into their core operations. The SDGs and ESG factors are closely related. Many SDGs can be achieved through ESG practices, such as reducing carbon emissions, improving working conditions, and promoting diversity and inclusion. In turn, corporate ESG practices can help accelerate the achievement of SDGs. As research is a never-ending process and it is not an end in itself, future research may be conducted on examining the sectoral differences by incorporating ESG scores from different rating agencies and

as this study is confined to only a year, so in future, longitudinal study may be conducted to reflect the comprehensive picture of ESG performance variation across sectors.

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