CORPORATE SUSTAINABILITY PRACTICES IN INDIA: A STUDY ON IMPACT OF ENVIRONMENTAL, SOCIAL, GOVERNANCE FACTORS ON FINANCIAL PERFORMANCE AND RISK PROFILE OF THE LISTED FIRMS

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Management

By

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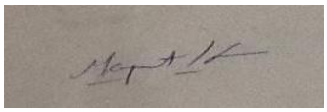
2025

DECLARATION

I, hereby declared that the presented work in the thesis entitled "Corporate Sustainability Practices in India: A Study on Impact of Environmental, Social, Governance Factors on Financial Performance and Risk Profile of the Listed Firms" in fulfilment of degree of **Doctor of Philosophy (Ph. D.)** is outcome of research work carried out by me under the supervision Dr. Nitin Gupta, working as Professor and HoD**,** in the Mittal School of Business of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of another investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.



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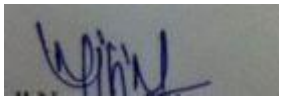
CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled Corporate Sustainability Practices in India: A Study on Impact of Environmental, Social, Governance Factors on Financial Performance and Risk Profile of the Listed Firms" submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph.D.)** in the Mittal School of Business, is a research work carried out by Manpreet Kaur, 12008834, is bonafide record of his/her original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.



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Abstract

Introduction

Concern of society started back in the late 1970s, when the global community confronted an escalating environmental crisis, characterized by the rapid depletion of rainforests and rising pollution levels. The pivotal moment came in 1987 with the introduction of the term "Sustainable Development" by the Brundtland Commission. Further, 1990s unfolded, societal concerns expanded beyond the environmental realm to encompass pressing social issues such as poverty, child labor, and bribery, compounded by the emergence of new diseases. It became increasingly evident that these challenges were not isolated issues with simple government-driven solutions. Instead, a paradigm shift was required in business practices, which were identified as root causes of pollution, corruption, bribery, and unsustainable development projects. A consequential outcome of this global awakening was the recognition that Corporate Social Responsibility (CSR) for the business community as an imperative of sustainable development.

Furthermore, there was a strategic shift that ensure pursuit of profit maximization was harmonized with socially responsible practices and results in a new term, Socially Responsible Investing (SRI), pushing the global adoption of sustainability reporting by multinational corporations. Also, SRI underwent a transformation, expanding to include considerations of corporate governance alongside environmental, social, and financial factors. due to many scams like Enron, Satyam, and WorldCom, etc. The realization dawned that sound corporate governance not only increased productivity and efficiency but was also pivotal in evaluating the risk-return profile of companies, particularly in the United States. Consequently, United Nations formalized the concept of responsible investing through the launch of the Principles for Responsible Investing (PRI) that aligns investment strategies with ethical, social, and environmental considerations.

This evolution signifies a paradigm shift in investment strategies, where sustainability and responsible business practices are not only viewed as ethical imperatives but as integral components for achieving long-term success in an increasingly dynamic global marketplace. As a result, to assess the company's adherence to responsible and ethical practices ESG came to existence. It also serves as strategic mechanism for identifying potential business risks and

opportunities in these critical areas.Therefore, an ESG investment strategy “emphasizes a firm’s governance structure and the social and environmental impacts of the firm’s products or practices” (Schanzenbach & Sitkoff, 2020).

In case of India, SEBI has recently mandated the ESG transparency for 1000 listed companies, with an amendment to the BRR (Business Responsibility Report) regulations to BRSR (Business Responsibility and Sustainability Reporting). Under BRR only top 100 companies were under mandation but with rising need and importance it was amended in 2019. Also, SEBI has actively encouraged other listed entities to voluntarily disclose information on their ESG performance using the BRSR format. The BRSR, as a result, becomes a dynamic platform for companies to transparently disclose and extensively discuss their performance in alignment with the nine principles of the NVGs. Through this report, companies showcase their commitment to responsible and sustainable business conduct, contributing to an environment of increased accountability, transparency, and stakeholder trust.

Literature Review

The extant literature that revolves around responsible investment has redirected attention from theoretical articles that centered around personal values such as "sacrifice," "morality," and "religion" during the 1980s and 1990s to empirical articles that emphasized "financial performance," "performance," "activism," "sustainability," and "stakeholders." (Talan and Sharma, 2019). Hence this chapter covers evolution of ESG and theoretical prospective in the beginning that defines the ESG scores and their relevance in evaluating the sustainability and responsible practices of companies. As sustainable investment has emerged as a potential solution to social and environmental concerns by holding financial markets more accountable for their consequences (Escrig-Olmedo, et al., 2017). Additionally, being sustainable encompasses not only the well-being of society and the environment, but also the generation of economic profits, therefore financial performance holds equal significance to non-financial (ESG) characteristics. Therefore, this study analyzes the relationship between ESG scores of Indian companies and their financial performance and risk profile.

Environmental Social and Governance scores and financial performance

ESG performance has increasingly become a focal point in assessing a company's overall sustainability and responsible business practices. Numerous studies have revealed a positive association between strong ESG performance and favorable financial outcomes for companies.

Firms that prioritize ESG factors demonstrate a commitment to environmental stewardship, social responsibility, and sound governance practices, which can lead to enhanced profitability, reduced risk exposure, and improved long-term financial performance. However, it is essential to note that the impact of ESG on financial performance is complex and context dependent. Not all companies may experience immediate financial gains from ESG integration, especially in industries with longer payback periods or where ESG considerations are less directly linked to financial outcomes. Moreover, data comparability and standardization challenges can hinder a comprehensive assessment of the relationship between ESG and financial performance. While ESG integration offers potential benefits, it is crucial for companies to tailor their approach to fit their unique context and industry-specific dynamics to realize the full financial potential of responsible and sustainable practices.

ESG and Risk Profile

The question of whether ESG (Environmental, Social, and Governance) ratings influence the risk of a company has been a subject of debate in the corporate world. Some argue that ESG ratings can indeed have a significant impact on a company's risk profile. A higher ESG rating suggests that the company has demonstrated strong sustainability practices, responsible governance, and positive social impact, hence more likely to attract socially responsible investors. This increased investor interest can lead to improved access to capital and lower borrowing costs, further reducing the financial risks faced by the company. On the other hand, critics argue that ESG ratings may not have a direct impact on a company's risk profile. They point out that ESG ratings are often subjective and can vary based on the rating agency's methodology and criteria. Moreover, a high ESG rating does not guarantee immunity from all risks, as companies can face unforeseen challenges and market fluctuations that may not be fully captured by ESG metrics. Therefore, it is essential to consider that while ESG ratings can offer insights into a company's sustainability practices, they should not be the sole basis for evaluating its overall risk profile.

Research Methodology

Research gap.

There has been limited research carried out in India regarding the relationship between ESG (Environmental, Social, and Governance) factors on financial performance and risk profile of Indian listed firms as there is a need of thorough and uniform ESG data. There have been

improvements in the last few years regarding the accessibility of ESG information for Indian firms but there are many issues with regards to the quality of data as well as consistency and comparability between different firms and industries.

In the existing literature researchers have taken data for a shorter period of time as there is a need for more long-term research that studies the association between ESG elements and the financial performance and risk profile.

Objectives of the study

1. To study the trends and patterns of Environmental, Social, and Governance in India.
2. To identify the impact of Environmental, Social and Governance factors on the financial performance of companies in India.
3. To study Environmental, Social, and Governance scores within sectors of the firms.
4. To estimate the impact of Environmental, Social, and Governance on risk profile of the listed firms in India

Sample Selection and Technique

We have selected the National Stock Exchange as a sampling unit as NSE is the biggest market for stocks of India with regard to market capitalization as well as trading volume, which makes it a key participant on India's Indian financial market. This study used a cluster sampling technique through which firms listed under nifty 500 index. NSE nifty 500 has been selected as a sampling frame.

Data Collection and Sample Size

This study uses secondary data. Data for the study has been collected from authentic websites and platforms for 10 years from financial year 2012 to financial year 2021. First the data of ESG factors has been collected from Bloomberg. Second, the data of financial performance and risk factors have been collected from CMIE prowess IQ. CMIE ProwessIQ is a well-known and widely used database in India that provides financial and non-financial information about companies.

Empirical Model and Estimation Techniques

Content analysis

This study has systematically and manually analysed the content of a text or media to identify patterns, themes, and trends. The analysis has been done in both qualitative and quantitative content, with the final results typically presented in the form of descriptive statistics or textual summaries.

Panel system GMM

Panel system GMM (Generalized Method of Moments) is a commonly used method for examining the correlation between variables across different time periods. It is widely regarded as the most effective tool for examining the relationship between variables due to many factors. Panel system GMM uses data collected over time, allowing for greater statistical power and reducing the risk of type II errors. It is distinguished by its lack of bias, low variance, reliability, and its capacity to predict and address heteroscedasticity issues, resulting in improved econometric estimate.

Kruskal-Wallis Test

In this study, we investigate the ESG scores across eleven distinct sectors, with primary objective is to explore variations in ESG scores among these sectors, shedding light on the differences and commonalities in their ESG performance over time.

Empirical Analysis

Based on the trend and pattern analysis, the study shows a striking divergence between social and environmental performance, evidently investments in social causes have followed an upward trajectory, while environmental investments have maintained a steady but undulating course over the past decade. Moreover, a salient feature unearthed from the analyses is the contrasting ESG scores across dimensions. Remarkably, while governance scores comfortably surpass the 70-score mark, reflecting effective decision-making structures, both social and environmental scores remain at or below 20 scores out of 100, underscoring room for substantial enhancement. This section illuminates the multifaceted landscape of ESG performance among Indian companies.

The comprehensive analysis between ESG factors and financial performance metrics is done by examining the connection with ROA, ROE, EPS, P/E and Tobin Q. there was an unexpected negative

relationship with three of the above mentioned five financial indicators that prompts a nuanced exploration of potential trade-offs between sustainability investments and short-term profitability (Almeyda & Darmansya, 2019: Junius et al., 2020: Tóth et al., 2021). The negative coefficient raises questions about the valuation dynamics of companies adopting robust ESG practices, suggesting potential complexities in market perceptions of sustainability-driven value creation (Alamsyah & Muljo, 2023: Nirino et al., 2021: Wu et al., 2024). Nonetheless the insignificance of ESG scores concerning market-based variable beta and accounting-based leverage raises questions about the suitability of traditional risk measures in assessing ESG-related risks. This revelation invites a debate on the need for innovative risk assessment frameworks that can adequately evaluate the impact of ESG factors on a company's sustainability.

Also based on the third objective of the study a significant difference is observed among the ESG scores of the sectors and the result of this exploration not only affirms the diverse sustainability profiles across sectors but also provides a roadmap for stakeholders to tailor their strategies, fostering a more sustainable and responsible business landscape.

Findings and Conclusion

1. The divergence between social and environmental performance, evident in both CSR and ESG investments, where social investments show an upward trajectory, environmental investments follow a steady but undulating course over the past decade,
2. On basis of ESG data, governance scores exceed 70 indicate effective decision- making structures, while social and environmental scores below 20 highlight room for enhancement.
3. In the examination of ESG factors and their relationship with financial performance, results in a significant enhancement in Return on Assets (ROA) and depicts the positive and statistically significant association with the Price-to-Earnings (P/E) ratio. Whereas the relationship between ESG and Return on Equity (ROE) reveals a nuanced nature.
4. The exploration of the ESG and Earnings Per Share (EPS) relationship yields a noteworthy negative correlation. Similarly, the examination of ESG and Tobin's Q reveals a significant negative correlation, prompting a reevaluation of assumptions about the positive impact of ESG considerations. Also, the negative relationship raises intriguing questions about the intricate dynamics between ESG practices and how investors should perceive the firm's value.

5. Hence, the divergence in the relationships with Tobin's Q and P/E ratio underlines the complexity of how ESG factors influence financial metrics. It emphasizes that the impact of ESG considerations is context-specific and may vary across different dimensions of corporate finance.
6. Further, in exploring the intricate relationship between ESG scores and **risk**, this study uncovers compelling insights
7. The investigation into ESG scores across diverse sectors on the stock exchange in India uncovers notable variations, particularly for power sector and oil and mine sectors, which emerge with significantly higher ESG scores compared to their counterparts.
8. The environmental and social scores for this sector are notably lower when assessed independently. This highlights the importance of scrutinizing individual ESG components to gain a more accurate understanding of a sector's overall sustainability performance.
9. Governance scores consistently stand out, being three times higher than both social and environmental scores across all sectors. This pattern raises intriguing questions about how companies may be prioritizing and emphasizing governance practices while potentially downplaying their actual contributions to environmental and social aspects.

Recommendations

For Investors**:** Due to insignificant relation among the financial variable and ESG indicators, investors should consider other variables as well to analyze the firm performance and sustainability. Also the relationship between firm financial performance, risks, and ESG is complex is nature and cannot be standardized among nations.

For Policymakers**:** A lack of standardization and inadequate disclosure regarding sustainable practices may also contribute to the insignificance of the relationship. Consequently, policymakers could impose stringent regulations not only on large corporations but also on new start-ups; this would not only aid in promoting sustainability among the corporate sector but also ensure its long-term viability. Moreover, standardization and increased disclosure practices also attract both foreign and domestic responsible investment thus contributing to the sustainable development.

Limitations

As every study has its own limitations and so does this, the study has selected the sample of top 500 NSE listed non-financial companies, hence excluding the financial companies and those which are not among the top 500, hence limiting the scope of study. Additionally, ESG scores in this study is extracted from the Bloomberg database but all databases have their own method of calculating scores thus effecting the standardization of results.

Future scope

The future scope in this research is to investigate the impact of ESG, or non-financial factors on the financial performance of organizations by sector. The workings of all industries have a varied impact on their ESG ratings. As a result, subsequent research can analyze the weightage given to E, S, and G based on sector when analyzing their sustainability for investment, as their cumulative score is dominated by G scores.

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Table of Abbreviations

S. No.	Abbreviations	Full form
1	ANOVA	Analysis Of Variance
2	BRR	Business Responsibility Report
3	BRSR	Business Responsibility and Sustainability Reporting
4	CDSB	Climate Disclosure Standard Board
5	CSR	Corporate Social Responsibility
6	EPS	Earnings Per Share
7	ESG	Environmental Social and Governance
8	GMM	Generalized Method of Moments
9	GRI	Global Reporting Initiative
10	IFRS	International Financial Reporting Standards
11	ISSB	International Sustainability Standard Board
12	KPMG	Klynveld Peat Marwick Goerdeler
13	NVG	National Voluntary Guidelines
14	P/E	Price to Equity
15	ROA	Return on Assets
16	ROE	Return on Equity
17	SASB	Sustainability Accounting Standard Board
18	SASB	Sustainability Accounting Standard Board
19	SEBI	Security Exchange Board of India
20	SRI	Socially Responsible Investing
21	TCFD	Taskforce for Climate Related Financial Disclosure
22	UNCED	United Nations Conference on Environment and Development
23	UNGC	United Nations Global Impact

CHAPTER I

PART A- Paradigm Shift to Sustainability

1.1 Overview

The Environmental, Social, and Governance (ESG) embarks on a journey through the evolutionary timeline of CSR, highlighting its transformative impact on organizational practices. It illuminates the dynamic interplay between ESG considerations, organizational performance, and the inherent risks faced by businesses in the contemporary landscape. The chapter commences by tracing the roots of ESG, elucidating its genesis in response to a growing recognition of the interconnectedness between business operations and the broader ecosystem. It explores the milestones and pivotal moments that have shaped ESG into a strategic framework, transcending its initial roots in ethical investing. Through a nuanced historical lens, readers gain insights into how ESG has evolved from a niche concept to a mainstream paradigm, mirroring the changing expectations of stakeholders, investors, and the global community. Central to this exploration is the intrinsic link between ESG and organizational performance. The chapter examines how ESG may be a catalyst for perpetual wealth development, improved operational efficiency, and innovation. By weaving in case studies and success stories, readers are provided with tangible examples of how companies leveraging ESG principles have not only mitigated risks but also fortified their competitive positions in the market. Through a detailed examination of these risks, readers gain a comprehensive understanding of the imperative for businesses to proactively address ESG concerns as a strategic risk management tool. To further illuminate the interconnectedness of ESG and organizational performance, the chapter explores the evolving landscape of reporting standards and regulatory frameworks. It highlights the growing demand for transparency and accountability, both from regulatory bodies and an increasingly conscientious consumer base. By navigating the intricacies of ESG reporting requirements, readers gain insights into how compliance with these standards not only safeguards against regulatory risks but also serves as a powerful tool for building trust and credibility. This introductory chapter thus sets the stage for a deeper exploration of ESG, framing it not merely as a theoretical construct but as a dynamic force shaping the trajectory of businesses in the modern era. By elucidating the historical context, the connection to organizational performance, and the risks at stake, the chapter aims to equip readers with a holistic understanding of the multifaceted implications of ESG integration in the corporate landscape.

1.2 Sustainable Paradigm: Evolution & Responsiveness

1.2.1 Environment and Sustainability

The late 1970s marked a critical juncture when the global community confronted an escalating environmental crisis, characterized by the rapid depletion of rainforests and rising pollution levels. This crisis prompted a profound reassessment of humanity's relationship with the Earth's finite resources. The Brundtland Commission, previously known as the World Commission on Environment and Development, introduced the concept of "sustainable development" in 1987. This occurrence was a pivotal moment. Sustainable development, according to this creative framework, entails meeting present needs while preserving the ability of future generations to meet their own. The vision called for a thorough process of transformation that would involve resource exploitation, investment orientation, technical advancement, and institutional change to be in line with current and future needs.

As the 1990s unfolded, societal concerns expanded beyond the environmental realm to encompass pressing social issues such as poverty, child labor, and bribery, compounded by the emergence of new diseases. It became increasingly evident that these challenges were not isolated issues with simple government-driven solutions. Instead, a paradigm shift was required in business practices, which were identified as root causes of pollution, corruption, bribery, and unsustainable development projects. The 1992 Earth Summit in the Brazilian city of Rio de Janeiro, in the nation of Brazil, served as the pinnacle of this epiphany. It was the Environment and Development Conference of the United Nations (UNCED). Heads of state gathered at this historic summit, where they made a united commitment to stop the misappropriation of fossil fuels and to promote sustainable development globally.

1.2.2 Society and Sustainability

A consequential outcome of this global awakening was the recognition that Corporate Social Responsibility (CSR) could serve as a pivotal response from the business community to the imperative of sustainable development. Over time, CSR evolved from being primarily associated with philanthropy to encompassing a broader spectrum of responsible business practices. This evolution is integral to understanding how businesses have embraced their roles as stakeholders in broader societal and environmental contexts. Evaluating the contemporary global and Indian

landscapes of CSR become crucial, not only to gauge the current significance of these initiatives but also to discern their potential impact on shaping a more sustainable and responsible future.

Howard Bowen, known as the "Father of CSR," introduced the concept of corporate social responsibility, which defines it as the obligations of businessmen to pursue policies, decisions, and actions that align with societal objectives and values (Bowen, 1953). In its nascent stages, CSR was closely tied to humanitarian endeavors by corporations, emphasizing the cultivation of positive relationships with the community. The prevailing belief was that a company's resources should be dedicated to broader social causes (Carroll, 2018), with volunteerism being considered an essential component of this corporate responsibility (Walton, 1967).

However, during this same period, Milton Friedman emerged as a formidable critic of the philanthropic application of corporate resources. He staunchly argued that a business's sole objective should be the maximization of shareholder value, equating it with profit generation. Despite this viewpoint, a concurrent perspective held that responsible behavior towards society could yield long-term economic benefits for enterprises (Davis, 1960), leading to sustained profit and utility maximization (Johnson, 1971).

The early 1970s marked a significant juncture as multinational corporations proliferated, ushering in a complex landscape where firms were entangled with myriad entities beyond shareholders—regulators, customers, vendors, and entire communities. This shift in perspective gained traction as the 'Stakeholder Theory' in the mid-80s, notably championed by (Hannan & Freeman, 1984). This conceptual shift prompted two major transformations in the reporting domain. Firstly, stakeholders began demanding increased transparency in companies' reporting of non-financial performance. Secondly, companies responded with additional extra-financial disclosures in the form of CSR reporting, acknowledging the interconnectedness between corporate actions and the broader ecosystem of stakeholders. Therefore, CSR was the prevailing framework for defining the social obligations of businesses during most of the latter part of the 20th century. Eventually this paradigm shifted as the new millennium approached. Sustainability emerged as a major concern. This evolution reflects a dynamic journey from early philanthropy-centric views to a more nuanced understanding of CSR's role in fostering sustainable and responsible business practices.

1.2.3 Socially Responsible Investing (SRI) via Governance and Sustainability

This era witnessed the global adoption of sustainability reporting by multinational corporations. Concurrently, a new term, Socially Responsible Investing (SRI), emerged, gaining prominence as investors, influenced by the Brundtland Commission's ethos, began integrating ESG factors into their investment decisions. This strategic shift ensured that the pursuit of profit maximization was harmonized with socially responsible practices.

In the early 2000s, the corporate scandals involving Enron and WorldCom prompted legislative action, giving rise to the impactful Sarbanes-Oxley Act of 2002. This legislation elevated financial reporting standards and disclosures for public companies, introducing stringent accountability measures. The realization dawned that sound corporate governance not only increased productivity and efficiency but was also crucial for assessing the risk-return profile of companies, particularly in the United States.

In response to these developments, Socially Responsible Investing underwent a transformation, expanding to include considerations of corporate governance alongside environmental, social, and financial factors. The United Nations significantly contributed to the formalization of the concept of "responsible investors" through the launch of the Principles for Responsible Investing (PRI).This marked a defining moment where responsible investing crystallized as a formalized term, reflecting a commitment to aligning investment strategies with ethical, social, and environmental considerations.

Modern Sustainable Investors, now synonymous with Responsible Investors, actively seek companies with the best ESG practices, aiming for a sustained competitive advantage. The assessment goes beyond mere financial performance and instead examines the capacity of a company's management to effectively respond to the dynamic nature of the business environment, with a focus on creating enduring value (Clark, et al., 2014). This evolution signifies a paradigm shift in investment strategies, where sustainability and responsible business practices are not only viewed as ethical imperatives but as integral components for achieving long-term success in an increasingly dynamic global marketplace.

Table no. 1: Outline for ESG Regulations

Time period	Milestones
1997	The Kyoto Protocol, an agreement to specific greenhouse gas reduction targets, is adopted, laying the groundwork for future ESG regulations
2000	The Global Reporting Initiative (GRI) is launched, improving corporate disclosure on ESG issues and leading to 80% of the world's largest corporations using GRI standards today
2004	The term "ESG" is popularized in a report, titled "Who Cares Wins," a joint initiative of financial institutions at the invitation of the United Nations
2006	The United Nations' "Principles for Responsible Investment" (PRI) report and "Who Cares Wins," requires the incorporation of ESG criteria in the financial evaluations of companies for the first time
2015-19	ESG investing experiences rapid growth, with an estimated $20 trillion in assets under management (AUM) and a 525% increase in capital flowing into ESG-linked products
2000	ESG is now mainstream, with varying frameworks for addressing ESG issues emerging. The importance of ESG ratings is recognized, but a lack of standard structure remains a challenge
2023	The focus of ESG investing and regulation continues to grow, with the United States putting more of an emphasis on climate change and the European Union expanding its ESG reporting to include waste management, circular economy, biodiversity, diversity, and inclusion.

Source: *Author's*

1.3 From CSR to Sustainable investing

In the modern environment, the report "Who Cares Wins" published by the United Nations (UN) in 2004 is generally considered to be the first widespread reference of ESG issues. Representatives from eighteen financial institutions (banks, insurers, asset management, consulting, and financial services firms) were extended invitations by United Nations Secretary General, - Kofi Annan. The purpose of these invitations was to "develop guidelines and recommendations regarding the enhanced integration of environmental, social, and corporate governance concerns into asset management, securities brokerage services, and related research functions."

In the dynamic landscape of investment and corporate governance, the ascendancy of ESG investing has prompted a parallel surge in ESG reporting across global companies. This paradigm

shift is actively fostered by various third-party organizations, among which the United Nations Global Compact (UNGC) holds a prominent position. The UNGC serves as a pivotal initiative, globally championing the development, implementation, and disclosure of CSR activities.

Internationally, 'The Global Reporting Initiative' (GRI) has positioned itself as a trailblazer in the realm of sustainability reporting. This powerful worldwide institution pushes firms to report thoroughly on a spectrum of sustainability concerns, spanning from climate change and human rights to governance and social well-being. These themes include a wide range of topics. GRI's sustainability reporting standards are widely adopted by 93% of the world's 250 largest corporations, demonstrating their significant impact (Source: Global Reporting Initiative Website).

The Sustainability Accounting Standards Board (SASB) monitors reporting and disclosures on environmental, social, and governance issues in the US. In India, the Securities and Exchange Board of India (SEBI) mandates the BRR and National Voluntary Guidelines (NVG), listing the top 500 corporations by market value. The SEBI (Listing Obligations and Transparency Requirements) Regulations, 2015, extended the deadline for submission to the top 1000 businesses for the 2019–20 fiscal year.

The coordinated efforts highlight a worldwide trend towards uniform ESG reporting, focusing on openness and accountability in corporate operations. The growing use of these reporting systems shows a shared dedication to incorporating ESG factors into corporate operations. This connection meets investors' increasing expectations and demonstrates a larger dedication to sustainable and responsible business practices worldwide.

1.4 The Evolution of Indian Perspective

Within the Indian corporate landscape, the trajectory from traditional CSR practices to a more encompassing embrace of ESG principles signifies a profound evolution towards holistic sustainability. Initially grounded in philanthropy, CSR in India centered on corporate initiatives addressing societal welfare, often in response to regulatory mandates. Yet, as the global conversation around sustainable business practices gained momentum, Indian companies recognized the intrinsic link between environmental preservation, social equity, robust governance, and sustained business success. The momentum towards ESG in India burgeoned in response to escalating environmental challenges, social disparities, and the imperative for resilient governance

mechanisms. Institutionalizing ESG practices was made possible by regulatory authorities like the Securities and Exchange Board of India (SEBI), which spearheaded programs like the Business Responsibility Report (BRR).

This transformative shift aligns with global trends, underscoring the growing imperative for businesses to integrate sustainability considerations into their core strategies. Today, Indian corporations no longer view ESG merely as a compliance requirement; rather, it has become a strategic imperative for navigating risks, enhancing reputations, and fostering long-term resilience. As companies navigate this evolving landscape, the integration of ESG principles continues to gain prominence, signaling a collective commitment to sustainable, responsible, and value-driven business practices within the Indian corporate sector.

Simultaneously, the regulatory framework shaping CSR activities in India is anchored in The Companies Act of 2013. This legislation mandates that companies allocate a designated portion of their profits towards diverse social initiatives encompassing education, affordable healthcare, malnutrition alleviation, women's empowerment, and public infrastructure projects such as constructing public toilets. While the concept of CSR spending is ingrained in India's philanthropic culture, the Companies Act of 2013 has significantly expanded its scope, incorporating a broader array of companies. This legislative move has provided a strategic and systematic direction to the CSR activities of businesses, reinforcing their commitment to societal welfare and sustainable development.

Harpal Singh, Chairman Emeritus of Fortis Healthcare Limited, emphasizes the importance of legislative inclusion in promoting economic growth equitably. This legal framework has prompted companies to align their social responsibility efforts with national development priorities, thereby enhancing the corporate sector's engagement with the country's broader developmental agenda.

Various companies have embraced this CSR mandate in innovative ways. Some, like Hindustan Unilever, Maruti Suzuki India, and Bharat Petroleum, have adopted villages, investing in their holistic development. These initiatives extend beyond immediate relief measures, incorporating long-term programs such as education, healthcare facilities, and vocational training. The goal is to empower villagers and foster self-reliance, contributing to sustainable community development.

Additionally, companies like Glaxo Smith Kline have channeled their CSR obligations into health-related programs. This includes organizing free health check-ups, providing medical treatment, and conducting medical camps in tribal villages. Such initiatives exemplify a commitment to addressing specific needs within communities, aligning with the broader objectives of social responsibility.

The integration of CSR into the regulatory framework not only emphasizes the societal responsibilities of businesses but also serves as a mechanism to channel corporate contributions toward the overall betterment of communities and the nation's developmental goals. It reflects a more strategic and intentional approach to corporate philanthropy, highlighting the potential for businesses to play a meaningful role in addressing social challenges and contributing to sustainable development.

Globally, companies have reaped significant benefits from integrating sustainability practices, enhancing both their reputation and operational performance (Porter & Linde, 1995). This trend is mirrored in India, where notable examples, such as the Tata Group, illustrate the positive impact of sustained commitment to community development. Over the past decade, the Tata Group has invested over 8000 crores in community development, exemplifying a longstanding dedication to giving back to society, even preceding the mandatory CSR requirements.

The concept of CSR and sustainability, as articulated by the Department of Public Enterprises in April 2013, reflects a company's commitment to conducting business in an economically, socially, and environmentally sustainable manner, guided by principles of transparency and ethics. This commitment aligns with the evolving global perspective encapsulated in the “Environmental, Social, and Governance” ESG framework. The relevance of ESG principles has become increasingly pronounced globally, influencing not only the way businesses operate but also the standards for ESG reporting and disclosures.

The National Voluntary Guidelines (NVG) and Business Responsibility Reporting, mandated by SEBI, are crucial in India for governing ESG reporting and disclosure aspects for Indian companies, focusing on environmental, social, and economic responsibilities. This regulatory framework underscores the growing significance of ESG considerations in the business landscape, emphasizing the need for transparency and accountability in companies' economic, social, and environmental practices. As the global business landscape evolves towards a more sustainable

future, Indian companies are actively embracing ESG principles to ensure responsible, ethical, and transparent business operations.

1.5 E-S-G (Environment, Social and Governance)

ESG (Environmental, Social, and Governance) is a set of criteria used to assess a company's performance in areas beyond financial metrics, including corporate governance, social responsibility, and environmental sustainability. A primary objective of responsible and sustainable investment strategies is the incorporation of ESG considerations into investment decision-making.

ESG is a comprehensive framework that assesses an organization's business practices and performance in terms of sustainability and ethical dimensions. It offers a comprehensive lens through which non-financial performance indicators such as sustainability, ethics, and corporate governance can be scrutinized. At its core, ESG serves not only as a tool for assessing a company's adherence to responsible and ethical practices but also as a strategic mechanism for identifying potential business risks and opportunities in these critical areas. This framework extends its influence into capital markets, where a growing cohort of investors integrates ESG criteria into their decision-making processes, a practice commonly referred to as ESG investing. Therefore, an ESG investment strategy "emphasizes a firm's governance structure and the social and environmental impacts of the firm's products or practices" (Schanzenbach & Sitkoff, 2020).

In the expansive realm of ESG, the three pillars "environmental, social, and governance" — encapsulate diverse facets of a company's operations. On the environmental front, ESG scrutinizes a company's ecological footprint, delving into practices that either contribute to or mitigate environmental degradation. The evaluation involves assessing carbon emissions, resource usage, waste management, and efforts to promote biodiversity and sustainable land use. The social dimension of ESG addresses how a company engages with and impacts its human and community stakeholders. Along with, considerations such as employee relations, diversity and inclusion policies, community participation, preservation of human rights, and broader concerns relating to social justice and well-being are included in its scope of considerations. Governance, the third pillar, pertains to the internal structures and procedures that guide an organization's decision-making process. It includes aspects such as board composition, executive compensation, risk management practices, and adherence to ethical business conduct.

Table no.2: ESG factors

Environment	Social	Corporate Governance
No. of inspections by the Environmental Agency	Communication to employees	Shareholder advocacy
Eco-efficiency	Opportunities and benefits	Community investing
Energy efficiency of buildings	Compensation, diversity	Shareholder Rights
Emission Reduction	Teamwork, philanthropy	CG Disclosures
Air pollutants	Dimensions of charitable contributions	Board composition; board and CEO compensation
Hazardous Waste	Revealed misdeeds	Litigation fees
Ozone Depleting Chemicals	Employee relations	Range of Takeover Defense
Agricultural emissions	Gender ratio	Rights and Duties of Shareholders
Carbon Intensity (calculated)	Human rights	
Production of fossil energy	Product quality	
Operation of energy plants based on fossil energy or nuclear energy	Policies on health and safety	
Production of cars or planes	Working hours and wages	
Production of harmful substances according to the Stockholm agreement	Child/forced labor issues	
Sustainable fishery or forestry	Community involvement policy and programs	

***Source**: Authors'*

While ESG criteria have traditionally been deemed as non-financial performance indicators, their significance lies in their capacity to influence financial outcomes. These efforts are directed towards managing a company's impact on the environment and its relationships with various stakeholders, including employees, suppliers, and the broader community. Beyond mere compliance, ESG programs contribute to broader sustainability endeavors, positioning companies

strategically for sustained success through prudent company governance and innovative business strategies. Hence ESG is used “to refer not only to sustainability measures or to environmental, social, or governance practices specifically, but to all non-financial fundamentals that can impact firms’ financial performance, such as corporate governance, labor and employment standards, human resource management, and environmental practices” (Harper Ho, 2016)

In the intricate dance between ESG and investment decisions, the practice of ESG investing is gaining traction. Investors recognize that a company's sustainability practices are not only reflective of its commitment to ethical conduct but also indicators of resilience and adaptability in the face of evolving global challenges. ESG investing incorporates ESG criteria into investment strategies to connect financial objectives with ethical and sustainability factors. ESG initially surfaced in the 1990s as a risk management strategy for portfolios linked to financial performance. (Boffo and Patalano, 2020). Non-financial characteristics were given the same weight as financial factors for analyzing a company's performance. Businesses had to shift their focus away from narrow, short-term financial goals and toward economic, environmental, and social sustainability. Investing in ESG factors is closely related to 'responsible investment,' which may include the full range of 'sustainable investment.' MacNeil and Essar (2022) argue that contributions not only yield financial returns but also have a positive societal and environmental impact.

The adoption of ESG principles is a strategic move for companies aiming to thrive in a rapidly changing business landscape. Beyond the immediate financial implications, ESG initiatives cultivate brand reputation, customer loyalty, and stakeholder trust. The transparency and accountability inherent in ESG practices resonate with a growing cohort of consumers who prioritize ethical considerations in their purchasing decisions. Furthermore, as governments and regulatory bodies increasingly recognize the importance of sustainable practices, companies adhering to ESG principles may find themselves better positioned to navigate evolving regulatory landscapes, avoiding potential legal risks, and enhancing long-term viability.

In essence, ESG is not merely a set of criteria for assessment; it represents a fundamental shift in the understanding of corporate success. The shift from solely focusing on financial metrics to a holistic approach to environmental and social impacts signifies a paradigm shift in the corporate world, acknowledging the interconnectedness of economic, environmental, and social factors. It is a recognition that long-term success is contingent not only on financial performance but also on

the ability to navigate complex and interrelated challenges posed by environmental degradation, social inequalities, and evolving governance expectations.

ESG is not a static framework; it is a dynamic and evolving process that requires continuous adaptation and improvement. Companies that embrace ESG as a fundamental aspect of their operations are better positioned to thrive in a world where sustainability is not just a buzzword but a defining characteristic of responsible and forward-thinking business practices. In this paradigm, ESG is not a mere evaluative tool; it is a compass guiding companies towards a future where economic success is intrinsically linked to ethical conduct, environmental stewardship, and social responsibility.

1.6 Measuring ESG performance

Corporations need a set of disclosure guidelines or framework to accurately disclose information in compliance with predefined instructions, allowing for the assessment of the ESG performance of individual enterprises. An ESG framework refers to a set of norms that guide the creation of ESG reports and disclosures. An ESG standard refers to a collection of principles that outline the process of creating ESG reports and disclosures. The key difference is in the fact that a framework allows for flexibility in determining the path of the report, but a standard consists of specific and comprehensive criteria or metrics that must be incorporated into every report or disclosure.

The objective was to provide a standardized vocabulary and a set of standards for companies to disclose their ESG performance, and for investors to assess and compare this performance across other organizations. ESG reporting frameworks and disclosure standards facilitate the standardization of ESG reporting, enabling investors to assess and appraise the sustainable performance of organizations. This aids investors in achieving their sustainability objectives and mitigating their adverse effects on the environment and society.

1.7 E-S-G Disclosures

In contemporary times, companies have actively embraced the digital sphere, utilizing their corporate websites as a dynamic platform to meticulously detail their sustainability initiatives, goals, milestones, and future strategies aimed at achieving these objectives. This strategic move serves a dual purpose: not only does it contribute to shaping their corporate image and reputation

as responsible and sustainable entities, but it also aligns with the growing global emphasis on transparency and accountability in corporate practices. However, recognizing the need for a more standardized and structured approach to these disclosures, an increasing number of countries have instituted mandatory reporting requirements for companies to articulate their Corporate Social Responsibility (CSR) activities and sustainability reports.

The framework for disclosures varies across regions, reflecting the unique regulatory landscapes of different countries. Notably, in the European Union, a directive established by the European Commission in 2014 mandates disclosures on a spectrum of crucial aspects, including environmental impact, employee welfare, human rights, corruption levels, and diversity issues. This regulatory environment compels companies operating in EU-regulated markets to transparently communicate their performance in these key areas. Beyond the EU, countries like South Africa, China, and Malaysia have also enshrined some form of sustainability reporting requirements, recognizing the instrumental role that these disclosures play in fostering responsible corporate behavior.

Efforts have been made over the years to build more standardized ESG reporting frameworks, with programs such as the Global Reporting Initiative (GRI), Business Responsibility Reporting (BRR), and the Task Force on Climate-related Financial Disclosures (TCFD) gaining traction. But, GRI was the pioneer in this field, which published reporting requirements in 1999 and was instrumental in the institutionalization of sustainable reporting. The value they contribute through "institutional entrepreneurship" and the credibility they lend to reporting efforts are widely acknowledged (Brown, et al, 2009; Levy, et al, 2010).

Table no.3: Global accepted ESG Reporting Frameworks

Reporting frameworks	
IFRS Sustainability Disclosure Standards	In June of 2023, the International Sustainability Standards Board (ISSB) published the first two IFRS Sustainability Disclosure Standards. The standards, IFRS S1 General Requirements for Disclosure of Sustainability-related Financial Information and IFRS S2 Climate-related Disclosures, were established to ensure transparency and accountability in financial reporting.
GRI Standards	In reaction to the public outcry that was produced by the environmental devastation caused by the Exxon Valdez in 1989, the Global Reporting Initiative was established in 1997 in the city of Boston, which is located in the United States of America. With a intention to promote a sustainable future, GRI's mission is to assist organizations in being transparent and accountable for their impacts through the development of sustainability reporting standards and guidelines.
SASB Standards	The Sustainability Accounting Standards Board, established in 2011, is a non-profit organization with the primary objective of setting sustainability standards. SASB developed sustainability-specific Key Performance Indicators (KPIs) in order to supplement the regulations, set forth by the CDSB framework, regarding the disclosure of environmental information in standard corporate reports. As of now, according to the rules set forth by the SASB, a maximum of 2,230 companies are currently involved in the process of reporting in 66 different markets and 70 different jurisdictions.
CDSB Framework	2015 marked the debut of the Climate Disclosure Standards Board Framework. The Framework provides an all-encompassing methodology for disclosing environmental and

Source: *Author's*

Additionally, on a global scale, the United Nations Global Compact (UNGC) stands out as a unifying force, providing a framework and principles for sustainability disclosures that transcend national boundaries. Businesses are strongly encouraged by the UNGC to voluntarily align their strategies and operations with ten internationally recognized principles. These principles include anti-corruption, human rights, fair labor practices, and environmental protection.

In essence, the landscape of sustainability reporting is shaped by a dynamic interplay of national regulations, stock exchange requirements, and global initiatives. The collective drive towards transparency, accountability, and responsible corporate citizenship is reshaping the way companies present their commitment to sustainability. As the momentum behind sustainability reporting continues to grow, businesses find themselves navigating a complex web of regulations and global standards. In this evolving landscape, sustainability disclosures not only serve as a tool for showcasing a company's dedication to responsible practices but also as a means to foster trust among stakeholders, attract conscientious investors, and contribute to a broader global agenda for sustainable development.

The pursuit of uniformity in reporting practices has led to the development of standards by various bodies, each catering to the specific needs of their respective countries. In the United States, the SASB has emerged as a significant player in establishing sustainability standards tailored for the disclosure of CSR activities by companies operating in U.S. markets. On a global scale, there were many other reporting frameworks emerges with narrower focus like “Task Force on Climate-related Financial Disclosure”- TCFD, “Climate Disclosure Standards Board” Framework - CDSB, etc. shown in above table. But the Global Reporting Initiative (GRI) has gained widespread adoption, with numerous prominent companies embracing its standards. GRI's guidelines have also found acceptance at the national level in many countries, serving as a comprehensive framework for disclosure reporting.

In India, the Institute of Chartered Accountants of India (ICAI) has taken a proactive step by establishing the Sustainability Accounting Standards Board, aligning its efforts with the United Nations' sustainability goals. Simultaneously, the Securities and Exchange Board of India (SEBI) has been a key driver in advancing CSR disclosures. Since 2012, SEBI has expanded the mandate for companies to disclose their CSR activities, based on the National Voluntary Guidelines. As of December 2019, the mandate for the Business Responsibility Report (BRR) publication was

extended to the top 1000 companies based on market capitalization, making it an integral part of the annual report. This marks a significant extension from the initial mandate of the top 500 companies in 2015 and the top 100 companies in 2012.

1.8 Business Responsibility Reporting (BRR) and Business Responsibility and Sustainability Reporting (BRSR)

The Securities and Exchange Board of India (SEBI) took a significant step towards promoting ESG transparency by issuing a circular on August 13, 2012. The circular mandated the top 100 listed companies to report their ESG initiatives through a 'Business Responsibility Report' (BRR). Over time, the mandate was expanded to include the top 500 listed entities on both the Bombay Stock Exchange (BSE) and the National Stock Exchange (NSE) based on their market capitalization. This expansion was formalized under Regulation 34(2)(f) of the SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015.

The regulatory landscape witnessed further evolution in December 2019 with an amendment to the BRR regulations to BRSR. This amendment has expanded the applicability of sustainability reporting by mandating it for the top 1000 companies based on market capitalization, demonstrating SEBI's commitment to deepening ESG disclosures across the corporate sector. The BRSR, as an integral component of the annual report, serves as a comprehensive platform for companies to articulate their ESG initiatives and performance. The specific format for this report has been outlined by SEBI in its Listing Agreement, providing a structured framework for companies.

Crucially, BRSR aligns with the National Voluntary Guidelines published by the Ministry of Corporate Affairs in July 2011. These guidelines serve as a foundational framework, outlining the principles that companies are expected to follow in their pursuit of responsible and sustainable business practices. The principles cover a spectrum of ESG dimensions, including human rights, environmental sustainability, and ethical governance.

While the top-listed companies are mandated to comply with BRSR framework, SEBI has actively encouraged other listed entities to voluntarily disclose information on their ESG performance using the BRSR format. This voluntary participation reflects a broader acknowledgment within the regulatory framework that ESG considerations are integral to fostering corporate responsibility

and enhancing stakeholder trust. The encouragement of voluntary disclosure emphasizes SEBI's commitment to nurturing a corporate culture that extends beyond regulatory compliance, promoting a proactive approach to sustainability reporting and responsible business conduct.

The BRSR serves as a comprehensive document encompassing various facets that contribute to a holistic understanding of a company's commitment to responsible and sustainable business practices. This report covers a range of elements including general information about the company, financial information, a questionnaire assessing compliance with the nine principles of the National Voluntary Guidelines (NVGs), and a detailed discussion of the company's performance and initiatives aligned with each principle. The overarching objective of the BRSR is to elevate accountability, stewardship, trust, and transparency in business practices.

Within the BRSR framework, companies are mandated to establish policies for each of the nine principles outlined in the NVGs. This strategic requirement serves a dual purpose. Firstly, it serves as a means of communicating the organization's stance and approach to various aspects of business conduct, thereby informing stakeholders about the company's values and commitments. Secondly, these policies act as a guide, providing a framework for employees and stakeholders to align their actions with the company's overarching principles. The establishment of policies reflects a proactive approach to shaping corporate culture and fostering a sense of shared responsibility.

A pivotal aspect of the BRSR framework is the mandatory requirement for companies to designate a separate Business Responsibility head. This individual assumes the responsibility of monitoring the company's performance across the nine principles, either through the formation of a dedicated BRSR committee or by incorporating the assessment within regular board meetings. The inclusion of this role underscores the significance placed on business responsibility reporting, emphasizing the need for dedicated oversight and governance in this domain.

Notably, a KPMG survey (2022) revealed encouraging insights into how seriously Indian companies take Business Responsibility Sustainability Reporting. Approximately 63% of companies conduct an annual review, indicating a consistent commitment to periodic assessments. Additionally, 22% of companies undertake reviews within three months, while 15% conduct reviews within a window of three to six months. This collective diligence highlights the robustness of the reporting process and its integration into corporate governance structures.

The BRSR, as a result, becomes a dynamic platform for companies to transparently disclose and extensively discuss their performance in alignment with the nine principles of the NVGs. Through this report, companies showcase their commitment to responsible and sustainable business conduct, contributing to an environment of increased accountability, transparency, and stakeholder trust.

SECTION II

ESG Models and Framework Supporting Risk Management and Financial Performance

1.9 Overview

The Environmental, Social, and Governance (ESG) models and frameworks have become integral components of corporate strategy, guiding businesses toward responsible practices that not only benefit society and the environment but also ensure sustainable profitability and risk management. ESG frameworks, established by various authors, institutions, and global organizations, provide structured approaches for companies to assess and report on their performance in these three key areas. These models vary in scope and detail but generally share the goal of promoting ethical, sustainable, and socially responsible business operations.

One of the most well-known frameworks is the Global Reporting Initiative (GRI), which offers comprehensive guidelines for organizations to measure and report on their ESG performance. GRI standards are used worldwide and provide a robust structure that encompasses a wide range of indicators across environmental, social, and governance categories. This framework is widely recognized for its emphasis on transparency and consistency, enabling stakeholders to compare companies' performance across industries and regions.

Another significant framework is the Sustainability Accounting Standards Board (SASB), which provides industry-specific standards for reporting on sustainability issues. SASB's standards focus on material ESG factors that are most relevant to a company's financial performance and risk profile. By narrowing the scope to industry-specific metrics, SASB enables organizations to identify key areas for improvement and align their ESG strategies with their core business objectives.

The Task Force on Climate-related Financial Disclosures (TCFD) is a prominent model that emphasizes climate risk assessment and disclosure. The TCFD framework offers guidance for companies to evaluate and report on the potential financial impact of climate change on their operations. This framework encourages businesses to consider both physical and transition risks

associated with climate change, such as extreme weather events and shifts toward a low-carbon economy.

The United Nations' Principles for Responsible Investment (PRI) provides a set of guidelines for institutional investors to integrate ESG considerations into their investment decision-making process. By aligning their portfolios with sustainable and ethical practices, investors can drive positive change across the corporate landscape. PRI's principles also encourage active engagement with companies to promote better ESG performance and accountability.

In addition to these established frameworks, there are several regional and sector-specific models that address unique challenges and opportunities in different industries and geographies. For example, the EU's Sustainable Finance Disclosure Regulation (SFDR) requires financial market participants to disclose information on how they integrate sustainability risks and opportunities into their investment decisions. Similarly, other countries and regions have introduced their own regulations and guidelines to enhance ESG reporting and practices.

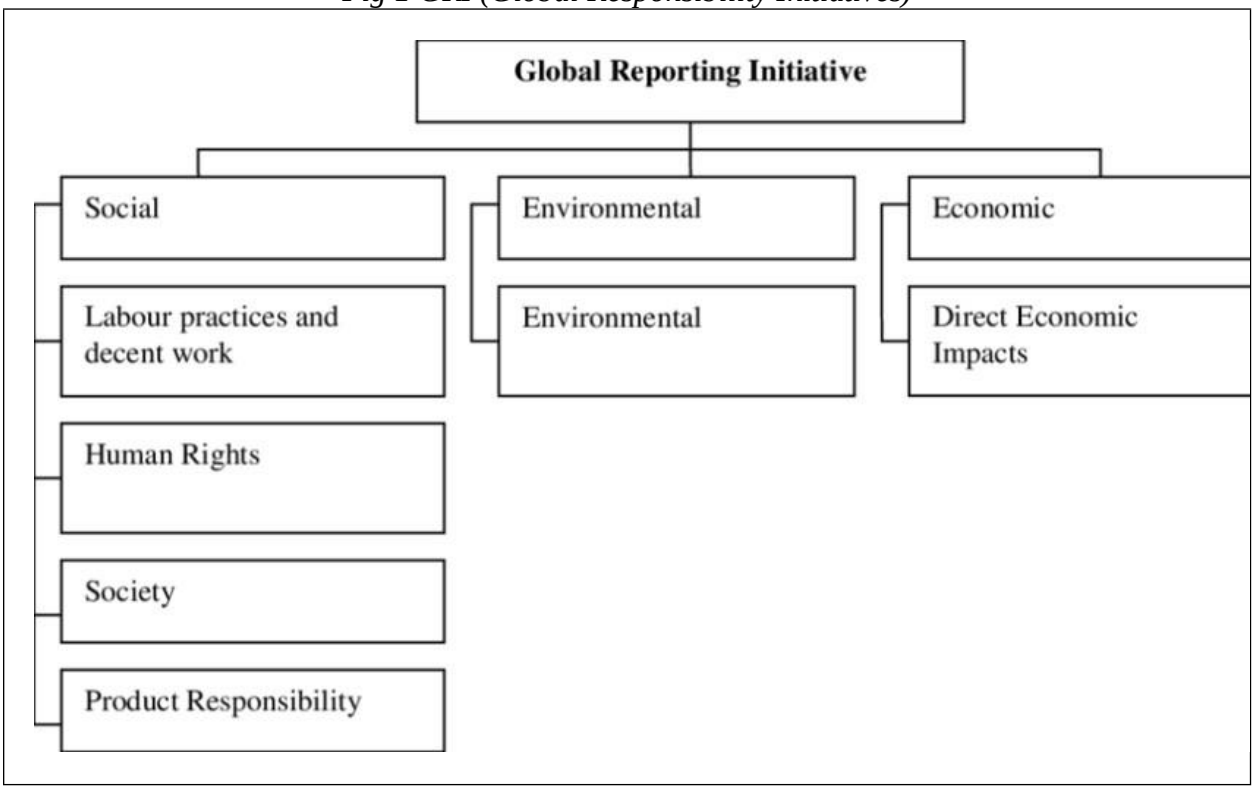
The various ESG models and frameworks share common goals such as promoting responsible practices, enhancing transparency, and mitigating risks. However, they also present distinct approaches and focus areas, enabling companies to choose the framework that best aligns with their strategic objectives and industry-specific challenges. The adoption of these frameworks can lead to improved corporate reputation, increased investor confidence, and long-term value creation.

By integrating ESG considerations into their strategies, companies can not only manage risks more effectively but also capitalize on new opportunities. For instance, businesses that prioritize environmental sustainability may gain a competitive edge through innovation in green technologies and practices. Similarly, strong social and governance practices can lead to enhanced employee engagement, customer loyalty, and overall organizational resilience.

ESG models and frameworks are essential tools for guiding companies toward responsible, sustainable practices that benefit both business and society. By selecting the appropriate framework and consistently evaluating their performance, companies can navigate the complexities of today's corporate world and drive meaningful change for a better future.

1.10 GRI (Global Responsibility Initiatives)

Fig 1 GRI (Global Responsibility Initiatives)



Source, *(Talbot & Venkataraman, 2011)*

The Global Reporting Initiative (GRI) framework is a widely recognized structure that provides companies with a comprehensive and transparent method for reporting on their sustainability performance. The GRI framework is foundational in guiding businesses to evaluate and disclose their impacts across three primary categories: economic, environmental, and social. These categories encompass various subcategories that offer a holistic view of a company's operations and effects on different aspects of the world around them.

At the top of the diagram, the GRI framework lays the groundwork for the assessment and reporting process. This framework encourages a holistic approach to sustainability, prompting companies to evaluate their practices and outcomes across diverse areas. Companies can then report their findings transparently, providing vital information to stakeholders, including investors and customers, who rely on this data to assess the company's overall sustainability performance.

The economic category is central to the framework and covers both direct and indirect economic impacts of a company's operations. Direct impacts include financial performance and profitability

metrics, while indirect impacts involve a company's influence on the local economy, such as job creation, supply chain development, and infrastructure investments. Companies can use the GRI framework to showcase how their economic activities contribute to or affect the broader community and economy.

The environmental category is another major branch of the framework, focusing on a company's environmental footprint. This includes factors such as greenhouse gas emissions, water use, waste management, and energy consumption. By reporting on these aspects, companies can demonstrate their efforts in mitigating negative environmental impacts and fostering sustainable resource use. Stakeholders often view environmental performance as a critical indicator of a company's commitment to responsible and sustainable operations.

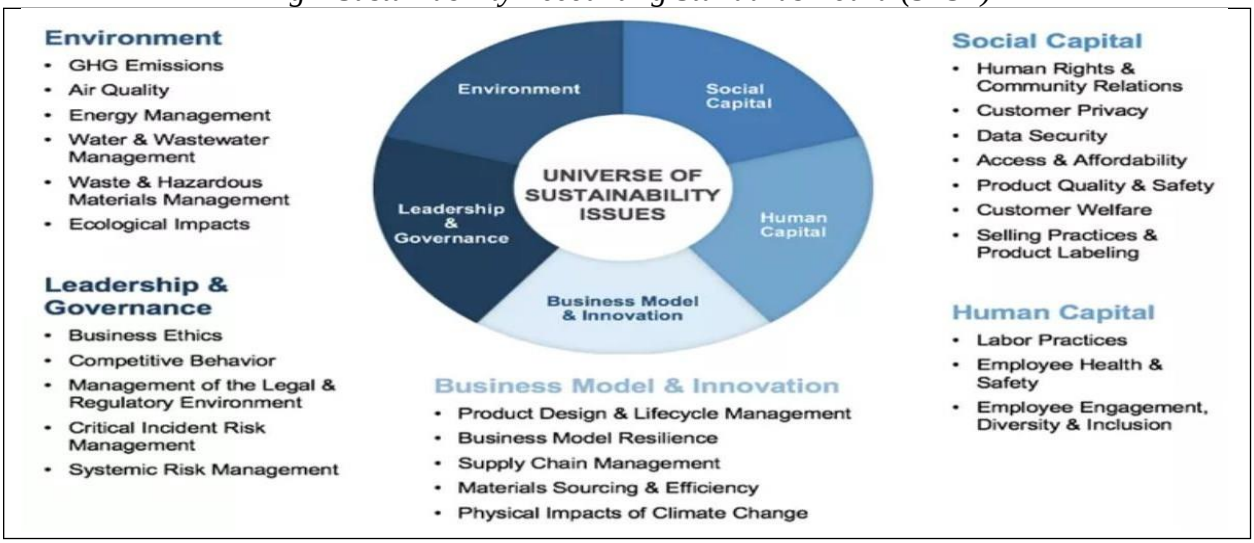
The social category completes the framework, emphasizing a company's impact on society, including its workforce, customers, suppliers, and the communities in which it operates. Key areas include labor practices, such as fair treatment of employees, workplace safety, and equitable opportunities; and human rights issues, including the protection of workers' rights and ensuring ethical practices throughout the supply chain. Additionally, community engagement and development fall under this category, reflecting a company's contribution to the welfare of local populations.

By adopting the GRI framework, companies can systematically assess their practices in these three categories and provide detailed reports that offer insight into their sustainability journey. Such comprehensive reporting fosters trust among stakeholders, as it reflects the company's dedication to responsible business practices and its commitment to contributing positively to society and the environment.

The value of the GRI framework extends beyond transparency and disclosure; it also serves as a benchmark for companies to set targets, measure progress, and continuously improve their sustainability performance. Furthermore, the standardized approach provided by the GRI framework enables comparisons between companies and industries, making it easier for investors and customers to make informed decisions based on a company's sustainability initiatives.

1.11 Sustainability Accounting Standards Board (SASB)

Fig 2 Sustainability Accounting Standards Board (SASB)



(Source, Talbot & Venkataraman, 2011)

The Sustainability Accounting Standards Board (SASB) is a framework designed to guide companies in disclosing sustainability information to their investors, with a focus on Environmental, Social, and Governance (ESG) factors that could have a significant financial impact on a business. The SASB framework is highly regarded for its specificity and relevance to various industries. To facilitate streamlined ESG reporting, the SASB application provides a comprehensive collection of SASB standards, neatly organized by industry, which complements the ESG Management application. This integrated approach enables users to access predefined SASB disclosures, allowing them to structure their sustainability reports more effectively.

Furthermore, the SASB content pack enhances the ESG Management application with essential tools for implementing the SASB framework. This content pack includes a comprehensive set of authority documents and citations, offering a solid foundation for ESG-related activities. Authority documents establish the framework's core elements, covering critical areas such as risk assessment, policy development, control mechanisms, audits, and compliance processes. Citations, derived from these authority documents, break down the core elements into specific, manageable topics that users can navigate more easily. By interrelating these citations, organizations can build a cohesive and thorough ESG reporting system that aligns with SASB standards, ensuring accurate and meaningful disclosure to stakeholders.

1.12 Task Force on Climate Related Disclosures (TCFD)

Fig 3 Task Force on Climate Related Disclosures (TCFD)

(Source, Apiday, 2024)

In March 2022, the Securities and Exchange Commission (SEC) released a proposed rule titled "The Enhancement and Standardization of Climate-Related Disclosures for Investors." This move signaled a shift toward formalizing environmental disclosures in response to growing investor demand for more transparent and consistent information about companies' climate-related practices. In recent years, companies have increasingly adopted voluntary environmental disclosures as part of their Environmental, Social, and Governance (ESG) programs, utilizing frameworks such as the Task Force on Climate-Related Financial Disclosures (TCFD).

However, as the urgency to meet Net Zero commitments intensifies, harmonization in ESG reporting has become crucial. Historically, companies had the freedom to choose among various ESG frameworks, leading to inconsistency and making it difficult for investors to compare data across different businesses. This inconsistency prompted the formation of the International Sustainability Standards Board (ISSB), which aims to standardize ESG reporting.

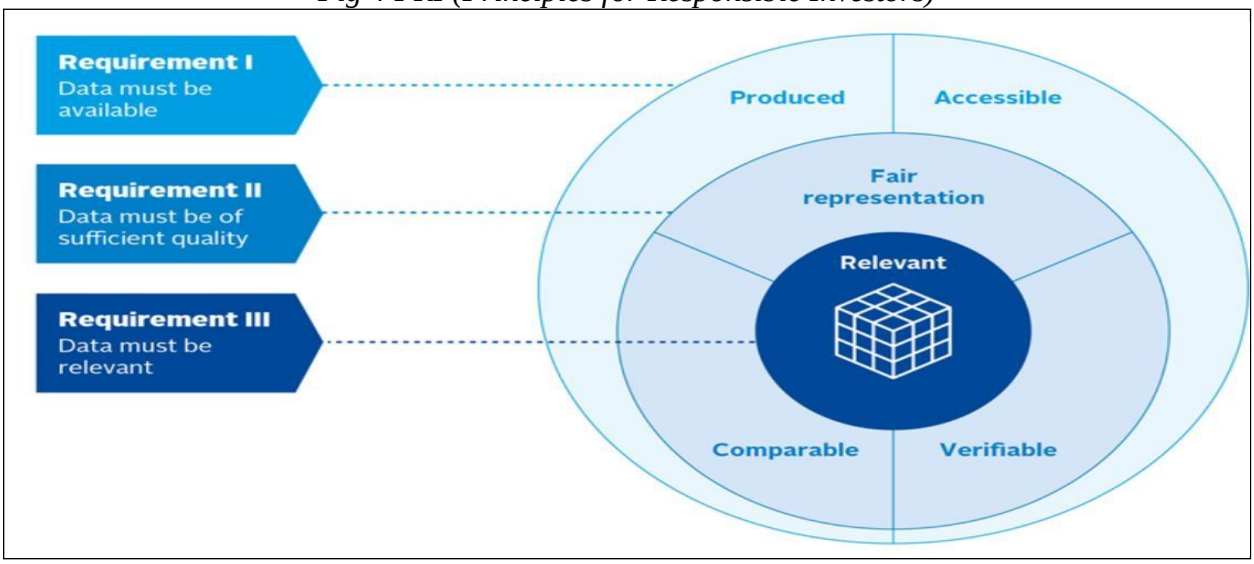
Following the publication of the ISSB Standards in July 2023, which align with the four core pillars and eleven disclosures of the TCFD, the Financial Stability Board (FSB) announced that the TCFD had completed its work. The International Financial Reporting Standards (IFRS) Foundation took over the monitoring of climate-related disclosures from the TCFD. Despite the completion of the TCFD's work, its recommendations remain available to companies, providing them with a reliable framework for climate-related disclosures. This transition ensures that

organizations already following TCFD guidelines won't need to start from scratch, as TCFD reports are compliant with the new ISSB standards.

The TCFD framework was established to promote informed investment, credit, and insurance underwriting decisions, helping stakeholders better understand the presence of carbon-related assets and assess climate-related risks in the financial sector. It offers recommendations across four key pillars: Governance, Strategy, Risk Management, and Metrics & Targets, ensuring a holistic approach to climate-related financial disclosures. These recommendations encourage companies to present more than just numbers; they should describe governance structures, strategic approaches, risk management processes, and the metrics and targets used to assess and manage climate risks.

1.13 PRI Investor Data Needs Framework

Fig 4 PRI (Principles for Responsible Investors)



(Source: PRI, 2024)

Responsible investors require decision-useful data to guide their investment decisions and reporting. Recent changes in corporate sustainability disclosure standards, regulations, and laws are designed to meet these needs. Yet, regulators and standard setters often treat responsible investors as a single, uniform group with consistent data requirements. In reality, responsible investors vary significantly in their data needs due to a range of factors, including their objectives, investment strategies, and jurisdictions.

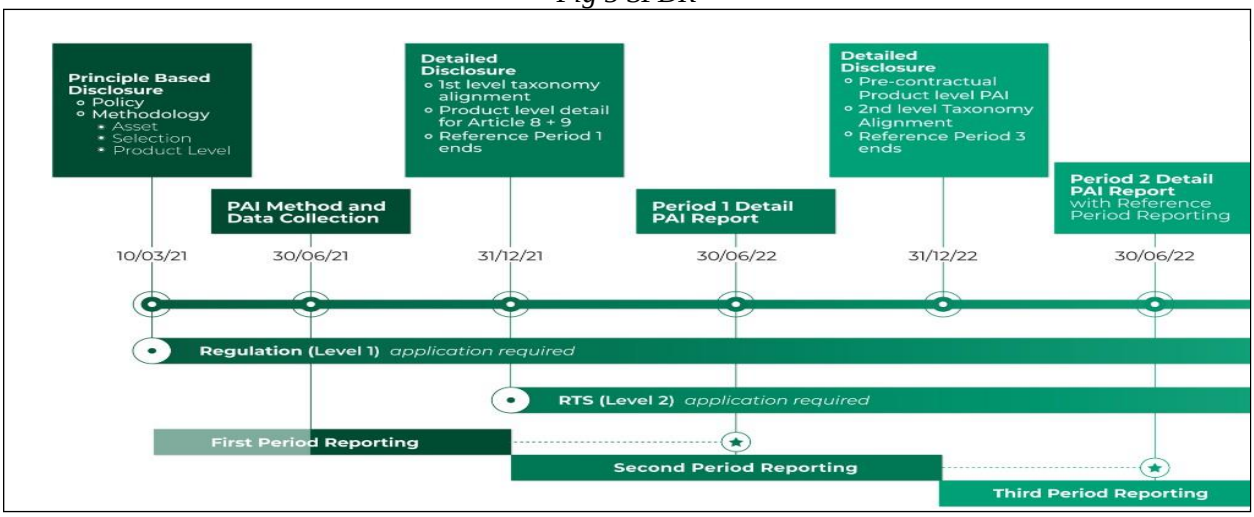
To make sure that these disclosure frameworks provide useful information for all responsible investors, there must be a more comprehensive understanding of the diverse data needs within this group. This is particularly crucial as standard setters continue to develop increasingly complex and specific sustainability standards.

The Principles for Responsible Investment (PRI) have addressed this need by creating the Investor Data Needs Framework, which aims to structure the identification of decision-useful corporate sustainability data for responsible investors. The framework's goal is to ensure that disclosure standards, rules, and laws align with the varied needs of responsible investors and provide data that is genuinely useful for making informed decisions.

The PRI developed the Investor Data Needs Framework with support from Chronos Sustainability, through a comprehensive process involving iterative engagement with signatories, a thorough literature review, and consultation with subject matter experts. This collaborative approach was intended to ensure that the framework is rooted in the actual practices of responsible investing, providing a more robust and reliable guide for determining which data is most valuable to responsible investors.

1.14 Sustainable Finance Disclosure Regulation-SFDR

Fig 5 SFDR



(Source; Frank Gannon)

The Sustainable Finance Disclosure Regulation (SFDR) introduces mandatory ESG disclosure requirements for asset managers and other financial market participants, with substantial provisions becoming effective from 10 March 2021. The European Commission introduced the

SFDR alongside the Taxonomy Regulation and the Low Carbon Benchmarks Regulation as part of a broader legislative initiative stemming from the European Commission's Action Plan on Sustainable Finance. The goal of the SFDR is to create a level playing field among financial market participants (FMPs) and financial advisers by enhancing transparency regarding sustainability risks, the assessment of adverse sustainability impacts in investment processes, and the disclosure of sustainability-related information about financial products.The SFDR mandates that asset managers, including Alternative Investment Fund Managers (AIFMs) and Undertakings for Collective Investment in Transferable Securities (UCITS) managers, provide detailed and standardized disclosures outlining how ESG factors are incorporated at both the entity and product levels. A key aspect of the regulation is that it applies to all asset managers, regardless of whether their funds have a specific ESG or sustainability focus. A critical component of the SFDR is the requirement for additional disclosures from financial market participants. The Level 1 disclosures focus on entity-level information, requiring firms to disclose policies related to the identification and prioritization of principal adverse sustainability impacts. FMPs must describe the main adverse sustainability impacts and outline any actions taken, or planned, to address them. Additionally, they need to summarize their engagement policies. While the entity-level disclosure requirements for principal adverse impacts became effective on 10 March 2021, under a "comply or explain" basis, the more detailed Level 2 disclosures at both the entity and product levels—such as the "principal adverse sustainability impacts statement"—became mandatory from 1 January 2022. These additional requirements delve deeper into how FMPs integrate sustainability considerations into their broader business practices and individual investment products, providing investors with greater clarity and transparency regarding the sustainability impacts of their investments.

1.15 Conclusion and Necessity of the Study

Upon examining diverse sustainability and ESG frameworks, it is clear that these instruments provide systematic methodologies for corporations to accurately disclose their performance. In addition to compliance, these frameworks are essential for integrating sustainability into company strategies, acting as a guiding principle for responsible business conduct. Thus, acting responsibly leads to improvement in Environmental, Social and Governance activities leading to improvement in sustainability scores. Therefore, these business practices helps to improve companies' non-financial performance; nevertheless, the question is whether they may also increase financial performance.

The literature study indicates that various research state sustainable business practices enhance the financial performance of enterprises in developed countries. Nevertheless, the data remains ambiguous in developing countries. It cannot be generalized to all nations, as every nation has their own challenges to deal with. For instance, these nations encounter distinct obstacles such as focusing short-term economic growth to tackle urgent issues like poverty and unemployment at the expense of environmental and social resources, weak institutional frameworks, and inadequate regulatory enforcement. Resulting in lack of motivation and enforcement mechanisms for businesses to incorporate environmental, social, and governance (ESG) considerations into their operations. That leads to limited disclosure of their ESG initiatives and lack of standardized data. The lack of comprehensive and standardized ESG data makes the relationship between ESG standards and financial success unclear

But with time this flaw has overcome by the voluntary and mandatory disclosure requirements under the BRR and BRSR norms. Urging the researcher to explore this topic by studying the trend of ESG performance, evaluating the impact of ESG factors on the financial and risk performance of companies, in addition to performing a comparison study of data across various firms and industries.

The study analyzes the trend chart that will indicate any improvements in ESG activities and disclosures, and based on those results, the study can suggest necessary changes to the regulatory or company framework accordingly. For instance, if the analysis shows consistent improvement in ESG performance, it could validate existing regulations and corporate frameworks as effective. On the other hand, if the trend reveals stagnation or regression, it might indicate the need for more robust changes to ensure genuine sustainability efforts.

The study further explores the impact of ESG performance on a company's financial results, tackling an essential issue for corporate decision-making. A positive relationship between ESG performance and financial performance identified in the study would encourage companies to improve their ESG initiatives. The association between social responsibility and economic benefits can foster holistic growth, benefiting not just the companies and their stakeholders, but also the broader economy and society as a whole. Companies that acknowledge these positive outcomes are inclined to allocate additional resources towards sustainable practices, thereby aiding in the achievement of wider societal objectives and Sustainable Development Goals. However, if the findings show a neutral or negative relationship between ESG performance and financial results, the study can suggest the areas for improvement depending upon the variable or factors causing it, such as clearer guidelines and accountability or the study could recommend strategies that effectively incorporate ESG principles into a company's financial planning, demonstrating how sustainability can complement economic goals.

Overall, this research seeks to provide actionable insights that benefit regulatory bodies, corporate leaders, and stakeholders, ensuring that ESG practices are both impactful and transparent. By balancing sustainability efforts with financial considerations, companies can make decisions that drive meaningful change while achieving long-term growth.

1.16 References

Apiday. (2024, April 10). *What is the task force on climate-related financial disclosures*. What is the Task Force on Climate-Related Financial Disclosures. https://www.apiday.com/blog-posts/what-is-tcfd-and-why-it-matters

Boffo, R., & Patalano, R. (2020). ESG investing practices, progress and challenges. *Éditions OCDE, Paris*.

Bowen, H. R., & Johnson, F. E. (1953). Social responsibility of the businessman. Harper.

Brown, H.S., de Jong, M. and Lessidrenska, T. (2009), "The rise of the global reporting initiative: a case of institutional entrepreneurship", *Environmental Politics*, Vol. 18 No. 2, pp. 182-200.

Carroll, A.B. (2018) 'William C. Frederick', *Business Ethics Quarterly*, 28(3), pp. 369–371. doi:10.1017/beq.2018.17.

Clark, G. L., Feiner, A., & Viehs, M. (2014). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. *SSRN Electronic Journal*. doi:10.2139/ssrn.2508281

Davis, K. (1960). Can business afford to ignore social responsibilities?. *California management review*, *2*(3), 70-76.

Frank Gannon, C. H. (n.d.). *What is the SFDR?*. KPMG. https://kpmg.com/ie/en/home/insights/2021/03/what-is-the-sfdr-sustainable-futures.html

Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, *49*(2), 149. doi:10.2307/2095567

Harper Ho, Virginia. 2016. "Risk-Related Activism: The Business Case for Monitoring Nonfinancial Risk." *Journal of Corporation Law* 41:647–704.

Levy, D.L., Szejnwald Brown, H. and de Jong, M. (2010), "The contested politics of corporate governance: the case of the global reporting initiative", *Business and Society*, Vol. 49 No. 1, pp. 88-115.

MacNeil, I., Esser, Im (2022). From a Financial to an Entity Model of ESG. *Eur Bus Org Law Rev* **23**, 9–45 (2022). https://doi.org/10.1007/s40804-021-00234-y

Porter, M. E., & Linde, C. van. (1995). Toward a new conception of the environment-competitiveness relationship. *Journal of Economic Perspectives*, *9*(4), 97–118. doi:10.1257/jep.9.4.97

Pri. (2024, April 22). *The PRI's investor Data Needs Framework*. PRI. https://www.unpri.org/driving-meaningful-data/the-pris-investor-data-needs-framework/11431.article

Schanzenbach, M. M., & Sitkoff, R. H. (2020). ESG investing: Theory, evidence, and fiduciary principles. *Journal of financial planning*.

Talbot, J., & Venkataraman, R. (2011). Integration of sustainability principles into project baselines using a comprehensive indicator set. *International Business & Economics Research Journal (IBER)*, *10*(9), 29. https://doi.org/10.19030/iber.v10i9.5624

Talbot, J., & Venkataraman, R. (2011b). Integration of sustainability principles into project baselines using a comprehensive indicator set. *International Business & Economics Research Journal (IBER)*, *10*(9), 29. https://doi.org/10.19030/iber.v10i9.5624

Walton, C. C. (1967). Corporate social responsibilities. Wadsworth Publishing Company.

CHAPTER II

Theoretical Perspective and Literature Review

2.1 Overview

Chapter Introduction: The literature review chapter focuses on exploring the link between, ESG scores of Indian companies with their financial performance and risk profile. Recent years have seen a surge in interest in ESG factors, as stakeholders, regulators, and investors become more cognizant of the importance of ethical conduct and sustainable business practices.. This chapter aims to provide a comprehensive overview of existing research and studies that have investigated the impact of ESG factors on the financial performance and risk profile of Indian companies.

Section 1: Understanding ESG and theoretical prospective in this section, the chapter begins by defining ESG scores and their relevance in evaluating the sustainability and responsible practices of companies. It explores the three pillars of ESG – "Environmental, Social, and Governance" – and how each component contributes to a holistic assessment of a company's operations. Additionally, this chapter explores the theoretical background of responsible business activities

Section 2: Literature Review on ESG and Financial Performance of Indian Companies This segment examines past research and studies that have investigated the association between ESG scores and the financial performance of Indian corporations. The study examines if higher ESG scores lead to better financial performance and long-term value generation for shareholders. Moreover, the section discusses empirical evidence on how ESG factors, such as environmental stewardship, employee welfare, and corporate governance practices, influence profitability, return on investment, and stock market performance of Indian companies.

Section 3: Literature Review on ESG and Risk Profile of Indian Companies Here, the chapter examines the link between ESG scores and the risk profile of Indian companies. It investigates how companies with stronger ESG practices tend to exhibit lower operational, reputational, and regulatory risks, thereby enhancing their resilience to market shocks and uncertainties. The section reviews studies that have explored the relationship between ESG factors and credit risk, default probability, and overall risk management practices of Indian firms.

Section 4: Sector-Specific Analysis of ESG and Financial Performance/Risk Profile In this section, the chapter narrows its focus to specific sectors within the Indian corporate landscape. It investigates how ESG scores vary across industries and whether there are sector-specific patterns in the impact of ESG on financial performance and risk. The section may highlight industries with higher ESG risk exposure and those that have demonstrated superior financial performance due to robust ESG practices.

Theoretical prospective

2.2 Stakeholders' theory

Freeman's seminal work in 1984, titled "Stakeholder Theory of the Modern Corporation," introduced the concept of stakeholders and offered a comprehensive definition that went beyond just shareholders. He argued that various entities, including employees, customers, suppliers, local communities, the natural environment, government, and society at large, all have legitimate expectations from a corporation, similar to shareholders. In his paper, Freeman emphasized the significance of the local community, which not only permits a company to establish its operations but also benefits from the social and economic contributions of the organization. He stressed that a responsible corporation should act as a good citizen, just like any individual in a community, and avoid engaging in unreasonable practices that expose the community to hazardous pollution or toxic waste. Violating this implicit social contract undermines the relationship between the company and the community. Furthermore, Freeman expanded the stakeholder concept to include the environment as a stakeholder. He highlighted that a company's operations can significantly impact the environment in various ways throughout its existence. For instance, companies utilize natural resources for their production processes, leading to potential environmental impacts. By-products generated during production can also be harmful to the environment.

The stakeholder theory and ESG are interconnected concepts that have gained significant traction in the corporate world, shaping modern business practices and ethical decision-making (Lee et al., 2020; Daugaard & Ding, 2022). In addition to shareholders, the stakeholder theory posits that a corporation ought to take into account the concerns and anticipations of its entire stakeholder base, which comprises local communities, government, employees, customers, suppliers, the natural environment, and society as a whole (Freudenreich et al., 2019). This theory emphasizes the

importance of a corporation's broader societal impact and advocates for responsible and sustainable business practices (Crane & Ruebottom, 2011). On the other hand, ESG encompasses a set of criteria that investors and stakeholders use to evaluate a company's "environmental, social, and governance" performance (Yu et al., 2018). ESG factors serve as a framework to assess a company's sustainability practices, ethical behavior, and overall risk management (Nitescu et al., 2020). Organizations can promote long-term value creation, align their strategies with stakeholder interests, and make positive contributions to society and the environment by incorporating ESG considerations into their operational frameworks. (Signori et al., 2021). In this way, stakeholder's theory and ESG go hand in hand, encouraging businesses to embrace a holistic approach that embraces responsibility, sustainability, and societal well-being alongside financial performance (Janicka & Sajnóg, 2023).

2.3 The 4-dimensional theory of CSR

Carroll's seminal work in 1979 highlighted that businesses are subject to a spectrum of societal expectations, which include economic, legal, ethical, and discretionary responsibilities. Later, in 1999, Carroll further expanded on these concepts and developed a pyramid model to describe Corporate Social Responsibility (CSR), illustrating four types of responsibilities towards society.

Businesses are required to adhere to the laws and regulations of the communities in which they conduct business, with regard to their legal obligations. However, merely adhering to legal requirements does not necessarily mean that their actions are ethically acceptable. Thus, firms must also consider ethical responsibilities and refrain from engaging in activities that may negatively impact the communities they serve. Here, the integration of environmental considerations becomes crucial in fulfilling both ethical and legal responsibilities, as companies must recognize and mitigate their environmental impacts. Furthermore, being good corporate citizens entails embracing philanthropic responsibilities and actively serving their communities. These efforts go beyond compliance and profitability, emphasizing the importance of giving back to society. Carroll's model identifies four interrelated aspects of social responsibility, where the environment is integrated at each level. In contrast, some experts define CSR based on three dimensions: social, environmental, and economical, the essence of Carroll's model remains consistent, recognizing the vital role of environmental consideration in fulfilling corporate responsibilities. By incorporating the environment into each layer of the pyramid, businesses are

encouraged to adopt a holistic approach to CSR, which encompasses not only economic performance but also ethical conduct, legal compliance, and philanthropic efforts, ultimately contributing to a sustainable and socially responsible business practice.

Carroll's theory encompasses economic, philanthropic, ethical, and legal responsibilities, emphasizing the importance of fulfilling these dimensions simultaneously (Ramasamy & Yeung, 2008). Similarly, ESG criteria also take into account a company's performance in economic, social, and governance aspects, while integrating environmental considerations. The convergence of these two frameworks highlights the significance of considering not only financial performance but also ethical conduct, legal compliance, social impact, and environmental sustainability in evaluating a company's overall performance (Hao et al., 2022). By adopting both the 4-dimensional CSR theory and ESG principles, businesses can align their strategies with the expectations of stakeholders, investors, and society at large, fostering sustainable practices and responsible corporate citizenship (Galbreath, 2012). This integration allows companies to effectively address the diverse expectations of stakeholders, contributing to long-term value creation and positively influencing the well-being of both society and the environment.

2.4 Agency theory

Two opposing schools of thought exist regarding the purpose of businesses: one asserts that businesses are solely meant to serve the interests of shareholders, and profit maximization is their primary objective (Jensen & Meckling, 1976). According to Friedman, (1970) the only social responsibility of a business is to increase its profits, within the bounds of fair competition. and without deception or fraud. He argues against corporate philanthropy, stating that managers, as agents of shareholders, do not have the right to utilize the company's capital for philanthropic purposes. This perspective is aligned with Agency Theory, which posits that managers are agents of shareholders, and their decision-making should revolves around wealth maximization.

However, despite this profit-centric view, it is essential to acknowledge that businesses' operations can have far-reaching impacts, and ethical considerations demand responsible corporate behavior (Mishra et al., 2013). Infamous incidents like the Bhopal Gas tragedy and the Exxon Valdez oil spill serve as reminders of the lasting consequences of unethical behavior. From an ethical standpoint, there is an expectation for businesses to act ethically, avoid causing harm, and abide by the law (Kibert, 2010). This is in line with Carroll's 4-dimensional theory of Corporate Social

Responsibility, which includes philanthropic, ethical, legal, and economic responsibilities, with profitability serving as the foundation.

Expanding further, the Gaia Hypothesis proposed by (Lovelock and Margulis, 1974) broadens the concept of responsibility to include every element of the ecosystem. This holistic philosophy emphasizes interconnectedness and considers the entire system rather than just an organization-centric view. This idea can also be linked to the Indian philosophy of Ahimsa, advocating non-harm to living creatures, highlighting the need for ethical and responsible practices in pursuit of profit-making (Irshad, 1970).

2.5 Triple bottom line

The “Triple Bottom Line” theory, popularized by John Elkington in the 1990s, proposes that businesses should be accountable for three bottom lines: profit, people, and planet. The profit aspect focuses on traditional financial metrics and economic performance, aiming to ensure the financial viability and growth of the company (Norman & MacDonald, 2004). However, the TBL theory goes beyond financial gains and emphasizes the social dimension, which is often referred to as the "people" bottom line. This dimension considers the impact of the company's operations on employees, communities, and other stakeholders, encouraging businesses to embrace ethical practices, employee welfare, and community development (Adam, 2021). The third bottom line, "planet," addresses the environmental impact of the company's activities, emphasizing sustainability and responsible resource management (Jensen, 2020). The connection between Triple Bottom Line theory with ESG performance is a natural fit (Bose, 2020). ESG performance is a comprehensive approach to evaluating a company's impact on ESG factors. Environmental aspects consider the company's ecological footprint, resource efficiency, and efforts to mitigate environmental risks and promote sustainability (Li et al., 2021). Social considerations pertain to the company's interactions with its employees, customers, suppliers, and communities, as well as its efforts to uphold human rights, diversity, and social well-being (Halbritter & Dorfleitner, 2015). Governance aspects revolve around the company's internal structures, transparency, and accountability, ensuring responsible decision-making and risk management (Câmara, 2022).

The combination of the TBL theory with ESG performance is its holistic approach to assessing a company's overall impact. By considering financial, social, and environmental aspects simultaneously, the TBL theory and ESG performance offer a comprehensive evaluation of a

company's sustainability and ethical practices (Crace & Gehman, 2022). This comprehensive evaluation helps companies identify potential risks and opportunities, align their strategies with stakeholder expectations, and create long-term value for all stakeholders (Ferrell, 2021). Embracing the TBL theory and ESG performance can enhance a company's reputation and competitiveness (Bose, 2020). In an increasingly socially and environmentally conscious world, consumers, investors, and other stakeholders expect businesses to go beyond profit-making and demonstrate commitment to social and environmental responsibility (Crace & Gehman, 2022). Companies that prioritize ESG performance and integrate the TBL theory into their operations are more likely to attract socially responsible investors, gain customer loyalty, and maintain a positive brand image (Ferrell, 2021). While short-term profit maximization is essential for business success, the TBL theory and ESG performance emphasize the importance of balancing financial gains with social and environmental considerations (Crace & Gehman, 2022). By adopting sustainable practices and prioritizing stakeholder interests, companies can enhance their resilience, adaptability, and long-term success (Halbritter & Dorfleitner, 2015). Additionally, sustainable practices often lead to cost savings through resource efficiency and reduced environmental impact, further contributing to a company's financial performance (Bose, 2020). By focusing on the "people" and "planet" bottom lines, companies can contribute to community development, poverty alleviation, and environmental protection (Crace & Gehman, 2022).

Literature review

2.6 Environmental Social and Governance factors and firm performance

ESG performance, which maps the performance of environmental variables, Social indinactors, and Governance factors that has increasingly become a focal point in assessing a company's overall sustainability and responsible business practices (Li et al., 2021; Garst et al., 2022). Numerous studies have revealed a positive association between strong ESG performance and favorable financial outcomes for companies (Albitar et al., 2020; Carnini Pulino et al., 2022; Boulhaga et al., 2022; Maji & Lohia, 2022: Halid et al., 2023; Kanno, 2023; Kalia & Aggarwal, 2023; Rahman et al., 2023). Companies that prioritize ESG factors reflect a dedication to environmental sustainability, social accountability, and efficient governance, which can result in increased profitability. reduced risk exposure, and improved long-term financial performance (Maji & Lohia, 2022).

ESG integration is believed to offer various benefits, including attracting socially responsible investors, fostering stakeholder trust, and enhancing a company's reputation (Crace & Gehman, 2022). As businesses increasingly recognize the importance of ESG in driving sustainable growth, the integration of ESG principles has become a strategic imperative for firms seeking to achieve financial success while addressing wider societal and environmental concerns (Li et al., 2021). The synergy between ESG performance and financial performance reinforces the notion that responsible business practices not only align with stakeholder expectations but also contribute to a company's competitive advantage and long-term resilience in an evolving global business landscape (Kalia & Aggarwal, 2023). One reason for this positive correlation is that ESG factors are indicative of a company's ability to manage risks effectively, anticipate future challenges, and demonstrate long-term resilience (Albitar et al., 2020). Embracing sustainable practices can lead to cost savings, improved resource efficiency, and increased productivity, contributing to enhanced profitability (Yawika & Handayani, 2019). Furthermore, companies with robust ESG performance are often viewed more favorably by socially responsible investors and consumers, which can attract capital and boost market valuations (Boulhaga et al., 2022). Additionally, employee engagement and talent attraction are positively influenced by a company's commitment to ESG, leading to a motivated and innovative workforce (Bebchuk & Tallarita, 2022).

However, it is essential to note that the impact of ESG on financial performance is complex and context dependent, not all companies may experience immediate financial gains from ESG integration, especially in industries with longer payback periods or where ESG considerations are less directly linked to financial outcomes (Chen et al., 2021). Moreover, data comparability and standardization challenges can hinder a comprehensive assessment of the connection between ESG and financial performance (Nguyen et al., 2022). While ESG integration offers potential benefits, it is crucial for companies to tailor their approach to fit their unique context and industry-specific dynamics to realize the full financial potential of responsible and sustainable practices (Giese et al., 2020).

2.7 Accounting based performance behavior

2.7.1 Return on Assets (ROA)

Companies that possess higher ESG ratings have demonstrated a greater ability to effectively manage environmental and social risks (Yawika & Handayani, 2019). This proficiency in risk management has been observed to result in enhanced operational efficiency and reduced costs, ultimately leading to a higher Return on Assets (ROA) (Rahman et al., 2023; Kanno, 2023). In addition, it is often observed that firms that exhibit strong ESG performance tend to attract socially responsible investors (Câmara, 2022). These investors demonstrate a greater inclination to provide support and allocate investments towards enterprises that embrace sustainable and responsible business practices (Serafeim, 2021; Rahman et al., 2023). The heightened attraction of investors can result in enhanced availability of funds and reduced capital expenses, so potentially enhancing a company's financial performance, particularly its Return on Assets (ROA) (Ferrell, 2021; Rahman et al., 2023). However, it is important to comprehend that the influence of ESG ratings on Return on Assets (ROA) differs among industries and geographical locations, and this correlation may not be immediate or straightforward (Rahman et al., 2023).

2.7.2 Return on Equity (ROE)

In addition to Companies that exhibit strong ESG performance are inclined to adopt responsible and sustainable business practices, leading to enhanced operational efficiency, cost reduction, and risk mitigation (Li et al., 2021). These components exhibit a positive influence on a company's financial performance, finally culminating in enhanced profitability and consequently, elevated

Return on Equity (ROE) (Halid et al., 2023). Moreover, corporations exhibiting elevated ESG ratings often garner the attention of socially conscious investors that prioritize the pursuit of sustainable growth and the creation of long-term prosperity (Carnini Pulino et al., 2022). The heightened attraction of investors can result in elevated stock prices and reduced cost of capital, hence amplifying a company's Return on Equity (ROE) to a greater extent (Rahman et al., 2023).

2.8 ***Market based performance variable.***

2.8.2 Tobin Q

Based on a certain study, it has been observed that firms exhibiting commendable ESG performance may potentially exhibit a higher Tobin's Q (Saini et al., 2023). This higher valuation metric suggests that investors assign greater worth to these companies due to their sustainable practices and responsible governance. In contrast, previous studies have yielded inconclusive results on the interconnectedness between ESG ratings and Tobin's Q (Rahman et al., 2023). These findings suggest that the influence of ESG factors on market valuation is multifaceted and contingent upon specific circumstances (Martha & Khomsiyah, 2023). The interaction between many elements, such as the industry of the company, the quality of ESG disclosure, and investor opinion towards ESG problems, might potentially exert influence (Rahman et al., 2023).

H1: There is a positive relationship between ESG and firm performance.

H1a: There is a positive relationship between ESG and ROA.

H1b: There is a positive relationship between ESG and ROE.

H1c: There is a positive relationship between ESG and EPS.

H1d: There is a positive relationship between ESG and TobinQ.

H1e: There is a positive relationship between ESG and P/E.

2.9 ESG and Risk Profile

The question of whether ESG ratings influence the risk of a company has been a subject of debate in the corporate world. As components that affect risk profile include the type of threats encountered, the extent to which those threats could harm the organization, the possibility of those threats causing harm, and the severity and frequency of those risks occurring. Hence these threats can be from investment-related financial decisions or from the impact of business on society at large and on environmental habitat. As every business depends for its resources on society

(humans) and environment (energy, raw material, infrastructure construction) and exploiting these resources might pose a threat to the sustainability of business operations. Nevertheless, in addition to generating financial gains, businesses that actively participate in societal improvement and environmental preservation may experience an extended period of sustainability. Hence to analyze the impact of society and environmental contribution on the business risk profile, ESG variable are used.

Some argue that ESG ratings can indeed have a significant impact on a company's risk profile. A higher ESG rating suggests that the company has demonstrated strong sustainability practices, responsible governance, and positive social impact (Gillan et al., 2021). Such companies are likely to be better equipped to manage environmental and social risks, reducing the likelihood of reputational damage and regulatory penalties (Cornell, 2020). Moreover, a company with a high ESG rating is more likely to attract socially responsible investors, who are increasingly factoring ESG considerations into their investment decisions (Olmedo et al., 2010). This increased investor interest can lead to improved access to capital and lower borrowing costs, further reducing the financial risks faced by the company (Shakil, 2021).

On the other hand, critics argue that ESG ratings may not have a direct impact on a company's risk profile (Scatigna et al., 2021). They point out that ESG ratings are often subjective and can vary based on the rating agency's methodology and criteria. Moreover, a high ESG rating does not guarantee immunity from all risks, as companies can face unforeseen challenges and market fluctuations that may not be fully captured by ESG metrics (Cohen, 2023). Additionally, companies with strong financial performance and risk management practices may not necessarily receive high ESG ratings if their sustainability efforts are not adequately recognized or communicated (Giese et al., 2019). Therefore, it is essential to consider that while ESG ratings can offer insights into a company's sustainability practices, they should not be the sole basis for evaluating its overall risk profile (Galbreath, 2012).

2.9.1 Risk Profile: from aspect of Developed and developing nations.

The manner in which risk profiles and ESG ratings intersect may differ contingent upon whether an organization conducts its operations in a developed or developing nation (Singhania & Saini, 2021). In developed countries, there tends to be a stronger correlation between higher ESG ratings and a lower risk profile (Mobius & Ali, 2021). Companies in developed regions often face more

stringent regulations and societal pressures related to environmental and social issues. (Doh & Guay, 2006; Hill, 2020) As a result, companies that prioritize ESG considerations are better equipped to manage risks, demonstrate responsible governance, and avoid reputational damage, leading to a reduced risk profile.

On the other hand, the relationship between ESG ratings and risk profiles may be less pronounced in developing countries. Companies in these regions may face unique challenges, such as weaker regulatory frameworks, limited access to resources, and societal norms that differ from those in developed countries (Pereira da Silva, 2022). Consequently, ESG ratings may not fully capture all relevant risk factors, and companies that focus on sustainability and responsible practices may still face significant risks related to political instability, corruption, and social inequalities (Breedt et al., 2019).

However, the correlation between ESG ratings and risk profiles is evolving in both developed and developing countries (Cornell, 2020). As the importance of ESG considerations gains recognition globally, investors and stakeholders are placing greater emphasis on sustainability and responsible practices (Zumente & Bistrova, 2021). Companies in developing countries are increasingly adopting ESG initiatives to enhance their competitiveness, attract investments, and mitigate risks associated with ESG issues (Singhania & Saini, 2021).

H2: There is a positive relationship between, ESG and Risk Profile

H2a: There is a positive relationship between, ESG and BETA

H2b: There is a positive relationship between, ESG and LEVERAGE

2.10 Sectorial literature

2.10.1 ESG performance and IT sector

The literature on ESG ratings and their impact on the IT sector offers compelling arguments that highlight the growing importance of sustainability considerations in shaping the industry's performance and reputation. One of the key arguments supported by empirical evidence is the positive correlation between higher ESG ratings and improved financial performance in the IT sector (Egorova et al., 2022). Companies that prioritize ESG principles are believed to achieve higher profitability, reduced operating costs, and enhanced risk management (Buallay & Al Marri,

2022). This aligns with the growing consensus among investors that ESG-conscious companies are better equipped to navigate market uncertainties and generate sustainable long-term value. The research underscores the potential for ESG ratings to serve as a valuable tool for investors seeking to identify financially robust and responsible IT companies (Iazzolino et al., 2023). Another critical argument is the influence of ESG integration on fostering innovation and market leadership within the IT sector (Egorova et al., 2022). Scholars suggest that companies that embrace sustainability principles are more likely to develop environmentally friendly solutions, enhance energy efficiency, and incorporate ethical considerations into their product development. This innovation can position ESG-driven IT firms as market leaders and differentiate them from competitors, attracting environmentally conscious consumers and gaining a competitive advantage (D'Amato et al., 2021). The literature points to the potential of ESG ratings to incentivize IT companies to prioritize sustainability and align their strategies with global environmental goals.

ESG ratings have also been linked to talent attraction and employee retention within the IT sector. Companies that place an emphasis on ESG values are perceived as responsible employers, prioritizing employee welfare, diversity, and inclusion (Kotsantonis & Serafeim, 2019). This alignment with employee values is found to positively impact employee satisfaction, motivation, and productivity. As socially conscious millennials become a larger part of the workforce, the literature suggests that ESG-conscious IT companies are better positioned to attract and retain top talent, fostering a positive work environment and boosting organizational performance (Xiong, 2021).

Moreover, ESG integration is seen as a significant factor in mitigating risks and enhancing resilience within the IT sector (D'Amato et al., 2021). The research highlights how companies that prioritize ESG considerations are better equipped to manage environmental risks, such as carbon emissions and resource depletion, and social risks, such as data breaches and human rights violations (Egorova et al., 2022. Strong governance practices fostered by ESG principles help IT firms navigate complex regulatory environments and reduce reputational risks (Buallay & Al Marri, 2022). The literature underscores the potential of ESG ratings to drive risk management strategies and enhances the sector's ability to adapt to changing market dynamics.

2.10.2 ESG performance and FMCG Sector

Studies have indicated that FMCG companies that prioritize ESG principles tend to achieve higher profitability, improved brand reputation, and enhanced customer loyalty (Ching, 2019). As consumers become more socially and environmentally conscious, they are increasingly inclined to support brands that demonstrate responsible practices (Gupta et al., 2022). Consequently, FMCG firms with strong ESG performance can gain a competitive edge, attract a larger consumer base, and secure sustainable revenue growth (Gupta et al., 2022).

ESG performance is also linked to risk mitigation and resilience in the FMCG sector. Companies that integrate ESG considerations into their operational strategy are better equipped to manage their social and environmental risks, such as supply chain disruptions, resource scarcity, and reputational damage (Ching, 2019). Robust governance practices fostered by ESG principles can also help FMCG firms navigate complex regulatory environments and ensure compliance (Hassani et al., 2021). FMCG companies can improve their capacity to respond to evolving market dynamics and mitigate potential operational disruptions by proactively addressing ESG challenges (Sharma et al., 2023). Furthermore, ESG performance in FMCG firms is seen as a catalyst for innovation and product differentiation. Research suggests that companies that embrace sustainability principles are more likely to develop environmentally friendly products, adopt eco-friendly packaging, and promote ethical sourcing practices (Tadoori & Vadithala, 2023). These innovations can help FMCG firms appeal to environmentally conscious consumers, strengthen brand loyalty, and differentiate themselves from competitors. The literature highlights the potential of ESG performance to drive product innovation and foster sustainable business practices in the FMCG industry.

ESG considerations also play a crucial role in attracting and retaining talent in FMCG firms. Companies that prioritize ESG values are perceived as responsible employers that prioritize employee welfare, diversity, and ethical practices (Vanita Tripathi & Bhandari, 2016). This alignment with employee values can positively impact employee satisfaction and motivation, leading to increased productivity and employee retention (Gupta et al., 2022). As the competition for top talent intensifies, FMCG companies with strong ESG performance can gain a strategic advantage in attracting skilled and socially conscious employees. Moreover, ESG performance can have significant implications for FMCG firms in terms of stakeholder engagement and investor

confidence (Wang et al., 2023). The literature suggests that investors and stakeholders increasingly value transparency and accountability in ESG disclosure. Fast-moving consumer goods (FMCG) companies that successfully incorporate ESG factors into their operational approaches have a greater probability of establishing investor confidence, attracting socially responsible investors, and obtaining sustainable capital. (Sharma et al., 2023). This heightened stakeholder engagement can further strengthen the company's reputation and enhance its long-term sustainability.

2.10.3 ESG And Automobile Sector

Studies have indicated that automobile companies that prioritize ESG principles tend to achieve higher profitability, improved brand reputation, and enhanced customer loyalty (Bruder et al., 2019). As consumers become more environmentally conscious and socially aware, they are increasingly inclined to support automobile brands that demonstrate responsible practices (Stefanoni & Voltes-Dorta, 2021). Consequently, automobile firms with strong ESG performance can gain a competitive edge, attract a larger consumer base, and secure sustainable revenue growth.

ESG performance is also linked to risk mitigation and resilience in the automobile sector (Mihai, 2023). Companies that integrate ESG considerations into their operations are better equipped to manage environmental risks, such as carbon emissions, pollution, and resource depletion. Social risks, such as labor practices and human rights issues in the supply chain, are also effectively addressed through ESG practices (Koundouri et al., 2021). Robust governance practices fostered by ESG principles can help automobile firms navigate complex regulatory environments and ensure compliance (Mihai, 2023). By effectively dealing with challenges, automotive companies can bolster their capacity to adjust to evolving market dynamics and mitigate potential operational disruptions.

Furthermore, ESG performance in automobile firms is seen as a catalyst for innovation and product differentiation. Research suggests that companies that embrace sustainability principles are more likely to develop electric vehicles, invest in clean technologies, and promote eco-friendly manufacturing processes (Khvorostyanaya, 2022). These innovations not only cater to the growing demand for greener and more sustainable transportation options but also contribute to reducing the automobile industry's overall environmental impact (Iazzolino et al., 2023). The literature highlights the potential of ESG performance to drive innovation and foster sustainable business practices in the automobile sector.

ESG considerations also play a crucial role in stakeholder engagement and investor confidence for automobile firms (Chandrasekaran, 2022). The literature suggests that investors and stakeholders increasingly value transparency and accountability in ESG reporting and disclosure. Automobile companies that effectively integrate ESG considerations into their business strategies are more likely to gain investor trust, attract socially responsible investors, and secure access to sustainable capital (Stefanoni & Voltes-Dorta, 2021). This heightened stakeholder engagement can further strengthen the company's reputation and enhance its long-term sustainability (Iazzolino et al., 2023).

Moreover, ESG performance can have significant implications for the automobile industry's regulatory landscape (Bruder et al., 2019). As governments worldwide push for stricter emission standards and sustainable mobility solutions, automobile firms that excel in ESG performance are better positioned to comply with evolving regulations and avoid potential penalties (Koundouri et al., 2021). The literature underscores the potential of ESG performance to drive compliance with environmental and social regulations and improve the automobile industry's overall sustainability (Iazzolino et al., 2023).

2.10.4 ESG and Energy Sector

The literature study indicates that the studies on ESG in the energy sector revolves around the examining of the connection with financial performance, risk assessment, and stock volatility (Makridou et al, 2023; Baran et al, 2022; Hurduzeu et al., 2022; De Giuli, et al., 2024). However, their results vary by country development stage (Singh and Jaiwani, 2023) for instance, developing countries experience a negative impact of ESG on market volatility, while developed countries experience the reverse effect. Furthermore, (Ziolo, et al., 2023) indicates that companies in Europe, Australia, and Asia place a greater emphasis on incorporating ESG risk into their business models compared to companies in Latin America. In addition to the country's level of development, the outcomes also differ depending on the size of the enterprise. Large and small-to-medium enterprises (SMEs) incorporate ESG risk into their strategic management process, but small businesses and start-ups do not prioritize ESG risk in their business management (Ziolo et al, 2024).

According to Xiong (2021), stocks that have low ESG risk ratings, also known as green stocks, tend to have higher realized returns and offer superior protection against extreme market risks

compared to stocks with high ESG risk ratings, known as brown stocks. This is particularly evident during the COVID-19 crisis. Credit ratings have also been affected by ESG measures; credit rating agencies have incorporated ESG factors into their evaluations, especially during the context of the Covid-19 pandemic (Chodnicka-Jaworska, 2022). As a result, literature reviews indicate an intricate relationship between ESG (environmental, social, and governance) and the energy sector. The relationship between these two sectors is impacted by the individual circumstances and how they interact with numerous drivers. As a result, it entails complex interactions between ESG factors, financial performance, share price changes, and business strategies.

2.10.5 ESG and Manufacturing sector

The impact of ESG factors on manufacturing sector's financial performance is been analyzed by the (Eccles, Ioannou, and Serafeim 2012; Koundouri et al, 2021) and found a positive relation among them, indicating that manufacturers adopting sustainable practices led them to achieve better financial outcomes. Also due to target to achieve 14 UNSDGs for all nations, there has been increasing interest in green investment that is highest in the manufacturing sector (ID et al, 2023), Additionally, better ESG performance also led to greater degree of stakeholder engagement, as it enhances trust and communication between manufacturers and stakeholders, leading to improved relationships and long-term value creation (Grewatsch and Kleindienst. 2020). Furthermore, ESG also helps to mitigate risk and enhance sustainability performance by addressing environmental and social issues throughout the supply chain management practices within the manufacturing sector (Beske, Land, and Seuring, 2014).

2.10.6 ESG and Healthcare sector

In recent years, there has been a growing focus on Environmental, Social, and Governance (ESG) practices in the healthcare sector. ESG, or Environmental, Social, and Governance, encompasses a set of guidelines that the healthcare business must adhere to in order to promote the welfare of society and the environment (Ge and Liu, 2015), as well as to ensure effective governance. ESG practices in the healthcare sector can greatly impact on patient treatment, employee welfare, and the overall sustainability of healthcare businesses (Leung and You, 2023). Nevertheless, several CEOs have displayed hesitancy in adopting sustainability principles due to the long-standing belief that it will negatively impact their revenues. Contrarily, the available research indicates that

organizations who fail to promptly enhance their approach to environmental, social, and governance (ESG) factors will experience a significant loss of customers and a decline in earnings. Integrating environmental, social, and governance (ESG) approaches into business models has advantages for the healthcare sector. It enhances financial performance and helps manage uncertainty (Husted and de-sousa, 2019; Kalia and Aggarwal, 2022).

The inclusion of environmental, social, and governance elements in risk assessment has the potential to affect economic performance and lead to higher compliance costs (Ananth, et al, 2010; Patil and Seshadri, 2014). Therefore, stakeholders are also growing more mindful of ESG, and corporations taking major measures to attain sustainability (Leung and you, 2023). Many firms across the healthcare industry, including pharma, medical devices, and healthcare providers, are setting new ESG goals and giving promises to guarantee more sustainable practices are implemented and enforced. As businesses increasingly prioritize ESG initiatives due to growing customer and investor demands, the healthcare sector is likely feeling similar pressures to adapt to this new paradigm (Sharma et al, 2023)

ESG in the healthcare has tremendous space of growth in research as well as acceptance specifically with reference to the developing nations (Rastogi and Sharma, 2020). Covid-19 epidemic has given promote to the relevance of ESG aspects in the healthcare industry and highlights the potential of expansion in this area. The transition towards ESG principles is altering industries like healthcare, with an emphasis on encouraging sustainability and tackling environmental concerns.

2.10.7 ESG in Infrastructure sector

Infrastructure has a tremendous impact on our lives, economy, and the environment. Institutional investors are investing more in infrastructure and realizing the value of including environmental, social, and governance considerations when making decisions (Kocmanová, et al, 2012). However, incorporating ESG criteria into infrastructure markets is challenging due to the unique features of these assets. These attributes are measured using qualitative criteria (Araujo et al. 2020), which include assessing investor motivations, ESG frameworks, and tools. This growing trend in ESG consideration is further backed by the fact that adding ESG components into investing decisions can result in financial outperformance through reduced cost of capital, enhanced corporate operational performance, and higher stock prices (Sengupta, 2018). Therefore, several research

examine into the interaction between enterprise-level environmental, social, and governance variables and corporate finance (Garcia et al., 2017; Wang and Sarkis, 2017).

Additionally, the rising importance of ESG in the infrastructure sector is due to increasing importance of Climate-resilient real estate and electric vehicles as the top green targets for European infrastructure funds, which is also expected to increase in the United States, United Kingdom, and Asia as well (Weber, et al, 2016; Baldi, and Lambertides, 2024). As a result, fund managers prioritize ESG credentials and openness while managing portfolios. Wymann's (2020) research on ESG variables in infrastructure investing confirms the literature by showing an increasing trend in considering climate-related and other factors when making investment decisions. where Covid-19 proved as a turning moment as, 7 out of 10 fund managers indicated that. epidemic has modified their risk management mindset.

ESG is gaining significance for service sector companies, as clients, investors, and society anticipate businesses to not only achieve financial success but also have a beneficial impact on the environment and society (Mckay, 2022). Adopting ESG principles entails that the corporate strategy prioritizes environmental, social, and governance considerations. This encompasses strategies to mitigate pollution, minimize waste generation, foster diversity and inclusivity, and guarantee financial transparency and responsibility. Service sector organizations can benefit from improved cost savings, enhanced risk management, and increased investor trust. Additionally, it can assist in bolstering their reputation and augmenting their competitiveness (Artho et al., 2022). Nevertheless, service sector companies continue to encounter difficulties in completely integrating ESG factors into their decision-making, processes, and outcomes throughout the entire company (Efthymiou., et al, 2023). Stronger leadership commitment, explicit divisional-level ESG duties, and more rigorous measurement, reporting, and governance are required (Morris, 2022; Mckay, 2022). Furthermore, the increasing recognition and approval of Environmental, Social, and Governance (ESG) principles by stakeholders are compelling companies to adopt sustainable practices in their business strategies. For example, ManpowerGroup, a staffing company driven by a vision, places high importance on the well-being of the planet, people, prosperity, and principles of governance in its ESG strategy. Similarly, Marsh McLennan, a purpose-driven management consultant, emphasizes ESG considerations such as climate resilience, commitment to ESG, the strength of its workforce, and collective responsibility, as outlined in an article by purpose brand.

Financing opportunities associated with Environmental, Social, and Governance (ESG) performance are gaining significance, underscoring the importance for service firms to establish explicit, easily understandable, and quantifiable ESG commitments. Regarding, The literature study reveals that implementing ESG principles can lead to cost reductions, improved risk management, and increased investor confidence for service sector organizations. This in turn can strengthen their reputation and raise their competitiveness (Jyoti and Khanna, 2021; Fu and li, 2023). Furthermore, companies that prioritize ESG principles are also more likely to attract and retain top talent, as employees increasingly seek out organizations with strong social and environmental values (Lee, et al, 2016). By integrating ESG considerations into their business strategies, service firms can not only enhance their financial performance but also contribute to a more sustainable future.

H3: *The ESG scores are equal across all sectors.*

H4: *The ESG scores are not equal across all sectors.*

2.11 Summary

The literature review chapter delves into the impact of ESG performance on companies within the business world. Through an in-depth analysis of prior research, it becomes evident that ESG performance has consistently exhibited a positive influence on these companies, although the degree of impact is subject to a range of contextual circumstances.

The comprehensive review of existing literature underscores a prevailing trend: companies that prioritize and excel in ESG performance have been observed to experience improvements in their financial positions and risk profiles. However, the extent of these benefits varies based on a multitude of factors, such as industry, geographic location, regulatory environment, and corporate strategy.

The amalgamation of numerous studies reveals a collective perspective that businesses embracing strong ESG practices often reap rewards in terms of enhanced financial performance. These benefits might manifest through increased revenue, improved profitability, and heightened operational efficiency. Moreover, the literature emphasizes that an effective ESG framework has the potential to cultivate favorable stakeholder relationships, resulting in enhanced investor confidence, consumer loyalty, and brand reputation.

Nonetheless, the literature recognizes that the relationship between ESG performance and company outcomes is intricate and nuanced. Factors like the company's existing ESG infrastructure, management's commitment to sustainability, and the specific ESG metrics monitored all influence the final impact. Additionally, the regulatory context and prevailing societal attitudes play a pivotal role in shaping the extent to which ESG practices translate into tangible benefits.

2.12 References

Adam, C. (2021). Triple bottom line: Leveraging green HR practices. *Green HRM: A Climate-Conscious Route to Triple Bottom Line,* 157–190. https://doi.org/10.4135/9789354792700.n8

Albitar, K., Hussainey, K., Kolade, N., & Gerged, A. M. (2020). ESG disclosure and Firm Performance Before and after ir. *International Journal of Accounting & Information Management*, *28*(3), 429–444. https://doi.org/10.1108/ijaim-09-2019-0108

Ananth, A. P., Prashanthini, V., & Visvanathan, C. (2010). Healthcare waste management in Asia. *Waste Management (New York, N.Y.)*, *30*(1), 154–161. doi:10.1016/j.wasman.2009.07.018

Artho, S., Arvered, I. L., Bergen, B., Casteleyn, I., Koster, O., Lim, S. Y., Mazzocchi , P., & Seth, V. (2022, September). *The impact of ESG on the Process Industries Sector and the implications for leadership*. Spencer Stuart. https://www.spencerstuart.com/research-and-insight/the-impact-of-esg-on-the-process-industries-sector-and-the-implications-for-leadership

Baldi, F., & Lambertides, N. (2024). Exploring the role of ESG for the performance and risks of infrastructure investing: evidence from the international funds' market. *Managerial Finance*, *50*(1), 92-117.

Baran, M., Kuźniarska, A., Makieła, Z. J., Sławik, A., & Stuss, M. M. (2022). Does ESG reporting relate to corporate financial performance in the context of the energy sector transformation? Evidence from Poland. *Energies*, *15*(2), 477.

Bebchuk, L. A., & Tallarita, R. (2022). The perils and questionable promise of ESG-based compensation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4048003

Bose, S. (2020). Evolution of ESG reporting frameworks. *Values at Work*, 13–33. https://doi.org/10.1007/978-3-030-55613-6_2

Boulhaga, M., Bouri, A., Elamer, A. A., & Ibrahim, B. A. (2022). Environmental, social and governance ratings and firm performance: The moderating role of Internal Control Quality. *Corporate Social Responsibility and Environmental Management*, *30*(1), 134–145. https://doi.org/10.1002/csr.2343

Breedt, A., Ciliberti, S., Gualdi, S., & Seager, P. (2019). Is ESG an equity factor or just an investment guide? *The Journal of Investing*, *28*(2), 32–42. https://doi.org/10.3905/joi.2019.28.2.032

Bruder, B., Cheikh, Y., Deixonne, F., & Zheng, B. (2019). Integration of ESG in asset allocation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3473874

Buallay, A., & Al Marri, M. (2022). Sustainability disclosure and its impact on telecommunication and information technology sectors' performance: Worldwide evidence. *International Journal of Emergency Services*, *11*(3), 379–395. https://doi.org/10.1108/ijes-08-2021-0054

Câmara, P. (2022). The systemic interaction between corporate governance and ESG. *The Palgrave Handbook of ESG and Corporate Governance*, 3–40. https://doi.org/10.1007/978-3-030-99468-6_1

Carnini Pulino, S., Ciaburri, M., Magnanelli, B. S., & Nasta, L. (2022). Does ESG disclosure influence firm performance? *Sustainability*, *14*(13), 7595. https://doi.org/10.3390/su14137595

Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, *4*(4), 497–505. https://doi.org/10.5465/amr.1979.4498296

Chandrasekaran, M. M. (2022). Does Corporate Social Responsibility Fuel firm performance? evidence from the Asian Automotive Sector. *Sustainability*, *14*(22), 15440. https://doi.org/10.3390/su142215440

Chen, L., Yuan, T., Cebula, R. J., Shuangjin, W., & Foley, M. (2021). Fulfillment of ESG responsibilities and firm performance: A zero-sum game or mutually beneficial. *Sustainability*, *13*(19), 10954. https://doi.org/10.3390/su131910954

Ching, H. Y. (2019). Responsible investment and the disclosure of ESG information in the companies' integrated reports. *World Sustainability Series*, 449–463. https://doi.org/10.1007/978-3-030-30306-8_27

Chodnicka-Jaworska, P. (2022). Environmental, social, and governance impact on energy sector default risk—long-term issuer credit ratings perspective. *Frontiers in Energy Research*, *10*, 817679.

Clark, G. L., Feiner, A., & Viehs, M. (2015). From the stockholder to the stakeholder: How sustainability can drive financial outperformance. *Available at SSRN 2508281*.

Clark, J., & Monk, A. (2018). Environmental, social, and governance (ESG) investing: A balanced review of the literature. European Financial Management, 24(1), 3-22.

Cohen, G. (2023). The impact of ESG risks on corporate value. *Review of Quantitative Finance and Accounting*, *60*(4), 1451–1468. https://doi.org/10.1007/s11156-023-01135-6

Cornell, B. (2020). ESG preferences, risk and return. *European Financial Management*, *27*(1), 12–19. https://doi.org/10.1111/eufm.12295

Crace, L., & Gehman, J. (2022). What really explains ESG performance? disentangling the asymmetrical drivers of the triple bottom line. *Organization & Environment*, *36*(1), 150–178. https://doi.org/10.1177/10860266221079408

Crane, A., & Ruebottom, T. (2011). Stakeholder theory and Social Identity: Rethinking Stakeholder Identification. *Journal of Business Ethics*, *102*(S1), 77–87. https://doi.org/10.1007/s10551-011-1191-4

D'Amato, V., D'Ecclesia, R., & Levantesi, S. (2021). Fundamental ratios as predictors of ESG scores: A machine learning approach. *Decisions in Economics and Finance*, *44*(2), 1087–1110. https://doi.org/10.1007/s10203-021-00364-5

Daugaard, D., & Ding, A. (2022). Global drivers for ESG Performance: The body of knowledge. *Sustainability*, *14*(4), 2322. https://doi.org/10.3390/su14042322

De Giuli, M. E., Grechi, D., & Tanda, A. (2024). What do we know about ESG and risk? A systematic and bibliometric review. *Corporate Social Responsibility and Environmental Management*, *31*(2), 1096-1108.

Doh, J. P., & Guay, T. R. (2006). Corporate Social Responsibility, public policy, and NGO activism in Europe and the United States: An institutional-stakeholder perspective. *Journal of Management Studies*, *43*(1), 47–73. https://doi.org/10.1111/j.1467-6486.2006.00582.x

Efthymiou, L., Kulshrestha, A., & Kulshrestha, S. (2023). A study on sustainability and ESG in the service sector in India: Benefits, challenges, and future implications. *Administrative Sciences*, *13*(7), 165.

Egorova, A. A., Grishunin, S. V., & Karminsky, A. M. (2022). The impact of ESG factors on the performance of Information Technology Companies. *Procedia Computer Science*, *199*, 339–345. https://doi.org/10.1016/j.procs.2022.01.041

Elkington, J. (1998). Accounting for the triple bottom line. *Measuring Business Excellence*, *2*(3), 18–22. https://doi.org/10.1108/eb025539

Escrig-Olmedo, E., Rivera-Lirio, J. M., Muñoz-Torres, M. J., & Fernández-Izquierdo, M. Á. (2017). Integrating multiple ESG investors' preferences into sustainable investment: A fuzzy multicriteria methodological approach. *Journal of cleaner production*, *162*, 1334-1345.

Ferrell, O. C. (2021). Addressing socio-ecological issues in marketing: Environmental, social and governance (ESG). *AMS Review*, *11*(1–2), 140–144. https://doi.org/10.1007/s13162-021-00201-3

Freeman, R. E. (1984). Some thoughts on the development of stakeholder theory. *Stakeholder Theory*. https://doi.org/10.4337/9780857936349.00015

Freudenreich, B., Lüdeke-Freund, F., & Schaltegger, S. (2019). A stakeholder theory perspective on business models: Value Creation for Sustainability. *Journal of Business Ethics*, *166*(1), 3–18. https://doi.org/10.1007/s10551-019-04112-z

Friedman, M. (1970). The social responsibility of business is to increase its profits. *Corporate Ethics and Corporate Governance*, 173–178. https://doi.org/10.1007/978-3-540-70818-6_14

Fu, T., & Li, J. (2023). An empirical analysis of the impact of ESG on financial performance: the moderating role of digital transformation. *Frontiers in Environmental Science*, *11*. doi:10.3389/fenvs.2023.1256052

Galbreath, J. (2012). ESG IN FOCUS: The Australian evidence. *Journal of Business Ethics*, *118*(3), 529–541. https://doi.org/10.1007/s10551-012-1607-9

Garst, J., Maas, K., & Suijs, J. (2022). Materiality assessment is an art, not a science: Selecting ESG topics for Sustainability Reports. *California Management Review*, *65*(1), 64–90. https://doi.org/10.1177/00081256221120692

Ge, W., & Liu, M. (2015). Corporate social responsibility and the cost of corporate bonds. *Journal of Accounting and Public Policy*, *34*(6), 597–624. doi:10.1016/j.jaccpubpol.2015.05.008

Giese, G., Lee, L.-E., Melas, D., Nagy, Z., & Nishikawa, L. (2019). Foundations of ESG investing: *how ESG affects equity valuation, risk, and performance*. *The Journal of Portfolio Management*, *45*(5), 69–83. https://doi.org/10.3905/jpm.2019.45.5.069

Giese, G., Nagy, Z., & Lee, L.-E. (2020). Deconstructing ESG ratings performance: Risk and return for E, S, and G by Time Horizon, sector, and weighting. *The Journal of Portfolio Management*, *47*(3), 94–111. https://doi.org/10.3905/jpm.2020.1.198

Gillan, S. L., Koch, A., & Starks, L. T. (2021). Firms and Social Responsibility: A review of ESG and CSR Research in corporate finance. *Journal of Corporate Finance*, *66*, 101889. https://doi.org/10.1016/j.jcorpfin.2021.101889

Gupta, K., Raman, T. V., Deol, O. S., & Gupta, K. (2022). Environment, social, and governance performance and firm risk : A study of the indian consumer goods sector. *Indian Journal of Finance*, *16*(8), 29. https://doi.org/10.17010/ijf/2022/v16i8/171373

Gupta, S., Tuteja, R., & Dhingra, S. (2022). Examining the sectorial differences in ESG practices of Select Companies in India : A comparative testing based on scores. *The Management Accountant Journal*, *57*(8), 73. https://doi.org/10.33516/maj.v57i8.73-79p

Halbritter, G., & Dorfleitner, G. (2015). The wages of social responsibility — where are they? A critical review of ESG investing. *Review of Financial Economics*, *26*(1), 25–35. https://doi.org/10.1016/j.rfe.2015.03.004

Halid, S., Abdul Rahman, R., Mahmud, R., Mansor, N., & Abdul Wahab, R. (2023a). A literature review on ESG score and its impact on firm performance. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *13*(1). https://doi.org/10.6007/ijarafms/v13-i1/15101

Halid, S., Abdul Rahman, R., Mahmud, R., Mansor, N., & Abdul Wahab, R. (2023b). A literature review on ESG score and its impact on firm performance. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, *13*(1). https://doi.org/10.6007/ijarafms/v13-i1/15101

Hao, S., Ren, C., & Zhang, L. (2022). Research on performance evaluation of Coal Enterprises based on grounded theory, entropy method and cloud model from the perspective of ESG. *Sustainability*, *14*(18), 11526. https://doi.org/10.3390/su141811526

Hassani, H., Unger, S., & Entezarian, M. R. (2021). Information content measurement of ESG factors via entropy and its impact on society and security. *Information*, *12*(10), 391. https://doi.org/10.3390/info12100391

Hill, J. (2020). ESG in managing institutional investor funds. *Environmental, Social, and Governance (ESG) Investing*, 185–204. https://doi.org/10.1016/b978-0-12-818692-3.00010-4

Hurduzeu, G., NOJA, G. G., Cristea, M., DRĂCEA, R. M., & Filip, R. I. (2022). REVISITING THE IMPACT OF ESG PRACTICES ON FIRM FINANCIAL PERFORMANCE IN THE ENERGY SECTOR: NEW EMPIRICAL EVIDENCE. *Economic Computation & Economic Cybernetics Studies & Research*, *56*(4).

Husted, B. W., & Sousa-Filho, J. M. de. (2019). Board structure and environmental, social, and governance disclosure in Latin America. *Journal of Business Research*, *102*, 220–227. doi:10.1016/j.jbusres.2018.01.017

Iazzolino, G., Bruni, M. E., Veltri, S., Morea, D., & Baldissarro, G. (2023). The impact of <scp>esg</scp> factors on financial efficiency: An empirical analysis for the selection of sustainable firm portfolios. *Corporate Social Responsibility and Environmental Management*, *30*(4), 1917–1927. https://doi.org/10.1002/csr.2463

Irshad, T. (1970, January 1). *The social meanings and implications of the beta-thalassaemia trait among South Asian women in England*. British Library EThOS - https://ethos.bl.uk/

Janicka, M., & Sajnóg, A. (2023). Do Environmental and Economic Performance Go Hand in hand? an industrial analysis of European Union companies with the non-parametric data envelopment analysis method. *Corporate Social Responsibility and Environmental Management*. https://doi.org/10.1002/csr.2504

Jensen, I. (2020). New Collaborative Ways of Organizing Corporate Social Responsibility. *Beyond the Bottom Line*, 62–73. https://doi.org/10.4324/9781003076322-8

Jensen, M. C., & Meckling, W. H. (1976a). Theory of the firm: Managerial Behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405x(76)90026-x

Jensen, M. C., & Meckling, W. H. (1976b). Theory of the firm: Managerial Behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360. https://doi.org/10.1016/0304-405x(76)90026-x

Jyoti, G., & Khanna, A. (2021). Does sustainability performance impact financial performance? Evidence from Indian service sector firms. *Sustainable Development*, *29*(6), 1086-1095.

Kalia, D., & Aggarwal, D. (2023). Examining impact of ESG score on Financial Performance of Healthcare Companies. *Journal of Global Responsibility*, *14*(1), 155–176. https://doi.org/10.1108/jgr-05-2022-0045

Kalia, D., & Aggarwal, D. (2023). Examining impact of ESG score on financial performance of healthcare companies. *Journal of Global Responsibility*, *14*(1), 155–176. doi:10.1108/jgr-05-2022-0045

Kanno, M. (2023). Does ESG performance improve firm creditworthiness? *Finance Research Letters*, *55*, 103894. https://doi.org/10.1016/j.frl.2023.103894

Khvorostyanaya, A. S. (2022). ESG-strategizing of industrial companies: Domestic and Foreign Experience. *Russian Journal of Industrial Economics*, *15*(3), 334–343. https://doi.org/10.17073/2072-1633-2022-3-334-343

Kibert, C. J. (2010). The ethics of sustainability.

Kocmanová, A., & Dočekalová, M. (2012). Construction of the economic indicators of performance in relation to environmental, social and corporate governance (ESG) factors. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, *60*(4), 195-206.

Koller, T., Nuttall, R., & Henisz, W. (2019). Five ways that ESG creates value. *The McKinsey Quarterly*.

Kotsantonis, S., & Serafeim, G. (2019). Four things no one will tell you about ESG Data. *Journal of Applied Corporate Finance*, *31*(2), 50–58. https://doi.org/10.1111/jacf.12346

Koundouri, P., Pittis, N., & Plataniotis, A. (2021). The impact of ESG performance on the Financial Performance of European area companies: An empirical examination. *ICSD 2021*. https://doi.org/10.3390/environsciproc2022015013

Kupwade Patil, H., & Seshadri, R. (2014, June). Big data security and privacy issues in healthcare. *2014 IEEE International Congress on Big Data*. Presented at the 2014 IEEE International Congress on Big Data (BigData Congress), Anchorage, AK. doi:10.1109/bigdata.congress.2014.112

Lee, K. H., Cin, B. C., & Lee, E. Y. (2016). Environmental responsibility and firm performance: The application of an environmental, social and governance model. *Business Strategy and the Environment, 25*(1), 40-53.

Lee, S. P., & Isa, M. (2020). Environmental, social and governance (ESG) practices and performance in shariah firms: Agency or stakeholder theory? *Asian Academy of Management Journal of Accounting and Finance*, *16*(1), 1–34. https://doi.org/10.21315/aamjaf2020.16.1.1

Leung, T. C. H., & You, C. S.-X. (2023). ESG application in sustainable development of the healthcare industry. In *Environmental, Social and Governance and Sustainable Development in Healthcare* (pp. 47–64). doi:10.1007/978-981-99-1564-4_4

Li, T.-T., Wang, K., Sueyoshi, T., & Wang, D. D. (2021). ESG: Research progress and future prospects. *Sustainability, 13*(21), 11663. https://doi.org/10.3390/su132111663

Lovelock, J. E., & Margulis, L. (1974). Atmospheric homeostasis by and for the biosphere: the Gaia hypothesis. *Tellus, 26*(1-2), 2-10.

Maji, S. G., & Lohia, P. (2022). Environmental, social and governance (ESG) performance and Firm Performance in India. *Society and Business Review*, *18*(1), 175–194. https://doi.org/10.1108/sbr-06-2022-0162

Makridou, G., Doumpos, M., & Lemonakis, C. (2023). Relationship between ESG and corporate financial performance in the energy sector: empirical evidence from European companies. *International Journal of Energy Sector Management*.

Martha, H., & Khomsiyah, K. (2023). The effects of environmental, social, and governance (ESG) on Corporate Performance. *Jurnal Ilmiah Bisnis Dan Ekonomi Asia*, *17*(1), 112–120. https://doi.org/10.32815/jibeka.v17i1.1380

McKay, J. (2022, July 15). *ESG's impact on Professional Services*. Prudent Pedal. https://www.prudentpedal.com/esgs-impact-on-professional-services/

Mihai, A. D. (2023). Reporting financial and non-financial performance observations from the automotive industry. *Provocările Contabilității În Viziunea Tinerilor Cercetători, Editia VII*. https://doi.org/10.53486/issc2023.50

Mishra, R. K., Singh, P., & Sarkar, S. (2013). Corporate Social Responsibility for a sustainable inclusive growth in India. *Journal of Management and Development Studies*, *25*(1), 39–58. https://doi.org/10.3126/jmds.v25i1.24936

Mobius, M., & Ali, U. (2021). ESG in emerging markets: The value of fundamental research and constructive engagement in looking beyond ESG Ratings. *Journal of Applied Corporate Finance*, *33*(2), 112–120. https://doi.org/10.1111/jacf.12458

Morris, J. (2022, June 15). Professional Services firms still showing plenty of resilience despite the emergence of new challenges. *LinkedIn*. May 1, 2024, https://www.linkedin.com/pulse/professional-services-firms-still-showing-plenty-new-morris-acma-/?trackingId=DyrsTqePSFKWSFJsg3vp6Q%3D%3D

Nguyen, D. T., Hoang, T. G., & Tran, H. G. (2022). Help or hurt? the impact of ESG on firm performance in S&P 500 non-financial firms. *Australasian Business, Accounting and Finance Journal*, *16*(2), 91–102. https://doi.org/10.14453/aabfj.v16i2.7

Nitescu, D.-C., & Cristea, M.-A. (2020). Environmental, social and governance risks – new challenges for the banking business sustainability. *Www.Amfiteatrueconomic.Ro*, *22*(55), 692. https://doi.org/10.24818/ea/2020/55/692

Norman, W., & MacDonald, C. (2004). Getting to the bottom of "Triple bottom line." *Business Ethics Quarterly*, *14*(2), 243–262. https://doi.org/10.5840/beq200414211

Olmedo, E. E., Torres, M. J., & Izquierdo, M. A. (2010). Socially responsible investing: Sustainability indices, ESG rating and Information Provider Agencies. *International Journal of Sustainable Economy*, *2*(4), 442. https://doi.org/10.1504/ijse.2010.035490

Pereira da Silva, P. (2022). Crash risk and ESG disclosure. *Borsa Istanbul Review*, *22*(4), 794–811. https://doi.org/10.1016/j.bir.2022.04.001

Purpose Brand LLC. (2022, September 29). ESG Annual Report Examples From Fortune 500 Companies. *Purpose brand*. May 1, 2024, https://purposebrand.com/blog/esg-report-examples-fortune-2022/

Rahman, H. U., Zahid, M., & Al-Faryan, M. A. (2023). ESG and firm performance: The rarely explored moderation of sustainability strategy and Top Management Commitment. *Journal of Cleaner Production*, *404*, 136859. https://doi.org/10.1016/j.jclepro.2023.136859

Ramasamy, B., & Yeung, M. (2008). Chinese consumers' perception of Corporate Social Responsibility (CSR). *Journal of Business Ethics*, *88*(S1), 119–132. https://doi.org/10.1007/s10551-008-9825-x

Rastogi, S., & Sharma, A. (2020). Expectations from a private multi-speciality hospital: a moderated-mediation analysis. *International Journal of Pharmaceutical and Healthcare Marketing*, *14*(2), 325-348.

Saini, M., Aggarwal, V., Dhingra, B., Kumar, P., & Yadav, M. (2023). ESG and financial variables: A systematic review. *International Journal of Law and Management*. https://doi.org/10.1108/ijlma-02-2023-0033

Saini, R., & Khare, A. (2020). Ethical considerations in the digital age: The interplay of technology, ethics, and privacy. Journal of Marketing Management, 36(11-12), 1-24.

Scatigna, M., Xia, F. D., Zabai, A., & Zulaica, O. (2021). Achievements and challenges in ESG Markets. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3989761

Sengupta, R. R., Hebb, T., & Mustafa, H. (2018). Seeking Greener Pastures: Exploring the Impact for Investors of ESG Integration in the Infrastructure Asset Class. *Designing a Sustainable Financial System: Development Goals and Socio-Ecological Responsibility*, 89-113.

Serafeim, G. (2021). ESG: Hyperboles and reality. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3966695

Shakil, M. H. (2021). Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and Board Gender Diversity. *Resources Policy*, *72*, 102144. https://doi.org/10.1016/j.resourpol.2021.102144

Sharma, K., Bhattacharjee, P., Arora, R., Kumar, K., Kirola, M., Awaar, V. K., ... & Ganesh, B. (2023). Green and Sustainable Manufacturing with Implications of ESG In Energy Sector: A Comprehensive Review. In *E3S Web of Conferences* (Vol. 430, p. 01183). EDP Sciences.

Sharma, M., Shah, J. K., & Joshi, S. (2023). Modeling enablers of supply chain decarbonisation to achieve zero carbon emissions: An environment, social and governance (ESG) perspective. *Environmental Science and Pollution Research*, *30*(31), 76718–76734. https://doi.org/10.1007/s11356-023-27480-6

Shobhwani, K., & Lodha, S. (2023). Impact of ESG risk scores on firm performance: An empirical analysis of NSE-100 companies. *Asia-Pacific Journal of Management Research and Innovation*, *19*(1), 7–18. https://doi.org/10.1177/2319510x231170910

Signori, S., San-Jose, L., Retolaza, J. L., & Rusconi, G. (2021). Stakeholder value creation: Comparing ESG and Value added in European companies. *Sustainability*, *13*(3), 1392. https://doi.org/10.3390/su13031392

Singhania, M., & Saini, N. (2021a). Institutional framework of ESG Disclosures: Comparative Analysis of developed and developing countries. *Journal of Sustainable Finance & Investment*, *13*(1), 516–559. https://doi.org/10.1080/20430795.2021.1964810

Singhania, M., & Saini, N. (2021b). Institutional framework of ESG Disclosures: Comparative Analysis of developed and developing countries. *Journal of Sustainable Finance & Investment*, *13*(1), 516–559. https://doi.org/10.1080/20430795.2021.1964810

Stefanoni, S., & Voltes-Dorta, A. (2021). Technical efficiency of car manufacturers under environmental and sustainability pressures: A data envelopment analysis approach. *Journal of Cleaner Production, 311,* 127589. https://doi.org/10.1016/j.jclepro.2021.127589

Tadoori, G., & Vadithala, U. K. (2023). Empirical evidence on the relation between ESGD Performance & Financial and Market Performance: Evidence from the Indian FMCG Sector. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.4438363

Trisnowati, Y., Achsani, N. A., Sembel, R., & Andati, T. (2022). The effect of ESG score, financial performance, and macroeconomics on stock returns during the pandemic era in Indonesia. *International Journal of Energy Economics and Policy*, *12*(4), 166–172. https://doi.org/10.32479/ijeep.13212

Vanita Tripathi, & Bhandari, V. (2016). Performance of socially responsible portfolios across sectors in Indian Stock Market. *Think India*, *19*(1), 01–09. https://doi.org/10.26643/think-india.v19i1.7787

Wang, N., Pan, H., Feng, Y., & Du, S. (2023). How do ESG practices create value for businesses? Research Review and prospects. *Sustainability Accounting, Management and Policy Journal*. https://doi.org/10.1108/sampj-12-2021-0515

Weber, B., Staub-Bisang, M., & Alfen, H. W. (2016). *Infrastructure as an asset class: investment strategy, sustainability, project finance and PPP*. John wiley & sons.

Xiong, J. X. (2021). The impact of ESG risk on stocks. *The Journal of Impact and ESG Investing*, *2*(1), 7–18. https://doi.org/10.3905/jesg.2021.1.025

Xiong, J. X. (2021). The impact of ESG risk on stocks. *The Journal of Impact and ESG Investing*, *2*(1), 7-18.

Yawika, M. K., & Handayani, S. (2019). The effect of ESG performance on Economic Performance in the high profile industry in Indonesia. *JOURNAL OF INTERNATIONAL BUSINESS AND ECONOMICS*, *7*(2). https://doi.org/10.15640/jibe.v7n2a12

Yu, E. P., Guo, C. Q., & Luu, B. V. (2018). Environmental, social and governance transparency and firm value. *Business Strategy and the Environment*, *27*(7), 987–1004. https://doi.org/10.1002/bse.2047

Zioło, M., Bąk, I.D., & Spoz, A. (2023). Incorporating ESG Risk in Companies' Business Models: State of Research and Energy Sector Case Studies. *Energies*.

Zumente, I., & Bistrova, J. (2021). ESG importance for long-term shareholder value creation: Literature vs. practice. *Journal of Open Innovation: Technology, Market, and Complexity*, *7*(2), 127. https://doi.org/10.3390/joitmc7020127

CHAPTER III

Research Methodology

3.1 Overview

Methodology for research is the systematic and structural method of planning, conducting, analyzing, and reporting on research. It is an essential element of any research endeavor because it offers the framework to ensure that the research conducted is rigorous and reliable. An overview of a methodology chapter typically comprises various sections that describe the most important aspects of the research methodology. It includes Research Design which outlines the overall strategy that will be followed to conduct the study that includes questions for research, hypothesis and the research strategy. It also contain the details of the population and sampling techniques which will be employed to select the participants. Secondly, the data collection section which discusses the methods employed to collect data, for example, surveys and interviews or observations. This also includes the pre-estimation techniques that helps to determine the robustness and reliability of data before apply the estimation methods. Thirdly, data analysis provides the methods to be employed to analyze the information gathered in the study, like statistics, analysis of thematic as well as content analysis. Concerns with Ethics: This part describes the ethical issues which will be considered during the research, including informed consent as well as confidentiality and protection of data. The section on Limitations and Delimitations discusses the possible weaknesses of the research, for instance the size of the sample or quality concerns and explains how these limitations might influence the conclusions. It also outlines the limits of the research, for example, the scope or subject matter of the study. Finalization: The section offers an overview of the major elements of the chapter on research methodology and establishes the foundation for the following chapters in the research report.

3.2 Problem Statement

Major institutional investors recognize the significance that ESG has in the sustainability of businesses over time and are increasingly including ESG issues into their investment decisions, requiring companies to reveal their ESG-related risk. Many countries are also requiring firms and financial institutions to disclose their climate-related risk.

With the push of societies and communities' businesses in developing countries started to give attention towards environmental, social and governance aspects. But Due to the lack of understanding and awareness among the people, communities and businesses lead developing countries to fall behind. However, among the other developing nations India has started to realise the importance of ESG aspects for businesses and for the communities. SEBI (Securities and Exchange Board of India) issued a paper of consultation regarding "Environmental, Social and Governance" - ESG Rating Providers for Securities Markets stating that "there are pressures on businesses to consider integrating ESG within their corporate practices and there is a growing expectation that firms will shift to more environmentally, socially, and economically sustainable activities". This is consistent with the observations of the World Economic Forum where climate-related concerns comprise the largest portion of their 2021 list of biggest threats facing the planet. Risks to the environment, such as extreme weather events, climate change inaction and the human impact on the environment remain among the biggest dangers to humanity

The awareness and understanding about ESG has started improving in India but large portion of businesses are still confused about relevance of ESG while CSR is already a mandatory compliance (Voluntarily but mandatory compliance in India). As businesses in India are still unaware that while CSR is a voluntary approach to act as a responsible citizen by giving back to society and environment, ESG is increasingly seen as a necessary component of risk management, value creation and sustainability of companies. Businesses in India should have more focus on integrating ESG considerations into their overall business plan as it can their increase operational efficiency and decrease risk, hence assist in boosting their reputation in the long run, generate more value for their company. ESG analysis is often integrated into investment decision-making, and companies that score well on ESG metrics might be more attractive to investors and customers who prioritize sustainability and ethical practices.

3.3 Research Gap

There has been limited research carried out in India regarding the relationship between ESG factors on financial performance and risk profile of Indian listed firms as there is a need of thorough and uniform ESG data. There have been improvements in the last few years regarding the accessibility of ESG information for Indian firms but there are many issues with regards to the quality of data as well as consistency and comparability between different firms and industries.

In the existing literature researchers have taken data for a shorter period of time as there is a need for more long-term research that studies the association between ESG elements and the financial performance of an Indian firms. The majority of studies determined the relationship between ESG scores on firm performance and risk profile for short-term indicators, like stocks price returns, or financial ratios, or standard deviation of market return. However, there is need to look at the of ESG factors on financial performance and risk profile of Indian listed firms.

Another major gap will be covered by this study is on determination of ESG scores of different sectors and industries in India with comparative analysis of segregated ESG scores. Hence defining the following objectives.

3.4 Objectives of the study

1. To study the trends and patterns of Environmental, Social, and Governance in India.
2. To identify the impact of Environmental, Social and Governance factors on the financial performance of companies in India.
3. To study Environmental, Social, and Governance scores within sectors of the firms.
4. To estimate the impact of Environmental, Social, and Governance on risk profile of the listed firms in India

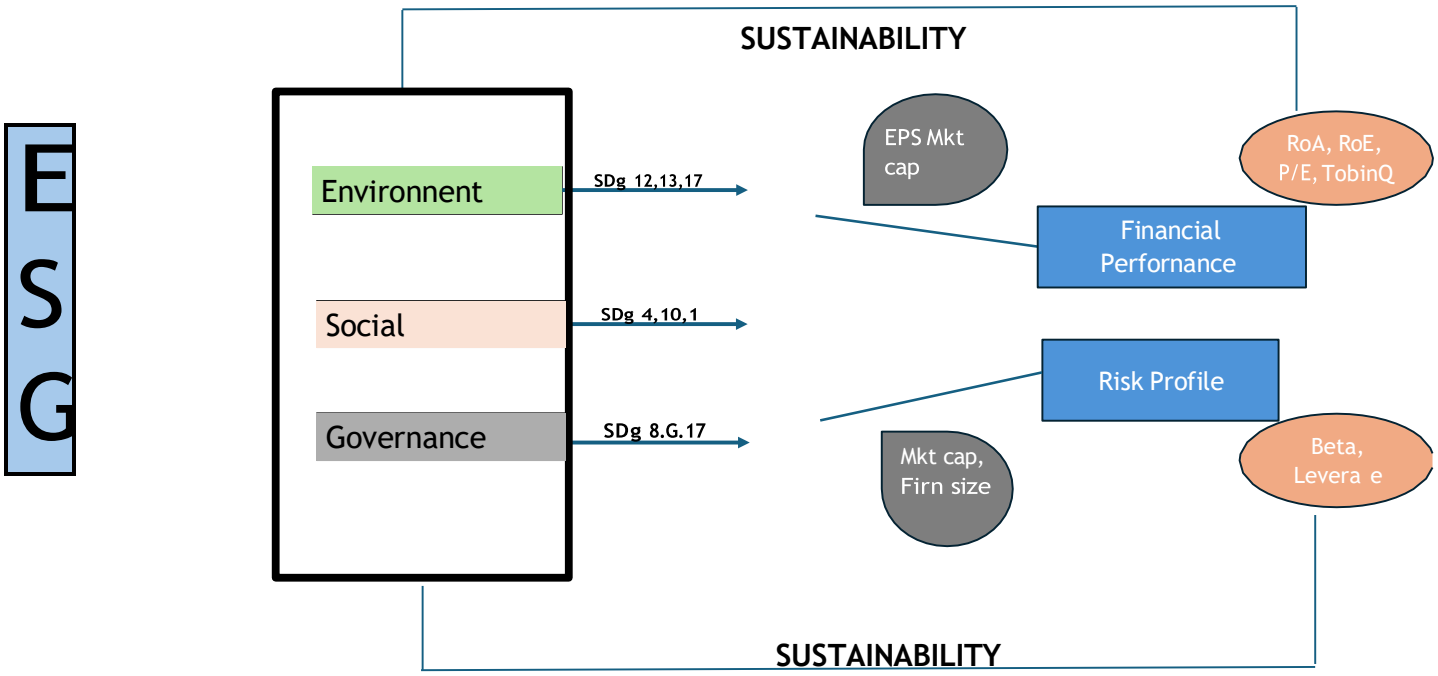
3.5 Research Questions

1. What are the key trends and patterns of Environmental, Social, and Governance (ESG) in India?
2. How have ESG practices evolved in India over time?
3. What are the key ESG issues Indian companies facing?
4. What are the drivers of ESG adoption in India?
5. What are the barriers to ESG adoption in India?

6. How do ESG practices vary across different sectors in India?
7. What is the impact of ESG practices on firm performance in India?
8. What is the impact of ESG practices on firm Risk profile in India?
9. What is the role of government policies and regulations in promoting ESG practices in India?

3.6 Research Framework

Fig 6. **Research Framework**



Source: Authors'

3.7 Description of Variables of the Study

The following section provides a description of various variables used in the study to achieve the above-mentioned objectives.

3.7.1 ESG Factors:

To accomplish the study's objectives, "Environmental, Social, and Governance" scores were utilized both as aggregated ESG performance (ESG scores combines) and as individual Environmental - Social - Governance scores. The analysis considers ESG factors as independent variables.

Table no. 4: Detail of the ESG variable

Methodology Factors	**Description of Environmental, Social, and Governance scores**
Data Sources	Bloomberg collects ESG data from a wide variety of sources, including company disclosures, third-party ESG research providers and regulatory filings.
ESG Issues	Bloomberg assesses companies based on a broad range of ESG issues, including climate change, labour practices, human rights, supply chain management, diversity and inclusion, and executive compensation.
Weighting	Bloomberg applies a weighting system to the various ESG issues based on their relative importance. The weights are derived from a combination of industry-specific analysis, stakeholder feedback, and other factors.
Scoring	Bloomberg assigns a numerical score to each company based on its performance on the ESG issues. The score ranges from 0 to 100, with higher scores indicating better ESG performance.
Industry-Specific Analysis	Bloomberg adjusts its ESG scoring methodology based on the unique characteristics of each industry. For example, companies in highly regulated industries may be judged more harshly on governance issues.
Peer Comparison	Bloomberg compares each company's ESG score to those of its peers within the same industry. This helps to contextualize the score and identify areas where the company may be underperforming relative to its peers.
Data Quality	Bloomberg applies a range of data quality checks to its ESG data to ensure accuracy and completeness. This includes cross-checking data from multiple sources and using machine learning algorithms to identify outliers and errors.

Source: Authors'

3.7.2 Corporate Financial Performance Factors:

The current analysis incorporates market-based performance indicators TobinQ and EPS, as well as accounting-based performance indicators such as ROA and ROE, to fulfill the study's second objective. The study's dependent variables are measures of corporate performance.

Table no. 5: Details of Financial performance factor

Variables	Explanation	Measurement
Firm performance	Return on asset	As an accounting measure of performance Return on assets (ROA) was measured by profit before dividend, interest, and tax (PBDIT) divided by the total number of assets
	Return on equity	The return on equity ratio formula is calculated by dividing net income by shareholder's equity.
	Tobin q	Tobin's Q is defined as the market value of equity plus the market value of total liabilities divided by the book value of total assets
	EPS	EPS, or earnings per share, is a financial metric that measures the profitability of a company by calculating the company's net income divided by the number of outstanding shares of stock.
	P/E	The price to earnings ratio (P/E ratio), which compares a company's price to its earnings, assists in determining its market value by indicating how much an investor is investing in exchange for each dollar of profit.

Source: Authors'

3.7.3 Corporate Risk Factors:

The Current study utilizes two risk variables to determine the association between risk profile of company and ESG factors. Factors to measure the market risk of the Indian firms includes Beta and leverage as an dependent variables of the study.

Table no.6: Details of Risk factors

Variables	Explanation	Measurement
Beta	An indicator of the volatility of a particular stock relative to the overall market.	The value of this variable is calculated by dividing the covariance between the returns of a certain stock and the returns of the market by the variance of the returns of the market. A beta of one indicates that the price of the stock will follow the market. A beta that is larger than one indicates that the stock will be more volatile than the market, while a beta that is less than one indicates that the stock will be less volatile than the market.
Leverage	The utilization of borrowed capital or financial instruments in order to augment the prospective yield on an investment is referred to as leverage. Both losses and benefits are amplified.	Leverage is calculated by dividing total debt with total equity. A significant debt-to-equity ratio signifies that an organization has been heavily relying on debt to fund its growth, thereby potentially elevating leverage and, as a result, financial risk.

Source: Authors'

3.7.4 Control Variables

Table no. 7: Control Variables of the Study

Variable	Explanation	Measurement
Size of Firm	A company's size, typically measured by market capitalization or total assets.	To calculate a stock's market capitalization, multiply the current market price by the number of outstanding shares. Total assets can be found on a company's balance sheet.
Financial Leverage	The degree to which a company uses debt financing to fund its operations.	Calculated as the ratio of total debt to total assets, or the ratio of total debt to equity. A higher financial leverage ratio indicates that a company has a greater proportion of debt financing, which can increase risk but also potentially increase returns.
Market Value of Firm	Market capitalization is the total value of a company's outstanding	Calculated as the number of outstanding shares multiplied by the current market price per share. This metric reflects

	shares as assessed by the stock market.	investor perceptions of a company's current and future performance

Source: Authors'

3.8 Sample Selection and Technique

We have selected the National Stock Exchange as a sampling unit as NSE is the biggest market for stocks of India with regard to market capitalization as well as trading volume, which makes it a key participant on India's financial market. NSE offers a broad range of companies in various industries which include financial services, information technology and consumer goods, and many more. This variety can make it a great illustration of Indian economy. There's plenty of information regarding the NSE and the companies that are listed on it which includes the financials of their companies, as well as market data or research studies. This makes it much easier to conduct analysis and research of the companies that are listed at the exchange. The NSE is controlled through the SEBI which aids in ensuring that it is transparent and fair. This gives a sense of confidence in the accuracy of the information, accessible through the exchange.

This study used a cluster sampling technique through which firms listed under nifty 500 index. NSE nifty 500 has been selected as a sampling frame. Nifty 500 for a sample frame will give a more broad and more representative sampling of the Indian stock market, and provide access to an abundance of information and clear guidelines for the inclusion or exclusion of firms. Financial institutions and banking firms are excluded from our sample for many reasons. First, according to (Shoa 2018), financial sector firms must be excluded because of higher government regulations and differences in the accounting system. Second, there is a complete difference in operational nature. Thirdly, banks and financial institutions follow typical accounting systems, which may cause a difference in calculating financial performance (Rose, 2007). Firms with unavailable data were also excluded based on criteria. Firms with missing data for two consecutive years were removed, as well as firms with missing data for any ESG factor.

3.9 Data Collection and Sample Size

This study uses secondary data. Data for the study has been collected from authentic websites and platforms for 10 years from financial year 2013 to financial year 2022. First the data of ESG factors has been collected from Bloomberg. Bloomberg has a strong reputation for providing high-quality and reliable financial and non-financial data. Bloomberg has strict quality control processes in

place and undergoes independent audits and testing to ensure the accuracy and reliability of its data. Researchers and investors around the world have used data from Bloomberg for the research purposes. Second, the data of financial performance and risk factors have been collected from CMIE prowess IQ. CMIE ProwessIQ is a well-known and widely used database in India that provides financial and non-financial information about companies. It is used by banks, financial institutions, research organizations, and investors to analyse the performance of companies. The total sample size of the study is 269 firms after excluding financial sector firms and firms with unavailable data.

Table no. 8: Sample size

Total firms listed in NSE 500 Index	500 firms
Less banks and financial institutions	79 firms
Less Firms with unavailable data	152 firms
Total sample size	269 firms

Source: Authors'

Table no. 9: Sector-wise Sample size

S.no	Sector	No. of firms
1	Healthcare	47
2	Capital goods and realty	54
3	Services	33
4	Fast Moving Consumer Goods	26
5	Information Technology	23
6	Consumer Durables	17
7	Automobile and Auto Components	20
8	Textile	6
9	Oil and Mine	23
10	Power	13
11	Media and entertainment	5
	Total	267

Source: Authors'

3.10 Empirical Model and Estimation Techniques

3.10.1 Content analysis

This study has systematically and manually analyzed the content of a text or media to identify patterns, themes, and trends. The analysis has been done in both qualitative and quantitative content, with the final results typically presented in the form of descriptive statistics or textual summaries. Manual content analysis is a valuable research methodology in social science studies because it allows researchers to gain in-depth insights into complex social phenomena

3.10.2 Panel system GMM (Generalized Method of Moments)

To determine the impact of ESG on corporate firm performance and to estimate the impact of ESG on organizations risk profile, this study used panel system GMM (Generalized Method of Moments). It is a commonly used method for examining the correlation between variables across different time periods. It is widely regarded as the most effective tool for examining the relationship between variables due to many factors. Panel system GMM uses data collected over time, allowing for greater statistical power and reducing the risk of type II errors. It is distinguished by its lack of bias, low variance, reliability, and its capacity to predict and address heteroscedasticity issues, resulting in improved econometric estimate. GMM necessitates the specification of a specific number of moment conditions for the model. It is utilized in semiparametric models when the parameter being studied has a limited number of dimensions. In these models, the entire form of the data's distribution function may be unknown, rendering maximum likelihood estimate unsuitable. It can provide richer insights into the relationship between variables by controlling the assumptions of autocorrelation and heteroskedacticity, hence allowing for the exploration of changes over time and the identification of causal relationships.

$$ROA = \alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$$

$$ROE = \alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$$

$$Tobin's\ Q = \alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$$

$$EPS\ Ratio = \alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$$

P/E Ratio = $\alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$

Beta = $\alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$

Financial Leverage = $\alpha + \beta1(ESG) + \beta2(Firm\ Size) + \beta3(Financial\ Leverage) + \beta4(R\&D\ Expenditures) + \beta5(Market\ Size\ of\ Firm) + \varepsilon$

3.10.3 Kruskal-Wallis Test

In this study, we investigate the ESG scores across eleven distinct sectors, including FMCG, IT. Capital Goods, Automotive, Consumer Durables, Oil & Mining, Power, Media and Entertainment, and Textile. Our primary objective is to explore variations in ESG scores among these sectors, shedding light on the differences and commonalities in their ESG performance over time.

One of the critical challenges encountered in this analysis pertains to the unequal sample sizes across sectors. This inequity arises from the unavailability of ESG score data for the initial two or three years, starting from 2012, in some sectors. To address this, we employed the Kruskal-Wallis Test, a robust non-parametric statistical test designed to compare multiple groups with unequal sample sizes and when data distribution assumptions are not met. By using the Kruskal-Wallis Test, we ensure that the results accurately reflect sector-based differences in ESG scores while accounting for the irregularity in data availability across time periods.

Our data collection involved the acquisition of ESG scores from reliable sources, and to ensure data quality, we rigorously examined and processed the data for missing values and outliers. Standardization and normalization techniques were applied when necessary to make the ESG scores comparable across sectors.

Additionally, to ensure the reliability of our sector-wise study, we constantly classified companies into their relevant sectors. We took into consideration the complexities of industry-specific variables that may impact ESG performance.

This study seeks to offer a thorough comprehension of the variation in ESG scores within sectors, taking into account the problems posed by different sample sizes and missing data for specific early years. A non-parametric alternative to one-way ANOVA is used to compare two or more independent samples of equal or variable sizes in order to tackle these issues. This test does not assume normality in the data and is used when the assumptions for ANOVA are not met, such as

the assumption of normality. The application of the Kruskal-Wallis Test ensures the statistical robustness of our findings, making our analysis a reliable basis for drawing conclusions regarding the ESG performance of diverse sectors. We anticipate discovering insights to assist stakeholders in their decision-making, advancing the dedication to sustainable and responsible business practices.

3.11 Pre-estimation techniques

3.11.1 Unit Root Test

In my analysis, I utilized the unit root LLC (Levin, Lin, & Chu) test in Stata to examine the stationarity of all variables. The test results confirmed that all variables in my dataset are stationary. Stationarity is a crucial assumption in many econometric models, as non-stationary data can lead to spurious regression results and misleading interpretations. The unit root LLC test provides robustness and reliability in determining the stationarity of time series data. With the assurance of stationary variables (appendix 1)

3.11.2 Heteroscedasticity

After conducting a multiple regression analysis, we observed that the results indicated insignificance for all the variables included in the model. The p-values for the coefficient estimates exceeded the selected significance level of 0.05, indicating that none of the independent variables had a statistically significant correlation with the dependent variable. Based on these findings, we might provisionally conclude that our data does not show heteroscedasticity.

However, we decided to further investigate the presence of heteroscedasticity in the residuals of our regression model using the ESTATE HETTEST command in Stata. The results of the heteroscedasticity tests were statistically significant, indicating the presence of varying error variance in the residuals. This finding has significant implications for our regression analysis, as heteroscedasticity can lead to biased coefficient estimates and unreliable statistical inferences.

HO: Ho: Constant variance
chi2(1) = 36.71
Prob > chi2 = 0.1270

The Breusch-Pagan / Cook-Weisberg test is utilized to determine if the errors' variance in a regression model remains constant (homoscedastic) or changes throughout the range of fitted values, indicating heteroskedasticity. The null hypothesis (Ho) posits that the error variance is constant, whereas the alternative hypothesis (Ha) suggests that the error variance is not constant (heteroscedastic) (Appendix 2).

Based on the test results, the chi-squared test statistic is 36.71 with 1 degree of freedom. The associated p-value for the test is 0.1270. Since the p-value (0.1270) is greater than the chosen significance level (typically 0.05), we fail to reject the null hypothesis. This means that there is not enough evidence to conclude that the error variance in the regression model varies significantly with the fitted values. Therefore, we do not have sufficient evidence to support the presence of heteroscedasticity in the model.

3.11.3 Multicollinearity

In the multicollinearity results, we analyzed the correlation matrix between the variables ROA, ROE, EPS, PE and TobinQ with environmental scores, governance scores, and social scores. The correlation coefficients revealed weak or negligible correlations between these variables. Specifically, environmental scores showed a weak positive correlation of 0.0321 with ROE, indicating a slight tendency for both variables to increase together. On the other hand, governance scores exhibited a weak negative correlation of -0.0062 with roe, suggesting a slight tendency for governance scores to decrease as ROE increases. Additionally, governance scores displayed an almost negligible positive correlation of 0.0011 with ROE, indicating an almost non-existent relationship between the two variables. The weak or negligible correlations among the independent variables are advantageous for regression analysis, as it indicates that multicollinearity is not a major concern in this dataset. High multicollinearity in regression analysis might result in incorrect coefficient estimates and inflated standard errors. However, the low correlations observed here suggest that the independent variables are not strongly related to each other, making the results more reliable and easier to interpret (appendix 3).

Table no. 10: Descriptive Statistics of financial performance indicators

Variable |	Obs	Mean	Std. Dev.	Min	Max
RETURN ON ASSETS	2,690	.4716308	1.069813	-2.788937	10.7399
SOCIAL SCORES	2,690	3.527057	.3510818	2.207274	4.351669

ENVIRONMENTAL SCORES	2,690	1.988341	1.5466	-1.102018	4.425974
GOVERNANCE SCORES	2,690	4.30305	.1619327	2.966097	4.591227
PRICE TO EARNING RATIO	2,690	-2.079413	1.405649	-11.12299	15.93088
LEVERAGE	2,690	-.8984518	.593534	-4.498258	2.799988
TOBINQ	2,690	-.0389059	.352648	-2.120264	2.95491
EARNING PER SHARE	2,690	2.935205	1.602641	-4.60517	7.254517
BETA	2,690	.0097111	.3289667	-.967584	.7839016
RETURN ON ASSETS	2,690	10.96979	1.261862	8.570654	15.33349

Source: Authors'

The descriptive statistics provided offer a comprehensive overview of the dataset, consisting of 2,690 observations for various financial and performance metrics. The mean, standard deviation, minimum, and maximum values of each variable offer important information about the data's central tendency and dispersion. shedding light on the characteristics of the entities studied. The "Social Scores" variable displays a relatively narrow range with a mean of approximately 3.53. This suggests that, on average, the entities have moderate social performance scores. The small standard deviation of 0.3510818 indicates that most entities are closely clustered around the mean, signifying a relatively consistent level of social performance across the dataset. In contrast, the "Environmental Scores" variable exhibits a wider spread, with a mean of about 1.99. The larger standard deviation of 1.5466 suggests significant variability in environmental performance among the entities. This implies that some entities demonstrate strong environmental practices, while others have weaker environmental performance. The "Governance Scores" variable has a narrow range with a mean of approximately 4.30. The small standard deviation of 0.1619327 indicates that the entities' governance scores are closely grouped around the mean, reflecting a consistent level of governance quality across the dataset.

The "Return on Assets" (ROA) variable displays an average of approximately 0.47, suggesting that, on average, the entities have positive returns. However, the large standard deviation of 1.07 indicates considerable variability in the profitability of these entities. The "Social Scores" variable exhibits a relatively narrow spread, with a mean of about 3.53, indicating that most entities score close to the average on their social performance. The "Price to Earnings Ratio" (P/E) variable exhibits a negative mean of -2.08, indicating that, on average, entities have low P/E ratios, which might be indicative of undervaluation. The "Leverage" variable has a negative mean of -0.90,

implying that, on average, the entities have moderate levels of leverage. The "Tobin's Q" (Tobinq) variable has a mean close to zero, suggesting that, on average, the market value of assets is similar to their replacement cost. The "Earnings per Share" (EPS) variable has a mean of approximately 2.94, indicating a positive average earnings per share for the entities.

The "Beta" variable's mean is very close to zero (approximately 0.01), implying that, on average, the entities' systematic risk is negligible. Finally, the "Return on Equity" (ROE) variable displays an average of about 10.97, suggesting a positive return on equity for the entities.

Table no.11: Correlation Matrix

Variables	ROA	P/E	Leverage	TObinQ	EPS	BETA	ROE	E-Scores	G-Scores	S-scores
ROA	1.0000									
P/E	0.0378	1.0000								
Leverage	-0.0734	-0.0200	1.0000							
TobinQ	0.0069	-0.0096	-0.0029	1.0000						
EPS	-0.0140	0.0306	-0.0393	0.1260	1.0000					
BETA	-0.0210	-0.0398	-0.0148	-0.0769	-0.2776	1.0000				
ROE	0.0772	0.0036	-0.0051	0.0956	0.2892	-0.2808	1.0000			
E-Scores	-0.0405	0.0045	-0.0163	-0.0177	0.0608	0.0390	0.033	1.0000		
G-Scores	-0.0154	0.0059	0.0367	-0.0303	-0.0353	0.0469	-0.0165	0.0772	1.0000	
S-Scores	-0.0098	0.0150	-0.0122	0.0000	0.0308	0.0426	-0.0051	0.3952	0.1426	1.0000

Source: Authors'

The correlation matrix above shows that the variables have predominantly weak associations, with most correlation coefficients being below 0.7. For instance, variables like ROA, P/E, Leverage, TobinQ, EPS, and BETA exhibit low or negligible correlations with each other, suggesting that they are relatively independent and do not share strong associations. However, there are a few exceptions, such as ROE and E-Scores, which show a correlation coefficient of 0.0772, implying a weak positive relationship. Similarly, G-Scores and S-Scores display a correlation of 0.0772, also indicating a weak positive relationship. Nonetheless, these weak correlations indicate that multicollinearity is not a significant concern in the dataset.

CHAPTER IV

Empirical Analysis

4.1 Overview

ESG factors have emerged as crucial considerations in evaluating the performance and risk profile of companies across various industries. ESG encompasses a range of criteria that reflect a company's impact on the environment, its engagement with societal issues, and the effectiveness of its governance practices. The integration of ESG principles into business strategies not only highlights a firm's commitment to sustainability and responsible corporate behavior but also influences its financial performance and risk management. Companies that effectively address ESG concerns often demonstrate a stronger ability to adapt to changing market dynamics, attract responsible investors, and maintain their social license to operate. As ESG awareness grows, an array of trends and patterns have emerged, including the incorporation of ESG metrics in investment decisions, the rise of ESG reporting standards, and the focus on diversity and inclusion within corporate leadership. These trends not only reflect evolving societal expectations but also signify a fundamental shift in how companies are evaluated, impacting their long-term success and resilience in an increasingly interconnected and conscientious global landscape.

This chapter constitutes a comprehensive and systematic investigation into the realm of ESG considerations and their multifaceted intersections within the corporate landscape. The authors use careful and detailed analysis to explore a wide range of ESG trends and patterns, revealing the complex processes that underpin current sustainability policies. The chapter provides a deeper understanding of the mutually beneficial connection between ESG factors and the performance of a company. It explores the cause-and-effect relationships and prospective ways in which responsible business practices might stimulate improved financial results. The research explores the techniques and procedures used by firms to manage and reduce operational and reputational risks in a fast-changing global landscape, focusing on ESG and risk profile.

Section I
ESG Trends and Patterns

4.2 Overview

Section I of our analysis focuses on an in-depth exploration of the trends and patterns of "Environmental, Social, and Governance" ESG factors in the landscape of Indian businesses, spanning from the inception of corporate reporting to the present day. The primary objective is to unravel the evolution of ESG considerations, including CSR reporting, and discern the shifts in focus across the ESG dimensions.

A significant aspect of this analysis involves scrutinizing the CSR reporting practices of Indian companies. By examining the content and trends in CSR reports from the early stages to the present, the study aims to identify patterns in corporate approaches toward societal and environmental responsibilities. A particular focus is placed on discerning the differences in the ESG dimensions across various phases of corporate reporting.

The environmental focus of companies will be explored in terms of initiatives to reduce carbon footprint, adopt sustainable practices, and address climate change concerns. The social dimension will delve into areas such as community development, employee welfare, diversity and inclusion practices, and the overall societal impact of business activities. The governance aspect will be assessed in terms of changes in corporate governance structures, transparency, and adherence to ethical standards.

Through meticulous examination of historical documents, reports, and relevant data, Section I aims to provide a comprehensive narrative of the trends and patterns of ESG factors in Indian businesses. This analysis intends to contribute valuable insights into how companies have evolved in their sustainability approaches, thereby informing discussions on the future trajectory of ESG considerations in the Indian corporate landscape.

4.3 Introduction

Contribution for society has been part of the Indian business culture long before western culture was discussing in their theories by Davis (1960), Johnson (1971), Friedman (1984) etc. Indians were contributing to the society as per their religions' values, like Hindus call it-"Daan" (a charitable fund), Muslims call it-"Zakaat" (an obligation) and Sikhs call it-"Dasvandh" (one tenth of income) respectively (Dhanesh, 2015; Chakrabarty 2017). But their contribution was not disclosed anywhere, thus it was unknown. Even during the time of Britishers, many business leaders follow the idea of Mahatma Gandhi, of generosity and trust. They follow the idea of Charity and donation under the Gandhian trusteeship philosophy (1941-1960). Gandhi (1970) claimed that wealthy people could be induced to distribute their riches to assist the impoverished. To use Gandhi's own words: "*Supposing I have come by a fair amount of wealth either by way of legacy, or by means of trade and industry, I must know that all that wealth does not belong to me; what belongs to me is the right to an honorable livelihood, no better than that enjoyed by millions of others. The rest of my wealth belongs to the community and must be used for the welfare of the community*" (Gandhi 1970). Hence, social responsibility has been voluntarily followed by the community and corporates for betterment of the society (Panda 2008).

Progressively, things got formalized and new terms were introduced to address these deeds like Ethical investing, CSR, SRI, etc. In India, the Ministry of Corporate Affairs mandated Corporate Social Responsibility (CSR) under the provisions of The Companies Act, 2013. Under this act, certain businesses are required to contribute two percent of their income to socially responsible activities, such as women's empowerment, education, health care, and feeding the malnourished, etc. India was the first nation to formalized and standardized matters of social contribution for all of the company's stakeholders under the Company's act 2013, and it also prompted many businesses to contribute for the social welfare and development.

According to mentor and chairman of Fortis Healthcare Limited, Harpal Singh "*The inclusion of the CSR mandate in the 2013 Companies Act was an attempt to complement the government's efforts to deliver the benefits of growth equitably and to involve the corporate world in the country's development agenda.*" As, during that period, India ranked 135th out of 186 countries on the Human Development Index (HDI) (Human Development Report, 2013), and rural areas are home to an estimated 216.5 million of India's 269.3 million underprivileged citizens (Rao, 2013). Additionally, as per the 2014 UNESCO report, an estimated 37% of the adult population of India

is illiterate (Mitra and Schmidpeter, 2015), making it the country with the largest illiterate population in the world. Conversely, India harbored the sixth largest concentration of billionaires globally. Additionally, in an effort to attract foreign direct investments (FDIs) from multinational corporations, the government provided enticing subsidies (Osland et al., 2002; Khan, 2007). Furthermore, it has been claimed (Thorpe and Prakash-Mani, 2004; Khan, 2007) that companies in developing nations only focus on social and environmental growth after attaining a certain level of economic development. Thus, prompted the government to mandate the voluntary activity of social contribution.

4.3.1 CSR Inception and Indian Companies

CSR is "the commitment of a business to contribute to sustainable economic development, working with employees, their families, the local community and society at large to improve their quality of life" (WBCSD (1998). Alternate definitions frequently attribute to a corporation a moral duty to satisfy the requirements of stakeholders who do not hold shares. Though this concept has evolved over time but the main idea revolves around the idea that businesses have a responsibility to consider the impact of their actions on society and the environment, in addition to their financial performance. The development of the CSR concept has been influenced by various factors, including historical institutional set-ups, socio-political drivers, and ethical considerations. With time the CSR concept has gradually shifted towards a more comprehensive emphasis on sustainability, which includes a deeper understanding of CSR practices and their impact on society and the environment (Aslaksen, et al., 2021).

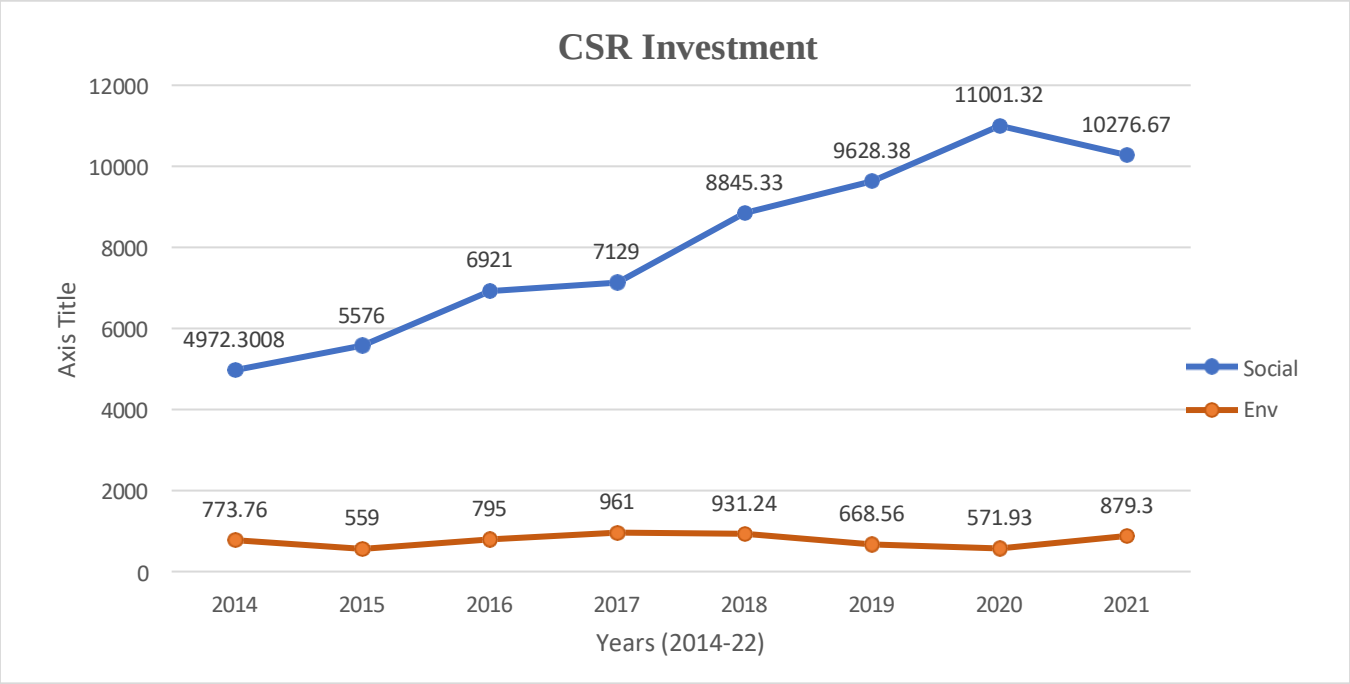
The concept of CSR has been discussed with such relevance because, CSR and ESG are two related concepts that are often used interchangeably. Many researchers are using the CSR reports to get the ESG scores of the companies (Yoon, et al., 2018; Liao, et al., 2021). As CSR is a broader concept that encompasses a company's responsibility towards society and the environment, while ESG is a more specific set of criteria that investors and stakeholders considered alongside financial factors when assessing the overall sustainability and societal impact of a company. For instance, businesses that prioritize CSR considerations may have a higher likelihood of achieving strong ESG performance. Such as a company with a strong commitment to reducing its carbon footprint, may have improved environmental performance, which is an ESG factor.

In order to comprehend the trend and pattern of the ESG contribution made by the corporate world, this study analyses previous CSR reports of companies. According to the CSR reports published with their annual financial statements, the majority of investments are made in activities such as education, poverty, health, rural development, protection of heritage, rural sports & paralympic, women empowerment, technology incubation, benefits to armed forces veteran, and PM national relief fund, etc., giving the impression that the term CSR is interpreted as a contribution for the upliftment of society.

4.3.2 Environmental, Social and Governance trends in India

To understand the evolution and trend of ESG investment in India, it is appropriate to start from the CSR investments done by the corporates. Hence the graph below depicts the Corporate Social Responsibility (CSR) investments and provides a valuable insight into the allocation of funds towards societal and environmental initiatives in crores from 2014 to 2021. Notably, the environmental investment from CSR showcases a consistent upward trajectory, albeit maintaining its level below 2000 crores since 2021. This trend underscores a persistent commitment to environmental stewardship, as companies have steadily increased their investments over the years, possibly indicating a growing awareness of ecological responsibilities.

Figure 7. Graphical presentation on CSR investment



Source: Authors'

Note: the graph reflects a balanced focus on both environmental and social aspects of CSR, with a steady growth in environmental investment and a pronounced upward trajectory in social investment since 2014. These trends are indicative of a concerted effort by companies to align with societal needs and environmental concerns, resulting in not only positive social change but also potential benefits to their own sustainability and reputation in the market.

Conversely, the pattern observed in social scores is intriguing. Starting at 4972.3 crores in 2014, investments aimed at societal well-being experienced a remarkable ascent to 8845.33 crores by 2018. This substantial increase can be attributed to heightened recognition of the importance of addressing social issues and uplifting communities. Moreover, the upward trend suggests that companies are proactively engaging in initiatives that benefit society at large, which can lead to enhanced brand reputation and stakeholder trust.

By the culmination of 2021, the investment in societal endeavors reached an impressive 10276.67 crores. This upward trajectory could be attributed to various factors, including the evolving landscape of corporate responsibilities, increased emphasis on sustainable business practices, and changing societal expectations. The marked growth in social investments underscores a strategic shift towards prioritizing societal impact, potentially due to a broader realization of the positive influence such initiatives can have on communities and, consequently, on long-term business sustainability.

4.3.3 ESG inception and Indian Companies

ESG considerations have rapidly emerged as a significant framework for evaluating the sustainability and ethical practices of companies and organizations in India. This framework gained traction due to growing concerns about the impact of business operations on the environment and society. The inception and development of ESG principles in India can be traced back to various key milestones. The initial seeds were sown around the early 2000s when concerns about environmental degradation and social inequalities gained momentum globally. In 2004, the Securities and Exchange Board of India (SEBI) introduced the concept of corporate social responsibility (CSR), a precursor to the broader ESG framework. This marked a significant step in encouraging businesses to consider their societal and environmental impacts. In recent years, India has faced various environmental challenges, such as air and water pollution, deforestation, and climate change. These issues have prompted a collective realization of the need for businesses to prioritize environmentally responsible practices. Furthermore, the social aspect of ESG has gained prominence as stakeholders increasingly demand transparency, fairness, and inclusivity from companies. With the rise of social media and digital connectivity, instances of labor rights violations and discriminatory practices have garnered public attention more than ever before.

Consequently, companies are being held accountable for their treatment of employees, involvement in local communities, and contributions to social welfare. However, it wasn't until around 2010 that ESG factors began to take more comprehensive shape in India. The NVG (National Voluntary Guidelines) concerning the economic, social, and environmental responsibilities of corporations were officially unveiled by the Ministry of Corporate Affairs in 2011. These guidelines encourage companies to adopt sustainable practices and engage in philanthropic activities, setting a foundation for future ESG integration. The years following 2015 saw a notable acceleration in ESG adoption. SEBI introduced the Business Responsibility Reporting (BRR) framework in 2015, requiring the top 500 listed companies to disclose their social and environmental initiatives. This move aimed to enhance transparency and encourage companies to consider their broader impact. In 2018, the Kotak Committee on Corporate Governance recommended the inclusion of ESG factors as part of the governance framework for listed companies. ESG's formal inclusion gained further traction in 2020 when SEBI mandated the top 1,000 listed companies to disclose their ESG-related information in their annual reports, effective from the financial year 2022-2023. This marked a significant step towards mainstreaming ESG

considerations within the Indian corporate landscape. The financial sector also witnessed developments with ESG-themed investment funds gaining popularity among investors.

Governance, the third pillar of ESG, has also played a pivotal role in shaping the business landscape in India. Corporate governance failures and instances of corruption have highlighted the importance of effective and transparent management structures within companies. As this sets the base for the E & S activities of the companies otherwise green-washing is also can alternative opted by them. Investors are now recognizing that robust governance practices not only mitigate risks but also promote long-term value creation. In response to these factors, Indian regulatory bodies and financial institutions have taken steps to integrate ESG principles into their policies and investment strategies. The Securities and Exchange Board of India (SEBI) introduced guidelines for listed companies to disclose their ESG-related initiatives, enabling investors to make informed decisions. Additionally, financial institutions are incorporating ESG factors into their risk assessment and investment evaluation processes. As the ESG framework continues to evolve in India, businesses are recognizing that a commitment to sustainability, ethical conduct, and good governance is not just a moral imperative but also a strategic advantage. This shift in mindset reflects a broader transformation in the business ecosystem, where responsible practices are becoming integral to competitiveness and long-term viability.

Table no. 12: Descriptive statistics of ESG scores

Variables	**OBS**	**Mean**	**Std.Dev**	**Min**	**Max**
Environmental	2690	15.59494	19.03218	0	83.5942
Social	2690	19.08118	12.97385	0	69.8912
Governance	2690	74.81554	10.69515	19.416	98.6153

Source: Authors'

The provided data (Table 1) showcases the trend and pattern of Environmental (Escores), Social (Sscores), and Governance (Gscores) scores across a sample of 2,690 observations. These scores provide insights into how companies in this dataset are performing in terms of environmental responsibility, social impact, and corporate governance practices.

The mean governance score is approximately 74.82, with a standard deviation of 10.70. This suggests a moderate level of variation among companies in terms of their governance practices. The minimum governance score observed is 19.42, while the maximum is 98.62. This wide range

indicates significant diversity in corporate governance across the sample. The mean environmental score is approximately 15.59, with a relatively higher standard deviation of 19.03. The minimum environmental score is 0, indicating that some companies might not have reported any efforts towards environmental sustainability. On the other hand, the maximum environmental score is 83.59, suggesting a considerable range in environmental performance among companies. The mean social score is approximately 19.08, with a moderate standard deviation of 12.97. Similar to environmental scores, the minimum social score is 0, suggesting variability in the level of social impact efforts reported by different companies. The maximum social score is 69.89, indicating diversity in the extent of positive social contributions.

The data reveals several interesting trends and patterns. Firstly, the relatively lower means for environmental and social scores suggest that companies in this dataset might have room for improvement in these areas. The wider standard deviations for environmental and social scores imply a significant dispersion of performance levels, indicating that some companies are excelling in these dimensions while others have much progress to make.

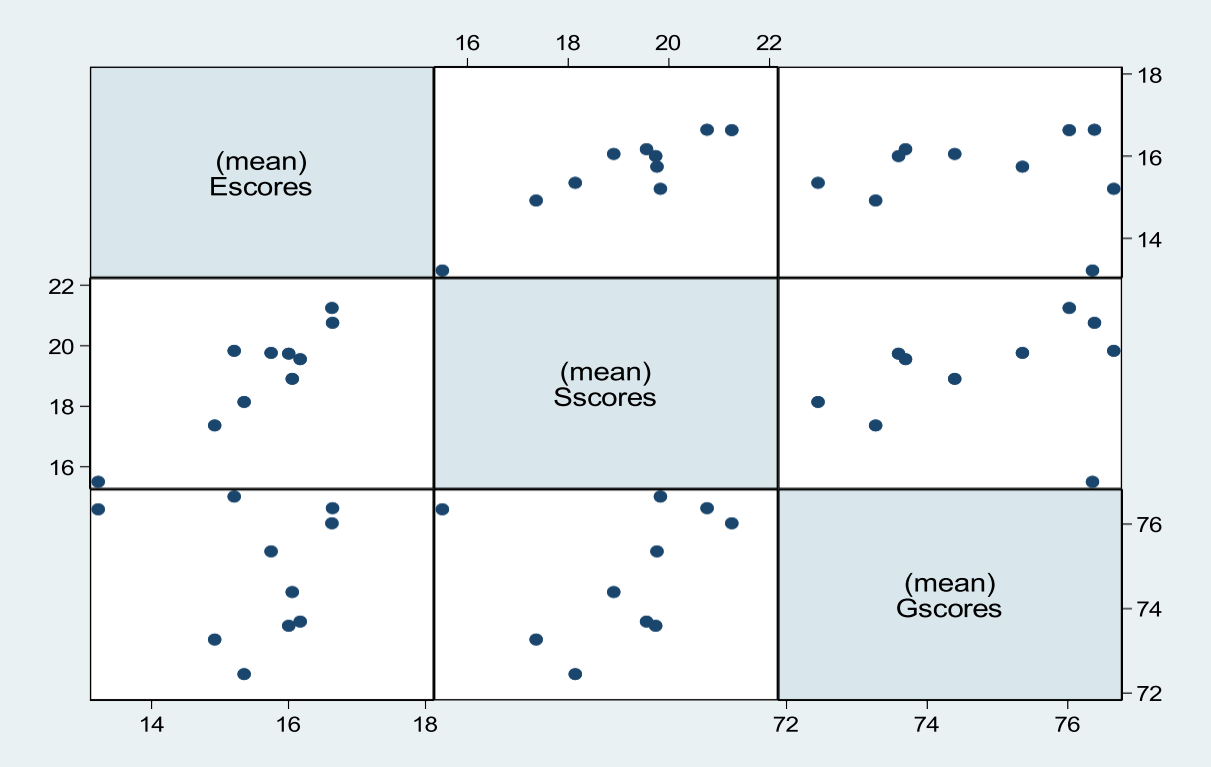
Governance scores appear to be more tightly distributed around the mean, indicating a potentially higher level of uniformity in corporate governance practices. However, the relatively high maximum governance score still signifies some companies' outstanding governance efforts.

The increasing trend in ESG awareness over recent years could potentially explain the higher standard deviations and presence of both low and high scores. This data underscores the importance of understanding and improving ESG practices among Indian companies, potentially leading to enhanced sustainability and responsible corporate behavior in the future.

4.3.4 Scatter Plots and Correlation Matrix

The correlation matrix and scatter plot provided offers insights into the relationships between Governance (Gscores), Environmental (Escores), and Social (Sscores) scores. Each value in the matrix represents the correlation coefficient between the respective pairs of variables.

Figure no. 8: Scatter plot



Source: Authors'

Table no.13: Correlation Matrix

Variables	Gscores	Escores	Sscores
Gscores	1.0000		
Escores	0.1377	1.0000	
Sscores	0.1731	0.6481	1.0000

Source: Authors'

Note: *The analysis of the correlation matrix suggests that while there are connections between the ESG dimensions, they are not uniform across the board, highlighting the diverse strategies and priorities companies adopt in their pursuit of comprehensive sustainability.*

Gscores vs. Escores (Correlation: 0.1377): The positive correlation coefficient of 0.1377 between Governance and Environmental scores suggests a relatively weak positive relationship between these two dimensions. This implies that companies with higher governance scores tend to have slightly higher environmental scores, but the association is not very strong. This pattern could indicate that companies placing an emphasis on strong governance practices might also pay some attention to environmental responsibilities, although the effect is not substantial.

Gscores vs. Sscores (Correlation: 0.1731): Similarly, the positive correlation coefficient of 0.1731 between Governance and Social scores indicates a modest positive connection. This suggests that companies with better governance practices are also more likely to have relatively higher social scores. This trend implies that effective corporate governance might coincide with a focus on social initiatives, although the relationship is not overly pronounced.

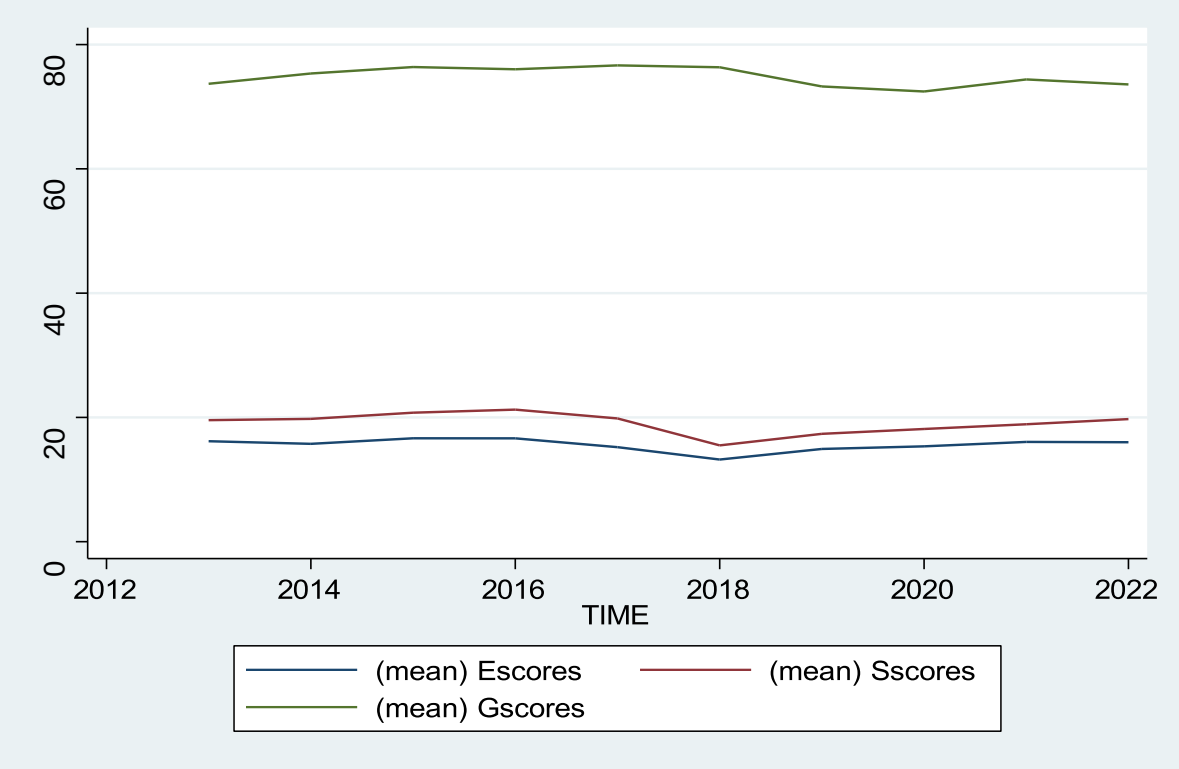
Escores vs. Sscores (Correlation: 0.6481): The correlation coefficient of 0.6481 between Environmental and Social scores signifies a stronger positive relationship. This suggests that companies with higher environmental scores tend to also have higher social scores. This pattern indicates a notable alignment between environmental and social initiatives, suggesting that companies that prioritize one of these dimensions are also likely to focus on the other.

In terms of trend and pattern analysis, the correlation coefficients show that while there are connections between these ESG dimensions, the relationships are relatively weak to moderate. This could reflect the complex nature of corporate sustainability, where companies might prioritize specific ESG aspects differently based on their industry, strategy, and internal values. The stronger correlation between Environmental and Social scores indicates that companies are more likely to tackle both environmental and social challenges concurrently, possibly due to shared stakeholders, synergies in initiatives, or a holistic approach to sustainability.

4.3.5 Line Graph

In our comprehensive trend and pattern analysis, we harnessed the power of Stata to construct a line chart that encapsulates the dynamics of 296 firms over a span of ten years. To facilitate this visual representation, Stata leveraged its sophisticated "t-set" command, transforming our dataset into a discerning time series that captures the temporal evolution of our variables. By deftly employing the "collapse" command subsequently, Stata adeptly computed the mean scores for each year. These meticulous steps yielded a refined depiction, shedding light on the overarching trends and patterns woven into our data. The resulting line chart stands as an illuminating testament, portraying the nuanced trajectories of our firms' performances across the years. This endeavor empowers us to not only observe the broad shifts but also identify subtle nuances that may bear significance in understanding the factors influencing our entities' behaviors and outcomes

Fig no.9: Line graph Environmental scores, Social scores and Governance scores



Source: Authors'
Note: Escores represent "environmental scores" Sscores represent "social Scores and Gscores represent Governance Scores.

The line graph depicting the trends of Environmental (E) and Social (S) scores alongside Governance (G) scores provides valuable insights into the ESG performance of the entities being analyzed. Here's an interpretation and analysis of the observed trends:

The graph illustrates the trajectories of E, S, and G scores over the analyzed time period. Notably, Environmental and Social scores are consistently below 20, indicating that companies have not achieved robust performance in these dimensions. However, the slight upward slope observed in both E and S scores suggests a cautious improvement trend. This trend implies that while the progress has been minimal, efforts are being made to enhance environmental and social practices over time. The gradual incline may signify measured steps taken to address sustainability concerns.

In contrast, Governance scores stand out in contrast to E and S scores. Remaining within the range of 70 to 80, these scores denote a relatively robust governance framework among the evaluated entities. The nearly horizontal trajectory of Governance scores illustrates stability and a consistent approach to effective internal control mechanisms and decision-making structures. The marginal upward trend indicates a subtle but persistent commitment to refining governance practices.

Analyzing these trends collectively, a few observations emerge:

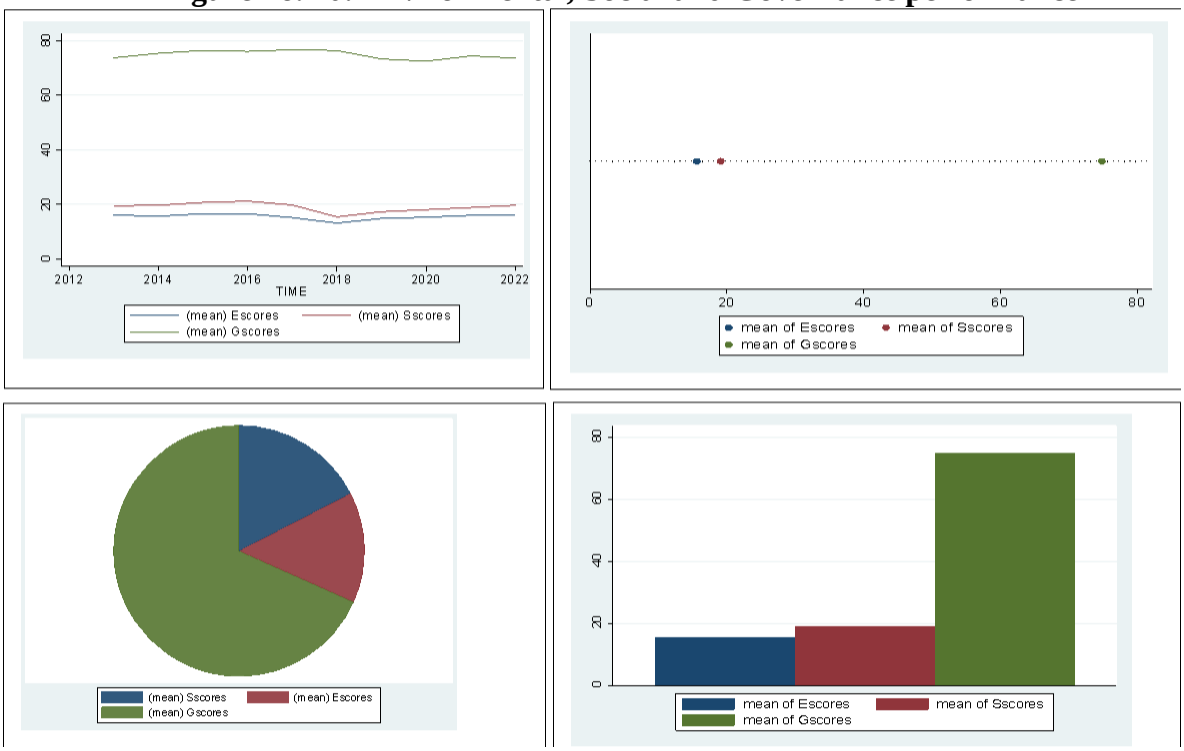
- The overall ESG performance of the entities reflects an emphasis on governance, as evidenced by the comparatively higher and stable Governance scores.
- The discrepancy between Governance scores and E, S scores may highlight a potential area for improvement. Companies could consider channeling efforts into elevating environmental and social practices to match the commendable governance performance.
- The gentle upward trends across the board suggest that the entities are taking gradual strides towards better ESG outcomes. However, the limited magnitude of change underscores the complexity of effecting transformational change in these areas.

In our comparative analysis of the two-line charts, Figure 2 and Figure 4, we unearthed distinctive insights regarding the trajectories of Corporate Social Responsibility (CSR) scores, Environmental performance, and Social (ESG) performance. In Figure 2, our exploration of CSR scores unraveled a substantial discrepancy between Environmental and Social dimensions. Remarkably, investments directed towards social causes exhibited a consistent upward trajectory over the course of the past decade, demonstrating a sustained commitment to fostering positive social impact. Conversely, the graph portrayed a contrasting narrative for Environmental investments, which remained steady and linear, signaling a relatively consistent yet unvarying approach towards ecological initiatives. This juxtaposition between upward social investments and unchanging environmental commitments reflects a possible prioritization of societal welfare over environmental aspects within the realm of CSR.

Turning our focus to Figure 4, our examination of ESG ratings revealed a clear correlation between the Environmental and Social aspects. Both ratings exhibited a parallel progression, with social scores slightly surpassing those of the environmental scores on the graph. Additionally, both scores followed a similar trajectory. This alignment indicates a possible coordinated endeavor to promote both environmental sustainability and social well-being simultaneously. The marginal increase in

social ratings may indicate a focus on tackling societal issues alongside ecological initiatives, that can also be supported bty the mandatory contribution of the companies to CSR. Furthermore, the shared trajectory signifies a comprehensive approach to ESG performance, in which corporations acknowledge the interdependence of environmental and social factors. The pursuit of ESG elements in a balanced manner demonstrates a thorough dedication to sustainable practices and responsible business behavior.

Figure no. 10: Environmental, Social and Governance performance



Source: Authors'

4.4 Discussion

This section delves into a comprehensive discussion on the intricate interplay of ESG performance exhibited by Indian companies. Through an array of trend and pattern analyses, significant insights are garnered, unveiling intriguing dynamics that shape corporate responsibility practices in the country. The notable disparity between the social and environmental performance, as observed through both corporate social responsibility (CSR) and environmental, social, and governance (ESG) initiatives, prompts thought-provoking inquiries on the prioritization of these aspects. Clearly, there has been a noticeable increase in contributions towards social causes, demonstrating a strong dedication to improving society. In contrast, investments in the environment have remained relatively stable but with some fluctuations over the past ten years, suggesting a need for further examination and reflection.

A salient feature unearthed from the analyses is the contrasting ESG scores across dimensions. Remarkably, while governance scores comfortably surpass the 70-score mark, reflecting effective decision-making structures, both social and environmental scores remain at or below 20 scores out of 100, underscoring room for substantial enhancement. Such a juxtaposition prompts consideration of the factors driving this variance in ESG dimensions and the associated implications for corporate sustainability strategies.

Further enriching our understanding, the calculated correlation coefficients provide intriguing insights into the relationships between these dimensions. A correlation coefficient of 0.1377 between Governance and Environmental scores suggests a relatively weak yet positive connection between the two. While higher governance scores marginally correlate with elevated environmental performance, the correlation magnitude underscores the need for deeper exploration into the mechanisms that facilitate or hinder this relationship. A similar pattern emerges between governance and social scores, with a correlation coefficient of 0.1731. This moderate positive association implies that improved governance practices coincide with marginally higher social performance, warranting a closer examination of the shared dynamics that foster these connections. This section illuminates the multifaceted landscape of ESG performance among Indian companies. The coexistence of disparities, promising trends, and correlations underscores the intricate dynamics underpinning corporate decision-making.

Section II

4.5 "To identify the impact of Environmental, Social and Governance factors on the financial performance of companies in India"

The aim of this research is to assess the impact of "Environmental, Social, and Governance" - ESG variables on the monetary performance of companies based in India. The understanding of the connections among these variables is obtained through the utilization of dynamic panel-data estimation. Our hypothesis H1a is empirically supported by dynamic panel-data estimation, which indicates a positive relation between ESG factors and the return on assets (ROA) of Indian companies (Table 12). Additionally, the results highlight the significant influence of other factors such as firm size, market capitalization, and leverage on financial performance.

4.6 Hypothesis Testing

4.6.1 Testing Hypothesis H1a

H1a: There is a positive relationship between ESG and ROA

Table no. 14: ROA as dependent variable

ROA	Coef.	Std. Err	Z	p>z
ROA_lag	1	6.925412	1.411	0.000
ESGCombined	1.590009	2.793610	5.69	0.000
FIRMSIZE	8.971206	6.578009	1365.74	0.000
Mktcap	4.312211	9.350014	461.24	0.000
Leverage	9.414306	4.487609	2098.56	0.000
cons	-.0000707	5.156508	-1370.84	0.000

Source: Authors'
***Note:** ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

The analysis of ESG factors and their impact on financial performance reveals a compelling relationship, as indicated by the statistically significant and positive coefficient associated with the ESGCombined variable (p value of 0.000). This outcome provides substantive support for the hypothesis H1a, affirming that companies excelling in ESG considerations are likely to witness an enhancement in their Return on Assets (ROA). The finding aligns seamlessly with the prevailing notion that robust ESG performance correlates with improved financial outcomes. This

observation is consistent with previous research by (Alareeni & Hamdan, 2020: B & R, 2011: Buallay, 2019: Naimy et al., 2021: Nguyen et al., 2022: Sinha Ray & Goel, 2022: Velte, 2017: Kalia & Aggarwal, 2022). These collective studies substantiate our conclusion and underscore the importance of considering ESG factors in evaluating and predicting financial success, thereby contributing to the growing body of literature on the intersection of sustainability and financial performance.

The positive and highly significant coefficient for FIRMSIZE indicates that larger companies tend to exhibit higher ROA (Table 12). This could be due to economies of scale and increased operational efficiency in larger firms (Alareeni & Hamdan, 2020). The positive and highly significant coefficient for Mktcap implies that companies with higher market capitalization also tend to have a higher ROA. This could be a result of investor confidence and perceived stability associated with larger market capitalization (Șerban et al., 2022). The positive and highly significant coefficient for Leverage suggests that companies with higher levels of leverage (debt) tend to have higher ROA (Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018) However, caution is needed in interpreting this result, as the relationship between leverage and financial performance can be complex and context-specific.

The coefficient for the lagged dependent variable ROA_lag is extremely close to 1 and highly significant (Table 12). This suggests that the financial performance of companies exhibits a high degree of persistence over time, meaning that past performance strongly influences current performance (Almeyda & Darmansya, 2019: Behl et al., 2021). This autocorrelation underscores the importance of considering the historical context when interpreting the impact of ESG factors and other variables on financial performance.

4.6.2 Testing Hypothesis H1b

H1b: There is a positive relationship between ESG and ROE

Table no. 15: ROE as dependent variable

ROE	**Coef.**	**Std. Err**	**Z**	**p>z**
ROE_Lag	1	3.060010	3.30009	0.000
ESGCombined	-.0007702	.0000242	-31.89	0.000
FIRMSIZE	-.0021619	.0001836	-11.77	0.000
Mktcap	4.15009	8.945111	46.38	0.000

Leverage	-.0107584	.000721	-14.92	0.000
cons	.0415109	.0013985	29.68	0.000

***Source**: Authors'*
***Note:** ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

The output from the Generalized Method of Moments (GMM) model in Stata provides valuable insights into the complex relationship between ESG factors and Return on Equity (ROE), shedding light on the dynamics that influence corporate financial performance. Our primary hypothesis, H1b, positing a positive relationship between ESG and ROE, has not found empirical support in the GMM results. The coefficient associated with the ESGCombined variable is statistically significant at a level of 0.000, with a negative coefficient of -0.0007702 (Table 13). This negative coefficient, when considered in the context of our hypothesis, may initially seem counterintuitive. However, the negative sign suggests that, for the sample under study, as ESG performance improves, there is a corresponding decrease in ROE. So we reject hypothesis H1b. our result corroborates with (Alareeni & Hamdan, 2020: Simsek & Cankaya, 2021: De Lucia et al., 2020: Koundouri et al., 2021: Nguyen et al., 2022: Junius et al., 2020: Domanović, 2021)

Controlling for other variables, (Table 13) the lagged ROE variable (ROE_Lag) exhibits a substantial positive impact on current ROE, with a coefficient of 3.061110, indicating the persistence of past performance in influencing current financial outcomes (Sinha Ray & Goel, 2022). This underscores the importance of historical financial health in shaping present ROE. Moving on to the control variables, the coefficients for Firm Size (FIRMSIZE) (Alareeni & Hamdan, 2020), Market Capitalization (Mktcap), and Leverage are all statistically significant at levels of 0.000. FIRMSIZE and Leverage exhibit negative coefficients, implying that larger firms and those with higher leverage tend to experience lower ROE, holding other factors constant. In contrast, Mktcap has a positive coefficient, suggesting that companies with larger market capitalization enjoy higher ROE (Șerban et al., 2022: Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018).

The consistency of these control variables' coefficients contributes to the robustness of our analysis, affirming that firm size, market capitalization, and leverage play significant roles in shaping ROE (Yu & Xiao, 2022). As we interpret these findings, it is crucial to recognize that the negative coefficient for ESGCombined may prompt further exploration into the nuanced interplay between ESG performance and ROE. It is plausible that the negative relationship may be indicative

of a trade-off between short-term financial gains and long-term sustainability investments. For instance, companies making substantial ESG-related investments may experience a temporary dip in profitability as resources are redirected toward sustainable practices, with the expectation of long-term gains. Additionally, the negative relationship could be sector-specific, reflecting variations in the materiality of ESG factors across industries.

The inclusion of the constant term in the model (cons) with a positive coefficient of 0.0415109 further corroborates the overall impact of these variables on ROE. This constant represents the baseline level of ROE when all other variables are zero. Its positive value reinforces the idea that, in the absence of the examined factors (FIRMSIZE, Mktcap, Leverage, and ESGCombined), a positive baseline level of ROE is maintained.

4.6.3 Hypothesis testing H1c

H1c: There is a positive relationship between ESG and EPS

Table no. 16: EPS as dependent variable.

EPS	Coef.	Std. Err	Z	p>z
EPS_Lag	1.000003	1.1206	1580.59	0.000
ESGCombined	-6.312306	1.1006	-1604.26	0.000
FIRMSIZE	.0017768	1.1212	-1359.88	0.000
Mktcap	-.0017591	4.9608	-21.38	0.000
Leverage	-1.520109	6.6209	-951.90	0.000
cons	-1.061106	3.2109	3.18708	0.000

***Source**: Authors'*

***Note:** ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

The intricate relationship between ESG factors and Earnings Per Share (EPS), delving into the nuanced dynamics that influence corporate financial performance. Our hypothesis, H1c, posits a significant but negative relationship between ESG and EPS, and the GMM results offer compelling insights. The coefficient associated with the ESGCombined variable is strikingly significant at a level of 0.000, but with a negative coefficient of -6.312306 (Table 14). This unexpected negative sign prompts a thorough investigation into the underlying mechanisms at play. Contrary to our initial hypothesis, the negative relationship suggests that as companies enhance their ESG performance, there is a concurrent decrease in EPS. So we reject our hypothesis H1c. Our result corroborates with (Ersoy et al., 2022: Popa et al., 2022: Sinha Ray & Goel, 2022: Suttipun et al.,

2023). This finding raises critical questions about the trade-offs companies might be making between sustainable practices and short-term financial gains.

Controlling for other variables, the one year lagged EPS variable (EPS_Lag) (Callaghan et al., 2017: Ersoy et al., 2022) exhibits a substantial positive impact on current EPS, with a coefficient of 1.000003. This emphasizes the enduring influence of past financial performance on current earnings, showcasing the importance of historical financial health in shaping present EPS (Table 14). The control variables further contribute to the nuanced understanding of the model. The coefficients for Firm Size (FIRMSIZE), Market Capitalization (Mktcap), and Leverage are all statistically significant at levels of 0.000. FIRMSIZE and Mktcap display positive coefficients, implying that larger firms and those with larger market capitalization tend to have higher EPS, holding another factors constant (Șerban et al., 2022: Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018). In contrast, Leverage has a negative coefficient, suggesting that companies with higher levels of debt experience lower EPS.

Including the constant term in the model (cons) with a negative coefficient of -1.061106 further adds to the overall interpretation. This constant represents the baseline level of EPS when all other variables are zero. Its negative value underscores the idea that, in the absence of the examined factors (FIRMSIZE, Mktcap, Leverage, and ESGCombined), a negative baseline level of EPS is maintained.

4.6.4 Hypothesis testing H1d

H1d: There is a positive relationship between ESG and TobinQ

Table no.17: TobinQ as dependent variable

Tobinq	**Coef.**	**Std. Err**	**Z**	**p>z**
TobinQ_Lag	1.1907	1.0509	113.97	0.000
ESGCombined	-1.3308	5.4110	-24.56	0.000
FIRMSIZE	-2.5314	1.0515	-24.18	0.000
Mktcap	-2.2808	2.5610	-88.99	0.000
Leverage	-2.2808	8.2712	56.67	0.000
cons	4.6910	6.7711	1.510	0.000

***Source**: Authors'*
***Note:** ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

The Stata output of the Generalized Method of Moments (GMM) model offers a thorough analysis of the complex correlation between ESG variables and Tobin's Q (Tobinq) in the field of corporate finance, revealing the hidden dynamics that underpin this relationship. The hypothesis H1d suggests that there is a negative correlation between ESG and Tobinq, as shown in Table 15. The coefficient associated with the ESGCombined variable is statistically significant at a level of 0.000, yet with a negative coefficient of -1.3308. which is consistent with (Alamsyah & Muljo, 2023: Nirino et al., 2021: Wu et al., 2024) This unexpected negative sign prompts a careful examination into the underlying mechanisms at play. Contrary to our initial hypothesis, the negative relationship suggests that as companies enhance their ESG performance, there is a concurrent decrease in Tobin's Q, indicating potential complexities in the relationship between sustainability practices and firm value.

Controlling for other variables, the lagged Tobin's Q variable (TobinQ_Lag) exhibits a substantial positive impact on current Tobin's Q, with a coefficient of 1.1907 (Table 15). This underscores the enduring influence of past financial performance on current firm value, emphasizing the importance of historical financial health in shaping present Tobin's Q. The inclusion of control variables enhances the model's comprehensive comprehension (Șerban et al., 2022: Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018).

The coefficients for Firm Size (FIRMSIZE) and Leverage are statistically significant at levels of 0.000, while Mktcap displays a significant negative coefficient. Firmsize and Leverage exhibit negative coefficients, implying that larger firms and those with higher leverage tend to have lower Tobin's Q, holding other factors constant (Callaghan et al., 2017: Ersoy et al., 2022. In contrast, the negative coefficient for Mktcap suggests that companies with larger market capitalization may experience a decrease in Tobin's Q.

The inclusion of the constant term in the model (cons) with a positive coefficient of 4.6910 adds to the overall interpretation (Table 15). This constant represents the baseline level of Tobin's Q when all other variables are zero. Its positive value underscores the idea that, in the absence of the examined factors (FIRMSIZE, Mktcap, Leverage, and ESGCombined), a positive baseline level of Tobin's Q is maintained.

4.6.5 Hypothesis testing H1e

H1e: There is a positive relationship between ESG and P/E

Table no. 18: Price to Earning as a dependent variable.

PE	Coef.	Std. Err	Z	p>z
PE_Lag	1	4.8908	-1.106	0.000
ESGCombined	.0172884	3.8108	4.505	0.000
FIRMSIZE	1.401207	2.0713	6.705	0.000
Mktcap	.0079676	9.4709	8.405	0.000
Leverage	.000097	9.5910	1.005	0.000
cons	-.0549084	1.7715	5.614	0.000

***Source**: Authors'*
***Note:** ESGCombined represents ESG scores and Mktcap represents market capitalization.*

The data presented in Table 16 examines the relationship between ESG variables and price-to-earnings (P/E) ratios of companies in India. Specifically, it focuses on testing hypothesis H1e, which suggests a positive association between ESG and P/E ratios. The analysis of the numerical results provides valuable understanding. Starting with the P/E ratios, the coefficient for "PE_lag" was calculated to be 1, indicating a strong and positive relationship between the P/E ratio from the prior period and the present P/E ratio. This suggests that past P/E ratios indeed influence the present ones. Surprisingly, contrary to the hypothesis, the coefficient for "ESGCombined" was determined to be .000097, indicating a minute positive connection between ESG factors and P/E ratios. So, we accept hypothesis H1e. our result is similar with (Almeyda & Darmansya, 2019: Junius et al., 2020: Tóth et al., 2021).

Controlling for other variables, the lagged P/E Ratio variable (PE_Lag) exhibits a substantial positive impact on current P/E Ratio, with a coefficient of 4.8908. This emphasizes the enduring influence of past valuation metrics on present P/E Ratio, underscoring the importance of historical market sentiments in shaping current valuation. The control variables further contribute to the nuanced understanding of the model. The coefficients for Firm Size (FIRMSIZE), Market Capitalization (Mktcap), and Leverage are all statistically significant at levels of 0.000. Firmsize and Mktcap display positive coefficients, implying that larger firms and those with higher market capitalization tend to have higher P/E Ratios, holding other factors constant. In contrast, Leverage

has a negligible positive coefficient, suggesting that companies with higher levels of debt may experience a slight increase in P/E Ratio.

The inclusion of the constant term in the model (cons) with a negative coefficient of -0.0549084 further adds to the overall interpretation. This constant represents the baseline level of P/E Ratio when all other variables are zero. Its negative value underscores the idea that, in the absence of the examined factors (FIRMSIZE, Mktcap, Leverage, and ESGCombined), a negative baseline level of P/E Ratio is maintained.

4.6 Discussion

The comprehensive analysis of the Generalized Method of Moments (GMM) models reveals intricate relationships between ESG factors and various financial performance metrics. In examining the connection with Return on Assets (ROA), the positive and significant coefficient for ESGCombined aligns with the hypothesis H1a, indicating that companies prioritizing ESG dimensions tend to experience increased ROA. This corroborates existing research (Alareeni & Hamdan, 2020: B & R, 2011: Buallay, 2019: Naimy et al., 2021: Nguyen et al., 2022: Sinha Ray & Goel, 2022: Velte, 2017: Kalia & Aggarwal, 2022) and underscores the relevance of sustainable practices in achieving favorable financial outcomes. Moving to Earnings Per Share (EPS), the unexpected negative relationship with ESGCombined prompts a nuanced exploration of potential trade-offs between sustainability investments and short-term profitability, highlighting the complex nature of ESG's impact on corporate earnings (Almeyda & Darmansya, 2019: Junius et al., 2020: Tóth et al., 2021). The positive coefficient for lagged EPS accentuates the enduring influence of past financial health on current EPS.

Tobin's Q analysis further deepens our understanding, revealing a negative relationship with ESGCombined contrary to the anticipated positive association posited in hypothesis H1d. The negative coefficient raises questions about the valuation dynamics of companies adopting robust ESG practices, suggesting potential complexities in market perceptions of sustainability-driven value creation (Alamsyah & Muljo, 2023: Nirino et al., 2021: Wu et al., 2024). The persistent positive impact of lagged Tobin's Q emphasizes the enduring influence of past financial performance on current firm value. Lastly, the examination of Price-to-Earnings (P/E) Ratio uncovers a positive relationship with ESGCombined, supporting hypothesis H1d. This signifies that companies with strong ESG performance may be perceived with higher market valuation in terms of P/E Ratio, aligning with the idea that socially responsible practices contribute to enhanced market perceptions.

The control variables in each model further enriches our understanding. For ROA, Firm Size (FIRMSIZE) and Market Capitalization (Mktcap) exhibit negative relationships, suggesting that larger companies may face challenges in achieving higher ROA, potentially due to complexities associated with scale. Leverage, while positively associated with ROA, demands cautious interpretation due to its complex and context-specific nature (De Lucia et al., 2020: Koundouri et

al., 2021: Nguyen et al., 2022). In the context of EPS, the control variables reveal that larger firms and those with higher market capitalization tend to have higher EPS, aligning with expectations. Leverage, however, displays a negative relationship, indicating that higher levels of debt might impede earnings. Tobin's Q analysis showcases the negative impact of Mktcap on firm value, suggesting potential challenges for larger companies in achieving favorable market perceptions. Leverage, while positively associated with Tobin's Q, emphasizes the multifaceted nature of financial dynamics, where higher leverage may not necessarily hinder firm value. In the case of P/E Ratio, Firm Size and Mktcap exhibit positive relationships, reinforcing the notion that larger firms and those with higher market capitalization may enjoy higher market valuations (Șerban et al., 2022: Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018). Leverage, however, exhibits a negligible positive relationship, indicating that companies with higher debt levels may experience a slight increase in P/E Ratio.

In synthesizing these findings, it becomes evident that the relationship between ESG factors and financial performance is complex and context-dependent. While ESGCombined positively influences ROA and P/E Ratio, it exhibits unexpected negative relationships with EPS and Tobin's Q. The control variables, including Firm Size, Market Capitalization, and Leverage, contribute nuanced perspectives, emphasizing the need for a holistic understanding of the factors influencing financial outcomes. The variations observed across different financial metrics underscore the multifaceted nature of ESG's impact on corporate performance and market perceptions.

Section III

4.8 "To study Environmental, Social, and Governance scores within sectors of the firms."

4.9 Hypothesis Testing

H3: The ESG scores are equal across all sectors.

H4: The ESG scores are not equal across all sectors.

Table no. 19: Kruskal-Wallis test for ESG combined scores

Sector ID	Sectors	Observation	Rank sum
1	ESG_HEALTH	329	330371.50
2	ESG_CAPITAL GOODS	440	445431.50
3	ESG_SERVICES	210	190634.50
4	ESG_FMCG	210	222005.00
5	ESG_AUTOMOBILE	197	240423.50
6	ESG_IT	129	148864.00
7	ESG_OIL & MINE	250	328301.50
8	ESG_TEXTILE	30	24553.50
9	ESG_CONSUMER DURABLE	170	144497.00
10	ESG_POWER	90	107695.00
11	ESG_MEDIA & ENTERTAINMENT	60	54893.50

Source: *Authors'*
NOTE: *The rank sum in the Kruskal-Wallis test represents the sum of ranks for each group, used to assess whether there are significant differences among multiple independent groups*.

Chi-squared = 110.776 with 10 D.F.
Probability = 0.0001
Chi-squared with ties = 110.778 with 10 D.F.
Probability = 0.0001

The results from the Kruskal-Wallis test indicate significant differences in ESG scores across the eleven sectors (H4: The ESG scores are not equal across all sectors). The chi-squared statistic of 110.776, with 10 degrees of freedom, yields a p-value of 0.0001, suggesting strong evidence against the null hypothesis (H3: The ESG scores are equal across all sectors). So, we reject null

hypothesis and accept alternate hypothesis H4. Our result is consistent with (Cayón & Gutierrez, 2021: Madison & Schiehll, 2021). The data reveals that there are notable variations in ESG scores among sectors, substantiating the hypothesis that ESG performance differs across these distinct industry segments. This outcome underscores the importance of sector-specific analysis and highlights the potential influence of industry-specific factors on ESG performance. The observed distinctions signify that tailored ESG strategies and practices may be necessary to address the unique challenges and opportunities within each sector, ultimately promoting sustainable and responsible business practices.

Table no. 20: Mean and Median of ESG Combined scores by sectors

Sectors ID	Sectors	mean(mean_esg)	med(median~g)
1	ESG_HEALTH	35.38433	33.3669
2	ESG_CAPITAL GOODS	35.10942	33.6485
3	ESG_SERVICES	32.72584	31.863
4	ESG_FMCG	35.64512	35.05685
5	ESG_AUTOMOBILE	38.94756	38.6782
6	ESG_IT	38.68045	35.0267
7	ESG_OIL & MINE	41.87036	41.44955
8	ESG_TEXTILE	31.65007	29.34315
9	ESG_CONSUMER DURABLE	31.37185	31.56625
10	ESG_POWER	38.67473	35.92695
11	ESG_MEDIA & ENTERTAINMENT	33.08135	32.2201

Source: *Authors'*
Note: *The mean and median in the Kruskal-Wallis test is to consider different aspects of central tendency.*

In the context of the previous interpretation that highlighted significant differences in ESG scores across sectors, the data in Table 9 provides a more detailed picture of the central tendencies of ESG scores within each sector. The mean (mean_esg) and median (median_esg) values for each sector offer insights into the typical ESG performance and the presence of any outliers.

Sectors such as "ESG_OIL & MINE", "ESG_AUTOMOBILE", and "ESG_POWER" exhibit relatively higher mean and median ESG scores, with values of 41.87036, 38.94756, and 38.76473, respectively. This indicates that these sectors tend to have higher overall ESG performance, suggesting a stronger commitment to ESG responsibilities.

Conversely, sectors like "ESG_TEXTILE" and "ESG_CONSUMER DURABLE" have lower mean and median ESG scores, with values of 31.65007 and 31.37185 for the former and latter, respectively. This implies that these sectors typically have lower ESG performance. Possibly due

to the nature of their operations these sectors are hidden from the limelight and are not acting responsibly towards their stakeholders, lowering their ESG scores.

It's essential to consider these central tendencies in conjunction with the earlier finding of significant differences across sectors. The variations in mean and median ESG scores are consistent with the Kruskal-Wallis test results, confirming that there are distinct ESG performance profiles across the sectors.

For stakeholders, these statistics can inform their ESG-related decision-making. Industries with higher mean and median scores may be seen as potential leaders in sustainability, while those with lower scores may require more focused efforts to improve their ESG performance. The sector-specific nuances revealed in this analysis should guide tailored ESG strategies and initiatives to promote responsible business practices and meet sector-specific ESG expectations.

4.9.1 Environmental scores among sectors

This section discusses the Environmental scores among sectors, segregated in table 19 along with the outcome of the Kruskal-Wallis test. The sector-specific observations and corresponding rank sums provide a comprehensive snapshot of the disparities in environmental performance. Evidently, the health sector (ENVIRONMENTAL SCORES_HEALTH) commands the highest rank sum, indicating a potentially superior environmental score compared to other sectors. In contrast, the media and entertainment sector (ENVIRONMENTAL SCORES_MEDIA & ENTERTAINMENT) exhibits the lowest rank sum, suggesting a relatively lower average environmental performance.

Table no.21: Kruskal-Wallis test for Environmental scores

Sectors ID	Sectors	Observations	Rank Sum
1	Environmental scores _HEALTH	430	485231.50
2	Environmental scores _CAPITAL GOODS	338	465421.50
3	Environmental scores _SERVICES	210	175913.50
4	Environmental scores _FMCG	209	230011.00
5	Environmental scores _AUTOMOBILE	201	255593.50
6	Environmental scores _IT	129	144750.00
7	Environmental scores _OIL & MINE	250	339832.50
8	Environmental scores _TEXTILE	30	31893.00
9	Environmental scores _CONSUMER DURABLE	60	53994.50
10	Environmental scores _POWER	170	134412.00
11	Environmental scores _MEDIA & ENTERTAINMENT	90	104082.00

Source: *Authors'*
Note: *The rank sum in the Kruskal-Wallis test represents the sum of ranks for each group, used to assess whether there are significant differences among multiple independent groups.*

Chi-squared = 139.824 with 10 D.F.
Probability = 0.0001
Chi-squared with ties = 140.225 with 10 D.F.
Probability = 0.0001

The chi-squared statistics, both without and with ties, are calculated at 139.824 and 140.225, respectively, with 10 degrees of freedom. The probability associated with both statistics is extremely low ($p = 0.0001$), underscoring the statistical significance of the observed differences in environmental scores across sectors. Consequently, we reject the null hypothesis, affirming that environmental scores are not equal across all sectors.

These findings hold important implications for stakeholders across industries. Sectors with higher environmental scores, such as health and capital goods, may strategically leverage their sustainability initiatives for enhanced market positioning and stakeholder relations. Conversely, sectors with lower scores, like media and entertainment or consumer durables, must prioritize environmental management strategies to mitigate risks and align with evolving sustainability expectations.

Table no. 22: Mean and Median of Environmental scores by sectors

Sectors ID	Sectors	Mean(mean _EScores)	Med(median ~EScores)
1	Environmental scores _HEALTH	16.38302	7.5808
2	Environmental scores _CAPITAL GOODS	15.23233	6.4563
3	Environmental scores _SERVICES	8.817649	2.084
4	Environmental scores _FMCG	13.68282	7.5808
5	Environmental scores _AUTOMOBILE	21.16539	16.4603
6	Environmental scores _IT	19.71651	2.4162
7	Environmental scores _OIL & MINE	25.146	20.7792
8	Environmental scores _TEXTILE	10.61512	5.3609
9	Environmental scores _CONSUMER DURABLE	9.967283	1.933
10	Environmental scores _POWER	8.545137	1.2534
11	Environmental scores _MEDIA & ENTERTAINMENT	16.82607	9.8158

Source: *Authors'*
Note: *The mean and median in the Kruskal-Wallis test is to consider different aspects of central tendency.*

Table no. 20 presents the descriptive statistics for each sector, focusing on the mean and median values of environmental scores (EScores). Notably, ESG_HEALTH and ESG_CAPITAL GOODS sectors share identical mean and median values, highlighting their similar central tendencies. In contrast, the ESG_OIL & MINE sector stands out with the highest mean (25.146) and median (20.7792) EScores, indicating a relatively higher overall environmental performance compared to other sectors. The ESG_AUTOMOBILE sector also demonstrates a substantial mean (21.16539) and median (16.4603), suggesting a noteworthy environmental impact. Conversely, ESG_POWER and ESG_CONSUMER DURABLE sectors exhibit lower mean and median EScores, implying comparatively lower environmental scores. Additionally, the ESG_IT sector displays a substantial mean (19.71651) but a lower median (2.4162), suggesting potential skewness or outliers influencing the mean. These sector-specific variations in environmental scores underscore the need for a nuanced understanding of the diverse environmental practices across sectors, informing targeted interventions and policies for sustainable development.

4.9.2 Social scores among sectors

Table no. 23: Kruskal-Wallis test for Social scores

Sectors ID	Sectors	Observations	Rank Sum
1	Social Scores_HEALTH	330	316862.50
2	Social Scores _CAPITAL GOODS	430	451375.50
3	Social Scores _SERVICES	210	208317.50
4	Social Scores -FMCG	209	204213.50
5	Social Scores _AUTOMOBILE	201	212932.50
6	Social Scores _IT	129	140971.50
7	Social Scores _OIL & MINE	250	345089.50
8	Social Scores _TEXTILE	30	22609.00
9	Social Scores _CONSUMER DURABLE	60	66729.50
10	Social Scores _POWER	170	148687.50
11	Social Scores _MEDIA & ENTERTAINMENT	90	107206.50

Source: *Authors*
Note: *The rank sum in the Kruskal-Wallis test represents the sum of ranks for each group, used to assess whether there are significant differences among multiple independent groups*

Chi-squared = 112.863 with 10 D.F.
Probability = 0.0001
Chi-squared with ties = 113.194 with 10 D.F.
Probability = 0.0001

Table no. 21 presents an insightful exploration of social scores across 11 distinct sectors, each identified by a unique sector ID. The number of observations in each sector provides a glimpse into the sample sizes, ranging from 30 to 430, reflecting the diversity in the dataset. The rank sum, representing the aggregated ranks of all observations within a sector, further characterizes the distribution of social scores.

The calculated chi-squared statistic of 112.863 with 10 degrees of freedom, along with a remarkably low p-value of 0.0001, suggests significant variability in social scores among the sectors. This finding implies that at least one sector differs significantly from the others in terms of social performance. The chi-squared statistic with ties reinforces this conclusion, yielding a similar result with a chi-squared value of 113.194 and a p-value of 0.0001.

The statistical significance of these results underscores the importance of considering social aspects within specific sectors. Future investigations may benefit from post-hoc analyses to identify which sectors contribute most to the observed differences. Additionally, understanding the contextual factors influencing social scores in each sector can inform targeted strategies for enhancing social responsibility and impact. Overall, these findings highlight the need for a sector-specific approach to address and improve social performance across diverse industries.

Table no. 24: Mean and Median of Social scores by sectors

Sectors ID	Sectors	Mean (mean_SScores)	Median (median~SScores)
1	Social Scores _HEALTH	17.02511	16.92865
2	Social Scores _CAPITAL GOODS	19.49484	17.9867
3	Social Scores _SERVICES	17.29257	18.2285
4	Social Scores _FMCG	17.14823	17.7449
5	Social Scores _AUTOMOBILE	18.81208	18.682
6	Social Scores _IT	19.70909	21.7654
7	Social Scores _OIL & MINE	27.3676	25.9825
8	Social Scores _TEXTILE	12.87384	10.0665
9	Social Scores _CONSUMER DURABLE	19.45989	18.5611
10	Social Scores _POWER	15.255	16.02175
11	Social Scores _MEDIA & ENTERTAINMENT	21.43054	22.9595

Source: *Authors'*
Note*: The mean and median in the Kruskal-Wallis test is to consider different aspects of central tendency.*

Table no. 22 presents a comprehensive overview of the social scores within 11 distinct sectors, providing insights into both the mean and median values of social scores (SScores). The sectors vary not only in their mean SScores but also in the spread and central tendency, as reflected by the median values.

"Sectors ID" uniquely identifies each sector, and "Sectors" provides the corresponding sector names. The mean SScores range from 12.87384 in the "Social Scores_TEXTILE" sector to 27.3676 in the "Social Scores_OIL & MINE" sector, highlighting considerable variability in social performance across different industries. The median SScores, which offer a measure of the central tendency less influenced by extreme values, range from 10.0665 in the "Social Scores_TEXTILE" sector to 25.9825 in the "Social Scores_OIL & MINE" sector.

"Sectors _IT" and "Sectors _MEDIA & ENTERTAINMENT" exhibit relatively higher mean and median SScores, indicating strong social performance within these sectors. Conversely, "Sectors

_TEXTILE" and "Sectors _POWER" demonstrate lower mean and median SScores, suggesting potential areas for improvement in social responsibility.

These findings underscore the importance of considering both mean and median values to gain a holistic understanding of social scores within each sector. The sector-specific variations in social scores emphasize the need for tailored strategies and interventions to enhance social responsibility across diverse industries.

4.9.3 *Governance scores among sectors*

Table no.25: Kruskal-Wallis test for Governance scores

Sectors ID	Sectors	Observations	Rank Sum
1	Governance HEALTH	330	354578.00
2	Governance _CAPITAL GOODS	440	437178.50
3	Governance _SERVICES	210	201877.50
4	Governance _FMCG	209	242351.50
5	Governance _AUTOMOBILE	201	224930.50
6	Governance _IT	129	163001.50
7	Governance _OIL & MINE	250	267332.50
8	Governance _TEXTILE	30	26659.59
9	Governance _CONSUMER DURABLE	60	54653.50
10	Governance _POWER	170	161380.50
11	Governance _MEDIA & ENTERTAINMENT	90	112196.50

Source: *authors'*
Note: *The rank sum in the Kruskal-Wallis test represents the sum of ranks for each group, used to assess whether there are significant differences among multiple independent groups*

Chi-Squared = 52.434 With 10 D.F.
Probability = 0.0001
Chi-Squared With Ties = 53.734 With 10 D.F.
Probability = 0.0001

Table no. 23 provides a comprehensive examination of governance scores across 11 sectors, each uniquely identified. The number of observations within each sector ranges from 30 to 440, reflecting the diverse sample sizes across industries. The rank sum, which represents the

cumulative ranks of all observations within a sector, offers insight into the distribution of governance scores.

The calculated chi-squared statistic of 52.434 with 10 degrees of freedom, coupled with an exceptionally low p-value of 0.0001, suggests significant variability in governance scores among the sectors. This result indicates that at least one sector significantly differs from the others in terms of governance performance. The chi-squared statistic with ties supports this finding, yielding a similar result with a chi-squared value of 53.734 and a p-value of 0.0001.

These statistical outcomes highlight the importance of sector-specific considerations when evaluating governance practices. Further investigations, including post-hoc analyses, may be beneficial to discern which sectors contribute most to the observed differences and to identify potential areas for improvement in governance. The findings underscore the need for tailored governance strategies across diverse industries, acknowledging the nuanced challenges and opportunities within each sector.

Table no. 26 Mean and Median of Governance scores by sectors

Sectors ID	**Sectors**	**Mean (mean-GScores)**	**Median (median-GScores)**
1	Governance _HEALTH	73.61475	78.5972
2	Governance _CAPITAL GOODS	70.95836	78.31125
3	Governance _SERVICES	71.9231	76.0987
4	Governance _FMCG	76.46398	78.5972
5	Governance _AUTOMOBILE	74.40206	78.5972
6	Governance _IT	76.67303	78.5972
7	Governance _OIL & MINE	72.98096	78.5972
8	Governance _TEXTILE	71.31245	75.6472
9	Governance _CONSUMER DURABLE	73.55307	76.0987
10	Governance _POWER	71.7774	78.5972
11	Governance _MEDIA & ENTERTAINMENT	77.62257	78.5972

Source: *Authors'*
Note: *The mean and median in the Kruskal-Wallis test is to consider different aspects of central tendency.*

Table no. 24 provides an in-depth analysis of governance scores within 11 distinct sectors, offering valuable insights into both the mean and median values of governance scores (GScores). Each sector, uniquely identified by the "Sectors ID" and "Sectors" columns, demonstrates variations in both central tendency and spread.

The mean GScores range from 70.95836 in the "Governance_CAPITAL GOODS" sector to 77.62257 in the "Governance_MEDIA & ENTERTAINMENT" sector. Similarly, the median GScores vary, with the lowest median of 75.6472 observed in the "Governance_TEXTILE" sector and the highest median of 78.5972 shared by multiple sectors, such as "Governance_HEALTH," "Governance_FMCG," "Governance_AUTOMOBILE," "Governance_IT," "Governance_OIL & MINE," "Governance_POWER," and "Governance_MEDIA & ENTERTAINMENT."

These findings highlight sector-specific patterns in governance scores, emphasizing potential areas of strength and improvement within each industry. Sectors like "Governance_MEDIA & ENTERTAINMENT" and "Governance_IT" exhibit higher mean and median GScores, indicating robust governance practices. Conversely, sectors such as "Governance_CAPITAL GOODS" and "Governance_TEXTILE" show comparatively lower mean and median GScores, suggesting opportunities for enhancing governance frameworks.

Understanding these sectoral nuances is crucial for devising targeted strategies to improve governance practices across diverse industries. The mean and median values provide a nuanced perspective on the central tendencies and distribution of governance scores, contributing valuable insights for stakeholders and policymakers aiming to foster governance excellence within specific sectors.

4.10 Discussion

The multifaceted analysis of ESG combined, Environmental – Social - Governance scores across multiple diverse sectors unveils a wealth of insights into the nuanced landscape of sustainability practices. The significant differences observed in ESG scores prompt a profound consideration of sector-specific dynamics. This aligns with prior research and underscores the imperative of tailored ESG strategies (Cayón & Gutierrez, 2021; Madison & Schiehll, 2021). The mean and median values provide granularity, revealing that sectors such as "ESG_OIL & MINE" and "ESG_AUTOMOBILE" exhibit higher ESG performance, while sectors like "ESG_TEXTILE" and "ESG_CONSUMER DURABLE" present opportunities for improvement. It illustrates that sectors with the greatest environmental and social impact are contributing more than those with minimal impact. In comparison to other industries, they are ahead of the curve, even though their contribution doesn't offset the effects of their actions.

Similarly in the realm of environmental scores, the identified variations underscore the need for targeted environmental management strategies. Sectors like "oil & mine" and "automobile" showcase robust environmental performance, while " textile" and " consumer durable" indicate areas for enhancement. The social scores' differential patterns reveal sectors where social responsibility is a stronghold, such as "IT" and "media & entertainment," and sectors with potential for improvement, such as " textile" and " power." Lastly, governance scores exhibit sector-specific variations, emphasizing the need for nuanced governance strategies. "Governance_MEDIA & ENTERTAINMENT" and "Governance_IT" stand out with strong governance practices, while "Governance_CAPITAL GOODS" and "Governance_TEXTILE" suggest areas for strengthening governance frameworks. In summation, this comprehensive exploration not only affirms the diverse sustainability profiles across sectors but also provides a roadmap for stakeholders to tailor their strategies, fostering a more sustainable and responsible business landscape.

Section IV

***4.11* "To estimate the impact of Environmental, Social, and Governance on risk profile of the listed firms in India "**

4.12 Hypothesis testing

4.12.1 H5a: There is a positive relationship between ESG and BETA

Table no. 27: Beta as a Dependent variable

BETA	Coef.	Std. Err	Z	p>z
Beta_Lag	1	1.5708	6.407	0.000
ESGCombined	2.1711	2.8110	0.52	0.601
FIRMSIZE	8.1111	2.8708	0.29	0.773
EPS	8.5609	1.0208	0.30	0.766
MKT CAP	-1.0508	1.0208	0.26	0.305
cons	4.9008	9.2008	0.53	0.594

Source: *Authors'*
Note: *ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

In the presented analysis, we aim to understand the relationships between ESG-Combined and a variable while controlling for the potential influence of other factors such as market capitalization (MKT CAP), firm size (FIRMSIZE), and earnings per share (EPS). Beta lag, we find a highly significant positive relationship with the dependent variable. The coefficient of 1.00 indicates that a one-unit change in Beta_lag is associated with a precise equivalent one-unit change in the dependent variable. This strong statistical significance (p-value = 0.000) underscores the importance of Beta_lag in explaining the variation in our dependent variable. This finding suggests that the firm's risk profile, as captured by BETA, tends to persist over time. If the Beta Lag increases by one unit, the current BETA is expected to increase by an equivalent to one unit. This persistence in the risk profile indicates a certain level of continuity or stability in the firm's risk characteristics from one period to the next (Anson, 2013).

ESGCombined, its coefficient of 2.1711, suggests that a one-unit change in ESGCombined results in an exceedingly small change in the dependent variable. However, it's important to note that this effect is not statistically significant (p-value = 0.601), indicating that ESGCombined may not have a substantial influence on the dependent variable when we account for other factors. So, we reject

hypothesis H5a, our result is consistent with (Ciciretti et al., 2023: Alessandrini & Jondeau, 2020: Giese et al., 2016: Shakil, 2021: Mardini, 2022)

When examining the control variables, FIRMSIZE and EPS, we find that both have coefficients that suggest small effects on the dependent variable. However, neither of these effects is statistically significant. For FIRMSIZE, the coefficient is 8.11e-11 (p-value = 0.773), and for EPS, the coefficient is 8.5609 (p-value = 0.766). These results suggest that, in the context of our analysis, variations in firm size and earnings per share may not be significant drivers of the dependent variable when other factors are considered. We consider MKT CAP as another control variable. The coefficient of -1.0508 indicates that a one-unit change in MKT CAP corresponds to a small negative change in the dependent variable, but this effect is not statistically significant (p-value = 0.305). Therefore, market capitalisation, in this analysis, does not appear to be a significant contributor to the dependent variable's variation (Șerban et al., 2022: Alareeni & Hamdan, 2020: Nega & Diala-Nettles, 2018: Alareeni & Hamdan, 2020)

Table no.27a: Beta as a Dependent variable

BETA	Coef.	Std. Err	Z	p>z
Beta_Lag	1	1.2130	4.23	0.000
ESGCombined	1.0031	1.6201	1.01	0.010
FIRMSIZE	4.5430	3.8881	2.23	0.535
cons	3.0909	7.3112	1.33	0.354

Source: *Authors'*
Note: *ESGCombined represents ESG SCORES and Mktcap represents market capitalizations.*

After excluding the control variables, Market Cap and EPS, from the regression model, the analysis reveals noteworthy insights into the relationship between ESGCombined and Beta. The coefficient for Beta_Lag remains highly significant (p-value = 0.000), affirming its robust explanatory power in understanding the variation in the current Beta. Interestingly, ESGCombined, which previously lacked statistical significance, now emerges as a significant determinant of Beta with a coefficient of 1.0031 and a p-value of 0.010. This implies a positive relationship between ESGCombined and Beta, suggesting that higher ESG scores are associated with an increase in Beta. Meanwhile, the control variable FIRMSIZE does not exhibit statistical significance in explaining Beta, and the intercept term remains non-significant. These findings underscore the dynamic nature of the relationship between ESG factors and Beta.

4.12.2 Hypothesis testing

H5b: There is a positive relationship between ESG and Leverage

Table no. 28: Leverage as a dependent variable

Leverage	Coef.	Std. Err	Z	p>z
Leverage_Lag	1	6.83	1.5	0.000
ESGCombined	-3.98	4.40	-1.68	0.092
FIRMSIZE	3.62	3.45	0.82	0.410
EPS	1.00	3.81	0.29	0.772
MKT CAP	-1.55	2.36	-0.41	0.682
cons	7.11	2.33	0.31	0.760

Source*: authors'*
Note: *ESGCombined represents ESG SCORES and Mktcap represents market capitalization.*

This analysis aims to understand the relationship between the leverage variable and a dependent variable, while controlling the potential influence of other factors, including market capitalization (MKT CAP), firm size (FIRMSIZE), and earnings per share (EPS).

Leverage as an one-year lag variable (Iliev & Welch, 2010: Bandi & Renò, 2010) exhibits a coefficient of 1.00. This indicates that a one-unit change in Leverage_lag corresponds to an equivalent one-unit change in the dependent variable. Moreover, this relationship is highly statistically significant (p-value = 0.000), highlighting the importance of Leverage_lag as a determinant of the dependent variable. The analysis of the one-year lag variable, Leverage_Lag, provides valuable insights into the temporal continuity of a firm's leverage structure. The highly significant positive relationship underscores the importance of historical leverage levels in shaping the current financial landscape. This understanding is vital for making informed decisions about financial policies, risk management, and investment strategies, emphasizing the need for a comprehensive analysis that considers both current and past financial dynamics.

In examining ESGCombined, the coefficient is determined to be -3.9810, indicating that a one-unit change in ESGCombined results in a slight negative alteration in the dependent variable. Although this coefficient does not achieve statistical significance at a conventional threshold (p-value 0.092), it is noteworthy that its proximity to significance implies the potential relevance of ESGCombined as a factor influencing the dependent variable. Consequently, the rejection of

hypothesis H5b aligns with existing research findings (Adeneye et al., 2022; Dalal, 2019; Nega & Diala-Nettles, 2018; Adeneye & Kammoun, 2022; El Khoury et al., 2021; Oprean-Stan et al., 2020; Marzuki, 2020), affirming the nuanced relationship between ESGCombined and the dependent variable. Despite the non-significant result, the proximity to significance warrants continued consideration of ESGCombined in the broader context of factors impacting the dependent variable.

Next, we consider FIRMSIZE as a control variable Alareeni & Hamdan, 2020). The coefficient for FIRMSIZE is 3.6209, indicating that a one-unit change in FIRMSIZE is associated with a small positive change in the dependent variable. However, this effect is not statistically significant (p-value = 0.410), suggesting that variations in firm size may not significantly influence the dependent variable when accounting for other factors.

EPS is another control variable, and its coefficient of 1.0009 suggests that a one-unit change in EPS leads to a minimal positive change in the dependent variable. Like FIRMSIZE, the effect of EPS is not statistically significant (p-value = 0.772), indicating that changes in earnings per share may not be a major driver of the dependent variable when considering the broader context.

Lastly, we examine MKT CAP as a control variable. The coefficient for MKT CAP is -1.5609, indicating that a one-unit change in MKT CAP corresponds to a slight negative change in the dependent variable. However, this effect is not statistically significant (p-value = 0.682), suggesting that variations in market capitalization may not be a strong determinant of the dependent variable.

Table no.28a: Leverage as a dependent variable

Leverage	**Coef.**	**Std. Err**	**Z**	**p>z**
Leverage_Lag	1	6.7809	1.5 08	0.000
ESGCombined	-4.0510	2.0510	-1.98	0.048
FIRMSIZE	2.8509	4.0809	0.70	0.485
cons	3.0209	1.7408	0.17	0.862

Source: *Authors'*
Note: *ESGCombined represents ESG SCORES*

The adjustment to the regression model by excluding market capitalization (MKT CAP) and earnings per share (EPS) as control variables has brought about a noteworthy change in the relationship between Leverage and ESG Combined. Specifically, the relationship has now become

statistically significant at the 0.048 significance level, indicating a meaningful association between these two variables. Let's delve into the interpretation of this significant relationship:

Previously, when MKT CAP and EPS were included as control variables, the coefficient for ESG Combined was -3.98e-10 with a p-value of 0.092, suggesting a relatively weak and marginally significant negative relationship with the dependent variable. However, upon their exclusion, the coefficient's magnitude and the statistical significance of ESG Combined have both changed. (Naeem & Cankaya, 2022)

The new coefficient for ESG Combined represents a change in the dependent variable associated with a one-unit change in ESG Combined, and it is now statistically significant at the 0.048 level. This signifies that changes in ESG Combined are more likely to have a meaningful impact on the dependent variable when we do not control MKT CAP and EPS.

This result implies that ESG Combined, when considered independently of MKT CAP and EPS, is more influential in explaining variations in the dependent variable than previously thought. It suggests that the presence of MKT CAP and EPS as control variables might have obscured the true relationship between Leverage and ESGCombined or it can also be interpreted that financial variables(MKT CAP and EPS) are impacting the risk more as compared to the non-financial variables (ESG).

In practical terms, this finding underscores the importance of ESG factors in understanding the dynamics of Leverage. Companies with varying ESG Combined scores may exhibit differing leverage behaviors, which could have implications for risk management, financial stability, and corporate governance.

The relationship between Leverage and ESG Combined is statistically significant at the 0.048 level, the magnitude of the coefficient should also be considered. The coefficient value indicates the strength of the relationship, and further analysis may be needed to assess the practical significance and economic implications of this relationship.

4.13 Discussion

The intricate relationship between “Environmental, Social, and Governance” (ESG) factors and a firm's risk profile has been a focal point of extensive deliberation within the realms of finance and corporate governance. Numerous scholarly works have delved into discerning the nuanced impact of ESG considerations on established risk metrics, notably beta and leverage. Beta, serving as a measure of a stock's sensitivity to market movements, and leverage, portraying a company's use of debt for operational financing, stands as conventional indicators of financial risk.

What elevates the complexity of this interplay is the revelation that the relationship between ESG factors and traditional risk metrics gains significant relevance when certain control variables are omitted. Specifically, the exclusion of market capitalization and earnings per share, while retaining firm size, introduces a notable shift in the dynamics of this relationship. This suggests that the conventional understanding, which posits that ESG factors have an insignificant impact on beta and leverage, might require reconsideration when viewed through this refined lens. The deliberate removal of market capitalization and earnings per share, commonly associated with financial performance, implies that the influence of ESG considerations on risk metrics becomes more conspicuous when the analysis focuses on specific dimensions of corporate behavior and governance.

4.14 Summary

This study aimed to find the nexus between ESG scores and firm financial performance and risk profile reveals thought-provoking findings, setting the stage for debatable arguments that contribute depth to discussions surrounding ESG considerations and their impact on corporate dynamics. The unveiling of a positive and significant relationship between ESG scores, particularly in terms of Return on Assets (ROA) and Price-to-Earnings (P/E) ratio, has ignited a compelling discourse within the realm of corporate finance. This revelation sparks a pivotal question that the observed correlation indicates that the companies with robust financial performance being more inclined to invest in ESG practices, Traditionally, the prevailing assumption has been that firms prioritizing ESG considerations tend to outperform their counterparts in the market. However, the narrative takes a contrasting turn as the study observes a negative relationship between ESG scores and market-based variables such as Tobin's Q and accounting-based Return on Equity (ROE). This intriguing finding challenges conventional wisdom and sparks a debate on the adequacy of market metrics in capturing the comprehensive value generated by sustainable business practices. This divergence in the relationship between ESG scores and financial metrics opens a discourse on the evolving landscape of corporate valuation. It prompts a reflection on whether market indicators need to evolve to better capture and reflect the true worth of companies embracing ESG principles. The traditional metrics, while valuable, may fall short in comprehensively evaluating the multifaceted contributions of responsible business practices, posing a challenge in discerning the holistic value generated by ESG-conscious companies. The identification of a positive association with return on assets and price-to-earnings ratio, alongside a negative correlation with market-based variables like Tobin's Q and Return on Equity (ROE), challenges traditional perspectives within financial economics. This challenges the Efficient Market Hypothesis and Capital Asset Pricing Model, suggesting that investors may increasingly consider ESG factors in their decision-making, thereby influencing asset pricing and market dynamics.

The insignificance of ESG scores concerning market-based variable beta and accounting-based leverage raises questions about the suitability of traditional risk measures in assessing ESG-related risks. This revelation invites a debate on the need for innovative risk assessment frameworks that can adequately evaluate the impact of ESG factors on a company's long-term stability. It challenges

the conventional understanding of risk metrics and emphasizes the unique challenges posed by ESG-related uncertainties.

Examining ESG scores across different sectors reveals clear disparities, sparking a debate about industry-specific responsibilities and challenges. This raises questions about whether ESG standards should be tailored to each sector's characteristics or if a uniform framework suffices. The revelation underscores the importance of sector-specific ESG considerations and prompts discussions on the feasibility and implications of industry-specific standards. Further delving into individual environmental – social - governance scores within sectors uncovers intriguing patterns. The substantial gap between combined scores and the individual contribution of the power sector, oil and mining sector and health sector to environmental and social factors initiates a debate on transparency and accountability. This finding prompts questions about whether companies strategically emphasize certain ESG aspects to create a favorable overall impression while potentially neglecting critical components. It challenges the credibility of overall ESG scores and underscores the need for a more granular approach to evaluation. The revelation that governance scores across sectors are thrice as high as social and environmental scores fuels a debate on the disproportionate emphasis on governance. Questions arise about whether the current emphasis on governance an effective strategy for companies is to present a positive image, potentially at the expense of substantial contributions to environmental and social causes. This finding prompts a broader conversation on the interconnectedness of ESG factors in assessing corporate sustainability.

4.15 References

Adeneye, Y. and Kammoun, I. (2022) 'Real Earnings Management and capital structure: Does environmental, social and governance (ESG) performance matter?', Cogent Business & Management, 9(1). doi:10.1080/23311975.2022.2130134.

Adeneye, Y.B., Kammoun, I. and Ab Wahab, S.N. (2022) 'Capital Structure and speed of adjustment: The impact of environmental, social and governance (ESG) performance', Sustainability Accounting, Management and Policy Journal, 14(5), pp. 945–977. doi:10.1108/sampj-01-2022-0060.

Alamsyah, S.A. and Muljo, H.H. (2023) 'The effect of ESG Dimensions on banking performance: An empirical investigation in asia pacific', E3S Web of Conferences, 426, p. 02053. doi:10.1051/e3sconf/202342602053.

Alareeni, B.A. and Hamdan, A. (2020) 'ESG impact on performance of US S&P 500-listed firms', Corporate Governance: The International Journal of Business in Society, 20(7), pp. 1409–1428. doi:10.1108/cg-06-2020-0258.

Alessandrini, F. and Jondeau, E. (2020) 'ESG investing: from sin stocks to smart beta', The Journal of Portfolio Management, 46(3), pp. 75–94. doi:10.3905/jpm.2020.46.3.075.

Almeyda, R. and Darmansya, A. (2019) 'The influence of environmental, social, and governance (ESG) disclosure on firm Financial Performance', IPTEK Journal of Proceedings Series, 0(5), p. 278. doi:10.12962/j23546026.y2019i5.6340.

Almeyda, R. and Darmansya, A. (2019) 'The influence of environmental, social, and governance (ESG) disclosure on firm Financial Performance', IPTEK Journal of Proceedings Series, 0(5), p. 278. doi:10.12962/j23546026.y2019i5.6340.

Anson, M. (2013) 'Performance measurement in private equity: another look at the lagged beta effect', The Journal of Private Equity, 17(1), pp. 29–44. doi:10.3905/jpe.2013.17.1.029.

Aslaksen HM, Hildebrandt C, Johnsen HCG. The long-term transformation of the concept of CSR: towards a more comprehensive emphasis on sustainability. Int J Corporate Soc Responsibility. 2021;6(1):11. doi: 10.1186/s40991-021-00063-9. Epub 2021 Aug 11. PMCID: PMC8354845

B, C. and R, M.K. (2011) 'Corporate governance and timeliness of financial reporting by indian companies: An empirical study', Indian Journal of Corporate Governance, 4(1), pp. 21–28. doi:10.1177/0974686220110102.

Bandi, F.M. and Renò, R. (2010) 'Time-varying leverage effects', SSRN Electronic Journal [Preprint]. doi:10.2139/ssrn.1619563.

Behl, A. et al. (2021) 'Exploring the relationship of ESG score and firm value using cross-lagged panel analyses: Case of the Indian Energy Sector', Annals of Operations Research, 313(1), pp. 231–256. doi:10.1007/s10479-021-04189-8.

Buallay, A. (2019) 'Is sustainability reporting (ESG) associated with performance? evidence from the European Banking Sector', Management of Environmental Quality: An International Journal, 30(1), pp. 98–115. doi:10.1108/meq-12-2017-0149.

Callaghan, C., Ryall, S. and Kingsford, R. (2017) 'A probable Australian white ibis Threskiornis Moluccus × straw-necked ibis T. Spinicollis hybrid', Australian Field Ornithology, 34, pp. 47–48. doi:10.20938/afo34047048.

Cayón, E. and Gutierrez, J. (2021) 'Sin stocks and ESG scores: Does the nature of your business really matter?', Journal of International Studies, 14(3), pp. 114–123. doi:10.14254/2071-8330.2021/14-3/7.

Ciciretti, R., Dalò, A. and Dam, L. (2023) 'The contributions of Betas versus characteristics to the ESG premium', Journal of Empirical Finance, 71, pp. 104–124. doi:10.1016/j.jempfin.2023.01.004.

Dalal, K.K. and Thaker, N., 2019. ESG and corporate financial performance: A panel study of Indian companies. IUP Journal of Corporate Governance, 18(1), pp.44-59.

De Lucia, C., Pazienza, P. and Bartlett, M. (2020) 'Does good ESG lead to better financial performances by firms? Machine Learning and logistic regression models of public enterprises in Europe', Sustainability, 12(13), p. 5317. doi:10.3390/su12135317.

Dhanesh, G. S. (2015). Why Corporate Social Responsibility? An Analysis of Drivers of CSR in India. Management Communication Quarterly, 29(1), 114–129.

Domanović, V. (2021) 'The relationship between ESG and Financial Performance Indicators in the public sector: Empirical evidence from the Republic of Serbia', Management:Journal of Sustainable Business and Management Solutions in Emerging Economies [Preprint]. doi:10.7595/management.fon.2021.0032.

El Khoury, R., Nasrallah, N. and Alareeni, B. (2021) 'The determinants of ESG in the banking sector of Mena Region: A trend or necessity?', Competitiveness Review: An International Business Journal, 33(1), pp. 7–29. doi:10.1108/cr-09-2021-0118.

Ersoy, E. et al. (2022a) 'The impact of ESG scores on Bank Market Value? evidence from the U.S. Banking Industry', Sustainability, 14(15), p. 9527. doi:10.3390/su14159527.

Ersoy, E. et al. (2022b) 'The impact of ESG scores on Bank Market Value? evidence from the U.S. Banking Industry', Sustainability, 14(15), p. 9527. doi:10.3390/su14159527.

Giese, G., Nagy, Z. and Lee, L.-E. (2020) 'Deconstructing ESG ratings performance: Risk and return for E, S, and G by Time Horizon, sector, and weighting', The Journal of Portfolio Management, 47(3), pp. 94–111. doi:10.3905/jpm.2020.1.198.

Giese, G., Ossen, A. and Bacon, S. (2016) 'ESG as a performance factor for smart beta indexes', The Journal of Index Investing, 7(3), pp. 7–20. doi:10.3905/jii.2016.7.3.007.

Iliev, P. and Welch, I. (2010) 'Reconciling estimates of the speed of adjustment of leverage ratios', SSRN Electronic Journal [Preprint]. doi:10.2139/ssrn.1542691.

Junius, D. et al. (2020) 'The impact of ESG performance to firm performance and market value', Jurnal Aplikasi Akuntansi, 5(1), pp. 21–41. doi:10.29303/jaa.v5i1.84.

Junius, D. et al. (2020) 'The impact of ESG performance to firm performance and market value', Jurnal Aplikasi Akuntansi, 5(1), pp. 21–41. doi:10.29303/jaa.v5i1.84.

Kalia, D. and Aggarwal, D. (2022) 'Examining impact of ESG score on Financial Performance of Healthcare Companies', Journal of Global Responsibility, 14(1), pp. 155–176. doi:10.1108/jgr-05-2022-0045.

Khan, S. (2007). Corporate Social Responsibility from an emerging market perspective: Evidences from the Indian Pharmaceutical Industry. Business Dissertations, University of St.Gallen. Retrieved January 11, 2016, from

Koundouri, P., Pittis, N. and Plataniotis, A. (2021) 'The impact of ESG performance on the Financial Performance of European area companies: An empirical examination', ICSD 2021 [Preprint]. doi:10.3390/environsciproc2022015013.

Liao, H. T., Huang, W. Y., Zhou, X., Pan, C. L., Zhang, Y., & Liu, H. (2021, December). A research and education agenda based on a bibliometric analysis of CSR and ESG reporting. In *2021 IEEE 2nd International Conference on Technology, Engineering, Management for Societal impact using Marketing, Entrepreneurship and Talent (TEMSMET)* (pp. 1-7). IEEE

Madison, N. and Schiehll, E. (2021) 'The effect of financial materiality on ESG Performance Assessment', Sustainability, 13(7), p. 3652. doi:10.3390/su13073652.

Mardini, G.H. (2022) 'ESG factors and Corporate Financial Performance', International Journal of Managerial and Financial Accounting, 14(3), p. 247. doi:10.1504/ijmfa.2022.123895.

Marzuki, A., Ramli, N. A., & Nazri, M. A. (2020). The Mediating Effect of Leverage between the Relationship of Corporate Social Responsibility and Financial Performance: Malaysian Evidence.

Mitra, N., Schmidpeter, R. (2017). The Why, What and How of the CSR Mandate: The India Story. In: Mitra, N., Schmidpeter, R. (eds) Corporate Social Responsibility in India. CSR, Sustainability, Ethics & Governance. Springer, Cham.

Naeem, N. and Cankaya, S. (2022) 'Does ESG performance affect the financial performance of Environmentally Sensitive Industries a comparison between emerging and developed markets', Pressacademia, 14(1), pp. 135–136. doi:10.17261/pressacademia.2021.1509.

Naimy, V., El Khoury, R. and Iskandar, S. (2021) 'ESG versus Corporate Financial Performance: Evidence from East Asian firms in the industrials sector', Studies of Applied Economics, 39(3). doi:10.25115/eea.v39i3.4457.

Nega, Dr.F. and Diala-Nettles, Dr.I. (2018) 'Examining financial performance, firm size, Leverage and Corporate Social Responsibility', International Journal of Computer Applications Technology and Research, 07(02), pp. 078–085. doi:10.7753/ijcatr0702.1007.

Nega, Dr.F. and Diala-Nettles, Dr.I. (2018) 'Examining financial performance, firm size, Leverage and Corporate Social Responsibility', International Journal of Computer Applications Technology and Research, 07(02), pp. 078–085. doi:10.7753/ijcatr0702.1007.

Nguyen, D.T., Hoang, T.G. and Tran, H.G. (2022) 'Help or hurt? the impact of ESG on firm performance in S&P 500 non-financial firms', Australasian Business, Accounting and Finance Journal, 16(2), pp. 91–102. doi:10.14453/aabfj.v16i2.7.

Nirino, N. et al. (2021) 'Corporate controversies and Company's financial performance: Exploring the moderating role of ESG practices', Technological Forecasting and Social Change, 162, p. 120341. doi:10.1016/j.techfore.2020.120341.

Oprean-Stan, C. et al. (2020) 'Impact of sustainability reporting and inadequate management of ESG factors on Corporate Performance and Sustainable Growth', Sustainability, 12(20), p. 8536. doi:10.3390/su12208536.

Osland, J., Dhanda, K., & Yuthas, K. (2002). The impact of globalization on environmental sustainability. In S. Sharma & M. Starik (Eds.), Research in corporate sustainability (pp. 31–60). Cheltenham: Edward Elgar

Popa, D.N. et al. (2022) 'Performance mapping in two-step cluster analysis through ESEG disclosures and EPS', Kybernetes, 51(13), pp. 98–118. doi:10.1108/k-08-2021-0672.

Rao, K. (2013, July, 23). India's poverty level falls to record 22%: Planning Commission. Live Mint. Retrieved August 11, 2015, from

Șerban, R.-A., Mihaiu, D.M. and Țichindelean, M. (2022) 'Environment, social, and governance score and value added impacts on market capitalization: A sectoral-based approach', Sustainability, 14(4), p. 2069. doi:10.3390/su14042069.

Shakil, M.H. (2021) 'Environmental, social and governance performance and financial risk: Moderating role of ESG controversies and Board Gender Diversity', Resources Policy, 72, p. 102144. doi:10.1016/j.resourpol.2021.102144.

Simsek, O. and Cankaya, S. (2021) 'Examining the relationship between ESG scores and financial performance in banks: Evidence from G-8 countries', Pressacademia, 14(1), pp. 169–170. doi:10.17261/pressacademia.2021.1524.

Sinha Ray, R. and Goel, S. (2022) 'Impact of ESG score on financial performance of Indian firms: Static and dynamic panel regression analyses', Applied Economics, 55(15), pp. 1742–1755. doi:10.1080/00036846.2022.2101611.

Sinha Ray, R. and Goel, S. (2022) 'Impact of ESG score on financial performance of Indian firms: Static and dynamic panel regression analyses', Applied Economics, 55(15), pp. 1742–1755. doi:10.1080/00036846.2022.2101611.

Suttipun, M., Yordudom, T. and Khunkaew, R. (2023) 'The relationship between environmental, social and governance (ESG) disclosure and financial performance: Evidence from Thailand', Journal of Environmental Accounting and Management, 11(1), pp. 63–74. doi:10.5890/jeam.2023.03.005.

Thorpe, J., & Prakash-Mani, K. (2004). Developing value: The business case for sustainability in emerging markets. Greener Management International, Winter(44), 17–32

Tóth, B. et al. (2021) 'The contribution of ESG information to the Financial Stability of European banks', Pénzügyi Szemle = Public Finance Quarterly, 66(3), pp. 429–450. doi:10.35551/pfq_2021_3_7.

Velte, P. (2017) 'Does ESG performance have an impact on financial performance? evidence from Germany', Journal of Global Responsibility, 8(2), pp. 169–178. doi:10.1108/jgr-11-2016-0029.

Wu, Z. et al. (2024) 'How does boardroom diversity influence the relationship between ESG and firm Financial Performance?', International Review of Economics & Finance, 89, pp. 713–730. doi:10.1016/j.iref.2023.10.045.

Yoon, B., Lee, J. H., & Byun, R. (2018). Does ESG performance enhance firm value? Evidence from Korea. *Sustainability*, *10*(10), 3635.

Yu, X. and Xiao, K. (2022) 'Does ESG performance affect firm value? evidence from a new ESG-scoring approach for Chinese enterprises', Sustainability, 14(24), p. 16940. doi:10.3390/su142416940.

CHAPTER V

Conclusion, Recommendation and Future Scope

5.1 Major Findings

The examination of corporate responsibility practices in India reveals intriguing dynamics. The divergence between social and environmental performance, evident in both CSR and ESG investments, raises questions about prioritization. While social investments show an upward trajectory, environmental investments follow a steady but undulating course over the past decade, prompting reflection on potential areas for improvement. Governance scores exceeding 70 indicate effective decision-making structures, while social and environmental scores below 20 highlight room for enhancement.

The comparison of these ratings stimulates reflect on the factors that influence the variation in ESG and the consequences for business sustainability strategy. The correlation value of 0.1377 indicates a somewhat modest but positive relationship between governance and environmental scores. Higher governance scores are marginally associated with improved environmental performance. The correlation value of 0.1731 indicates a similar relationship between governance and social scores, suggesting that better governance procedures are associated with a minor increase in social performance.

The presence of differences, positive patterns, and connections highlights the complex dynamics of decision-making inside Indian organizations. The findings highlight the importance of adopting a sophisticated approach to corporate responsibility, by tackling inequalities and building on promising trends to improve ESG performance. These insights serve as a basis for creating focused sustainability plans that are customized to the unique characteristics of Indian corporate environments.

Moreover, In the examination of ESG factors and their relationship with financial performance, results from the System GMM model in STATA offer compelling insights. A statistically significant and positively charged coefficient linked to the ESGCombined variable supports the hypothesis that companies excelling in ESG considerations experience a significant enhancement

in Return on Assets (ROA). This aligns with financial literature, highlighting the strategic importance of robust ESG performance for improved financial outcomes.

However, the relationship between ESG and Return on Equity (ROE) reveals a nuanced nature. While the statistically significant coefficient is negative, challenging the initial hypothesis, it emphasizes the importance of context-specific analyses. The exploration of the ESG and Earnings Per Share (EPS) relationship yields a noteworthy negative correlation, challenging conventional wisdom. Similarly, the examination of ESG and Tobin's Q reveals a negative correlation, prompting a reevaluation of assumptions about the positive impact of ESG considerations.

The examination of Tobin's Q in relation to ESG factors reveals a surprising negative and statistically significant correlation. This unexpected finding challenges the prevailing assumption that companies with strong ESG considerations would inherently experience a positive impact on Tobin's Q, a metric often used to gauge the market value of a firm's assets relative to its replacement cost. The negative relationship raises intriguing questions about the intricate dynamics between ESG practices and how investors perceive the firm's value.

On the other hand, the positive and statistically significant association between ESG factors and the Price-to-Earnings (P/E) ratio introduces an interesting contrast. The P/E ratio is a widely used metric reflecting investors' expectations for future earnings growth. The positive correlation suggests that, in the eyes of investors, companies with stronger ESG considerations are perceived as having higher future earnings potential. This could be due to a growing recognition that sustainable business practices, ethical conduct, and good governance contribute to long-term business success.

The divergence in the relationships with Tobin's Q and P/E ratio underlines the complexity of how ESG factors influence financial metrics. It emphasizes that the impact of ESG considerations is context-specific and may vary across different dimensions of corporate finance. While the negative correlation with Tobin's Q prompts a reevaluation of assumptions, the positive association with the P/E ratio supports the notion that investors increasingly value companies demonstrating a commitment to sustainability, ethics, and governance for their future earnings potential.

Further, in exploring the intricate relationship between ESG scores and risk, this study uncovers compelling insights that shed light on the significance of beta and leverage. The study underscores

the complex nature of the interplay between ESG scores and traditional risk measures, specifically beta and leverage. Beta is a measure of systematic risk, representing the sensitivity of a stock's returns to market movements. Leverage, on the other hand, measures a company's reliance on debt to finance its operations, indicating its exposure to financial risk. In the initial analysis, these risk metrics appear unrelated to ESG scores, challenging conventional assumptions about the direct impact of, environmental – social - governance practices on financial risk. The surprising insignificance of beta and leverage with ESG scores prompts a deeper exploration into the potential role of market-based control variables. These control variables are factors that have significant influence on both the independent variable (ESG scores) and the dependent variables (beta and leverage), introducing a level of complexity to the relationship by removing these market-based control variables. As the study proceeds to refine its analysis by eliminating specific market-based control variables, a notable shift occurs which is positive and significant relationship between ESG scores, beta, and leverage comes to the forefront. This suggests that certain market factors were obscuring the true association between ESG practices and risk measures. The positive connection between ESG scores and beta is the growing recognition among investors that companies with strong environmental – social – governance, practices may be better equipped to navigate and adapt to changing market conditions. These companies might exhibit a lower level of systematic risk, as their sustainable practices position them favorably in the face of environmental and social challenges. Investors could view such companies as more resilient and less prone to the fluctuations in the broader market. Similarly, the positive association between ESG scores and leverage after removing certain market-based control variables raises intriguing questions. It implies that companies with robust ESG practices might strategically utilize leverage to enhance their financial positions. This strategic use of debt may be driven by the confidence that investors place in the long-term sustainability and responsible governance of these companies.

The investigation into ESG scores across diverse sectors on the stock exchange in India uncovers notable variations, emphasizing the distinctive approaches taken by companies in different industries. Particularly noteworthy are the power sector and oil and mine sectors, which emerge with significantly higher ESG scores compared to their counterparts. This discrepancy draws attention to the sector-specific nuances that play a crucial role in shaping the ESG practices of companies.

Taking a closer look at individual scores for ESG factors within each sector offers additional insights. The power sector and oil & mining sector, despite exhibiting substantial average scores in the combined ESG assessment, reveals a surprising trend. The environmental and social scores for this sector are notably lower when assessed independently. This discrepancy suggests that, on average, companies in the power sector might not be contributing as significantly as expected to environmental and social initiatives. This highlights the importance of scrutinizing individual ESG components to gain a more accurate understanding of a sector's overall sustainability performance.

Further exploration into governance scores across various sectors adds another layer of complexity to the findings. Governance scores consistently stand out, being three times higher than both social and environmental scores across all sectors. This pattern raises intriguing questions about how companies may be prioritizing and emphasizing governance practices while potentially downplaying their actual contributions to environmental and social aspects.

5.2 Conclusion

In recent years, the integration of "Environmental, Social, and Governance" (ESG) factors into corporate decision-making has gained substantial momentum globally. This paradigm shift underscores the growing acknowledgment that businesses must not only deliver financial returns but also operate responsibly and sustainably. This critical literature review delves into the empirical landscape of ESG scores and their implications on the financial performance of Indian listed firms, aiming to shed light on the complex interplay between sustainable practices and economic outcomes. The emergence of ESG metrics as a barometer for evaluating a company's non-financial performance is rooted in the broader context of sustainable development. The increasing awareness of environmental degradation, social inequality, and corporate governance lapses has propelled stakeholders to scrutinize businesses. As a result, investors, regulators, and consumers are placing a premium on companies that prioritize ESG considerations in their operational strategies.

Within the Indian context, a nation characterized by its diverse economic landscape, cultural intricacies, and regulatory frameworks, understanding the dynamics of ESG implementation becomes even more nuanced. This study critically examines the impact of ESG scores on the financial performance of Indian listed firms. The multifaceted nature of this relationship

necessitates a comprehensive analysis, taking into account the unique challenges and opportunities presented by the Indian business environment.

Although there is increasing evidence to support a favorable link between high ESG scores and improved financial success, it is important to carefully analyze the intricacies of this relationship. This study uncovers contrasting viewpoints, with certain variables affirming a favorable link between ESG practices and profitability, while others emphasize a negative link between ESG practices and profitability. Hence, the relationship between ESG and financial performance is not established, as this varies depending on the various factors such as disclosure quality, standardization in ESG information, stringent rules and regulations, nations economic status, and other market variables, etc. Moreover, the regulatory landscape in India is undergoing continuous evolution, with the Securities and Exchange Board of India (SEBI) actively promoting ESG disclosures among listed companies.

As the global business landscape undergoes a paradigm shift towards holistic value creation, investors and stakeholders are increasingly cognizant of the inherent risks associated with environmental degradation, social inequality, and governance lapses. This study also delves into the intricate relationship between ESG scores and the risk profile of Indian listed firms, aiming to unravel the complex interplay between sustainable practices and the resilience of businesses in the face of multifaceted risks. The integration of ESG considerations into risk assessment frameworks signifies a departure from the conventional methods, and separates the financial risk from non-financial factors. Within the dynamic economic setting of India, marked by its distinctive socio-cultural variety and legislative complexities, understanding the influence of ESG scores on the risk landscape becomes crucial. This study critically examines extant research that explores the extent to which ESG practices influence the risk profile of Indian listed firms, shedding light on both the market based and accounting-based factors.

In the worldwide narrative of corporate sustainability, ESG practices have been acknowledged as crucial in minimizing risks and developing resilient organizations. However, a closer assessment of the Indian corporate scene undermines this popular understanding. This study digs into the intricacies of the relationship between ESG practices and risk variables within the specific context of Indian enterprises. Contrary to the seemingly intuitive assumption that robust ESG investments act as a shield against diverse risk elements, our study reveals a startling revelation – there exists

no significant relationship between ESG practices and the selected risk factors under scrutiny. As we scrutinize the results, it becomes evident that the conventional perspective, often shaped by a global lens, may not seamlessly translate to the nuanced dynamics of the Indian business environment.

As investors increasingly prioritize responsible investment strategies, ESG scores have become pivotal in gauging the sustainability of businesses. However, a closer inspection reveals a perplexing reality—while there exists significant divergence in ESG scores among various sectors in the Indian stock exchange, an intriguing dominance of governance scores unfolds upon dissecting these sectors individually. One might assume that a preeminence of governance scores signals a robust and ethically sound business environment. However, a more nuanced analysis challenges this assumption. The crux of the matter lies in the peculiar nature of the Indian corporate landscape, where stringent regulations and mandates, particularly under Clause 49 of the listing agreement in the Companies Act, contribute significantly to bolstering governance structures. As we delve into the dynamics of E, S, and G scores in different sectors, it becomes evident that the emphasis on governance might be masking potential shortcomings in environmental and social performance. The paradoxical scenario raises concerns about the efficacy of current ESG evaluation methodologies and their ability to holistically capture the sustainability profile of companies operating in the Indian stock market.

5.3 Recommendations from the Study Based on Findings Specifics

Findings	**Recommendations**
ESG has positive influence on return on assets (ROA)	The study's findings underscore the compelling argument for the integration of "Environmental, Social, and Governance" (ESG) considerations into investment strategies. Notably, the observed significant positive relationship between ESG scores and Return on Assets (ROA) provides a substantive basis for reshaping investment paradigms. To enhance investment decision-making, it is imperative to strengthen due diligence processes by evaluating companies' ESG performance alongside traditional financial metrics. This comprehensive assessment

Findings	Recommendations
	is vital for gaining a nuanced understanding of a company's long-term sustainability and overall profitability. In advocating for a more sustainable and transparent market, there is a strong call to enhance ESG transparency and disclosure. Encouraging corporations to better their reporting processes and endorsing standardized frameworks are essential steps in ensuring uniformity and comparability across varied entities. Moreover, the study encourages active engagement from institutional investors, urging them to exercise their shareholder rights in promoting positive change in corporate behavior and governance. By participating in shareholder advocacy initiatives, investors can play a pivotal role in steering companies toward better ESG practices.

Findings	Recommendations
ESG has significant negative influence on Return on Equity	In response to the identified negative link between ESG scores and Return on Equity (ROE), companies should strategically refine ESG practices, transparently communicate adaptations in reporting, and engage investors to align sustainability efforts with financial success. Implementing targeted improvement plans, exploring collaborative industry solutions, and regularly reviewing and adjusting metrics are essential steps. Policy makers can facilitate this by incentivizing companies to integrate ESG metrics effectively, encouraging standardized reporting, and fostering collaborative platforms to share best practices. By adopting these measures, companies and policy makers can collectively enhance the alignment of sustainability practices with positive ROE outcomes.

Overall recommendations as the relationship between ESG factors and firm performance shows mixed response, while one accounting based performance variable shows positive impact and other accounting-based performance variable possess significant negative relationship.
Companies: They should adopt a holistic ESG integration approach, refining strategies for positive impacts on accounting-based metrics while addressing negative influences. Regular evaluations and modifications are necessary for adaptive ESG plans to conform to market dynamics and investor expectations. While the relationship between accounting and ESG variables has not been established, these factors remain crucial for the sustainability of business. **Investors and stakeholders**: Transparent reporting practices are pivotal, providing stakeholders with a nuanced understanding of ESG contributions to accounting-based performance. Investors are advised to consider diversified metrics beyond traditional variables, engaging in active dialogues with companies for insights into ESG strategies and advocating for transparency. As non-financial variables play equal role as financial to analyzing the company's performance. **Policy makers** play a critical role in advocating standardized reporting frameworks, creating incentives for adaptive ESG practices and supporting research to refine regulatory frameworks continually.

Findings	**Recommendations**
ESG has significant negative influence on market-based performance of the companies	Companies should conduct a detailed analysis to identify specific ESG factors influencing the negative relationship with EPS and Tobin Q. Develop targeted strategies to address these factors, focusing on enhancing operational efficiency, reducing environmental impact. Implement transparent reporting mechanisms to communicate progress to stakeholders, emphasizing long-term value creation. Consider collaborating with industry peers to share insights and best practices, fostering a collective effort towards sustainable practices that positively impact market-based firm performance variables. Investors should reevaluate investment strategies, considering the negative relationship between ESG and market-based firm performance

	variables. Prioritize companies actively working to improve ESG practices, engaging with portfolio companies to advocate for sustainable initiatives. Diversify portfolios by allocating funds to firms demonstrating resilience and adaptability through positive ESG practices. Collaborate with other investors to exert collective influence on companies towards sustainable practices. Additionally, encourage transparent reporting on ESG metrics to facilitate informed investment decisions aligned with long-term financial objectives. Policymakers should consider implementing regulatory frameworks that incentivize companies to improve ESG practices, recognizing the negative correlation with market-based firm performance variables. Introduce tax benefits and subsidies for businesses adopting sustainable measures to mitigate the short-term impact on EPS and Tobin Q. Strengthen disclosure requirements to ensure transparent reporting on ESG metrics, providing investors with necessary information. Invest in educational campaigns to raise awareness among companies and investors about the long-term benefits of ESG integration. Collaborate globally to establish consistent ESG reporting standards, promoting a unified and sustainable approach across industries.

Findings	**Recommendations**
ESG has a significant positive relationship with P/E Ratio	Companies should recognize and leverage the significant positive relationship between ESG and Price to Earnings Ratio (P/E) as an opportunity to enhance their market valuation. Prioritize comprehensive ESG integration into business strategies, emphasizing environmental sustainability, social responsibility, and robust governance practices. Develop clear communication channels to highlight ESG achievements, aiming to positively influence investor perception and attract a broader investor base. Investors should reassess their investment strategies to capitalize on the positive relationship between ESG and P/E. Seek out companies with

	strong ESG performance, as they are likely to exhibit higher market valuations. Engage actively with portfolio companies to ensure ongoing commitment to ESG principles. Consider integrating ESG considerations into investment decisions to align with market expectations and enhance portfolio resilience. Policymakers should acknowledge and support the positive relationship between ESG and P/E by implementing policies that incentivize businesses to prioritize sustainability. Introduce regulatory frameworks that provide tax benefits and other incentives for companies actively engaging in ESG initiatives. Strengthen disclosure requirements to ensure transparent reporting on ESG metrics, enhancing market confidence and encouraging investments in companies with strong ESG performance. Facilitate educational programs to raise awareness among businesses and investors about the financial benefits associated with ESG integration. Collaborate globally to establish consistent ESG reporting standards, fostering a unified and transparent market.
Overall recommendations, Relationship between ESG factors and firm performance, shows mixed response, while one market-based performance variable shows positive impact, and other variable possesses significant negative relationship.	
Investors: To assess the performance of a company, investors may revise their valuation methodology. They should incorporate non-financial factors into the conventional approach to determining the value of a company, instead of focusing solely on financial considerations. The integration of non-financial and financial variables facilitates the assessment of a company's economic sustainability hence supports the long-term investors' decisions. This notion has also received validation from several other theories, including stakeholder theory and agency theory, among others. **Policy makers:** A lack of standardization and inadequate disclosure regarding sustainable practices may also contribute to the insignificance of the relationship. Consequently, policymakers could impose stringent regulations not only on large corporations but also on new	

start-ups; this would not only aid in promoting sustainability among the corporate sector but also ensure its long-term viability.

Companies: As a result, to meet the global requirement for ESG disclosure and climate impact information, corporations should disclose using globally established principles such as GRI rather than waiting for obligatory rules. This would allow them to attract both foreign and domestic responsible investment.

Findings	**Recommendations**
The significant difference of ESG scores across all sectors	**Investors** should incorporate sector-specific ESG considerations into their investment strategies. Recognize that ESG scores may vary significantly across sectors, influencing risk and return profiles. Conduct thorough due diligence, considering the unique ESG challenges and opportunities within each sector. Diversify portfolios with an understanding of sector-specific ESG dynamics, aiming to capitalize on sustainable investments. Engage with companies to encourage sector-specific ESG improvements and foster long-term value creation. Collaborate with industry peers to establish sector-specific ESG benchmarks and reporting standards for a more informed investment landscape. **Companies** should invest in ESG based on their impact and significance to the sector. All sector's operations have a varied impact on the environment and society, and so should their contributions. **Policymakers** should tailor regulatory frameworks to address sector-specific ESG disparities. Implement sector-specific incentives and penalties to encourage businesses to adopt sustainable practices relevant to their industry. Establish sector-specific ESG reporting requirements to ensure transparency and comparability. Invest in research and development programs that support sector-specific sustainability innovations. Facilitate sector-specific collaborative initiatives, bringing together companies, investors, and stakeholders to collectively address ESG challenges within each sector.

Findings	Recommendations
ESG has no significant relationship with risk profile of the companies	**Companies:** Implementing standardized frameworks like GRI or SASB can make comparisons more meaningful. Companies should disclose the information on ESG factors in a standardized manner and should also provide complete information. Additionally, engaging stakeholders through open communication and feedback methods will not only increase trust but will also develop a more resilient and sustainable business environment. **Investors:** Given the independent nature of ESG scores from traditional risk metrics, investors should adapt their strategies by incorporating ESG metrics into their investment analyses and risk management methods, including comprehensive evaluations and mitigation measures. As per findings, acknowledging beta limits and using leverage to appropriately capture ESG-related risks. Active ownership is essential, which includes engaging in talks with firms to encourage better ESG practices and using voting rights to support resolutions that fit with sustainability goals. Diversifying risk metrics to include both financial and non-financial factors is key to a comprehensive risk assessment approach, ensuring a more accurate evaluation of investment opportunities. **Policymakers:** Considering the disconnection between ESG scores and traditional financial metrics in assessing company risk profiles, policymakers play a vital role in driving change. Advocating standardized ESG reporting frameworks will contribute to comparability across industries, fostering a more informed investment landscape. Policymakers should incentivize ESG integration within regulatory frameworks, offering tax incentives or other advantages to companies adopting sustainable business practices. Additionally, allocating resources to support research on the impact of ESG factors on risk profiles and

	promoting educational programs will contribute to building a more sustainable and resilient economic ecosystem.

5.4 Limitations

Given that the focus of the study was on the relationship between ESG factors and financial performance, which is intrinsically multifaceted and complex, challenges arose during the process of conducting the research. While interpreting the findings of the research, these limitations should be taken into consideration. In the first place, the selection of the sample is restricted to the top 500 publicly traded firms that are listed on the National Stock Exchange (NSE) of India. Furthermore, the ESG data was obtained from the Bloomberg database, a well-known financial database; however, one downside of the ESG score data is that it is calculated differently by different data providers. It is therefore possible for research that use data from Reinfintive or MSCI to arrive at different findings. Additionally, there was lack of standardization in the disclosure of sustainability reports which can also impact the scorecard of the companies. Because the criterion for disclosure of sustainability reports was amended and mandated in 2020, the study faced this limitation for the majority of its time span.

5.5 Future Scope

The future scope in this research is to investigate the impact of ESG, or non-financial factors, on the financial performance of firms by sector. The workings of all industries have a varied impact on their ESG ratings. As a result, subsequent research can analyze the weightage given to E, S, and G based on sectors when analyzing their sustainability for investment, as their cumulative score is dominated by G scores. In addition, one can undertake similar study by comparing the ESG performance prior to and following the revision of the BRSR standards. Since these rules are derived from the GRI standards, they assist Indian enterprises in entering the global competitive arena by showcasing their sustainable performance.

One way to enhance the study is to do a separate analysis of the influence of environmental, social, and governance factors on the financial health of corporations. This study would clarify which sustainability aspects affect the companies' financial performance, and which do not.