

CORPORATE SUSTAINABILITY REPORTING AND ENVIRONMENTAL AUDIT IN INDIA

A THESIS SUBMITTED IN PARTIAL FULFILLMENT FOR THE DEGREE OF

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DECLARATION

I, Ms Prerna Prakash Tamhankar, hereby declare that this thesis represents work which has been carried out by me and that it has not been submitted, either in part or full, to any other University or Institution for the award of any research degree.

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CERTIFICATE

I hereby certify that the above Declaration of the candidate, Prerna Prakash Tamhankar, is true and the work was carried out under my supervision.

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List of Abbreviations

Abbreviation	Full form
ANP	Average Net Profit
BSE	Bombay Stock Exchange
BRSR	Business Responsibility and Sustainability Reporting
BRR	Business Responsibility Reporting
CDP	Carbon Disclosure Project
CMIE	Centre for Monitoring the Indian Economy
CDSB	Climate Disclosure Standards Board
CFP	Corporate Financial Performance
CIN	Corporate Identification Number
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
DCs	Designated Consumers
DJSI	Dow Jones Sustainability Index
ESG	Environment, Social and Governance
GRI	Global Reporting Initiative
GOI	Government of India
GHG	Green House Gases
ISO	International Organisation for Standardisation
MSR	Mandatory Sustainability Reporting
MCA	Ministry of Corporate Affairs
NIC	National Industrial Classification
OECD	Organisation for Economic Co-operation and Development
PAT	Perform Achieve and Trade
ROA	Return on Assets
SEBI	Securities and Exchange Board of India
SR	Sustainability Reporting
SDG	Sustainable Development Goals
SDSN	Sustainable Development Solutions Network
IIRC	The International Integrated Reporting Council
UNGC	United Nations Global Compact
VSR	Voluntary Sustainability Reporting

Chapter 1

INTRODUCTION

1.1 Introduction

Corporate sustainability reporting has emerged as an extension of traditional financial accounting and reporting in response to the social, economic, and environmental crises (Agama & Zubairu, 2022; Gray et al., 1997; Joshi & Li, 2016). Sustainability reporting is essential and relevant for its contribution to assessing the relationships between the three sustainability parameters, economic, social, and environmental, also known as the triple bottom line (Alshehhi et al., 2018). However, its definition needs more clarity for measurement, standardisation, utility, and monitoring (Milne & Gray, 2013; Oncioiu et al., 2020).

Corporate accounting and reporting are means for companies to communicate their performance (Ortas & Moneva, 2014). Corporate financial reporting addresses the accountability requirements of the financial stakeholders (Wagenhofer, 2024) and the shareholders who provide financial resources to the business entities (Oncioiu et al., 2020). Such reporting communicates corporate financial performance, which reflects efficiency in utilising shareholders' funds and determines the value enhancement of their capital (Sutopo et al., 2018).

However, corporate activities involve using a variety of capital besides financial. These include natural, intellectual, social, human, and manufactured capital (*The International Integrated Reporting Framework*, 2013). Realising that companies are responsible for the efficiency in using such non-financial capital has placed mounting pressure on them to report on the same (Carp et al., 2019). As the scope of corporate accountability and legitimacy widened (Van Beurden & Gössling, 2008), the broader group of stakeholders demanded that corporate reporting encompass both financial and non-financial performance (Benameur et al., 2024; Saraite-Sariene et al., 2019; Uwuiigbe et al., 2018). A combination of economic, social, and environmental reporting would help corporations better understand and assess their sustainability efforts (Petrescu et al., 2020). Although corporate sustainability reporting is distinct from financial reporting, both complement each other due to their interdependence and

linkages (Wagenhofer, 2024). The importance of corporate sustainability reporting is increasing in strategic management, yet its meaning is elusive. Some restrict such reporting to environmental issues; others use it synonymously with corporate social responsibility (Bansal & DesJardine, 2014). There are diverse opinions on whether environmental or social reporting started first. Some authors suggest that social reporting began in the 1970s, and environmental reporting gained prominence subsequently (Boodoo, 2016; Buhr et al., 2014; Roberts, 1992) during the 1980s and 1990s (CBRR, 2020). Others suggest that social reporting followed environmental reporting (Lois, 2016). The international efforts at standardising such disclosures and the country's regulatory developments have led to various sustainability reporting (SR) frameworks (Vormedal & Ruud, 2009). However, corporate sustainability reporting is still evolving and follows diverse forms, which may result in a difference in what is expected and reported (O'Dwyer et al., 2007).

Multiple corporate perspectives on sustainability reporting (SR) indicate the need for conceptual clarity. Literature suggests that non-financial reporting started with environmental and social reports as mandated for companies by the national governments. Such single-parameter reporting has gradually transformed into comprehensive sustainability reporting, encompassing the triple bottom line (Alshehhi et al., 2018).

This chapter briefly presents the concepts related to sustainability and sustainability reporting and how they have developed over the years. It also introduces the thesis regarding the research gaps, questions, and objectives. The chapter also explains the chapterisation scheme by providing an overview of different chapters forming part of the thesis.

1.2 Sustainability and Sustainable Development

The Brundtland Commission's (World Commission on Environment and Development) report 'Our Common Future,' 1987, used the terms 'Sustainable,' 'Sustainability,' and 'Sustainable Development' interchangeably (Gray et al., 1997; Pawlewicz & Cieślak, 2024).

This report emphasised the connections between social equity, economic productivity, and environmental quality (Theis & Tomkin, 2012). The three elements, i.e., social, economic, and environmental, are the three pillars of sustainability (Bosch-Badia et al., 2017; de Lange et al., 2012). Though the commission did not technically invent the term sustainability, the

definition of sustainable development given by the Brundtland Commission is popular since it was a report from an international organisation, the United Nations.

The idea of sustainable development promotes the values of justness, equity, and ethics (Baumgartner, 2014). All three parameters of sustainability are interdependent. The intersection between the economic and social parameters is social equity, environment and social is bearability, economic and environment is viability, and the intersection between all three is sustainability (Theis & Tomkin, 2012). The achievement of the above three objectives leads to sustainability. However, a trade-off between the three must be managed appropriately in the real world. Development is dependent on the use of natural resources. As the population increases, the pressure on the environment increases, and social problems like poverty and unemployment might make achieving social equity difficult.

For this reason, all the stakeholders involved in any of the three elements of sustainability must be vigilant and contribute to achieving the sustainability objective. These stakeholders include the corporate sector, national governments, international regulatory authorities, non-government organisations, and society. Corporate SR is a means for companies to disclose their efforts and actions to balance these counteracting objectives and contribute to sustainability.

1.3 Corporate Sustainability Reporting

Literature on SR has moved from a single sustainability dimension to a broader sustainability viewpoint (Alshehhi et al., 2018). Corporate sustainability has been used in the previous literature in two broad contexts: i) the ecological sustainability restricting the scope of sustainability to the environmental performance of companies and ii) the broader version considering the three dimensions construct including economic, social, and environmental performance (Montiel, 2008). Literature suggests that SR started with social reporting (Boodoo, 2016; Buhr et al., 2014; Ortas & Moneva, 2014) or environmental reporting (Lois, 2016) and after that started encompassing the three-dimensional model of sustainability (Fifka, 2012).

The corporate sector has gradually realised the role of sustainability as a ‘challenge’ and an ‘opportunity’ due to its potential to destroy or create value (Alshehhi et al., 2018). Corporate profitability is the bottom line for success, while corporate sustainability is a broader term

relevant to sustained markets and profits (Loh et al., 2017). Corporate sustainability relates to the 'triple bottom line' (Elkington, 1999), indicating the interdependence between economic prosperity, environmental quality, and social justice (Theis & Tomkin, 2012).

The economic bottom line is measured by profits generated from financial capital (Uwuigbe et al., 2018). Initiatives towards SR started with attempts to include human and intellectual capital (Gray et al., 1997). The environmental and social bottom lines are difficult to define or measure by a single measure (Hörisch et al., 2015). The capitals in these cases, again, need to be clearly defined. Environmental bottom lines like the carrying capacity tend to change. In the case of the environment, natural capital, though known to include natural resources, is challenging to value and change in different contexts, though very often it is classified as renewable and non-renewable natural capital.

Initiated through different mediums like mandates, environmental and social agitations, social and environmental accounting, and reporting has to be standardised to increase its utility for the users. There are different measures of environmental and social performance. Environmental indicators include natural resources like water, energy, and materials, as well as impacts in terms of emissions and waste, among others. Social indicators include those related to human values and rights like equality, protection of child rights, product quality, and safety (Raucci & Tarquinio, 2015).

The social and environmental reports provide information to the broader group of stakeholders on the social and environmental performance of the companies (Carp et al., 2019). Reporting on all three dimensions is ideally expected as a part of SR (Petrescu et al., 2020). However, since companies report extensively on economic indicators, they focus on environmental, social, or both of these non-economic indicators as corporate sustainability reporting (Ortas & Moneva, 2014). Corporate SR is, therefore, also called non-financial reporting; however, some SR frameworks provide reporting for all three sustainability indicators (Laskar, 2019).

Hence, corporate SR includes:

- Corporate SR covering all three indicators called 'Triple Bottom Line' reporting.

- Corporate social and environmental reporting covers non-financial sustainability indicators called 'Double Bottom Line' reporting.
- Social reporting, including single-dimensional reporting on social indicators and
- Environmental reporting on the single dimension of the environment (Alshehhi et al., 2018).

Corporate SR is "a process that assists companies in setting goals, measuring performance, and managing change towards achieving a sustainable global economy. Sustainable corporate performance combines sustained profitability, social responsibility, and environmental care. Whether through a sustainability report or any other medium, SR is the medium for communicating the company's economic, environmental, social, and governance performance, reflecting positive and negative impacts." (GRI, 2016).

"SR discloses significant economic, social, environmental, and governance impacts and company performance. It is an important way to assume corporate responsibility and demonstrate a company's long-term economic value. Corporate responsibility is the responsibility of a company for the impacts of its activities on society and the environment, exercised through a transparent and ethical behaviour that can contribute to sustainable development, including the health and welfare of society." (UNEP & Group of Friends of Paragraph 47, 2015).

Depending on the indicators covered, Corporate SR is referred to in the literature by terms like corporate social reporting, corporate environmental reporting, corporate citizenship reports, and non-financial reporting (Uwuigbe et al., 2018).

1.4 Emergence, Growth, and Development of Corporate Sustainability Reporting

The demands for sustainability-related performance reporting started with high-impact sectors; today, it has extended to the industries earlier considered as 'clean' (Crane et al., 2008).

Without a standardised framework for corporate SR, national and international bodies are introducing such reporting tools. An increasing number of countries are mandating SR in different forms. Such mandates have brought about an increase in companies reporting on sustainability.

Different interpretations of the concept of sustainability are reflected in the variations in the SR practices (Hörisch et al., 2015). Many authors consider it synonymous with or linked

with CSR, but some have tried to distinguish between them (Delbard, 2008). For some, corporate SR reports on environmental issues, while some call their sustainability report a Corporate Social Responsibility (CSR) report (Alshehhi et al., 2018). Double Bottom Line (DBL) reporting is when SR covers social and environmental reporting (Alshehhi et al., 2018). Economic or financial parameters from the concept of sustainability are already reported extensively and statutorily as part of financial reporting. Hence, the discussion in SR-related literature focuses on the other two aspects, i.e., social and environmental.

An efficient SR system will be a mix of formal and informal control systems. Formal sustainability procedures and systems can provide a direction for reporting, and informal ones can motivate the employees and those concerned to explore ways to improve. Regulation or mandatory SR gives a good base for the structure of a formal control system for SR. Informal systems based on institutional values will provide a genuine direction for SR (Herremans & Nazari, 2016).

The means of reporting on sustainability are changing and evolving. Many companies use websites and social media to complement traditional printed material. International agencies, Governments, stock exchanges, and other regulatory authorities are designing frameworks and guidelines for SR.

1.5 Sustainability Reporting in India

The SR framework in India is a mix of statutory legislation and the provision of voluntary initiatives. It provides a formal structure for SR, allowing companies to go beyond the mandatory requirements and adopt voluntary reporting initiatives.

Section 166(2), Companies Act 2013 requires “a director of a company to act in good faith to promote the objectives of the company for the benefit of its members as a whole, and in the best interests of the company, its employees, the shareholders, and the community and for the protection of the environment” (GoI, 2013). This requirement aims to protect a wider group of stakeholders and shareholders, thus covering various aspects of sustainability. This section is universally applicable to all companies in India.

Besides, companies have mandatory and voluntary options to report on sustainability and related parameters. The statutory reporting is specified for the companies based on size. However, the companies also adopt such reporting voluntarily based on their institutional values and beliefs.

1.5.1 Mandatory CSR reporting – Annual CSR reports

Section 135 of the Companies Act 2013 introduced a framework for mandatory CSR reporting in India. This provision applies to the specified group of companies. The Act and the CSR Rules became applicable on 1st April 2014.

According to section 135(1), Companies Act, 2013, each company having a net worth amounting to Rs. 500 crores or more or a turnover totalling Rs. 1000 crores or more during any financial year or a net profit of 5 crores or more during any financial year should spend at least 2% of the Average Net Profit of the previous three years' profits on CSR activities as specified in Schedule VII of the Companies Act, 2013 (GoI, 2013).

CSR provisions specified by the act shall be applicable depending on the above criteria, whether the company is listed or not, or whether it is public or private.

With this regulation, India became the first country to mandate CSR spending for a specified category of companies. Through its 'disclose or explain' mandate, the Companies Act provides for accountability and transparency in sustainability issues.

The CSR clause and Schedule VII of the Companies Act, along with the Companies (CSR Policy) Rules (2014), issued by the Ministry of Corporate Affairs, provide a policy, system, spending, and reporting on CSR in India. As per the CSR Rules, the companies that follow this regulation must form a CSR Committee. The CSR Committee is responsible for drafting the company's CSR policy. This policy should specify the thrust areas of the company's CSR philosophy and planned action. Schedule VII specifies various social and environmental areas the companies can spend on. The company can choose from these sectors and spend accordingly. The companies may decide to spend the 2% amount directly or through the implementing agencies like Non-Government Organisations (NGOs). The scope of spending through the implementing agencies allows the companies to partner with organisations already active in social and environmental protection. Companies must publish an annual CSR report

in the format prescribed by the act. This format requires the companies to mention sector- and area-wise spending. In this regard, the act specifies that companies should prioritise spending in the local areas. However, there is no geographical restriction for spending by the companies. The company has to mention the amount and the reasons for not spending the required 2% on CSR activities.

1.5.2 Mandatory Sustainability Reporting - Business Responsibility Reporting

In 2012, SEBI (Securities Exchange Board of India), the regulator for securities markets in India, introduced mandatory Business Responsibility Reporting (BRR) for the top 100 listed entities. This reporting requirement was based on the Ministry of Corporate Affairs' National Voluntary Guidelines (NVGs), 2011. As per this requirement, the companies must submit an annual BRR to the BSE and make it available to the public as part of their annual report or by uploading it on the website. This move by the BSE to introduce mandatory BRR is a part of the Sustainable Stock Exchange Initiative.

SEBI has linked the principles from the BRR Framework with Global Reporting Initiative Standards and Disclosures. In November 2015, the SEBI expanded the requirement of BRR to the top 500 companies to apply from 1st April 2016 and to the top 1000 companies from the financial year 2019-20.

In 2021, the Business Responsibility and Sustainability Reporting Framework (BRSR) replaced the BRR. The BRSR framework was made applicable from the financial year 2021-2022 voluntarily and then followed mandatorily from the financial year 2022-2023 by the top 1000 companies.

1.5.3 Voluntary sustainability reporting using global frameworks

Companies from India have been reporting on sustainability under various global frameworks. These include the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP), The International Integrated Reporting Framework by the International Integrated Reporting Council (IIRC), and the United Nations Global Compact (UNGC) principles. In line with the global trends in India, most companies have also filed their sustainability reports with the GRI database.

Though GRI started in 1999, the first report from India was filed with GRI only in 2001. From 2001 to 2007 the progress in the area could have been faster. Since 2008, however, the number of reports filed with the GRI database by companies from India has been increasing.

1.6 About the Study

The success or failure of any legislation depends on its effective implementation (Visser & Tolhurst, 2017). SR for India has grown significantly since 2013 (King & Bartels, 2015). This growth may reflect SEBI's mandate on BRR in 2012 and CSR reporting mandated by the Companies Act, 2013, and the CSR Rules, which came into force on 1st April 2014. We consider both these regulations since the literature has used CSR and SR interchangeably (Bosch-Badia et al., 2017).

This study examines the trend of SR among the top 500 companies in India. Individual parameters of sustainability and social and environmental performance are also discussed. The influence of the relevant policy interventions on social and ecological performance is studied. It further studies how the corporate sector's participation contributes to the development process and the Sustainable Development Goals (SDGs) targets through CSR spending.

The study relies on national government interventions for sustainability-related performance. For social performance, the study considers the mandatory provision of CSR spending and reporting introduced by Section 135 of the Companies Act 2013. The provision came into force from the financial year 2014-15.

For environmental performance, the study considers the introduction of a scheme, Perform, Achieve and Trade (PAT), introduced by the Government of India in 2012.

The private sector can be a vital financing partner for achieving SDGs. The study helps to understand the extent to which the corporate sector from India is contributing on this front.

In the context of mandatory BRR reporting and voluntary reporting under global frameworks, companies present qualitative information on different principles that form a part of such reports. The information reported through such reports must be more consistent, making it easier to interpret (GoI, 2019). The new format BRSR is expected to provide better quality disclosures from 2022. Since such reporting is mandatory, it is adopted by the specified

companies. However, adopting voluntary SR can give insight into the institutional approach to SR. The study looks at the spread of SR among the top 500 companies in India under the voluntary international frameworks, GRI and CDP in Chapter 4.

Earlier studies have mainly examined SR among companies based on a single reporting framework. We include two frameworks in our research: GRI and CDP. Different theories can explain the SR behaviour of companies (Hahn & Kühnen, 2013) in terms of similarities or differences between their reporting practices (Herold, 2018). Stakeholder, legitimacy, institutional, and signalling theories are widely discussed in SR literature (Brown & Forster, 2013). However, they have not been discussed at length in the Indian context. We examine and link the different motives for voluntary SR with the relevant theories.

Environment is an essential element of sustainability that is crucial in the context of the present environmental crisis, which is a global phenomenon. Corporate environmental audits are necessary for companies to improve their overall sustainability performance. For this study, we focus on energy as the element of environmental performance. We examine the different factors influencing the energy intensity among the top 500 companies in India in Chapter 5. From the regulation perspective, we consider introducing the Perform Achieve and Trade (PAT) scheme to reduce energy consumption in energy-intensive sectors. In a disaggregated analysis, we examine the energy intensity determinants for the energy-intensive companies per the PAT scheme and others. An analysis of the determinants for the polluting and other sectors as per the Central Pollution Control Board is also carried out. The earlier studies examining energy intensity mainly focused on a specific polluting or energy-intensive PAT sector. However, studies have yet to compare the determinants for the polluting and energy-intensive sectors with the others. Along with the different financial and operational performance variables, we added the environmental reporting variable to examine whether environmental reporting influences environmental performance.

The introduction of the CSR mandate has led Indian companies to adopt a more structured approach towards CSR. The annual CSR reports provide information more consistently. Information on CSR from these reports has been used in studies to examine the influence of the mandate on CSR spending to a great extent. Studies have also examined such mandatory spending in the context of its impact on the intrinsic motivation for voluntary CSR

before the mandate. The relationship of such CSR spending with corporate social performance has also been examined. The results of these studies have supported the findings of the CSR-CFP relationship uncovered globally. Such relationships are positive, negative, and inconclusive. We add the element of institutional isomorphism (DiMaggio & Powell, 1983) in examining this relationship in the Indian context. The traditional approach of corporate social engagement through charity or philanthropy has been governed more by the institutional values derived from their corporate family owners (PricewaterhouseCoopers et al., 2013). With the introduction of the mandate, companies may have aligned their CSR spending accordingly. However, the CSR-CFP relationship in India has to be examined from the context of voluntary, philanthropy, mandate-induced, and peer-induced CSR spending. This examination is carried out in Chapter 6.

Similarly, the CSR-CFP relationship will be more precise, where social spending is driven by the financial motives of improving performance, which requires a strategic approach to managing CSR (Porter & Kramer, 2006). However, such an approach focusing on the long-term benefits of CSR is lacking (Tilt, 2016). This is another element that needs to be considered in India's philanthropy-based CSR environment. Thus, the mandate provides a reason to study its impact on CSR spending in a unique setting and a combination of coercive and voluntary institutional pressures and peer pressure on CSR spending. The study fills this gap by considering the institutional isomorphism (DiMaggio & Powell, 1983) and the strategic CSR approach (Porter & Kramer, 2006) in the CSR-CFP relationship.

A CSR sector-wise analysis examines the spread of CSR spending across the different CSR areas as specified in Schedule VII of the Companies Act, 2013. Linking the Schedule VII areas with the global SDGs, in Chapter 7, we examine how corporate and government social spending contribute to SDG achievement.

Chapter 7 also includes a state-wise analysis of CSR spending by considering the corporate presence of CSR spending in different states. Here, the state-wise SDG scores are considered to examine whether the corporate social spending is directed in the states with low SDGs to improve their SDG position in achieving the 2030 agenda.

The corporate sector can contribute effectively to achieving SDGs, especially considering the substantial financial investment required. Voluntary CSR in India was more philanthropic

and needed a structured approach. However, with the mandate, it is possible to estimate the potential contribution from this sector. It is also possible to use these funds in the areas where sufficient progress has yet to be made. However, CSR involvement needs to be sufficiently explored in terms of its relationship and influence on achieving SDGs. Considering the uneven development in different social development sectors and states, the study fills this gap by examining how the corporate industry contributes to SDG achievement. This examination provides insights into whether corporate social engagement addresses national and global sustainability challenges.

1.7 Research Gap

Discussion on corporate SR is limited to a single SR framework, mostly GRI. However, environmental reporting under frameworks like the CDP is crucial for specific environmental challenges like climate change and emissions. Our study fills this gap by considering two SR frameworks: GRI, a comprehensive corporate SR framework, and CDP, a specific environmental reporting framework. Another gap identified in the existing corporate SR literature is the need for more attempts to link such reporting with the underlying theories. The study fills this gap by examining the differences in corporate SR in the context of the underlying SR theories.

In relation to corporate environmental performance, a limited number of studies have examined the influence of the PAT scheme in India. The existing studies have focused on single or multiple industrial sectors notified under the PAT scheme. Identifying specific industrial units of companies as designated consumers based on energy intensity is a unique feature of the PAT scheme. Earlier regulations have focused on classifying industrial sectors as polluting or otherwise. The specific designation may be more successful in improving environmental performance than a general classification as a part of the polluting industrial sector. However, the literature needs to give more attention to examining this difference. The study fills this gap by examining the energy intensity of different groups of companies classified as PAT DCs and the ones classified as part of the polluting sectors.

The CSR-CFP relationship is a prominent area of research in CSR-related literature. With an increasing number of national mandates in different countries, studies have also

examined the coercive pressure of such mandates on CSR performance. However, most studies have used subjective measures of CSR performance, like the indices and rankings either self-constructed or published by different rating agencies. The influence of peer pressure or the strategic management of CSR is also explored to a limited extent. The study fills these gaps by examining the CSR-CFP relationship by considering the objective measure of CSR spending and including the elements of peer pressure and strategic management of CSR.

The intra and intergenerational equity, as emphasised in the Brundtland Commission's report, is to be primarily managed by governmental efforts, with the corporate sector cooperating through contribution (Buhr et al., 2014). Mandates create an opportunity for companies to participate in the country's development and address the social and environmental challenges (Gatti et al., 2019) by addressing the relevant national challenges (Visser & Tolhurst, 2017). However, the literature has not sufficiently examined how mandated CSR spending in India contributes to the government's development efforts. We fill this research gap by examining corporate contributions in the form of CSR spending to achieve the sustainability challenges represented by the SDGs.

1.8 Research Questions

We formulated the following research questions based on the literature reviewed and the research gaps identified.

1. What is the response of Indian companies to voluntary sustainability reporting? Does this differ based on size, group affiliation, ownership, sector, and CSR voluntarism?
2. What are the determinants of corporate environment performance with specific reference to energy intensity?
3. How have the policy interventions influenced energy intensity?
4. What are the determinants and outcomes of corporate social responsibility expenditure of large Indian companies?
5. How have policy changes impacted such expenditure?
6. Is the nature of CSR expenditure addressing national and international sustainability challenges?

1.9 Research Objectives

The following research objectives are framed to answer the above research questions.

1. To study the trend and spread of voluntary sustainability reporting in India by size, group affiliation, ownership, sector, and CSR voluntarism.
2. To examine the determinants of energy intensity as a part of an environmental audit of the selected companies.
3. To examine the influence of Perform Achieve and Trade, among others on energy intensity.
4. To examine the existing and less explored determinants of CSR in India and the financial outcomes of such social performance.
5. To study the impact of CSR mandate in the Companies Act, among others, on CSR expenditure
6. To assess whether the CSR expenditure is meeting SDG targets.

Secondary data from multiple sources answers the research questions and objectives. These included the Centre for Monitoring Indian Economy (CMIE) Prowess (https://www.cmie.com/kommon/bin/sr.php?kall=wprdesc&page=prowessiq_desc), Sustainable Development Solutions Network (SDSN) (<https://www.unsdsn.org/about-us>), GRI database (<https://database.globalreporting.org/search/>) SDG India Index and Dashboard (<https://sdgindiaindex.niti.gov.in/#/>), RBI e-STATES database (<https://www.rbi.org.in/Scripts/AnnualPublications.aspx?head=State%20Finances%20:%20A%20Study%20of%20Budgets>), and the company websites and annual reports. We have used a sample of India's top 500 companies constituting the Standard and Poor's (S&P) BSE 500 index for a decade from 2010 to 2019. We examine the overall sustainability trends in voluntary reporting under two global frameworks, namely the Global Reporting Initiative (GRI) and the Carbon Disclosure Project (CDP) (Rimano et al., 2021). We then look at the individual non-financial parameters of sustainability and the social and environmental performance of the selected companies. In the case of environmental performance, we consider energy intensity, which is examined in the context of the Perform Achieve and Trade (PAT) scheme introduced for reducing energy intensities of energy-intensive industries. We consider corporate social expenditure as a measure of corporate social performance. It is examined in the context of the introduction of the significant CSR mandate introduced as a part of the Companies Act 2013. Considering the private sector's potential to contribute to SDG achievement, the study examines how social responsibility spending by companies contributes in this regard.

Fixed effect regression is used to understand the determinants and outcomes of social responsibility expenditure and the energy intensity among the selected companies. The fixed effects regression also examines the relationship between corporate social and financial performance.

Scatter plots and bar graphs help to understand the trends in SR and corporate social spending and to examine the relationship of corporate and government social spending with the SDG scores at the national and state levels.

1.10 Chapterisation

The thesis is presented in eight chapters, including the Introduction and Conclusion. A summary of each chapter is provided below.

Chapter 1. Introduction

This chapter begins with an introduction to sustainability concepts, corporate sustainability, and corporate SR. Considering the global developments and those more specific to India at the national level, this chapter presents an overview of SR and its growth. It gives an overview of the chapters and the structure of the thesis.

Chapter 2. Corporate Sustainability – A Narrative Review

This chapter summarises how the literature on CSR and SR has developed over the years. It provides an overview of the themes of the literature concerning sustainability and SR.

The terms sustainability and CSR are synonymously in literature (Loh et al., 2017; UNEP & Group of Friends of Paragraph 47, 2015). Some studies have tried to distinguish between the two, and others have explained how both are the same or converging (Montiel, 2008).

Corporate sustainability has been studied from the reporting and performance perspective. Literature has examined sustainability performance and reporting, covering the economic, social, and environmental together. Literature has also examined the individual sustainability parameters, like social performance and reporting, and environmental performance and reporting as separate sustainability parameters.

Each of these parameters, jointly and separately, has been analysed for its relationship with financial performance, a significant theme of research in sustainability-related literature. The corporate CSR and CFP relationship has been investigated by considering corporate

sustainability as a determinant and an outcome of financial performance. Considering the interdependence between the two, literature has also examined the bidirectional relationship between the two.

Apart from the primary research theme of CSR-CFP, extant literature has also studied corporate sustainability from the perspective of other relevant themes:

- i. Ownership Structure
- ii. Sector or industry affiliation
- iii. Board Attributes
- iv. Mandatory and Voluntary
- v. Geographical location
- vi. Theories
- vii. Size

Chapter 3. Materials and methods

This chapter describes the sample, data, sources, and analysis techniques. The study used the BSE 500 group of companies as the sample, further analysed as the top BSE 100 and the remaining as BSE rest 400 companies from the leading 500 group.

The CMIE database is the primary source of data for the study. Other data sources are the GRI database, SDSN, SDG India Index dashboard, and e-STATES data by the RBI.

The company's annual reports have been used to supplement the data wherever it was missing from the primary data source. We have referred to the individual companies' websites to access the yearly CSR reports forming a part of the companies' annual reports and get information on whether the companies publish a sustainability report under GRI.

We apply a fixed effects regression model to examine the relationship between corporate sustainability and CFP. We test this relationship for corporate social performance and corporate financial performance. For this study, we use CSR spending by companies as a measure of corporate social performance. Similarly, we use energy intensity to measure environmental performance and examine the factors influencing it. Without readily available data on energy consumption in physical units, we use the monetary measure of energy consumption in the form of 'Power and Fuel expenses' provided by CMIE Prowess as a measure of energy consumption.

The fixed effects regression is used to examine the determinants of energy intensity for different groups of companies from the sample.

We mainly use bar and line charts to visually represent trends in corporate SR and CSR spending over the decade from 2010 to 2019. Scatter plots help to examine the relationship between corporate social expenditure, government social spending, and the SDG scores for different states.

Chapter 4. The state of sustainability reporting in India

This chapter discusses the adoption of SR by companies in India. To assess the scope and breadth of SR in India, we look at the national and global frameworks available to companies in India. The Indian corporate SR scene is a hybrid one that complies with the mandatory reporting provisions from the government and regulators like SEBI. Companies comply with the required requirements, prepare standalone reports as per the global frameworks, and follow the principles and standards that are more voluntary.

At the national level, the mandatory provisions include BRR based on the National Voluntary Guidelines as per the SEBI guidelines and CSR Reporting as per section 135 of the Companies Act, 2013.

The national-level mandatory SR provisions, in the form of BRR, now called the BRSR, call for the adoption of compulsory SR by the specified companies. Since such adoption is made mandatory by SEBI, the regulatory authority, as a part of the Listing Obligations and Disclosure Requirements (LODR), the companies are bound to follow the guidelines on such reporting. However, such sustainability reports in terms of the BRR have yet to be able to provide quantitative data on sustainability as required by the BRR framework. The focus of the companies has been more on complying with the mandatory BRR rather than giving data consistently, which can be used for decision-making. Similarly, though the companies include the BRR in their annual report per the SEBI guidelines, the information is more qualitative. The quantitative data, as required by the format of the report, was not found to be presented consistently. The BRSR being implemented on a mandatory basis from 1st April 2022 is expected to improve the BRR and will take the companies from India more towards SR.

The mandatory provisions apply to all the 500 companies from the sample. However, the adoption of global frameworks is voluntary. On the international front, the companies from India have been submitting the Communication on Progress (COP) as per the United Nations Global Compact Framework, following International Organisation for Standardisation's (ISO) Sustainability Reporting Standards, taking part in the Carbon Disclosure Project (CDP) Surveys, and striving for inclusion in the indices like the Dow Jones Sustainability Index (DJSI) and preparing and issuing standalone sustainability reports too as per the reporting frameworks like the Global Reporting Initiative (GRI), International Integrated Reporting Council (IIRC) frameworks among other measures. The overall participation of the companies in India in the global sustainability reporting frameworks has been limited.

This chapter examines the number of companies preparing and filing a standalone sustainability report under the GRI Framework. We selected this framework since it is a comprehensive and widely used framework globally. It covers reporting on all three sustainability parameters, i.e., economic, social, and environmental. The second global framework considered is the Carbon Disclosure Project (CDP), an environment reporting-based framework covering mainly corporate data in Green House Gas (GHG) emissions under the Scope 1, 2, and 3 categories.

Though the number of companies filing a report with GRI is high, the number of companies following SR under the GRI framework is limited.

This chapter elaborates on compliance with two global frameworks, GRI and CDP.

Due to the limited reliance on global frameworks and the nature of the information reported in the BRR, we decided to rely more on the annual CSR Reports prepared by the companies following the requirements of Sec 135 of the Companies Act 2013 for social performance data. Similarly, we rely on energy consumption data from the CMIE Prowess for environmental performance.

Chapter 5. Environmental audit in India with a specific focus on energy

The environment has become a concern because its quality will determine the quality of humans and other species. However, the rate of degradation of the environment is becoming difficult to control.

The agencies and regulators are taking measures at the national and international levels. Actions directed at safeguarding and improving the environment need accountability and responsibility for the damage caused. Environmental protection and improvement require a directed approach to identifying the causes and holding the people accountable. The companies have practised environmental reporting for the corporate sector for a while. However, more needs to be done, which is evident through the continuous degradation of the environment.

We use the monetary measure of power and fuel expenses. This chapter examines the energy intensity in the corporate sector. Energy efficiency can significantly contribute to the control of environmental degradation. The corporate sector is a significant consumer of energy. Energy efficiency in the corporate sector can contribute to national and global energy efficiency. Several measures are being taken to achieve this target.

PAT is a scheme implemented by the government to reduce the energy efficiency of energy-intensive units in the country. In this chapter, we compare the environmental performance of such companies with those not identified for energy reduction under the scheme.

This chapter examines the factors influencing the energy intensity of companies and how policy interventions like the PAT have influenced the same.

Chapter 6. Trends in Corporate Social Responsibility

The number of companies preparing the standalone voluntary reports under the GRI framework is limited. Hence, we focus on the companies' CSR reports. Section VII of the Companies Act mentions the different areas of CSR, where the specified companies should spend 2% of their average net profits.

CSR has moved from being a philanthropic to a strategic activity. A profit or a return motive drives strategic CSR. The research on CSR has thus extensively investigated the relationship between corporate social and corporate financial performance (Platonova et al., 2018) to establish a business case for exhibiting such social performance. Studies have considered CSR as an outcome and a determinant of CFP. Corporate financial performance (CFP) has been considered in terms of accounting profits and market-based returns regarding share market performance. We examine the relationship between CSR and CFP in India based on the previous literature. We examine this relationship from both directions by considering

CSR as a determinant and an outcome of CFP. For this purpose, we have taken accounting and market-based measures of CFP and CSR spending as a measure of corporate social performance.

Because the CSR mandate forming a part of the Companies Act of 2013 is a significant policy intervention influencing the social performance of companies, we also examine how this intervention has influenced the CSR and CFP relationship for the companies in India.

CSR has been followed as a philanthropic activity in India. The research interest in the CSR-CFP relationship aims at proving the business case for CSR. CSR spending has to be planned and implemented strategically to achieve the maximum financial benefits.

Given the above, we also investigate how the different types of isomorphism, like coercive in the form of regulation, mimetic in the form of peer pressure, and normative in the form of institutional beliefs and norms, influence CSR. And whether such pressures are instrumental in deciding financial performance.

Chapter 7. Role of corporate social spending in the achievement of Sustainable Development Goals

This chapter has two objectives: to examine the pattern of CSR spending based on different Schedule VII areas and the regional focus of such expenditure based on various states.

Schedule VII has identified the following areas for CSR spending by the specified companies.

- Eradicating Hunger, Poverty, and Malnutrition and promoting preventive healthcare.
- Promoting Education, which includes special education and Employment-enhancing vocational Skills
- Promoting Gender Equality and reducing social and economic inequalities
- Ensuring environmental sustainability
- Protection of National Heritage, Art and Culture.
- Measures for the benefit of Armed forces.
- Training to promote rural sports and the Olympics.
- Contribution to PM Relief Fund

- Contribution to Technology Incubators.
- Rural Development Projects.
- Slum Area Development.
- Disaster Management.

These areas have been identified based on national priorities. Companies can spend money in any of the specified CSR areas. However, it can be noticed that there is more spending in some CSR areas than in others.

This chapter examines how corporate social performance contributes to achieving the national challenges of regional economic and human development inequalities. Using the global benchmarks of SDGs, we study how the public-private partnership in India has been influencing the achievement of SDGs. To capture this relationship at the subnational level, we use the state-level SDG scores, government social spending, and corporate social spending.

The chapter also analyses the state-wise presence of the BSE 100 companies in the CSR spending in different states to examine whether all the states are given an equal preference in CSR spending by the corporate sector in India.

This chapter's findings will help identify whether CSR spending is balanced among different areas or whether intervention is needed.

We also look at the CSR – SDG linkages to see if the spending is moving in the needed areas so that the corporate sector can contribute to achieving SDGs through its CSR programs. A comparison is made in this chapter between the social spending by the governments and the corporate sector to see their contribution to the achievement of SDGs.

Section 135 of the Companies Act 2013 allows companies to undertake CSR projects in any part of the country. The act specifies that companies should prioritise spending in the local areas. However, the companies are free to go beyond and spend. Considering the geographical climatic and natural diversity of different Indian states, some states are industrially backward. This is mainly due to the topographical and geographical conditions. At the same time, some states or regions are industrially congested. Local spending thus would further worsen the inequalities in this regard.

Based on the National Indicator Framework, the SDG India Index and dashboard monitors each state's progress on each SDG and assign a score for each state on each SDG. This can act as a guide for the corporate sector to fill the gap and spend in the states in the SDG area where the performance is low based on the SDGs' global targets of achieving sustainable development. CSR areas are based on the national priorities. Achievement of national priorities contributes to the achievement of SDGs.

We further examine the relationship between the number of companies spending in a specific CSR area and the average SDG score for the relevant mapped SDGs.

The findings of this chapter will help assess whether the CSR spending is being undertaken based on the needs of the states and also suggest the states for future CSR spending, considering that each state has to move to become an achiever state by 2030. This will contribute to the SDGs' national and global achievement by 2030.

Chapter 8. Conclusion

This chapter concludes the thesis by presenting the findings concerning different research questions addressed in the study.

The non-financial elements of sustainability, such as corporate social and environmental elements, are becoming increasingly crucial for stakeholders. Stakeholders, including investors and society, consider corporate performance an essential basis for evaluating companies. Corporate SR is an effort to fulfill the stakeholders' needs about the non-financial performance of the companies. Such corporate initiatives are voluntary and motivated by mandatory measures. The financial and non-financial elements of sustainability are interrelated, as seen from the relationship between corporate social and environmental performance and corporate financial performance.

1.11 Conclusion

This chapter introduced the thesis with a brief overview of corporate SR and its growth globally and in the Indian context. It briefly describes the mandatory and voluntary SR avenues available to companies in India. Based on the literature reviewed and the research gaps identified, the research questions and objectives finalised for the study are stated.

It further describes how the thesis is arranged by presenting the chapter-wise arrangement. The thesis is organised into eight chapters, as outlined and explained above. After a brief introduction to the topic and an overview of the literature in the field, the thesis describes the materials and methods used for the study. The four main chapters of the study, which follow, start with exploring corporate SR among Indian companies and then study the specific environmental and social parameters of sustainability. Energy intensity is considered for the environmental audit, while CSR expenditure is regarded for the social aspect. Further, the study examines the corporate sector's contribution to solving national and international challenges. Here, we consider the benchmarks of the SDGs as a measure of the national targets in the social, economic, and environmental areas.

The study started by examining the adoption of SR among companies in India. For this purpose, we selected GRI and CDP sustainability reporting frameworks. From an environmental perspective, it aimed to examine the factors influencing the energy intensity of the top companies in India. The corporate sector's assumption of responsibility is revealed through its CSR activities. Voluntary CSR in the form of philanthropy and mandatory CSR as a response to the CSR mandate presents an opportunity to examine the motivators for such CSR initiatives. The study intends to investigate the widely explored relationship between social and financial performance in the Indian context. We look at CSR as an outcome and the determinant of CFP. For this purpose, profitability and market-based financial performance were considered along with the lesser-explored determinants, such as strategic CSR and institutional isomorphism. The study also examined how relevant regulations and mandates improve corporate environmental and social performance. From a larger perspective, corporate social spending should also contribute to achieving broader development targets such as SDGs. Hence, the study examined this contribution at the national and the state level.

We find that the uptake of voluntary sustainability under the global SR frameworks is limited and differs based on the selected parameters. The differences in adopting SR based on factors like size, ownership, polluting status, and CSR voluntarism provide evidence of the underlying theories driving such reporting. SR in India is driven by legitimacy, visibility, institutional, and signalling theories. Environmental and social performance is driven to a great extent by financial performance. Highly profitable companies can reduce their energy intensity.

Similarly, profitability determines the proportion of profits earmarked for the CSR expenditure. Regulatory interventions like the Perform Achieve and Trade (PAT) have improved environmental performance. Similarly, the landmark CSR mandate in India has significantly enhanced corporate spending in areas of social and environmental responsibility. The positive influence of the regulations may arise from coercive pressures, indicating a compliance-based approach rather than a needs-based one. Coercive, mimetic, and institutional values and beliefs drive corporate social involvement in India. Such social spending needs a strategic approach to show a consistent and strong influence on corporate financial performance. It is this lack of strategised CSR spending that does not show the expected impact on the achievement of SDGs. Instead, we find evidence of convenience and regulation pushing CSR spending, where the companies prefer to spend in the states where they have their operations rather than in states where there is a need for such corporate social investment.

A review of contributions from different research studies is essential to understanding the perspectives from which earlier researchers have examined the topic. A review of the existing literature thus provides a background for the study to identify the research gaps, conceptualise research ideas, and provide new research directions. The next chapter, 'Corporate Sustainability – A Narrative Review,' reviews existing literature on corporate SR and identifies the different themes underlying such literature.

Chapter 2

CORPORATE SUSTAINABILITY – A NARRATIVE REVIEW

2.1 Introduction

There has been a growing interest in corporate sustainability reporting (SR) in recent years. This interest is evident in the form of an increasing number of regulations, guidelines, frameworks, and tools for reporting (King et al., 2016). The expansion of the role of traditional accounting to cover reporting on environmental and social performance (Joshi & Li, 2016) has led to an increase in non-financial reporting by the corporate sector. As sustainability experienced a shift from being macroeconomic to a microeconomic concept, the number of companies reporting on sustainability increased, as did the number of studies on SR (Silveira & Petrini, 2017). Research on corporate reporting practices has moved side by side with the developments in corporate reporting (Fifka, 2013), which is seen in the case of a shift from financial to non-financial corporate reporting. Corporate non-financial reporting initiated an academic interest in the early 1970s and has led to a substantial body of literature (Fifka, 2012). Sustainable operations and management can be a competitive advantage (Salvioni et al., 2016) for firms and must be communicated to the relevant stakeholders. Reporting on sustainability issues, whether as a part of the internal management information systems or external reporting practised either voluntarily or in response to mandates, can be an essential source to the management for future decision-making (Hedberg & von Malmborg, 2003) and an opportunity for innovation.

During the period from 1999 to 2020, SR by the global top 250 companies increased from 35% to 96%, while the top 100 reported an increase in reporting from 24% companies to 80% companies (Ságodi & Szabó, 2017; Threlfall et al., 2020).

Large companies report on sustainability and require their suppliers to undertake SR as a procurement requirement (Thorsteinsdottir et al., 2015). As SR continues to grow among larger companies and spread among small and medium enterprises, there remain challenges to the quality of corporate SR (Epstein, 2003; Thorsteinsdottir et al., 2015) and leaves scope for improvement (Ching et al., 2017) due to the increasing expectation and credibility gap (Wanner

& Janiesch, 2019). The heterogeneity in the forms of SR limits its practical use in decision-making by the stakeholders (Sahay, 2004). Moving beyond the 'checklist' based compliance, there is a need for more accurate and comprehensive SR (Thorsteinsdottir et al., 2015). SR has been criticised as 'window dressing' or 'greenwashing' wherein the companies use different strategies to legitimise their negative impacts rather than report genuine effects which might be 'negative' (Hahn & Kühnen, 2013; Hahn & Lülfs, 2014; Wilson, 2013). However, the overall standard of such reports is changing with innovations in the area (O'Dwyer et al., 2007).

The increase in SR is attributed to the mounting environmental and social challenges, which have led to increased involvement in such issues by governments, stock exchanges, and investors alike (Thorsteinsdottir et al., 2015). However, the growth in SR by companies needs to be complemented by a growth in the externally assured SR, which increases the credibility and reliability of SR (Junior et al., 2014).

Traditional accounting is limited to financial issues (Sahay, 2004). The term sustainability in the context of sustainable development includes meeting the needs of the present generation while ensuring that the needs of the future generation are not compromised.

Corporate sustainability is the concept of sustainability applied to the corporate sector and encompasses the ability of corporations to maintain financial viability by fulfilling social and environmental responsibility (Sahay, 2004).

This chapter explains the development and growth of literature on corporate sustainability and corporate sustainability reporting. It identifies the conceptual similarities and differences in the use of the terms associated with sustainability and related topics. Broad themes related to sustainability are then identified from the literature. The chapter provides a detailed review and analysis of the discourse covered in the literature under different themes identified.

2.2 Development and Growth

An expanding body of literature on SR results from increased adoption of SR practices (Mion & Loza Adaui, 2019). Despite starting during the 1970s (Fifka & Drabble, 2012; Fifka, 2013), such reporting increased during the 2000s (Alshehhi et al., 2018). GRI came out with its

voluntary SR guidelines in the 1990s. The initial standards by the GRI and subsequent revisions to the same in the form of new versions have increased the studies on SR (Vitale et al., 2019).

Such studies are more prevalent in the developed world as compared to the developing countries (Alshehhi et al., 2018; Gnanaweera & Kunori, 2018), with North America, Australia, Northern and Western Europe being considered pioneers and leaders in SR research (Fifka, 2013). Though developing and emerging countries need to catch up in SR-related research (Fifka, 2012), countries from Asia have seen a rise in such studies after the 2000s, with a substantial number of studies on the topic (Fifka, 2013). However, within regions and continents, an imbalance has been noticed (Fifka, 2012), with some countries showing many studies. However, the level of economic development received little attention as an indicator (Roberts, 1992), and an interest in exploring this area can be seen in the 21st century (Bhatia & Tuli, 2018; Kumar & Das, 2018).

The environmental damage attracted the attention of people and regulators to corporate accountability in this regard. The environmental disclosures and non-financial reporting during the 1970s and 1980s were in the form of corporate environment impacts (Gnanaweera & Kunori, 2018). Environmental reports were first published in 1989 (Kolk, 2004). Hence, the environment has been the sustainability parameter that has been researched more on than social (Hahn & Kühnen, 2013; van der Laan, 2009). Studies have tried to look at the relationship between environmental reporting and factors like corporate governance and ownership (Halme & Huse, 1997; Masud et al., 2018), environmental performance (Gnanaweera & Kunori, 2018), polluting status (Halme & Huse, 1997) and sector affiliation (Behram, 2015). From the Double Bottom Line reporting, which focused on social and economic or environmental and economic factors, there was a gradual shift to the Triple Bottom Line reporting, which covered all three sustainability parameters (Kolk, 2004). Research on the user needs or the readers' side, as well as accountability from publishing companies, is, however, still limited (Fifka, 2012)

As a response to different stakeholder groups, SR involves identifying the information material for various groups of stakeholders, generating such information, and then communicating it through their SR. This process needs the installation of systems and procedures within the organisation. Thus, an organisation will use 'outside in' or 'inside out approaches' (Dienes et al., 2016; Vitale et al., 2019). The inside-out approach involves

performance measurement and management, whereas the outside-in approach involves adapting to external sustainability requirements or fulfilling regulatory or legitimacy criteria.

Thus, voluntary SR can be considered inside-out, whereas mandatory SR is an outside-in approach. Peers can influence voluntary CSR initiatives and reporting on sustainability through peer pressure or mimetic isomorphism (Bansal, 2021; Das & Bhunia, 2015; Khan et al., 2021). A voluntary SR approach helps to give a strategic advantage to the firms as they can be differentiated from their peers for doing something different. Mandates or regulations in this regard help to increase the overall involvement of the corporate sector in sustainability initiatives. But at the same time, it may also lead to a reduction in the social responsibility initiatives of the firms who have been doing so voluntarily due to peer pressure (Bansal, 2021; Dharmapala & Khanna, 2018; Mukherjee et al., 2018; Rajgopal & Tantri, 2022). Corporate SR, which started as a voluntary exercise initially, is slowly gaining statutory ground through mandates introduced by governments and stock exchanges in different countries (Thorsteinsdottir et al., 2015).

Economic parameters covered and reported on as a part of financial reporting have a market mechanism to ensure that organisations discharge their accountability. The uniformity and standardisation already achieved in the area are another boost for companies to report on economic parameters. Non-financial reporting has yet to achieve uniformity and standardisation on par with financial reporting. However, reporting tools and frameworks like GRI in this area are a step to overcome this limitation (Bosch-Badia et al., 2017) and facilitate increased reporting by firms. Different regulatory agencies at the national and international levels have introduced measures to improve the reporting on non-financial parameters. However, the standardisation needed to bring it on par with financial performance is yet to be achieved.

2.3 Conceptual Similarities and Differences

CSR is considered older than sustainability (Bhatia & Tuli, 2017). While CSR is giving away a part of profits for a social cause, sustainability involves earning profits in a socially responsible manner and, hence, is broader in scope (Jain & Winner, 2016). The terms CSR and sustainability overlap in literature (Loh et al., 2017). The terms 'Corporate Social Responsibility', 'Corporate Sustainability', 'Corporate Citizenship', 'Business Ethics', 'Stakeholder Engagement',

'Environmental Stewardship', 'Triple Bottom Line' etc. are being used synonymously (Loh et al., 2017; Strand et al., 2015; UNEP & Group of Friends of Paragraph 47, 2015), since they share the same vision of extending corporate responsibility beyond economic objectives to social and environmental areas (Bhatia & Tuli, 2017). Similarly, SR includes terms such as 'sustainability reports,' 'social reports,' 'corporate social responsibility reports,' 'social and community reports,' and 'environmental reports' (Junior et al., 2014). The expectations of society that denote CSR are narrowed down to stakeholders in the case of sustainability (De Bakker et al., 2005). The approaches of different global organisations in defining the terms CSR and sustainability indicate that they are converging (PricewaterhouseCoopers et al., 2013). The Companies Act of 2013 in India not only mandates CSR spending but also provides for the internalisation of sustainability within the operations of the Indian corporate sector (GoI, 2019). Hence, in the case of reporting too, the terms commonly seen are 'CSR disclosure,' 'environmental, social and governance disclosure,' and 'non-financial disclosure' (Chen et al., 2018), along with terms like social audit, social accounting and accountability, social responsibility reporting, social and sustainability performance measurement, and SR (Epstein, 2003), CSR reporting, social reporting, environmental reporting, and social and environmental reporting, (Fifka, 2012). The literature reviews on SR also include studies on sustainability parameters like CSR and the environment (Alshehhi et al., 2018; Dienes et al., 2016; Silveira & Petrini, 2017). Studies have considered SR as a whole and individual sustainability parameters like environment, social, and economic.

The terms 'corporate social performance' (Carroll, 1979) and 'sustainability' (Venkataraman, 2019) are broad and multi-dimensional. Despite considerable research in the area, researchers have yet to be able to define the same (Margolis et al., 2007). Hence, the literature on SR is a mixture of CSR and corporate sustainability (Socoliuc et al., 2020).

The CSR principles of 'sustainability, accountability, and transparency' (Crowther & Aras, 2008) cover the scope of CSR, corporate social responsiveness, and corporate social performance (Carroll, 2021). Effective CSR involves balancing three economic, ecological, and social areas, contributing to sustainability (Sheehy, 2015). CSR is an extension of the concept of sustainable development to the corporate world, encompassing its responsibilities to society

and the ecology (Delbard, 2008). CSR reporting can also be considered a part of CSR (Roberts, 1992). The corporate sector needs to distinguish between CSR and sustainability, which is evident in renaming its CSR reports as sustainability reports without changing the reported content (Carroll, 2021). The terms 'Corporate Social Responsibility,' 'Corporate Sustainability,' 'Corporate Citizenship' or 'Business Ethics,' 'Stakeholder Engagement,' 'Environmental Stewardship,' or 'Triple Bottom Line,' etc., are therefore being used synonymously (Strand et al., 2015; UNEP & Group of Friends of Paragraph 47, 2015).

2.4 Data and Methods Used in the Studies

2.4.1 Data Sources

Databases: The primary databases used include the GRI database, ASSET4 database from Thomson Reuters, Bloomberg, Centre for Monitoring Indian Economy (CMIE) Prowess IQ, Kinder, Lydenberg, and Domini (KLD) database, Compustat, Hexun CSR Database, Vigeo Database of CSR Rankings, The Ethical Investment Research Service (EIRIS).

Indices and Rankings: Dow Jones Sustainability Index (DJSI), Korea Economic Justice Institute (KEJI Index), Fortune 500 Ranking by Fortune Survey of Corporate Reputations. Rankings and indices have the limitation of subjectivity and limited sample size (Cochran & Wood, 1984) and are difficult to validate (Margolis et al., 2007).

As regards the corporate reports being analysed, annual reports and sustainability reports also called CSR reports in some cases, are the primary sources for getting information on sustainability-related issues (Hahn & Kühnen, 2013; Roberts, 1992). Since SR initially started as a part of annual reports and then extended to standalone sustainability reports, studies have shown a similar trend. SR started being analysed increasingly in 1999, especially the ones prepared under GRI frameworks, since the companies began preparing such reports on a larger scale (Vitale et al., 2019). Internet and company websites were also added as a source for data on SR (Fifka, 2012; Fifka, 2013; Hahn & Kühnen, 2013).

2.4.2 Methods

The studies have used document content analyses covering annual reports, sustainability, CSR reports, etc. (Fifka, 2013; Gnanaweera & Kunori, 2018). Though the focus changed from

content analysis to interviews, questionnaires, surveys, and quantitative methods (Fifka, 2012), experimental designs and primary survey-based methods like interviews have been used minimally (Petrescu et al., 2020).

Though content analysis solves the problem of subjectivity to a certain extent by defining the specific terms or variables and limited sample sizes due to its mechanical nature, the subjectivity in the choice of variables remains (Cochran & Wood, 1984).

The lack of interview and survey methods has led to the neglect of areas like target audience, reception of SR, quality, and accuracy of the information reported, systems and procedures installed to generate such information, and people or departments responsible and accountable for the information disclosed. However, some exceptional studies (Kumar & Das, 2018) have been done in the area. A study based on a questionnaire for managers in Romania found that SR can be integrated into financial reports and that such reporting provides financial benefits (Petrescu et al., 2020).

2.5 Research Themes Identified in the Literature

The concepts of CSR and sustainability are synonymous due to the convergence between the two, even regarding reporting requirements (Hahn & Kühnen, 2013). CSR reporting, social and sustainability performance measurement, and sustainability reporting are all used interchangeably (Epstein, 2003).

Sustainability is more comprehensive and encompasses corporate social and environmental responsibility (Alshehhi et al., 2018). Social and ecological performance articles were considered in a second-order meta-analysis to examine the CSR-CFP relationship (Busch & Friede, 2018).

Based on these synonymous concepts, we classify the studies as follows and present a detailed analysis of the discourses covered in the literature.

2.5.1 Studies relating to corporate sustainability reporting

These studies have analysed the disclosures or reporting as a variable. The literature here has considered SR in total and the individual non-financial parameters, i.e., social and

environmental. Such reporting is measured by constructing indices or calculating reporting scores. The studies are grouped into:

i. Corporate SR

For examining comprehensive triple bottom-line SR, studies have considered standalone SR under GRI (Ching et al., 2017; Dilling, 2010; Loh et al., 2017; Quéré et al., 2018; Rodriguez-Fernandez, 2016; Uwuigbe et al., 2018), Dow Jones Sustainability Index (DJSI) (Rodriguez-Fernandez, 2016), International Organisation for Standardisation (ISO) 26000 (Mohammadi et al., 2018), any standalone report providing information on corporate sustainability (Carp et al., 2019). Besides the specific SR, literature has also examined the disclosures on sustainability in the annual reports (Carp et al., 2019) and websites (Tagesson et al., 2009).

ii. CSR reporting

Some studies have focused on reporting under the social indicator of sustainability, CSR. For examining social reporting studies have used disclosures from CSR reports (Chen et al., 2018; Darus et al., 2013; Nekhili et al., 2017; Ting, 2021) and annual reports (Cowen et al., 1987; Darus et al., 2016; Kansal et al., 2014; Nekhili et al., 2017).

iii. Corporate environmental reporting

Corporate environmental reports are said to have been first published in 1989 (Kolk, 2004). To examine the single-dimensional SR covering the environment, most of the studies have used ER under frameworks like the CDP (Blanco et al., 2017; Charumathi & Rahman, 2019; Kim & Lyon, 2011; Luo et al., 2013; Tingbani et al., 2020). Studies have also examined the environmental disclosures in annual reports (Behram, 2015; Zeng et al., 2012; Wu & Li, 2023).

Some studies have considered comprehensive triple-bottom-line reporting frameworks like the GRI and examined only ER (Clarkson et al., 2008). Environmental disclosures from the GRI reports have also been combined with emissions data from the National Pollutant Inventory in Australia to examine corporate ER practices (Clarkson et al., 2011).

2.5.2 Studies relating to the sustainability performance

These studies have gone beyond the count or the indices of disclosures and analysed the non-financial performance reported by the companies. The studies in this category can be grouped as follows:

i. Corporate sustainability performance

These studies have considered corporate sustainability performance, representing all three pillars of sustainability. Hence, a majority of these studies have relied on the Environmental, Social, and Governance (ESG) scores calculated by different agencies like Bloomberg (Arayssi et al., 2016; Baldini et al., 2018, 2021; Giannarakis, 2014; Jizi, 2017), Asset4 Database (Drempetic et al., 2020), S&P ESG India Index (Ghosh, 2013). The ESG score is taken as a proxy of sustainability performance.

ii. Corporate social responsibility (CSR) performance

Similar to the sustainability performance represented by ESG, studies have used CSR scores to define corporate social performance. Such CSR scores are calculated by self (Brammer et al., 2006) or are provided by different CSR rating agencies like the Vigeo (McGuire et al., 1988), Fortune Corporate reputation Ratings (Quéré et al., 2018) Kinder, Lydenberg, Domini (KLD) (Al-Mamun & Seamer, 2021; Waddock & Graves, 1997), Hexun CSR rating (Yang et al., 2019), Korea Economic Justice Institute (KEJI) Index (Cho et al., 2019; Lee & Lee, 2019; Seo et al., 2015) have been used to represent CSR performance. With the mandates on CSR spending, studies have used CSR spending as a measure of corporate social performance (Bansal & DesJardine, 2014; Chen et al., 2018; Jادیyappa et al., 2019, 2021; Singh et al., 2021).

iii. Corporate environmental performance (CEP)

Studies have used measures like Greenhouse Gas (GHG) emissions (Drempetic et al., 2020; Gnanaweera & Kunori, 2018), energy intensity (Soni et al., 2017), and energy efficiency (Haider et al., 2019) as the measures of environmental performance.

Many studies, whether using SR or performance, have focused on the relationship of such sustainability initiatives with corporate financial performance (CFP). While examining this relationship, corporate sustainability has been considered as a determinant and an outcome of economic performance. The third category examined the bidirectional relationship between corporate financial performance and sustainability.

Considering the differences in SR practices and companies' performances, studies have also investigated the causes of such differences and the drivers or motivators that influence SR and performance. For discussion, we group such drivers studied in the previous literature:

The studies can be classified into the following broad themes:

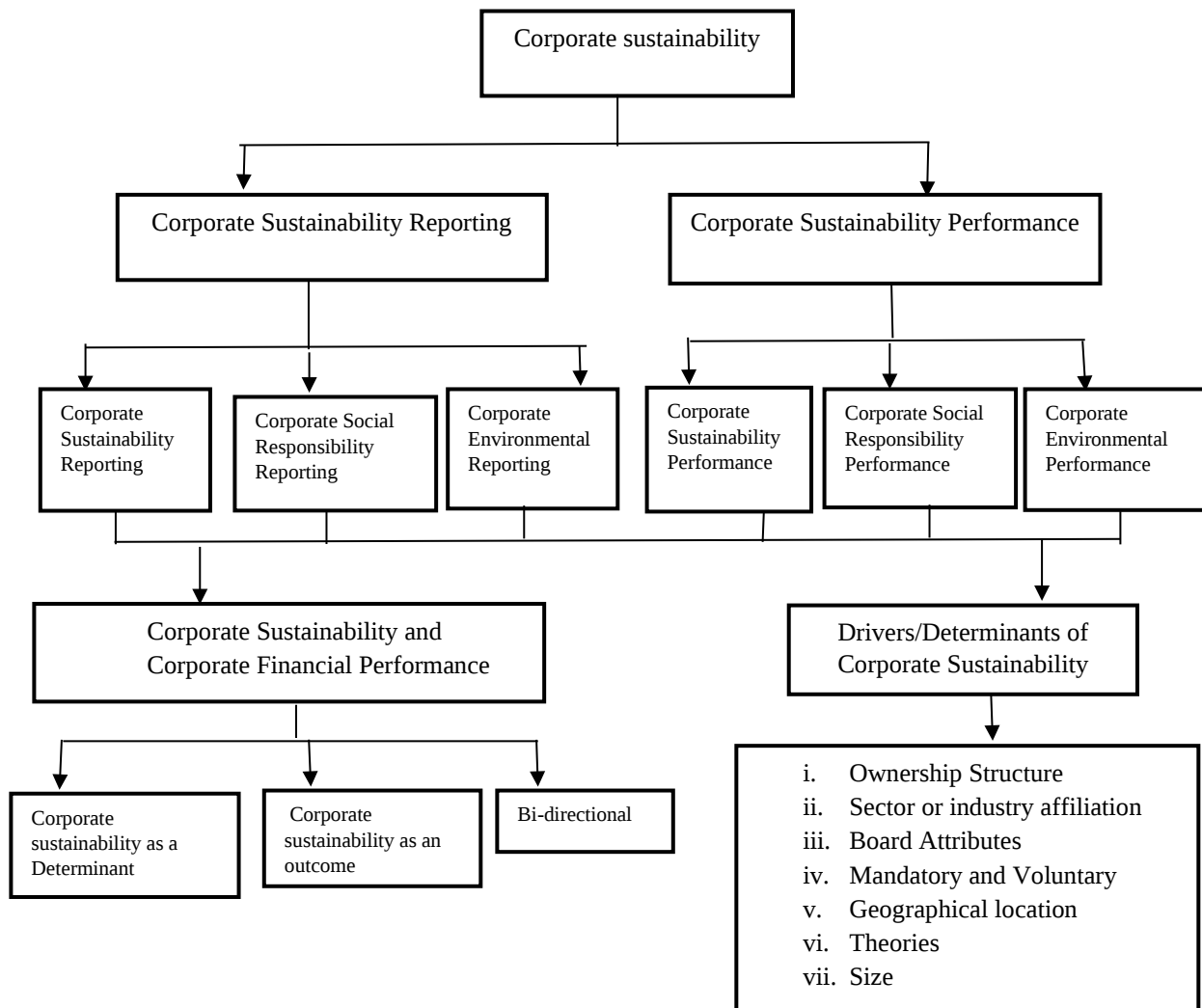
- i. Ownership structure and corporate sustainability.
- ii. Sector or industry affiliation and corporate sustainability.

- iii. Board attributes and corporate sustainability.
- iv. Mandatory and voluntary corporate sustainability.
- v. Geographical location and corporate Sustainability.
- vi. Theories and corporate sustainability.
- vii. Size and corporate sustainability.

Under each of the above themes, available literature in the context of corporate SR and performance is discussed.

The following figure (Figure 2.1) classifies studies based on the broad themes identified and the use of synonymous terms related to SR and performance.

Figure 2. 1: Broad themes identified in the literature on corporate sustainability



(Source: Authors' compilation based on the literature reviewed)

2.5.3 Corporate sustainability and corporate financial performance

The firms' involvement in sustainability disclosures will depend upon a cost-benefit analysis, which should consider the demand for such information from the stakeholders (McWilliams & Siegel, 2001). The stakeholder pressure and importance (Perrini et al., 2007) can influence sustainability reports' extent and transparency (Fernandez-Feijoo et al., 2014). Therefore, studies in this area are inclined to investigate how these relationships affect SR. "Doing good and doing well" (Alshehhi et al., 2018; Margolis et al., 2007) have been questions of interest for an extended period in the corporate world. Most of the research focuses on the relationship between corporate SR and CFP since financial performance will take the firm closer to its objective of profit maximisation.

The relationship between corporate sustainability and CFP has been a topic of research for many studies right from the 1970's (Roberts, 1992). The extensive research on this relationship is based on an economic view wherein the firms try to establish a business case for CSR (Scherer & Palazzo, 2011). With the maximisation of profit as the main objective for the firm, social and environmental responsibilities will be assumed if they contribute to the firm's long-term value. Engagement in such sustainability activities and reporting on the same is also subject to the cost of such activities and the benefits derived from such disclosures. (McWilliams & Siegel, 2001).

Another rationale for studies on this relationship is that investment in sustainability activities and reporting on the same will be positively related to adequate financial resources (Baldini et al., 2018; Julian & Ofori-dankwa, 2013). Firms with financial limitations have a weak CSR performance (Leong & Yang, 2021) and, consequently, fewer disclosures. However, contradictory results have also shown that slack resources negatively influence companies' sustainability and social performance (Julian & Ofori-dankwa, 2013).

The studies linking social disclosures with economic performance need to be examined in terms of 'stakeholder pressure, strategic posture and firms past and present financial performance'(Ullman, 1985).

The philosophy of 'profitable is social' and 'social is profitable' emanating from 'good ethics is good business' (Van Beurden & Gössling, 2008) highlights the interdependence

between sustainability and financial performance, initiating the interest in bidirectional research.

The measures used for measuring CFP in different studies can be classified into two:

- a. Accounting Measures
- b. Market-Based measures.

Most studies examining the CFP relationship have used measures falling into these categories (Margolis et al., 2007).

Accounting measures can be considered as past and short-term performance measures but need more objectivity. In contrast, market measures indicate the potential future financial performance over a more extended period and have the limitation of being influenced by factors outside the purview of a firm's operations (Platonova et al., 2018). Hence, accounting measures tend to show a stronger relationship with social performance (Orlitzky et al., 2003) and explain social and sustainability-related performance better than market-based measures (McGuire et al., 1988).

Accounting-based measures used prominently in the earlier studies included Return on Assets (Aupperle, 1985; Ching et al., 2017; Cho et al., 2019; Drempetic et al., 2020; Rodriguez-Fernandez, 2016), Return on Equity (Chen et al., 2018; Ching et al., 2017; Mohammadi et al., 2018) Profit margin (Ching et al., 2017; Dilling, 2010), profits after and before taxes (Das & Bhunia, 2015; Kansal et al., 2014) and different measures of sales (Carp et al., 2019; Waddock & Graves, 1997)) to represent the CFP.

Different measures based on debt have been used to represent risk or leverage (Giannarakis, 2014; McGuire et al., 1988; Mohammadi et al., 2018).

In the case of market-based measures, market value (Loh et al., 2017; Uwuigbe et al., 2018), market capitalisation (Brammer et al., 2006; Dilling, 2010; Quéré et al., 2018) Price to Book value ratio (Carp et al., 2019; Ching et al., 2017; Laskar, 2018; Nair et al., 2019) and Tobin's Q (Carp et al., 2019; Chen et al., 2018; Ghosh, 2013; Jadiyappa et al., 2019; Rodriguez-Fernandez, 2016) can be seen as the most popular measures of a firm's market performance. Alpha and Beta indices (Kansal et al., 2014; McGuire et al., 1988) have been used to measure market risk.

The studies on the relationship between corporate sustainability and CFP can be grouped into three:

- (a) Corporate Sustainability as a determinant of CFP based on "doing Good."
- (b) Corporate Sustainability as an outcome of CFP based on "slack resources theory."
- (c) Bi-directional studies that examine the cyclical relationships between the two sets of variables, one leading to another, the "virtuous circle" relationship.

The results of such studies can be grouped into the following possibilities (Ching et al., 2017; Horobet & Belascu, 2012):

- (a) Unilateral causality (Sustainability performance is the determinant) – sustainability performance causes financial performance,
- (b) Unilateral causality (Sustainability performance is the outcome - financial performance causes social performance,
- (c) Bilateral causality (Sustainability performance is the determinant as well as an outcome) - social performance causes financial performance and financial performance causes social performance, and
- (d) No causal relationship.

Studies have reported diverse, inconsistent (Burhan & Rahmanti, 2012), and elusive results (Alshehhi et al., 2018) in positive, negative, and sometimes no relationship. In general, research indicates an overall positive relationship between the two, whether sustainability is viewed as a determinant or an outcome of financial performance (Alshehhi et al., 2018; Busch & Friede, 2018; Margolis & Walsh, 2003; Orlitzky et al., 2003).

To a great extent, the stakeholder theory can explain the positive relationship between social and SR and financial performance (Platonova et al., 2018). The reason is that satisfying a diverse set of stakeholders tends to improve management efficiency, thus resulting in better returns from the stakeholders. Similarly, the negative relationship can be attributed to the competitive disadvantage due to the additional costs of CSR (Platonova et al., 2018).

The neutral relationship is due to the multiplicity of factors that govern the relationship between these two parameters; hence, it does not reflect a direct linear relationship (Waddock & Graves, 1997). The inconclusiveness in the results of the investigation of the relationship between the two has also been owed to the limitation of methods and selection of variables (Orlitzky et al., 2003; Van Beurden & Gössling, 2008).

Bi-directional studies seek evidence for a cyclical relationship between CSR (Bhattacharyya & Rahman, 2019; McGuire et al., 1988b; Quéré et al., 2018; Waddock & Graves, 1997) or SR (Rodriguez-Fernandez, 2016; Uwuigbe et al., 2018) and CFP. Studies from this category find evidence of a bidirectional virtuous circle relationship, wherein good financial performance leads to better CSR (Bhattacharyya & Rahman, 2019; Busch & Friede, 2018; McGuire et al., 1988b; Orlitzky et al., 2003) or SR (Quéré et al., 2018) and the stakeholders reward better CSR and SR in turn in terms of improved financial performance.

2.5.3. i. Corporate sustainability as a determinant of corporate financial performance, i.e. it is based on "doing good."

a. Corporate SR as a determinant of CFP

Firms with higher levels of SR are rewarded in terms of higher profitability in Romania (Oncioiu et al., 2020), (Carp et al., 2019) as well as globally (Ameer & Othman, 2012) (Ameer & Othman, 2012).

The extent of SR was found to be having a positive impact on the shareholder value of firms in Singapore (Loh et al., 2017), Iran (Mohammadi et al., 2018), Indonesia (Laskar, 2018), India (Laskar & Maji, 2016), Indonesia (Bienert et al., 2015). The positive impact of SR on financial performance is irrespective of whether such reporting is done on an integrated or standalone basis (Carp et al., 2019). However, SR negatively influenced the firm's market value share in Germany (Nguyen, 2020).

As seen from the above results, the positive impact of SR on financial performance is persistent across countries and whether financial performance is measured by accounting-based or market-based measures (Goel & Misra, 2017).

Issues raised about the content and the coverage of SR (Sahay, 2004; Thorsteinsdottir et al., 2015) have also led to an interest in the quality of SR. Regulatory agencies like the stock

exchanges contribute to improving SR quality (Carp et al., 2019). Though it is a lesser-researched parameter (Fifka, 2012), it is influential in improving future income generation opportunities (Carp et al., 2019) and shareholder value (Loh et al., 2017) (Laskar & Maji, 2016).

SR not only contributes to improved financial performance but also contributes to sustaining such improvements (Ameer & Othman, 2012) and effective performance (Wang, 2017).

The impact of SR, as proxied by the inclusion in the DJSI, was stronger on stock prices than traditional accounting measures (Lourenço et al., 2012). Companies with third-party recognition for SR in the form of SR awards enjoy better financial performance (Sutopo et al., 2018). However, studies also claim that SR does not impact financial performance, as represented by accounting or market-based measures in Brazil (Ching et al., 2017).

b. CSR reporting as a determinant of CFP

CSR reporting has positively impacted profitability in France (Nekhili et al., 2017) and Taiwan (Ting, 2021). Reporting on social responsibility issues was also rewarding in terms of improved share market performance in France (Nekhili et al., 2017) and Taiwan (Ting, 2021).

In a cross-country study, voluntary social disclosures were more influential in improving the company's valuation in the share market (Cahan, 2016).

The mandatory CSR disclosure had a positive change in firm behaviour, which resulted in the generation of positive externalities like CSR spending and reduced pollution but at the cost of profitability, which declined (Chen et al., 2018).

However, the concern for society disclosed by companies did not show any relationship with CFP (Aupperle, 1985).

c. Corporate environmental reporting as a determinant of CFP

Mandated and voluntary environmental reporting positively influences CFP (Wu & Li, 2023) by offering operational and strategic benefits to the reporting companies (Blanco et al., 2017). However, the failure to establish a relationship between corporate environmental reports and financial performance contributed to the inconclusiveness of sustainability and financial performance (Luo et al., 2013).

Kim & Lyon (2011) find that environmental disclosures will improve the financial performance of companies when there is external pressure, like the ratification of international agreements like the Kyoto Protocol.

d. Corporate sustainability performance as a determinant of CFP

Sustainability performance leads to improved financial performance in India (Ghosh, 2013; Jizi, 2017).

Sustainability performance improves CFP and is persistent across countries, whether measured by accounting-based or market-based measures (Arayssi et al., 2016; Ghosh, 2013).

e. CSR performance as a determinant of CFP

Concerning CSR performance, studies have used proxies like the CSR ratings and indices by third parties and self-constructed ones. A limited number of studies have used objective measures like CSR spending since the guidelines in most countries concern disclosures. With the CSR mandate in India, studies analysing the CSR performance using the CSR spending measure have increased, which we discuss separately in the section on India.

CSR performance positively impacts the profitability of companies in China (Yang et al., 2019) and Korea (Cho et al., 2019). A positive impact of social performance on market valuation was reported in Korea (Cho et al., 2019).

However, in the Indian context, such positive influence of CSR spending on market valuation was more pronounced in the case of mandatory CSR spending companies compared to companies that had been spending voluntarily before the mandatory regime (Jادیyappa et al., 2019).

A negative impact of corporate social performance on profitability (Aggarwal, 2013) and share market performance was found in India (Aswani et al., 2021). Similar results were also found in the United Kingdom, where companies with good social performance showed lower returns, while firms with poor social performance outperformed the share market (Brammer et al., 2006).

f. Corporate environmental performance as a determinant of CFP

Corporate environment and financial performance are positively related (Sharma et al., 2019). Environment-related investment increases financial burden in the short run, but such investment

improves resource utilisation efficiency, improving economic performance in the long run (Wu & Li, 2023).

2.5.3. ii. Corporate sustainability as an outcome of corporate financial performance, i.e. based on "slack resources theory."

a. Corporate SR as an outcome of CFP.

Profitability was found to influence sustainability disclosure positively in Sweden (Tagesson et al., 2009), Vietnam (Nguyen & Nguyen, 2020), and India (Kansal et al., 2014). (Drempetic et al., 2020). CFP was also reported as a significant determinant of SR in cross-country (Bae et al., 2018) and cross-continent (Girón et al., 2020) studies. Studies also report that profitability harms the decision to report on sustainability (Baldini et al., 2018; Bhatia & Tuli, 2017; Dilling, 2010). In a cross-country study of Fortune 500 companies, profitability did not influence SR (Fernandez-Feijoo et al., 2014).

In the case of market-based measures, stock market performance was found to have a positive (Drempetic et al., 2020; Giannarakis, 2014; Wang, 2017) as well as a negative (Baldini et al., 2018) influence on SR.

b. CSR Reporting as an outcome of CFP

In the case of the US, profits represented by return on equity showed no impact on CSR disclosures (Cowen et al., 1987). However, the return on equity (Darus et al., 2016) and profit after taxes (Kansal et al., 2014) influenced the CSR information disclosed positively in the case of Malaysia and India, respectively.

c. Corporate environmental reporting as an outcome of CFP

Though studies examining the impact of financial performance on corporate environmental reporting could not be traced, mandated and voluntary corporate environmental disclosures are related to CFP (Wu & Li, 2023).

d. Corporate sustainability performance as an outcome of CFP

CFP represented by stock market performance was found to influence corporate SR positively (Drempetic et al., 2020; Giannarakis, 2014; Wang, 2017). However, studies also report that CFP negatively influences SR (Baldini et al., 2018).

e. CSR performance as an outcome of CFP

CFP has a positive relationship with CSR performance. Financial constraints thus limit the company's CSR engagement (Leong & Yang, 2021). However, a negative relationship between the two is also reported, which can be attributed to different factors (Julian & Ofori-dankwa, 2013; Otero-González et al., 2021). Such differences in the relationships may arise due to the institutional differences among the companies from developing and developed countries (Julian & Ofori-dankwa, 2013). The negative influence of financial performance on corporate social performance is also attributed to 'managerial opportunism' (Otero-González et al., 2021). Managerial opportunism is when managers try to increase their private profits in periods of high profitability by reducing the CSR. In contrast, in times of low profits, they increase social engagement to justify weak financial performance (Otero-González et al., 2021).

f. Corporate environmental performance as an outcome of CFP

Financial performance, in general, has a positive relationship with environmental performance (Haider et al., 2019; Pradhan, 2018). Higher profits indicate the ability of companies to invest in new and innovative technologies that can result in improved environmental performance (Sahu & Narayanan, 2011).

2.5.3. iii. Bi-directional studies on the cyclical relationship between the two sets of variables, one leading to another, the "virtuous circle" relationship

Among the bidirectional studies, a virtuous circle relationship is established, showing a cyclical relationship between corporate social and financial performance (Bhattacharyya & Rahman, 2019; Busch & Friede, 2018; Orlitzky et al., 2003; Waddock & Graves, 1997). A bi-directional positive relationship between SR and financial performance is also reported. However, some of such studies could only establish a unilateral causality. Corporate social performance was found to be dependent on financial performance (McGuire et al., 1988; Quéré et al., 2018), conforming to the slack resources theory. SR was found to have positively influenced economic performance (Uwuigbe et al., 2018), establishing the viewpoint that good ethics can result in good business.

Corporate social and financial performance is positively correlated, bidirectional, and simultaneous (Orlitzky et al., 2003; Waddock & Graves, 1997).

The reasons for non-conformity in the results of the research studies in the area can be attributed to incompleteness and simplistic methodologies (Aupperle, 1985), stakeholder mismatching, sampling errors, measurement errors (Orlitzky et al., 2003), variations in methods and measurement of variables used to represent sustainability and financial performance (Alshehhi et al., 2018).

SR approaches will differ due to the various stakeholder groups they cater to (Platonova et al., 2018). Hence, studies have shown different results depending on the stakeholder influence in the relevant context.

An increase in SR marked by increasing sustainability reports prepared may not be a good indicator for evaluating SR (Vormedal & Ruud, 2009). Evaluation has to be based on the quality of SR and whether such reporting gives information that makes their reports comparable to those of other companies. Objectivity and uniformity need quantification of sustainability-related information. Hence, such data has to be made available by the companies to improve the quality. The countries scoring high based on the number of reports being filed might show different results if evaluated based on quality, as (Vormedal & Ruud, 2009) found in the case of Norwegian companies.

Certain factors must be considered while studying the corporate social and financial performance relationship:

- i. Differences in stakeholder pressure sometimes might be based on industry and country (Cowen et al., 1987; McWilliams & Siegel, 2001).
- ii. Cost-benefit analysis, wherein CSP goes beyond a point, may negatively impact CFP. Based on stakeholders' demand and corporations' supply (Bosch-Badia et al., 2017), managers should conduct a cost-benefit analysis to decide how much can be spent on CSR attributes (McWilliams & Siegel, 2001).
- iii. Firm visibility in terms of pollution or size or profitability, resource availability in terms of profitability or size, and scale of operations in terms of size or profits in different combinations can result in varying motivation levels for a firm's performance in sustainability areas (Udayasankar, 2008).

iv. Differences in the results may also emerge from different SR measures or performance. While some consider only whether they are reporting on a particular indicator, others have considered whether quantitative information related to a specific indicator is provided to assess the quality of reporting.

A failure to consider these factors may result in inconsistent findings.

2.5.4 Others

2.5.4. i. Ownership structure

Studies have considered different types of ownership: government v/s family-owned, dispersed v/s closely held or concentrated ownership firms, insider v/s outsider systems, foreign v/s domestic firms, and also firms with institutional ownership and director ownership (Salvioni et al., 2016). Different categories of owners exert different pressure levels, and some are more powerful than others. Therefore, the owners' attitude towards sustainability is a deciding factor.

a. Corporate SR

Foreign and institutional ownership positively correlates with SR in South Asian countries like Bangladesh, Pakistan, and India (Bae et al., 2018) and Vietnam (Nguyen & Nguyen, 2020). However, director ownership negatively influenced SR (Bae et al., 2018).

The quality of reporting strengthens the positive influence of SR on firm value. However, the positive relationship was not influenced by ownership or the polluting status of companies (Loh et al., 2017).

b. Corporate social reporting

Based on the motive of welfare and accountability, government-owned companies are found to engage in a higher level of corporate social reporting (Darus et al., 2013).

c. Corporate environmental reporting

Ownership as a governance aspect may be expected to determine environmental reporting (Walls et al., 2012). However, in the case of countries like Sweden, Norway, Spain, and Finland, ownership structure was not found to be an influential determinant in environmental reporting (Halme & Huse, 1997).

However, institutional and foreign ownership positively correlated with environmental reporting in developing countries like India, Bangladesh, and Pakistan (Bae et al., 2018; Masud et al., 2018; Matta, 2017). Director ownership (Masud et al., 2018) and promoter ownership were found to have negatively influenced environmental reporting (Fahad & Nidheesh, 2021).

State-owned companies report environmental information voluntarily, possibly being guided by the objective of social welfare, accountability, and transparency (Zeng et al., 2012).

d. Corporate sustainability performance

Foreign ownership had a positive relationship with sustainability performance, while promoters' ownership had a negative impact (Fahad & Nidheesh, 2021). Foreign companies may be operating at a multinational level and, therefore, are large, have funds to invest in social activities, and are likely to follow the regulations. They may also invest in social projects to avoid opposition from the local people and regulators. External factors such as visibility, media exposure, and stakeholder pressure are essential determinants of sustainability performance across studies (Hahn & Kühnen, 2013). Foreign companies are affected by all these factors to a greater extent as compared to domestic firms and hence perform better on sustainability-related issues in countries like Bangladesh, Pakistan (Bae et al., 2018), Malaysia (Darus et al., 2013, 2016), India (Masud et al., 2018).

e. Corporate social performance

Government ownership is a significant determinant of corporate social performance in China (Chen et al., 2018) and India (Mukherjee et al., 2018).

2.5.4. ii. Sector or industry affiliation

Studies found that based on the industry or sector affiliation, sustainability practices will differ, wherein companies belonging to a particular industry tend to follow similar sustainability practices (Giannarakis, 2014), and such uniformity or institutionalisation based on the industry may be followed beyond national boundaries (Caesaria & Basuki, 2017). Such differences arise due to stakeholder pressure or peer pressure, which may be industry-specific.

In the literature on sustainability reviewed, authors have commonly used two bases for the classification of firms into sectors:

1. High-impact sectors or polluting and non-polluting or less-polluting sectors.
2. Classification based on the industry affiliation depending on the product manufactured or services rendered. The National Industry Classification System (NICS) and the Global Industry Classification Standard (GICS) have been used to classify industries. Authors have tried to investigate the behaviour of such

sectors in a specific context, too like real estate (Bienert et al., 2015), forestry (Socoliuc et al., 2020), mining (Azapagic & Perdan, 2010), as well as low-impact ones like the financial sector (Weber et al., 2014).

a. Corporate sustainability reporting

SR is increasingly being adopted by companies from all sectors, including healthcare, information technology, and finance (Giannarakis, 2014). However, companies from the high-impact or polluting sectors have been more active in SR (Dilling, 2010; Halme & Huse, 1997; Kolk, 2004; Loh et al., 2017; Mohammadi et al., 2018; Raucci & Tarquinio, 2015). Many manufacturing companies report on sustainability and are positively inclined to adopt external assurance (Girón et al., 2020). SR by the heavy impact industries will help them prove their legitimacy by being transparent about what they do for society and the environment (Mohammadi et al., 2018). Such legitimising strategies also help firms benefit from improved market value (Bienert et al., 2015).

b. CSR reporting

The literature points out sector-level differences in reporting on the social dimension of sustainability (Cowen et al., 1987; Nekhili et al., 2017). Based on industry, the reported social responsibility indicators differ (Cowen et al., 1987).

c. Corporate environmental reporting

Studies have found that polluting industries voluntarily report more on environmental issues (Ben-Amar et al., 2017; Zeng et al., 2012). Companies from polluting industries provide more information on environmental issues (Roberts, 1992), whereas low-impact sectors, like finance, are likely to report less on CSR (Weber et al., 2014). Such self-motivated environmental reporting may be driven by the objective of signalling legitimacy to the stakeholders (Behram, 2015; Clarkson et al., 2008).

However, results change in country contexts, as in Turkey, the medium-impact sectors were found to disclose more about the environment than the high- and low-impact sectors (Behram, 2015). Thus, stakeholder pressure decides the extent to which legitimacy theory will hold. Hence, companies from developing countries or regions with low stakeholder or regulatory pressure may not adopt corporate environmental reporting (Behram, 2015).

d. Corporate social performance

Companies from the manufacturing sector are found to have better corporate social performance (Waddock & Graves, 1997). Based on the polluting status, low-impact sectors like finance are reported to have weak CSR performance (Weber et al., 2014).

2.5.4. iii. Board attributes

Firms faring well on sustainability share common values based on board vision rather than the ownership structure (Salvioni et al., 2016). Board diversity increases a firm's resources, knowledge, and skills, enhances human capital (Terjesen et al., 2009), and contributes to sustainability.

a. Corporate sustainability reporting

The extent of SR (Nguyen, 2020), as well as the quality of sustainability reports, is influenced positively by board independence (Hu & Loh, 2018) and board size (Hu & Loh, 2018).

Firms with higher women representation on boards disclose more on these sustainability-related parameters (Anazonwu et al., 2018; Girón et al., 2020).

b. CSR reporting

Board size positively contributes to corporate social reporting (Darus et al., 2016). Similarly, board attributes like board meetings and chief executive officer tenure also improve disclosures relating to CSR (Nekhili et al., 2017).

In composition, independent and women directors have positively influenced social reporting. Board independence influences corporate social reporting (Nekhili et al., 2017).

Women's representation on board was found to be improving reporting on CSR in Malaysia (Darus et al., 2016). Such representation was also found to strengthen the impact of CSR on financial performance, especially market performance, in the French context (Arayssi et al., 2016; Nekhili et al., 2017).

c. Corporate environmental reporting

Women's representation on board was found to be improving reporting of environment-related issues (Ben-Amar et al., 2017; Walls et al., 2012), especially the ones related to climate change in the case of Canadian firms (Charumathi & Rahman, 2019; Tingbani et al., 2020). A critical mass of women directors has also contributed positively to environmental reporting (Charumathi & Rahman, 2019).

Board size (Bae et al., 2018; Walls et al., 2012) and board independence (Charumathi & Rahman, 2019; Masud et al., 2018) positively influence environmental reporting.

Among the other board attributes examined, the presence or absence of an environmental committee had no significant influence, possibly due to its advisory or compliance-based nature (Tingbani et al., 2020). Chief executive officer duality, though examined by many studies (Ben-Amar et al., 2017; Nekhili et al., 2017; Walls et al., 2012), was not found to be an influential factor in environmental reporting except in the case of (Walls et al., 2012).

d. Corporate sustainability performance

Board size (Giannarakis, 2014), board independence (Hu & Loh, 2018), and women directors on the board (Arayssi et al., 2016; Jizi, 2017) positively influence sustainability performance represented by Environmental Social and Governance (ESG) scores or sustainability performance scores (Jizi, 2017).

e. CSR performance

Board independence (Al-Mamun & Seamer, 2021) and women directors are found to influence CSR performance positively (Tingbani et al., 2020). Such positive influence may be the ability of women directors to contribute to social issues better and the position of the independent directors to consider the social good rather than restricting to profit maximisation.

2.5.4. iv. Mandatory and voluntary

Mandates bring about awareness (GoI, 2019; Herremans & Nazari, 2016) and change the attitude of businesses (Chen et al., 2018). A mandate on SR and CSR can create pressure for other countries to follow (Waagstein, 2011) and contribute to poverty reduction in developing countries (Prieto-Carrón et al., 2006; Visser & Tolhurst, 2017) provided they are addressing the relevant national challenges (Visser & Tolhurst, 2017). It creates an opportunity for the corporate sector to contribute to the country's development and address the social and environmental challenges (Gatti et al., 2019).

Mandates not only increase corporate SR (Gatti et al., 2019; Kolk, 2004) but also improve the quality of such reporting and contribute to standardising the diverse SR practices

among countries (Gnanaweera & Kunori, 2018), thus bringing about uniformity in such reporting (Gatti et al., 2019; Kolk, 2004). Mandates on sustainability widen the stakeholder base of the company beyond the shareholders (Prasad, 2018). The institutional values will govern the positive impact of a mandate (Chen et al., 2018), which decides the institutional response to the stakeholder demands for sustainability-related disclosures (Herremans & Nazari, 2016).

There is an increasing trend to make SR mandatory in some form or another. Countries like Finland, Sweden, Belgium, Netherlands, Germany, Norway, Denmark and India (Dilling, 2010), the European Union (Makarenko & Sirkovska, 2017), Malaysia, China, Denmark, and Sweden (Chen et al., 2018) among others have a mandate in this regard in some form or the other.

The need for mandatory measures on CSR has been spelt out by authors (Chatterjee & Mitra, 2017). Voluntary CSR can help address social issues that the government has yet to address (Visser & Tolhurst, 2017) due to the immense pressure on state systems, especially in developing countries. Similarly, a mandate can give legal recognition to CSR and prevent the companies from deriving undue benefits (Waagstein, 2011) at the cost of society and the environment.

Regulations and incentives in the form of awards can be important motivators for SR (Vormedal & Ruud, 2009) and CSR reporting (Kansal et al., 2014).

Mandates did not significantly influence SR in the case of Norway (Vormedal & Ruud, 2009). However, mandatory SR in the form of BRR positively influenced environmental reporting in India (Charumathi & Rahman, 2019).

Mandates have led to an increased need for more effective disclosures on CSR in Denmark (Holst, 2011). In the case of China, however, the CSR disclosure mandate led to increased CSR expenditure and improved environmental performance but reduced profitability (Chen et al., 2018).

The CSR mandate in India has mandatory provisions for CSR spending and reporting in the form of an annual CSR report to be included in the yearly report (GoI, 2013). However, most studies on mandatory CSR in India have focused on the impact of the regulation on the

CSR performance measured by CSR spending. The mandate influenced CSR performance positively, increasing CSR spending (Bansal et al., 2017; Dharmapala & Khanna, 2018; Jadiyappa et al., 2019).

However, such mandatory pressure may affect the CSR performance and reporting by companies who have been spending on CSR or reporting voluntarily in the absence of a mandate (Bansal, 2021; Dharmapala & Khanna, 2018; Gatti et al., 2019; Guha, 2020; Mukherjee et al., 2018; Rajgopal & Tantri, 2022). Voluntary CSR helps in the differentiation of socially responsible firms from others. The loss of signalling value due to the mandate may reduce the intrinsic motivation for companies to spend on CSR, thus reducing CSR performance (Rajgopal & Tantri, 2022).

Performance and reporting are related. Positive information, like better sustainability, CSR, or environmental performance, can motivate companies to adopt voluntary reporting (Clarkson et al., 2008; Kim & Lyon, 2011). A reduction in performance may lead to reduced reporting.

Mandates may improve environmental reporting due to the motivation to cut regulatory costs (Balakrishnan & Rahman, 2022; Zeng et al., 2012). In Chinese companies, however, the mandate negatively impacted environmental reporting (Zeng et al., 2012).

Environmental regulations like the Environmental Conservation Act in India (Sharma et al., 2019) and Perform Achieve and Trade (PAT) (Misra, 2019; Oak & Bansal, 2022; Sharma et al., 2019) have positively impacted environmental performance. In the case of target-based schemes like the PAT, challenges like the need for more clarity and low targets may slow down the scheme's success in subsequent cycles (Sarangi & Taghizadeh-Hesary, 2020).

2.5.4. v. *Geographical location*

Most studies focus on a particular nation (Sideri, 2021). Studies have also considered countries belonging to a region like the European Union or emerging or developing economies and compared SR among countries from developed and developing economies.

The results of these studies point out that there is a difference in the country or region-wise approaches and practices of SR (Barkemeyer et al., 2015; Kolk, 2004; Perrini et al., 2007), and hence, the frameworks have to be aligned to such differences (Metaxas & Tsavdaridou, 2010). Such differences may arise due to the differences in stakeholder pressure (Perrini et al., 2007), national regulations, the relevant sociocultural and institutional factors, and the stage of development (Barkemeyer et al., 2015). The adoption of SR needs to indicate the level of development (Roberts, 1992).

Different surveys and reports show an increasing number of sustainability reports published in developing countries. Though SR is more prevalent in developed nations (Alshehhi et al., 2018), developing nations from Asia (Barkemeyer et al., 2015) disclose more about sustainability as compared to developed countries (Bhatia & Tuli, 2018).

Within Asia, there is divergence regarding SR and studies on the same (Kumar & Das, 2018). There is an increasing number of studies from countries like Malaysia (Al-Mamun & Seamer, 2021; Darus et al., 2013, 2016), India (Aggarwal, 2013; Dharmapala & Khanna, 2018; Fahad & Rahman, 2020; Goel & Misra, 2017; Jain & Winner, 2016; Nair et al., 2019; Sarkar & Selarka, 2021; Singh et al., 2021), Indonesia (Al-Mamun & Seamer, 2021; Burhan & Rahmanti, 2012; Dias & Basuki, 2018; Widhoyoko, 2021) but such studies are scarce in other developing countries like Bangladesh (Bae et al., 2018; Masud et al., 2018) as well as developed economies like Japan (Gnanaweera & Kunori, 2018; Laskar, 2019). Authors suggest that the difference in SR among countries may arise due to resource constraints (Luo et al., 2013).

2.5.4. vi. Theories

Theories of firms justify their existence and explain how corporations behave (Hahn & Kühnen, 2013). Applying these theories to SR can explain the reasons for similarities or differences between the SR practices of firms (Herold, 2018). Sustainability is a multi-level construct (Venkataraman, 2019); hence, a single theory may not be able to explain corporate SR, which needs a holistic approach while using these theories.

Stakeholder, Legitimacy, Institutional, and Signalling theories are widely discussed in SR literature (Brown & Forster, 2013).

The Friedman doctrine emerging from the shareholder theory assumes that businesses have only one responsibility, which is shareholder value maximisation as the only responsibility of businesses (Friedman, 2007). Hence, the shareholders are the only group accountable to a company. A business organisation is a group of individuals governed by specific systems and procedures, including employees, owners, directors, and managers. While working for the common goal of profit and wealth maximisation, it will be affected by other parts of the more extensive system, such as the market, government, regulators, and communities in which they operate. All these groups are the stakeholders in a business by the stake they hold (Terjesen et al., 2009). Sustainability has multiple dimensions in the form of economic, social, and environmental perspectives, and it caters to different groups of stakeholders with varied interests (Chen et al., 2018). Therefore, the shareholder primacy advocated in the Friedman doctrine is criticised from the ethical perspective, from the stakeholder theory perspective, which assumes corporate responsibility to multiple stakeholders (Mansell, 2013).

As the institutional theory suggests, the pressure from different stakeholders will decide the company's response to sustainability and SR. These pressures can act as motivators, determinants, or deterrents for corporate SR (Fifka, 2013). In an era of socially aware stakeholders, profits arise out of the socially responsible behaviour of firms (Aguado et al., 2015).

A rational response to negative externalities, even involving cost, will contribute to the firms' objective of profit maximisation (Narver, 1971). Institutional and legitimacy theory explain the relationship between corporate sustainability and financial performance (van der Laan, 2009). Self-responsive actions in the form of CSR initiatives fulfill the accountability to the stakeholder groups, and communication reporting on the same will reduce information asymmetry, leading to an increase in the benefits and a reduction in the associated risks, thus finding a basis for stakeholders as well the signalling theory (Lys et al., 2015).

Though related stakeholder and legitimacy theories have different implications, legitimacy builds the rationale for SR while it is influenced by stakeholder and institutional pressures for such disclosures and information (Herold, 2018). As per the stakeholder theory, companies adopt SR to fulfill stakeholders' demands or expectations. At the same time, legitimacy theory states that corporations adopt such reporting to convince the stakeholders that

their functioning is legitimate (Boeva et al., 2017). The need to convince the stakeholders about the legitimacy of a company's operations stems from the social contract theory, which requires companies to follow the rules, regulations, and values of the society in which they operate (Fedorova & Martynova, 2021). Thus, legitimacy and institutional theory explain voluntary disclosures, whereas stakeholder theory explains mandated disclosures better (van der Laan, 2009; Zeng et al., 2012).

Legitimacy is a perception that the company's operations are acceptable; SR helps companies signal the legitimacy of their operations to society (Fedorova & Martynova, 2021). Polluting industries disclose more about the environment, thus signalling legitimacy (Clarkson et al., 2008). Any communication from the business, including SR, can create or harm the perception of legitimacy (Hahn & Lülfs, 2014). Therefore, companies avoid reporting negative impacts to reduce the risk to organisational legitimacy (Hahn & Lülfs, 2014). However, such selective reporting defeats the purpose of SR since it involves reporting on the company's economic, social, and environmental impacts, whether positive or negative (GRI, 2016).

Companies from the same sector, country, or region will be subject to similar stakeholder and regulatory pressures to establish their legitimacy, resulting in similar institutional responses and thus leading to similar SR practices. Hence, institutional, legitimacy, and stakeholder theories are related and can provide a strong theoretical foundation to examine influences on SR (Herold, 2018). Theoretical background can help explain the differences in the results reported by studies on the relationship between financial and sustainability performance (Ullmann, 1985).

According to agency theory, voluntary disclosure by companies on social and environmental aspects is a medium to reduce agency costs or prevent future agency costs, which may arise from legislation and regulation (Loh et al., 2017). The availability of resources, financial and human, may influence sustainability performance and reporting in line with the resource dependence theory (Terjesen et al., 2009; Udayasankar, 2008). Thus, 'financially constrained firms' are characterised by weak CSR (Leong & Yang, 2021). In contrast, larger companies possess more knowledge, capital, and expertise to facilitate the adoption of SR (Hörisch et al., 2015). The differences in the environmental reporting between developed and developing countries (Luo et al., 2013) can be explained by the differences in their financial

resources (Leong & Yang, 2021). Hence, larger, more profitable firms tend to produce more sustainability reports (Kansal et al., 2014). Similarly, though all organisations are expected to function legitimately, larger (Giannarakis, 2014), profitable, or polluting businesses will be under higher public scrutiny due to visibility (Ali et al., 2018). The high propensity among companies from the polluting sectors to report on sustainability is based on visibility, legitimacy, and institutional theories. Organisational image and reputation significantly impact the level and content of voluntary environmental disclosures due to legitimacy and visibility conditions (Wu & Li, 2023; Zeng et al., 2012).

According to the voluntary disclosure theory, companies will voluntarily disclose positive information that enhances their legitimacy (Hahn & Lülfs, 2014). Companies that disclose such positive information will indulge in more SR (Clarkson et al., 2008; Kim & Lyon, 2011).

2.5.4. vii. Size

SR is nascent and limited to larger companies than Small and Medium Enterprises (SMEs) (Makarenko & Sirkovska, 2017). In literature, size has been represented by total assets (Bhattacharyya & Rahman, 2019; Cho et al., 2019; Ghosh, 2013; Giannarakis, 2014; Orlitzky et al., 2003) sales (Ameer & Othman, 2012; Bhatia & Tuli, 2014; Uwuigbe et al., 2018), market capitalisation (Clarkson et al., 2008; Dilling, 2010) and number of employees (Tagesson et al., 2009).

Size is a determinant which has shown a positive relationship with sustainability performance (Drempetic et al., 2020; Giannarakis, 2014) consistently across countries irrespective of their development status (Hahn & Kühnen, 2013). The literature reviewed for this study affirms this. Larger companies have access to the knowledge, capital, and expertise resources that influence the adoption of sustainability management practices (Hörisch et al., 2015), thus building a rationale for reporting such positive actions. Larger companies also report more on environmental and social indicators due to legitimacy considerations.

Size was found to have a positive relationship with CSR strategies in Italy (Perrini et al., 2007), CSR spending in India (Bhattacharyya & Rahman, 2019), CSR disclosures in Malaysia (Darus et al., 2013), and environmental reporting in the United States (Cowen et al., 1987)

Size is also found to be an influential factor in the case of SR in the United Kingdom, Singapore (Hu & Loh, 2018), Japan (Gnanaweera & Kunori, 2018), India (Bhatia & Tuli, 2017), Vietnam (Nguyen & Nguyen, 2020), Singapore (Hu & Loh, 2018), Norway (Vormedal & Ruud, 2009), SR and quality of SR in Romania (Carp et al., 2019).

Literature reports size as an influential factor in the case of sustainability performance among Fortune 500 List (Giannarakis, 2014) India (Fahad & Nidheesh, 2021) cross-country perspective (Baldini et al., 2018).

The possible explanations for the strong positive relationship between size and different forms of corporate sustainability can be visibility (Charumathi, Rahman, 2019) (Kansal et al., 2014) (Udayasankar, 2008), resource availability (Kansal et al., 2014) (Udayasankar, 2008) and the 'structured' and 'formalised' approach by larger organisations (Crane et al., 2008).

Large-sized firms are not only the leaders in SR (Makarenko & Sirkovska, 2017) but also adopt new mediums like websites (Jain & Winner, 2016; Tagesson et al., 2009) for disclosing such information.

2.6 Sustainability Reporting and Sustainability Performance in India

India has a hybrid SR framework consisting of mandatory and voluntary options. Annual CSR report as specified by section 135 of the Companies Act, 2013 and the Business Responsibility Reports (BRR) and now the Business Responsibility and Sustainability Reporting (BRSR) as required to be prepared by the SEBI regulations form a part of the mandatory SR framework. However, the companies can also adopt the international SR frameworks, including GRI, CDP, ISO 14000, Communication on Progress by the UNGC, and the International Integrated Reporting Council (IIRC) Framework.

Indian companies adopted SR in the early 1990s under the GRI framework. However, the studies focussing on SR under a structured international framework are limited. GRI reports data was used by (Bae et al., 2018; Bhatia & Tuli, 2014). Studies have also used compliance with the GRI framework (Jain & Winner, 2016), and the GRI framework to analyse sustainability-related disclosures from other corporate reports (Goel & Misra, 2017; Laskar, 2019; Laskar & Maji, 2016). Others have used self-constructed SR indices (Kansal et al., 2014),

Bloomberg ESG Score (Fahad & Nidheesh, 2021), and S&P ESG index (Ghosh, 2013) to measure SR. At the national level, the government has issued SR guidelines in the form of National Voluntary Guidelines, BRR and now the BRSR. More studies need to be conducted to analyse these national frameworks. Even though BRR and BRSR are now mandatory for specified companies, we found only one study that used SR under BRR and found it to have positively influenced the environment-related disclosures among the companies (Charumathi & Rahman, 2019). The need for more literature on mandated SR in India may be due to the want of accuracy and clarity in the information reported in such reports (GoI, 2020), thus limiting its use for stakeholders' decision-making. The new framework, BRSR, allows companies to disclose sustainability-related data meaningfully and usefully (GoI, 2020), which may improve its use by stakeholders and researchers.

Among the BRIC nations, India had the highest sustainability disclosures (Bhatia & Tuli, 2018; Kumar & Das, 2018). However, the SR of companies differs primarily based on market capitalisation (Jain & Winner, 2016).

In the Indian context, most studies have focused on CSR. Especially after the mandate on CSR as per the Companies Act, 2013 studies have tried to investigate the impact of the mandate on the CSR performance represented by CSR spending by companies in India. Studies have found increased CSR spending due to the mandate (Bansal et al., 2017; Dharmapala & Khanna, 2018; Jادیappa et al., 2019). Such mandatory CSR has also influenced financial performance positively by improving profitability (Bhattacharyya & Rahman, 2019) and market returns (Jادیappa et al., 2019). The mandatory CSR reporting in the annual reports has improved financial transparency (Nair et al., 2019).

To improve corporate environmental reporting and performance, the government has introduced measures like the Environmental Conservation Act and market-based measures like the PAT scheme (Misra, 2019; Oak & Bansal, 2022; Sarangi & Taghizadeh-Hesary, 2020). Studies have examined the impact of such regulatory interventions on the energy efficiency and environmental performance of companies in India and found that they influence environmental performance positively (Misra, 2019; Oak & Bansal, 2022; Sharma et al., 2019).

The dynamic nature of the PAT scheme has shown positive results. However, challenges like the need for more clarity and low targets may slow down the scheme's success in subsequent cycles (Sarangi & Taghizadeh-Hesary, 2020).

2.7 Conclusion

The literature reviewed for this study includes studies covering the different aspects of sustainability. The studies in different contexts and countries have been reviewed. The studies have relied on different rankings and sustainability-related scores for companies. Though a majority of the studies have used secondary data from different databases like the Kinder, Lydenberg, and Domini (KLD), Compustat, Centre for Monitoring Indian Economy (CMIE), Bloomberg, Ethical Investment Research Service (EIRIS), and Thomas Reuters, there are studies which have relied on primary data collected from surveys of different corporate stakeholders. Earlier studies have primarily used content analysis to decide the sustainability performance of the companies. However, gradually, there has been a shift towards quantitative data methods like correlation and different types of regressions.

Studies relating to sustainability cover different aspects of sustainability performance and reporting. Considering sustainability's social and environmental parameters, literature on sustainability deals with social performance and reporting and environmental performance and reporting. Since governance forms a parameter of the ecological, social and governance framework of sustainability, literature has also explored the relationship of sustainability with such governance aspects, including board attributes and ownership structures.

The most explored relationship in sustainability-related literature is the link between corporate sustainability and financial performance. Such studies have explored sustainability as a determinant and outcome of economic performance and investigated the possibilities of a bidirectional relationship between the two. The results of such studies have found evidence of unidirectional and bi-directional causalities. Research generally suggests a positive relationship between sustainability and financial performance, influenced by other relevant factors like size, cultural norms, geographical differences, mandatory provisions, size, and governance.

Studies have tried to link the results with different theories. With many countries introducing mandatory provisions on various parameters of sustainability performance and reporting, literature has examined the influence of such regulations on sustainability parameters.

Having obtained an idea of the themes of sustainability covered in the previous literature and the research gap, the next step is to decide the course of the study based on the research questions and objectives finalised. From the different themes identified and discussed in this chapter, we include corporate SR, corporate social performance and corporate environmental performance as a part of our study. The next chapter, titled 'Materials and Methods', discusses the materials or the data used in the earlier studies and their respective sources. Based on the suitability and requirements of the study, it also describes the data and the sources used for this study. Based on the research objectives and data availability, it then elaborates on the methods used to answer the research questions and achieve the stated objectives.

Chapter 3

MATERIALS AND METHODS

This chapter describes the data sources, sample and methods used for data analysis. The study intends to examine the trends in sustainability reporting (SR) among the companies in India and the reasons for differences in company-wise reporting. Focusing on the individual non-financial indicators, it also explores the corporate social and environmental performance. Finally, the study examines how corporate social involvement contributes to handling sustainability challenges regarding sustainable development goals. This chapter provides an overview of the materials, sources and methods used in the earlier studies. It then describes sample selection, data sources, data used and the methods used for this study.

3.1 Sample

The study has used a sample of the BSE 500 group of companies. The selected sample was classified into two groups for analysis: BSE top 100 and BSE rest 400 companies from the BSE 500 companies. In the subsequent discussion, the top 100 companies, as per the BSE 100 index, are referred to as the BSE 100 companies. Similarly, the rest 400 from the BSE 500 are called the BSE rest 400.

These top 500 companies cover all major industries and broadly represent the Indian market (<https://www.asiaindex.co.in/indices/equity/sp-bse-500>). The BSE top 500 group of companies was selected as the sample since this group of companies accounted for more than 50% of the total expenditure on CSR in the country during the initial five years of implementation of the act (GoI, 2019). From this group of 500, the top BSE 100 have contributed more than 40% during the first five-year period. The balance is contributed by the BSE rest 400 companies. The annual contribution of BSE's top 100 ranges from 41 to 60%, while that of BSE's rest 400 ranges from 11 to 19% (Table 3.1). The behaviour of this group of companies will, therefore, influence the total spending on CSR.

Table 3. 1: CSR spending by companies

Year	CSR Spent (Total in India) (Amount in Rs. Crores)	CSR Spent (BSE 100) (Amount in Rs. Crores)	CSR Spent (BSE Rest 400) (Amount in Rs. Crores)
2014-15	8803	4689.00 (53)	1362.45 (15)
2015-16	9822	5934.6 (60)	1873.35 (19)
2016-17	14543	6543.88 (45)	1971.69 (19)
2017-18	17099	7076.88 (41)	1903.46 (11)
2018-19	20218	8241.85 (41)	2141.93 (11)

Source: (Compiled from the data available on the MCA website and CMIE Prowess Database)

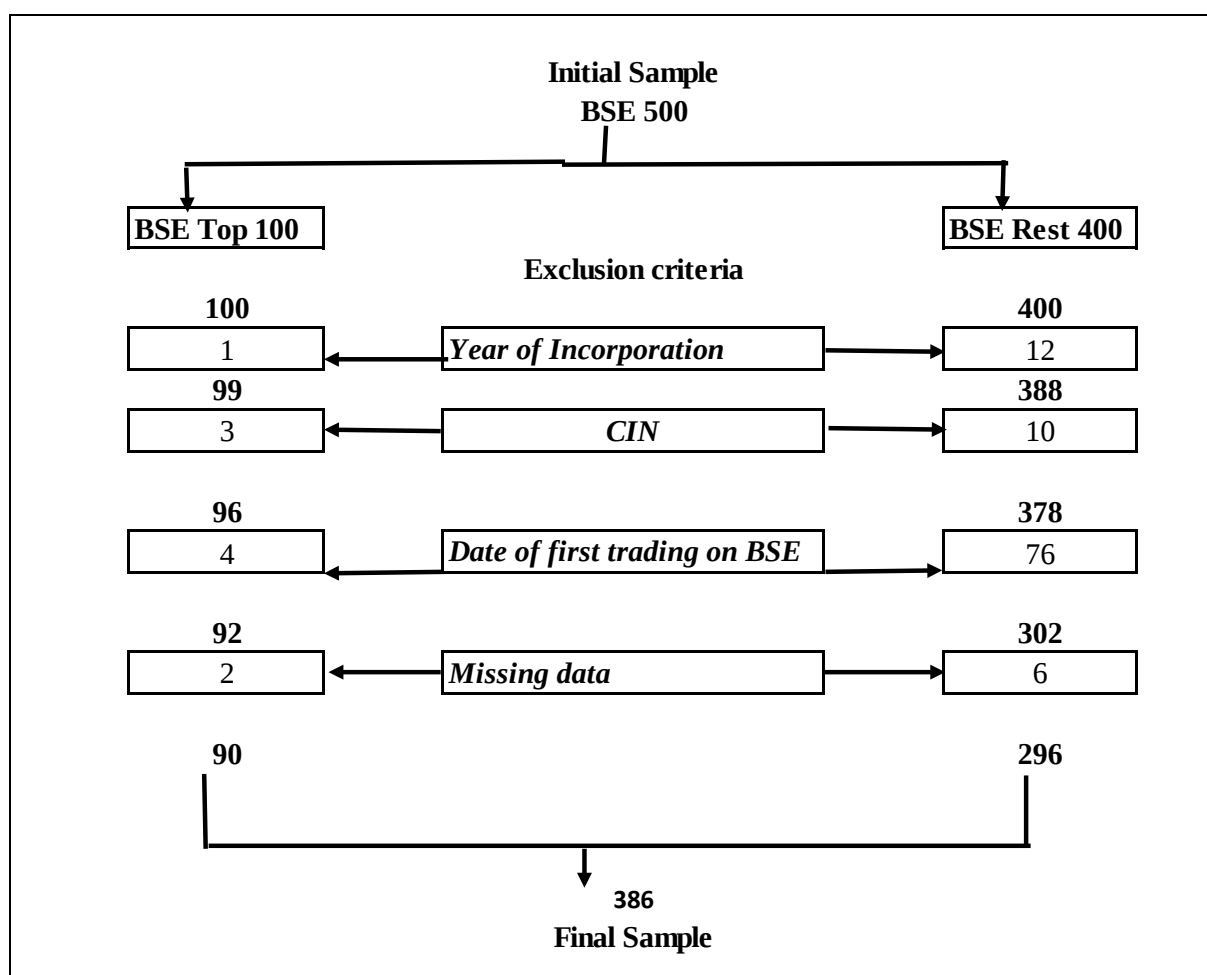
*Figures in brackets represent the percentage of the total CSR spent

The sample was filtered based on the following criteria, namely:

- a. Corporate Identification Number (CIN)
 - b. Date of Incorporation
 - c. Date of first trading on BSE.
 - d. Data missing
- a. Corporate Identification Number (CIN): CIN is a unique 21-digit identification number given to companies registered with the Registrar of Companies. The number details the listing status, industry code, state code, incorporation year, ownership category, and registration number (<https://www.indiafilings.com/learn/cin-number-meaning/>). The rationale for applying this filter was that some companies, like statutory companies or financial institutions and banks, may not be registered with the Registrar of Companies under the Companies Act and may be registered under a different act. Since the provisions of the Companies Act may not apply in full to such companies, they may not be required to comply with the relevant provisions of the Companies Act, and the data needed for the analysis in this study would not be readily available for the said companies.
- b. Date of Incorporation: The companies started after 2010, the starting year for the study period, had data reported from the year of incorporation and not the entire study period. Such companies have, therefore, been excluded from the final sample.

- c. Date of first trading on BSE: The study uses stock market performance data. Such data would be available only once the company started trading on the stock exchange. Hence, the first trading date on BSE was considered for finalising the sample. Companies that started trading on the BSE after 2010 have been excluded from the final sample.
 - d. Data missing: There were some companies for which the data was missing or inconsistent and have, therefore, been excluded from the sample.
- (Figure 3.1) details how the final sample was finalised based on the different filters.

Figure 3. 1: Companies excluded based on different filters



(Source: Authors' compilation based on CMIE Prowess)

The final sample thus includes companies with a Corporate Identification Number, incorporated before 2010 and who had started trading on the BSE stock exchange before 31st March 2010.

After applying the above filters and adjusting for the companies for which data was unavailable in the data sources used for this study, the sample was reduced to 386 companies from the initial 500.

3.2 Sample Description

The final sample of 386 companies for which data was collected for ten years has been studied based on different bases of classification like the BSE group status, ownership, etc. (Table 3.2) describes the sample distribution based on these classifications.

Table 3. 2: Sample distribution based on sustainability reporting in different categories

Criteria	Classification	No of Companies	Percentage of companies	No of observations (2010-2019)
BSE Group	BSE 100	90	23	900
	Rest 400	296	77	2960
CSR voluntarism	CSR volunteers	245	63	2450
	CSR non-volunteers	141	37	1410
Group affiliation	Affiliated	291	75	2910
	Not affiliated	95	25	950
Industry affiliation	Notified polluting industries	121	31	1210
	Others	265	69	2650
Ownership	Government-owned	42	11	420
	Indian Private companies	294	76	2940
	Foreign-owned companies	50	13	500

(Source: Authors' calculation based on CMIE ProwessIQ and CPCB, GoI notification)

3.2.1 BSE 100 and BSE rest 400

For analysis, we compared the top BSE 100 and the BSE rest 400 from the BSE 500. Therefore, the sample available for analysis in this category was 90 companies from the BSE top 100 and 296 companies from the BSE rest 400 of the BSE 500 group.

There is a considerable difference between the SR and CSR spending by BSE 100 and the BSE rest 400 from the BSE 500 group of companies; hence, it was decided to use this classification. The top corporates' response to the mandate will help to understand and get an idea about how the corporate sector in India has received the CSR mandate. It will also give an idea as to whether the country is moving towards achieving the objectives expected through this mandate.

3.2.2 CSR voluntarism

The CSR mandate was introduced in India as a part of the Companies Act of 2013. It was made applicable from the financial year 2014-15. However, companies in India were engaged in CSR even before the mandate was introduced. CSR voluntarism classifies companies based on whether they were spending before the CSR mandate was introduced. The companies that have reported CSR spending before 2015 are considered voluntary companies, while the ones spending after 2015 are termed mandatory companies.

3.2.3 Business group affiliation

Many companies belong to large business groups. Affiliation with a business group can mean identifying with the group's core values, which include adopting sustainability practices and reporting. Companies belonging to business groups and others can also be differentiated based on human and financial resources access. Hence, this classification was considered. Almost 75% of the sampled companies belong to larger business groups, and only 25% are non-business group companies.

3.2.4 Industry affiliation

For industry affiliation, we consider the affiliation with a polluting sector. There are seventeen categories of highly polluting industries, as notified by the Central Pollution Control Board in

India (GoI, 2011). The companies coming under these notified sectors and others are considered as different groups for analysis.

3.2.5 Ownership

Company data by type of ownership is available in four broad categories: Central Government companies, State Government companies, Indian Private Companies, and Foreign-owned companies.

For convenience of analysis, we treat the state and the central government-owned companies as one category: government-owned companies. The distribution is Government ownership companies (11%), Foreign ownership companies (13%), and Indian private ownership companies (76%).

3.2.6 National Industrial Classification (NIC) sector affiliation

Besides the above classification, the sample can be described based on the industrial sectors, as seen in (Table 3.3). The filtered sample of 386 companies had companies belonging to fifteen industrial sectors per the NIC sector classification (2008). We restrict the classification to the first level, i.e., section, to avoid many sectors.

Four of the fifteen sectors represented less than 1% of the sample. These four sectors (I-Accommodation and Food Service activities, N-Administrative and Support service activities, Q-Human Health and Social Service Activities and R-Arts, Entertainment and Recreation) were combined as ‘Miscellaneous’.

Table 3. 3: Sample distribution by NIC sector

NIC-2008 Section and name	Number of companies	Percentage of the total sample
A-Agriculture Forestry and Fishing	5	1.30
B-Mining and Quarrying	6	1.55
C-Manufacturing	207	53.63
D-Electricity, Gas, Steam and Air-conditioning	9	2.33
F-Construction	21	5.44
G-Wholesale and Retail Trade	15	3.89
H-Transport and Storage	15	3.89
J-Information and Communication	32	8.29
K-Financial and Insurance activities	49	12.69
M-Professional Scientific and Technical activities	4	1.04
Diversified	14	3.63
Miscellaneous	9	2.33
Total	386	100

(Source: Authors' calculation based on CMIE data)

Most companies from the sample belong to the manufacturing sector (53.63%), followed by the financial sector companies, including the insurance companies, which make up 12.69% of the sample. Each remaining sector represents less than 10% of the total sample.

3.3 Study Period

The Companies Act 2013 was a landmark regarding CSR spending for the corporate sector in the Indian context. The Act replaced the Companies Act of 1956 after more than 50 years. Section 135 of the Companies Act 2013 provides for mandatory spending of 2% of the Average Net Profits of the previous three years for the specified group of companies. The Act also provided for reporting on CSR in the form of an annual CSR report to be published as a part of the annual report and a CSR committee responsible for effective policymaking and implementation of CSR.

The CSR provisions of the act and the CSR rules by the Ministry of Corporate Affairs (MCA) were made applicable from the financial year beginning on 1st April 2014. Hence, taking 2015 as the benchmark year, the data considered for this study was five years before the mandate, i.e. from 2010 to 2014, and 5 years post-mandate, i.e. from 2015 to 2019.

Post Companies Act, 2013, a period of 5 years till 2019 is considered since 2019 marked the year wherein the ‘comply or explain’ rule on CSR spending was amended to make non-spending of the specified 2% a punishable offence, wherein the company would be liable for a penalty in case of default.

3.4 Data Sources

Companies' annual reports, sustainability reports, CSR reports, and company websites have been used in the literature to obtain data on sustainability, social, and environment-related research. These are the first-hand, most reliable data sources on economic, social, and environmental performance and reporting. However, several databases are increasingly used due to the convenience and ease of sourcing data for multiple companies from a single source. Such databases provide data on corporate sustainability-related parameters, some of which are global and others country or region-specific. Some of these databases offer free access to data, while others are available for subscription. Different databases provide different types of corporate sustainability-related data. (Table 3.4) summarises the various data sources that were used in earlier studies. The data sources used for this study are seen in (Table 3.5).

Table 3. 4: Data sources used in the literature

Sources	Nature of data
Annual Reports	
Sustainability Reports	
CSR reports	
Company websites	
GRI Database (Bae et al., 2018; Barkemeyer et al., 2015; Hu & Loh, 2018)	Database of sustainability reports filed by the companies globally. The reports include GRI and non-GRI reports that provide any sustainability disclosures.
ASSET4 database from Thomson Reuters (Drempetic et al., 2020)	Provides Environmental, Social and Governance (ESG) data on more than 3400 global companies covering FTSE 250, S&P 500, NASDAQ 100, DJ STOXX, Russell 1000, S&P ASX 200 and MSCI World indices.
	Environmental factors (E)– energy used, water recycled, CO2 emissions, waste recycled, spills and pollution controversies, etc.
	Social factors (S) include employee turnover, injury rate, accidents, training hours, women employees, donations, health & safety controversies, etc.
	Corporate governance factors (G) – executive compensation, board experience, board diversity, anti-takeover devices, compensation controversies, etc.
Compustat (Cochran & Wood, 1984; Leong & Yang, 2021)	Compustat is a comprehensive global market and corporate financial database published by Standard and Poor's, covering thousands of companies worldwide, with information dating to 1950. It is a leading data source for financial market professionals, investors, and academics.
Vigeo Database of CSR Rankings The Ethical Investment Research Service (EIRIS) (Quéré et al., 2018)	Moody's ESG (Vigeo-Eiris) assessments measure the degree to which companies manage Environmental, Social, and Governance (ESG) factors that affect their financial performance and how their business impacts the environments and societies in which they operate.
Kinder, Lydenberg, and Domini (KLD) database (Leong & Yang, 2021; Waddock & Graves, 1997; Walls et al., 2012)	KLD is a leading provider of comprehensive research on the social performance of U.S. companies for institutional investors. It reviews cover a company's strengths and weaknesses in nine major social areas: the environment, employee relations, community involvement, product safety, and executive compensation.

Bloomberg (Hu & Loh, 2018; Wang, 2017)	It was launched in 2009 and provides information on the global environmental, social, and governance (ESG) performance of more than 10,000 publicly listed companies. It evaluates the companies annually based on the ESG information disclosed by companies through corporate social responsibility (CSR) or sustainability reports, annual reports, websites, and other public sources, as well as through direct contact with the companies.
Dow Jones Sustainability Index (DJSI) (Lourenço et al., 2012; Rodriguez-Fernandez, 2016)	It is a market capitalisation-weighted index that measures the performance of companies selected based on Environmental, Social, and Governance (ESG) criteria.
Hexun CSR Database (Yang et al., 2019)	This database provides the Corporate social responsibility (CSR) ratings in China.
Korea Economic Justice Institute (KEJI Index) (Cho et al., 2019; Lee & Lee, 2019)	The index is used to measure the social performance of companies based on six evaluation items: Soundness, Fairness, Social Contribution, Consumer Protection, Environmental management and Employee satisfaction.
CMIE Prowess IQ (Dharmapala & Khanna, 2018; Jادیappa et al., 2021)	The Centre for Monitoring Indian Economy (CMIE), Prowess IQ. The Prowess database contains data from over 50,000 Indian companies. Prowess IQ provides data on financials, the stock market, and identity indicators for these companies.

(Source: Authors' compilation based on the literature reviewed)

Table 3. 5: Data sources used for the study

Data Source	Data sourced
CMIE Prowess IQ	CSR expenditure
	Data on Financial and Stock Market Indicators
	Ownership and other identity indicators
	Plant Locations
GRI database	Sustainability Reports filed by companies
CDP annual reports	CDP questionnaire answered by companies
Websites of Respective Companies	Annual Reports
	Sustainability Reports prepared by the companies.
Sustainability Development Solutions Network (SDSN)	National SDG scores
SDG India Index and Dashboard	SDG scores for states and union territories
RBI (e-STATES)	Social sector spending by the state governments
Annual Reports	Annual CSR Reports for the details on CSR sector-wise and state-wise spending

(Source: Authors' compilation based on the data sources used)

3.4.1 CMIE Prowess IQ

This is a database of companies from India that prepare financial statements and disclosures as per the Generally Accepted Accounting Practices (GAAP). It relies on data from annual reports, stock exchange filings, and other reliable sources like the company's official websites, Ministry of Corporate Affairs, and media reports. The extensive database has time series data for companies from 1989 and is updated continuously.

The database is extensive in nature and includes the companies responsible for 85% of India's GDP (https://www.cmie.com/kommon/bin/sr.php?kall=wprdesc&page=prowessiq_desc) for the financial year 2018-19.

The data from the database is widely used in studies on CSR in India (Bansal, 2021; Jادیyappa et al., 2019; Nair et al., 2019; Rajgopal & Tantri, 2022; Singh et al., 2021).

The data from the CMIE database was accessed from December 2019 to April 2021 for CSR spending and financial Indicators. For some companies, specific data was unavailable in the CMIE database. The missing data was obtained from their respective annual and CSR reports for such companies.

3.4.2 GRI database

We started with the data provided by the GRI database on the sustainability reports filed by companies from different countries. The database had this data, which could be downloaded in Excel until 2017-18 (<https://database.globalreporting.org/search/>). The facility was stopped due to the database review and related registration process. We use the data from this database from 2010 to 2018. We filtered this data to get the year-wise sustainability reports filed by companies from India from 2010 to 2019. The Excel sheets for 2015-17 obtained from the database found that many companies have filed non-GRI reports like the Annual report, the BRR report, or the annual CSR report. Hence, we filtered such non-GRI reports and prepared an Excel sheet for the final sample of 386 companies, which showed only the GRI reports. Finally, the respective companies' websites were accessed to check whether they had prepared a sustainability report per the GRI guidelines during 2018-19. We also checked individual companies' websites to find

out whether they had filed a sustainability report under GRI, which was not reflected in the GRI database from 2010 to 2018.

3.4.3 CDP annual reports

Climate change has gained importance at the national and global levels. This has necessitated action from different sectors, including the corporate, as climate change also presents a business risk. In this regard, disclosure of GHG emissions by companies in climate change-related matters can convey corporate environmental responsibility and action. The Carbon Disclosure Project (CDP) collects information on Scope 1, 2, and 3 emissions by the companies.

We use data from the CDP annual reports to classify the companies as reporting or not reporting on sustainability under the voluntary global frameworks: (<https://www.cdp.net/en/reports/downloads/6164>).

3.4.4 Websites of respective companies

The company-level CSR spending and financial data missing in the database were collected from the company's annual reports downloaded from the company websites.

The companies' websites were also accessed to obtain data on whether they were preparing sustainability reports as per the global SR framework GRI.

3.4.5 United Nation's Sustainability Development Solutions Network (SDSN)

The national-level SDG scores are taken from the United Nations Sustainable Development Solutions Network (SDSN) database. Launched in 2012, the network aims to mobilise academic and other agencies for integrated action on the SDGs and the Paris Agreement on Climate Change. In 2016, the SDSN started the SDG Academy to generate open educational resources and guidance from experts on sustainable development. As of 2023, the network is spread over 145 countries with over 50 networks and 18000 members (<https://www.unsdsn.org/about-us>).

3.4.6 SDG India index and dashboard

The index documents and provides sub-national rankings based on the progress made by states and union territories towards achieving the Sustainable Development Goals in India. It computes the goal-wise score for each state (<https://sdgindiaindex.niti.gov.in/#/>).

3.4.7 RBI (e-STATES)

The data for social spending by the state governments was obtained from their state budgets ([https://www.rbi.org.in/scripts/annualpublications.aspx?head=statefinances:a study of budgets](https://www.rbi.org.in/scripts/annualpublications.aspx?head=statefinances:a%20study%20of%20budgets)) available on the RBI website under the e-STATES database.

(Table 3.6) shows the different data sources. Most of the variables used for the study are based on the data from the CMIE database. We describe the variables taken from different CMIE categories and their respective use in generating variables for the study (Table 3.7). These variables' definitions per the CMIE data dictionary are provided in (Table 3.8). The SR status for the companies is considered based on the reporting under the global voluntary SR frameworks. We consider GRI and CDP frameworks. The GRI database and the CDP annual reports are the data sources for this purpose, along with the company websites. For CSR sector-wise spending in different states, the yearly CSR reports forming a part of the companies' annual reports have been used. The annual reports of the companies have been downloaded from their respective websites. Besides, the SDG data is taken from the SDSN and the SDG India Index and Dashboard. The national scores are taken from the SDSN, while the state-level SDG scores are taken from the SDG India Index and Dashboard. The state government's social sector spending data is from the RBI's eSTATES database.

3.4.8 Company annual reports

The company's annual reports were downloaded from their respective websites. For BSE 100 companies, the websites were accessed from July 2019 to September 2019. For BSE rest 400 companies annual reports were downloaded from January 2020 to April 2020.

CMIE only provides the annual CSR spending by the companies. A breakdown of expenditure by the Schedule VII sectors was needed to analyse CSR spending in the Schedule VII CSR areas. This data is taken from the annual CSR reports of the companies, which form a part of the annual reports of the companies.

Though included in the annual CSR reports, the CSR spending by states did not give a breakup for multistate projects. Hence, it was decided that the state-wise presence of companies should be considered rather than state-wise spending. This data is also taken from the annual CSR reports.

3.5 Methods

In this study, we used panel fixed effects regression to study the determinants of energy intensity in Chapter 5 and examine the CSR-CFP relationship in Chapter 6. The analysis of SR and CSR and trends in chapters 4 and 6, respectively, is presented as line and bar graphs. The trends in corporate and government social sector spending are explained with line graphs, while the relationship between CSR and SDGs has been examined with the help of scatter plots in Chapter 7. The data has been analysed using STATA version 12.

3.5.1 Datasheet for CSR related, ownership, identity, financial and stock market indicators

The CMIE Prowess database provides the data under the following categories:

1. Company Address and Indicators
2. Ownership structure and governance indicators
3. Financial statements
4. Stock prices and capital changes
5. Business segments and products
6. Capex and M&A (Capital Expenditure projects and Mergers & Acquisitions)
7. Miscellaneous
8. Indices and Index numbers.

The data for the study was taken mainly from the categories “Financial Statements”, “Ownership and governance indicators”, “Company address and Indicators”, “Stock prices and capital changes”, and “Indices and Index numbers”.

Table 3. 6: Variables taken from different CMIE categories and their respective use in the generation of variables for the study

CMIE Category	CMIE Heading	CMIE Sub heading	CMIE Variable	Variable generated or used as
Financial Statements	CSR Disclosures		CSR expenditure (2015-2019)	CSR spent (2015-2019)
			Average Net Profits (ANP)	ANP (2015-2019)
	Total Expenses	Miscellaneous Expenditure	Social and Community expenses	CSR spent (2010-2014)
			Environment related expenditure	
			Donations	
		Miscellaneous Expenditure	Research and Development expenses	Used to calculate the research intensity
		Power, fuel and Water charges	Power and Fuel	Used as a measure of energy consumption to calculate energy intensity
		Selling and Distribution expenses	Advertising	Total advertising expenditure
			Sales Promotion expenses	
		Repairs and maintenance	Repairs	Used to calculate the repair intensity
	Total Income	Sales	Sales	Use to calculate different intensities
		Income from financial operations		
	Total Liabilities	Derived Indicators of Liabilities	Debt	Used for calculating the Tobin's Q
				Used for calculating leverage
	Total Assets		Total Assets	Used for calculating the Tobin's Q
				Used for calculating leverage
			Gross Fixed Assets	Used to calculate the capital intensity

	Derived Indicators of Foreign exchange transactions		Exports to Sales percentage	Used as a measure of export intensity
	Derived Indicators of Profits		Profit after tax	Used to calculate the profit intensity
			Profit before tax	Used to calculate the Average Net profits from 2010 to 2014
			Return on Assets (ROA)	Used as an accounting measure of profit
Company Address and Identity Indicators	CIN		CIN	Used to filter the sample
	Incorporation year		Incorporation year	Used to filter the sample
				Used to calculate the age of the company
	First trading date on BSE		First trading date on BSE	Used to filter the sample
	NIC sector		NIC sector	Used for classifying the companies based on Industry/ Sector
Ownership structure and governance			Ownership Group	Used for classifying the companies into different categories of ownership structures and for identifying companies affiliated and not affiliated with business groups
Stock Prices and capital changes			Market capitalisation	Used as a measure of size
				Used for calculating the Tobin's Q
Indices and Index numbers			BSE 500 companies as of 31st March, 2019	Used as the primary initial input for the sample
			BSE 100 as of 31st March 2019	Used to classify the sample into BSE 100 and the Rest 400

(Source: Authors' compilation based on data from CMIE ProwessIQ and variables generation)

To identify the BSE 500 and the BSE 100 companies, we have used the “Indices and Index numbers” category. These sets of companies were subsequently used as input in the “Companies and Sets” to download the data from other categories. (Table 3.6) lists the CMIE

categories, headings and subheadings from which variables were taken and how they have been used for the study.

Table 3. 7: Variable definitions as per the CMIE data dictionary

CMIE Variable	CMIE Definition
BSE 500 companies as of 31st March 2019 (BSE 500)	A stock market index measures the value of a group of stocks in numerical terms. Some similar stocks are selected and grouped to form an index from the stocks listed on the exchange. This selection and grouping is usually based on the company's size, market capitalisation, or other basis. BSE 500 selects and groups the top 500 companies based on market capitalisation.
BSE 100 as of 31st March 2019 (BSE 100)	A stock market index measures the value of a group of stocks in numerical terms. Some similar stocks are selected and grouped to form an index from the stocks listed on the exchange. This selection and grouping is usually based on the company's size, market capitalisation, or other basis. BSE 100 selects and groups the top 100 companies based on market capitalisation.
Corporate Identification Number (CIN)	The CIN code is a 21-digit alphanumeric code of the Corporate Identity Number (CIN) assigned to companies by the Ministry of Corporate Affairs (MCA). The code is unique to each company.
Incorporation year	The incorporation year is when the company becomes a distinct legal entity through registration with the Registrar of Companies, the Reserve Bank, or any other agency, as the case may be.
First trading date on BSE	This data field stores the date the scrip was first traded on the Bombay Stock Exchange.
NIC sector (NIC)	The official National Industrial Classification (2008) numeric code is the NIC code. Every company is mapped to the CMIE industry classification based on its economic activity. The NIC code is mapped to CMIE's industry classification. This indirect mapping yields the NIC code.
Ownership Group (Government ownership, Foreign ownership and Indian private ownership)	An ownership group is the group to which the company belongs. Broadly, the companies are classified as owned by the government or the private sector. Ownership by the government may be by the Central or State governments. The private sector companies can be in the Indian private sector, foreign private sector, cooperatives, and joint sector. Private sector companies can belong to business houses or groups or be individual ones.
Market capitalisation (Mkt_capn)	This is the total market capitalisation of the company. It is calculated as a product of the market price of the share and the total shares outstanding.

Social and Community expenses	These represent the expenses incurred by companies to benefit the society or community. These include expenses on public parks and gardens, temples, roads, contributing to social occasions, etc. Companies mainly disclose these expenses as a part of 'other expenses' or 'Welfare expenses' in the schedules or notes to financial statements.
Environment and pollution control-related expenses	These are the expenses incurred to control or reduce pollution arising during manufacturing. These include expenditures for effluent disposal, environment development, etc. It is included in this category if such costs are reported without further details. Companies usually report them under the heading 'other expenses' as a part of their schedules or in notes on their financial statements.
Donations	Donations for religious purposes, or to the local authorities, Prime Minister's Relief Fund or a political party, etc. Companies usually report them under the heading 'other expenses' as a part of their schedules or in notes on their financial statements.
CSR expenditure (2015-2019) (CSR)	It is the total amount spent on CSR activities by a company in the current financial year.
Average Net Profits (ANP)	It represents the average net profit of the immediately preceding three financial years.
Return on Assets (ROA)	It is considered an indicator of how effectively a company uses its assets to generate earnings. Return on total assets ideally tells us how much net profit a company generates for every rupee invested in total assets. It is calculated as a Ratio of Net Income to Total Assets.
Power and Fuel	Power and fuel expenses represent the energy consumption cost for a company's operations. This indicator includes the cost of fuel sources like electricity, petroleum products such as diesel, naphtha, coal, and other energy sources.
Research and Development expenses	They are the current expenses incurred by the company for research and development, excluding capital expenditure. The input for this indicator is taken from the profit and loss account or the schedules forming a part of the profit and loss statements.
Advertising	Advertising expenses are the money spent by the company on promoting its product or service.
Sales Promotion expenses	Sales promotion expenses refer to all costs besides advertising expenses, which help boost or promote a company's sales. It is a short-term and direct method of garnering sales.
Repairs	This indicator represents the total amount the company spends on repairs and maintenance of plant and machinery. Such expenditure includes the cost of all activities undertaken to maintain or restore an asset in a state in which it can perform at the intended capacity and efficiency.

Exports to Sales Percentage	This is a derived indicator of foreign exchange transactions. It is calculated as a percentage of earnings through exports of goods and services to sales. It serves as a measure of the degree of exposure a company has to export markets.
Profit after tax (PAT)	This is the net profit of the company after tax. It is the residual after all revenue expenses are deducted from the sum of the total income and the change in stocks.
Profit before tax (PBT)	PBT is profits before tax. PBT is the profit left after meeting all expenses but before paying taxes
Sales	Sales represent all regular incomes companies generate from the sale of goods and non-financial services. It includes all such revenues which constitute the primary income for non-financial companies.
Income from Financial operations	Income from financial services comprises income from providing financial services for a fee, such as broking and earning a return in the form of interest, dividends, etc. It mainly constitutes the primary source of income for the banking and financial companies.
Debt	The indicator debt represents the sum of total borrowings, preference share capital and recallable or defaulted loans.
Total Assets	Total assets refer to the sum of all current and non-current assets a company holds as of the last day of an accounting period.
Gross Fixed Assets	It represents the aggregate value of the company's fixed assets as of the last day of an accounting period. It is calculated as the sum of the costs of construction or acquisition, i.e. the historical price of all of the fixed assets that are in the possession and control of a company.

(Source: Authors' compilation based on CMIE data dictionary)

The CMIE prowess provides data on CSR expenditure under a dedicated heading on 'CSR disclosures' forming a part of the "Financial Statements" category. However, this CSR section was included during the post-mandate period. However, it reported the expenditures on 'Social and Community Expenses', 'Environment related expenditure' and 'Donations' under the heading 'Miscellaneous Expenditure' in the "Financial Statements" category. Since the study considers the pre and post-CSR mandate period, we use the total of 'Social and Community Expenses', 'Environmental expenditure', and 'Donations' to represent the CSR expenditure during the pre-CSR mandate period, i.e. From 2010 to 2014. The CSR expenditure from 2015 to 2019 is taken from the database's heading 'CSR disclosures'.

Similarly, the concept of 'Average Net Profits' as the average of the net profits of the previous three years was introduced by section 135 of the Companies Act 2013 for the calculation of CSR. This value is also provided by the database from 2015. For the study, we

calculate the ‘Average Net Profits’ from 2010 to 2014 based on the profits taken from the CMIE database.

Different indicators representing financial variables used in the study have also been taken from the “Financial Indicators” category. Some of these indicators have been used directly as available in the database, while others have been used to generate new variables as required for the analysis in the study. The definitions of different indicators and variables, as provided in the CMIE database, are provided in (Table 3.7).

The Ownership Group indicator has been used to classify the companies based on their ownership structures into three broad categories: privately owned, owned by the government, and those with foreign ownership.

The BSE 100 group of companies and BSE 500 group of companies as of 31st March 2019 were downloaded from the CMIE database. The last updated BSE 100 list was as of 24th December 2018, and that for BSE 500 was as of 8th March 2019.

BSE 100 and the BSE rest 400 companies from the BSE 500 group formed the study's datasets based on the above two lists. CMIE has the option to download the data in Excel format.

The data from the CMIE database was initially downloaded for the BSE 100 group of companies from 2015 to 2019, i.e. five years from the year of implementation of the Companies Act, 2013, which mandates a 2% spending on CSR in India. It was later decided to extend the period to a five-year pre-mandate period, i.e. 2010 to 2014.

Next, the data was downloaded for identity, financial, and stock market indicators. These original downloads were then put together for the whole period from 2010 to 2019 based on the sample of the BSE 100 group of companies.

The combined Excel sheet helped to identify missing data. This missing data was then filled with the values from the annual reports. Due to the missing values for many indicators in the case of some companies, we realised that there had to be other reasons why the data was missing despite considering the data from the annual reports. Then, it was realised that some companies either did not spend or report on CSR due to the applicability of different regulations. Hence, they followed the provisions of the relevant Act and not the Companies Act. Similarly,

the companies incorporated after 2010 only had the data for part of the study period. The companies that started trading on the BSE after 2010 had only the data available on stock market indicators from the first trading date. Hence, all such companies were filtered out. Still, there were companies for which data was sometimes missing and inconsistent, or the annual reports were unavailable. Such companies were also excluded from the final sample.

For the final sample of BSE 100, a consolidated Excel sheet with CSR-related, identity, financial, and stock market indicators was prepared. The complete datasheet for the BSE 100 group of companies, which had reduced to 90 companies after applying the different filter criteria, was thus ready.

The same process was followed for the BSE rest 400 group of companies. After applying the filters, the BSE rest 400 group had 296 companies.

The BSE 100 (90) and the rest 400 (296) group of companies' Excel files were then imported to Stata, and both were merged to form a joint BSE 500 (386) group of companies Stata file.

The data for environment-related parameters like power and fuel consumption, research and development expenditure, and repairs, among others, was downloaded for the BSE 500 (386) in an Excel file and merged with the main file.

The Stata file in the wide format was then converted to a long format to facilitate the use of panel data models.

3.5.2 Sustainability reporting under GRI and CDP

The data on SR obtained from the GRI database and the respective companies' websites is entered into an Excel file, wherein the reporting specified “YES” while non-reporting “NO”. This file was then imported into Stata. A binary variable was generated for recording SR under the GRI framework, wherein values of 1 and 0 were assigned to “YES” and “NO”, respectively.

Using a similar method, we enter the data on CDP reporting in an Excel sheet as “YES” for answering the CDP questionnaire on climate change and “No” if they have declined to

participate. The Excel file is then imported to Stata, and a binary variable is generated, which takes value 1 for reporting under CDP and 0 otherwise.

These files on SR under GRI and CDP are merged with the file having CSR, financial, ownership, other identity indicators and environmental indicators data.

This data file, which has data on CSR spending, identity indicators, financial indicators, market indicators, environmental indicators and SR indicators for BSE 500 (386) companies for a period of ten years from 2010 to 2019, is used for analysis in Chapter 4, Chapter 5 and Chapter 6. The Stata file in the wide format is then converted to a long format to facilitate the use of Panel data models.

3.5.3 Sector-wise spending on CSR for the BSE 100 group of companies

The CSR reports from the annual reports were used to take the sector-wise and state-wise CSR spending data.

The Companies Act makes reporting on CSR mandatory. Schedule VII from Section 135 of the Companies Act 2013 specifies the areas in which the companies can spend. The ten sectors covering various social and environmental areas forming a part of Schedule VII as per the MCA Notification dated 27th February 2014 have been reviewed and clarified, and additional sectors have been added subsequently (Table 3.8). After different amendments to the initial Act, as of 31st March 2019, the following sectors were available for spending by the eligible companies.

Table 3. 8: Schedule VII CSR areas specified for mandatory CSR spending

CSR areas	
(i)	Eradicating hunger, poverty and malnutrition, promoting preventive health care (<i>promoting health care including preventive health care</i>) and sanitation (<i>including contribution to the Swach Bharat Kosh set-up by the Central Government for the promotion of sanitation</i>) and making available safe drinking water.
(ii)	Promoting education, including special education and employment enhancing vocation skills, especially among children, women, elderly, and differently-abled and livelihood enhancement projects.
(iii)	Promoting gender equality, empowering women, setting up homes and hostels for women and orphans, setting up old age homes, day-care centres and other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups.
(iv)	Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining the quality of soil, air and water (<i>including contribution to the Clean Ganga Fund set up by the Central Government for rejuvenation of river Ganga</i>).
(v)	Protection of national heritage, art, and culture, including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promoting and developing traditional handicrafts.
(vi)	Measures for the benefit of armed forces veterans, war widows and their dependents.
(vii)	Training to promote rural sports, nationally recognised sports, para-Olympic sports and Olympic sports
(viii)	Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women.
(ix)	Contributions or funds are provided to technology incubators located within academic institutions which are approved by the Central Government.
(x)	Rural development projects.
(xi)	<i>Slum area development. (The term 'slum area' shall mean any area declared as such by the Central Government, any State Government, or any other competent authority under any law for the time being in force.)</i>
(xii)	<i>Disaster management, including relief, rehabilitation and reconstruction activities.</i>
(*Words in Italics indicate the subsequent additions made through a corrigendum or amendments or notifications)	

(Source: Authors' compilation based on Schedule VII of the Companies Act, 2013 and the MCA notifications)

The annual CSR report gives a detailed breakdown of the spending sectors selected. It also shows the state-wise spending. The yearly CSR report of the company, which forms a part of the annual report of the company, provides a brief outline of the company's CSR policy and details about the company's CSR committee. Concerning CSR spending, details like the average net profits, the prescribed 2% CSR spending, and the details about CSR expenditure during the year have to be mentioned. These details include the following: CSR project identified, schedule VII sector in which the project is covered, classification of local areas and other projects, state and the districts where the projects are undertaken, budgeted outlay, the amount spent, with a breakup into direct expenditure and the overheads, cumulative expenditure on the project till date, details of CSR spending with a breakup into direct and spending through an implementing agency.

The company's annual CSR reports' CSR spending data was entered into the Excel data sheet based on the twelve CSR sectors to determine sector-wise spending. The Excel file is then imported to Stata. This data file has data for BSE 100 (90) companies for five years from 2015 to 2019. We decided to limit ourselves to the data of only 100 BSE companies here since the data for each company had to be manually entered from the annual CSR report for the twelve different CSR sectors. Since the CSR mandate was implemented from 2014-15, the breakdown of expenditure in these twelve CSR areas was unavailable from 2015. The annual CSR reports were made mandatory for the eligible companies from 2014-15. Hence, we limit this analysis to a period of five years.

The national SDG scores were downloaded from the SDSN database in Excel format, imported to Stata and then merged with the CSR sector-wise spending file.

Since this part of the analysis is for BSE 100 companies for five years only from 2015 to 2019, the data from the main file with the joint BSE 500 (386) group of companies Stata file was filtered for the BSE 100 companies. The CSR sector-wise spending file with the national SDG scores was then merged with the filtered file on the BSE 100 group of companies with CSR, financial, ownership, and identity indicators data.

The Stata file in the wide format is then converted to a long format to facilitate the use of Panel data models. This file is used for analysis in Chapter 7.

3.5.4 State-wise spending on CSR for the BSE 100 group of companies

The annual CSR reports were also used to analyse the state-wise spending of CSR to get an idea of how the spending is distributed across states.

The annual CSR reports show state-wise spending based on different CSR sectors. However, in the case of CSR projects undertaken in various states simultaneously, the distribution of spending needs to be given state-wise. Hence, we consider CSR presence instead of CSR spending as the variable for state-wise analysis.

For each company in each CSR sector, the data was entered in an Excel sheet as “YES” and “No” if the company had a CSR project in a relevant CSR area for the respective states. After importing this Excel file in Stata, a binary variable is generated based on the “YES” and “NO” values, which represent one if the company has a presence in a particular state for the respective CSR sector and 0 in the case of “NO”.

The SDG scores for the states were downloaded from the SDG India Index and Dashboard. However, they were available from 2018 instead of 2015. Hence, we take these scores for three years, from 2018 to 2020, to be considered for calculating the average of the three years to get the SDG score for the respective state. The Excel file on the state SDG scores is then imported to Stata and merged with the file on the CSR presence of companies in different states. This file is used for analysis in Chapter 7.

While in other cases, the unit of analysis is companies, it is states for state-wise spending

3.6 Variables Used

3.6.1 Sustainability reporting

This study considers voluntary SR under the two popular global reporting frameworks, GRI and CDP. The data on reporting under these two frameworks was first converted into a binary variable where 1 represents reporting under the respective framework and 0 otherwise. Since these are voluntary frameworks, companies can choose from the available frameworks. In the context of the frameworks selected for the study, the companies followed either one or both, and many did not follow either.

Hence, we constructed three more variables to understand SR adoption better.

GRI_only – This variable is assigned the value one if the company follows only the GRI framework and not the CDP. Otherwise, the variable takes a value of 0.

CDP_only- This variable takes the value one if the company follows only the CDP framework and not the GRI framework. Otherwise, the variable takes a value of 0.

GRI_CDP – This variable takes the value one if the company follows the GRI and CDP framework. Otherwise, the variable takes the value 0.

3.6.2 Energy intensity

Energy Intensity for this study is based on monetary measures. In the absence of consistent data on physical measures of energy consumption in the CMIE database, the study has used the monetary measure of energy intensity (Haider et al., 2019; Prasad et al., 2019). It is calculated as the ratio of power and fuel expenses to sales (Kumar et al., 2023; Misra, 2019).

Studies have used physical (Goldar & Goldar, 2022) and monetary measures (Haider et al., 2019; Soni et al., 2017) of energy consumption. The data on energy consumption by companies was provided by CMIE in the category 'Business Segments and Products' under the indicator 'Energy Consumption. However, from 2016, this data was available for fewer companies in the sample. It was learnt that Section 217 of the Companies Act, 1956 and Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988, required the companies to disclose data on total energy consumption and energy consumption per unit of production in the prescribed format.

However, as per section 134 of the Companies Act, 2013 and Companies (Accounts) Rules, 2014, the companies must report on energy conservation. This includes the steps taken and the impact on energy conservation, utilisation of alternate energy sources and the capital investment in energy conservation equipment. Since the new rule does not specify the obligation to disclose energy consumption information, companies do not provide the same in their annual report. The database, therefore, only gets such data for a few companies after implementing the new rule.

Without this information on a sufficient number of companies, we have used the monetary measure of energy consumption, which was used as an alternate measure in earlier studies. We use ‘Power and fuel expenses’ to measure the energy intensity.

3.6.3 Corporate Social Performance (CSP)

CSR expenditure is taken as a measure of corporate social performance. We consider the percentage of CSR expenditure as a percentage of ANP (Rajgopal & Tantri, 2022). The CMIE prowess provides data on CSR expenditure under a dedicated heading on ‘CSR disclosures’ forming a part of the “Financial Statements” category. However, this CSR section was included during the post-mandate period. However, it reported the expenditures on ‘Social and Community Expenses’, ‘Environment related expenditure’ and ‘Donations’ under the heading ‘Miscellaneous Expenditure’ in the “Financial Statements” category. Since the study considers the pre and post-CSR mandate period, we use the total of ‘Social and Community Expenses’, ‘Environmental expenditure’, and ‘Donations’ to represent the CSR expenditure during the pre-CSR mandate period from 2010 to 2014. The CSR expenditure from 2015 to 2019 is taken from the database's heading ‘CSR disclosures’. Studies using pre and post-mandate CSR expenditure have used these measures of CSR (Dharmapala & Khanna, 2018; Jادیappa et al., 2019).

Similarly, the concept of ‘Average Net Profits’ as the average of the net profits of the previous three years was introduced by section 135 of the Companies Act 2013 for the calculation of CSR. This value is also provided by the database from 2015. For the study, we calculate the ‘Average Net Profits’ from 2010 to 2014 based on the profits taken from the CMIE database.

3.6.4 Corporate Financial Performance (CFP)

Earlier studies have used accounting and market-based measures to measure corporate financial performance. We use two measures of corporate financial performance for this study. One is the accounting-based measure, ‘Return on Assets’ (ROA) (Bhattacharyya & Rahman, 2019; McGuire et al., 1988; Yang et al., 2019), and the other is a market-based measure, Tobin’s Q (Cho et al., 2019; Ghosh, 2013; Jادیappa et al., 2019). Both measures have merits and limitations. Hence, evaluating the CSR and CFP relationship using both measures may provide better insights.

3.6.4. i. Return on assets (ROA)

It is a profitability measurement ratio that expresses the efficiency of the company's assets to generate profits. It is calculated as the ratio of net profit to the average total assets of the company.

3.6.4. ii. Tobin's Q

This is used as a market-based measure of the company's market value. A Tobin's Q between 0 and 1 indicates that the replacement cost of the company's assets is higher than the market price of its equity. A Tobin's Q higher than one implies that the market price of the equity or the firm value is higher than the replacement cost of the assets.

It is calculated as the ratio of the total market capitalisation and debt to the company's total assets.

3.6.5 Others

Besides, we also use the following variables in examining the CSR- CFP relationship to get an insight into the mimetic pressure and the adoption of strategic CSR.

3.6.5. i. Peer pressure

Peer pressure is measured as the average of CSR spending by peers in the industry, excluding the company in consideration (Bansal, 2021; Singh et al., 2021). This variable measures the extent of mimetic pressure or isomorphism wherein the companies try to follow their industry peers in their CSR involvement.

3.6.5. ii. Advertising expenditure

This variable examines whether CSR spending influences the company's advertising expenditure. A company undertaking CSR with a strategic motive to gain a competitive advantage over others will try to either replace advertising expenditure with CSR (Rajgopal & Tantri, 2022) or may try to increase it to make the people aware of their CSR spending (Servaes & Tamayo, 2013). For this study, we consider the percentage of advertising expenditure to sales.

3.6.5. iii. Number of years in CSR engagement

A strategic approach to CSR will also reflect a planned increase or decrease in CSR involvement based on its expectation about the benefits expected from such involvement. Here, we consider the number of years of CSR spending as a measure of such engagement. The number of years of reporting was considered in relation to the SR (Ching et al., 2017).

Besides we also add the following control variables based on the previous literature:

3.6.5. iv. Age

Older and younger companies may have different approaches to CSR based on their life cycle. Hence, the company's age is included as a variable (Al-Mamun & Seamer, 2021; Nair et al., 2019). The current level of profitability and the need for them to settle down in the market will decide how much proportion a company can devote to its social engagement. Hence, this variable is included, representing the years since its incorporation.

3.6.5. v. Market capitalisation

This measure is used for size (Brammer et al., 2006). Size has been found to influence the performance of companies in terms of social responsibility. Market capitalisation as a measure represents the value showing the company's potential to grow in the future based on its past performance. Hence, it is more realistic than the total assets, which is more of a historical measure. The CMIE database provides the market capitalisation value for the companies considered for this study.

3.6.5. vi. Leverage

Leverage is calculated as the ratio of debt to equity. Higher-leverage firms may have higher fixed costs for debt servicing, reducing the funds available for CSR engagement. In contrast, lower-leverage companies may be spending more on CSR due to the availability of funds and the potential to raise additional capital. Leverage has been considered in earlier studies (Bhattacharyya & Rahman, 2019; Lee & Lee, 2019).

3.6.6 Grouping of corporate, government social spending and SDGs in four development areas

To examine CSR's contribution to SDGs' achievement, we have grouped the different CSR areas under Schedule VII and Social sector spending and the SDGs into four development areas.

3.6.6. i. *Health and economic development*

Under which we have

- i. Health and economic development-related corporate social spending
- ii. Health and economic development-related government social spending
- iii. Health and economic development-related SDG scores

3.6.6. ii. *Education sports, art and culture*

- i. Education, sports art and culture-related corporate social spending
- ii. Education, Sports art and culture-related government social spending
- iii. Education, Sports, art and culture health and economic development related SDGs scores

3.6.6. iii. *Promoting social and economic equality*

- i. Promoting social and economic equality corporate social spending
- ii. Promoting social and economic equality related to government social spending
- iii. Promoting social and economic equality related to SDGs scores

3.6.6. iv. *Environmental sustainability and disaster management*

- i. Environmental Sustainability and disaster management-related corporate social spending
- ii. Environmental sustainability and Disaster management related government social spending
- iii. Environmental sustainability and Disaster management related SDGs scores.

3.7 Panel Data

Longitudinal data can take the following forms:

- a. Time series: Where there are many observations on a few or even a single unit
- b. Pooled cross-sections: Such data represents two or more independent samples of many units drawn from the same population at different periods
- c. Panel data: This data includes repeated observations on multiple units at different periods. If a panel data set consists of ‘n’ entities or units, each unit has data for time

periods, 't'. Hence, the total number of observations in the panel data set is 'nt'(McManus, 2011; Torres & Reyna, 2007).

In this case, the units can be states, countries, firms, individuals, households, and regions for which the data is pooled for a period of time. This gives the advantage of a large dataset for analysis compared to cross-sectional or time series data. Such datasets are more informative and reliable due to the pooling of time series and cross-section estimates, and they have less restrictive assumptions, allowing testing for more sophisticated models (Park, 2011; Wooldridge, 2002).

The benefits of higher variability and less collinearity among the variables, as compared to cross-sections or time series data, provide the added advantage of the ability to control for individual heterogeneity in the case of a panel dataset (Park, 2011). A bias may arise in the resulting estimates if the unobserved individual effects are not controlled. With panel datasets, it is possible to identify and estimate effects, which may not be possible with pure cross-sections or pure time series data. Hence, these datasets are better equipped to study complex issues of dynamic models (Torres & Reyna, 2007).

For this study, we will use longitudinal data in the form of panel data. Panel data is preferred as it helps describe change over time, provides better estimates of trends, and helps estimate causal models (Wooldridge, 2002). Panel data is characterised by a time-invariant unique identifier for each unit and an indicator for time. In addition, there will be several time-varying and time-invariant variables (Torres & Reyna, 2007).

For the dataset used in this study, the company represented by its unique id (cono) is the time-invariant unique identifier for each unit, and the year is the indicator for time. Different financial indicators and CSR spending, among others, are time-varying variables, while identity indicators like ownership category and NIC sector affiliation, among others, are time-invariant variables.

3.7.1 Pooled ordinary least squares (OLS) model

A pooled OLS model, also called the constant coefficient model, considers constant coefficients with the standard assumptions of the cross-sectional data by controlling for the year. This

method assumes that the regressors are not correlated with the error term or the intercept and that the slope is equal for all the data (Park, 2011; Torres & Reyna, 2007).

Panel data may have entity (group) effect, time effect, or both, analysed by fixed or random effect models or both.

3.7.2 Random effects model

A random effects model assumes that the unobservable individual effects are random variables and are not correlated with the independent or predictor variables in the model.

A random effects model analyses the data by considering that some factors affecting the outcome vary randomly across entities and groups. Such models help capture and estimate the impact of independent variables on dependent variables to a greater extent as they consider the random variation across entities (Kumar, 2023).

A random effect model assumes that individual effect or heterogeneity is not correlated with any regressors, and their error variance estimates are specific to groups or times. Hence, 'ui' is an individual-specific random heterogeneity or a component of the composite error term. A random effect model is, therefore, called an error component model. The intercept and slopes of regressors are the same across individuals (Torres & Reyna, 2007).

3.7.3 Fixed effects model

This model explores the association between the predictor and outcome variables within an entity. It assumes that unobservable individual effects are potentially correlated with or influenced by the observed regressors. A fixed effects model removes the impact of time-invariant characteristics. The fixed effects model assumes that the time-invariant characteristics are unique to the entity and should not be correlated with the other factors (Torres & Reyna, 2007). Though not eliminated, completely fixed effects models reduce the threat of omitted variable bias by controlling for the time-invariant factors. Hence, the fixed effects models for panel data are considered advantageous over cross-sectional methods (Collischon & Eberl, 2020).

Fixed effects is a regression model where the intercept of the regression model is allowed to vary across entities or groups. It is applied in panel data to control for individual-specific attributes that are time-invariant. The same entity is observed multiple times for

individual-level fixed effects, making it suitable for panel data. It is beneficial in the case of causal inference (Best & Wolf, 2015).

This regression is specified based on units and includes group-specific constants or the “fixed effects” and is hence called “fixed effects” regression. Because group-specific fixed effects wipe out all group-specific unobserved heterogeneity due to the assumption of the absence of entity-specific unobserved heterogeneity, FE models are preferred in causal analysis in social science research compared to standard regression models (Best & Wolf, 2015).

A one-way fixed effect model is considered if one cross-sectional or time-series variable (e.g., country, firm, gender) is considered. Two-way effect models have two sets of dummy variables for individual and time variables (e.g., state and year) and thus entail some issues in estimation and interpretation (Torres & Reyna, 2007).

3.7.4 Specification tests

The model selection from the pooled OLS, random effects, and fixed effects was based on the results of the following tests.

3.7.4. i. The Breusch Lagrange Multiplier test for examining the random effects to decide between the pooled OLS and random effects model

This test is used to choose the appropriate model between pooled OLS and random effects. The null hypothesis is that no random effects exist in the model or that the variance across entities is zero. No significant difference across the entities implies no panel effects.

If the null hypothesis is rejected, it indicates the existence of panel effects; hence, the random effects are to be selected. If the null hypothesis is accepted, the pooled OLS will be chosen as the appropriate model.

3.7.4. ii. The Hausman test to decide between the random effects and fixed effects model.

This test helps determine whether the random or fixed effects model is more appropriate. The null hypothesis in this test is that the individual effects are not correlated with other regressors. If the null hypothesis is rejected, the fixed effects model is considered more appropriate, and the random effects model is selected if the null hypothesis is accepted.

This study used the fixed effects regression model after testing the suitability of pooled ordinary least squares (OLS), random effects, and fixed effects under the Breusch Pagan Lagrange Multiplier Test and the Hausman test.

3.8 Relationships Studied

Fixed effects

$$Y_{it} = \alpha_i + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + u_{it} \quad \dots \dots \dots (\text{Eq. 1})$$

Where,

Y is the dependent variable

α_i is the intercept for each entity

β_1 is the coefficient for the independent variable

X represents the set of independent variables from 1 to k

U is the error term

i represents the entities or units from 1 to n

t represents the time

Including entity and time effects, the two-way fixed effects model can be specified as follows (Refer to Equation 2).

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \dots + \beta_k X_{kit} + \gamma_2 E_2 + \dots \dots + \gamma_n E_n + \delta_2 T_2 + \dots + \delta_t T_t + u_{it} \quad \dots \dots \dots (\text{Eq.2})$$

Y is the dependent variable

α_i is the intercept for each entity

β is the coefficient for the independent variable from 1 to k

X represents the set of independent variables from 1 to k

γ is the coefficient for the binary variables representing entities from 2 to n

E represents the entities from 2 to n (Since they are binary or dummies, we can have n-1 entities included in the model)

δ , the coefficient for the binary time variables representing periods from 2 to t

T represents the periods from 2 to t (Since they are binary or dummies, we can have n-1 entities included in the model)

u, is the error term

i represents the entities or units from 1 to n

t represents the time

Based on the literature reviewed, sustainability and CSR are used synonymously. Similarly, sustainability denotes comprehensive or any individual sustainability parameter, such as social or environmental. This study starts with comprehensive sustainability, which includes economic, social and financial parameters. We consider SR for this purpose. We then consider the individual non-financial sustainability parameters, namely social and environmental. Regarding social parameters, we consider the social performance measured by the corporate social responsibility expenditures. In the case of the environmental dimension, we look at the environmental performance with a specific focus on energy. From the point of view of the regulatory influence, we consider the CSR mandate introduced as a part of the Companies Act 2013. For environmental performance, we consider the introduction of the PAT scheme for energy conservation and savings trading.

3.8.1 Energy intensity

3.8.1. i. Determinants of energy intensity

CEP = Profitability+ Repairs Intensity + Research Intensity + Capital Intensity + Operation in the foreign markets+ Environmental reporting +Regulatory intervention+ Firm specific Control Variables

$$eiy_{it} = \alpha i + \beta_1 profitiy_{it} + \beta_2 repiy_{it} + \beta_3 resiy_{it} + \beta_4 capiy_{it} + \beta_5 lnexp_sales_{it} + \beta_6 cdpfw_{it} + \beta_7 lnage_{it} + \beta_8 lntotalassets_{it} + \beta_9 patper_dv_t + \varepsilon_{it} \dots \dots \dots \text{(Eq.3)}$$

3.8.2 CSR-CFP relationship

In the examination of this relationship, we use the following models:

3.8.2. i. Determinants of CSR

For the entire sample, for the mandatory companies and the voluntary companies.

CSP = CFP (Profitability) +CFP (Market Performance) + Mimetic Isomorphism + Coercive Isomorphism+ Strategic CSR + Firm specific Control variables

$$csranppercent_{it} = \alpha i + \beta_1 lnroa_{it} + \beta_2 lntobinsq_{it} + \beta_3 indpeerrcsr_{it} + \beta_4 csr_years_{it} + \beta_5 lnadv_sales_{it} + \beta_6 age_{it} + \beta_7 lev_{it} + \beta_8 lnmktpcapn_{it} + \beta_8 prepost_dv_t + \varepsilon_{it} \dots \dots \dots \text{(Eq.4)}$$

3.8.2. ii. Impact of CSR

For the entire sample, for the mandatory companies and the voluntary companies

a. Impact of CSR on Financial Performance (ROA)

CFP (Profitability) = CSP + Mimetic Isomorphism + Coercive Isomorphism+ Strategic CSR + Firm specific Control variables

$$roa_{it} = \alpha_i + \beta_1 lncsrapppercent_{it} + \beta_2 csrpeer_diff_{it} + \beta_3 csr_years_{it} + \beta_4 lnadvtsales_{it} + \beta_5 age_{it} + \beta_6 lev_{it} + \beta_7 lnmtcapn_{it} + \beta_8 prepost_dv_t + \epsilon_{it} \dots \dots \dots (Eq.5)$$

b. Impact of CSR on Financial Performance (TobinQ)

CFP (Market Performance) = CSP + Mimetic Isomorphism + Coercive Isomorphism+ Strategic CSR + Firm specific Control variables

$$tobinsq_{it} = \alpha_i + \beta_1 lncsrapppercent_{it} + \beta_2 csrpeer_diff_{it} + \beta_3 csr_years_{it} + \beta_4 lnadvtsales_{it} + \beta_5 age_{it} + \beta_6 lev_{it} + \beta_7 lnmtcapn_{it} + \beta_8 prepost_dv_t + \epsilon_{it} \dots \dots \dots (Eq.6)$$

Table 3. 9: Literature used for the choice of variables

Variable	Denoted by	Studies referred for the construction of variables
Energy Intensity	<i>eiy_</i>	(Sharma et al., 2019)
Profit Intensity	<i>profitiy_</i>	(Soni et al., 2017)
Repairs Intensity	<i>repiy_</i>	(Sahu & Narayanan, 2011)
Research Intensity	<i>resiy_</i>	(Prasad et al., 2019)
Capital Intensity	<i>capiy_</i>	(Haider et al., 2019)
Log of Exports proportion	<i>lnexp_sales</i>	(Goldar & Goldar, 2022)
Log of Total Assets	<i>lntotalassets</i>	(Kumar et al., 2023)
Log of age	<i>lnage_</i>	(Sahu & Narayanan, 2011)
CDP framework reporting	<i>cdpfw_</i>	(Clarkson et al., 2011)
PAT pre and post period dummy	<i>patper_dv</i>	(Sharma et al., 2019)
CSR spending	<i>csranpppercent_</i>	(Manchiraju & Rajgopal, 2017)
Return on Assets	<i>roa_</i>	(Petrescu et al., 2020)
Tobin's Q	<i>tobin's q</i>	(Jadiyappa et al., 2019)
Industry Peer CSR	<i>indpeercsr</i>	(Singh et al., 2021)
Number of CSR years involvement	<i>csr_years</i>	(Ching et al., 2017)

Advertising	<i>lnadvt_sales</i>	(Dienes et al., 2016)
Leverage	<i>lev_</i>	(Ching et al., 2017)
Market capitalisation	<i>lnmktcapn</i>	(Girón et al., 2020)
Company age	<i>age_</i>	(Singh et al., 2021)
Pre and Post mandate period dummy	<i>prepost_dv</i>	(Jadiyappa et al., 2019)

(Source: Authors' compilation based on the literature reviewed)

3.9 Conclusion

Literature on SR has examined the motivators for the same and its impact on financial performance. Different frameworks, mainly GRI, have been considered since they are one of the most popular and comprehensive reporting frameworks. Various theories can be used to explain companies' approach and adoption of SR. These may include institutional beliefs arising from ownership, trying to legitimise business operations in polluting industries, and visibility and impact regarding size, among others.

SR is mandatory for companies in India based on the size specification. Starting with the top 100 companies from 2012 to 2018, the SEBI has gradually made it compulsory for the topmost 1000 companies in a stage-wise manner. The Indian SR framework called the 'Business Responsibility Reporting' and now revised and called 'Business Responsibility and Sustainability Reporting' is based on the voluntary reporting guidelines, 'The National Voluntary Guidelines (NVG's) on Social, Environmental and Economical Responsibilities of Business'. In addition, the companies have been reporting voluntarily under the global reporting frameworks.

For this purpose, we consider voluntary SR under two global frameworks, GRI and CDP. We examine whether adopting such reporting varies based on size, ownership, polluting status, etc., and establish a theoretical rationale.

The CSR has been understood from different perspectives. Friedman considered CSR a diversion of shareholders' funds (shareholder theory). In contrast, Freeman believes it is a means of fulfilling responsibility towards multiple stakeholders rather than a single stakeholder – the shareholder (stakeholder theory). CSR is viewed as a means to 'give back' to society for what the company has gained in the form of profits (contractual theory), while others consider it a means to improve earnings in the future (strategic CSR). A viewpoint also considers CSR

engagement as a means of ‘greenwashing’ used to legitimise the companies' operations (legitimacy theory).

The CSR-CFP relationship has been examined by considering CSR as a determinant (legitimacy theory) and an outcome of the CFP (slack resources theory). The relationship is also considered from the bi-directional relationship wherein one may lead to the other. Examining this relationship from all three angles has yielded positive and negative results; sometimes, there is no relationship. Extant literature has considered different measures of CSR and CFP to study this relationship.

Most studies have considered different indices and ratings as measures of CSR. In the case of CFP, studies have used accounting and market-based measures of financial performance. We have used ‘Return on Assets’ (ROA) and ‘Tobin’s Q’ as measures of accounting and market-based measures, respectively.

We examine the CSR-CFP relationship as bi-directional by examining its determinants and impacts on financial performance. We use accounting and market-based measures to consider corporate financial performance. Along with the relationship between CSR and CFP, we also consider the influence of mandatory CSR, strategic CSR and the isomorphism in this relationship. We examine this relationship for all the companies in the sample. Further, we also classify the sample into mandatory and voluntary companies to explore this relationship.

Environmental audits are an effective means of controlling the environmental impact of the corporate sector. Hence, we examine the determinants of energy intensity using different operational performance indicators.

Based on the Schedule VII areas earmarked for CSR spending by the Companies Act 2013, we examine how CSR spending contributes to SDG achievement. For this purpose, data from the annual CSR reports and the national SDG scores are used. We also discuss this relationship at the state level.

The next chapter on SR, chapter 4, deals with the comprehensive theme of SR, in which we focus on voluntary SR. The general overview of such reporting will give an insight into the adoption of SR by the selected companies in India.

Chapter 4

THE STATE OF SUSTAINABILITY REPORTING IN INDIA

4.1 Introduction

After various developments, corporate reporting has expanded gradually from traditional financial accounts to non-financial disclosures covering economic, social, and environmental metrics, jointly termed SR, covering all these three metrics. SR extends and progresses corporate reporting to include social and environmental performance (Buhr et al., 2014). Sustainability recognises the economic objective; it ensures long-term economic viability through sustainable use and management of environmental and social resources (Wanner & Janiesch, 2019). SR is distinct but complementary to financial reporting (Loh et al., 2017) since both systems convey information to the stakeholders (Bosch-Badia et al., 2017).

Sustainability parameters of social and environmental responsibilities have started to find a place in the corporate mission and vision (Baral & Pokharel, 2017). The focus, therefore, has shifted from 'if' or 'why' a business has to adopt sustainability to 'how' and 'when' a firm can do so (Baumgartner, 2014; Gray et al., 1997).

Social contract (Gray et al., 1997) is the basis for continuously scrutinising the relationship between business and society. Genuine communication on sustainability should convey the positive and negative impacts of a firm's operations on the people and planet (GRI, 2016).

The development of Non-financial reporting (NFR) has been "rapid and fragmented" (WBCSD, CDSB, 2017). SR during the initial stages was in the form of social and environmental information added to financial and annual reports. Authors have expressed diverse opinions on whether environmental or social reporting started first. There are opinions that social reporting started first in the 1970s, with environmental reporting gaining prominence subsequently (Boodoo, 2016; Buhr et al., 2014; Roberts, 1992) during the 1980s and 1990s (CBRR, 2020), with the first environmental report published in 1989 (Kolk, 2004). At the same time, others suggest that social reporting follows environmental reporting (Lois, 2016). Gradually, companies started reporting on the non-economic parameters of sustainability, i.e.

social and ecological, giving rise to double bottom-line reporting. Corporate sustainability can only be complete with the economic parameter. A sustainable business organisation can sustain its profitability without endangering society and the environment. Thus, to be complete, SR has to cover the organisation's performance in all three areas, i.e., triple-bottom-line reporting. Hence, frameworks like GRI, which made a provision for reporting on all three, became popular.

The increasing pressure from non-shareholding stakeholders contributed to the rise in reporting on social and environmental problems (Sideri, 2021). The 1990s saw a marked increase in SR by companies, which coincides with the voluntary standard setting by GRI (Hahn & Kühnen, 2013). Globally, the SR frameworks and guidelines have been on the rise. In the 25 years following the 1992 Rio Earth Summit, they increased tenfold to about a thousand, indicating the need for diversity and complexity in such reporting (WBCSD, CDSB, 2017).

The lack of success with voluntary SR initiatives (Buhr et al., 2014) and the availability of multiple SR frameworks (PwC, 2021) prompted many nations to introduce a mandate on SR in some form. However, till the 21st century, the attempts at mandating SR or NFR were isolated like "bilan social" (social balance) that was introduced in France in 1977 (Mion & Loza Adauí, 2019). Realising the severity of social and environmental challenges has pushed the national governments, UN agencies, International organisations, private sectors, NGOs, and civil society to consider and contribute to SR (Bosch-Badia et al., 2017; Loh et al., 2017).

This chapter briefly summarises the different theories forming the basis of sustainability reporting. It also gives an overview of the SR landscape in India and the global SR tools frameworks. Considering two global SR frameworks, GRI and CDP, this chapter compares the adoption of SR among companies in India. Size, ownership structures, CSR voluntarism, business group affiliation and polluting status are the basis for this comparison. The chapter also links the different SR theories to the adoption or otherwise of SR.

4.2 Sustainability, Corporate Sustainability, and Corporate Sustainability Reporting

The Brundtland report defines sustainable development as managing resources to ensure intergenerational equity (Bansal & DesJardine, 2014). Sustainability involves achieving

economic efficiency with equity and justice by operating within the planet's ecological limits (Milne & Gray, 2013).

Corporate sustainability is a multidimensional concept (Searcy, 2012), which means sustainability in the context of businesses. It includes 'meeting the stakeholders' needs without compromising its ability to meet future stakeholder needs' (Dyllick & Hockerts, 2002).

Another definition specifies it as 'adopting business strategies and activities that meet the enterprise's and its present stakeholders' needs while protecting, sustaining and enhancing the human and natural resources needed for the future generations' (International Institute for Sustainable Development et al., 1992).

The above two definitions are based on sustainable development as they encompass the intergenerational equity put forth by sustainable development and the principles of equity and justice in the definition of sustainability.

Other definitions specify the focus and scope of corporate sustainability and define it as the 'inclusion of social and environmental issues in corporate operations and stakeholder interaction (Van Marrewijk, 2013). Corporate sustainability involves an active corporate engagement with stakeholders, including the environment, to adjust and improve the internal processes to contribute to corporate sustainability (Lozano et al., 2015).

Therefore, the firm's legitimate objectives extend beyond profitability to long-term social and environmental accountability (Bradford, 2012), implying sustainability in operations. This accountability thus results in reporting on sustainability issues. Relating to sustainable development, SR is the communication from a corporate entity on its performance in sustainable development.

Corporate SR is "an organisation's reporting on its economic, environmental, and social impacts, and hence its positive or negative contributions towards sustainable development" (GRI, 2016).

Corporate SR is "communicating how the movement of materials, resources, and services between companies, the capital markets, sections of society, and the economy, and environment influence the ability of corporate economic, social, and environmental systems" (Lois, 2016).

Reported as a part of the annual reports, financial reports, integrated reports, corporate governance reports, social and environmental reports, or as standalone sustainability reports (Stolowy & Paugam, 2018), it is also referred to as non-financial reporting, disclosures, corporate social reporting, sustainable development reporting, triple bottom line (TBL) reporting, and environmental, social and governance (ESG) reporting (Lois, 2016). Regardless of the names of sustainability disclosures, they should be able to provide information on the organisation's economic, social, and environmental concerns and performance along with 'good intentions of the management' (Milne & Gray, 2013).

SR contributes to sustainable development by understanding the company's long-term economic value creation and contribution towards a sustainable global economy by considering the company's financial, environmental, social, and governance performance and impacts (Lois, 2016).

4.3 Theoretical Background to the Variables used for Comparison

SR has been an essential driver of corporate reputation and financial performance (Jain & Winner, 2016). Such reporting has been increasing (Stolowy & Paugam, 2018) more in developed countries as compared to developing ones (Burhan & Rahmanti, 2012; Gray, 2006; Meutia et al., 2021; Raucci & Tarquinio, 2015). Regional differences in SR practices exist, with Asia Pacific and European regions leading such reporting (Barkemeyer et al., 2015) compared to the Middle East and Africa (McCalla-Leacy, 2022). Such differences have possibly arisen due to legal, political, labour, cultural, and socioeconomic factors (Baldini et al., 2018; Fifka & Drabble, 2012).

SR adds to overall information placed in the public domain but is found to need a uniform structure (Stubbs et al., 2013). Lack of uniformity can lead to selective reporting, which focuses on the positive aspects and defeats the objective of completeness in reporting (Brooks & Oikonomou, 2018). Mandatory SR overcomes the limitations of Voluntary sustainability reporting (Gray, 2006), but its success depends upon effective monitoring (Vormedal & Ruud, 2009). Many countries have introduced regulations on mandatory sustainability reporting (MSR) (Brooks & Oikonomou, 2018; Gnanaweera & Kunori, 2018). Parallel with companies' growth in MSR, there is a noticeable increase in voluntary sustainability reporting (VSR).

Companies adopt VSR by following different global SR frameworks. Such growth is due to multiple factors:

- a. establishing legitimacy (Brooks & Oikonomou, 2018; Gnanaweera & Kunori, 2018),
- b. linking it with financial performance, creating positive perceptions about the company's future earnings among the stakeholders (Brooks & Oikonomou, 2018).

Various theories explain corporate SR, like social contract theory (Gray et al., 1997), Stakeholder theory (Burhan & Rahmanti, 2012; Hahn & Kühnen, 2013), Legitimacy theory (Baldini et al., 2018; Bradford, 2012; Brooks & Oikonomou, 2018; Burhan & Rahmanti, 2012; Gnanaweera & Kunori, 2018; Hahn & Kühnen, 2013; Hedberg & von Malmberg, 2003), Signaling theory (Hahn & Kühnen, 2013), Institutional theory (Baldini et al., 2018; Hahn & Kühnen, 2013), and Visibility (Hahn & Kühnen, 2013).

Theories offer different explanatory perspectives of SR (Tavares & Dias, 2018). We use a combination of SR theories, namely visibility, legitimacy, institutional, and signalling, to explain the similarities and differences in VSR among companies based on the following factors. Factors like size, industry affiliation, and ownership also act as essential drivers of SR (Dienes et al., 2016; Hahn & Kühnen, 2013).

4.3.1 Size

The visibility of a company depends on its size and location (Higgins et al., 2015). Larger business organisations are sensitive to public perception (Hahn & Kühnen, 2013). Empirical studies have found a consistent positive link between firm size and SR (Gnanaweera & Kunori, 2018; Hahn & Kühnen, 2013). We use the BSE market capitalisation to measure the size and classify the companies from the BSE 500 as BSE 100 and BSE rest 400.

4.3.2 Sector

Polluting industries are typically under greater scrutiny (van der Laan, 2009) because of negative externalities in their production processes. According to the legitimacy theory, such companies need to convince the stakeholders that their operations are legitimate and socially acceptable (Hahn & Kühnen, 2013) and within norms established or expected by the societies (Dilling, 2010; Fedorova & Martynova, 2021; Raucci & Tarquinio, 2015; Stollowy & Paugam, 2018; Tavares & Dias, 2018). To gain legitimacy (Kumar et al., 2022), such companies would undertake SR (Higgins et al., 2015). For such companies, the motivation to gain legitimacy may

dominate financial outcomes (Schaltegger & Hörisch, 2017). We use the Central Pollution Control Board classification to classify the companies as polluting or otherwise.

4.3.3 CSR voluntarism

Companies use signalling to influence stakeholder perceptions and improve their image and reputation (Amaya et al., 2021). According to the signalling theory, SR overcomes information asymmetries between companies and stakeholders (Hahn & Kühnen, 2013). CSR practices motivated by reputation (Pérez, 2015) demonstrate a higher need for signalling as it will contribute positively to the evaluation of companies by the stakeholders (Su et al., 2016). SR can be an effective means for companies to convey voluntary CSR engagements. The Companies Act 2013's CSR mandate mandated minimum CSR spending for specified companies in India. With this background, CSR voluntarism aims to examine whether CSR voluntarism and SR voluntarism are related.

4.3.4 Ownership

Firms differ in their SR practices based on ownership. Foreign-owned (Masud et al., 2018) and government-controlled companies (Kumar et al., 2022; Nguyen, 2020; Zharfpeykan & Askarany, 2023) demonstrate more SR. Social accountability may drive higher SR by government companies (Kumar et al., 2022). The availability of financial resources, professional expertise, and responsibility to a diverse group of stakeholders can motivate foreign-owned companies to undertake SR (Masud et al., 2018). The companies from the sample are classified into three ownership categories: government-owned, Indian privately owned, and foreign-owned.

4.3.5 Business group affiliation

Business groups are a common feature in industries globally. A business group is often characterised by shared ownership by family ties of different independent companies engaged in diversified businesses (Mazumdar, 2008). Though they are a common feature in emerging markets (Sahasranamam et al., 2020), research on the business group affiliated firms is limited (Lin, Nguyen, 2019) and needs improvement (Mazumdar, 2008). Some studies suggest that firms affiliated with business groups are socially more responsible (Sahasranamam et al., 2020). However, we have yet to come across studies examining their SR practices. Our study examines whether such groups also exhibit greater VSR than others.

Understanding different aspects of corporate SR demands a multi-theory approach (Hahn & Kühnen, 2013) as they are interconnected. Larger companies are subject to higher public scrutiny due to their visibility and adopt VSR to legitimise their high social and environmental impacts (Fedorova & Martynova, 2021; Kumar et al., 2022).

An alternative to understanding SR as an act of legitimisation is the institutional theory (Hahn & Kühnen, 2013). The institutional approach is based on isomorphism, which can take forms like ‘coercive’, ‘mimetic’, and ‘normative’ (Benvenuto et al., 2023), thus soliciting similar behaviour from companies sharing standard features. Some companies undertake VSR due to internal institutional values (Vitale et al., 2019); others institutionalise it due to imitation of peers (Higgins et al., 2015; Tavares & Dias, 2018), and some due to stakeholder pressures (Benvenuto et al., 2023). Sector, Business group affiliation, or ownership type may be possible groups for companies to institutionalise VSR. Larger companies visible due to their size tend to signal their sustainability commitment through VSR to seek legitimacy and hence adopt VSR as a strategic value, institutionalising it over time (Higgins et al., 2015).

Research on non-financial disclosures has mostly considered mandatory disclosures, and voluntary non-financial disclosures need to be more researched (Kim & Lyon, 2011).

4.4 Theories Associated with Sustainability Reporting

Accountability is essential for sustaining a civilised society (Milne & Gray, 2013), and SR serves as a medium to discharge the same. SR is a crucial business strategy (Bansal & DesJardine, 2014), as transparency helps the firm enjoy the benefits of operating responsibly (Godfrey, 2005).

Theories of the firm explain the role and relationships of firms with stakeholders like government, employees, creditors, suppliers, civil society, and the natural environment (Lozano et al., 2015).

Different firms' theories justify corporate SR from various perspectives, but they are interrelated. Some theories that have tried to establish a rationale for corporate SR in the available literature are discussed below.

4.4.1 Shareholder theory

This theory proposes that corporate executives as agents should strive to maximise profits for their principals, the shareholders (Friedman, 2007).

As artificial persons, corporations do not have social responsibilities, and any investment in social or environmental causes would mean the diversion of corporate profits, which is a violation of the primary responsibility towards the shareholder (Friedman, 2007).

Corporate SR will ensure continued and sustained shareholder earnings to achieve the goal of improved shareholder value (Queen, 2015). SR contributes to profit maximisation by avoiding penalties from the regulators and reducing risks to profits arising from a lack of transparency and trust by the stakeholders.

4.4.2 Stakeholder theory

The stakeholder theory is a broader version of agency, and the shareholder theory extends its scope of stakeholders beyond shareholders to each individual or group affected by or affects the organisation's operations. The stakeholders include employees, customers, creditors, suppliers, shareholders, government, civil society, and NGOs (Shankman, 1999). Such extended stakeholder groups find a basis for SR since it involves reporting businesses' economic, social, and environmental performance.

The theory finds its basis in the social contract theory, which governs the existence of organisations (Bradford, 2012). The stakeholder theory, rather than a contravention of the shareholder theory, can be viewed as an extension of or a medium for shareholder wealth creation as it focuses on optimising wealth and creating value for all stakeholders, including shareholders (Venkataraman, 2019).

The stakeholder theory proposes that achieving and maintaining a proper balance between the interests of different stakeholder groups is the key to attaining performance goals and the firm's long-term survival (Shankman, 1999).

4.4.3 Social contract theory

Social Contract Theory is an extension of the agency theory. This theory extends the firm's contractual obligations to civil society in general. Society expects specific ethical behaviour from corporate firms by giving the firm a license to operate.

However, the social contract is an implied unwritten contract, which might be challenging to enforce. Assessing the environmental and social impact of business activity is a part of the social contract between business and society and is under increasing scrutiny (Gray et al., 1997).

The social contract is the basis for continued scrutiny of the relationship between business and society. Genuine communication on sustainability should convey the positive and negative impacts of a firm's operations on the people and planet (GRI, 2016).

The social concern and responsibility stemming from the social contract takes 'precedence' over all the other contracts (Garriga & Mele, 2004). Hence, reporting on such performance is the primary corporate responsibility.

4.4.4 Resource-based view theory

This theory recognises the firm as a collection of tangible and intangible resources specific to a firm, which add to its capacity. Such resources differentiate the firms and explain why some firms perform better than others in a similar type of setup. Such resources give the firm a competitive advantage, which cannot be imitated or substituted by the competitor firms.

It considers management and the board as a medium of access to resources essential for the firm's success. RBV theory states that firm value depends on its competitive advantage, derived mainly from intangible and strategic resources that are difficult to imitate.

Resource constraints act as a limiting factor for sustainability-related disclosures (Luo et al., 2013). The Resource-based view theory explains the differences in SR among developed and developing countries, large and small companies, and profitable and loss-making organisations (Luo et al., 2013).

4.4.5 Agency theory

Agency theory depends on the agency relationship in which the agent has duties or obligations towards the principal and should aim to minimise the agency costs by serving the interests of the principals (Shankman, 1999).

This viewpoint promotes any social investment that will contribute to maximising shareholder wealth. However, it should not be considered if such an investment represents only a cost.

However, the agency and stakeholder theories propose two opposing viewpoints. The Agency theory believes that the corporate manager's investment in sustainability initiatives comes at the cost of the shareholders and, hence, decreases value. The stakeholder theory believes such an investment ensures sustained financial performance, enhancing shareholder value.

4.4.6 Signalling theory

The corporate social and environmental obligations fulfilled give the companies a competitive edge not reflected directly in the financial reporting. Hence, they resort to SR to communicate their non-financial performance.

Signalling theory indicates that voluntary disclosures, like non-financial information, are a signalling device to signal the superior performance of a company to the stakeholders (Sun et al., 2022).

It deals with the problem of information asymmetry. SR will reduce this asymmetry, and stakeholders become more equipped with the information they need for decision-making (Hahn & Kühnen, 2013). Hence, SR can effectively signal their commitment to sustainability.

4.4.7 Legitimacy theory

Legitimacy theory is based on the relationship between the company and society bound by a social contract (Sun et al., 2022). Social and environmental communication through SR helps companies legitimise their functioning in the eyes of society. Communication on social and ecological concerns taken care of in the business operations helps the firm establish its operations' legitimacy (Bradford, 2012).

4.4.8 Visibility theory

Large companies with a high corporate reputation and environmental polluting activities are visible to the stakeholders and are under higher public scrutiny (Ali et al., 2018). Such companies may use SR to convey their efforts for social benefit and environmental sustainability.

4.4.9 Institutional theory

The institutional theory assumes that institutional pressures explain impacts on organisational structures, processes, and practices (Sun et al., 2022), including SR practices.

The institutional theory is based on isomorphism, which is when an organisation adapts to an institutional practice to seek resemblance to other members in the group (Sun et al., 2022).

Different authors have classified these theories differently (Sun et al., 2022). A single theory may not be able to explain the rationale for corporate SR and requires an understanding of the interrelationship between different theories, which overlap in many cases.

Corporate responsibilities cannot be classified as exclusively economic or social. Sustainability proposes an ‘enlightened shareholder maximisation strategy’ which ensures long-term value creation for shareholders by fulfilling stakeholder responsibilities (Queen, 2015).

Agency theory is stakeholder theory in a narrower form, and stakeholder theory is an outcome of agency theory (Shankman, 1999). Stakeholder, legitimacy, and institutional theories explain how companies react to social, political, and other pressures like peers, while agency and signalling theories deal with maximising company value (Sun et al., 2022). Stakeholder, legitimacy, and institutional theories have evolved from similar philosophical backgrounds, providing overlapping views (Sun et al., 2022). They treat the organisation as part of a broader social system and explain how organisations can survive in a changing society. They consider economic outcomes, organisational efficiency, and effectiveness as necessary conditions for organisations to survive (Sun et al., 2022).

4.5 Sustainability Reporting Tools

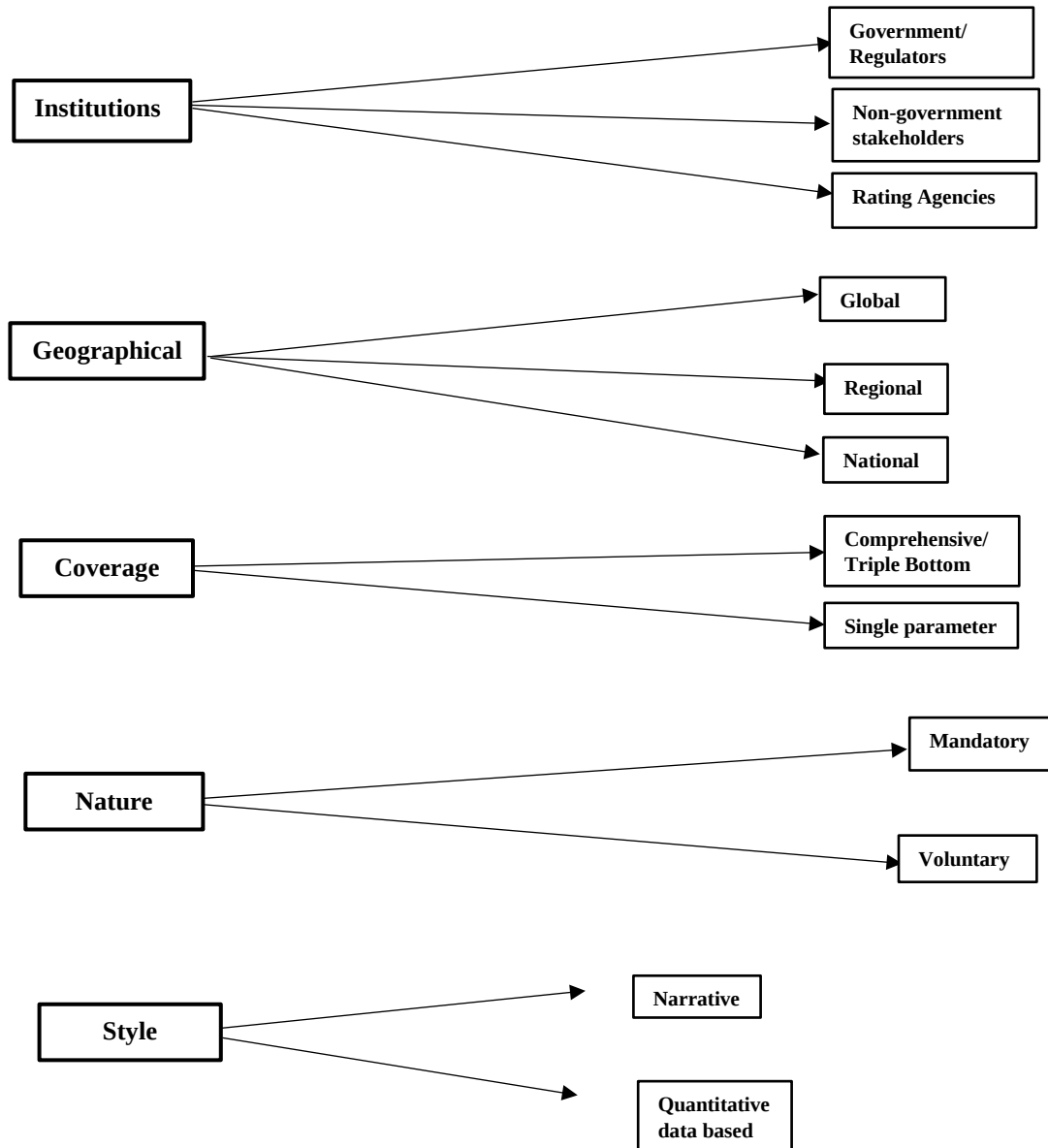
SR has existed in the form of environmental and social reporting during the late 20th century (GoI, 2020) and has seen an increase in the 21st century (Dienes et al., 2016; Hahn & Kühnen, 2013; Kolk, 2004) due to the rising stakeholder pressures including market demands and government regulations (GoI, 2020). Governments, regulators, and stock exchanges have introduced SR requirements in many countries (Dilling, 2010).

SR is no longer limited to specific regions. Companies worldwide follow national or international frameworks or guidelines (Threlfall et al., 2020). The country and region-wise disparities in SR (King & Bartels, 2015), which persisted (Ságodi & Szabó, 2017), are found to be reducing with SR spreading to companies from all the regions of the world (Threlfall et al., 2020). With the spread of SR, the number of tools or frameworks available for such reporting is also increasing (Threlfall et al., 2020). Most such frameworks are mandatory (King et al.,

2016). Scandinavian countries are considered global leaders in corporate social responsibility (CSR), sustainability and pioneers in SR (Strand et al., 2015). The rising number of national regulations and mandates on SR requirements in different countries have played an essential role in such increased sustainability reporting (King & Bartels, 2015). Out of the top ten reporting countries as identified by the KPMG Survey of Corporate Responsibility Reporting (2015), eight countries, namely India, Indonesia, Malaysia, South Africa, the UK, France, Denmark, and Norway, have mandatory SR requirements in some form or another (Dilling, 2010; King & Bartels, 2015).

However, there is still room for improvement in the third-party assurance of sustainability reports. The overall rate of companies opting for independent assurance of sustainability reports is low (Threlfall et al., 2020).

Figure 4. 1: Classification of Sustainability Reporting Tools



(Source: Based on (Guterman, 2020; Ligteringen & Zadek, 2005; Siew, 2015))

Increased demand for corporate transparency (Siew, 2015) has increased the SR tools. Such tools in the form of frameworks, standards, and guidelines are changing and evolving, with different international agencies, governments, stock exchanges, and other regulatory authorities designing frameworks and approaches for SR.

SR tools provide a basis to evaluate a company's sustainability performance and can be classified based on the issuing institutions, geographical coverage, reporting coverage, nature, and style (See Figure 4.1).

4.5.1 Global voluntary SR tools

We provide a brief overview of some of the global SR tools available to the companies besides the relevant statutory ones applicable to them.

4.5.1. i. *United Nations Global Compact's (UNGC) Communication on Progress (CoP) 2010*

This framework provides for disclosing corporate practices on Governance, Human Rights, Labour, Environment and Anti-Corruption to ensure that business activities are aligned with societal goals (PricewaterhouseCoopers et al., 2013). The framework has ten principles drawn from landmark UN Declarations and Conventions like the Universal Declaration on Human Rights (UNDHR), the Convention against Corruption, the Rio Declaration on Environment and Development and the International Labour Organisation's (ILO's) Declaration on Fundamental Principles and Rights at Work (PricewaterhouseCoopers et al., 2013).

From 2023, the form of reporting has changed from the earlier narrative form of CoP, has been changed to a standardised questionnaire to be answered on the UNGC's digital platform (<https://unglobalcompact.org/participation/report/cop>).

4.5.1. ii. *The Organisation for Economic Cooperation and Development (OECD) Guidelines for Multi-National Enterprises (MNEs) 2011*

These guidelines are a set of principles and standards for responsible business conduct by Multi-National Enterprises in areas like employment, environment, human rights, disclosure, bribery, consumer interests, competition and taxation, and science and technology (Guttermann, 2020; PricewaterhouseCoopers et al., 2013).

4.5.1. iii. *ILO Tripartite Declaration of Principles Concerning Multi-National Enterprises (MNEs) and social policy 2006*

This declaration by ILO provides guidelines to Multi-National Enterprises, governments, employers, and workers' organisations to report on labour-related areas like employment, training, conditions of work life, and industrial relations (Guttermann, 2020).

4.5.1. iv. UN Guiding Principles on business and human rights 2011

The Guiding Principles were approved by the UN Human Rights Council in 2011. They require the companies to report on how they protect human rights in their operations. The information reported should be sufficient to convey the actions taken by companies regarding their human rights impacts and be helpful to stakeholders in decision-making (Guttermann, 2020).

4.5.1. v. ISO standards

ISO is a global association of national standards-setting bodies that provide standards, guidelines, and certification in different areas. ISO standards relating to sustainability include ISO 14001, ISO 26000, and ISO 50001.

ISO 14001, launched in 1996, provides Environmental Management Systems (EMS) guidance to improve environmental performance (<https://www.iso.org/standard/60857.html>)

ISO 26000, issued in 2010, is a guidance standard on how organisations can function in a socially responsible manner. It provides principles on six social responsibility areas: human rights, environment, labour practices, fair operating practices, consumer issues, and community involvement and development (PricewaterhouseCoopers et al., 2013).

The ISO 50001, published in 2011, deals with energy management systems and provides guidance on improving energy use (<https://www.iso.org/iso-50001-energy-management.html>.)

4.5.1. vi. Climate Change Reporting Framework 2018 by Climate Disclosure Standards Board (CDSB)

It is a global association of businesses and environmental non-government organisations (NGOs). The Climate Change Reporting Framework, released by the board in 2010, focuses on the impact of climate change on the organisation's functioning. It provides for the incorporation of environmental reporting into mainstream reporting. The framework intends to help companies use SR to manage their environmental impacts and add long-term value. In January 2022, the CDSB was consolidated into the International Financial Reporting Standards (IFRS) Foundation (<https://www.cdsb.net/>.)

4.5.1. vii. Green House Gas (GHG) Protocol Corporate Standard 2004

This standard was jointly prepared by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). It can be used by businesses and other organisations, including NGOs, governments, and educational institutions, to report on

their GHG emissions. The standard provides a basis for measuring and managing GHG emissions to improve efficiency and resilience (<https://www.wri.org/initiatives/greenhouse-gas-protocol>).

4.5.1. viii. Carbon Disclosure Project (CDP) 2000

It is a voluntary global disclosure system based in the United Kingdom (UK). It facilitates reporting on environmental risks, opportunities, and impacts for companies, cities, states, and regions. Environmental reporting under CDP helps measure global progress on sustainability, enhances companies' reputations, and allows them to enjoy a competitive advantage. (<https://www.cdp.net/en/guidance>).

4.5.1. ix. Dow Jones Sustainability Index (DJSI) 1999

This International family of indices includes indices like DJSI World and regional and country-specific sustainability indices, such as the DJSI North America, Europe, Asia Pacific, and Emerging Markets. Companies are evaluated for inclusion in the DJSI based on various financially relevant sustainability criteria covering the economic, environmental, and social dimensions. (<https://www.spglobal.com/esg/performance/indices/djsi-index-family>).

4.5.1. x. Integrated Reporting (IR) Framework 2013 by International Integrated Reporting Council (IIRC)

IIRC is a global consortium of regulators, investors, companies, standard setters, and NGOs founded in 2010. It issued the IIRC framework in December 2013 (Gutterman, 2020). An integrated report prepared under this framework discloses value creation and value creation processes using Financial, Manufactured, Intellectual, Social and relationship, Human, and Natural capital (<https://www.integratedreporting.org/the-iirc-2/>). The IR framework is now under the International Financial Reporting Standards (IFRS). In India, SEBI issued a circular in 2017 recommending that the top 500 listed companies adopt the IR framework (SEBI, 2017).

4.5.1. xi. Global Reporting Initiative (GRI)

The Coalition for Environmentally Responsible Economies (CERES) and Tellus Institute, a United States (US) non-profit organisation with the active involvement of the United Nations Environment Programme, founded the GRI in Boston. It launched the first set of guidelines in 2000, which were in 2002, 2006, 2011, and 2013 (Siew, 2015). In 2016, the GRI, through the

Global Sustainability Standards Board (GSSB), launched the first Global Standards on SR (GRI, 2016). In 2021, GRI started launching the sector standards for SR (GSSB, 2021).

4.6 Why GRI and CDP

4.6.1 Global Reporting Initiative (GRI)

The introduction of GRI has been a major factor in the promotion of SR (Kolk, 2004) and is the most commonly used tool for SR (McCalla-Leacy, 2022). Many companies use this framework worldwide (Barkemeyer et al., 2015; Dilling, 2010; Gutterman, 2020; McCalla-Leacy, 2022).

GRI guidelines facilitated SR by providing a framework to report (Hedberg & von Malmberg, 2003). In 1999, only three companies used the GRI framework. By 2020, 96% of the G250 were using GRI. From these, 73% were issuing GRI standards-compliant sustainability reports. GRI standards have been referenced in 168 policies of 67 countries and regions. Since 2020, more than 10000 organisations across the globe are reporting with GRI standards (GRI, 2022).

The popularity of the GRI is due to its holistic reporting covering all three sustainability parameters, namely, economic, social, and environmental. The coverage of all parameters allows the companies to report on various indicators (Raucci & Tarquinio, 2015). The companies following the GRI framework can thus satisfy the needs of multiple stakeholders concerning diverse information needs, which positively influences companies' financial performance (Burhan & Rahmanti, 2012; Siew, 2015).

GRI has also been adopted widely for SR in countries that do not have a national framework and legislation (Dilling, 2010). However, even in countries with mandatory requirements like Business Responsibility Reporting (BRR), as in the case of India, companies have been providing quality sustainability-related information under GRI (Kumar et al., 2023). Studies have found ownership (Masud et al., 2018; Rudyanto, 2017) and industrial affiliation (Girón et al., 2020) to be important factors influencing the adoption of the GRI framework.

4.6.2 Carbon Disclosure Project (CDP)

Climate change has become necessary on the global, national, and corporate agenda, necessitating the disclosure of GHG emissions by companies (Depoers et al., 2016). Environment-related global regulations are interventions at the international level to tackle the

problems of climate change (Charumathi & Rahman, 2019). Climate change and GHG emissions are increasingly acknowledged (Kim & Lyon, 2011) as risks to businesses, leading to increased reporting on carbon emissions and targets. Based on the GHG Protocol, CDP seeks information on Scope 1, 2, and 3 emissions (Blanco et al., 2017), which is useful for decision-making by investors and the reporting companies.

CDP is the largest (<https://www.cdp.net/en/companies/companies-scores>) and the most comprehensive global database of corporate environmental data reported by the companies themselves (GRI & CDP, 2017). The number of companies adopting the CDP framework has increased (CDP & CDSB, 2020; GRI & CDP, 2017).

Reporting under CDP varies based on country (Matisoff et al., 2013) and sector (Blanco et al., 2017; Charumathi & Rahman, 2019; Matisoff et al., 2013). Mandatory environment-related national regulations (Matisoff et al., 2013) and the polluting status of sectors (de Faria et al., 2018) have contributed positively to the transparency in CDP reporting. Studies point out reducing information asymmetries (Adhikari & Zhou, 2022), legitimacy (Li et al., 2018), and institutional pressures (Charumathi & Rahman, 2019) as drivers for CDP reporting.

The environmental disclosures under the Task Force on Climate-Related Financial Disclosures (TCFD) seek financial information based on climate change risks and opportunities. The CDSB framework provides for reporting on natural capital, which is considered necessary as financial capital (CDSB, 2018). Based on the TCFD's recommendations, the information provided to the relevant CDP question can be effectively reported under the CDSB framework since the information sought through the CDP questionnaire covers most TCFD recommendations (CDP & CDSB, 2020). The CDP is a link between CDSB and TCFD frameworks.

The GRI framework provides a comprehensive SR framework, including economic, social, and environmental impacts, but CDP reporting is restricted to climate change. However, the disclosures under both frameworks can be aligned to take advantage of the 'synergy' of both initiatives (GRI & CDP, 2017).

4.7 Sustainability Reporting in India

India has a hybrid SR framework consisting of mandatory and voluntary options. Annual CSR report as specified by section 135 of the Companies Act, 2013 and the Business Responsibility Reports (BRR) and now the Business Responsibility and Sustainability Reporting (BRSR) as

required to be prepared by the SEBI regulations form a part of the mandatory SR framework. However, the companies can also adopt the international SR frameworks, including GRI, CDP, ISO 14000, Communication on Progress by the UNGC, and the International Integrated Reporting Framework. Though SR under BRR has been made mandatory for the specified companies in a phased manner, such SR is underexplored. We found only one study that used SR under mandatory BRR and where it positively influenced the environment-related disclosures among the companies (Charumathi, Rahman, 2019). The reason could be the need for more accuracy and clarity in the information reported in BRR, which limits stakeholders' use of it for decision-making (GoI, 2020). The new framework, the BRSR, allows companies to disclose sustainability-related data meaningfully and usefully (GoI, 2020), which may improve its use by stakeholders and researchers.

Companies from India have also been following SR under the available voluntary global frameworks. 98% of the top 100 Indian companies report on sustainability (Threlfall et al., 2020).

They started SR in early 2001 under the GRI framework. Among the BRIC nations, India has the highest Sustainability disclosures (Bhatia & Tuli, 2018; Kumar & Das, 2018). However, studies focusing on SR under voluntary international frameworks are limited. GRI reports were used by (Bhatia & Tuli, 2018; Masud et al., 2018). Only compliance with the GRI framework was used by (Jain & Winner, 2016), while the GRI framework was used to analyse sustainability-related disclosures from other corporate reports (Goel & Misra, 2017; Laskar, 2018; Laskar & Maji, 2016). Others have used self-constructed SR indices (Kansal et al., 2014), Bloomberg ESG Score (Fahad & Nidheesh, 2021), and S&P ESG index (Ghosh, 2013) to measure SR.

Most studies on sustainability in the Indian context have focused on mandatory CSR spending and reporting as per the CSR mandate in the Companies Act 2013, which we discuss in another chapter.

First-hand scrutiny of the BRRs of BSE 100 companies confirms the observations made by the (CBRR, 2020). Hence, we limit the discussion in this chapter to the voluntary SR under the selected global frameworks. Based on the data availability, we choose two frameworks: GRI, a TBL framework for SR, and CDP, an environmental reporting framework. The analysis

here is limited to the adoption of VSR frameworks and not the type or the quality of disclosures. Hence, analysing SR under the mandatory BRR would not give any meaningful insights since its adoption was compulsory for the companies in the sample selected for this study.

SR in India has been evolving over the years (Jain & Winner, 2016) and can be considered to be a mix of statutory legislation and the provision of voluntary initiatives. The SR laws in India allow companies to go beyond the mandatory requirements and adopt voluntary initiatives.

Table 4. 1: Sustainability Reporting related developments in India

Year	Sustainability Reporting guidelines and regulations in India	Issuing Authority
2007	Banks' role in Corporate Social Responsibility, Sustainable Development, and Non-Financial Reporting	Reserve Bank of India
2009	Corporate Voluntary Guidelines	Ministry of Corporate Affairs (MCA)
2011	National Voluntary Guidelines (NVG's) on Social, Environmental and Economical Responsibilities of Business.	Ministry of Corporate Affairs (MCA)
2012	Business Responsibility Reporting (BRR) was introduced for the top BSE 100 listed companies.	Securities Exchange Board of India (SEBI)
2013	Mandate on CSR in the Companies Act, 2013 and CSR Rules	Ministry of Corporate Affairs (MCA)
2014	Sustainable Development and Corporate Social Responsibility Guidelines for the Central Public Sector Undertakings (CPSEs)	Ministry of Heavy Industries and Public Enterprises (Department of Public Enterprises)
2015	Extension of SEBI guidelines to top BSE 500 listed companies	Securities Exchange Board of India (SEBI)
2017	SEBI circular on adoption of Integrated Reporting (IR) voluntarily	Securities Exchange Board of India (SEBI)
2019	National Guidelines on Responsible Business Conduct (NGRBC)	Ministry of Corporate Affairs (MCA)
2019	Extension of SEBI guidelines to top BSE 1000 listed companies	Securities Exchange Board of India (SEBI)
2021	Business Responsibility and Sustainability Report (BRSR) in May 2021	Securities Exchange Board of India (SEBI)
2023	Business Responsibility and Sustainability Report Core (BRSR Core) in July 2023	Securities Exchange Board of India (SEBI)

(Source: Authors' compilation based on circulars and notifications from different government and regulatory agencies)

4.7.1 Mandatory sustainability reporting

The mandatory sustainability-related disclosures are required in India as per

1. The Companies Act, 2013 and
2. The regulations of SEBI (Securities Exchange Board of India)

4.7.1. i. Companies Act, 2013

a. Section 166(2) of the 2013 Act covers various aspects of sustainability universally applicable to all companies in India. It states that "a director of a company has to act in good faith to promote the objectives of the company for the benefit of its members as a whole, and in the best interests of the company, employees, shareholders, community and the protection of the environment" (GoI, 2013).

b. Similarly, section 135(1) of the Companies Act 2013 specifies that every company which have a net worth of Rs. 500 crores or more or turnover of Rs. 1000 crores or more or a net profit of 5 crores or more during any financial year shall spend a minimum of 2% of the average net profits of the past three years' profits on CSR activities as specified in Schedule VII of the Companies Act, 2013 (GoI, 2013). Eligible companies shall have a CSR policy and a CSR committee, spend on CSR, and report on such spending as per Schedule VII of the Companies Act.

4.7.1. ii. The regulations of SEBI (Securities Exchange Board of India)

a. Business Responsibility Reporting (BRR) framework

The Securities Exchange Board of India (SEBI), India's regulator for securities markets, mandated Business Responsibility Reporting (BRR) for the top 100 listed entities in 2012 (SEBI, 2012). The mandate required the companies to submit the BRR to the BSE and include it in their annual reports for the benefit of the public. This initiative was adopted as a part of the Sustainable Stock Exchange Initiative. With this, India's national SR system started getting a mandatory form, mainly complying with or explaining the basis of the NVGs.

In November 2015, SEBI expanded the requirement of mandatory BRR to the top 500 companies (SEBI, 2015) and subsequently to 1000 companies in 2019 (SEBI, 2018).

In 2009, the Ministry of Corporate Affairs (MCA) issued Corporate Social Responsibility Voluntary Guidelines. These guidelines were subsequently revised and released as National Voluntary Guidelines in 2011. The reporting framework of NVGs is designed on the 'Apply-or-Explain' principle. Different principles required to be reported on as a part of the Business Responsibility Report were based on the Ministry of Corporate Affairs' National Voluntary Guidelines (NVGs) covering Social, Environmental, and Economic Responsibilities

of Business issued in 2011 (SEBI, 2012). The NVGs are based on nine principles covering ethics, products, human rights, natural environment, stakeholders like employees, marginalised groups, customers, and consumers, and Influence public policy to ensure inclusive growth and equitable development.

The BRR framework was primarily based on the nine principles of NVGs. This report consisted of five sections for the company to report on.

- General Information about the Company,
- Financial Details of the Company,
- Other Details,
- BR Information and
- Principle-wise performance.

The NVGs provide a scope for the companies to self-monitor their progress on these principles. The indicators for different principles were classified as Essential and Leadership Indicators. This classification is also followed in the BRSR framework (SEBI, 2021a).

b. Business Responsibility and Sustainability Reporting (BRSR) Framework

To incorporate the global developments in the sustainability areas, the UN Sustainable Development Goals (SDGs), the Paris Agreement on Climate Change, and the United Nations Guiding Principles (UNGPs) on Business and Human Rights, the revised NVGs were released as the National Guidelines on Responsible Business Conduct (NGRBCs) in March 2019.

After the release of NGRBC's Ministry of Corporate Affairs, the Government of India constituted a Committee on Business Responsibility Reporting with SEBI as one of its members. The committee had to finalise BRR formats for listed and unlisted companies based on the NGRBCs' framework. The committee on BRR recommended a BRSR. After considering the comments from over 35 stakeholders, including corporates, overseas and Indian institutional investors, and international organisations, the proposed BRSR format was revised to provide more helpful information to the stakeholders (SEBI, 2021a).

The information reported in BRR has yet to fulfil the tests of accuracy and clarity (CBRR, 2020), thus limiting its use for stakeholders' decision-making. Accordingly, SEBI has issued a new framework, the BRSR, allowing companies to disclose sustainability-related data

meaningfully and usefully (CBRR, 2020). The BRSR framework was made applicable from 2021-22 voluntarily and made mandatory from 2022-23 (SEBI, 2021a).

Companies carry out VSR by adopting international reporting tools. These include the Global Reporting Initiative (GRI), the Carbon Disclosure Project (CDP), the United Nations Global Compact (UNGC), the International Integrated Reporting Council (IIRC), the International Organisation for Standardisation (ISO), and the Dow Jones Sustainability Index (DJSI). The BRR and BRSR Framework principles have been linked with GRI, the Sustainability Accounting Standards Board (SASB), TCFD, and IIRC's framework to facilitate the companies' undertaking of VSR through international frameworks (SEBI, 2021b).

c. Business Responsibility and Sustainability Reporting Core (BRSR Core) Framework

The BRSR Core is a subset of the BRSR, with the key performance indicators (KPIs) under nine ESG attributes and a few new indicators. The BRSR core provides for disclosures on the value chain by the listed companies in the annual reports. The value chain for this purpose will include top upstream and downstream partners for the eligible entity. The applicability of the BRSR core will start with the top listed 150 companies in the first year of its implementation, i.e. 2023-24. Such applicability will increase to include the top listed 250 companies in 2024-25, the top listed 500 in 2025-26, and the top listed 1000 in 2026-27 (SEBI, 2023).

4.7.2 Voluntary sustainability reporting

Companies from India have been voluntarily reporting under various global frameworks for sustainability. These include the Global Reporting Initiative (GRI), the International Integrated Reporting Council (IIRC), the Carbon Disclosure Project (CDP), and also the United Nations Global Compact (UNGC) principles. In line with global trends (Ságodi & Szabó, 2017), a majority of the companies in India have been filing their sustainability reports with the GRI database.

Though GRI started in 1999, the first report from India was filed with GRI only in 2001. From 2001 to 2007 the progress in the area could have been faster. Since 2008, however, the number of reports filed with the GRI database by companies from India has been increasing. In 2017, more than 300 companies filed their reports using the GRI database.

Global Reporting Initiatives (GRI) is the most popular framework globally (Ságodi & Szabó, 2017). Of India's top BSE 500 organisations, 498 reported reporting with GRI. Compared to the other South Asian countries, more companies from India file reports with GRI, a majority of which are non-GRI, in the form of primarily BRRs. The proportion of those filing GRI reports among the total reporting companies is low (15%) (GRI, 2020). Here, we consider only the reports prepared under different versions of GRI.

Since GRI and CDP are the two most popular global SR frameworks, we limit our study to these international tools and study the trend among Indian companies.

There have been several studies on SR. Some of them are

1. Based on countries, which include
 - a. Cross country studies (Dilling, 2010; Fifka & Drabble, 2012; Kolk, 2004; Makarenko & Sirkovska, 2017).
 - b. Country-specific studies like Malaysia (Abbas et al., 2022), Iran (Mohammadi et al., 2018), India (Goel, 2021), Indonesia (Burhan & Rahmanti, 2012), Singapore (Loh et al., 2017).
2. Based on Mandatory SR, which include
 - a. Studies on mandatory non-financial reporting frameworks were introduced in specific countries like Indonesia (Waagstein, 2011), Germany and Italy (Mion & Loza Adau, 2019), and China (Chen et al., 2018).
 - b. Studies on non-financial disclosures without voluntary and mandatory differentiation (Goel & Misra, 2017; Kolk, 2004).
3. Based on frameworks: Most of the studies have considered VSR under a single framework, like
 - a. GRI (Barkemeyer et al., 2015; Dilling, 2010; Fifka & Drabble, 2012; Makarenko & Sirkovska, 2017),
 - b. CDP (Ben-Amar et al., 2017),
 - c. ISO 26000 (Mohammadi et al., 2018).

An exception is a study considering two frameworks, GRI and ISO by Goel, (2021).

We add to the literature on SR by explicitly examining the VSR. Secondly, we expand the assessment by combining two VSR tools – GRI and CDP. Third, along with the frequently

discussed measures like size, sectors, and ownership, we analyse SR in India based on business group affiliation and CSR voluntarism. These aspects are relatively unexplored in the literature.

4.8 Data and Methods

4.8.1 Sample

We selected the top 500 companies forming a part of the Standard & Poor's Bombay Stock Exchange (S&P BSE) 500 index (BSE 500 hereafter). The study is conducted from 2010 to 2019. After data cleaning, we had a sample of 386 companies.

4.8.2 Data sources

Data on CSR spending to classify the companies as voluntary and non-voluntary, the BSE group classification, the business group affiliation, and the ownership category were obtained from the CMIE ProwessQ database.

The data on sustainability reporting under GRI was mainly obtained from the GRI database. The companies' websites were also accessed to get the data on whether they were preparing sustainability reports as per the global sustainability reporting framework GRI.

The data on the companies answering the CDP questionnaire was obtained from the annual CDP reports from 2010 to 2019.

We classify the companies into polluting and non-polluting based on the Central Pollution Control Board directives on the Grossly Polluting Industries (GoI, 2011)

4.8.3 Variables

For analysis, we have classified the entire sample into different categories based on different criteria under consideration. These criteria are the basis for constructing variables analysed for the adoption of SR under the global frameworks. (Table 4.2) shows the sample distribution by the criteria considered and the SR adoption by each group under GRI, CDP exclusively and jointly under both.

4.8.3. i. Sustainability reporting:

- a. Those following only GRI
- b. Those following only CDP
- c. Those following GRI & CDP

The GRI database, company websites, and CDP reports recorded whether a company prepared a standalone report or responded to the CDP questionnaire under GRI. We created a binary variable to indicate "YES" (value 1) and "NO" (value 0) to record this information for our analysis.

We constructed three variables to understand which companies followed GRI only (*gri_only*), which companies responded to CDP only (*cdp_only*), and which reported under both (*gri_cdp*).

We study the propensity to report under these categories based on size, industry affiliation, business group affiliation, ownership type, and CSR voluntarism.

4.8.3. ii. BSE Group

The S&P BSE 500 group of companies, as of 31st March 2019, was separated into the S&P BSE 100 group from the BSE rest 400. Of the final sample of 386 companies, 90 belonged to the S&P BSE 100 index, and 296 belonged to the BSE rest 400 group. These groups are referred to as BSE 100 and the BSE rest 400 in the rest of the discussion.

We use these groups to indicate differences in size. S&P BSE 500 is a broad representation of the Indian capital market. S&P BSE 100 companies are the largest and the most liquid Indian companies (Asia Index Private Limited, 2023). The BSE rest 400 represents the companies from the S&P BSE 500 that are not a part of the S&P BSE 100 and hence represent the group of companies smaller than the S&P BSE 100. We create a variable "*bse_group*", which takes value=1 if the company belongs to the BSE 100 group and value=0 otherwise.

4.8.3. iii. CSR voluntarism

The CSR mandate was introduced in India as a part of the Companies Act of 2013. It was made applicable from the financial year 2014-15. However, companies in India were engaged in CSR even before the mandate was introduced. Hence, we divide the ten years from 2010 to 2019 into two five-year periods, one of which is the pre-regulation, i.e., 2010 to 2014, and the second is the post-regulation period from 2015 to 2019 (Jادیappa et al., 2019; Mukherjee et al., 2018). The companies are classified as voluntary if they have spent on CSR in any year during the pre-regulation period from 2010 to 2014. We intend to study whether CSR voluntarism is related to

SR. We created a variable “csr_voluntarism”, which takes value=1 if the company has been a voluntary CSR spender and value=0 if the company is a mandatory spender after the 2015 post-Companies Act requirement.

4.8.3. iv. Business group affiliation

Many companies belong to large business groups. We created a binary variable “group”, which takes value=1 if the company belongs to a group and value=0 otherwise. Almost 75% of the sampled companies belong to larger business groups, and only 25% are non-business group companies.

4.8.3. v. Sector

There are seventeen categories of highly polluting industries, as notified by the Central Pollution Control Board in India (GoI, 2011). After classifying the companies from the sample into the relevant polluting industry, the rest are categorised as “Others”. 69% of the companies do not belong to any of the notified polluting industries. The remaining 31% belong to fifteen of the seventeen sectors.

A dummy variable, “polluting”, is created to indicate if they belong to the notified group (value=1) or not (value=0).

4.8.3. vi. Ownership

Company data by type of ownership is available in four broad categories: Central Government companies, State Government companies, Indian Private Companies, and Foreign-owned companies.

For convenience of analysis, we treat the state and the central government-owned companies as one category: government-owned companies. The distribution is Government ownership companies (11%), foreign ownership companies (13%), and Indian private ownership companies (76%).

We created a categorical variable “ownership”, which takes value=1 if the company has Foreign ownership, value=2 if the company has Indian private ownership, and value=3 if the company has government ownership.

Table 4. 2: Sample distribution and sustainability reporting in different categories by different groups

Criteria	Classification	No of Companies	Total No of observations (2010- 2019)	Reporting under GRI Only No of observations (2010- 2019)	Reporting under CDP Only No of observations (2010- 2019)	Reporting under GRI and CDP No of observations (2010- 2019)
BSE Group	BSE 100	90	900	133	98	214
	Rest 400	296	2960	101	64	34
CSR voluntarism	CSR volunteers	245	2450	199	102	165
	CSR non-volunteers	141	1410	35	60	83
Business Group affiliation	Affiliated	291	2910	206	142	235
	Not affiliated	95	950	28	20	13
Industry affiliation	Notified polluting industries	121	1210	143	46	92
	Others	265	2650	91	116	156
Ownership	Government-owned	42	420	83	7	23
	Indian Private companies	294	2940	137	135	191
	Foreign-owned companies	50	500	14	20	34

(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

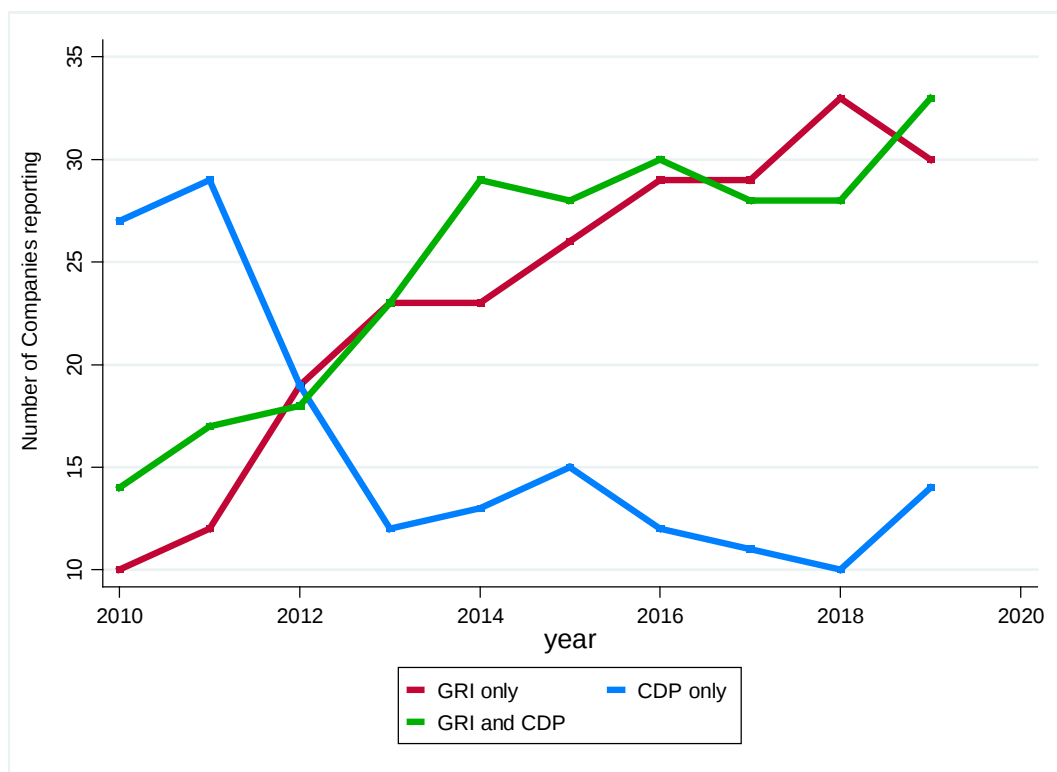
4.8.4 Methods

This chapter examines the trends in SR under GRI and CDP and the differences in such reporting based on different criteria selected. We have used data visualisation in terms of line and bar graphs to present these trends. We have used STATA version 12 for the analysis.

4.9 Analysis and Discussion

4.9.1 Sustainability reporting year-wise

Figure 4. 2: Sustainability reporting year-wise



(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

The number of companies reporting exclusively under CDP has declined drastically in the last decade. GRI has grown in popularity. Such companies also report under CDP. The total number of companies following the GRI framework has risen from 24 in 2010 to 63 in 2019. Around 50% of them also follow the CDP framework. This joint reporting trend indicates that the companies that started with only environmental reporting have also adopted social reporting under the GRI framework (Figure 4.2).

4.9.2 Sustainability reporting based on BSE group

When we examine the trend of the two groups, BSE 100 and the BSE rest 400 (Figures 4.3 and 4.4), we find that the combined submission of GRI and CDP is more popular among the BSE 100. Exclusive GRI reporting is more popular among the BSE rest 400. Exclusive CDP reporting has declined for both groups.

Figure 4. 3: Sustainability reporting by BSE 100 companies

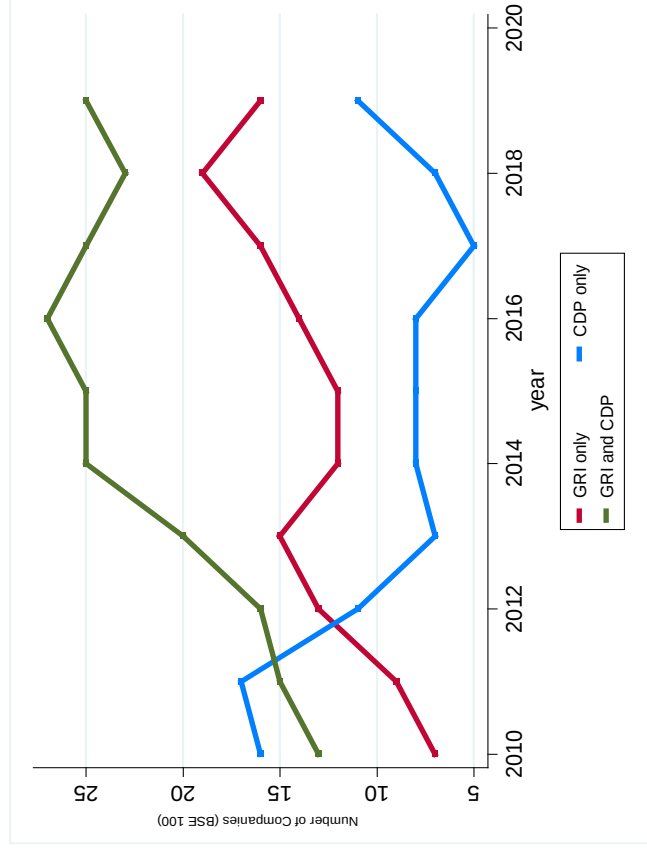
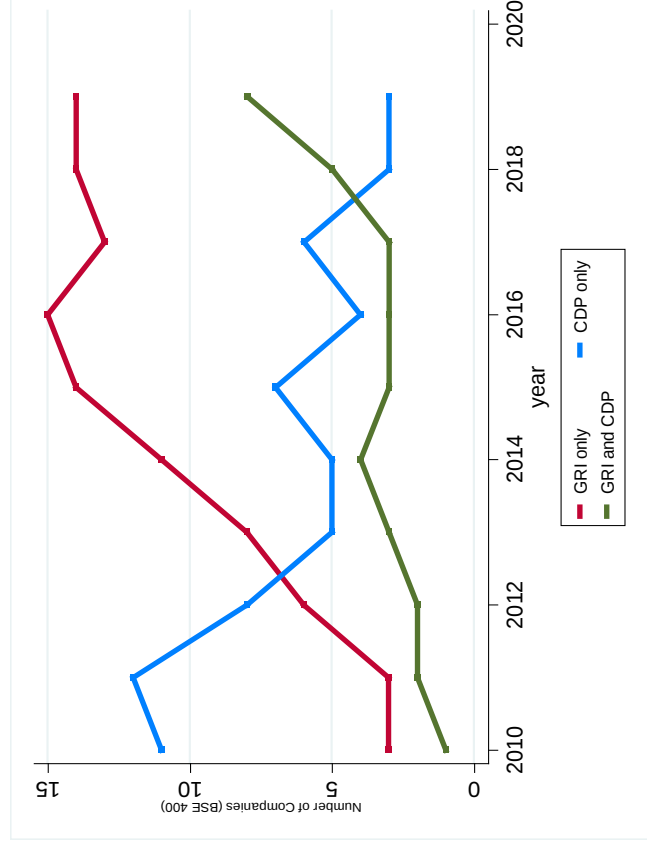


Figure 4. 4: Sustainability reporting by BSE rest 400 companies



(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

4.9.3 Sustainability reporting based on mandatory and voluntary CSR spending groups

Figure 4. 5: Sustainability reporting by mandatory CSR companies

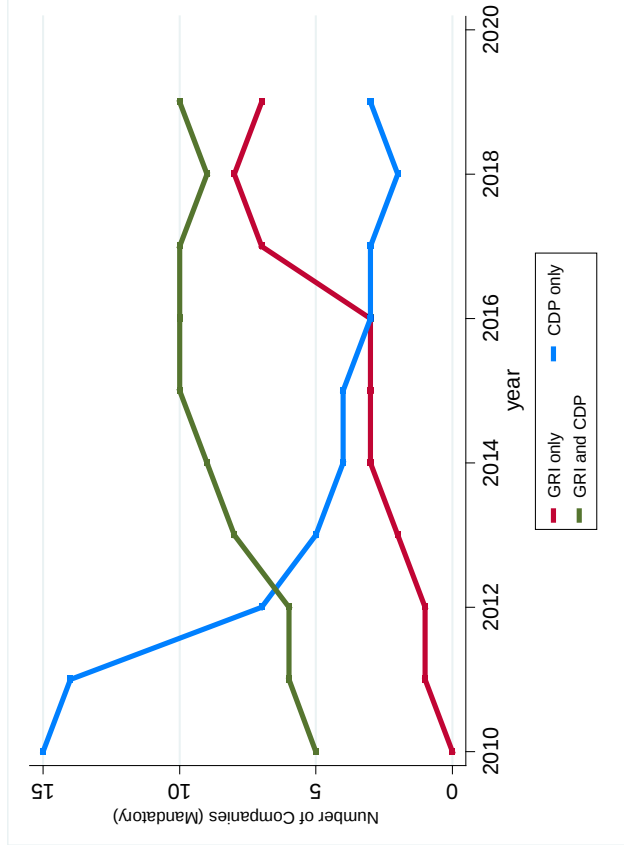
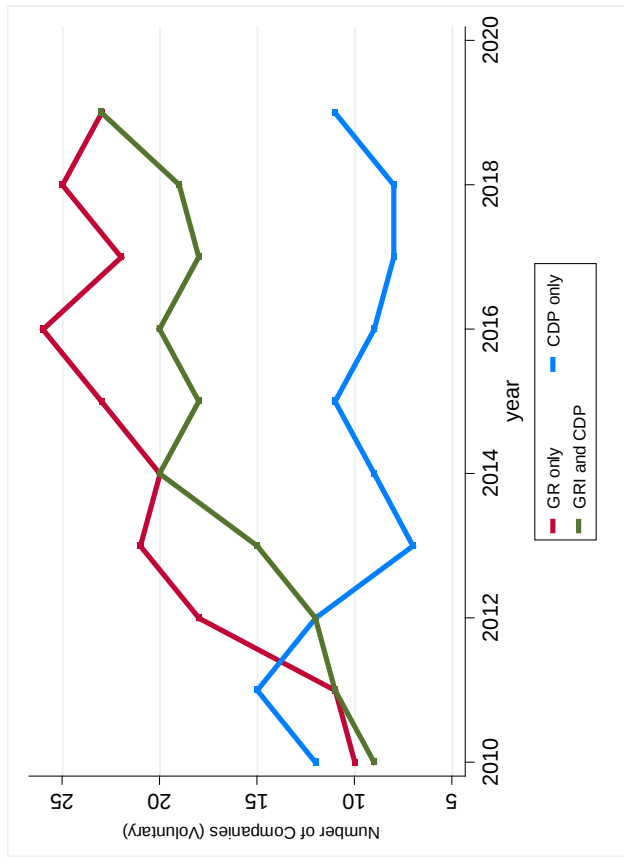


Figure 4. 6: Sustainability reporting by voluntary CSR companies



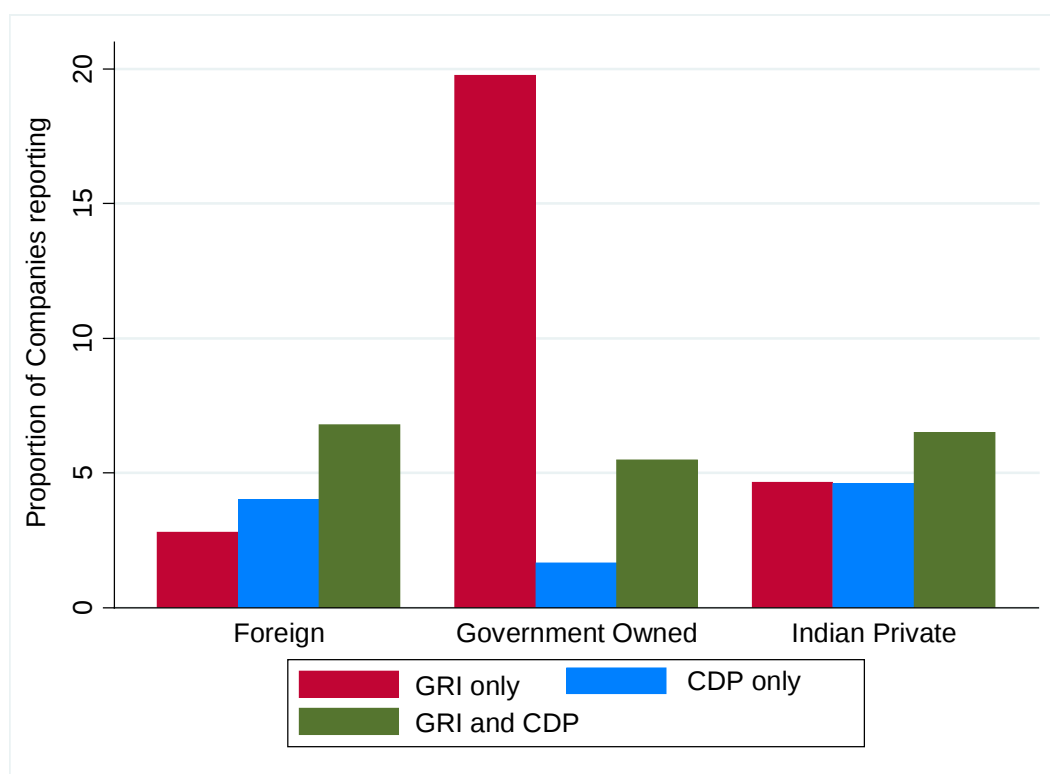
(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

Next, we look at the distribution of companies based on those who did or did not undertake voluntary CSR (Figures 4.5 and 4.6). For companies with voluntary CSR, the GRI-only category has dominated the combined GRI and CDP groups. The only CDP reporting is lower.

We find that companies that are not volunteers always had a high GRI and CDP compliance after 2012, at the cost of companies undertaking only CDP. But of late, there has been a rise in the number of companies undertaking only GRI.

4.9.4 Sustainability reporting by ownership category

Figure 4. 7: Sustainability reporting by ownership category



(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

Government-owned enterprises prefer the GRI framework, with around one-fifth of companies following it. 27% of government companies report either exclusively under one framework or together.

The proportion of non-reporting companies is significant in all ownership groups and, oddly, the highest among foreign-owned companies (86%). This is likely due to SR being done by their parent company.

4.9.5 Sustainability reporting by group and non-group-owned businesses.

Two hundred ninety-one companies from the sample are a part of business groups, and ninety-five do not form a part of any business group.

We find that firms affiliated with a business group are more inclined towards SR. Reporting under both GRI and CDP is rising among group-affiliated companies. In the case of non-affiliated companies, only GRI reporting is preferred (Figures 4.8 and 4.9).

Figure 4. 8: Sustainability reporting by group-affiliated companies

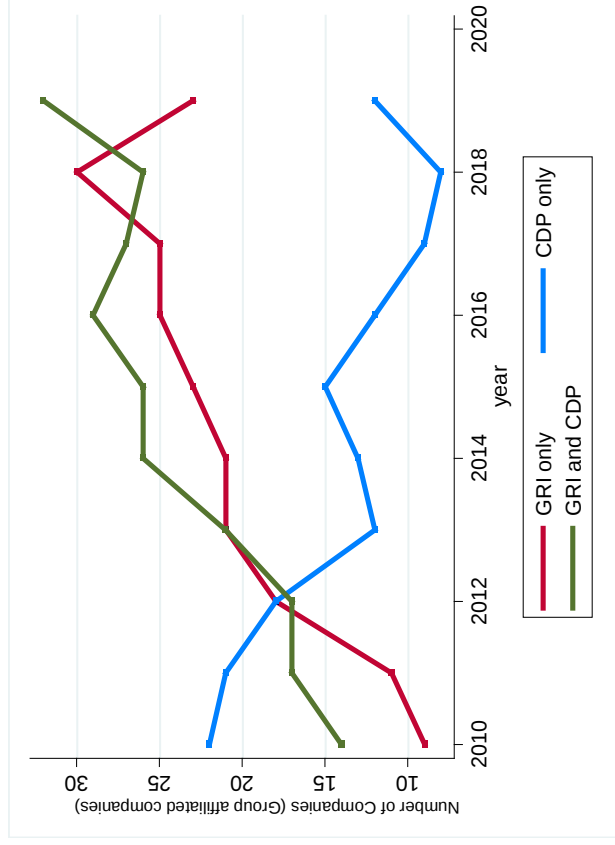
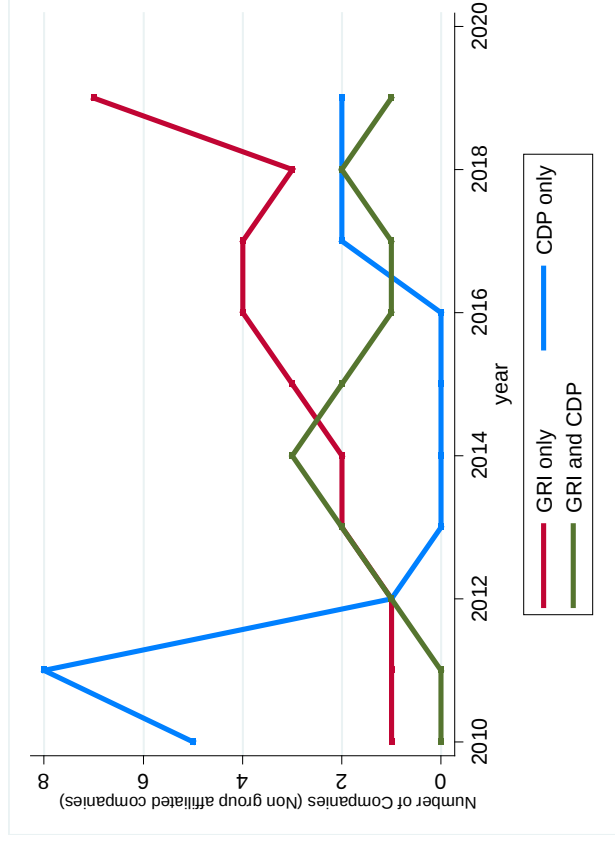


Figure 4. 9: Sustainability reporting by non-group-affiliated companies



(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

4.9.6 Sustainability reporting by NIC sectors

Industrial sectors vary in their approach towards SR (Barkemeyer et al., 2015). Most of the studies classify the industry based on the level of pollution caused by the companies. This section presents a general overview of SR under GRI and CDP for companies based on different NIC sectors and pollution levels (Table 4.3).

Instances of SR under GRI only are highest in the case of mining and quarrying companies (25%) and electricity, gas, steam and air conditioning supply companies (21%) (Table 4.3). However, companies from the Accommodation and Food Services and Information and Communication sector, adopting SR, prefer to report jointly under GRI and CDP.

Companies from five sectors have yet to follow SR under any of the frameworks during the decade under study.

Table 4. 3: Sustainability reporting by industry affiliation

NIC-2008 Section	NIC-2008 Sector name	Total Number of observations (2010 - 2019)	% Observations of for GRI_only	% Observations of for CDP_only	% Observations of for GRI and CDP
A	Agriculture, Forestry and Fishing	50	0.00	0.00	0.00
B	Mining and Quarrying	60	25.00	5.00	6.67
C	Manufacturing	2,070	6.33	4.01	5.70
D	Electricity, Gas, Steam and Air - conditioning	90	21.11	7.78	7.78
F	Construction	210	4.76	0.48	4.29
G	Wholesale and Retail Trade	150	4.67	0.00	0.00
H	Transport and Storage	150	6.00	0.00	5.33
I	Accommodation and Food Service	30	0.00	6.67	26.67
J	Information and Communication	320	4.38	5.94	14.38
K	Financial and Insurance activities	490	2.24	6.73	7.35
M	Professional Scientific and Technical activities	40	0.00	0.00	0.00
N	Administrative and Support service activities	30	0.00	0.00	0.00
Q	Human Health and Social Service Activities	20	0.00	0.00	0.00
R	Arts, Entertainment and Recreation	10	0.00	0.00	0.00
	Diversified	140	12.86	10.00	8.57

(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

4.9.7 Sustainability reporting by polluting status

Figure 4. 10: Sustainability reporting by polluting companies

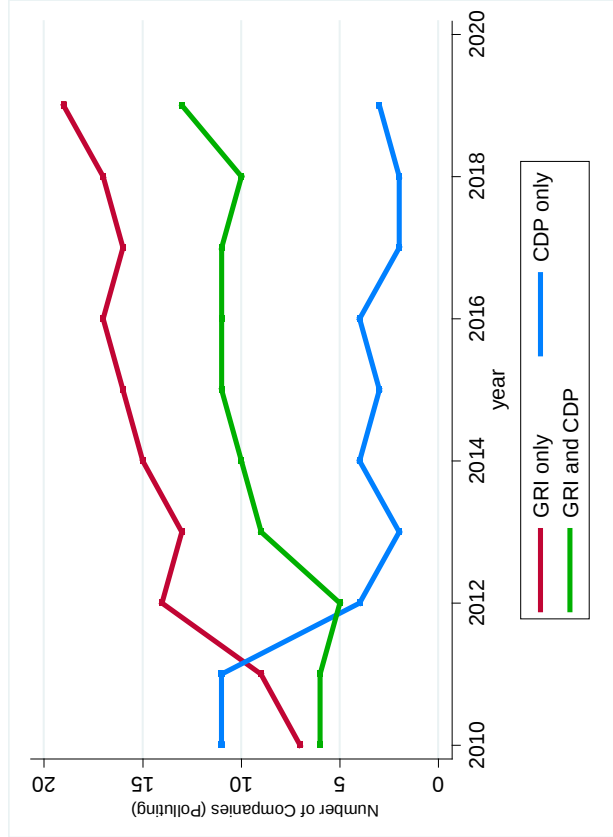
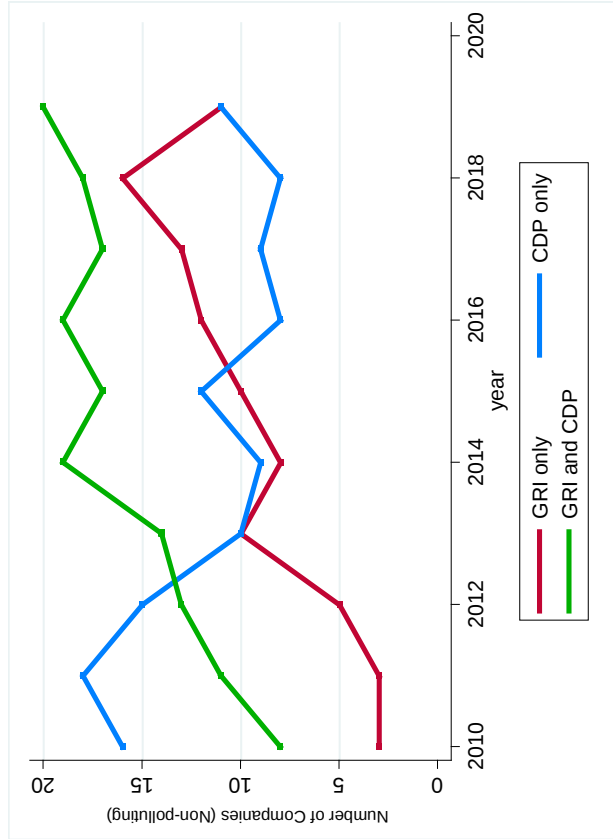


Figure 4. 11: Sustainability reporting by non-polluting companies



(Source: Authors' calculations based on primary data from GRI Database, Company Websites, CDP annual reports, and CMIE Prowess)

One hundred and twenty-one companies from the sample belong to the sectors notified as polluting. GRI is the most preferred framework for companies from polluting industries (Figure 4.10). These companies are increasingly adopting GRI and CDP joint reporting. The companies from the non-polluting sectors show the highest preference for collaborative reporting under GRI and CDP (Figure 4.11). Reporting under CDP has declined in the case of both groups, but the decrease rate is higher for companies from the polluting sectors.

4.10 Discussion

VSR in India under the global frameworks is on the rise (Figure 4.2). However, framework wise the trends differ. The GRI framework has been preferred to the CDP, which only covers environmental aspects. Over the decade studied, we see that the companies that started reporting on climate change under CDP have subsequently adopted the comprehensive SR under GRI. Once the companies have disclosed data on their environmental impacts, they may be motivated to report their social impacts and responsibility initiatives.

VSR in India is driven by visibility and signalling, legitimacy, and institutional theories. Larger firms report more on sustainability. A more significant proportion of the S&P BSE 100 companies follow SR than the BSE rest 400. The cost and expertise, which are affordable to the BSE 100, may be driving this trend, thus indicating a resource-based approach in SR.

The companies from industrial sectors which have not been notified of pollution are producing more sustainability reports on aggregate. Surprisingly, the adoption of environmental reporting under CDP is higher in this group than in the polluting sectors group.

Institutional theory suggests that increasing expectations of stakeholders, in terms of sustainability performance and reporting, work as normative pressures to report on sustainability. Firms respond to such pressures and internalise the practice of SR, and others in the group follow due to peer pressure. Objectives such as public accountability (Kumar et al., 2022) may prompt government-owned companies to undertake higher VSR than private-owned companies driven more by profitability (Jain & Winner, 2016). Companies that had been spending on CSR voluntarily even before the mandate are proactive firms that were self-motivated to engage in social and environmental sectors of CSR beyond profit making. They

are more motivated for SR to convey their pro-social actions to the stakeholders. This connects to the institutional and signalling theory.

4.11 Conclusion

VSR under the global frameworks GRI and CDP is improving in India. GRI is preferred to the CDP when exclusive reporting is considered under the selected framework. However, the companies that are disclosing environmental information under the CDP show a tendency to move on to reporting under GRI. Such acceptance may be due to the comprehensive nature of the GRI framework, which allows the option of reporting on different sustainability parameters, economic, social, and environmental, as well as governance. Though CDP focuses on only the environmental parameter of sustainability, its importance and relevance lie in the fact that it is more aligned with reporting on climate change. Secondly, as observed through the behaviour of companies in the Indian context, reporting under CDP can potentially drive the companies to undertake comprehensive triple-bottom-line SR. Companies following both frameworks are involved more genuinely in SR.

The CSR mandate introduced as a part of the Companies Act of 2013 is an important initiative to incorporate corporate efforts and resources in the nation's inclusive and sustainable development. In this context, we find that companies that have been showing voluntarism in CSR by spending on CSR before it was made mandatory by the Companies Act 2013 are also more active in SR than the mandatory companies that started spending on CSR only when the government made it compulsory. Secondly, companies affiliated with the business groups are more inclined to report on sustainability. The study's results also point out that SR by companies in India is driven by the most prominent theories discussed in the previous literature. These theories include legitimacy, social contract, visibility, signalling, and institutional.

This chapter discussed one of the broad themes under corporate sustainability, corporate SR; the subsequent chapters will focus on the individual parameters of sustainability, social and environmental. We focus on the corporate social performance regarding CSR spending and the corporate environmental performance regarding energy intensity.

The next chapter focuses on the environmental performance for which we consider environmental audits with specific reference to energy intensity.

Chapter 5

ENVIRONMENTAL AUDIT IN INDIA WITH A SPECIFIC FOCUS ON ENERGY

5.1 Introduction

Humankind has often used and overused natural resources, resulting in adverse environmental impacts (Lampert, 2019; Ruiz Serrano et al., 2024). This has started threatening the existence of not only humans but all living species. Environmental protection and improvement are essential for human well-being and economic development and have gained importance due to increased awareness of environmental issues and public concern (Harivelo & Harifidy, 2022). Environmental regulations and guidelines introduced by national and global agencies aim to control different forms of exploitation of nature (Wang et al., 2024).

Environmental degradation can slow down the process of economic growth. Hence, environmental protection is integral to sustainable development and necessitates identifying sources of environmental degradation (Harivelo & Harifidy, 2022). Industries are identified as a significant source of environmental degradation, making industrial environment protection measures necessary (Wang et al., 2024). However, regulators need more reliable data to take action against violators (Pandey & Ghosh, 2000). Corporate practices aimed at environmental protection contribute to ecological sustainability and reflect corporate social responsibility (Prasad et al., 2019).

Unchecked industrialisation, urbanisation, and development have increased the speed of environmental degradation (OECD & AECEN, 2006). Increased consumption pressure opens up avenues for increased economic benefits to the companies. Business organisations boost economic growth through industrial production and are also responsible for the pressure on the environment (Wang et al., 2024). Increased production and consumption, in turn, lead to mounting pressure on environmental resources (Wu & Li, 2023). A majority of ecological resources are finite and non-renewable. Renewable energy sources, too, cannot grow at the rate at which production and consumption increase. The imbalance between these growth rates leads to immense pressure on the environment, the consequences of which are evident. Considering this sector's impact, environmental regulations are introduced.

Corporate environmental management systems and audits are gaining importance due to the rising environmental and sustainability challenges. Environmental management systems, environmental reporting, and environmental audits facilitate the identification of ecological responsibility and action for environmental protection.

The Plan-Do-Check-Act (PDCA) model for environmental management systems, forming the basis of ISO 14001, provides for framing ecological policies to the environmental audit.

The “Plan” stage includes deciding a company's environmental goals and targets. Deciding on such targets will need an environmental policy. The company can frame its environmental policy. However, such policies must consider the relevant national and international guidelines and regulations.

The “Do” stage includes designing and operationalising the company's systems to achieve the targets forming a part of the environmental policy. Assigning people their roles for such achievement, creating awareness, training them for their responsibilities, and providing documentation and communication of progress will be part of this stage.

The “Check” stage is an evaluation stage where the performance is measured to find compliance with the planned activities.

The “Act” stage calls for a review and an audit of the implementation of the Environmental Management System (EMS) (ISO, 2015).

An environmental audit involves evaluating an organisation's performance against environmental policies. Thus, the process requires that environmental policies be laid down and environmental performance is measured and reported. The exercise will be followed by planning corrective actions based on policy and performance deviations.

The ultimate goal of environmental policies in the context of the corporate sector will be to reduce emissions and energy consumption. Energy intensity expressed in terms of physical and monetary measures is a proxy for energy consumption. Using the measure of energy intensity, we run a fixed effects regression to find out the determinants of energy intensity.

Environmental issues impact the current financial performance and the companies' prospects. Awareness about this has forced companies to change the way they operate, redefining products, processes, and markets to reduce resource consumption and become more environmentally friendly. Sustainability has become the fundamental concept underlying businesses' operations. Green products, environment-friendly production technologies, and sustainable supply chains influence companies' profits, existence, and future in the market.

The companies have to identify and measure their impact on the environment, communicate the same, and take measures to reduce this impact. Such actions may be regulation-driven in many cases. However, organisations must define their environmental goals and work to achieve them. Mechanisms like Environmental Management Systems contribute to achieving such goals, and environmental audits ensure the smooth functioning of such management systems. The information on the business organisation's environmental goals and achievements has to be communicated to the stakeholders through environmental reporting.

This chapter discusses the environmental reporting provisions available under different SR frameworks for companies in India, some voluntary and others mandatory. It provides an overview of the concept of environmental audit and the PAT scheme. It then examines corporate environmental reporting and performance with specific reference to energy intensity.

5.2 Corporate Environmental Reporting

The industrial sector in India is growing in size, and so is the resulting economic growth and pollution (UNDP, 2009). Despite the progress in enabling environmental regulations, environmental challenges persist due to rapid industrialisation and urbanisation (UNDP, 2009).

Due to the growing pollution from the industrial sector, different mechanisms and strategies are devised to encourage industries to adopt environment-friendly technologies in producing and distributing their products (Wu & Li, 2023). In the face of the critical environmental challenges facing the world today, environmental disclosures must become more enhanced in the context of all industries since each impacts the environment in one way or another. Such disclosures provide a starting point for the firms to take action for environmental protection and sustainability. With this reference, policies and regulations on mandatory environmental disclosures assume importance.

The environmental policy and law framework will be practical if the stakeholders have access to information and an opportunity for participation (Mehta et al., 2022). Laws like the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016; The Water (Prevention and Control of Pollution) Act, 1974; The Air (Prevention and Control of Pollution) Act, 1981; and the Environment (Protection) Act, 1986 are examples. The companies must report on water usage, raw material consumption, and discharge of waste and pollutants. However, the same information is required to be reported by multiple regulations. Secondly, such reporting is typically submitted to regulatory authorities, which needs to be directed into more extensive databases accessible to the public (Mehta et al., 2022).

Social pressures and reputation motivate companies to disclose information on their environmental impacts and initiatives to combat the same (Wu & Li, 2023). Voluntary disclosure theory suggests that firms with good environmental performance will disclose more about the environment. This may be true in developed countries, where companies performing well on environmental-related parameters will also disclose environmental information voluntarily (Clarkson et al., 2008). In other words, positive environmental performance will lead to higher environmental disclosures. However, in the case of developing countries, where the technologies of production need to be more environment friendly, the investment in research is low, and the stakeholder or public pressure low, firms may prefer to be silent on their environmental performance and not disclose. However, theories like the stakeholder and legitimacy argue that poor performers on the environmental front will reveal more about the environment to convince the stakeholders about the legitimacy of their operations.

Although corporate environmental reporting focuses on important environmental indicators like emissions, energy, materials, waste, and water, it needs more transparency, clarity and context and follows multiple reporting metrics (Thorsteinsdottir et al., 2015). Companies report on environmental information through their sustainability, annual financial or social responsibility reports, and global frameworks like the CDP (Depoers et al., 2016). Companies differ in environmental reporting based on the type and the extent of disclosures and measurement methods across companies and also across years, which defeats the purpose of providing useful information to stakeholders (Wilson, 2013). Companies resort to underreporting their environmental impacts (Wilson, 2013) and disclose different information

in different reports (Depoers et al., 2016). Environmental disclosures have been represented by the number of words, sentences, and pages on the environment or by the quality of environmental disclosures based on the content analysis (Wu & Li, 2023).

5.3 Corporate Environmental Reporting under Different Frameworks.

5.3.1 Companies Act, 1956

Clause (e) of subsection (1) of section 217 of the Companies Act, 1956, read with the Companies (Disclosure of Particulars in the Report of Board of Directors) Rules, 1988, specified that every company in the report of its BOD disclose total and per unit consumption of energy in the production process in the prescribed format (GoI, 1956).

5.3.2. Companies Act, 2013

Clause (m) of subsection (3) of Section 134 of the Companies Act, 2013, and the Companies (Accounts) Rules 2014 requires the companies to furnish the following details about energy conservation in their BOD report (GoI, 2013).

5.3.3 Global Reporting Initiative (GRI)

Global Reporting Initiative SR Framework is the most widely used framework globally. Starting with the first set of guidelines in 2000, the framework was developed to meet G2, G3, G3.1, G4, and GRI standards.

The framework makes a provision for reporting on economic, social, and environmental indicators. GRI Standards indicators from 301 to 308 relate to reporting on environmental sustainability. They cover environment-related issues like materials, energy, biodiversity, emissions, water, effluents and waste, environmental compliance, and suppliers' environmental assessment (GSSB, 2016).

5.3.4 Carbon Disclosure Project (CDP)

Unlike GRI, which provides for reporting on all three sustainability parameters, the Carbon Disclosure Project (CDP) is an environment-related reporting framework. It provides for disclosure on environment-related indicators like climate change, water, and deforestation

through its reporting platform. Such disclosures are expected to drive action to combat climate change. Starting with reporting greenhouse gas (GHG) emissions, 2002 CDP introduced disclosures on water security in 2009 and 2011 on Forests. For this study, we limit ourselves to climate change reporting by CDP (CDP & CDSB, 2020).

5.3.5 United Nations Global Compact (UNGC) Communication on Progress (COP)

UNGC is a value-based platform that promotes and showcases good corporate practices and learning experiences in human rights, labour, environment, and anti-corruption, which was launched in 2000. The framework is based to a great extent on GRI.

Of the ten principles, three principles, Principle 7, Principle 8, and Principle 9, deal with the environment (<https://unglobalcompact.org/participation/report/cop>).

5.3.6 International Integrated Reporting Council (IIRC)

An integrated report primarily aims to provide insight into the resources and relationships used and affected by organisations referred to as "capitals" in the framework. The framework is based on Guiding Principles and Content elements. The framework focuses on firms reporting on value creation, value creation process, and six capitals.

The framework identifies the following six types of capital relevant for a business organisation: Financial, Manufactured, Intellectual, Human Social, Relationship, and Natural. The framework requires these capitals to be connected through principles of Materiality and connectivity.

Natural capital from the six capitals covers the environment, and the companies can report on the environment-related issues under this capital (<https://www.integratedreporting.org/the-iirc-2/>).

5.3.7 Business Responsibility Reporting (BRR)

The Business Responsibility Reporting is based on the National Voluntary Guidelines issued by the Ministry of Corporate Affairs in 2011.

From the nine principles on which the companies have to report a part of the Business responsibility report, Principle 2 and Principle 6 relate to environment and sustainability (SEBI, 2012).

5.3.8 Business Responsibility and Sustainability Reporting (BRSR)

The Business Responsibility and Sustainability Report provides Essential Indicators on which reporting is Mandatory and Leadership Indicators on which reporting is voluntary. Reporting under BRR has been qualitative to a great extent. The lack of qualitative data makes comparisons between companies and also for the same company over the years difficult. The specification of some of the indicators essential under BRSR reporting tries to overcome this limitation. Reporting under BRSR has been made mandatory from 2022-23. Principles 2 and 6 of BRSR also relate to the environment (SEBI, 2021a).

5.3.9 Annual CSR report

Section 135 of the Companies Act 2013 mandates all eligible companies to spend 2% of their Average net profits on CSR. Further, the companies must report on such CSR spending in their annual report. For this purpose, Schedule VII of the said act suggests the recommended areas for CSR spending. Environment is one of the areas for spending under Schedule VII. The companies can spend on the areas specified here and report on them in the annual CSR report. The amendment has also made provisions for detailed reporting on the unspent amount (GoI, 2014, 2022).

5.4 Environmental laws in India

A safe and healthy environment is a human right and needs legal enforcement for its protection. The link between these two is based on Article 21 of the Indian Constitution, which confers the right to life as a fundamental right. Along with granting this as a right, the Constitution also recognises environmental protection as a fundamental duty under Articles 48(A) and 51(A) of the Directive Principles of State Policy (Team, 2022). The provisions of the Constitution of India, along with the different environmental regulations, provide for the protection and improvement of the environment. Such regulations have seen a change from reactive to proactive depending on the country's needs and the state of the environment (UNDP, 2009).

The Ministry of Environment & Forests is India's nodal agency for planning and implementing environment-related programs and regulations. It also acts as the nodal agency for the United Nations Environment Programme (UNEP). The Ministry has enacted different rules for environmental protection. The state departments for the environment and Pollution Control Boards at the central and state levels are responsible for framing and implementing these regulations in the country. However, the environmental compliance levels in the country are low due to limitations like human and financial resources ((OECD & AECEN, 2006).

Environmental policies govern natural resource consumption and conservation (Ballal et al., 2021). India has a group of comprehensive environmental regulations governing the protection of the natural environment covering a wide range of issues but are issue-specific and contradictory to each other in some cases (Mehta et al., 2022). The Environment (Protection) Act of 1986 is an umbrella environmental legislation in the country. Some of the environmental laws in India can be broadly classified as pollution control laws and natural resource management laws (Mehta et al., 2022) refer (Table 5.1).

Table 5. 1: Environment-related laws in India

Pollution control laws	Natural resource management laws
The Water (Prevention and Control of Pollution) Act, 1974	The Indian Forest Act of 1927
The Water (Prevention and Control of Pollution) Cess Act, 1977	The Wildlife (Protection) Act of 1972
The Air (Prevention and Control of Pollution) Act, 1981	The Forest (Conservation) Act of 1980
Hazardous Wastes (Management and Handling) Rules (1989), Bio-Medical Waste (Management and Handling) Rules (1998)	The Biological Diversity Act of 2002
Manufacture, Storage and Import of Hazardous Chemicals Rules (1989)	Forest (Conservation) Rules (2003)
Recycled Plastics Manufacture and Usage Rules (1999)	The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006
The Ozone Depleting Substances (Regulation and Control) Rules (2000)	
Noise Pollution (Regulation and Control) Rules (2000)	
The Municipal Solid Wastes (Management and Handling) Rules (2000)	
The Batteries (Management and Handling) Rules (2001)	

(Source: Based on (CPCB, GoI 2006, 2021; Mehta et al., 2022; Sahay, 2004))

5.5 Energy Efficiency-related Initiatives

The imminent threat of climate change makes it imperative that India follows an energy-efficient path to achieving economic growth (Balachandra et al., 2010). The developments in energy efficiency initiatives are summarised in (Table 5.2).

After focusing on voluntary initiatives for the first years, the energy efficiency policy shifted to market-based energy efficiency measures and mandatory initiatives.

In 2008, the National Action Plan on Climate Change (NAPCC) was released. The plan stresses the need for a high growth rate for the country to improve its people's living conditions and

mitigate the impacts of climate change. It outlines India's strategy to achieve the twin objectives of adapting to climate change and improving ecological sustainability on its development path.

Table 5. 2: Energy Efficiency Initiatives in India

Year	Energy efficiency Initiatives
2001	Energy Conservation Act
2002	Bureau of Energy Efficiency
2006	Standards and Labelling program by BEE for 19 identified equipment and electrical appliances.
2007	The Energy Conservation Building Code
2007	The Ministry of Environment & Forests established the Expert Committee on the Impact of Climate Change.
2008	Agricultural Demand Side Management (AgDSM) and Municipal Demand Side Management (MuDSM)
2008	The National Action Plan on Climate Change (NAPCC)
2015	Street Lights National Program (SNLP)
2017	The Energy Conservation Building Code- Version 2
2018	Energy Conservation Building Code for the Residential Sector
2019	Energy Efficiency Label for Residential Buildings

(Source: Based on (Sarangi & Taghizadeh-Hesary, 2020))

The country plans to achieve these by implementing the eight national missions of the NAPCC. These eight missions focus on understanding and adapting to climate change, energy efficiency, and conservation of natural resources.

Eight missions were started under the National Action Plan on Climate Change (NAPCC).

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Eco-system
- National Mission on Strategic Knowledge for Climate Change
- National Mission for a Green India
- National Mission on Sustainable Agriculture

These missions aim to mitigate climate change through different relevant avenues. National Mission for Enhanced Energy Efficiency (NMEEE) forms one of these eight missions and performs the following functions:

- Mandating specific energy consumption decreases in large energy-consuming industries, with a system for companies to trade energy-savings certificates;

- Energy incentives, including reduced taxes on energy-efficient appliances; and

- Financing for public-private partnerships to reduce energy consumption through demand-side management programs in the municipal, buildings, and agricultural sectors.

Accordingly, the National Mission for Enhanced Energy Efficiency has introduced the following four initiatives on energy efficiency:

Perform Achieve and Trade Scheme (PAT)

Market Transformation for Energy Efficiency (MTEE)

Energy Efficiency Financing Platform (EEFP)

Framework for Energy Efficient Economic Development (FEEED)

The energy data in India are collected and reported by several states and central government agencies since India does not have an energy statistics law to streamline energy-related data reporting (IEA, 2020).

5.6 Corporate Environmental Audit

India has introduced different energy efficiency programs for various sections of the population. The specific ones for the industry include Energy Efficiency in Small and Medium Enterprises, Perform, Achieve, and Trade (PAT), Partial Risk Guarantee Fund for Energy Efficiency (PRGFEE), Energy Efficiency Financing platforms, and Venture Capital Fund for Energy Efficiency (VCFEE). Policy interventions like market-based schemes like the European White Certificate Scheme can improve energy efficiency by reducing energy consumption (Di Foggia et al., 2022).

5.6.1 Industrial energy consumption and efficiency

Energy is an essential requirement not only for industrial processes but also for overall economic growth and development (Sahu & Narayanan, 2011; Sharma et al., 2019; Soni et al., 2017) and hence serves as an indicator of the quality of life (Kumar et al., 2023).

The industrial sector is responsible for over 50% of the world's total energy (IEO, 2016). Growing energy consumption has increased the energy demand, with the industrial sector as the largest consumer in India (Sharma et al., 2019). Energy consumption in this sector differs from that of other sectors, like residential or commercial (Ray & Reddy, 2008).

The development process has seen the rising demand for energy in India being met with highly polluting, inexpensive fossil fuels, which has resulted in severe environmental impacts (Balachandra et al., 2010; Madon et al., 2023).

The industrialised areas in the country are experiencing rising pollution levels, as many industrial units operate at pollution levels above the legally acceptable norms despite a comprehensive and wide-ranging set of environmental laws (Madon et al., 2023). Data on such industrial pollution is 'inaccessible' to the general public, despite the claims of such data being tracked through systems like the online continuous emissions or effluents monitoring systems (OCEMS) and being in the public domain (Bhattacharji & Sutaria, 2020).

Area-Based Environmental Management Programs approach to environmental regulation has been tried in India since 1991. Under this program, the critically polluted industrial clusters are identified so that the industries from these industrial clusters can take action to control their negative environmental impact.

Another mechanism is the classification of industries based on their pollution levels. The Central Pollution Control Board identifies and notifies the most polluting industries. Industries are broadly classified into Red, Orange, and Green and Whiter (GoI, 2016).

Based on pollution levels, the National Environment Policy (NEP), 2006 set general and industry-specific emission targets for industries.

The increasing number of environmental legislations has motivated many companies in India to obtain the ISO 14001 certification, which calls for installing an Environment Management System (EMS) and adhering to the relevant environmental legislation (Sahay, 2004).

In sync with the developments and commitments at the global level, various proactive initiatives concerning energy efficiency and security have been introduced by the Government of India (Sarangi & Taghizadeh-Hesary, 2020). However, the weaknesses in implementing environmental legislation have led to the rate of pollution rising alongside economic development, thus calling for an effective market mechanism (Madon et al., 2023; Sahay, 2004). Market-based mechanisms like the PAT scheme have a substantial energy-saving potential and can offer effective mechanisms for improving industrial energy efficiency (Sarangi & Taghizadeh-Hesary, 2020).

Environmental health and safety audits were undertaken voluntarily by some companies during the early 1970s to review and evaluate their environmental impacts. Subsequently, many countries adopted a structured and formalised approach towards such evaluation, especially in the case of polluting industries (GoI, 1995).

The need for environment-related data can be for the internal or external stakeholders of the companies (GoI, 1995). The data generated through such audits can help the companies' internal stakeholders promote environmental consciousness and monitor environmental performance. In contrast, such data empowers the external stakeholders to make more informed decisions (Bhattacharji & Sutaria, 2020). Internal systems like environmental management systems and energy audits positively impact energy efficiency (Knayer & Kryvinska, 2022).

Environmental Audit also known as 'Green Audit' or 'Environmental Compliance Audit' is "a systematic, documented, periodic and objective review of facility operations and practices related to meeting environmental requirements" (United States Environmental Protection Agency, 1997). According to (Internal Audit Standards Board, 2012) "it is an audit which aims at verification and validation to ensure that various environmental laws are complied with and adequate care has been taken towards environmental protection and

preservation”. An environmental audit will have three phases: pre-audit, activities on the site or operation, and post-audit activities, namely reporting (GoI, 1995).

In 1991, the CPCB initiated an environmental audit program for 18 major polluting industries. Though not regulatory, 120 such audits were conducted by the designated audit teams. The environmental parameters which were evaluated and reported on included the following:

- Water consumption
- Material consumption
- Fuel consumption
- Effluents
- Emissions
- Solid wastes

Though different parameters like materials and water are considered as part of the environmental performance indicators, for environmental audits, we consider environmental performance in terms of energy intensity for our study. Energy efficiency is essential to reducing emission intensity and achieving Nationally Determined Contributions (NDCs) for India.

Energy audits are an effective means to improving energy efficiency (Schubert, Patrick, 2021). The rising threat of climate change calls for planned and serious efforts to reduce different types of emissions. Improvement in energy efficiency can contribute significantly to the target of reducing emissions. Though energy saving potential in the residential sector is significant, studies also highlight the untapped potential for cost-effective energy savings in the industrial sector, especially in non-energy-intensive industries (Schubert et al., 2021). Energy audits contribute to improving energy efficiency in the industrial sector (Schubert et al., 2021).

The energy efficiency policies targeting energy conservation and efficiency in India have evolved through different laws and schemes. Though the energy efforts started during the 1970s, they mainly focused on the minimisation of the consumption of petroleum. The Energy

Conservation Act 2001 has provided the thrust to energy efficiency. The Energy Conservation Award was introduced in 1991 to motivate companies to adopt energy efficiency measures voluntarily, while the PAT is a market-based measure (Dasgupta & Roy, 2017).

As a growing economy, India has a high demand for energy in the commercial sector (IEA, 2020), which has led to a high energy intensity (Sahu & Narayanan, 2011). The increasing pace of industrialisation and urbanisation places enormous energy demands, leading to global environmental concerns (Kumar et al., 2023). Industrial energy efficiency is an essential condition for the success of climate protection strategies (Knayer & Kryvinska, 2022).

The industrial sector has been a significant energy consumer in the country (Sarangi & Taghizadeh-Hesary, 2020; Sharma et al., 2019) with a growing consumption (IEA, 2021) and is projected to cross 50% of the total final consumption by 2040 (International Energy Agency, 2016). Controlling environmental degradation and climate change requires reducing the energy intensity of the industrial sector (Kumar et al., 2023). The industrial sector has a vast potential for energy saving (International Energy Agency, 2016), which is under-exploited (Knayer & Kryvinska, 2022) in developing and developed nations. However, such under-exploitation is more pronounced in developing countries (Sorrell et al., 2011). Exploring which factors determine the energy intensity or efficiency in the industrial sector is relevant.

India has adopted several measures to improve corporate environmental performance through voluntary, mandatory penalty-based, and market-based mechanisms (Misra, 2019; Oak & Bansal, 2022; Sarangi & Taghizadeh-Hesary, 2020). Environmental regulations like the Environment Conservation Act (Misra, 2019; Oak & Bansal, 2022; Sharma et al., 2019) positively impacted environmental performance. The dynamic nature of the PAT scheme has shown positive results. However, challenges like the need for more clarity and low targets may slow down the scheme's success in subsequent cycles (Sarangi & Taghizadeh-Hesary, 2020). Reducing energy intensity, apart from promoting economic efficiency, is a way to demonstrate corporate social responsibility, especially in the case of polluting industries (Prasad et al., 2019). Promoting energy efficiency requires national policies supported by innovative institutional and fiscal mechanisms. The adoption and spread of energy-efficient technologies may not always

be economic but also related to institutions, governance, and information, among other factors (Balachandra et al., 2010).

Factors like a large and increasing population, emerging markets, and heavy reliance on a highly energy-intensive manufacturing sector make energy intensity a severe concern for India (Kumar et al., 2023). Thus necessitating policies and regulations like the ECA and PAT, which have contributed to lowering the energy intensities of companies (Kumar et al., 2023; Oak & Bansal, 2022; Sharma et al., 2019).

5.6.2 Perform Achieve and Trade (PAT)

Perform Achieve and Trade (PAT) is an energy efficiency program introduced under the National Mission for Enhanced Energy Efficiency (NMEEE). The Bureau of Energy Efficiency implements PAT under the Ministry of Power.

Table 5. 3: Sectors under which PAT Designated Consumers (DCs) have been notified under different cycles

Sectors	Cycle I (No of units)	Cycle II (No of Units)	Cycle III (No of Units)	Cycle IV (No of Units)	Cycle V (No of Units)	Cycle VI (No of Units)	Cycle VII (No of Units)
	2013 -2015	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023	2022-2024
Aluminium	10	12	1	0	1	0	11
Chlor-Alkali	22	24	0	2	2	0	24
Textiles	90	99	34	7	16	7	366
Pulp and Paper	31	29	1	2	8	2	0
Iron and Steel	67	71	29	35	23	5	0
Fertilisers	29	37	0	0	0	0	0
Cement	85	111	14	1	12	33	117
Thermal Power Stations	144	154	37	17	17	0	485
Petroleum Refinery	0	18	0	0	0	20	0
Railways	0	22	0	0	0	0	24
Electricity Distribution Companies	0	44	0	0	0	0	43
Commercial Buildings (Hotels)	0	0	0	37	31	64	0
Petrochemicals	0	0	0	8	0	0	0

(Source: Compiled based on the GOI notifications on PAT)

The scheme aims to reduce energy consumption from the specified or designated energy-intensive sectors by the specified industrial units. The scheme also provides a market

mechanism to trade the excess energy savings. This is done through the tradable instruments called Energy Saving Certificates (ESCerts). The energy audit was mandated for the industrial units specified to reduce energy consumption under the PAT scheme.

From 2012 to 2024, seven PAT cycles have been notified. (Table 5.3) shows the industries from which different units have been notified as 'Designated Consumers' and the number of units from each specified industry over the seven cycles.

5.7 Energy-related Variables Studied in the Literature

Measuring and operationalising the construct are significant obstacles in corporate environmental responsibility research (Rahman & Post, 2012). Environment-related research can be broadly classified into three areas: environmental reporting and financial performance, drivers of environmental reporting, and the relationship between environmental reporting and environmental performance (Clarkson et al., 2008).

Defining Corporate Environmental responsibility or environmental performance is difficult (Rahman & Post, 2012). Authors have used measures like 'energy intensity' (Haider et al., 2019; Prasad et al., 2019; Soni et al., 2017) and 'pollution propensity' to measure the environmental performance of companies (Clarkson et al., 2008). These studies have considered 'energy intensity' as the ratio of units or value of energy consumption to sales, while 'pollution propensity' is measured as the ratio of pollution measures like toxic wastes to sales

The authors used monetary and physical energy consumption units to calculate energy intensity. The monetary unit of measurement was represented by the power and fuel expenses ratio to sales (Kumar et al., 2023; Misra, 2019; Oak & Bansal, 2019, 2022; Sharma et al., 2019; Soni et al., 2017). Some others have relied on physical unit energy consumption measurements (Goldar & Goldar, 2022), while some have used a combination of physical and monetary measures (Prasad et al., 2019).

The growth of the industrial sector is a prerequisite for the development of the economy. This sector has high energy demands, which vary industry-wise, wherein industries like iron and steel, cement, fertilisers, paper and pulp, and power generation are highly energy intensive compared to the others (Soni et al., 2017). In the industrial sector, more than 2/3rds of the energy consumption is accounted for by the aluminium, iron and steel, paper, fertiliser, and cement

sectors (Balachandra et al., 2010). Substantial research about industrial energy intensity has focused on the energy intensity of different industrial sectors. The energy intensity in manufacturing firms has been explored by (Dasgupta & Roy, 2017; Goldar & Goldar, 2022; Sahu & Narayanan, 2011; Soni et al., 2017). Energy intensity in the iron and steel sector has been studied by (Sharma et al., 2019)). Three energy-intensive sectors, cement, fertilisers, paper, and pulp from the manufacturing sectors, were examined for their energy-intensity performance (Oak & Bansal, 2022). Similarly, cement, paper, and pulp firms were studied (Oak & Bansal, 2019).

Energy-intensive sectors, like iron and steel (Sharma et al., 2019) and paper and pulp (Haider et al., 2019), were found to have considerable potential for energy saving in India. Such energy saving reflected in terms of industrial energy efficiency has positive financial implications (Wagner et al., 2020), which motivates companies to adopt measures to reduce energy intensity. Such efforts show positive results in terms of declining energy intensity. However, the rate of decline among the sectors differs. While the aluminium, cement, and fertiliser industries have energy intensities closer to the global benchmarks of best energy intensities, the iron and steel paper and pulp sectors must catch up (Dasgupta & Roy 2017).

5.7.1 Energy intensity and efficiency

Energy intensity is the quantity of energy required per unit of output. Energy efficiency improves when the energy inputs per unit of production are reduced. The lower the energy used per unit, the lower the intensity and higher the energy efficiency (<https://www.energy.gov/eere/analysis/energy-efficiency-vs-energy-intensity>).

‘Energy intensity’ denotes the inverse of ‘energy efficiency’ or ‘energy productivity’ (Sorrell et al., 2011). Most studies have tried to estimate the determinants of energy intensity, with exceptions like (Haider et al., 2019), which have used energy efficiency. Achieving energy efficiency in the industrial sector requires technical capacity building, regulations, incentives, and access to capital for the necessary investments (International Energy Agency, 2021).

Despite financial viability, the industry's adoption of energy efficiency measures is stagnating. A standardised methodology for assessing benefits from such measures (Wagner et

al., 2020) may be helpful to revive and maintain sustained interest in adopting energy efficiency measures.

Different internal and external factors drive and limit the adoption of such measures in companies (Wagner et al., 2020). The adoption of industrial energy efficiency is inhibited by several obstacles, including risk aversion, hidden costs, short-term focus, and lack of expertise and knowledge about opportunities and benefits of energy efficiency (Sorrell et al., 2011).

Energy efficiency is an important measure to combat climate change problems, and research has examined energy efficiency in the corporate context (Knayer & Kryvinska, 2022)

Studies have mostly used the cost of energy-to-output ratio to measure energy intensity (Kumar et al., 2023; Misra, 2019; Oak & Bansal, 2022; Sharma et al., 2019a; Soni et al., 2017). However, the use of physical units of energy consumption and physical output units to calculate energy intensity is also common (Dasgupta & Roy, 2017; Goldar & Goldar, 2023 and Prasad et al., 2019)

5.7.2 Research intensity

Research can contribute to reducing the energy intensity by increasing the productivity of the company's resources. As expected, research & development expenditure was found to influence energy intensity negatively (Oak & Bansal, 2022; Prasad et al., 2019). However, a positive influence of such expenditure on energy intensity was also evident (Sahu & Narayanan, 2011).

5.7.3 Capital intensity

Using gross and net fixed assets as measures of capital investment, studies have looked at its relationship with energy intensity and found that it has a positive impact on energy intensity in a majority of cases (Misra, 2019; Oak & Bansal, 2019; Sahu & Narayanan, 2011; Sharma et al., 2019). However, a negative relationship between the two has also been reported by (Oak & Bansal, 2022).

5.7.4 Repairs & maintenance intensity

Higher expenditure on repairs and machinery indicates the use of older machinery, which has to be serviced more often. Hence, it will be more energy-intensive. A higher expenditure on

repairs and maintenance, indicated by a higher repairs and maintenance intensity, therefore, has a positive impact on energy intensity (Kumar et al., 2023; Sahu & Narayanan, 2011; Sharma et al., 2019; Soni et al., 2017).

5.7.5 Profit intensity

The company's profitability decides the financial resources available for investment in energy-saving technologies. However, higher profits could also indicate higher energy consumption due to the higher production. Existing research shows that profit intensity negatively impacts energy (Pradhan, 2018; Sharma et al., 2019; Soni et al., 2017) and positively (Haider et al., 2019).

5.7.6 Exports

Companies operating in the international market tend to follow global benchmarks, including those in the case of energy intensity. Hence, it is expected that companies exporting a part of their output may be controlling their energy intensity. Similarly, the larger the proportion of total production being exported, the lower the energy intensity. Literature has examined the relationship of export with energy on the intensity from two perspectives, export status and intensity, and both were found to have a negative relationship with energy intensity (Goldar & Goldar, 2022).

5.7.7 Size

A majority of the studies find a negative relationship between energy intensity and the size of the company, implying that large-sized companies are more energy efficient as compared to smaller ones (Goldar & Goldar, 2022; Haider et al., 2019; Kumar et al., 2023; Misra, 2019; Oak & Bansal, 2019; Prasad et al., 2019; Sahu & Narayanan, 2011; Sharma et al., 2019).

Though larger companies are more energy efficient (Haider et al., 2019), studies also point out a nonlinear relationship between size and energy efficiency wherein large and small enterprises were found to be more energy intensive than medium-sized companies (Prasad et al., 2019 Sahu & Narayanan, 2011).

5.7.8 Company age

Older companies may be using old technology, which may not be able to control energy consumption effectively. At the same time, younger firms adopt the latest technologies that are more energy efficient (Haider et al., 2019). Company age is found to have a positive (Sahu & Narayanan, 2011; Sharma et al., 2019) and a negative impact on energy intensity (Haider et al., 2019; Misra, 2019; Prasad et al., 2019).

5.7.9 Environmental reporting

Charumathi & Rahman (2019) examined the country-level determinants of environmental disclosures among the BRICS nations. They find that the Paris Climate Agreement and the country-level emissions are influential in such reporting compared to the national-level regulations. Further, voluntary reporting guidelines are more influential in driving companies towards extensive environmental reporting than mandatory ones. Find support for Institutional theory.

Different parameters of ER act as a means for companies to establish social legitimacy, such as social contracts according to which companies have a moral obligation to operate socially and environmentally responsibly (Faria et al., 2018). Legitimacy theory is an essential theory for corporate reporting which has branched into concepts like social or environmental legitimacy (Li et al., 2018).

Pressure from international institutions can influence the domestic policies of member countries. Environmental reporting can contribute to shareholder value when the external environment pressure is higher. The CDP reporting, combined with the ratification of international agreements on climate change, like the Kyoto Protocol, improved the shareholder value for companies (Kim & Lyon, 2011).

5.7.10 PAT

Industries included under the PAT scheme are more energy-intensive than the others (Dasgupta & Roy, 2017). Hence, the determinants of energy intensity differ among PAT and non-PAT companies (Sharma et al., 2019).

Among the PAT sector companies, the scheme has had different impacts on energy intensity for various industrial sectors (Oak & Bansal, 2022) (Misra, 2019). Studies also point out that other regulations like the Energy Conservation Act (ECA) are also influential in reducing the energy intensity along with the PAT scheme (Sharma et al., 2019).

Studies have investigated the determinants of Energy Intensity and Energy efficiency in specific sectors like cement, aluminium (Soni et al., 2017) and paper and pulp from the manufacturing sector (Haider et al., 2019).

Based on the literature reviewed, we examine the determinants of energy intensity for companies in India. For this, we use a combination of different operational intensities, environmental reporting, introduction of the PAT scheme and firm-specific control variables. Highly energy-intensive industries may differ from the others in terms of the drivers for energy efficiency. Hence, we study the influence of different selected determinants separately for various groups based on the notification as a polluting sector or the identification as an energy-intensive industry under the PAT scheme.

The following equation defines the relationship between energy intensity and its determinants.

$$eiy_{it} = \alpha_i + \beta_1 profit_{it} + \beta_2 rep_{it} + \beta_3 res_{it} + \beta_4 capi_{it} + \beta_5 lnexp_sales_{it} + \beta_6 cdpfw_{it} + \beta_7 lnage_{it} + \beta_8 lntotalassets_{it} + \beta_9 patper_dv_t + \varepsilon_{it} \dots\dots\dots Eq. 3$$

5.8 Data and Methods

5.8.1 Sample

The sample of 386 companies includes companies from fourteen NIC sectors, and the ones operating in multiple sectors have been classified as diversified.

5.8.2 Data sources

This chapter uses data from the CMIE database. The classification of the companies as PAT DCs or otherwise is made based on different government circulars on PAT cycles. The classification of the companies as reporting on the environment or otherwise is made based on

the CDP annual reports. We classify the companies into polluting and non-polluting based on the Central Pollution Control Board directives on the Grossly Polluting Industries (GoI, 2011)

5.8.3 Variables definitions and construction

This chapter examines the factors influencing the energy intensity of the companies in the sample. The analysis is carried out for the total sample, and the sample is disaggregated based on polluting industries and the PAT scheme classification of a sector as energy-intensive. We disaggregate the total sample to investigate the factors that influence energy intensity in the case of polluting and non-polluting sector companies based on the seventeen categories of notified polluting industries and for the PAT and non-PAT sectors.

The grossly polluting industries are classified as such due to their higher environmental impact. Similarly, the companies from the sectors with high energy intensity are identified and notified as PAT Designated Consumers (DCs) under the PAT scheme. Considering the inclusion in the polluting sector group or the PAT DCs as a proxy for high energy consumption, we examine them separately.

The energy intensity and other intensities are calculated based on the relevant expenditure as proportions of sales. These proportions are considered for analysis after winsorising at 5% (Goldar & Goldar, 2022).

Different variables used are described in the following section and (Table 5.4).

*Energy Intensity **ei***- This variable represents energy intensity, calculated as the power and fuel expenses divided by sales.

*Profit intensity **profitiy*** - represents the profit intensity calculated as the proportion of profit after tax to sales.

*Repairs Intensity **repiy***- represents the ratio of expenditure on repairs to sales for a financial year.

*Research intensity **resiy***- represents the research intensity calculated as the proportion of research and development expenditure to sales for a particular financial year.

*Capital Intensity **capiy*** - is the proportion of capital represented by investment in Gross fixed assets to sales.

*Log of Export to sales percentage **lnexp_sales*** – is the log of exports to sales percentage.

*Environmental reporting **cdpfw*** – This variable represents the environmental reporting status of companies. It is a binary variable that takes value 1 if the company reports under the CDP framework and 0 otherwise.

*Age of the company **age_pres*** – is the company's age calculated as the respective year minus the year of incorporation.

*Log of total Assets **Intotalassets*** – represents the natural log of the total assets owned by a company as of the date of the balance sheet.

*PAT period **patperiod_dv*** - is a binary variable representing the pre and post-PAT period. This variable takes the value 1 for the post-PAT period, i.e. years from 2013 onwards, and 0 otherwise.

Table 5. 4: Variables description

Variable	Denoted by	Calculated as
Energy Intensity	eiy_	Power and Fuel expenses divided by Sales
Profit Intensity	profitiy_	Profit after tax divided by sales
Repairs Intensity	repiy_	Repairs divided by sales
Research Intensity	resiy_	Research and development expenses divided by sales
Capital Intensity	capiy_	Gross fixed assets divided by sales.
Log of Exports proportion	lnexp_sales	Log of Exports to sales percentage
Log of Total Assets	Intotalassets	Log of total assets
Log of age	lnage	Log of age where the present age is calculated as the current year minus the year of incorporation
Environmental reporting under the CDP framework	cdpfw_	A binary variable which takes the value 1 if a company is reporting under the CDP framework and 0 otherwise
PAT pre and post-period	patper_dv	A binary variable which takes the value 1 if the year is 2013 and more and 0 otherwise

(Source: Based on the literature reviewed)

6.8.4 Methods

In this chapter, we use panel fixed effects regression to examine the determinants of energy intensity for companies in India. We have used STATA version 12 for analysis.

5.9 Results and Discussion

5.9.1 Regression

We conduct the regression for five groups

1. For the entire sample.
2. For the companies belonging to the PAT sectors.
3. For the companies not belonging to the PAT sectors.
4. For the companies belonging to the polluting sectors.
5. For the companies not included in the polluting sectors. The table below presents the descriptive statistics for the variables used in the above models.

Table 5. 5: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
eiy_	3395	.039	.049	.001	.183
profitiy_	3860	.119	.107	-.023	.417
repiy_	3115	.009	.01	0	.038
resiy_	2495	.009	.014	0	.053
capiy_	3850	.621	.675	.031	2.698
lnexp_sales	2290	1.973	1.967	-4.605	5.661
lntotalassets_	3860	8.462	1.648	4.018	14.034
lnage_	3860	3.551	.598	1.099	5.05
cdpfw_	3860	.106	.308	0	1
patper_dv	3860	.7	.458	0	1

(Source: Results generated through STATA version 12)

Table 5.5 shows the summary statistics for this chapter's different variables used in fixed effects regression. Due to the unavailability of data for some variables, the number of observations ranges from 2495 to 3860. The variables relating to operational performance have been expressed as intensities measured by the ratio of respective expenditure to sales. The repair and

research have a mean of less than 1, indicating that less than 1% of the sales on average are being spent on these items, respectively. Similarly, the companies from the sample spend around 4% of their sales on average on energy. The companies recover around 11% of the sales as profits by investing around 62% of the sales value in capital. Exports to sales proportion, assets, and age expressed a log mean of 1.97, 8.46, and 3.55, respectively. Reporting under the CDP framework and the pat period are binary variables that take the value 1 for environmental reporting in the case of CDP reporting and for the post-PAT period in the case of the pat period and 0 otherwise.

We found fixed effects regression to be suitable based on the Hausman post-estimation results. The same results are presented in the following table (Table 5.6) and discussed in the subsequent section.

Table 5. 6: Fixed Effects Regression Results for the Five Groups

VARIABLES	(1) (All companies)	(2) (PAT Sector)	(3) (Non-PAT Sector)	(4) (Polluting-sectors)	(5) (Non-polluting sectors)
	Dependent variable – Energy intensity (eiy_)				
profity_	-0.0330*** (0.0118)	-0.0719 (0.0816)	-0.0178*** (0.00566)	-0.0311* (0.0178)	-0.0256*** (0.00945)
repiy_	0.320 (0.206)	-0.00131 (0.328)	0.745*** (0.156)	-0.00509 (0.243)	1.015*** (0.251)
resiy_	0.0553 (0.0803)	-0.660*** (0.150)	0.134** (0.0617)	0.0781 (0.150)	0.0243 (0.0606)
capiy_	0.0147*** (0.00453)	0.0260*** (0.00890)	0.00801*** (0.00271)	0.0183** (0.00720)	0.0104*** (0.00336)
lnexp_sales	0.000712 (0.000547)	0.000119 (0.00164)	0.00125** (0.000517)	0.000877 (0.000981)	0.000728 (0.000487)
lntotalassets_	-0.000231 (0.00156)	0.0157** (0.00772)	-0.00157 (0.00111)	0.000590 (0.00270)	-0.00265* (0.00150)
lnage_	-0.00800 (0.00520)	-0.00173 (0.0277)	-0.0113*** (0.00409)	0.00556 (0.0133)	-0.0108** (0.00462)
cdpfw_	0.00175** (0.000686)	-0.000810 (0.00327)	0.00121*** (0.000458)	0.00244 (0.00151)	0.00109 (0.000691)
patper_dv	0.00265*** (0.000798)	0.00220 (0.00324)	0.00188*** (0.000683)	0.00398** (0.00165)	0.00134* (0.000688)
Constant	0.0608*** (0.0173)	-0.0638 (0.105)	0.0698*** (0.0118)	0.0175 (0.0410)	0.0776*** (0.0138)
Observations	1,570	267	1,303	669	901
R-squared	0.169	0.325	0.207	0.196	0.255
Number of companies	223	38	185	94	129
Company FE	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

The table shows the regression results for the five groups. Column (1) relates to the total sample. Column (2) relates to the group of companies belonging to the sectors for which the PAT scheme has notified units as Designated Consumers (DCs). Column (3) relates to the companies in industries where no units have been identified as DCs. Column (4) relates to the companies comprising the grossly polluting industries per the Central Pollution Control Board. Column (5) deals with the companies belonging to the non-polluting sectors. The dependent variable in all five columns is the energy intensity. The higher the energy intensity, the lesser the energy efficiency, and vice versa. We examine the influence of the same factors measured in terms of different intensities for different groups of companies in the sample to find whether the energy intensity determinants differ for other groups.

The factors considered in the model can be classified as operating performance related to repairs, research, capital utilisation, and profitability. Companies operating in international markets may be pressured to be more energy efficient. We therefore include the variable on the proportion of sales being exported by the company as an independent variable. We also consider environmental reporting under the CDP framework since environmental disclosures and environmental performance are related. The size of the company and age are included as company-specific factors. Finally, the *pre_post* variable reflects the change in the energy intensity during the post-PAT period.

In general, profitability helps the companies to reduce energy intensity. While highly capital-intensive companies are more energy-intensive. Environmental reporting under CDP influences energy intensity positively. However, the companies from the sample, in general, exhibit a high energy intensity during the post-PAT period as compared to the pre-PAT period companies.

In Column (2), we examine whether identifying the units as PAT DCs influences the energy intensity. The companies in the PAT-identified sectors exhibit a negative influence of research intensity on energy intensity. This negative relationship indicates that these companies are investing in productive research to improve environmental performance regarding energy intensity. Capital intensity shows a positive influence on energy intensity. Large-sized

companies are more energy-intensive, as demonstrated by a positive relationship between size and energy intensity.

In the case of non-PAT sectors, the companies show a negative relationship with profitability, while repairs, research, and capital intensities show a positive influence. Companies exporting more of their sales are experiencing a higher energy intensity. These companies also experience a positive impact of environmental reporting on energy intensity.

Overall, the determinants of the PAT DC sector companies differ slightly from those of the non-PAT sector companies. Even though PAT is a unit-specific scheme, it may influence the company's overall performance and, in turn, the broader industrial sector.

Both the polluting and nonpolluting sector companies show a negative influence of profitability on energy intensity. Similarly, capital intensity is positive for both groups, but repairs and age negatively influence nonpolluting sector companies. The period after the implementation of PAT led to an increase in energy intensity compared to the pre-PAT implementation.

Overall, it is evident that profitability is the main factor negatively influencing energy intensity. The influence of some of the negative or positive factors on other groups becomes insignificant in the case of PAT sectors. Though all the units of the companies from the sample have not been notified as PAT DCs, the identification of the industry included in the PAT scheme has an influence. This is the only group with an insignificant relationship between energy intensity and PAT period. It also does not show a significant relationship with profitability or CDP reporting. Our findings in this case support those of (Sharma et al., 2019), who found that the factors influencing energy intensity differ among PAT sector companies and non-PAT sector companies.

We find that profitability shows a negative influence on energy intensity. Profitable companies are better positioned to spend on energy-efficient technologies or adopt energy-efficient measures to reduce energy intensity. The negative impact of profits on energy intensity was found by (Kumar et al., 2023).

Capital intensity represented by the ratio of fixed assets to sales shows a positive influence in the case of all categories of companies, as found by (Kumar et al., 2023; Sahu & Narayanan, 2011).

The company's size may influence energy intensity positively or negatively depending on the operating efficiencies in different areas. We find that it is not uniform across categories. In the case of companies belonging to the PAT-notified sectors, size influences the energy intensity positively. In contrast, size negatively influences the energy intensity of non-polluting sector companies (Kumar et al., 2023). In the case of the other groups, there is no significant relationship between the two. Size was found to be insignificant in influencing Eiy (Goldar & Goldar, 2022). The different types of relationships exhibited by size with energy intensity can be explained by the nonlinear relationship between size and eiy, as reported by (Haider et al., 2019; Sahu & Narayanan, 2011).

From all the groups, repairs positively influence non-PAT and non-polluting categories of companies. The findings conform with those (Sahu & Narayanan, 2011) who found positive influence.

Research intensity shows a negative influence on energy intensity in the case of PAT sector companies only. Identifying some of the units from these sectors motivated the companies to research how to reduce energy consumption. Such negative influence was reported by (Kumar et al., 2023). Mixed results based on a subset of the sample and the variation models were found by (Prasad et al., 2019). Similarly, the variable was also found to be insignificant (Haider et al., 2019), as we see in the case of other groups.

Export status shows a positive relationship with energy intensity in the case of non-PAT DCs only. Companies involved in exports have a higher energy intensity than the ones that are not. This finding contrasts with the findings of (Goldar & Goldar, 2022). While the negative relationship may be due to the operation in the international markets, exports may also indicate size and the higher energy consumption may be due to a larger size.

Environmental reporting under CDP shows a positive influence on energy intensity in general. In the subsets, it only positively influences non-PAT DCs groups. Environmental

reporting and performance are positively related (Clarkson et al., 2008). Environmental reporting by the low energy-intensive sectors like the non-PAT DCs may be an attempt by the companies to publicise their low environmental impacts.

Age negatively affects the non-PAT DCS and the non-polluting sector companies. Older companies may use more energy-intensive technologies, leading to higher energy consumption. Such a negative relationship is reported by (Haider et al., 2019). None of the other groups shows a significant relationship with age, as also found by (Goldar & Goldar, 2022).

5.10 Conclusion

Energy intensity in the industrial sector has been a cause of concern. The government has taken several initiatives. There is a variation in the energy intensities of companies from different sectors. Such variation exists even among the sectors notified by the government as PAT DCs. PAT is one of the initiatives introduced by the scheme. Thus, the sectors can be identified as having high and low energy intensity.

We use two environment-related initiatives targeting industrial energy efficiency. The first one is the notification identifying seventeen industries as polluting. The second one is the PAT scheme. The regulations have played an essential role in reducing the energy intensity. Profitability is an important factor that contributes to controlling energy intensity.

Financial resources and investment are a prerequisite for reducing energy intensity. Highly profitable companies are better positioned to invest in environment-friendly technologies, reducing energy consumption. The total sample and the different subsets based on the two environmental performance regulations show a negative relationship with energy intensity.

Identifying companies from a sector as energy-intensive may induce research, reducing the energy intensity, as seen in the case of PAT DC sector companies. Research intensity shows different results for different groups. However, it has a positive influence on non-PAT DCs. These companies may be investing in research but need more success in reducing the energy

intensity. Mixed results were based on a subset of the sample, and the variation in models was found (Prasad et al., 2019).

Prominent companies involved in the export of a significant part of their sales are more energy-intensive due to their size, as seen in the case of non-PAT DCs, which shows a positive relationship with energy intensity.

Tangibility or capital intensity represented by the ratio of fixed assets to sales shows a negative influence in the case of PAT DCs. However, it positively influences the energy of non-polluting companies and non-pat companies. The positive impact is reported by (Kumar et al., 2023; Sahu & Narayanan, 2011).

The positive influence of environmental reporting on energy intensity in the case of the non-PAT DCs means that such companies voluntarily disclose environment-related information to signal their low environmental impacts through such reporting.

The negative relationship of age in the case of non-PAT DCs and the non-polluting companies indicates the possible use of energy-intensive technologies by the older companies. The regulatory intervention of PAT, which is more specific, is more influential as this is the only category where the influence of the proposed variable signifying the impact of the regulation is insignificant. In all the other categories, it is showing a positive influence, indicating that as years by the energy intensity is increasing. While we do not confirm a reduction, we also do not find evidence of an increase in energy intensity. This is also the only subset that has shown a negative influence of research on energy intensity, which indicates that these companies are undertaking effective research that successfully reduces energy intensity, which is not seen in the case of any group.

Though the classification of a sector as grossly polluting gives the company from that sector the status of the polluting company, the classification is general and applies to all companies. Hence, it may need to tackle the environmental performance problem more successfully. However, the PAT scheme is operational at the unit level, not even the company level; hence, it may be more influential in targeting energy-intensive units. The companies whose units are identified as PAT DCs will take measures to reduce their energy intensity.

However, the companies from the sector where the units are identified as energy-intensive may also be taking precautionary steps to avoid their units being identified as PAT DCs. The second positive factor about the PAT scheme is the ESCerts mechanism through which the companies can trade their energy saving. In turn, the PAT DCs not achieving their specified energy-saving targets are penalised for purchasing such ESCerts, which is an additional burden. Thus, the companies are motivated by financial penalties and benefits that form a part of the PAT scheme. The scheme effectively generated energy savings in its first cycle, which ended in 2015. Despite the criticisms that the target set was low, thus resulting in such a saving, the scheme has a positive impact of motivating the other companies from the identified PAT sectors to control their energy consumption.

This chapter discussed environmental performance with a specific focus on energy intensity. We also examined the impact of the PAT scheme. The next chapter explores corporate social performance measured by companies' CSR spending. We discuss the relationship between corporate social and financial performance by adding the elements of institutional isomorphism and strategic CSR.

Chapter 6

TRENDS IN CORPORATE SOCIAL RESPONSIBILITY

6.1 Introduction

There is a long-standing global debate on whether profit-oriented companies should undertake expenditures that do not add value or earn profit for the company (Dilling, 2010). Perspectives like the landmark Friedman doctrine in 1970 declared that artificial entities like businesses cannot have social responsibilities. According to this view, corporate executives and managers, as agents of shareholders, have a social responsibility to conduct the business to fulfill their principal's objective of 'profit maximisation' (Friedman, 2007). Based on the Friedman doctrine, it was argued that CSR is a financial burden on companies and hence not favoured by shareholders as it will negatively affect their returns and dividend payments (Saeed & Zamir, 2021). The modern era of CSR started during the 1950's with Bowen's landmark book "Social Responsibilities of the Businessman" (Carroll, 2021).

Friedman's view on CSR resulted from the interest in the concept of CSR during the 1950's and the early attempts at defining it in the subsequent decades (Carroll, 2021). Views on the social responsibilities of businesses, however, have changed. Freeman's stakeholder theory 1984 presented a more inclusive perspective, which put forth the idea that companies and managers should operate in such a manner to create 'value' for their stakeholders, including the shareholders (Freeman, 1994, 2009). This view argues that strategic CSR will positively influence the firm's financial performance (Kitzmueller & Shimshack, 2012).

The 'shareholder' vs the 'stakeholder' or the 'profit' vs 'value' debate also brings forth the limited or short-term perspective vs the inclusive or long-term one. The stakeholder theory broadened the scope of shareholder theory to include all those groups affected by or affecting the businesses, namely the stakeholders.

The concept of social responsibility emerges from the 'social contract' between the business and the society in which it functions (Crowther & Aras, 2008). The failure of companies to consider 'social effects' and focus on 'economic effects' alone may not sustain the business success (Freeman & Phillips, 2002). Extensive research investigating the CSR-

CFP relationship attempts to link both these effects, which remains a dominant research area (Stubbs et al., 2013).

Despite research indicating a positive relationship between companies' social and financial performances (Orlitzky et al., 2003), approaches to CSR differ globally in different countries and social contexts. Some countries have used moral suasion and transparency to compel companies to spend on social and environmental areas (Waagstein, 2011), while others have introduced mandates. CSR has traditionally been considered voluntary (Crane et al., 2008; Delbard, 2008; McWilliams & Siegel, 2001). However, voluntarism in CSR may not be able to formalise and institutionalise CSR, thus requiring a mandate (Waagstein, 2011).

In business and political environments where getting firms to follow the laws might be challenging, voluntary CSR may not always materialise into a reality (Prieto-Carrón et al., 2006). Besides, the mandatory nature of CSR strengthens its position as a legal obligation. It enhances reception and implementation, encouraging society to focus more on monitoring corporate behaviours and CSR mechanisms (Waagstein, 2011).

Voluntary CSR can help address social issues that the government still needs to address (Visser & Tolhurst, 2017) due to the immense pressure on state systems, especially in developing countries. Similarly, a mandate can give legal recognition to CSR and prevent the companies from deriving. Amidst the debate on the mandatory and voluntary nature of CSR (Prieto-Carrón et al., 2006) suggest the possibility of voluntary initiatives with mandatory aspects and regulatory frameworks with the provision of voluntary initiatives. Mandatory and voluntary CSR are complementary rather than exclusive options, a form of co-regulation that includes elements of both voluntary and mandatory regulation (Gatti et al., 2019). Combined mandatory and voluntary CSR or 'co-production' by firms and states (Gatti et al., 2019; Haslam, 2020; Scherer & Palazzo, 2011) would be more effective than the exclusive one. One can see a trend of a mixture in recent years wherein the government regulations provide for facilitation, partnership, or soft regulations requiring a 'comply or explain' approach, as in the case of Brazil, South Africa, and India, among others (Waagstein, 2011). Section 135 of the Companies Act 2013 in India, though mandating a 2% spend and reporting on the same, requires the companies to explain the cause of noncompliance (GoI, 2013).

The CSR implementation in countries like China, Norway, Indonesia, Malaysia, India, and the European Union are examples of a mix of both (Delbard, 2008; Gatti et al., 2019; Vormedal & Ruud, 2009; Waagstein, 2011). This gets us back to the constructs of CSR 'economic, legal, ethical and discretionary' (Carroll, 1979), wherein the last two were considered non-mandatory but very much a part of 'society's expectations. Voluntary CSR gaining acceptance in the mandated form is converting ethical responsibility into a legal responsibility at a later stage (Carroll, 1979).

The emergence of 'global CSR' during the 21st century (Carroll, 2021) is based on the notion of differences in CSR across countries, differences in 'implicit' and 'explicit' CSR (Crane et al., 2008), and the political CSR concept (Scherer & Palazzo, 2011).

India became the first country to make it compulsory for large companies to spend at least 2% of their profit on CSR by including a provision in the Companies Act in 2013. However, many other countries like Finland, Sweden, France, Belgium, China, Netherlands, Germany, Norway, and Denmark (Chen et al., 2018; Dilling, 2010; Gatti et al., 2019) have regulations governing Corporate Social Responsibility (also referred to as CSR hereafter) and sustainability in some manner or other, including the ones on social and environmental reporting. CSR's sustainability, accountability, and transparency principles (Crowther & Aras, 2008) make it an essential medium for factoring in the corporate sector in sustainable development (Prieto-Carrón et al., 2006).

This chapter provides a theoretical background to the CSR-CFP relationship, institutional isomorphism and mandatory CSR, which are the broad themes examined in this chapter. It further provides an overview of CSR, the mandate for CSR and the themes of the literature identified in the Indian context. The chapter then examines the CSR-CFP relationship in terms of determinants of CSR and the impacts of CSR on financial outcomes by using accounting and market-based measures of financial performance.

6.2 Theoretical Background

CSR is said to include all corporate initiatives that aim to "do good" to society in general and the specific stakeholders like consumers, employees, and communities in specific (Leong & Yang, 2021). However, its definition needs to be more conclusive and a highly contested one

(Sheehy, 2015) as the concept of Corporate Social Responsibility has evolved over the years (Carroll, 1979), and there are several different views on what constitutes CSR (Sheehy, 2015). The relevant developments in the corporate world have moved through the ages of greed, philanthropy, marketing management, and now responsibility (Visser & Tolhurst, 2017). The increasing awareness among the stakeholders and social movements during the 1960s started broadening the implications of the social contract between business and society, leading to a search for definitions to understand what constituted CSR (Carroll, 2021).

The modern era of CSR emerged during the 1950s (Carroll, 2021). The general discussions on CSR through the 1960s and 1970s debated what constituted CSR and then gradually changed the focus to motivations for the same (Stubbs et al., 2013). The 1970s introduced CSR-related concepts like Corporate Social Responsiveness and Corporate Social performance, necessitating tools for measuring such performance during the 1980s (Carroll, 2021).

The CSR performance of companies is driven by several factors, including financial performance, country, legal or regulatory requirements size, sector affiliation, board attributes, and ownership (Vitale et al., 2019). Similarly, different CSR activities may yield different financial outcomes (Servaes & Tamayo, 2013). Such differences in CSR performance are based on the underlying theories (McWilliams & Siegel, 2001; Roberts, 1992; Udayasankar, 2008). This chapter examines the relationship between corporate social and financial performance by considering the CSR mandate. We also discuss this relationship from the institutional theory and strategic CSR perspective.

6.2.1 Corporate social responsibility – Corporate financial performance relationship

The relationship of corporate social with financial performance has been a topic of great interest to researchers (Carroll, 2021). However, the results remain inconclusive due to contradictions (Griffin, Mahon, 1997).

Since the early 1970s, studies have investigated the relationship between CSR engagement and the firm's financial performance using accounting and market-based measures of economic performance (Roberts, 1992). It gained momentum during the 1980s and 1990s (Stubbs et al., 2013) and continues to be researched in changing environments.

Corporate social and financial performance are related, and hence, the way they influence each other has been a topic of interest to researchers. Financial constraints limit the CSR performance (Leong & Yang, 2021). Sound economic performance improves CSR (Darus et al., 2013; Kansal et al., 2014). Prior CFP represented by accounting measures explains CSR, and reporting better predicts CSR than market variables performance (Kansal et al., 2014; McGuire et al., 1988; Quéré et al., 2018).

The 21st century also saw research evidence for a consistent positive relationship between CSR- and CFP (Orlitzky et al., 2003; Waddock & Graves, 1997), proving the business case for CSR (Carroll, 2021). However, despite the established positive relationship between the two (Cahan, 2016; Ting, 2021), studies reveal negative (Chen et al., 2018; Servaes & Tamayo, 2013) and inconclusive results (Aupperle, 1985; Das & Bhunia, 2015; Lii & Lee, 2012).

There is evidence of CSR influencing profitability (Bhattacharyya & Rahman, 2019; Cho et al., 2019; Platonova et al., 2018; Seo et al., 2015; Yang et al., 2019) and market performance positively (Jadiyappa et al., 2019). At the same time, studies also find that CSR influences market performance negatively (Aswani et al., 2021; Brammer et al., 2006; Cho et al., 2019; Seo et al., 2015; Yang et al., 2019).

The "one size fits all" CSR model does not work globally (Carroll, 2021). The global CSR drivers differ from the local drivers, wherein the latter emphasises cultural traditions, political reforms, socio-economic priorities, governance gaps, and crisis responses (Visser & Tolhurst, 2017). CSR in different countries was also explored as a part of global CSR (Jain et al., 2017). In a cross-country study, voluntary CSR disclosures improved the firm valuation (Cahan, 2016). CSR influences financial performance positively, and the effect is more substantial in the case of smaller firms in Taiwan (Ting, 2021). In Korea, the CSR index positively influenced profitability and market performance (Cho et al., 2019; Seo et al., 2015). In Malaysia, profits positively improved corporate social performance (Darus et al., 2013) and corporate social disclosures (Kansal et al., 2014). However, CSR in China reduced profitability (Chen et al., 2018) and the stock market performance (Yang et al., 2019).

6.2.2 Institutional isomorphism

The homogeneity in organisations results from isomorphism, wherein the companies mimic each other (DiMaggio & Powell, 1983). In its search for legitimacy, companies are bound by normative, mimetic, and coercive isomorphism (Sánchez-Teba et al., 2020). The pressure to act in a professionally acceptable manner leads organisations to adopt strategies based on the company's culture, norms, and values (DiMaggio & Powell, 1983; Sánchez-Teba et al., 2020). The formal pressures, like the legal and mandatory frameworks, act as coercive forces (DiMaggio & Powell, 1983; Sánchez-Teba et al., 2020). The behaviour and actions of competitors or leaders from the peer group force the companies to model or mimic their behaviour accordingly, thus resulting in mimetic isomorphism (DiMaggio & Powell, 1983; Sánchez-Teba et al., 2020).

In the case of the mandatory CSR in India, the mandate serves as the coercive pressure. Some companies spend voluntarily on CSR due to their organisational norms and values. Companies from similar industries may respond similarly to CSR, with the smaller ones following the leaders.

6.2.3 Strategic CSR

The idea that CSR pays off gave rise to the concept of 'strategic CSR' (Porter & Kramer, 2006), which tried to find out how CSR can be used for maximum improvements in financial performance (Orlitzky et al., 2011). 'Creating shared value' (Porter & Kramer, 2011) has also contributed to the development of CSR (Carroll, 2021). Shared value allows business corporations to lead social progress and earn social respect by employing their skills and resources, which cannot be matched even by the governments (Porter & Kramer, 2011). The number of years in CSR spending will improve financial outcomes provided such expenditure is strategised (Tilt, 2016)

Advertising may help companies improve their CSR value through customer awareness (Servaes & Tamayo, 2013), in which case the advertising expenditures will increase with the CSR. However, CSR can also be used as a substitute for advertising expenditure (Dharmapala & Khanna, 2018; Rajgopal & Tantri, 2022), in which case, the advertising expenditure will decrease with an increase in the CSR expenditure. CSR spending negatively influences

advertising expenditure, indicating a substitution effect (Dharmapala & Khanna, 2018). Along similar lines, no significant relationship was found between CSR and advertising expenditure (Rajgopal & Tantri, 2022).

6.2.4 Corporate social responsibility and the mandates

A mandate can help in enhancing its reception and implementation, in setting an example for other countries to follow and contribute to poverty reduction in developing countries (Prieto-Carrón et al., 2006; Visser & Tolhurst, 2017) provided they are addressing the relevant national challenges (Visser & Tolhurst, 2017). Mandatory CSR promotes a 'people' rather than a 'business' case for CSR (Prieto-Carrón et al., 2006) and developmental agenda rather than a business opportunity (Chatterjee & Mitra, 2017) by making firms a part of the solution rather than a cause of the problem about social inequalities. However, regulation can reduce the intrinsic motivation for voluntary CSR spending (Bansal, 2021; Mukherjee et al., 2018).

Since CSR could not be left at the will of the corporations, governments and regulators started introducing mandates on CSR. This led the researchers to explore this new theme, examining the influence of mandate on CSR engagements. Such research investigated how the impact of mandatory CSR changed the corporate attitude, how it influenced the financial performance of companies, and whether this differed from the situation under the voluntary regime.

The inconclusiveness in the CSP-CFP is evident in the case of mandatory CSR, too. Mandates on CSR had positive influences in the form of increased CSR spending and reduced pollution but negative impacts in the form of reduced profitability (Chen et al., 2018). In the Indian case, the mandate on CSR is found to have had a positive influence on CSR spending (Bansal et al., 2017; Bansal, 2021; Bhattacharyya & Rahman, 2019; Mukherjee et al., 2018; Panwar et al., 2023). However, it has also led to a reduction in the intrinsic motivation for voluntary CSR spending (Bansal, 2021; Mukherjee et al., 2018; Rajgopal & Tantri, 2022)

6.3 CSR in India and Companies Act, 2013

India has had a rich tradition of social engagement through charity or philanthropy exercised by corporate India through trusts and social institutions controlled by corporate families (PricewaterhouseCoopers et al., 2013). Indian CSR is unique due to family ownership, the

absence of corporate social responsibility, and reputational rankings like the KLD, which are prevalent in developed countries (Kansal et al., 2014). However, this corporate social involvement needed more formal mechanisms and disclosures. The Companies Act 2013, through section 135, introduced a framework for mandatory CSR spending and reporting in India. This provision applies to the specified group of companies. The Act and the CSR Rules were applicable on April 1, 2014. The developments that preceded the mandate's introduction as a part of the Act are outlined in (Table 6.1).

Companies from India have voluntarily been involved in corporate social responsibility initiatives. The CSR provision about Corporate Social Responsibility gives it a more structured approach, with Schedule VII specifying the priority areas for spending. The minimum specification of 2% of the Average Net Profits of the previous three years helps to set a benchmark for the companies' earlier CSR spending voluntarily and evaluate their performance. From the government's side, based on the number of companies coming under the purview of the CSR clause, a rough estimate can be drawn about the corporate sector's contribution to social spending.

As per section 135(1) of the Companies Act, 2013, companies fulfilling any of the following criteria during a financial year must spend a minimum of 2% of their average net profits on CSR activities.

Every company which has:

- i. A net worth of Rs. 500 Crores or more or
- ii. Turnover of Rs. 1000 Crores or more or
- iii. A net profit of Rs. 5 Crores or more.

The act further specifies that the companies eligible under any of the above conditions shall spend 2% of the average net profit on CSR activities as specified in Schedule VII of the Companies Act, 2013.

Table 6. 1: Developments to the inclusion of the CSR mandate in the Companies Act, 2013

Date	Developments
August, 2009	The new Companies Act was introduced in the Lok Sabha as the Companies Bill, 2009. In its original form, this bill did not mention the CSR clause.
December, 2009	The first proposals were made to include voluntary CSR provisions in the new Companies Act.
August, 2010	The first announcement of mandatory CSR requirements based on the size threshold was made.
August, 2010	The Parliamentary Standing Committee, Finance introduced and recommended mandatory CSR in its report.
December 2010 to March 2011	There was a discussion on relaxation from mandatory CSR to a comply-or-explain obligation, and the government also considered making it a disclosure requirement instead of CSR spending.
July, 2011	The proposal for a mandatory CSR provision was included in the new Companies Act.
December, 2011	The Ministry of Corporate Affairs decided to proceed with the mandatory CSR rule. Based on the recommendations made by the Finance Committee, a revised Bill was prepared and introduced in Lok Sabha on December 18, 2011. The bill was again referred to the Finance Committee for consideration of specific new provisions included in the bill.
June, 2012	In its report, the Parliamentary Standing Committee on Finance approved mandatory CSR.
August, 2012	SEBI notified mandatory disclosure of CSR spending by the largest 100 firms as a part of BRR.
December 2012	The Bill on Companies Act of 2013 was passed by the Lok Sabha with the provision of mandatory CSR.
August, 2013	The Rajya Sabha passed the bill on the Companies Act of 2013 with the provision of mandatory CSR.
August, 2013	President assented to the Companies Act.
September, 2013	The Ministry of Corporate Affairs issued rules on what CSR would be considered for the act.
February, 2014	CSR rules were approved.
April, 2014	The CSR requirement of Section 135 became effective for companies satisfying the size-related thresholds from the financial year 2014-15.

(Source: Compilation based on (Dharmapala & Khanna, 2018; Manchiraju & Rajgopal, 2017))

The CSR Clause, Schedule VII of the Companies Act, and the Companies (CSR Policy) Rules (2014), framed and issued by the Ministry of Corporate Affairs, provide a policy, system, spending, and reporting on CSR in India. As per the CSR Rules, the companies coming under

the purview of this regulation have to form a CSR Committee that will be responsible for drafting the company's CSR policy. The company can choose from the various social and environmental sectors in Schedule VII of the Act for the mandated CSR spending. Companies must publish an annual report on CSR spending in the format prescribed by the act. This format requires the companies to mention the sector and area-wise spending.

The Corporate Social Responsibility clause of the Indian Companies Act is a unique combination of both mandatory and voluntary nature (Gatti et al., 2019) wherein a minimum of 2% Corporate Social responsibility spending is mandated, leaving an option to spend beyond.

6.4 CSR-related Literature in India

The companies' explicit and implicit motivations (Crane et al., 2008) will decide the voluntary CSR level and the mandates' success.

Following the implementation of the mandate in India, its influence on CSR spending has been an important area of research. Mandate on CSR positively influenced CSR spending (Bansal et al., 2017; Bansal, 2021; Bhattacharyya & Rahman, 2019; Guha, 2020; Mukherjee et al., 2018). Another research theme emerging from the mandated CSR was the voluntary position of companies who spent on CSR before the mandate. A surprising effect of the mandate was the adjustment by the companies to meet the mandatory 2% requirement by reducing or increasing their earlier CSR spending (Dharmapala & Khanna, 2018; Guha, 2020; Mukherjee et al., 2018; Rajgopal & Tantri, 2022). It was expected that companies not spending on CSR earlier would be forced to spend the mandated 2%. The reduction in spending by companies who were earlier spending a higher percentage of profits on CSR is an unexpected and unintended outcome of the CSR mandate in India. This indicates a reduced intrinsic motivation for CSR volunteering companies to spend on CSR (Bansal, 2021; Mukherjee et al., 2018; Rajgopal & Tantri, 2022). The CSR volunteering companies were found to benefit from such voluntarism during the mandatory regime (Mukherjee et al., 2018).

The CSR-CFP relationship investigation in the context of mandatory CSR found that such Mandated CSR improved financial performance in India (Bhattacharyya & Rahman, 2019). Studies report a positive (Jادیappa et al., 2019) and a negative influence (Aswani et al., 2021) of mandated CSR on firm value in India.

Peer pressure is an essential mechanism for improving CSR engagement by companies (Singh et al., 2021). However, the mandate has reduced the influence of such peer pressure, replacing it with mandatory pressure with the 2% benchmark (Bansal, 2021).

Authors in the Indian context also studied the influence of the mandate on earnings management. Mandatory CSR disclosures positively influenced reporting (Bansal, 2021), thereby improving financial transparency in India (Nair et al., 2019).

6.4.1 Influence of mandate on CSR spending

Studies find that the CSR mandate in India positively impacted CSR spending, but compliance levels are low (Bansal et al., 2017; Bansal, 2021; Guha, 2020; Mukherjee et al., 2018). There is a variation in the spending pattern of companies. Only one out of three firms (32%) spent precisely 2% as mandated, 25% spent more than 2%, and 46% spent less than 2% of their average annual profit (Bhattacharyya & Rahman, 2019).

The mandate has negatively influenced intrinsic motivation for voluntary CSR (Rajgopal & Tantri, 2022), reducing voluntary CSR spending in areas that do not qualify as CSR under the act (Bansal, 2021).

Bansal (2021) used a sample of 39,736 firms from 2010 to 2016. The period of study was five years pre-mandate and two years post-mandate. Rajgopal & Tantri (2022) studied a sample of 1087 firms for seven years, from 2009-10 to 2015-16. Mukherjee et al. (2018) study examined the firms listed on BSE from 2008 to 2015. They find that the mandate has influenced different categories of firms differently. Voluntarism in CSR showed during the pre-mandate period pays off during the mandatory regime. The voluntary CSR spenders who became eligible had a positive influence on their profits. In contrast, voluntary spenders not covered under the eligibility conditions negatively influenced CSR spending on profitability post-mandate. The mandatory spenders who started spending once they became eligible have taken one year to experience marginal positive impacts of CSR on their profits.

The companies that were not spending and neither became eligible did not show any indicative results over two years. Companies adjust their spending to meet the threshold of 2% by reducing or increasing their earlier CSR spending (Dharmapala & Khanna, 2018; Guha, 2020; Mukherjee et al., 2018). Dharmapala & Khanna (2018) examined the Indian companies

from 2011-12 to 2014-15 and found evidence of crowding-out effects during the post-mandate period (Dharmapala & Khanna, 2018). They found that companies spending less than 2% increased while the ones spending more than 2% reduced their spending to comply with the mandate.

Unintended negative impacts of the mandate reported are reduction in the intrinsic motivation for voluntary Corporate Social Responsibility spenders (Dharmapala & Khanna, 2018; Guha, 2020; Jadiyappa et al., 2019; Mukherjee et al., 2018; Rajgopal & Tantri, 2022), reduction in the market value (Aswani et al., 2021), reduction in the positive peer pressure effect concerning Corporate Social Responsibility spending (Bansal, 2021).

The argument that the mandatory Corporate Social Responsibility legislation was not able to perform in terms of the volume of Corporate Social Responsibility spending that it was supposed to generate (Bansal, 2021; Bansal et al., 2017; Jadiyappa et al., 2019) needs to be investigated in greater detail considering that regulation may take longer time to show an impact (Marlin & Geiger, 2011). Similarly, in addition to mandate, firm-specific characteristics contribute to CSR spending (Bhattacharyya & Rahman, 2019), which must be examined in the post-mandate Indian context.

6.4.2 Influence of CSR spending on profitability

The variation in spending patterns of companies, despite the mandate, indicates that there are firm-specific factors that are driving CSR spending in India (Bhattacharyya & Rahman, 2019). Using a sample of 677 and 839 from 2015 and 2016, respectively, they found that mandatory CSR positively influences and is influenced by financial performance. However, they limit themselves to the accounting measures to measure the CFP.

In a study considering the pre and post mandate period, Mukherjee et al., (2018) examined the firms listed on the BSE from 2008 to 2015. They find that mandatory CSR influences financial performance positively for eligible companies and negatively for ineligible companies (Mukherjee et al., 2018).

In relation to the influence of financial performance on CSR spending, it was found that CSR spending post-mandate is highly sensitive to adverse shocks to profits but not positive ones (Rajgopal & Tantri, 2022).

6.4.3 Influence of CSR spending on market performance

Voluntary choice of CSR can improve the shareholder value, but forced CSR may not yield similar results (Rajgopal & Tantri, 2022). Mandatory CSR spending influenced market value positively (Jادیappa et al., 2019). However, they find that such influence was higher for the companies which started spending in response to the mandate as compared to the companies which were spending voluntarily before the mandate.

Using a sample of 2120 firms from 2009 to 2013, Rajgopal & Tantri, (2022) found that mandated CSR reduces the shareholder value.

A similar negative influence of mandated CSR was also found by Aswani et al. (2021) when they examined the stock market performance of 1277 companies. They further find that though the mandate's impact on firm value is negative, there is a variation in the results based on voluntarism, profitability, and sector (Aswani et al., 2021).

6.4.4 Influence of peer pressure on CSR

Singh et al., (2021) examined the CSR performance of 321 firms from the BSE 500 index during the post-mandate era from 2015 to 2018. Their main objective is to identify the peer pressure in CSR spending and CSR engagement. They find strong evidence of mimetic isomorphism wherein the firms mimic their industry and community peers in CSR spending and engagement. However, such isomorphism is observed for CSR spending below the mandated 2% and not beyond. Thus, the isomorphism is for compliance and not overspending.

However, Bansal, (2021) find that the positive influence of peer pressure in CSR spending reduces after the mandate replacing the peer pressure with the mandatory pressure of the CSR mandate.

6.4.5 Influence of mandate on earnings management:

CSR mandate has reduced earnings management through improved financial transparency due to improved CSR disclosures (Nair et al., 2019). However, the reduction in the earnings management post-mandate reduction is due to the other governance mechanisms introduced by the act rather than the CSR mandate (Hickman et al., 2021).

6.5 Research Gap

Most studies examining the influence of the mandate on CSR spending in India have taken a short period of one or two years after the mandate. More than two years might be required for the companies to adjust to the mandate. We consider a period of ten years from April 1 2009, to March 31, 2019. Five years out of which are pre-mandate and the rest five post-mandate.

The studies in India have considered large samples, which include heterogeneous groups of companies and eligible and non-eligible firms from the point of view of CSR. The sample of the BSE 500 group of companies is more homogenous than that of all the companies in the database or all listed companies on the stock exchange.

Compared to the earlier studies, which have considered indices and rankings as measures of CSR performance, we consider a more objective measure in the form of CSR spending provided by the CSR mandate.

Studies in the Indian context have examined only one-way relationships between CSR and CFP. We have only found one study that has looked at the bi directional relationship in terms of determinants of CSR spending and the influence of CSR spending on firm-specific characteristics (Bhattacharyya & Rahman, 2019). However, they have used only accounting measures. We improve this by considering the determinants and the influence of CSR spending and accounting and the market-based measures.

Similarly, in line with (Bansal, 2021; Singh et al., 2021), we also consider CSR by industry peers representing mimetic pressure as a possible motivator for CSR spending. The classification of the companies into mandatory and voluntary indicates the normative pressures for such CSR spending. Classifying the study period into pre and post-mandate periods provides an insight into the coercive pressure in the CSR regulation. By examining these three

isomorphism, we discuss the applicability of the institutional theory to the companies in the Indian context.

We also check for the element of strategy in the CSR spending by adding the variable on advertising and the firm's maturity in CSR spending based on the number of years in CSR engagement.

6.6 Data and Methods

6.6.1 Sample

We consider the sample of BSE 500 companies filtered based on four criteria: a. Date of incorporation, b. Corporate Identification Number (CIN) and c. Date of first trading on BSE and d. Missing data. We got a sample of 394 companies after applying the first three filters. The data for another eight companies was unavailable or, if available, inconsistent. After dropping these eight companies, we finally got a sample of 386 companies.

For analysis based on BSE groups, we classify the 'BSE 500' companies into two. The first is the 'BSE 100' based on the BSE 100 index. The rest 400 from the BSE 500 are considered as 'BSE rest 400'. The BSE rest 400 companies, as used in the discussion, refer to the rest of the 400 companies from the BSE 500 apart from the top BSE 100 companies.

The data for these companies was taken over a decade from April 1, 2009, to March 31, 2019. The ten-year period includes five years before the mandatory CSR provision and five years post-mandate.

The sample largely consists of companies that are coming under the CSR mandate's purview as per the Companies Act 2013. During the ten years, we found only 43 instances wherein the studied companies were not eligible as per the CSR spending criteria specified in Schedule 135 of the Companies Act. Of these 43 instances, 15 are during the post-mandate period, and 28 are during the pre-mandate period. Details of such companies are provided in (Table 6.2) and (Table 6.3) which relate to the ineligible companies pre-mandate and post-mandate, respectively.

6.6.2 Data sources

CSR spending and financial indicators data are taken from the CMIE database. The database provides the figures for CSR spending based on the company's annual reports during the post-

mandate period. Before the mandate, the database provided information on donations, environment, and social and community expenses under "Miscellaneous Expenditure". We take the total of these expenditures as CSR spending during the pre-mandate period as in (Dharmapala & Khanna, 2018; Jادیappa et al., 2019, 2021).

6.6.3 Methods

We use line and bar graphs to present the trends in CSR expenditure by the companies in India during the pre and post-mandate periods. These trends are based on ownership, BSE group, CSR voluntarism, and sector affiliation. The spending is also assessed based on the mandated 2%, which gives rise to underspending and overspending by companies.

The second part of the analysis examines the relationship between CSR and CFP. For this purpose, we explore the different determinants of CSR spending and the influence of CSR spending on the financial performance of companies. We use CSR spending as a percentage of ANP as specified by the act as a measure of CSR spending (Rajgopal & Tantri, 2022). We examine the influence of CSR spending on the accounting measure of financial performance, ROA, and market-based measure, Tobin's Q.

We use panel fixed effects regression to examine the CSR and financial performance relationships. We run the fixed effects regression and random effects with CSR as a determinant and ROA and Tobin's Q as the dependent variable. Based on the results of the Breusch Pagan Lagrange Multiplier test, the random effects were found to be more suitable than the OLS regression. Subsequently, based on the results of the Hausman test, the fixed effects model was found to be more suitable.

We have used STATA version 12 for analysis.

6.7 Analysis and Discussion

The first part of the analysis assesses the CSR spending pre and post-companies Act. It also examines how such spending varies based on size, ownership, industry, CSR voluntarism, and ownership.

6.7.1 Eligible and non-eligible companies

The Companies Act 2013 has three conditions to decide a company's eligibility for spending 2% of Average Net Profits on CSR activities. The company becomes eligible for mandatory CSR spending under Section 135 of the Companies Act 2013 if any of the following is satisfied.

If a company has a net worth of Rs 500 crores or more or

If a company has a turnover of Rs. 1000 crores or more or

If a company has a net profit of Rs. 5 crores or more.

The eligibility question comes into the picture if the period is after 2014. However, since we use CSR to ANP percentage in the second part of the analysis, we separate the ineligible companies based on the eligibility conditions specified.

After applying the eligibility conditions, we found six companies with 15 observations over the five years from 2015 to 2019 that were ineligible. Similarly, nineteen companies with 28 observations from 2010 to 2014 do not fulfil the specifications per the Companies Act 2013.

Table 6. 2: Companies not eligible for mandatory spending as per Companies Act, 2013 (Pre Mandate)

Company name	Company Id	Year	CSR spending	Turnover	Networth	Net profit
Astrazeneca Pharma India Ltd.	24	2013	0	399	99.75	-70.27
Avanti Feeds Ltd.	27	2010	0	96.15	68.77	-2.28
Caplin Point Laboratories Ltd.	61	2010	0.05	60.46	21.7	3.65
Centrum Capital Ltd	66	2011	0.02	58.2	208.2	-14.19
Centrum Capital Ltd.	66	2012	0.01	63.14	228.7	-8.39
Dhani Services Ltd.	91	2012	0	147.8	221.1	-9.06
Dish T V India Ltd.	93	2010	0	934.7	400.3	-262.1
Forbes & Co. Ltd.	112	2010	0	179	133.1	-14.59
Forbes & Co. Ltd.	112	2011	1.26	151.1	126.7	3.18
Forbes & Co. Ltd.	112	2012	0	298.9	136.9	4.73
Forbes & Co. Ltd.	112	2013	0	244.7	133.7	0.58
Forbes & Co. Ltd.	112	2014	0	300.3	137.8	-29.71
Gujarat Pipavav Port Ltd.	143	2010	0	220.7	311.1	-116.3
H F C L Ltd.	149	2010	8.83	320.6	129.4	-512.6
I T I Ltd.	173	2013	0	936.3	-1518	-186.8
I T I Ltd.	173	2014	0	789.1	-1856	-349
Johnson Controls-Hitachi Air Conditioning India Ltd.	202	2012	0	867.3	171	2.56
La Opala R G Ltd.	218	2010	0.01	77.81	37.89	4.48
Maharashtra Scooters Ltd.	227	2012	0	51.6	202.5	-6.49
P V R Ltd.	267	2010	0.24	307.6	247.3	0.24
Rain Industries Ltd.	284	2011	0	385.5	399.5	-187.3
Sun Pharma Advanced Research Co. Ltd.	322	2010	0	34.3	14.13	-21.54
Sun Pharma Advanced Research Co. Ltd.	322	2011	0	58.34	5.55	-8.49
Sun Pharma Advanced Research Co. Ltd.	322	2012	0	28.97	-67.1	-72.23
Sun Pharma Advanced Research Co. Ltd.	322	2013	0	87.28	107.3	-22.49
Suven Life Sciences Ltd.	331	2010	0.95	129.7	118.1	3.7
Tata Metaliks Ltd.	348	2013	0	966.6	-33.2	-54.5
Tv18 Broadcast Ltd.	362	2010	0	209.5	388.7	-82.1

(Source: Author's calculations based on the data from CMIE Prowess)

Table 6. 3: Companies not eligible for mandatory spending as per the specifications of Companies Act, 2013 (Post Mandate)

Company name	Company Id	Year	CSR spending	Turnover	Networth	Net profit
Astrazeneca Pharma India Ltd.	24	2015	0	525.2	150.8	-20.84
Bombay Burmah Trdg. Corpn. Ltd.	53	2016	0.23	250.9	230.8	-32.19
Bombay Burmah Trdg. Corpn. Ltd.	53	2017	0.13	270.7	218.3	-3.2
Bombay Burmah Trdg. Corpn. Ltd.	53	2018	0.09	210.1	182.3	-30.91
Bombay Burmah Trdg. Corpn. Ltd.	53	2019	0.13	242.4	148.3	-18.67
Forbes & Co. Ltd.	112	2015	1.78	180.3	135.3	-0.58
Forbes & Co. Ltd.	112	2016	0.21	211.1	145.3	3.15
I T I Ltd.	173	2015	0	804.4	-1948	-301.2
Sun Pharma Advanced Research Co. Ltd.	322	2015	0	155.7	99.24	-39.52
Sun Pharma Advanced Research Co. Ltd.	322	2016	0	161.3	30.05	-69.99
Sun Pharma Advanced Research Co. Ltd.	322	2017	0	181	158.2	-119
Sun Pharma Advanced Research Co. Ltd.	322	2018	0	78.26	184.7	-197
Sun Pharma Advanced Research Co. Ltd.	322	2019	0	182.9	296.2	-145.4
Swan Energy Ltd.	333	2016	0.11	317.3	439.6	0.91
Swan Energy Ltd.	333	2017	0.07	330.8	441.2	3.75

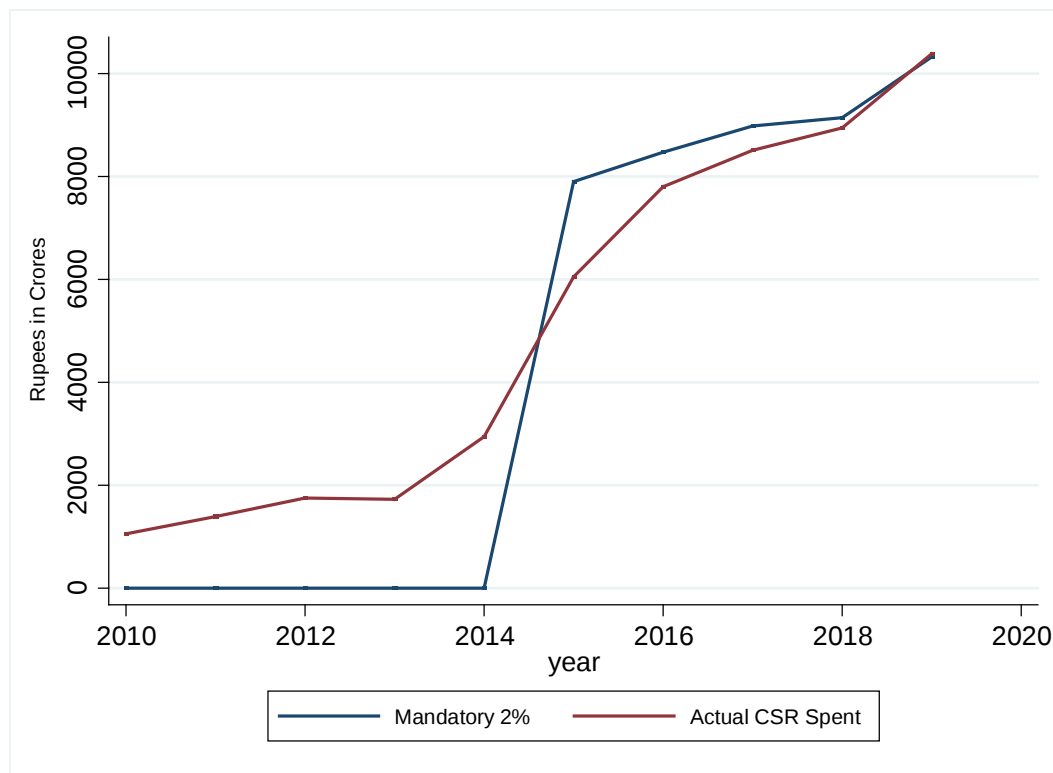
(Source: Author's calculations based on data from CMIE Prowess)

As shown in (Table 6.3), six companies over five years from 2015 to 2019 did not fulfill the conditions specified by the Companies Act 2013 for CSR spending. Based on the same criteria, we separate the companies before the mandate, as shown in (Table 6.2).

The specification of eligibility conditions for CSR mandate is based on size, financial health, and profitability. A few instances of ineligibility under these conditions indicate that the companies in the sample are relatively similar based on the specified criteria. Some studies have considered the eligibility based on only one criterion like profit (Panwar et al., 2023). However, we consider all three criteria as followed in (Rajgopal & Tantri, 2022).

6.7.2 CSR compliance

Figure 6. 1: Mandatory 2 percent and actual CSR spent



(Source: Author's calculations based on data from CMIE Prowess)

(Figure 6.1) shows the mandatory CSR spending required per the Companies Act 2013 and the actual CSR spending by the BSE 500 companies. The blue line represents the 2% mandatory CSR spending as required by the act. It is nil till 2014 since the CSR requirements were made mandatory from the financial year starting from 1st April, 2014. However, the companies were involved in CSR activities before the mandate. Hence, the actual CSR spent is shown in red in 2010.

The first year of the post-mandate period shows a considerable increase in CSR spending, almost doubling from 3000 to over 6000 crores. However, the spending is not equal to the required 2%. The collection for this year was nearly 25% (source: Authors' calculations) short of the mandated 2% for the companies from the sample. The difference between the mandated 2% and the actual CSR spending has reduced over the five years. In 2019, the fifth year of the act's implementation, the spending equals the mandatory 2%. The percentage of spending to the mandated 2%, thus crossing 100% (source: Authors' calculations).

6.7.3 Over and underspending

Table 6. 4: Number of companies over and underspending, and the amount over or underspent

Year	Over Spending	Under spending	Complying	Loss-making	Over Spending	Under spending	Loss-making
	No of companies	No of companies	No of companies	No of companies	Amount (Rs. in Crores)	Amount (Rs. in Crores)	Amount (Rs. in Crores)
2015	102	212	49	23	416.13	-2326.98	53.9
2016	132	166	59	29	725.35	-1491.93	94.1
2017	159	136	62	29	603	-1225.2	151.33
2018	182	127	51	26	1108.47	-1404.6	94.28
2019	201	101	61	23	969.31	-1018.55	100.81

(Source: Author's calculations based on data from CMIE Prowess)

(Table 6.4) shows the number of companies overspending, underspending and the amount under or overspent. We see a declining trend in the underspending companies, accompanied by an increasing number of overspending companies. The column loss-making companies show the number of companies with an average net profit of 0 or less than 0. The companies that have only complied by spending precisely 2% of the average net earnings as required by the act are shown in the complying column.

The number of companies that only comply with the mandatory 2% CSR requirement has increased from 49 to 61. The loss-making companies have mostly stayed the same and range between 23 and 29.

The amount spent more than the required 2% is shown in the overspending column. Similarly, the amount underspent each year is shown in the underspending column. The loss-making amount column shows the overspending by the loss-making companies. We call this overspending because, for these companies, the 2% mandatory CSR spending is 0 due to losses.

The complying companies do not have over or underspending. Similarly, loss-making companies will only have overspending since the mandatory 2% for them is 0.

The total overspending during the year is the sum of the overspending column and the loss-making companies' spending. The amount overspent has increased while the amount underspent has decreased. Though the individual over and underspent amount has fluctuated, the difference between the two has been continuously decreasing, and the net underspending

during the first four years is converted to a net overspending in the fifth year if we consider the overspending by the loss-making companies as well.

The mandated 2% CSR spending, actual CSR spending, over and underspending are reconciled in (Table 6.5).

Table 6. 5 Equation: Mandatory CSR requirement = (CSR spent + Underspending) - (Overspending + Loss-making companies Overspending)

Year	Mandatory 2% (Rs. in Crores)	CSR spent (Rs. in Crores)	Underspending (Rs. in Crores)	Overspending (Rs. in Crores)	Loss-making companies' CSR spending (Rs. in Crores)
2015	7904.27	6047.32	2326.98	416.13	53.90
2016	8478.48	7806.00	1491.93	725.35	94.10
2017	8986.44	8515.57	1225.2	603.00	151.33
2018	9150.79	8948.94	1404.6	1108.47	94.28
2019	10332.21	10383.78	1018.55	969.31	100.81

(Source: Author's calculations based on data from CMIE Prowess)

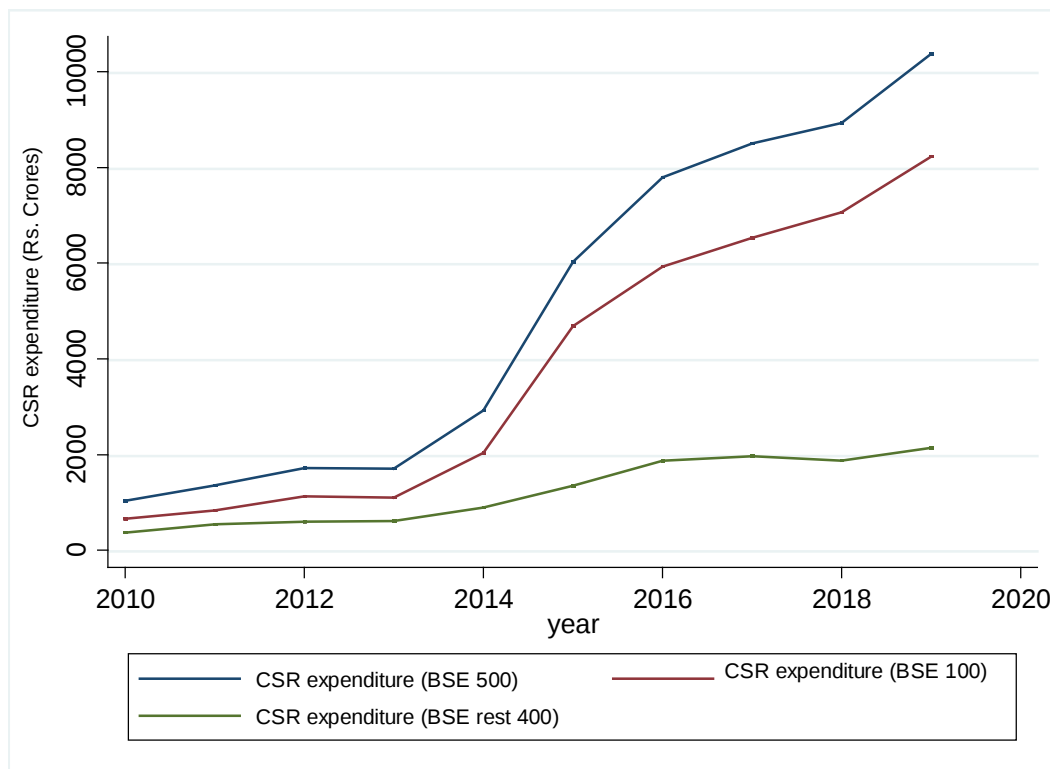
The subsequent discussion deals with the trends in CSR spending, which have been analysed based on different selected criteria, such as the BSE group, CSR voluntarism, type of ownership, and polluting status of the companies.

6.7.4 CSR spent by size based on BSE Groups

Using the classification of the sample as BSE 100 and BSE rest 400, we examine whether the size of the company has an influence on CSR spending. BSE 100 companies are the country's topmost 100 and are larger by market capitalisation, turnover, profits, etc. Hence, their spending in volume can be larger than the BSE rest 400 companies, which are comparatively smaller and represent a broader variation. We examine such spending by considering the amount spent (Figure 6.2) and the percentage of CSR spent to ANP (Figure 6.3).

The CSR spending by BSE 100 has more than doubled in the first year of implementation of the mandate. The difference between the BSE 100 and BSE rest 400 groups increased in 2013 and widened drastically in 2015. From thereon, it has grown consistently. In 2019, the BSE 100 group spent more than four times that of the BSE rest 400 group.

Figure 6. 2: CSR spent for different BSE groups

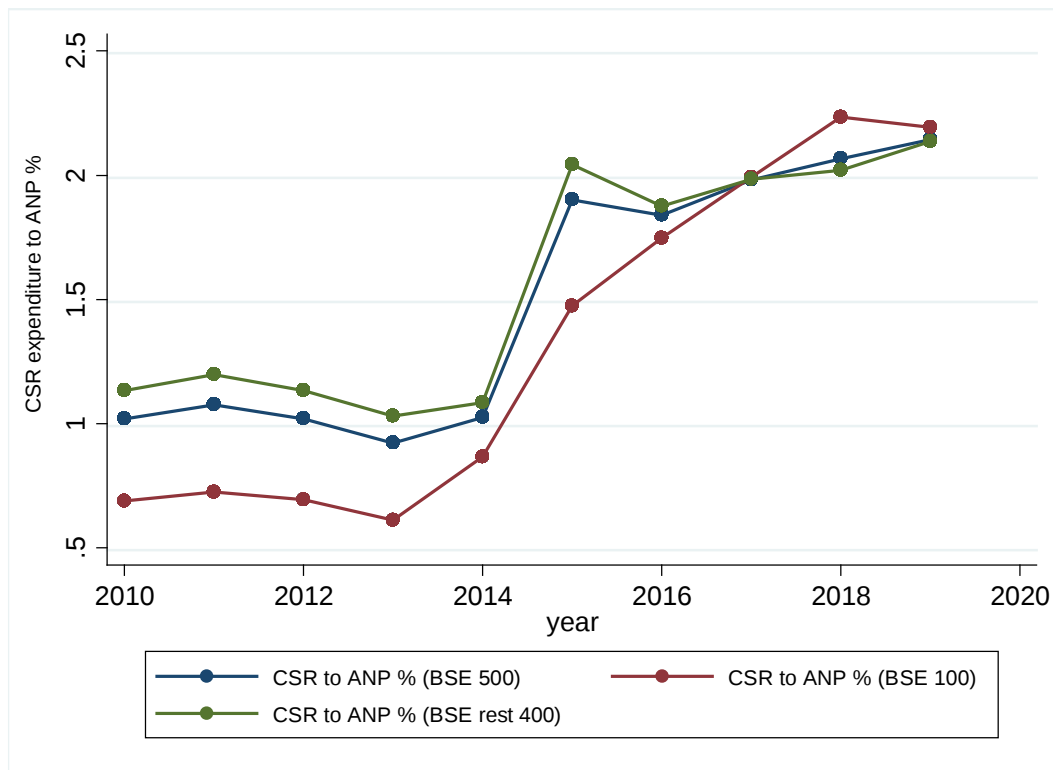


(Source: Author's calculations based on data from CMIE Prowess)

The Companies Act 2013 mandates that 2% of the average net profit be spent on the specified companies' CSR activities. (Figure 6.3) above shows the average CSR spending percentage for the BSE 100, BSE rest 400, and the combined 500 groups. It is seen that the mandate positively impacted the proportion of profits spent on CSR activities. Surprisingly, the BSE rest 400 companies were spending more than 1% of their profits on CSR before the act, while the BSE 100 companies were spending less than 1%. The BSE rest 400 companies though having a lesser volume of CSR spending, they were spending a larger proportion of their profits as compared to the BSE 100 companies till 2017. In 2017, both the categories of companies converged; after that, BSE 100 surpassed BSE rest 400 in the spending percentage. The BSE 500 percentage, around 1% during the five years before the act, increased to 1.9 in the first year of implementation and crossed the 2% mark in the fourth year. After a drop in the second year, the

average percentage has continuously grown in the post-mandate period. By the fifth year, it has reached 2.15%.

Figure 6. 3: CSR spent to ANP percentage for different BSE groups



(Source: Author's calculations based on data from CMIE Prowess)

During 2018 and 2019, the BSE 100 and the BSE rest 400 groups have more than 2% spending. It took three years for the BSE 500 companies to adjust their CSR spending to the act's requirements and bring it to the mandated 2%.

6.7.5 CSR Voluntarism

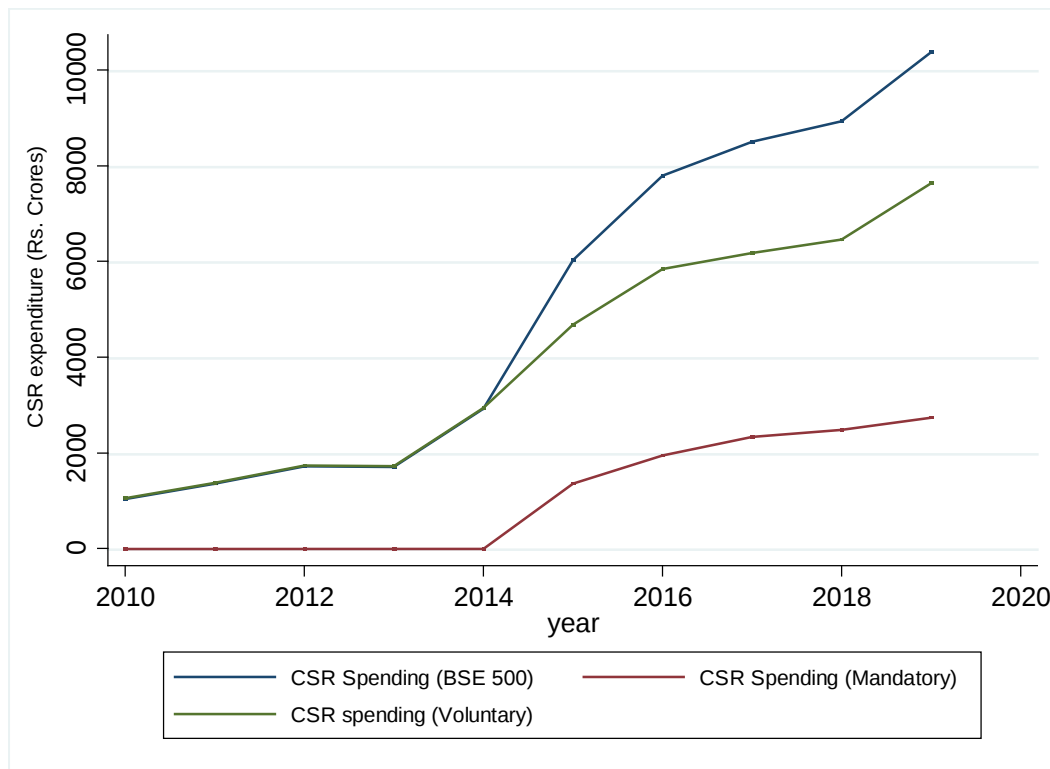
Table 6. 6: Mandatory and voluntary companies by BSE group

Mandatory/Voluntary	BSE 100	BSE rest 400	Total
Mandatory	27 (30%)	114 (39%)	141 (37%)
Voluntary	63 (70%)	182 (61%)	245 (63%)
Total	90	296	386

(Source: Author's calculations based on data from CMIE Prowess)
 (*Note: Figures in brackets represent percentages)

A significant proportion of the sample (63%) belongs to the CSR volunteering companies. From the BSE 100, 70% of the companies are volunteers; from the BSE rest 400, 61% are CSR volunteers.

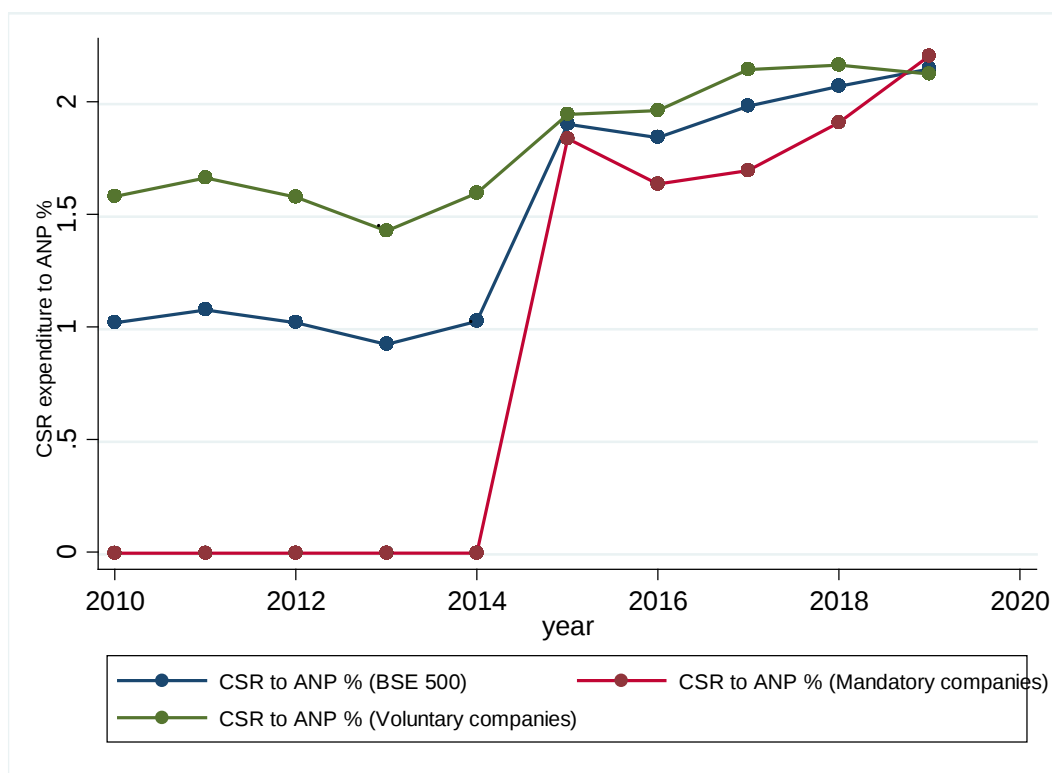
Figure 6. 4: CSR spent for Mandatory and voluntary companies



(Source: Author's calculations based on data from CMIE Prowess)

We examine the CSR spending for the two groups by considering the amount spent and also the percentage of ANP allocated to CSR (Figure 6.4). The CSR spending by the mandatory companies before the mandate was nil. Hence, the expenditure by the voluntary companies constitutes the spending by the entire BSE 500 group. The voluntary and mandatory companies' CSR spending almost doubled from the first year of the implementation of the mandate to the fifth year of implementation from 2014 to 2019.

Figure 6. 5: CSR spent to Average Net Profit (ANP) percentage for Mandatory and voluntary companies



(Source: Author's calculations based on data from CMIE Prowess)

The study considers ten years, five years pre-, and five years post-mandate. Companies in India were spending on CSR even before it was made mandatory. Companies that have reported CSR spending in any of the pre-mandate years are termed voluntary. Mandatory companies are the ones that started spending only in response to the mandate.

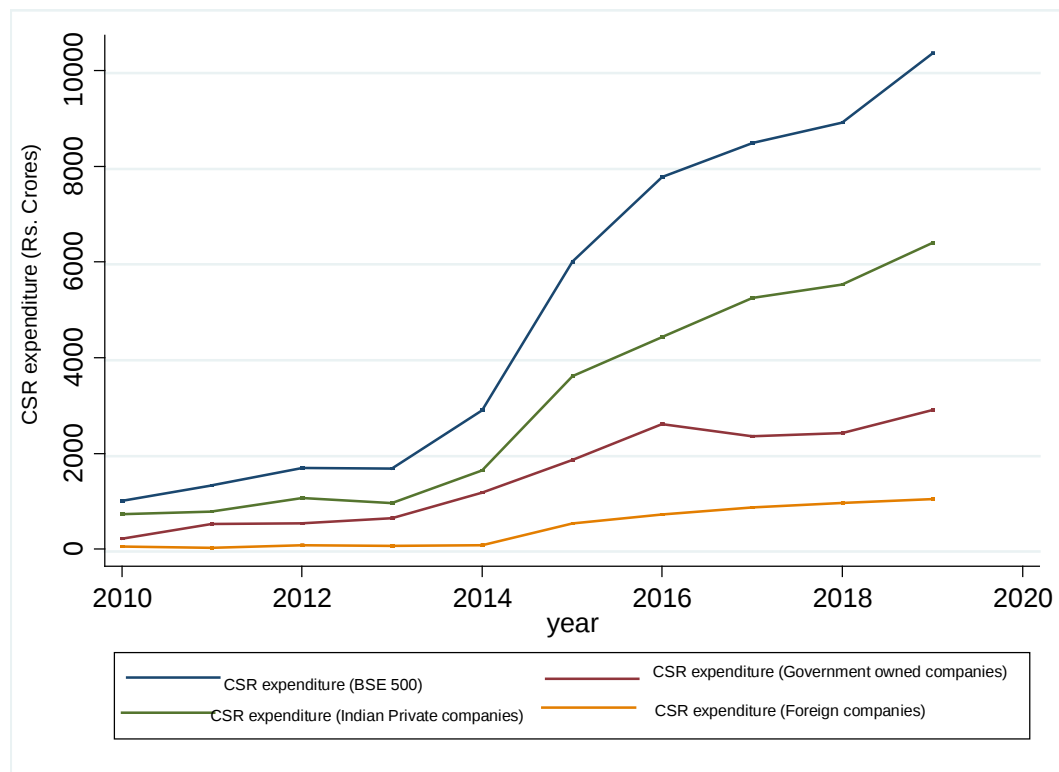
If we consider the spending as a percentage of ANP, it is seen that the voluntary companies were spending more than 1.5% of their profits on CSR.

During the first year of implementing the CSR mandate, the volunteers marginally increased their spending percentage to 1.94 but did not achieve the targeted 2% benchmark. Similarly, in the first year, the mandatory companies reached a percentage of 1.84, which, though lower than the volunteers, was a considerable increase. Subsequently, there was a

decrease in the mandatory companies' spending. The volunteer group, however, has steadily increased their proportion of spending and crossed the required 2% in the third year, 2017. The average spending percentage for the whole group of companies reached 2% in 2018. The fifth year is the first year when the mandatory companies have crossed the 2% target and also surpassed the CSR spending percentage by the voluntary companies.

6.7.6 CSR Spending by Ownership

Figure 6. 6: CSR spent for different Ownership Categories

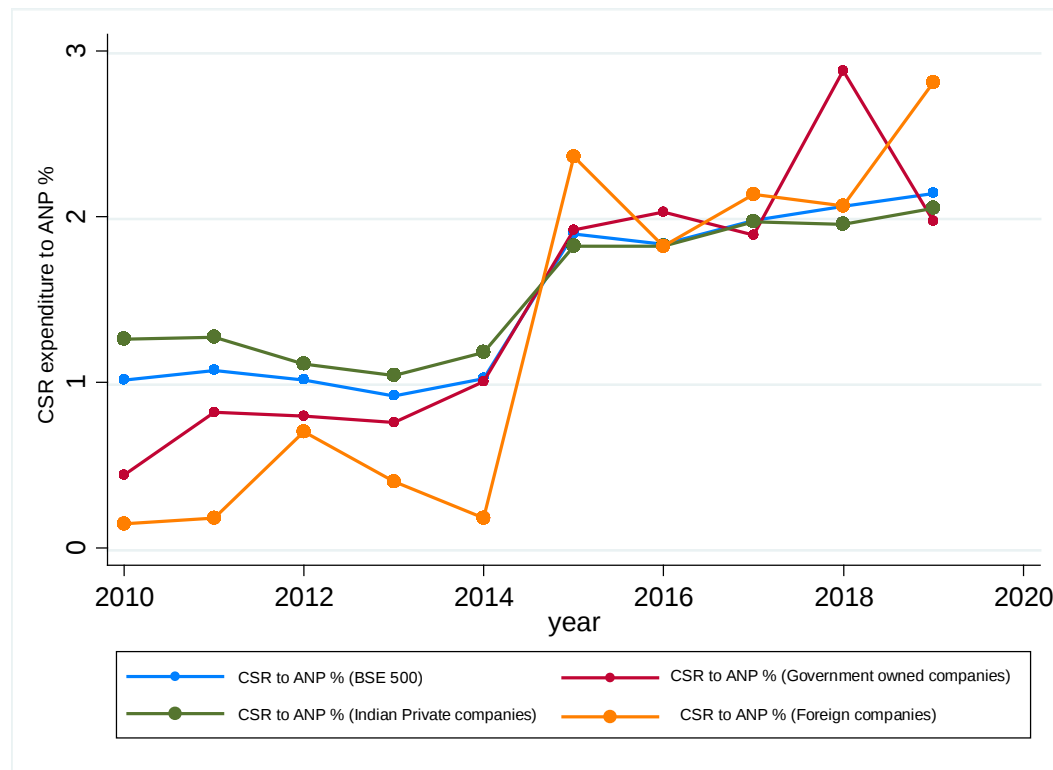


(Source: Author's calculations based on data from CMIE Prowess)

CSR spending in value and as a percentage of ANP for different ownership categories is analysed in (Figure 6.5) and (Figure 6.6) respectively. The total CSR spending by the Indian private companies group is the highest. This is expected because they form more than three-fourths of the sample. Government enterprises, comprising 11% of the sample, are the second highest in spending, followed by the foreign companies, which constitute 13%.

The spending trend was the same among these three ownership categories before the mandate till 2014. However, the difference between their spending volumes has increased during the post-mandate period.

Figure 6. 7: CSR spent to Average Net Profit (ANP) percentage for different ownership categories



(Source: Author's calculations based on data from CMIE Prowess)

Since there are differences in the sample composition based on ownership category, the average spending percentage of each type will be a better measure than the total volume of CSR spending. An analysis of CSR spending to the ANP percentage reveals that the foreign companies were the only ownership category to reach the compliance percentage of 2% in the first year of implementation of the act. This category has maintained its spending above 2% during the post-mandate period, except for a drop in 2016.

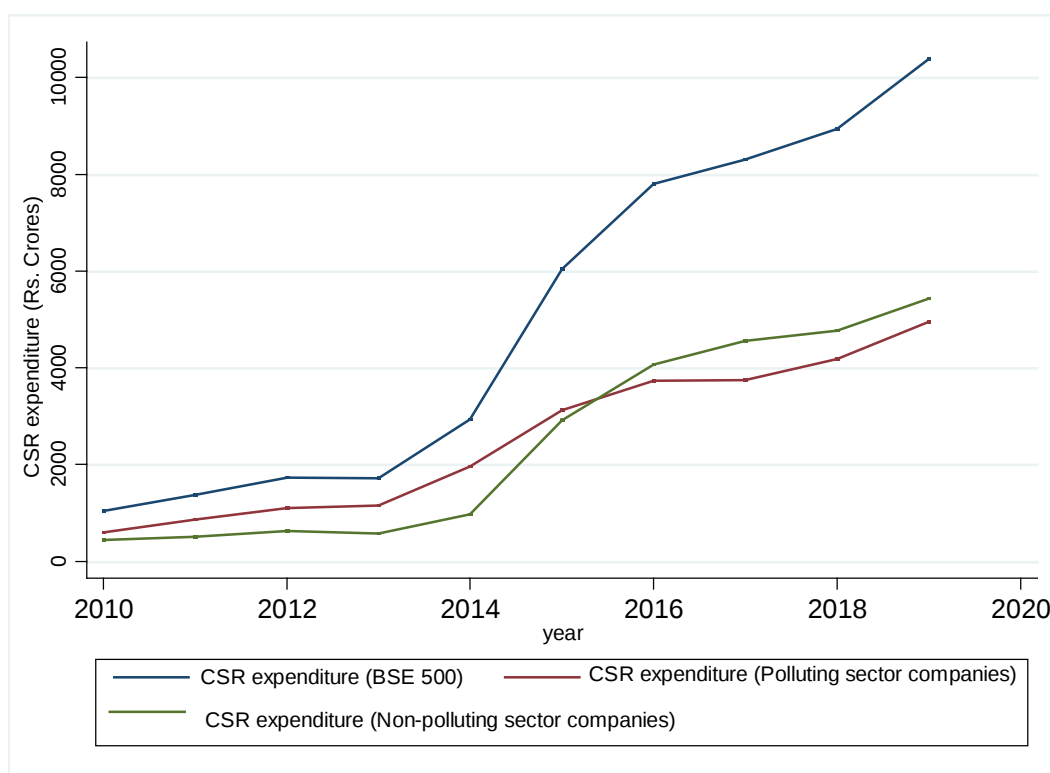
The government enterprises have a fluctuating CSR spending percentage which crossed the 2% benchmark in two years, 2016 and 2018.

The Indian private companies group is the only category with an average spending of more than 1% before the mandate. After the mandate, their CSR spending percentage has steadily increased, surpassing the 2% mark in the fifth year, 2019.

Overall, we see the compliance levels high among the foreign ownership companies, which have increased their spending from 0.18% to 2.36% in response to the mandate. The Indian companies, both government and privately owned, have increased their CSR spending percentage from 1.01% to 1.92% and from 1.18% to 1.82%, respectively in the first year of implementation of the mandate.

6.7.7 CSR spending by polluting sector status

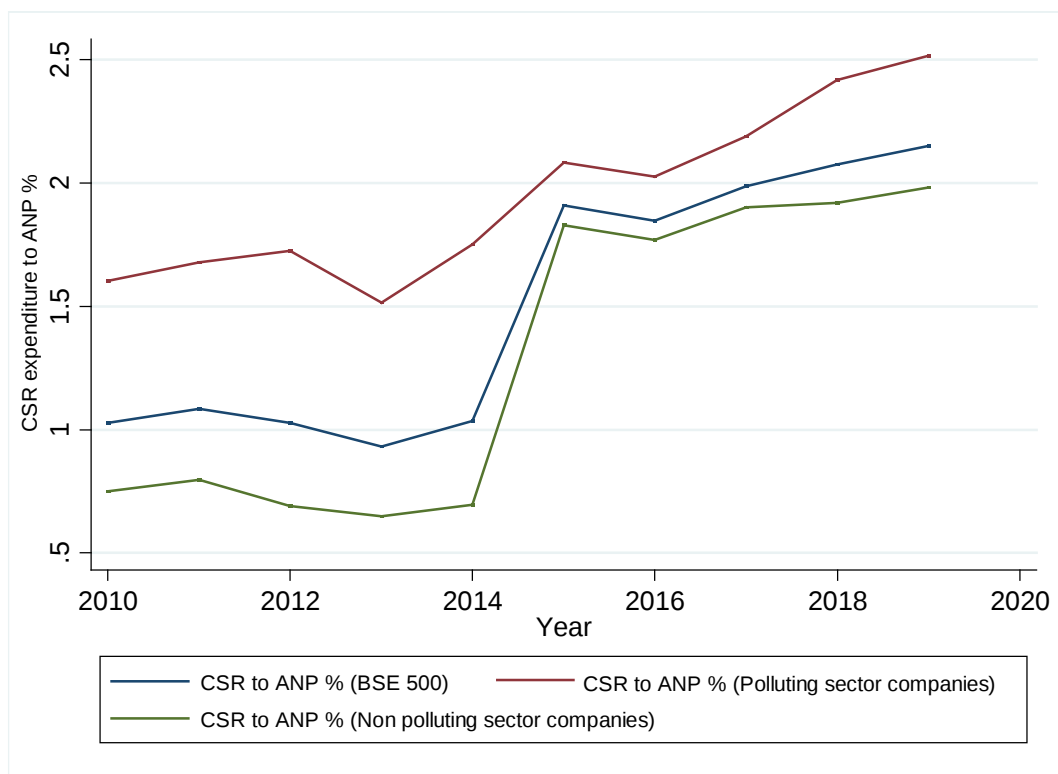
Figure 6. 8: CSR spent for polluting and non-polluting sector companies



(Source: Author's calculations based on data from CMIE Prowess)

As seen in the above figure, the CSR spending by the companies from the polluting sectors has been higher than that of the non-polluting sectors. Such expenditure has decreased after the CSR mandate for the companies from the non-polluting sectors (Figure 6.8).

Figure 6. 9: CSR spent to Average Net Profit (ANP) percentage for polluting and non-polluting sector companies



(Source: Author's calculations based on data from CMIE Prowess)

The polluting sector companies have spent more than 1% of their profits on CSR before the mandate. However, in the first year of implementing the mandate, they reached the mandated benchmark of 2%. In comparison, the non-polluting sector companies have reached close to the target of 2% in the fifth year, i.e., 2019 (Figure 6.9). Possibly, the companies belonging to the polluting sectors are investing in social responsibility projects to gain social legitimacy.

6.8 Regression

We use panel fixed effects regression to examine the CSR-CFP relationship from two perspectives:

1. Determinants of CSR spending in India

We use the percentage of CSR spending to ANP as the dependent variable.

2. Influence of CSR spending on the financial performance measured by profitability and the share market performance.

Here we use financial performance as the dependent variable. We use one accounting-based measure, Return on Assets (ROA), and one market-based measure, Tobin's Q, to represent the financial performance. Accounting-based measures of financial performance measure past and short-term performance. Market-based measures are based on a company's past financial performance and future earnings prospects. Both measures can provide better insights into the CSR-CFP relationship (Ghosh, 2013).

The relationship between CSR and CFP is considered from the cause-and-effect perspective. In both directions, the relationship between the two is analysed by considering the institutional responses of normative, mimetic, and coercive isomorphism.

The period considered for the study is from April 1, 2009, to March 31, 2019. Hence, we get five years of pre-mandate period and five years of post-mandate period. The regulatory intervention of the CSR mandate classifies the pre and post-mandate period. Some of the companies were spending even before the mandate was introduced. So, we also get a classification of voluntary and mandatory CSR spending companies. The classification of the companies based on CSR voluntarism is used for classifying the full sample into mandatory and voluntary companies.

6.8.1 Determinants of CSR spending

1. For the entire sample for the whole study period, the pre and post-dummy variables were included to understand the influence of the mandate. This helps us to understand the determinants in general.
2. For the voluntary set of companies, for the entire ten-year period, the pre and post-dummy variables were included to identify the influence of the mandate. This indicates factors driving CSR spending among voluntary companies.
3. For the mandatory set of companies, for the entire ten-year period, the pre and post-dummy variables were included to identify the influence of the mandate. This indicates factors driving the CSR spending among mandatory companies.
4. For the mandatory set of companies, only the post-mandatory period is applicable. Hence, we look at the determinants during the post-mandate period.

$$csranpppercent_{it} = \alpha_i + \beta_1 \ln roa_{it} + \beta_2 \ln tobinsq_{it} + \beta_3 \ln dpeerrcsr_{it} + \beta_4 csr_years_{it} + \beta_5 \ln adv_sales_{it} + \beta_6 age_{it} + \beta_7 lev_{it} + \beta_8 \ln mktcapn_{it} + \beta_8 prepost_dv_t + \varepsilon_{it} \dots\dots\dots \text{Eq. 4}$$

6.8.2 Influence of CSR spending on financial performance

The impact of CSR spending is examined individually for the profitability measure of ROA and the market-based measure of Tobin's Q.

For this purpose, we consider the influence

1. For the entire sample for the whole of the study period.
2. For the voluntary set of companies, for the entire ten-year period, the pre and post-dummy variables were included to identify the mandate's influence.
3. For the mandatory set of companies, for the entire ten-year period, the pre and post-dummy variables were included to identify the influence of the mandate.
4. For the mandatory set of companies, only the post-mandatory period is applicable.

Hence, we only look at the impacts during the post-mandate period.

- a. Impact of CSR on Financial Performance (ROA)

$$roa_{it} = \alpha_i + \beta_1 \ln csranpppercent_{it} + \beta_2 csrpeer_diff_{it} + \beta_3 csr_years_{it} + \beta_4 \ln advt_sales_{it} + \beta_5 age_{it} + \beta_6 lev_{it} + \beta_7 \ln mktcapn_{it} + \beta_8 prepost_dv_t + \varepsilon_{it} \dots\dots\dots \text{Eq. 5}$$

- b. Impact of CSR on Financial Performance (TobinQ)

$$tobinsq_{it} = \alpha_i + \beta_1 \ln csranpppercent_{it} + \beta_2 csrpeer_diff_{it} + \beta_3 csr_years_{it} + \beta_4 \ln advt_sales_{it} + \beta_5 age_{it} + \beta_6 lev_{it} + \beta_7 \ln mktcapn_{it} + \beta_8 prepost_dv_t + \varepsilon_{it} \dots\dots \text{Eq. 6}$$

6.8.3 Variables construction and definitions

CSR - *csranpppercent* CSR performance is measured by the CSR spending as a percentage of average net profits as required by the Companies Act, 2013. This measure is used by (Rajgopal & Tantri, 2022). Studies globally have used proxy measures for CSR performance Vigeo CSR

rankings (Quéré et al., 2018) Fortune survey of Corporate reputation (McGuire et al., 1988), KLD (Waddock & Graves, 1997) KEJI Index (Cho et al., 2019). In the Indian context, studies have used the percentage of CSR to sales (Jadiyappa et al., 2019; Nair et al., 2019) and annual CSR expenditure (Bansal, 2021; Bhattacharyya & Rahman, 2019; Mukherjee et al., 2018; Singh et al., 2021), CSR to Assets ratio (Dharmapala & Khanna, 2018).

*CFP measured by profitability **roa*** – The financial performance is measured by ROA. It is a standard accounting-based measure of economic performance used in various studies (Bhattacharyya & Rahman, 2019; Darus et al., 2013; McGuire et al., 1988a; Orlitzky et al., 2003; Seo et al., 2015; Yang et al., 2019).

*CFP measured by firm value **tobinQ*** – We include the measure of Tobin's q to represent the market-based measure of firm performance (Cho et al., 2019; Jadiyappa et al., 2019; Seo et al., 2015; Yang et al., 2019).

*Peer csr - **indpeer_csr*** – this variable represents the CSR spending by the industry peers. Peer CSR is calculated as the average CSR percentage of the companies in a particular industry based on the National Industrial Classification (NIC) sector, excluding the respective company. Peer CSR has been used in earlier studies (Bansal, 2021; Singh et al., 2021). This is used as an independent variable to decide the determinants of CSR spending.

*Peer CSR differentiation - **csrpeer_diff*** - this variable represents the difference between the CSR spending of the respective company and the average of industry peers' CSR spending. The financial performance of companies may not be influenced directly by how much their peers are spending but rather by how the company differentiates itself from its peers in such spending. This variable is used as an independent variable to examine the influence on financial performance.

*CSR maturity - **csr_years*** – represents the CSR maturity of the companies. It is calculated as the cumulative years the firms have reported CSR expenditure. A company with a higher CSR maturity can be expected to influence CSR spending positively. Similarly, companies with higher years of CSR engagement may derive more benefits from CSR in the form of a positive influence on financial performance. However, this will depend upon how strategically the CSR investment is made (Tilt, 2016). Failure to have a strategised approach towards CSR may not

render long-term CSR engagement as profitable for companies. Earlier studies have considered the number of years of experience in SR (Ching et al., 2017).

Strategic CSR - lnadvtsales- this variable represents the log of the percentage of advertising expenditure to sales. An increase in CSR spending may lead to a rise or a decline in advertising expenditure. CSR spending will negatively influence advertising if companies consider both of them as substitutes. However, if the companies view advertising as a means to communicate their CSR involvement, advertising expenditure will show a positive relationship with CSR.

csr_years and *lnadvtsales* are included to examine whether the companies in India are investing in CSR as a strategy or merely due to normative and now coercive pressures.

*Size - lnmtcapn*_ we use the log of market capitalisation as a market-based measure of size. This measure has been used by (Brammer et al., 2006). Earlier studies have used measures like total assets (Aswani et al., 2021; Cho et al., 2019; Darus et al., 2013; Seo et al., 2015; Singh et al., 2021; Yang et al., 2019) and number of employees (Ting, 2021). Market capitalisation is a more realistic measure than the total assets since it represents the company's potential to grow in the future based on its past performance.

*Leverage - lev*_ - variable leverage is calculated as the ratio of Total Debt to Total Assets used in Jادیappa et al. (2019). Although financial performance can explain social performance, financial risk is important in explaining the variability in social performance (McGuire et al., 1988). Leverage has been considered in the CSR-CFP relationship indifferent studies by using different measures of debt (Bhattacharyya & Rahman, 2019; Lee & Lee, 2019)

*Age - age*_ - Older companies are expected to be more philanthropic. This is used as a control by (Al-Mamun & Seamer, 2021 Mukherjee et al., 2018 Nair et al., 2019).

Mandate pressure - prepost_dv – This binary variable takes the value 1 if the years are after 2014, i.e., post-Companies Act, which introduced the CSR mandate, and 0 otherwise.

Voluntary CSR - vol_eligible – This binary variable takes value =1 if the company reported CSR expenditure in at least one of the five years before the mandate was enforced. Voluntarism in CSR has been considered in previous studies by different names, such as high CSR (Rajgopal & Tantri, 2022) and voluntary firms (Jادیappa et al., 2019, 2021). Similarly the value of 0 for

this variable represents mandatory CSR spending companies which have started spending after the mandate. We use this classification to form groups for regression analysis. The classification also examines normative pressures that make the company a voluntary or a mandatory CSR spender. A brief description of the variables used in this chapter for regression analysis is provided in (Table 6.7).

Table 6. 7: Variables description

Variables	Denoted by	Description
CSR spending	<i>csranpppercent_</i>	Percentage of CSR spent to average net profit
Return on Assets (Accounting based measure of financial performance)	<i>roa_</i>	Percentage of net profit to the average total assets
Tobin's Q (Market based measure of financial performance)	<i>tobin's q</i>	The ratio of the sum of market capitalisation and debt to total assets
Industry Peer CSR	<i>indpeercsr</i>	Average percentage of CSR spending by industry peers
Peer CSR differentiation	<i>csrpeer_diff</i>	Difference between the CSR spending and the average of industry peers' CSR spending.
CSR maturity	<i>csr_years</i>	Cumulative number of years that a firm has been reporting CSR spending
Advertising	<i>lnadv_t_sales</i>	Log of percentage of advertising expenses to sales
Leverage	<i>lev_</i>	The ratio of total debt to total assets
Market capitalisation (Measure of size)	<i>lnmktcapn</i>	Log of market capitalisation represented by the market value of outstanding shares
Company age	<i>age_</i>	The present age of the company calculated as the respective year- Incorporation year.
Pre and Post mandate period	<i>prepost_dv</i>	A binary variable which takes value 1 if the years are after 2014 and 0 otherwise.

(Source: Based on CMIE Prowess data dictionary and authors' calculation of variables)

We start with a sample of 386 companies, finalised from the BSE 500 group. To check for eligibility under the CSR provision in the Companies Act 2013, we construct a variable *eligibility_act*. Based on the three criteria, net worth, turnover, and profit, it is seen that there

are only 43 observations out of 3860 where the eligibility conditions still need to be fulfilled. The variable `eligibility_act` takes value 1 if the company is eligible and 0 otherwise.

Based on the CSR spent and `eligibility_act`, we create a new variable, `csrspent_eligible`, which equals the CSR spent if the eligibility act =1. Thus, `csrspent_eligible` represents the CSR spending by companies eligible for mandatory 2% CSR spending.

The CSR spending percentage is calculated as the percentage of `csrspent_eligible` to ANP. While calculating this variable `csranpppercent_`, we omit the companies with negative `anp` since it will give a negative percentage value, and these companies are also not eligible since it is not the average net profit but rather an average net loss. 2% extreme values on the higher side are also dropped to reduce the variability.

The variable `csranpppercent_` is the measure of CSR spending for the eligible companies used for further analysis, representing companies' CSR spending as a percentage of average net profit.

6.8.4 Results and findings

Table 6. 8: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<code>csranpppercent_</code>	3536	1.14	1.12	0	6.59
<code>lnroa_</code>	3552	1.73	1.05	-3.91	3.88
<code>Lntobinsq</code>	3859	.70	.69	-.79	3.65
<code>indpeer_csr</code>	3855	1.14	.66	0	3.20
<code>csr_years</code>	3860	3.38	3.00	0	10
<code>lnadvtsales</code>	3284	-.21	1.74	-6.35	3.42
<code>age_</code>	3860	41.36	24.73	3	156
<code>lev_</code>	3860	.52	.23	0	1.83
<code>lnmktcapn_</code>	3860	8.59	1.57	2.48	13.66
<code>prepost_dv</code>	3860	.5	.5	0	1

(Source: Results generated through STATA version 12)

(Table 6.8) shows the descriptive statistics for the variables used in the regression to examine the relationship between CSR and CFP with the influence of mandate and the adoption of a strategic approach towards CSR. The observations for different variables range from 3536 to 3860. On average, the companies from the sample are spending 1.14% of their average net

profits on CSR. The maximum spending when considered by industry peers is 3.20, and on average, the companies have an experience of CSR engagement of 3.38 years.

The average log of return on assets and log of Tobin's Q is 1.73 and .70, respectively. Similarly, the log of market capitalisation and the proportion of advertising to sales is 3.42. The companies from the sample have an average age of 41.36. The BSE 500 companies, on average, have a leverage of 0.52, while the maximum is 1.83.

The “one size fits all” model does not work for CSR globally, as the determinants of CSR spending differ based on the country and contextual circumstances (Carroll, 2021). The global CSR drivers differ from the local drivers since the local drivers reflect cultural traditions, political reforms, socio-economic priorities, governance gaps, and crisis responses specific to a nation or a region (Visser & Tolhurst, 2017). Therefore, the determinants of CSR spending differ based on such local motivations and dissuasions. India has had a rich tradition of social engagement through charity or philanthropy practised by corporate India through trusts and social institutions controlled by corporate families. (PricewaterhouseCoopers et al., 2013).

Accounting-based measures of financial performance measure past and short-term performance and lack objectivity. In contrast, market-based measures indicate the potential future financial performance over a more extended period but have the limitation of being influenced by factors outside the purview of a firm's operations (Platonova et al., 2018). Hence, accounting measures tend to show a stronger relationship with social performance (Orlitzky et al., 2003) and explain social and sustainability-related performance better than market-based measures (McGuire et al., 1988).

The relationship between CSR and CFP and the direction of the cause-effect relationship has yielded mixed results (Waddock & Graves, 1997). The inconclusiveness in the CSR-CFP relationship is the outcome of such context-specific differences. Analysing CSR performance in the context of any nation has to be done based on the specific socio-cultural, economic, political, and regulatory environments.

The CSR-CFP relationship has been researched at length. However, the role of peer groups due to mimetic isomorphism in this relationship has yet to receive sufficient attention (Singh et al., 2021). The companies may adopt such mimetic isomorphism to gain legitimacy by following standard practices in the peer group, like industry (Singh et al., 2021). The

influence of CSR on the firm value depends significantly on the industry-specific position of the company. Companies that differentiate themselves from their peers will experience improved firm value (Ding et al., 2016).

The relationship of corporate social with financial performance can be explained from four perspectives : (a) unilateral causality (Social performance is the determinant)-social performance causes financial performance, (b) unilateral causality (Social performance is the outcome-financial)- performance causes social performance, (c) bilateral causality (Social performance is the determinant as well as an outcome)-social performance causes financial performance and financial performance causes social performance, and (d) no causal relationship (Ching et al., 2017; Horobet & Belascu, 2012).

We examine the relationship between CSR and CFP for the companies in India in the context of introducing the CSR mandate. The mandated 2% CSR spent allows us to classify the companies into two groups: the companies that were voluntarily spending before the mandate, termed voluntary, and those that started spending on CSR in response to the mandate.

We examine the determinants for CSR spending for both these categories. Similarly, we also examine how such CSR spending has influenced financial performance in terms of ROA and Tobin's Q for these categories of companies.

The CSR spending before the act by voluntary companies is more philanthropic and is influenced by normative pressures from institutional beliefs. At the same time, the coercive pressure of the mandate influences mandatory companies' CSR spending. In both cases, such pressures will also be influenced by the mimetic pressure from their peers. Therefore, the total CSR spending will result from these three pressures, which are explained by institutional isomorphism.

In addition, the companies will also be governed by their financial performance while investing in CSR. Larger companies will tend to spend more on CSR. Literature relating advertisement to CSR suggests that companies may use advertisements to make stakeholders aware of their CSR engagement, in which case, advertisements will influence the financial performance better. However, the other theme emerging from the literature is the proxy effect, wherein companies may substitute advertisement with CSR. In this case, CSR will have a

negative relationship with advertisements since companies will cut down on advertisements and invest in CSR.

This study examines and analyses CSR-CFP performance in the Indian context by considering the institutional theory perspective. The relationship between CSR and CFP is regarded from the cause-and-effect perspective. In both directions, the relationship between the two is analysed by considering the institutional responses regarding normative, mimetic, and coercive isomorphism. Using the years of CSR engagement and advertisement expenditure, we also examine CSR strategically. The institution-based view has been used to understand the link between corporate social engagement and firm-specific competitive advantages in the Indian context (Balon et al., 2022). Similarly, the quality of sustainability disclosures has improved (Ching et al., 2017).

The period considered for the study is from April 1, 2009, to March 31, 2019. Hence, we get five years of pre-mandate period and five years of post-mandate period. The regulatory intervention of the CSR mandate classifies the pre and post-mandate period. Some of the companies were spending even before the mandate was introduced. So, we also get a classification of voluntary and mandatory CSR spending companies.

Hence, the CSR-CFP relationship is analysed as follows:

- a. Determinants of CSR expenditure for the entire sample, voluntary group of companies, and mandatory group of companies for the whole period and after the mandate.
- b. Impact/ outcome of CSR spending on the financial performance and firm value for the entire sample, voluntary and mandatory companies for the whole period and after the mandate. We consider the percentage of CSR spending to the average net profits as the measure of CSR. For financial performance, we use two measures: ROA, the accounting-based measure, and Tobin's Q, the market-based measure.

Table 6. 9: Determinants of CSR Spending

VARIABLES	(1) (Full sample -10 year period)	(2) (Voluntary companies -10 year period)	(3) (Mandatory companies -10 year period)	(4) (Mandatory companies- 5 year post- mandate period)
	Dependent variable - csr to anp percentage (csrannppercent_)			
lnroa_	0.122*** (0.0311)	0.0859* (0.0458)	0.109*** (0.0350)	0.201*** (0.0654)
Lntobinsq	0.303*** (0.113)	0.410** (0.170)	0.145 (0.0948)	-0.216 (0.248)
indpeer_csr	0.350*** (0.107)	0.232* (0.124)	-0.128 (0.143)	0.498** (0.228)
csr_years	-0.0622** (0.0244)	-0.100** (0.0478)	0.223*** (0.0342)	0.0557 (0.0930)
lnadvt_sales	-0.000867 (0.0292)	0.00983 (0.0390)	-0.00698 (0.0331)	0.0274 (0.0648)
age_	0.137*** (0.0214)	0.192*** (0.0492)	0.0206* (0.0118)	0.0468 (0.0904)
lev_	0.321 (0.228)	0.349 (0.287)	-0.214 (0.259)	-0.563 (0.573)
lnmktcapn_	-0.271*** (0.0752)	-0.339*** (0.110)	-0.173*** (0.0626)	0.0753 (0.205)
prepost_dv	0.536*** (0.116)	0.468*** (0.140)	1.108*** (0.147)	
Constant	-3.277*** (0.712)	-4.158** (1.658)	0.478 (0.497)	-2.081 (3.807)
Observations	2,913	1,885	1,028	483
R-squared	0.437	0.313	0.767	0.226
Number of companies	355	225	130	118
Company FE	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Source: Results generated through STATA version 12)

(Table 6.9) exhibits the regression results for the models on the determinants of CSR spending for the total sample for the voluntary and mandatory groups of companies. Model 1 is for the entire sample. Model 2 relates to the determinants of CSR spending for the voluntary companies, and model 3 relates to the expenditure by the mandatory companies. Model 4 shows the determinants of CSR spending for the mandatory group for the post-mandate period. These companies started spending only after the mandate. Hence, their CSR determinants would be relevant only during the post-mandate period. Though Model 3 considers the mandatory companies' performance for the entire ten-year period, it can help to understand only the influence of the mandate on CSR spending during the post-mandate period compared to the pre-mandate period. The other variables may have a different influence since during the first five years, i.e., pre-mandated CSR spending for these companies was nil. Hence, the fourth model only examines the determinants for this set of companies during the post-mandate period.

The financial performance measure of return on assets (ROA) is a significant determinant of CSR spending, positively influencing the CSR percentage for the total sample, voluntary, and mandatory companies.

However, the market-based measure of Tobin's Q is a significant determinant of CSR spending for the entire sample and the voluntary group of companies.

Peer pressure is also a significant determinant for the entire sample, the voluntary group, and the mandatory companies' CSR spending.

In deciding the percentage to be spent on CSR, the number of years of involvement in CSR has a negative influence in the case of the total sample and voluntary companies. As the years passed, voluntary companies decreased their CSR spending.

Size represented by market capitalisation has an overall negative influence on the percentage of profits being allocated to CSR.

Leverage is insignificant in any category since companies may not consider the risk factor directly when deciding CSR percentages. Similarly, advertising is not significant for any group in influencing CSR spending.

Age positively correlates with the CSR spending percentage for the entire sample and the voluntary group, indicating that ethical norms drive older companies. The influence of age is not seen in the case of mandatory companies.

The mandate has influenced CSR spending positively for voluntary and mandatory spenders. The positive sign of the coefficient for the proposed binary variable indicates that the percentage of average net profits spent on CSR by the voluntary and mandatory companies during the post-mandate period is higher than in the pre-mandate period. The coefficient for mandatory companies is much higher than that of voluntary companies. The mandatory companies had to increase their spending from nil to move towards the 2% benchmark. However, the voluntary companies had to move from their spending level to the 2% CSR target. Thus, it is expected that the increase will be more for the mandatory companies.

The voluntary CSR undertaken before the mandate, due to normative or strategic reasons, is expected to increase due to the mandatory or coercive pressure during the post-mandate period (Bansal, 2021). Even though the voluntary spenders were involved in CSR spending before the mandate, their CSR spending percentage improved significantly during the post-mandate period compared to the pre-mandate period. The mandatory companies start spending as a result of the mandate. This indicates that coercive pressures can improve CSR engagement. The influence of such coercive pressure is much higher in the case of mandatory companies than in voluntary companies. Despite under-compliance, the mandate has influenced CSR spending positively (Bansal, 2021).

Peer pressure is essential in influencing CSR spending by companies since CSR benefits are uncertain, and companies may follow their peers due to limited knowledge of implementing CSR strategies effectively (S. Bansal, 2021). Overall, voluntary and mandatory CSR spending is driven significantly by this influence. The findings confirm those of (Bansal, 2021; Singh et al., 2021). Companies from similar industries may exhibit similar sustainability behaviours due to mimetic pressure (Clarkson et al., 2008; Singh et al., 2021).

The number of years that the companies have been engaged in CSR shows a negative influence in the case of voluntary spenders. The voluntary companies have been spending for the mandate; hence, post the mandate, they may have adjusted their spending to meet the targeted 2% CSR benchmark, which might cause a negative relationship. Since the mandatory

spenders start with the requirement of the 2% benchmark already in force, they will gradually increase to reach the 2% mandate.

The non-significant relationship between advertisement and CSR spending implies that these companies have yet to use CSR as a proxy for advertisement (Dharmapala & Khanna, 2018; Rajgopal & Tantri, 2022). Nor have they used it as a medium to publicise their CSR activities to maximise the CSR investment benefit as suggested by Servaes & Tamayo, (2013).

Table 6. 10: Influence of CSR spending on financial performance measured by profitability (ROA)

VARIABLES	(1) (Full sample -10 year period)	(2) (Voluntary companies -10 year period)	(3) (Mandatory companies -10 year period)	(4) (Mandatory companies- 5 year post-mandate period)
Dependent variable- Return on Assets (roa_)				
lncsranpercent_	0.144 (0.104)	0.208* (0.119)	0.931** (0.379)	0.346 (0.332)
csrpeer_diff	0.103 (0.143)	-0.0590 (0.167)	-0.331 (0.272)	-0.241 (0.323)
csr_years	0.104 (0.130)	0.125 (0.220)	0.511*** (0.180)	0.157 (0.781)
lnadvt_sales	-0.249* (0.137)	-0.162 (0.161)	-0.294 (0.244)	-0.325 (0.266)
age_	-0.737*** (0.122)	-0.778*** (0.214)	-0.886*** (0.160)	-0.613 (0.814)
lev_	-7.271*** (1.367)	-6.395*** (1.540)	-10.33*** (2.802)	-4.973 (4.758)
lnmktcapn_	2.668*** (0.253)	2.830*** (0.305)	2.096*** (0.424)	3.178*** (0.845)
prepost_dv	-0.535** (0.253)	-0.969*** (0.339)	0.123 (0.434)	
Constant	20.01*** (4.669)	19.14** (7.533)	33.85*** (6.470)	9.456 (34.96)
Observations	3,041	1,954	1,087	522
R-squared	0.209	0.245	0.180	0.171
Number of companies	361	228	133	122
Company FE	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Source: Results generated through STATA version 12)

(Table 6.10) shows the influence of CSR spending on the accounting-based measure of financial performance, i.e., profitability, as measured by the return on assets (ROA). Models 1, 2, and 3 relate to the total sample, voluntary, and mandatory groups. Model 4 for the post-mandate period for the mandatory group of companies only.

CSR spending influences the return on assets only in the case of voluntary companies. The differentiation from the peers in terms of CSR spending does not make any difference to the profitability of the companies, unlike the findings of Singh et al., (2021). Advertising's negative influence on ROA for the total sample is insignificant in voluntary or mandatory companies.

The number of years of CSR engagement is insignificant for the entire sample or either of the groups.

Older companies could be more efficient in utilising their assets to generate profits. This is evident through the negative relationship between age and the return on investments, seen in the total sample and the voluntary companies.

Size represented by market capitalisation shows a positive influence on ROA, as expected, implying that market performance and profitability are positively related.

Risk in terms of leverage shows a negative influence on profitability for the entire sample as well as the voluntary companies.

Larger companies with a more substantial presence in the share markets are more efficient in utilising assets to generate profits. The positive influence of market capitalisation on the return on investments in the case of voluntary groups and mandatory groups of companies is evident.

The post-mandate period saw a reduction in road use compared to the pre-mandate period. This influence is seen in the case of the total sample and the voluntary companies. This may be due to two reasons. One is that mandatory CSR spending negatively influences profitability, which may not be the case when looking at the positive influence of CSR spending on return on assets. The other possibility is that the companies are restricting their reported profits to reduce the mandatory 2% spending. Though studies have investigated the

phenomenon of earnings management in the context of CSR (Hickman et al., 2021; Hong & Andersen, 2011), we have yet to test this possibility in this analysis.

Voluntary companies have started receiving the benefits of CSR engagement in enhancing profitability. Mandatory spenders have yet to receive such benefits; hence, the influence of ROA is positive for voluntary companies but not for the mandatory groups of companies.

However, the spending by none of the groups is strategised towards improving profitability. The negative influence of CSR years on profitability is an indication of this. Older companies may view CSR as more of a philanthropic activity rather than a strategy to improve the bottom line. Older companies, thus, have a lesser ROA. Risk is essential in controlling profitability, as is evident from its negative impact.

Table 6. 11: Influence of CSR spending on financial performance measured by market performance (Tobin's Q)

VARIABLES	(1) (Full sample -10 year period)	(2) Voluntary companies -10 year period)	(3) (Mandatory companies -10 year period)	(4) (Mandatory companies- 5 year post-mandate period)
	Dependent variable Tobin's Q (tobinsq_)			
lncsrpercent_	-0.0109 (0.0361)	0.0114 (0.0349)	0.0845 (0.193)	-0.0511 (0.125)
csrpeer_diff	0.0599 (0.0519)	0.0188 (0.0463)	0.0636 (0.220)	-0.0214 (0.112)
csr_years	-0.0985 (0.0604)	-0.0714 (0.0870)	-0.0311 (0.115)	0.248 (0.264)
lnadvt_sales	-0.0801 (0.0749)	-0.0679 (0.102)	-0.114* (0.0631)	-0.182** (0.0820)
age_	-0.119*** (0.0449)	-0.145* (0.0781)	-0.162*** (0.0576)	-0.402 (0.275)
lev_	-0.620 (0.653)	-1.260*** (0.482)	0.992 (1.993)	4.037* (2.154)
lnmktcapn_	1.467*** (0.139)	1.426*** (0.158)	1.572*** (0.278)	1.817*** (0.210)
prepost_dv	0.384*** (0.0847)	0.290*** (0.0942)	0.455** (0.202)	
Constant	-4.397** (1.978)	-2.941 (3.027)	-4.113 (2.635)	2.849 (11.36)
Observations	3,045	1,956	1,089	523
R-squared	0.373	0.470	0.283	0.280
Number of companies	361	228	133	122
Company FE	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

(Source: Results generated through STATA version 12)

In (Table 6.11), we include the models examining the influence of CSR spending on the market-based measure of Tobin's Q. In line with the previous tables, Models 1, 2, and 3 show results for the entire sample, voluntary group, and mandatory companies for the whole of the ten years. Model 4 shows the results for the post-mandate period for the mandatory companies for the mandatory companies only.

Tobin's Q for the total sample and the voluntary companies has increased during the post-mandate period compared to the pre-mandate period. However, CSR spending does not show a significant relationship with the market-based measure of financial performance, Tobin's Q for any category of companies.

Though we do not find evidence of a positive influence of CSR on the market performance of companies as found by (Jادیappa et al., 2019), we also do not find CSR to influence such performance negatively, as reported by (Aswani et al., 2021; Brammer et al., 2006; Cho et al., 2019; Seo et al., 2015; Yang et al., 2019).

Companies in the voluntary group show a negative influence of age on Tobin's Q, indicating that the older companies from this category have a lesser market performance.

Companies with higher leverage tend to have a lower Tobin's Q, while they will have a higher Tobin's Q in the case of mandatory companies.

The number of years in CSR engagement does not impact the shareholder's perceptions about the company for either category of companies. However, advertising negatively influences the market-based measure of financial performance, i.e., Tobin's Q. Because advertising is not influential in improving the profitability of these companies, as seen in (Table 6.11), shareholders might be considering this expenditure as a non-productive expenditure.

Larger companies with a high market capitalisation will have a higher Tobin's Q, as expected in the case of voluntary and mandatory group of companies.

6.8.5 Analysis and Discussion

The CSR-CFP relationship in the Indian context, when considering the variables used in this study, can be summarised as follows.

The relationship between CSR and accounting-based profit measures for mandatory companies is like unilateral causality. For this category of companies, social performance is the outcome, whereas financial performance causes social performance. However, social performance does not influence financial performance.

The relationship between CSR and accounting-based profit measures for voluntary companies is bilateral. For these companies, social performance influences financial performance and is also influenced by it.

CSR and market-based measures of financial performance do not show any causal relationship in the case of mandatory companies (Ching et al., 2017; Horobet & Belascu, 2012).

The relationship between CSR and market-based financial measures for voluntary companies exemplifies unilateral causality. In this case, social performance depends on market-based financial performance, as measured by Tobin's Q. However, the market performance, in turn, does not influence the social performance.

The corporate financial performance and CSR relationship is bidirectional in the case of the accounting measure of ROA for voluntary spending companies. Slack resources, in the form of liquid financial resources, influence companies' decisions on CSR investment (Balon & Reddy, 2022). The results of this study show evidence of the "Slack resources theory" and "Good management theory" (Waddock & Graves, 1997), wherein better financial performance stimulates CSR, and CSR, in turn, is rewarded by good economic performance. This also proves the case for Stakeholder theory since profitability is influenced by and influences many stakeholders. Engaging with a broader group of stakeholders helps improve the bottom line, especially for voluntary companies.

The market-based measure of Tobin's Q, though influencing the CSR spending in the case of voluntary companies, is not influenced by their CSR investment. This shows evidence of the shareholder theory rationale, wherein the shareholders are not interested in the corporate social performance.

In the case of mandatory firms, the availability of resources in the form of profitability is an influential factor in deciding the percentage of profits allocated to CSR. However, such CSR only materialises in improved financial performance. The market-based measure of

Tobin's Q also does not influence CSR spending, nor does the CSR spending of mandatory companies impact it (Ching et al., 2017; Horobet & Belascu, 2012).

Overall, accounting-based measures show a better relationship with CSR than market-based measures. These are in accordance with the findings in earlier studies (McGuire et al., 1988; Quéré et al., 2018) (Kansal et al., 2014; Quéré et al., 2018). Similarly, financial performance is a better predictor of social performance than vice versa, as reported by (Quéré et al., 2018).

Though the literature claims that CSR directly influences financial performance (Coelho, 2022), we find evidence of such positive influence only in the case of voluntary companies in India.

We also do not find evidence of CSR influencing shareholder value positively, as found by (Juniarti, 2021) in Indonesia and (Panwar Pandey, 2022) in India. The lack of such a relationship may be explained by the rationale that different CSR elements (Bajic & Yurtoglu, 2018), areas of CSR (Jiao, 2010; Roy et al., 2022) or types of CSR (Godfrey et al., 2009) influence financial performance differently.

Regarding the mandate, coercive isomorphism and mimetic isomorphism are strongly influenced by the CSR spending of companies belonging to voluntary and mandatory groups. Voluntary expenditure by companies without mandatory pressure shows that they are driven by normative isomorphism. The normative pressures vary according to the company's culture, norms and values derived from the national environment (Oliver, 1991).

Peer pressure influences CSR spending, but we do not find evidence of differentiation from peers improving the financial performance of companies, as found by (Ding et al., 2016).

Neither the differentiation from peers in terms of CSR spending nor the involvement in CSR in terms of the number of years or advertising is influential in deciding the market performance of the companies. This indicates a need for a more strategic approach to CSR. Companies might consider the availability of financial resources as a prerequisite for CSR spending. The

Voluntary companies can be considered more philanthropic due to their voluntary CSR spending. Hence, they are driven more by institutional normative pressures, which differ for companies. The coercive pressure of the mandate drives the mandatory companies.

Philanthropic CSR driven more by ethics and moral values may not be strategically directed at such financial benefits. However, in such CSR engagement, they may experience improved financial performance.

6.9 Conclusion

CSR spending in India has been prevalent among Indian companies even before it was made mandatory by the Companies Act of 2013. With the mandated 2% CSR spending, the act gave the companies in India a minimum threshold to measure their CSR engagement. Larger companies may spend more amount on CSR. Societies expect companies to carry out their operations socially responsibly. Profits serve as a measure of the scale of the operations as well as the social impact of the companies. Mandatory CSR spending, expressed as a percentage of the average net profits for the previous three years, effectively measures corporate social giving.

We find that financial performance in terms of profitability and market performance are significant drivers of CSR spending when we consider the total sample and voluntary companies' cases. However, in the case of mandatory companies, profitability drives CSR spending.

Based on the Institutional theory, we examine the applicability of three isomorphism types, namely mimetic, coercive and normative, in the Indian context.

We find that coercive mimetic and normative pressures are influential in determining companies' CSR spending policy. Despite the opposition of the corporate sector during the planning years, the mandatory CSR provision has had a favourable impact on corporate expenditures in social responsibility activities. The fact that some companies spend even without regulation indicates that institutional norms also motivate CSR spending. Thus, regarding determinants, the institutional theory is operational in determining CSR spending in India.

The institutional theory shows a strong influence on CSR spending by companies in India. Individual and institutional beliefs and logic play a significant role in the corporate social responsibility decisions of companies in India. Many of them were spending voluntarily on CSR activities before the mandate. Such voluntary behaviour has positively influenced the CSR spending percentage since the introduction of the mandate.

The CSR spending in India combines normative, mimetic, and coercive isomorphism. We find evidence that firms spend on CSR due to social and institutional norms and peer pressure, and they also respond positively to regulatory pressures. However, such spending impacts different stakeholders differently, resulting in differences in the influence of CSR spending on companies' financial performance. Its influence on accounting-based measures of financial performance is determined more by other stakeholders, such as employees, suppliers, customers, suppliers, etc. At the same time, the impact of the market-based measures is dependent on the shareholders.

The influence of CSR spending on accounting-based measures is positive in the case of voluntary spending companies. However, CSR spending does not significantly influence the market-based measure of financial performance.

A lack of a consistent relationship between advertising and CSR performance indicates that CSR needs to be adopted as a strategy by the corporate sector in India. The negative influence of the number of years of CSR spending on the CSR spending percentage denotes that the companies do not increase their CSR spending percentage as their experience in CSR spending increases. This may be because such expenditure has not been linked with profitability but has been more in the nature of philanthropy.

Though financial performance decides CSR spending, CSR spending, in turn, does not influence economic performance positively, again indicating a lack of strategic approach.

The CSR strategy to influence profitability must be redesigned to target the multiple stakeholders affecting the companies' operations. Such stakeholder-based CSR strategies may be more influential in positively impacting profitability. Despite a generally positive relationship between corporate finances and social performance, the benefits of CSR will be evident in the enhanced financial performance based on the CSR strategies of the companies.

The CSR-CFP relationship may be particularly interesting to the corporate sector in understanding how CSR investment influences financial performance. Hence, they are discussed in this chapter. However, from a broader perspective, the corporate sector is responsible for its impacts on the society. Through its positive influence on society, CSR can serve as a medium to counterbalance the negative social impacts. The CSR activities should, therefore, be examined for their impact on society and how such an investment helps solve the development challenges facing the nation. The next chapter deals with this objective by reviewing how corporate social spending contributes to achieving Sustainable Development Goals (SDGs).

Chapter 7

ROLE OF CORPORATE SOCIAL SPENDING IN THE ACHIEVEMENT OF SUSTAINABLE DEVELOPMENT GOALS

7.1 Introduction

Development is multidimensional in nature, extending beyond economic growth, and its measurement is incomplete without the inclusion of human development parameters (Niranjan, 2020). Human Development involves improving human conditions like physical well-being and empowerment so that human beings live longer and healthier lives (Kundu & Varghese, 2010; Prabhu & Chatterjee, 1993; Purohit, 2008; Ranis & Stewart, 2000).

Human development is related to the level of human capital and can lead to differences in productivity and inequality among nations (Chattopadhyay, 2018). Human capital development is important for inclusive growth, hence, investing in this area is a global priority (Mate et al., 2018). This remains a challenge for India, given its relatively low Human Development Index despite rapid economic growth (Mukherjee et al., 2015)

Economic growth can serve as a means to enhance well-being parameters, reduce inequalities, and develop economic resilience and environmental sustainability (D'Souza & Jain, 2022). However, Gross Domestic Product (GDP) can contribute to different levels of human development based on allocation (Ranis & Stewart, 2000).

Measures like the Human Development Index (HDI) and the Sustainable Development Goals (SDGs) act as proxies for human development. Factors like poverty, urban and rural disparities, and geographical variations are signs of inequalities and can contribute to poor performance on the human development performance indicators (Prabhu & Chatterjee, 1993). Correction of such inequalities needs intervention through an increase in social sector spending.

The huge SDG financing gap in developing countries indicates the need for alternative sources of financing (Zhan & Santos-Paulino, 2021), which goes beyond the government sources that may need to be improved (Martin & Walker, 2015). The achievement of the SDGs as planned by the 2030 agenda requires careful collaboration between the government and the corporate sector.

In a significant policy intervention, the GOI introduced in the Companies Act (2013) a requirement for companies to improve social development and reduce inequalities in India (GoI, 2019).

This chapter examines two sources of financing for social, economic, and environmental development, namely government social sector expenditure and corporate social expenditure. We examine the distribution of such spending in different priority development areas and states from 2015 to 2019. It studies whether the government and the corporate sector expenditures are contributing effectively to sustainability challenges as benchmarked by the SDGs.

7.2 Literature Review

The goals of reducing extreme poverty and promoting shared prosperity adopted by the World Bank Group in 2013 (Independent Evaluation Group, 2018) indicate the importance of equality in the development process. High economic growth has not given people equal access to primary healthcare, education, safe drinking water, sanitation, and infrastructure facilities across the states and regions (Niranjan, 2020).

India's development is geographically uneven, with high-income states having highly backward districts and low-income states with highly developed communities (Bakshi et al., 2015). The Indian economy continues to grow at the cost of diverse regional disparities (Das & Barua, 1996). The rural-urban gap (Bakshi et al., 2015; Purohit, 2008) arises due to the 'polarised growth' (Bakshi et al., 2015) in urban areas (Kumar et al., 2016). The higher-level facilities, including the healthcare system in India, are primarily urban-focused (Prabhu K. & Chatterjee, 1993; Rout & Mishra, 2015). The north-south social development divide in India is evident in the southern states performing better than the northern ones (Kumar & Rani, 2019). In addition, some peculiar disparities are observed, like the tribal population states of India being found to be more backward (Bakshi et al., 2015), indicating a social disparity with the deprivation of opportunities for these groups.

The social and economic disparities among the Indian states are reflected in benchmark parameters like the HDI and its components, necessitating the examination of the relationship between economic growth and human development at the national and sub-national levels (Mukherjee et al., 2015). Challenges like increasing social, economic, and regional inequalities

and environmental issues like climate change constitute major hurdles in India's development path (Bhamra et al., 2015).

Progress towards the SDGs has been uneven (Vorisek & Yu, 2020) and insufficient (Zhan & Santos-Paulino, 2021) globally and in India (Mate et al., 2018). This has led the UN to declare the decade from 2020 to 2030 as the decade of action on SDGs (Zhan & Santos-Paulino, 2021). The financing gap to meet the SDG targets remains significant. Different international agencies like the World Bank, United Nations Conference on Trade and Development (UNCTAD), International Monetary Fund (IMF), and World Health Organisation (WHO) have all found that government financing alone will not be sufficient to bridge the financing gap to meet the SDG targets (Childs et al., 2018; Zhan & Santos-Paulino, 2021). Private finance, , is an attractive and promising source of funding for SDG requirements especially in developing countries (Childs et al., 2018).

Research on the relationship between CSR and SDGs is growing but is still unstructured, fragmented (Lopez-Concepcion et al., 2022) and inconclusive (Schönherr et al., 2017). Companies should identify and engage in CSR activities that are material and the impact of such engagement should be measurable (Schönherr et al., 2017).

SDG17 calls for partnerships among different stakeholder groups to achieve SDGs. The corporate sector can actively partner with governments and civil society to achieve the SDGs (Schönherr et al., 2017), and CSR expenditure can serve as a medium to contribute in achieving the SDGs.

SDGs are development benchmarks whose achievement depends on economic and social equality. Social issues covered by SDGs are interrelated and need integrated planning and government policy integration (Childs et al., 2018). A concerted effort from all stakeholders, government, private sector, donors, philanthropists, international financial institutions, academia, society, communities, and individuals (Childs et al., 2018; Gaspar et al., 2019) can prove more effective than government efforts alone. The government, through social expenditure, and the corporate sector, through CSR activities, can play a significant role.

7.3 Companies Act, 2013 -Mandatory CSR as a Complementary Funding Option in India

The Companies Act 2013 mandates the specified companies in India to spend a minimum of 2% of their average net profits on CSR. The CSR areas specified in Schedule VII can be found to be aligned with the SDGs. It is important for the corporate sector to identify the areas where their CSR spending has to be directed so that the objective of welfare is achieved rather than a mere 2% spending target being achieved.

The mandatory CSR spending, as required by Section 135 of the Companies Act, 2013 introduced during the same period as the SDGs, has the potential to contribute to a sustainable growth model (NGOBOX, 2020) by contributing to the national social development agenda and environmental sustainability (Bansal et al., 2017). Even though the companies from India were involved in CSR spending before 2015, the mandatory provision on CSR provided a more structured approach. The expenditure of the 500 groups of companies increased ten times from 2010 to 2019 from around Rs. 1000 crores to more than Rs. 10,000 crores (refer Figure 6.4). The regulation doubled the CSR spending of companies in India within five years of its implementation. The expenditure of Rs. 8,000 crores in 2015 reached more than 20,000 crores by 2019 (refer Table 3.2).

India's top 500 companies in the BSE 500 group accounted for more than 50% of this spending in 2019, of which 80% came from the top BSE 100 companies (refer Table 3.2). Over the period of first five years of implementation, the BSE 100 companies have contributed to 48% of the total CSR spending by companies in India (refer Table 7.2).

The introduction of the CSR mandate has increased CSR spending in India (Bansal, 2021; Bhattacharyya & Rahman, 2019). However, the response has varied across firms, indicating that motivations for CSR spending vary (Mukherjee et al., 2018). While some firms complied with the 2% requirement, others fell short, and there were also companies whose CSR expenditure exceeded the mandated 2% (Bhattacharyya & Rahman, 2019). The legislation needs to catch up to its targets regarding the quantum of CSR expenditure and expectations regarding the areas in which it is being spent (Bansal, 2021; Mukherjee et al., 2018).

Corporate investment in the social sector through their CSR, especially as specified and mandated by the Companies Act of 2013, has further strengthened social sector spending (Ray & Sarangi, 2021). However, the imbalance in spending in different CSR sectors and the states was evident right from the first year of implementing the CSR mandate (Bansal, 2021; Bansal et al., 2017; GoI, 2019). The CSR spending is skewed in favour of certain states, with six states receiving more than 40% of the CSR spending (GoI, 2019). What is a cause of concern is that these top receiving states have very few aspirational districts (GoI, 2019). Aspirational districts are the districts identified by NITI Aayog based on composite indicators on Health and Nutrition, Education, Agriculture & Water Resources, Financial Inclusion & Skill Development and Basic Infrastructure (<https://nhm.gov.in/index>). Focus on such districts in the corporate social spending agenda can improve their condition on the composite indicators considered. The skew shown in favour of the better-off states rather than the needy ones furthers the possibility of getting the aspirational districts on par with the others in the process of development and achievement of the SDGs.

7.4 Research Gap

Though studies have examined the relationship between government's social sector expenditure and social and human development, literature exploring the relationship between such spending and the SDGs is limited (Mate et al., 2018). In relation to CSR, a majority of the studies, globally and in India, focused on the CSR–CFP relationship (Bhattacharyya & Rahman, 2019; Chen et al., 2018; Cho et al., 2019; Seo et al., 2015). Following the CSR mandate, studies in India investigated its impact on CSR spending (Bansal, 2021; Rajgopal & Tantri, 2022), the effect of peers on CSR spending (Bansal, 2021; Singh et al., 2021), the relationship between CSR spending and cash holdings (Jadiyappa et al., 2021) and earnings management (Hickman et al., 2021). However, the relationship between CSR and SDGs is a lesser-explored area (Schönherr et al., 2017).

A limited number of studies that have mapped CSR and SDGs have used different bases for mapping. In a study conducted in Spain, ten SDGs have been mapped against a self-constructed index for CSR, which is calculated based on SDGs (Junior et al., 2014).

In India, CSR spending areas as per Schedule VII have been mapped with the SDGs at the national level (GoI, 2019; KPMG & UNGC, 2017) and for Haryana (NGOBOX, 2020). However, these studies have mapped a single SDG against multiple CSR areas and vice versa.

To fill this gap, we consider fourteen SDGs mapped against the twelve CSR areas from Schedule VII. We classify them into four broad development areas, health, education, promoting equality and environment.

Does CSR flow to the sectors and states where the SDG gaps are the largest? is the research question we pose here.

7.5 Data and Methods

7.5.1 Data

We consider the CSR trends of the BSE 100 companies from 2015 to 2019 and compare them with the government's social sector spending. For the purpose of this chapter, we restrict the sample to BSE 100 companies, and the period considered is the post mandate five years from 2015 to 2019.

The sample was restricted to 100 companies since the data on CSR sector-wise spending is not available in a downloadable format. It had to be extracted from each company's annual CSR report and entered based on the CSR sector and the state of spending as was needed for the study. Only the post-mandate period is considered since the different CSR areas classification and the CSR annual report format were provided by the Companies Act 2013. The companies' spending before the mandate did not have any uniform format to report their CSR spending in different areas. Hence the data on CSR spending is not available based on the schedule VII CSR spending areas during the pre-mandate period.

7.5.2 Sources

The National SDG Scores have been taken from the SDSN for the five year period from 2015-2019. The state-level SDG Scores have been taken from the Niti Aayog Dashboard from 2018 to 2020.

Government expenditure in Social sector areas has been obtained from the ‘State statistics and Finances’ from the RBI eSTATES database.

CSR expenditure, sector-wise and state-wise, has been obtained from the CSR reports forming a part of the annual reports of respective companies. For analysis of state-wise spending on CSR, the number of companies spending in each state is considered as CSR presence for each state. Though the annual CSR report format specifies the state-wise expenditures in each Schedule VII area, most companies follow Schedule VII CSR area-wise reporting. The reports specify the CSR spending in a relevant area in different states as a common amount. The state wise CSR spending in each CSR area is not available for all the companies. Hence, we consider the number of companies spending in each state rather than the amount spent in each state. The number of such companies in each state is identified based on different CSR areas and then grouped based on the four main development areas.

The SDG scores for the states are available on the Niti Aayog SDG dashboard from 2018. Since 2018 and 2019 would give only a two-year average, we consider the three years from 2018 to 2020 for the SDG score.

However, the averages for CSR and social sector spending are taken as the average of five years’ values from 2015 to 2019.

7.5.3 Methods

Line graphs have been used to understand the trends in social spending by the government and corporate sector during the selected period. We use scatter plots for understanding

- i. the relationship between social spending and the SDG scores and
- ii. the relationship between number of companies spending and plant locations in different states.

Correlation is used to understand the strength of the relationships depicted by the above scatter plots.

We focus on four broad development objectives:

1. Health and Economic Development (SDGs 1,2, 3,6 and 8)
2. Education Sports art and culture (SDGs 4 and 9)

3. Promoting social and economic equality (SDGs 5 and 10).
4. Environmental sustainability and disaster management (SDGs 7, 11, 12, 13 and 15).

We examine both sector-wise and state-wise contribution.

Table 7. 1: Grouping of individual sectors under CSR, Social Sector, and SDGs

Development areas	CSR Sectors	SDG's	Government Social Sector Expenditure Areas
Health and Economic Development	Eradicating Hunger, Poverty, and Malnutrition and promoting preventive healthcare.	No Poverty (SDG-1)	Medical and Public Health
	Measures for the benefit of Armed forces.	Zero Hunger (SDG-2)	Family Welfare
	Rural Development Projects	Good Health and Well Being (SDG-3)	Water and Sanitation
	Slum Area Development	Clean Water and Sanitation (SDG-6)	Nutrition
		Decent Work and Economic Growth (SDG-8)	Labour Welfare
Education Sports art and culture			Housing
	Promoting Education, Including special education and Employment, enhancing vocational Skills	Quality Education (SDG-4)	Education Sports Art and Culture
	Protection of National Heritage, Art and Culture.	Industry Innovation and Infrastructure (SDG-9)	
	Training to promote rural sports and the Olympics.		
	Contribution for Technology Incubators.		
Promoting social and economic equality	Promoting Gender Equality and reducing social and economic inequalities	Gender Equality (SDG-5)	Welfare of SC, ST, OBC
		Reduced Inequalities (SDG-10)	Social Security and Welfare
Environmental sustainability and Disaster management	Ensuring environmental sustainability	Affordable and Clean Energy (SDG-7)	Natural Calamities
	Contribution to PM Relief Fund	Sustainable Cities and Communities (SDG-11)	Urban Development
	Disaster Management	Responsible Consumption and Production (SDG-12)	
		Climate Action (SDG13)	
		Life on Land (SDG-15)	
		*Life Below Water	***Others
		**Peace, Justice and Strong Institutions	
		**Partnerships for the Goals	
* This area has been excluded from mapping since its score is not available for many states due to its inapplicability.			
** These areas have been excluded from mapping as they deal with the achievement of SDGs and cover more than one theme.			
*** This area has been excluded from mapping since it does not specify the activities covered.			

(Source: Authors' compilation based on Schedule VII (Companies Act 2013), SDGs, and the government Social sector expenditure areas)

a. Sector-wise

We consider the amount spent in each Schedule VII area grouped under the four broad categories as sector-wise spending. Similarly, the government spending in different social sector areas grouped into the four broad areas is considered for social sector spending, and the SDG scores for the relevant areas put together in four broad categories are used for the SDGs

i. CSR spending based on sectors

This is the total CSR spending in the respective development area formed by grouping the relevant schedule VII CSR areas as specified in (Table 7. 1). Hence we get CSR spending in the four selected development areas.

The total CSR spending in each area is then calculated as a proportion of the total CSR spending during the year for comparison.

ii. Government social sector spending based on sectors

The variables under this heading represent the government spending under the four development areas created by grouping the relevant social sector spending areas forming a part of the state government budgets (refer to Table 7.1).

The annual social sector spending in each of the four areas is then calculated as a proportion of the total government spending in all the social sector areas for the respective years.

iii. Sustainable Development Goals (SDGs) scores

These values represent the SDG score averages for the relevant SDGs grouped in the four development areas, as identified in (Table 7.1).

The SDG scores are measured out of 100. Therefore, the sum of the SDG scores in a particular development area is divided by the number of SDGs in that area. This gives a development area SDG score out of 100.

b. State-wise

i. CSR presence of companies by states

Following the same four development areas, we calculate the area-wise CSR presence. Each of these values represents the number of companies spending in the relevant broad area in the respective state.

ii. Social Sector Spending by states

These values represent the total social sector spending by the government in each of the four development areas, which we then convert as a proportion of total government spending in all the social sector areas of the state government's budget.

iii. SDG scores for states

We first take the total SDG score for the respective state in all the relevant areas under each broad development area. To get the SDG score of 100, we take the average for each development area by dividing the total SDG score by the number of SDGs in the respective area.

7.6 Results & Findings

7.6.1 Corporate social spending

The CSR spending sector-wise and state-wise are analysed for the BSE 100 companies. BSE 100 companies have, contributed 46% of the total CSR spending over five years from the year of implementation of the mandatory CSR by the Companies Act 2013.

Table 7. 2: CSR Expenditure by BSE 100 and total for the country

Year	CSR expenditure BSE 100 (Rs. in Crores)	Total CSR expenditure in India (Rs. in Crores)
2015	4689.00 (53)	8803 (100)
2016	5934.60 (60)	9822 (100)
2017	6543.88 (45)	14543 (100)
2018	7076.88 (41)	17099 (100)
2019	8241.85 (41)	20218 (100)
Total	32486.21(46)	70485 (100)

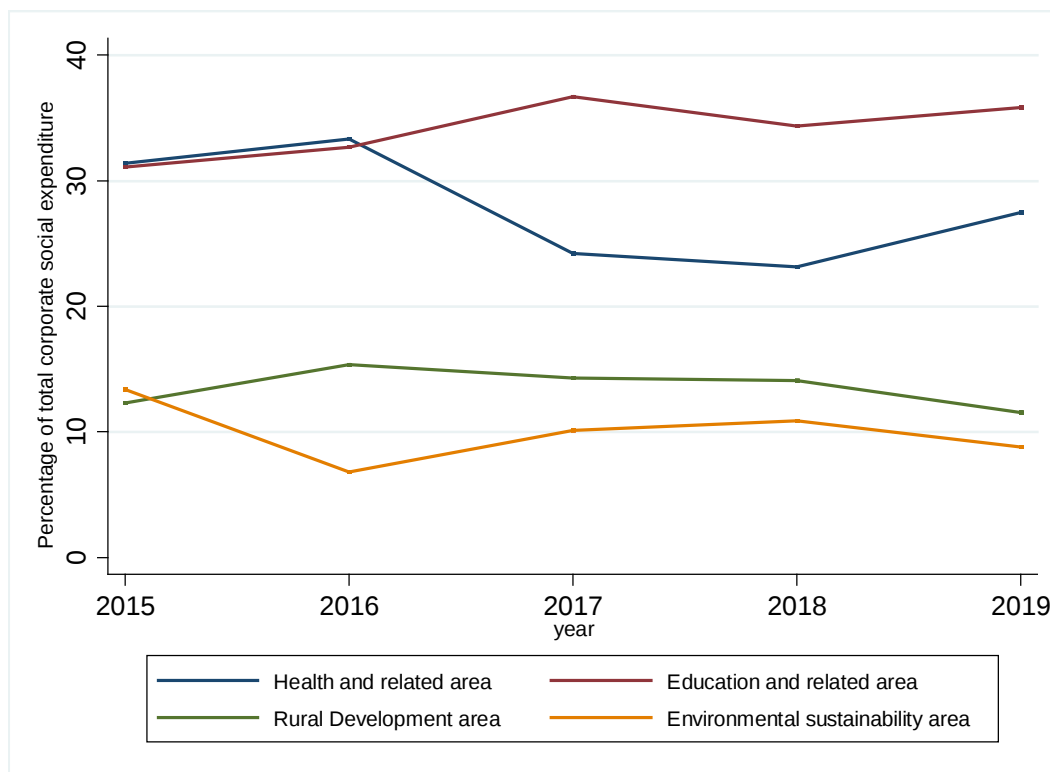
(Source: Authors' calculations based on the data from the MCA website, National CSR Portal CMIE Prowess database)

*Figures in brackets represent the percentage of CSR spending to the total spent in India)

(Table 7.2) shows the CSR expenditure contribution by the BSE 100 companies as a percentage of the total CSR spending in the country. Since BSE 100 companies contribute around 50% of the total CSR spending, analysing their spending will provide a fair representation of the companies in the country.

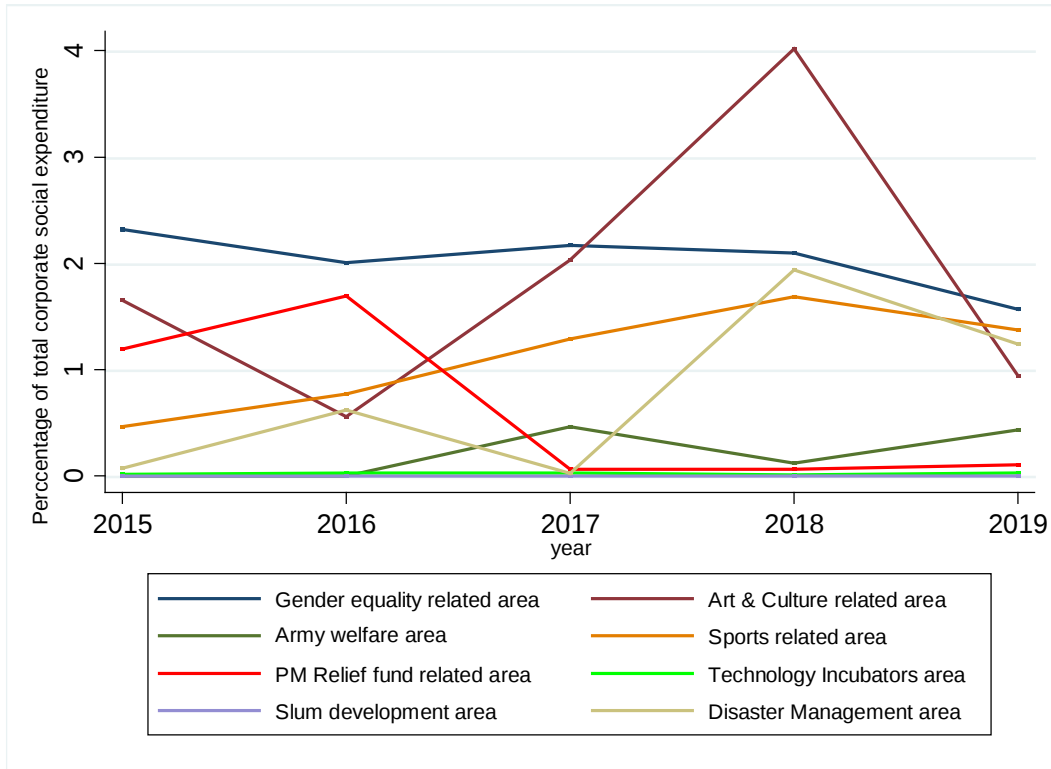
Schedule VII allows the companies to spend in any of the twelve CSR areas specified. However, the companies have some priority areas for spending, as is evident from (Figures 7.1) and (Figure 7.2) which results in the concentration of the expenditure in a few development areas.

Figure 7. 1. Schedule VII CSR areas having the highest percentage of corporate social expenditure



(Source: Authors' calculations based on data from the annual CSR reports of the companies)

Figure 7. 2: Corporate social expenditure in the rest eight schedule VII CSR areas



(Source: Authors' calculations based on data from the annual CSR reports of the companies)

(Figure 7.1) shows four Schedule VII CSR areas having the highest percentage of CSR. These are the areas which have been receiving at least 5% of the total spending on average. (Figure 7.2) shows the remaining eight sectors specified in Schedule VII, which represent the sectors receiving less than 5% CSR spending each. Over the first five years of the implementation of the act, spending on education has increased from around 30% to 35%. Spending on health in 2019 has reduced from what it was in 2015 but has been consistently more than 20%. These two sectors together account for more than 60% of the total CSR spending every year. Rural development projects have received an average CSR investment of 13%, and environment areas have an average of 10%. The top four sectors, therefore, receive, on average, more than 80% of the total CSR spending.

From the CSR sectors in (Figure 7.2), only the areas promoting social and economic equality have consistently received a 2% allocation of the total CSR spending except the fifth year. The remaining seven sectors have been getting less than 2% of the total CSR spending.

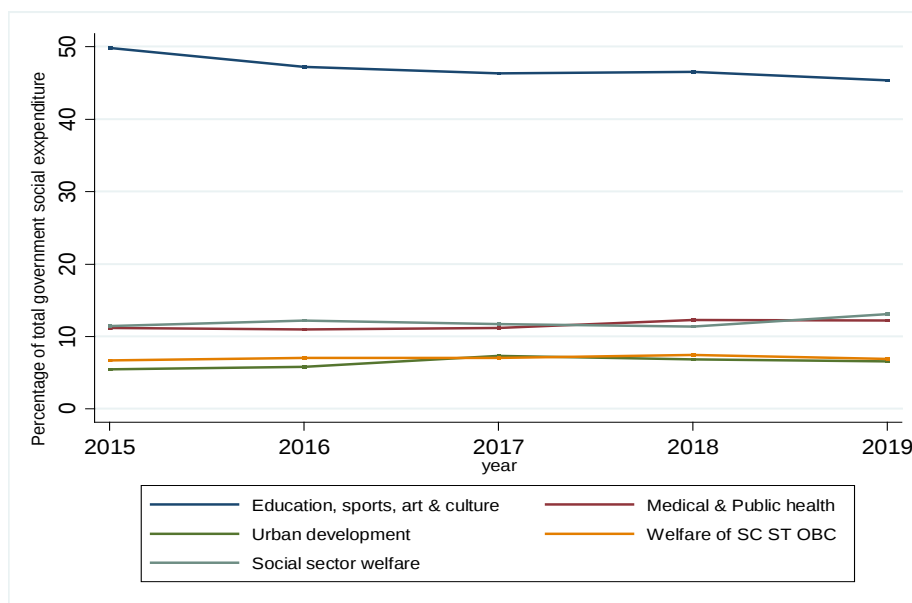
We thus see a skewed distribution of corporate spending in the twelve CSR areas as specified in Schedule VII of the Companies Act 2013.

7.6.2 State government's social sector spending

Twelve areas comprise the social sector spending in the state government's budgets. The following two figures (Figure 7.3) and (Figure 7.4) show the distribution of government spending in these twelve areas. These two figures present the topmost five and the remaining seven regions for interpretation and comparison.

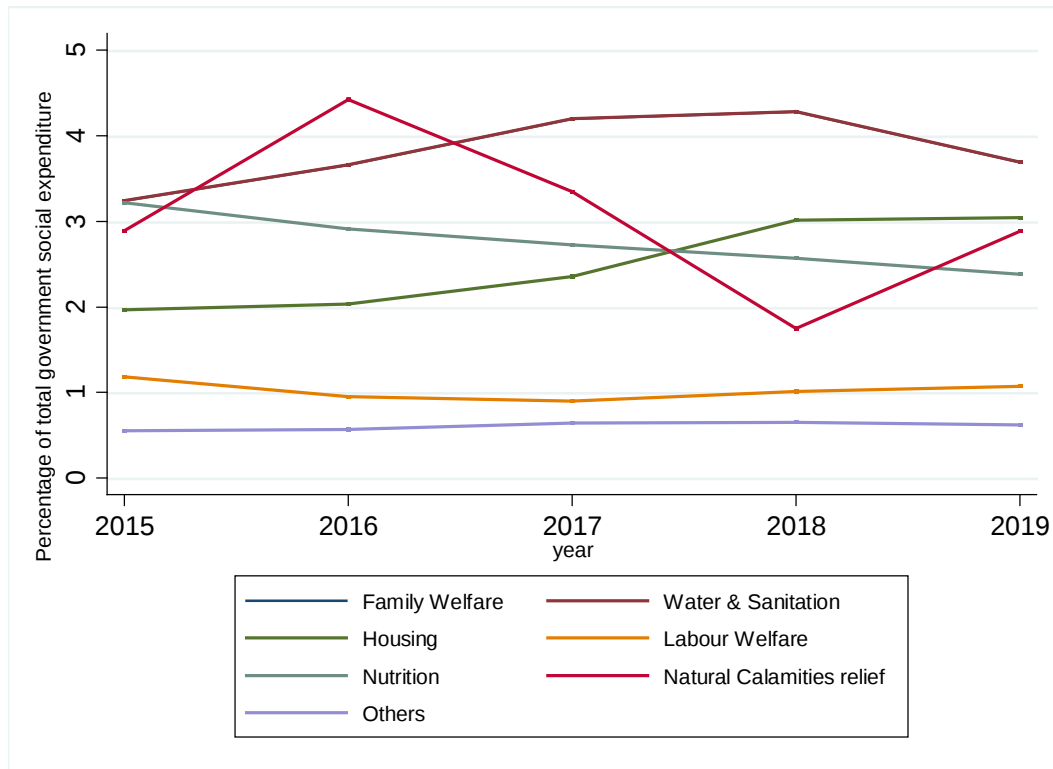
Like corporate spending, we find a skew in the case of government spending, too. The top five sectors account for 83% of the total social sector spending by the state governments. (Figure 7.3) shows the government spending in the individual social sectors. The five sectors depicted in this figure represent the ones that receive the highest proportion of expenditure from the state government, sectors receiving at least 5% of the total spending on average. These five sectors include Education, Health, Urban Development, Social Security, and Welfare of SC, ST OBC. The social sector of Education has received the highest priority in social sector spending. This sector gets more than 40% of the total government expenditure on social sector spending annually. Over five years, the education sector has received 46% of the total social sector spending.

Figure 7. 3: Social sector areas receiving the highest percentage of State Government expenditure



(Source: Authors' calculations based on the data from States Statistics and Finances (RBI))

Figure 7. 4: Government social expenditure in the rest seven social sector areas



(Source: Authors' calculations based on the data from States Statistics and Finances (RBI))

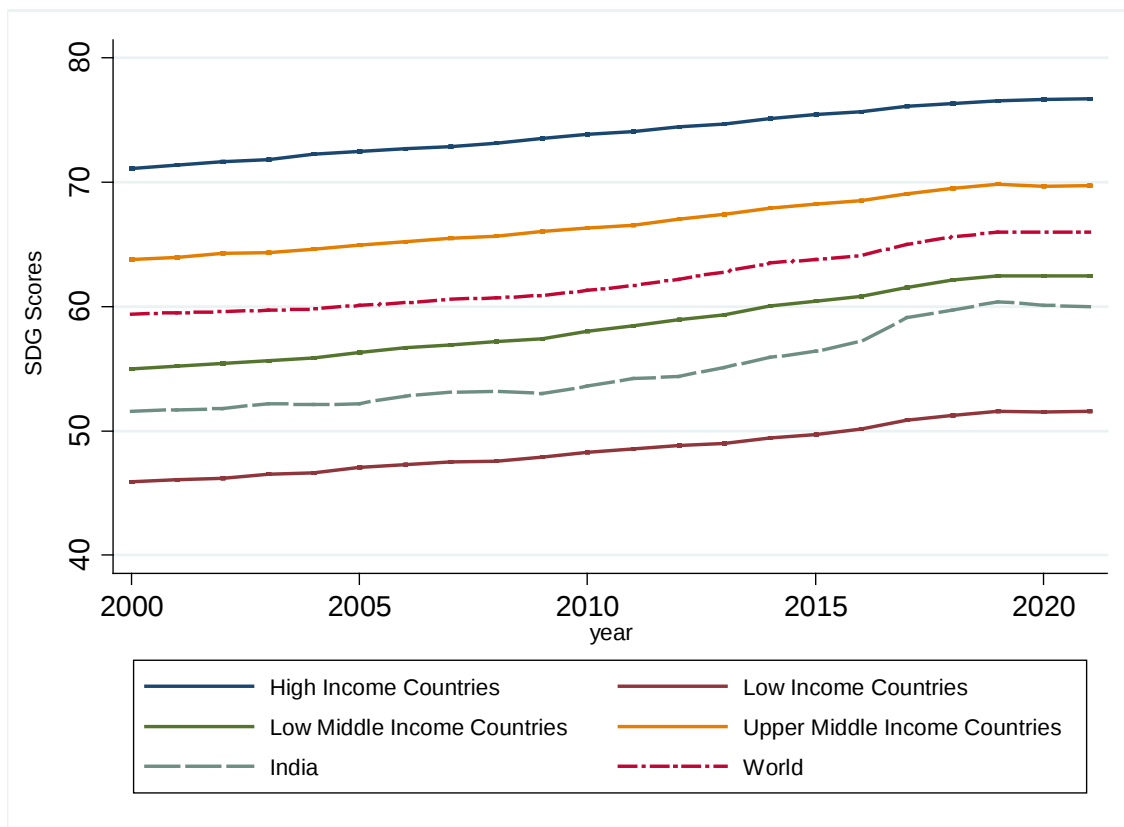
(Figure 7.4) shows the government spending in the individual social sectors apart from the top five depicted in (Figure 7.3). All these sectors receive less than 5% of the total expenditure from the state government. Each of the other seven industries has an annual proportion of less than 5%.

7.6.3 Sustainable Development Goals (SDGs)

The seventeen Sustainable Development Goals (SDGs) replaced the eight Millennium Development Goals (MDGs) in 2015. The MDGs were derived from the UN Millennium Declaration of 2000 and were to be achieved by 2015. Though the nations progressed under the various specified goals, a majority still needed to achieve the targets by 2015.

The SDGs continue the journey that started during the MDG era, with the seventeen targets representing common challenges different nations face.

Figure 7. 5: SDG Scores for countries based on income groups



(Source: Authors' calculations based on the data from the SDSN Database)

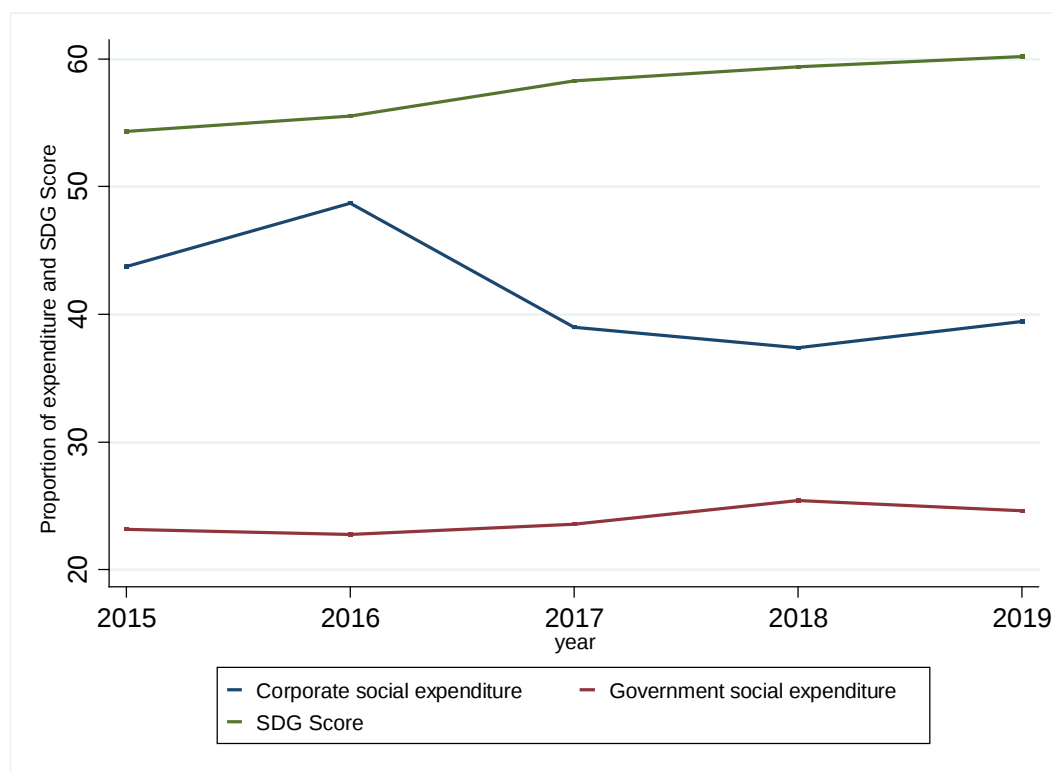
(Figure 7.5) shows the SDG scores for the countries based on their income groups. The Low-income group countries have managed to cross the score of 50, while the high-income countries have high SDG scores above 80, and the global average is above 60. Of the four income groups, two, i.e. Low-Income Countries and Low Middle-Income Countries, have scored less than the worldwide average and two groups, upper middle-income group and high-income group countries, have scored above the global average. However, the SDG score growth has remained flat for countries belonging to all income groups.

India belongs to the low-middle-income group of countries, and her SDG score has been moving along with the average of the LMIC group.

7.6.4 Development area-wise performance for corporate and government social spending and SDG scores

This section provides an overview of SDG scores and the proportion of social spending by the corporate sector and the government in the four development areas.

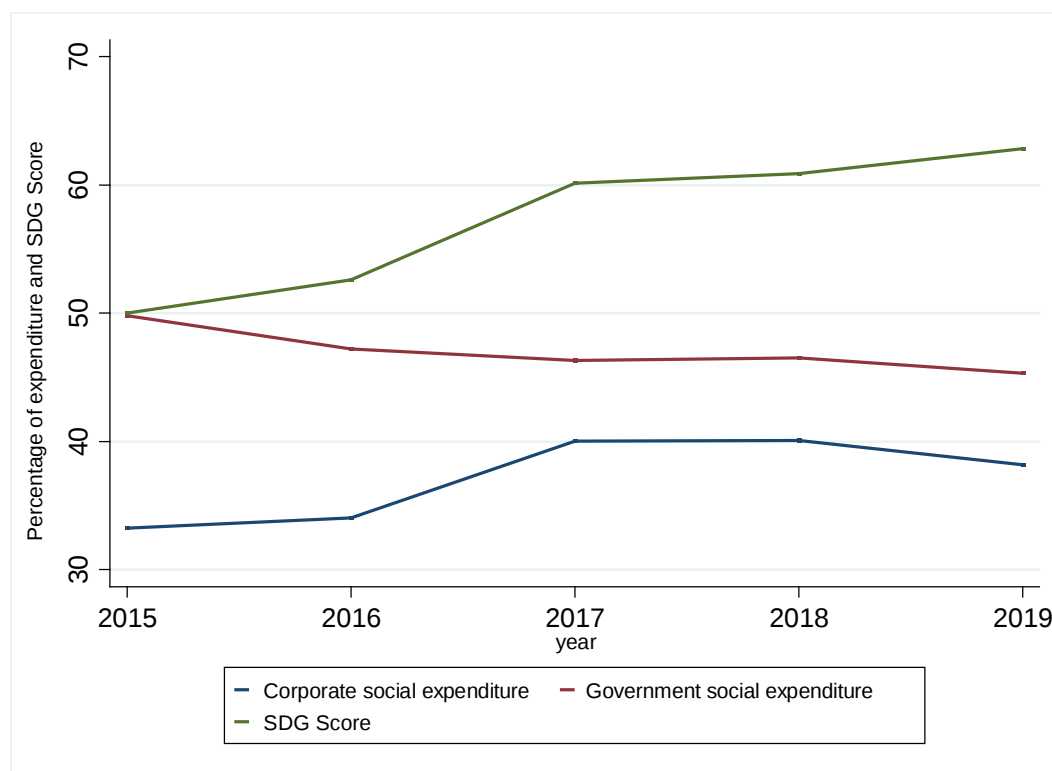
Figure 7. 6: Percentage of government and corporate social spending and SDG Scores in the health-related development area



(Source: Authors' calculations based on data from annual CSR reports, States Statistics and Finances (RBI) and SDSN database)

(Figure 7.6) shows the proportion of CSR and public expenditure along with the SDG Scores for the health-related areas. The SDG Scores for this area have risen from 54 to 60, however, CSR expenditure in this area has been decreasing. Around one-fourth of the government social spending is allocated to the health and economic development areas.

Figure 7. 7: Percentage of government and corporate social spending and SDG Scores in the education-related development area

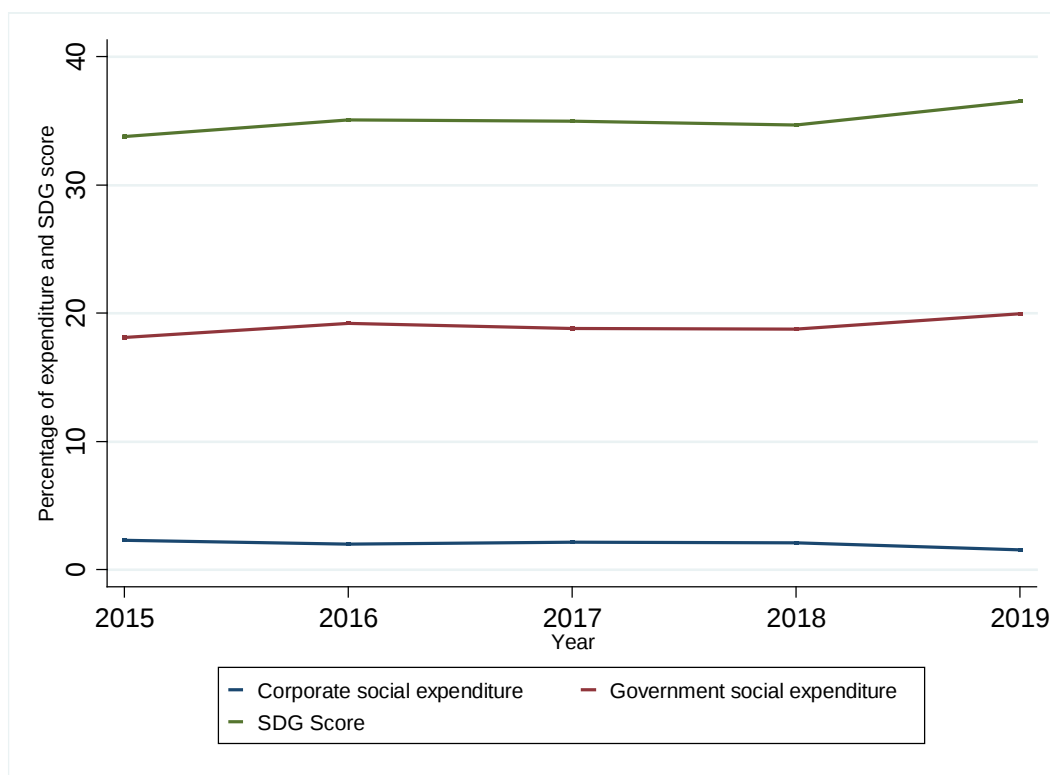


(Source: Authors' calculations based on data from annual CSR reports, States Statistics and Finances (RBI) and SDSN database)

As seen in (Figure 7.7), the percentage of government expenditure on education-related areas has decreased from 50% to 45% over five years. However, this huge proportion indicates the importance given by the government to these areas. The corporate sector has been spending 33 to 40% of its CSR in this area. This area has seen the highest rise in the SDG scores compared to the other three. The SDG scores for this area have increased from 50 to 63.

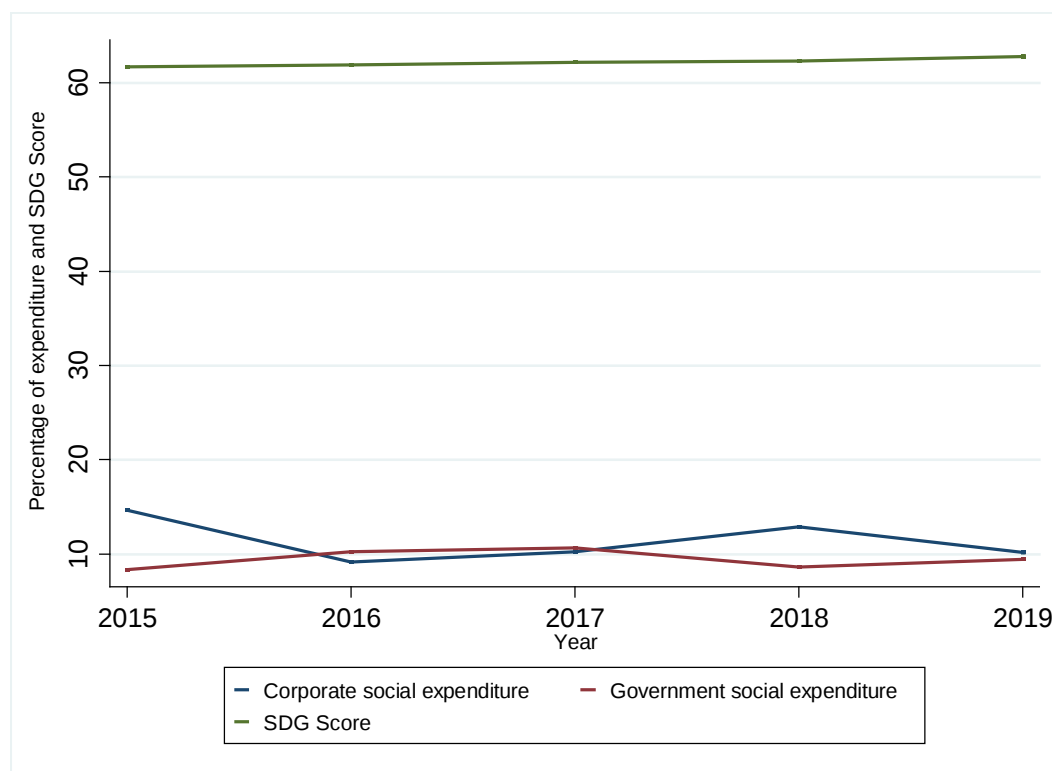
In promoting equality and related areas, SDG scores have been low, ranging from 30 to 40. Correspondingly, the CSR expenditure in this area is significantly less, around 2%. The government spending, though around one-fifth on average, is less than that allocated for areas related to education and health (refer to Figure 7.8).

Figure 7. 8: Percentage of government and corporate social spending and SDG Scores in equality-related development area



(Source: Authors' calculations based on data from annual CSR reports, States Statistics and Finances (RBI) and SDSN database)

Figure 7. 9: Percentage of government and corporate social spending and SDG Scores in environmental sustainability-related development area



(Source: Authors' calculations based on data from annual CSR reports, States Statistics and Finances (RBI) and SDSN database)

Areas relating to environmental sustainability have received a minor proportion of investment from the corporate sector and the government, as is evident in (Figure 7.9). The government has been spending a percentage between 8 and 11% of their total social sector spending in these areas. The corporate sector's expenditure in the area ranged from 9 to 15% of the five years under study. However, high SDG scores of over 60 for this area have remained stable over five years.

The areas that have seen the highest increase in the SDG score are education and related development. This sector has received, on average, 47% of the total public spending in social sector areas and 37% of the CSR spending from the corporate sector.

The second highest area in terms of improvement in SDG scores is health. It has received 42% of the state government's public expenditure in social sector areas and 24% of the CSR expenditure from the corporate sector.

Promoting equality and related areas are the third highest in terms of improvement in the SDG Scores. This area has received almost one-fifth of the total expenditure by the states on social sector areas. The corporate sector has been contributing at least 2% to this area.

Environmental sustainability-related areas have had an SDG score stagnating between 62 and 63. Correspondingly, the investment in this area from the corporate sector and the Government has been low, with 11% for CSR and 9% for the government expenditure in the social sector areas.

Next, we examine how the government and corporate sector's social spending have changed over the years in value and proportions and how they are related to the national SDG scores.

7.6.5 Relationship between government and corporate social spending with the SDGs

The following analysis examines the trends in the three indicators, CSR spending by corporations, social sector spending by the state governments, and the SDG scores for the states.

We use the classification of four broad development areas as specified in (Table 7.1). We map different SDGs and sectors in these four areas, from corporate and government social spending.

1. Health and Economic Development (SDGs 1, 2, 3, 6 and 8)
2. Education Sports, art and culture (SDGs 4 and 9)
3. Promoting social and economic equality (SDGs 5 and 10)
4. Environmental sustainability and disaster management (SDGs 7, 11, 12, 13 and 15)

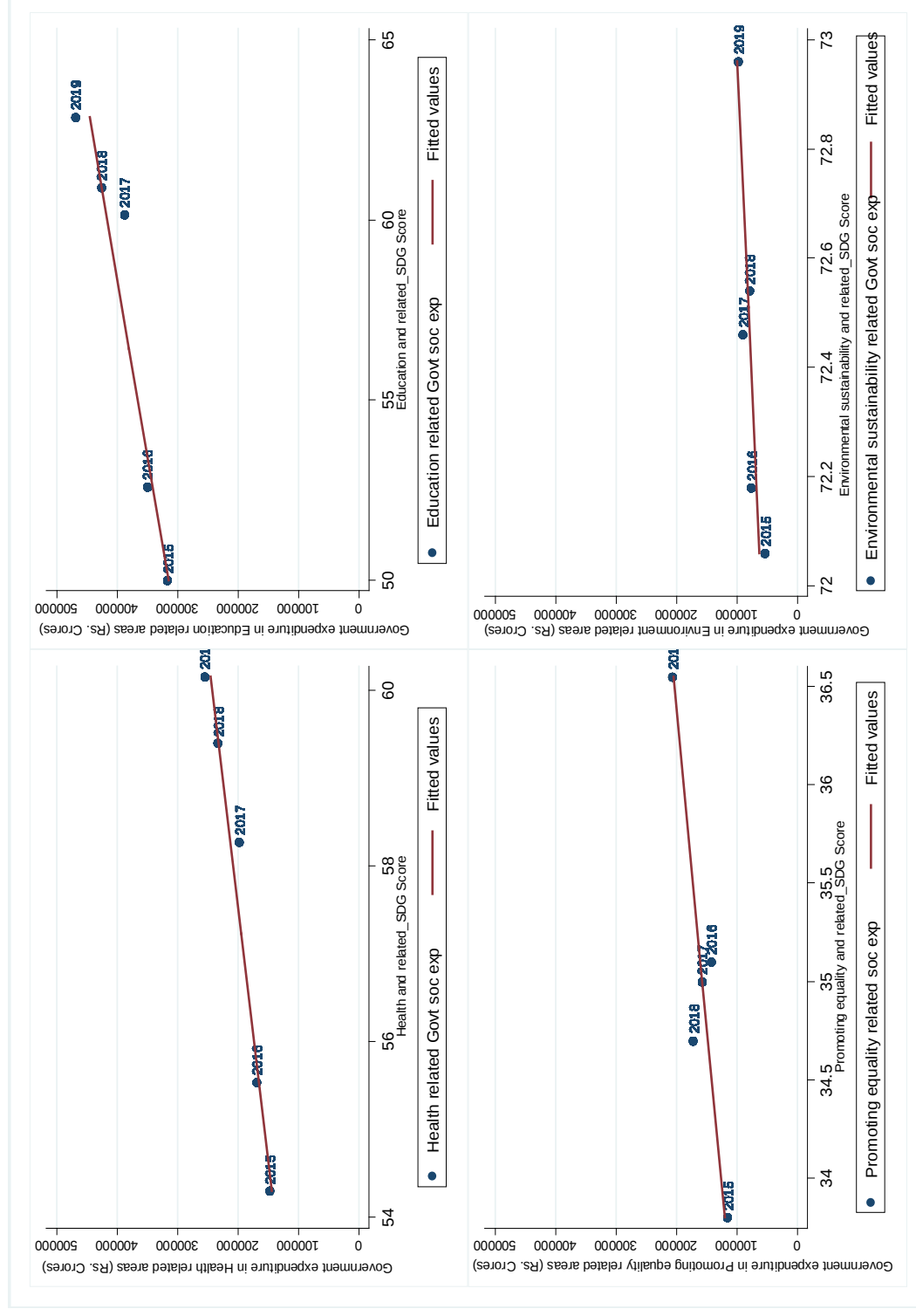
SDG scores can be considered indicators of social development. We expect the government to intervene and invest in the social sector areas with lower SDG scores. The corporate sector can also supplement the government's efforts by undertaking CSR projects in states with lower SDG scores. Therefore negative relationship is expected between the SDG score and the CSR involvement and between social sector spending and the SDG scores.

We use scatter plots, to understand the direction of the relationship and correlation to examine the strength and the significance of such relationship.

7.6.5.i Sector-wise relationship

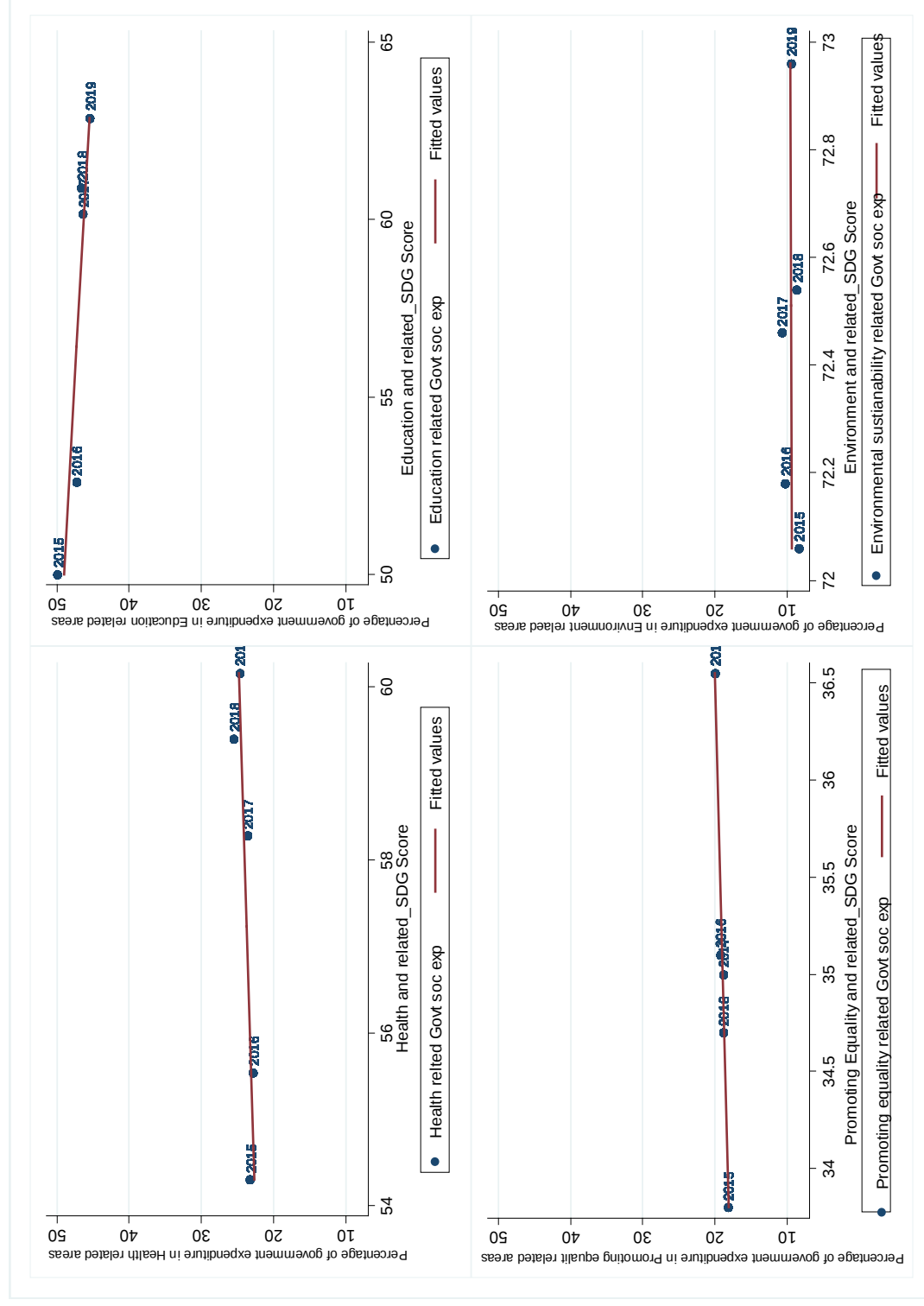
(Figure 7.10) shows the government spending in the social sectors and the SDG scores. The positive relationship between the two in all four areas indicates that the high SDG development areas receive more government expenditure. A similar trend is visible when the proportion of government expenditure is considered. (Figure 7.11), except in the case of education, where the relationship is negative.

Figure 7. 10: Government social spending in value the different development areas



(Source: Authors' calculations based on data from States Statistics and Finances (RBI) and SDSN database)

Figure 7. 11: Government social sector spending in proportion in different areas



(Source: Authors' calculations based on data from States Statistics and Finances (RBI) and SDSN database)

**Table 7. 3: Correlation between government expenditure in different development areas in value and the
SDG scores**

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-related CSR	1.000							
(2) Education-related CSR	0.996*	1.000						
(3) Promoting equality CSR	0.974*	0.989*	1.000					
(4) Environment-related CSR	0.820*	0.854*	0.896*	1.000				
(5) Health-related SDG score	0.977*	0.972*	0.942*	0.862*	1.000			
(6) Education-related SDG score	0.947*	0.945*	0.917*	0.884*	0.993*	1.000		
(7) Promoting equality SDG score	0.770*	0.820*	0.895*	0.891*	0.720*	0.706*	1.000	
(8) Environment-related SDG score	0.963*	0.980*	0.983*	0.866*	0.937*	0.922*	0.866*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

Table 7. 4: Correlation between government expenditure in different development areas in proportion and the SDG scores

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-related Govt soc exp	1.000							
(2) Education-related Govt soc exp	-0.545*	1.000						
(3) Promoting equality Govt soc exp	0.286*	-0.826*	1.000					
(4) Environment-related Govt soc exp	-0.406*	-0.493*	0.391*	1.000				
(5) Health-related SDG score	0.829*	-0.900*	0.644*	0.132*	1.000			
(6) Education-related SDG score	0.779*	-0.905*	0.616*	0.212*	0.993*	1.000		
(7) Promoting equality SDG score	0.333*	-0.863*	0.982*	0.407*	0.720*	0.706*	1.000	
(8) Environment-related SDG score	0.717*	-0.865*	0.792*	0.105*	0.937*	0.922*	0.866*	1.000

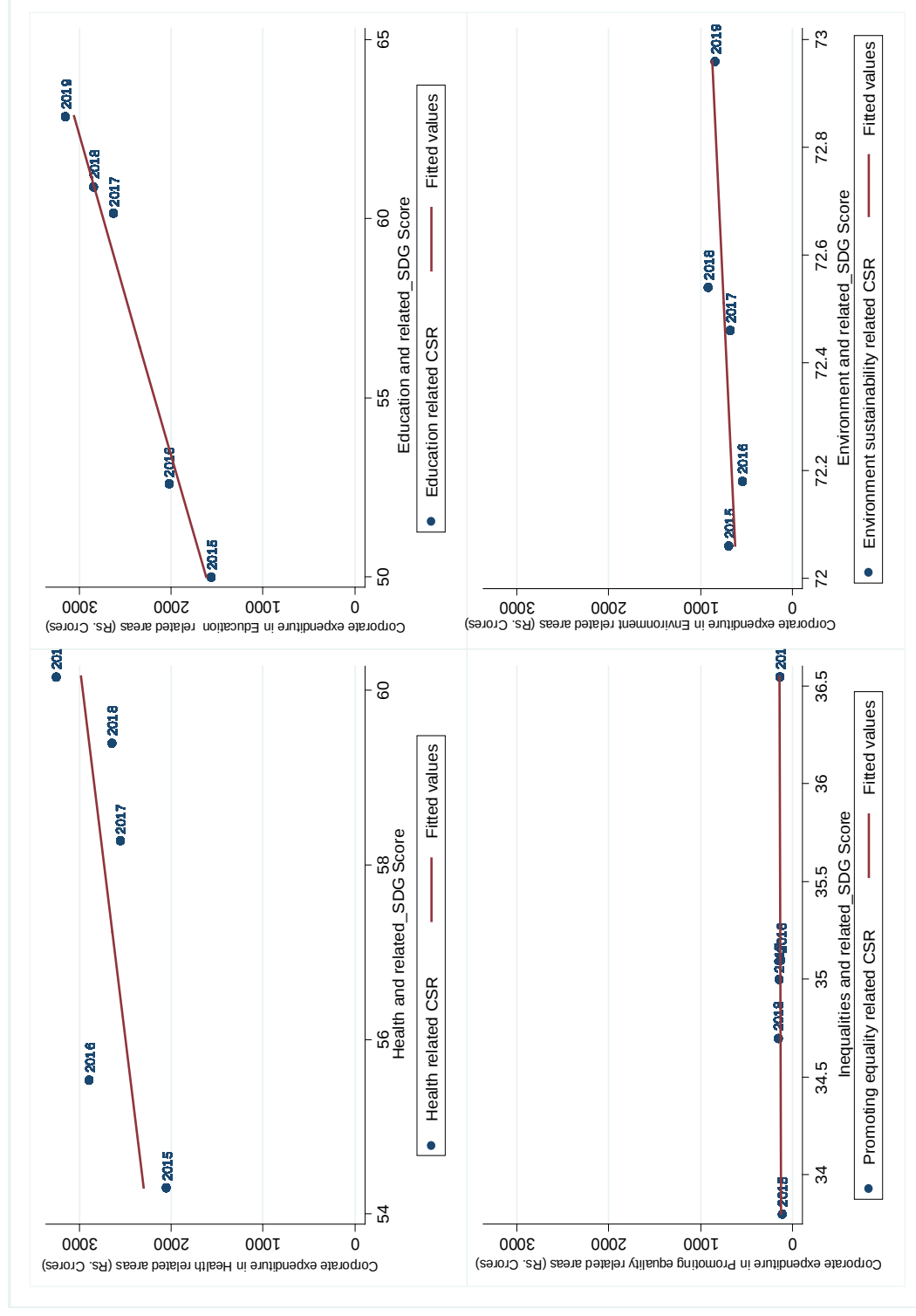
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

(Table 7.3) and (Table 7.4) depicts the correlation between government social spending and the SDG scores in the four development areas. (Table 7.3) considers the amount of government social expenditure, while (Table 7.4) considers the proportion of government expenditure allocated to the respective development area.

We find that the amount as well as the proportion of government social spending is positively correlated to the SDG scores, significant at 10%, except in the case of education. As seen in (Table 7.4), the proportion of government expenditure allocated to education shows a negative relationship with the SDG scores.

Figure 7. 12: Corporate social spending in value in different development areas

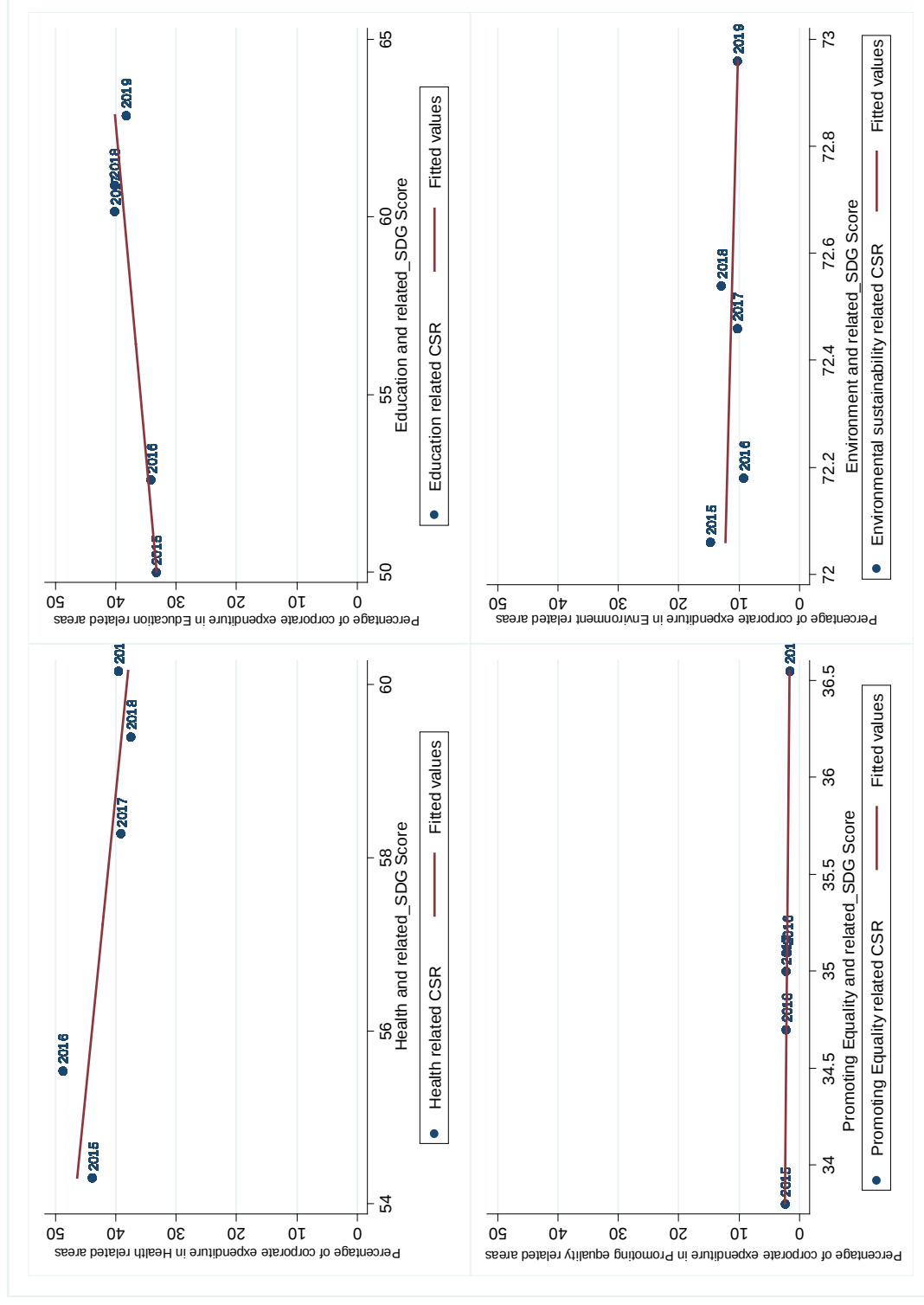


(Source: Authors' calculations based on data from annual CSR reports, and SDSN database)

(Figure 7.12) shows the relationship between CSR spending in value and the relevant SDGs for such areas. We find that the relationship is positive in value for all four areas.

However, the relationship is negative in the proportion of the total CSR spending and the SDG score except for the education-related areas (refer to Figure 7.13). Companies are spending a higher proportion of their CSR budget in areas where the SDG scores are lower, except in the case of education, where, we see a positive relationship between the SDG scores and the proportion of CSR spending.

Figure 7. 13: Corporate social spending in proportion in different development areas



(Source: Authors' calculations based on data from annual CSR reports, and SDSN database)

Table 7. 5: Pairwise correlation between corporate expenditure in different development areas in value and the SDG scores

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-related CSR	1.000							
(2) Education-related CSR	0.735*	1.000						
(3) Promoting equality CSR	0.294*	0.773*	1.000					
(4) Environment-related CSR	0.193*	0.676*	0.579*	1.000				
(5) Health-related SDG score	0.663*	0.994*	0.805*	0.739*	1.000			
(6) Education-related SDG score	0.630*	0.987*	0.824*	0.688*	0.993*	1.000		
(7) Promoting equality SDG score	0.952*	0.784*	0.273*	0.247*	0.720*	0.706*	1.000	
(8) Environment-related SDG score	0.765*	0.950*	0.550*	0.671*	0.937*	0.922*	0.866*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

We then examine the correlation between CSR spending and the SDG scores to see the strength of the relationship between the two, as shown by the scatterplots. (Table 7.5) and (Table 7.6) depicts the correlation between CSR spending in the four development areas and the SDG scores. (Table 7.5) considers the amount of CSR expenditure, while (Table 7.6) considers the proportion of CSR expenditure allocated to the respective development area.

We find that there is a positive relationship between the amount of CSR expenditure and the SDG scores, significant at 10%.

The relationship between the two is the strongest in the case of education and the weakest in the case of promoting equality-related areas.

(Table 7.6) shows that the relationship between the proportion of CSR spending and the SDG scores is predominantly negative. It is positive in the case of only one development area of education.

Table 7. 6: Pairwise correlation between corporate expenditure in different development areas in value and the SDG scores

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-related Govt soc exp	1.000							
(2) Education-related Govt soc exp	-0.873*	1.000						
(3) Promoting equality Govt soc exp	0.157*	-0.253*	1.000					
(4)Environment- related Govt soc exp	-0.229*	-0.202*	0.582*	1.000				
(5) Health-related SDG score	-0.791*	0.883*	-0.658*	-0.322*	1.000			
(6) Education-related SDG score	-0.807*	0.915*	-0.616*	-0.351*	0.993*	1.000		
(7) Promoting equality SDG score	-0.216*	0.392*	-0.966*	-0.719*	0.720*	0.706*	1.000	
(8)Environment- related SDG score	-0.660*	0.690*	-0.842*	-0.366*	0.937*	0.922*	0.866*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

Overall in the case of corporate and government social sector spending, we see an increase in spending over the years. Government and corporate expenditure in value in different development areas has a predominantly positive relationship with the SDG scores. A positive relationship between the social spending and the SDG scores would imply the spending being directed in high SDG score areas. A positive relationship, in terms of value, may be due to the increase in the expenditure over the period of years. However, proportion-wise, the low SDG score areas should have a higher proportion of spending being allocated.

The relationship between the proportions of such spending and the SDG scores is not similar in all the development areas and differs between government and corporate social spending. A negative relationship is more prevalent in the case of corporate spending as compared to the government.

In the case of the relationship between the proportions of government spending and the SDG scores, we mostly find a positive relationship except in the case of education-related development areas, where it is negative. However, the proportion of corporate social spending shows a predominantly negative relationship with the SDG scores of different development areas except for the education-related area, where the relationship is positive.

A positive relationship between government or corporate social spending and the SDGs would imply that spending is being directed in the areas where the SDG scores are higher. We would rather expect that the government and the corporate sector in terms of social spending take place in the development areas where the SDG progress is low and the corporate sector can supplement the efforts of the government in the same. A negative relationship between proportion of spending and the SDG scores in case of the corporate sector, indicates that their spending is going in the needy or the low SDG areas, with the exception of education. In this regard, it is seen that the corporate sector is focusing and supplementing the government social sector spending as is seen from the opposite relationships seen among both the types of spending as far as the proportions of such spending are concerned.

7.6.5. ii. *State wise analysis*

For the state-wise analysis, we use the state-level SDG scores, which indicate the status of each state in the related social areas. The data for most Union Territories are not available for social sector spending. Hence, we focus on the relationship between government and corporate social expenditure with the SDGs for only states, including Delhi (Figure 7.14).

In the case of state government spending in the social sector areas related to health, the highest proportion is more than 40% of the total social sector spending. Many states allocate more than 25% of their social spending to health. The relationship with SDG, though negative, as expected, appears weak. The negative relationship indicates that the government spending is going to the health-related areas in whichever states the health-related SDG scores are lesser.

Regarding government spending in the social sector areas related to education, all the states spend more than 30% of their total social sector expenditure on education. Many states have allocated more than 50% of social sector spending to education-related areas. The negative relationship between education-related SDG scores and state government spending in such areas is negative and strong, which shows that higher spending is directed to the low SDG states.

Regarding state government expenditure in inequalities, most states allocate less than one-fifth of their social sector budget to these areas. The relationship between SDG score and the proportion of social sector expenditure in inequalities-related areas is positive.

Environment receives less than one-fifth of the social sector budget in all the states. The weak negative relationship indicates that the low SDG states spend more on the environment.

Figure 1 consists of four scatter plots, each showing the relationship between government social expenditure (Y-axis, 0 to 60) and a specific Sustainable Development Goal (X-axis). Each plot includes a fitted regression line and data points for different states.

- Top Left Plot:** Education and related areas (SDG 4). The X-axis is 'Education related_SDG Score' (30 to 80). The Y-axis is 'Percentage of government social expenditure' (0 to 60). The fitted line shows a positive correlation.
- Top Right Plot:** Environmental sustainability related areas (SDG 13). The X-axis is 'Environmental Sustainability related_SDG Score' (50 to 75). The Y-axis is 'Percentage of government social expenditure' (0 to 60). The fitted line shows a positive correlation.
- Bottom Left Plot:** Health and related areas (SDG 3). The X-axis is 'Health related_SDG Score' (50 to 75). The Y-axis is 'Percentage of government social expenditure' (0 to 60). The fitted line shows a positive correlation.
- Bottom Right Plot:** Promoting equality related areas (SDG 10). The X-axis is 'Promoting equality related_SDG Score' (40 to 70). The Y-axis is 'Percentage of government social expenditure' (0 to 60). The fitted line shows a positive correlation.

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As shown in (Figure 7.15), the relationship between CSR presence and the SDG scores is positive for all four broad areas with varying strength. It is the strongest in education. Overall, the state's relationship between CSR presence and the SDG scores for all four broad areas is positive, signifying that the corporates are not driven by the SDG scores in their CSR involvement. States like Maharashtra, Karnataka, Andhra Pradesh, Karnataka and Gujarat are some of the states with a high CSR presence of companies in all the development areas. States like Tripura, Mizoram, Nagaland, Arunachal Pradesh, Meghalaya, and Manipur have attracted a few companies for their CSR investment. Thus, the CSR investment of top companies from India may not be able to contribute effectively to the achievement of SDGs or improvement in the SDG scores of low SDG states.

Overall, the relationship between CSR presence and the SDG scores is positive in all four areas, although the strength varies. However, it is negative, again with varying strength in the case of government social sector expenditure and SDG scores. The welfare objective drives the government's investment in the social sectors. The companies must follow the same guidelines when undertaking their CSR projects.

Next, we examine the correlation between SDG scores for states and the government and corporate social spending in the four development areas to check the strength and significance of the relationships as depicted in the scatter plots (Table 7.7) and (Table 7.8) respectively.

Table 7. 7: Pairwise correlation between Government social spending and SDG scores for states

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-related Govt soc exp	1.000							
(2) Education-related Govt soc exp	0.948*	1.000						
(3) Promoting equality Govt soc exp	0.819*	0.801*	1.000					
(4) Environment-related Govt soc exp	0.834*	0.849*	0.661*	1.000				
(5) Health-related SDG score	0.069	-0.120	0.083	-0.079	1.000			
(6) Education-related SDG score	0.301	0.196	0.208	0.205	0.615*	1.000		
(7) Promoting equality SDG score	0.107	-0.148	-0.073	-0.095	0.409*	0.189	1.000	
(8) Environment-related SDG score	0.179	-0.038	0.147	-0.018	0.666*	0.365*	0.347	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

The relationship between social sector expenditure by the state governments and the SDG scores is insignificant for the different development areas.

A strong positive correlation exists among the social sector spending areas. Similarly, the health-related SDG score strongly correlates with the SDG scores in the rest of the three broad areas.

We find that the presence of CSR has a positive and significant relationship with only the SDG score in education-related areas. However, there is no significant relationship in the other development areas. The BSE top 100 companies spend on education in the states with high SDG scores.

Among the CSR presence areas, all four are significantly and positively related to each other, which means that the companies investing in one category of CSR area tend to invest in

CSR projects in other areas, too. The corporate presence in all four development areas has a positive correlation with the SDG score of education-related development areas.

Table 7. 8: Pairwise correlation between CSR presence of companies and SDG scores for states

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) Health-Corporate presence	1.000							
(2) Education- Corporate presence	0.986*	1.000						
(3) Promoting equality- Corporate presence	0.978*	0.978*	1.000					
(4) Environment- Corporate presence	0.973*	0.975*	0.969*	1.000				
(5) Health-related SDG score	0.072	0.074	0.058	0.069	1.000			
(6) Education-related SDG score	0.386*	0.440*	0.397*	0.425*	0.615*	1.000		
(7) Promoting equality SDG score	0.013	0.010	0.045	0.035	0.409*	0.189	1.000	
(8) Environment-related SDG score	0.192	0.136	0.176	0.181	0.666*	0.365*	0.347	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

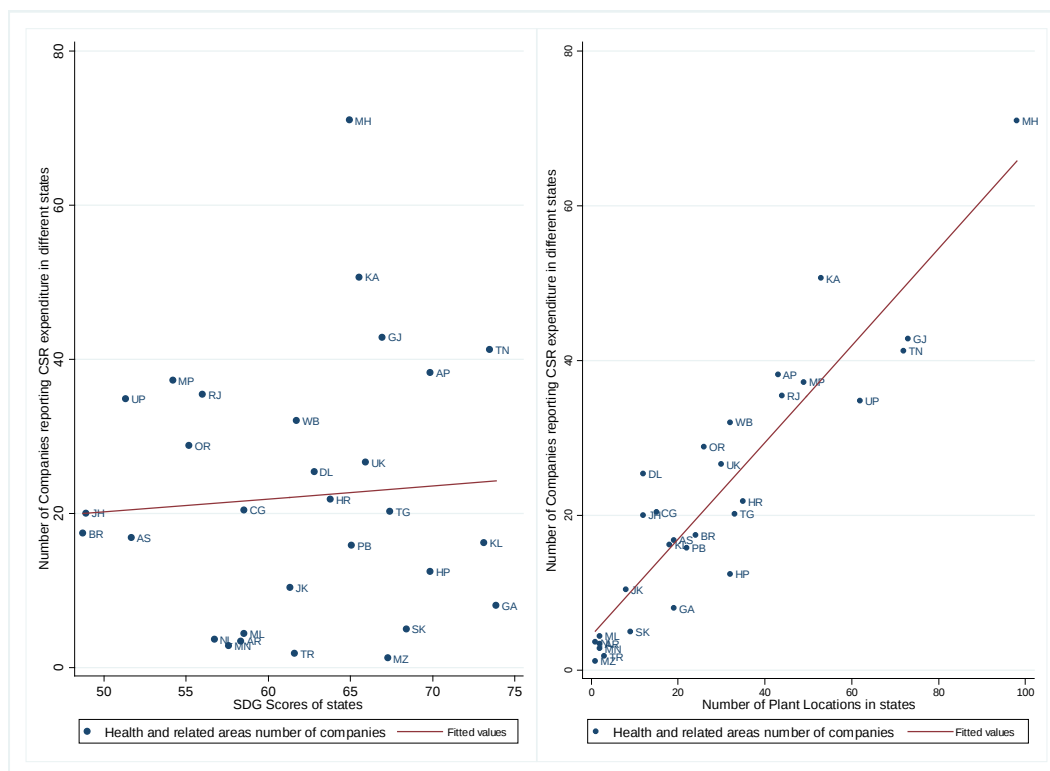
Similarly, the SDG scores, in all four areas are positively correlated, indicating that an improvement or otherwise in one will impact the other. The SDGs are interrelated. For example, a poverty reduction will lead to an improvement in education. Similarly, improved gender equality performance will lead to better performance in education and so on.

7.6.6 Relationship between CSR and plant locations

The next part of the analysis deals with the relationship between companies' CSR presence and the companies' state-wise plant location. Here, we compare the relationship of corporate

presence in terms of CSR with SDG score and plant locations. The number of companies' plant locations in each state is calculated based on the data from the CMIE Prowess. The number of companies represents CSR presence. A positive relationship between the number of companies and the SDG score indicates that more companies report CSR in states with higher SDGs. Similarly, a positive relationship between the number of companies and plant locations can be interpreted as companies' CSR engagement in states with industrial operations. Since we are looking at the collective number of companies and plant locations, a positive relationship between the two can also be interpreted as more companies undertaking CSR projects in industrially advanced states.

Figure 7. 16: Relationship of CSR presence in health-related areas with SDG scores and number of plant locations



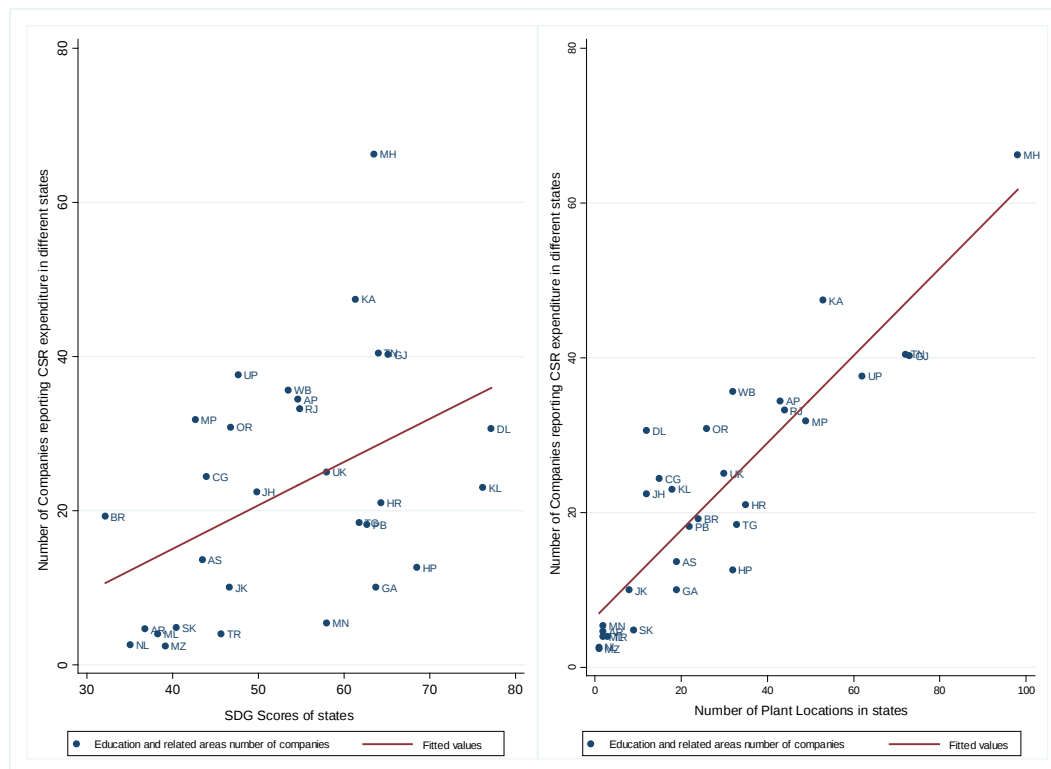
(Source: Authors' calculations based on data from CMIE, annual CSR reports and Niti Aayog's SDG India Index)

The figure above (Figure 7.16) shows a positive relationship between CSR presence, SDG scores, and plant locations. However, it has a stronger relationship with the plant locations. Thus, the companies consider their states rather than the need to develop an area based on the SDG score. Since the plant locations are higher in large and industrialised states like

Maharashtra, Tamil Nadu, Karnataka, and Gujarat, companies' CSR presence is also higher. Other states have less than forty companies spending on CSR.

The northeastern states like Mizoram, Meghalaya, Manipur, Nagaland, and Tripura have low industrial density and fewer companies coming for CSR projects.

Figure 7. 17: Relationship of CSR presence in education-related areas with SDG scores and number of plant locations

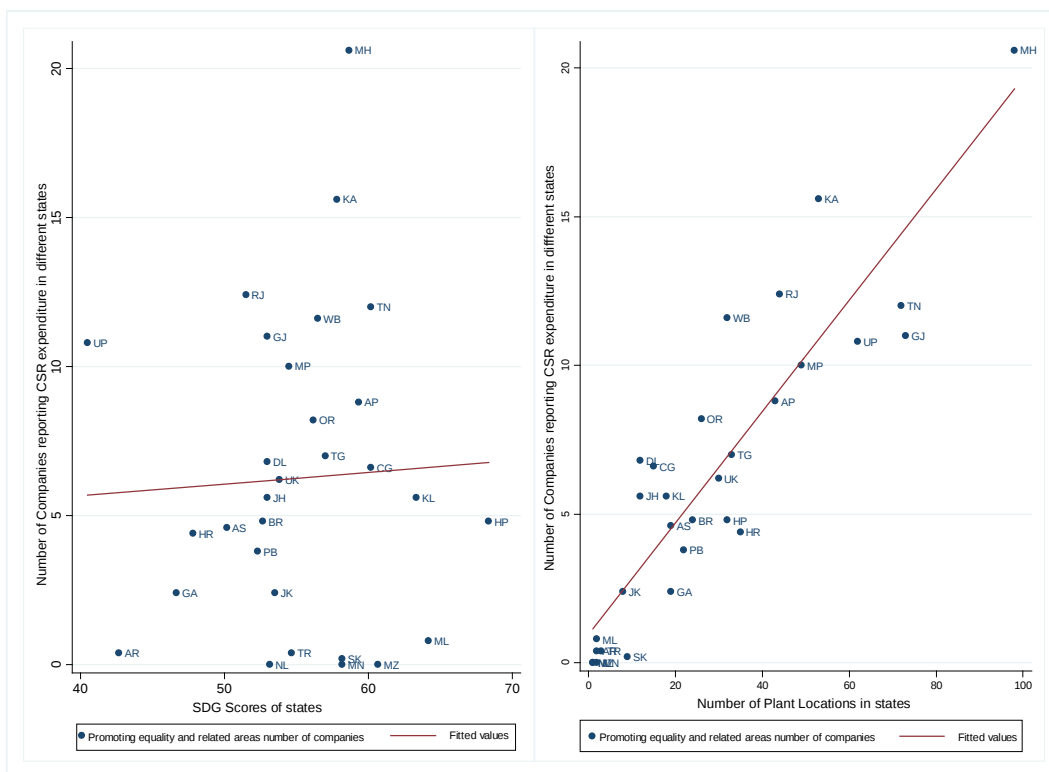


(Source: Authors' calculations based on data from CMIE, annual CSR reports and Niti Aayog's SDG India Index)

CSR presence in education-related CSR projects is positively related to the SDG scores and plant locations. As seen in the case of health-related areas, in education also, the positive relationship is stronger with the plant locations.

Regarding CSR investment in education, most states have less than forty companies reporting expenditures. The north-eastern states of Mizoram, Arunachal Pradesh, Nagaland, Meghalaya, and Sikkim have low SDGs, fewer plant locations and fewer companies reporting CSR expenditures.

Figure 7. 18: Relationship of CSR presence in promoting equality-related areas with SDG scores and number of plant locations

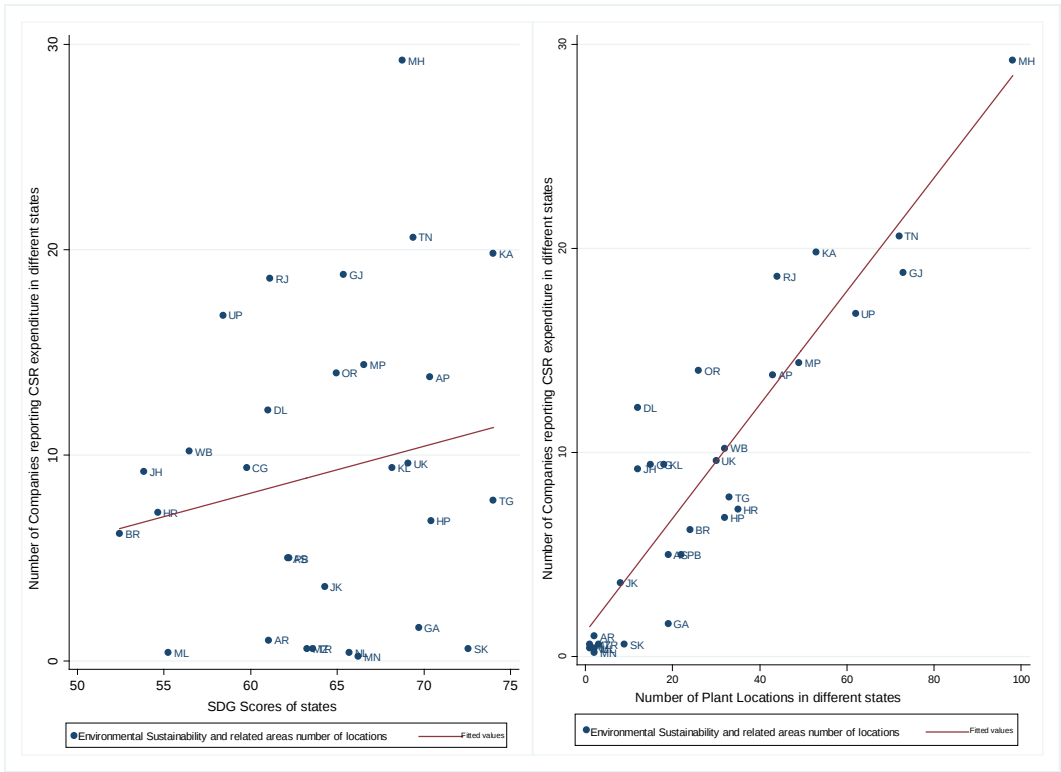


(Source: Authors' calculations based on data from CMIE, annual CSR reports and Niti Aayog's SDG India Index)

CSR presence in promoting equality positively relates to SDG scores and plant locations. However, the number of companies spending in such areas is very low. Most states except

Karnataka and Maharashtra have less than fifteen companies spending in these areas. Most of the northeastern states here show a satisfactory SDG score above fifty. However, they lag in industrial development, as represented by the number of plant locations and companies undertaking CSR projects to promote social and economic equality.

Figure 7. 19: Relationship of CSR presence in environment-related areas with SDG scores and number of plant locations



(Source: Authors’ calculations based on data from CMIE, annual CSR reports and Niti Aayog’s SDG India Index)

CSR presence in environment-related CSR projects shows a positive relationship with the SDG scores and plant locations. As seen in the case of the other three development areas, the

relationship is stronger with the plant locations. Most states receive CSR investment from less than 20 companies in promoting equality-related areas.

In the case of environmental sustainability-related areas, the northeastern states show a satisfactory performance in the SDG scores. However, the number of plant locations is very low, and so is the number of companies investing in environmental sustainability in these states.

Table 7. 9: Pairwise correlation between CSR presence and the number of plant locations

Variables	(1)	(2)	(3)	(4)	(5)
(1) Health-related CSR	1.000				
(2) Education-related CSR	0.986*	1.000			
(3) Promoting equality CSR	0.978*	0.978*	1.000		
(4) Environment-related CSR	0.973*	0.975*	0.969*	1.000	
(5) No of Plant locations	0.921*	0.892*	0.899*	0.912*	1.000

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

(Source: Generated using Stata 12)

The correlation matrix presented in (Table 7.9) shows a strong relationship between the CSR presence of companies and the number of plant locations in the respective state. The strong positive relationship is evident in the case of all four development areas.

Overall, it is seen that the number of plant locations decides the number of companies undertaking CSR in a particular state. The positive relationship between the two is strong in the

case of all four development areas. More number of companies prefer to spend on health and the education-related regions. Most northeastern states have very few plant locations or industrial activity, so fewer companies are undertaking CSR projects.

7.7 Conclusion

The mandate on CSR spending introduced in 2015 has increased corporate sector involvement in CSR activities. This chapter examines the trend and relationship between SDG scores and social spending by the state governments and the corporate sector at the national and state levels for different states.

Corporate and government spending is distributed unequally geographically and in development areas. Out of the four development areas into which the different SDGs, CSR, and the social sector have been grouped, health and education are the two sectors receiving the topmost priority from both. Though these are the two areas of great importance for human capital development, sectors like the environment and promoting equality in the case of gender and other marginalised groups demand attention. The government can identify areas needing critical intervention, and such areas can be declared to be the priority areas for spending by the corporate sector for CSR projects for the respective financial year. This initiative has already been started in the case of public sector enterprises (GoI, Ministry of Finance, 2023; Ministry of Heavy Industries & Public Enterprises, Department of Public Enterprises, 2016; Ministry of Heavy Industries & Public Enterprises, Department of Public Enterprises, 2018) which can be extended to all companies. This will help align government and corporate social development efforts.

The government and the corporate sectors' efforts in addressing the low SDG areas are aligned since the relationship in the three development areas is negative in the case of corporate spending and negative in the case of government spending in the fourth one.

Regarding geographical distribution, there are disparities in the number of companies spending in different states. Industrial activity, development and SDG scores are related. A higher level of industrial activity is expected to bring about higher levels of development. Higher levels of development will lead to better SDG scores. The priority in CSR spending assigned by the companies to the regions of their operations indicates a vicious circle in the case

of low SDG states and a virtuous circle in the case of better-off states. Geographically inaccessible states face extreme climatic conditions, are weak in infrastructure, and tend to have low SDG scores due to low levels of development. Low levels of development are also due to their failure to attract industries. Such states have fewer industrial activities and fewer plant locations. This results in lesser CSR spending in these states. Such states continue to lag with lower SDG scores. On the other hand, industrially advanced states have higher SDG scores due to higher development and receive more CSR funding due to a higher number of plant locations. Instead, we expect companies to devote a considerable proportion of CSR spending to states or regions with lower SDG scores.

Like the sectors, the government can also identify states in the corporates to invest a minimum of their budget. Initiatives or policies like the allotment of special category status to states for government spending can also be extended to corporate expenditure. This will help bring these economically and socially backward states on par with the other states. Many states have SDG scores below the national average, which indicates that the higher national average is due to the high SDG scores of some states. Most states should be close to the national average to show equitable development. Intervention is essential to reduce economic inequalities in growth and development. The intervention in the form of the CSR mandate can play an important role in this regard, provided the corporate investment is channelised in the right sectors and states. The aspirational district's programme can form one of the bases for the companies to consider where CSR spending should be prioritised. Though the Central Public Sector Enterprises have started such efforts, the involvement of all the companies will better transform the aspirational districts into performing ones. Within a state, the companies can identify such districts and focus on improving their performance in the indicators needing intervention.

We find that neither the CSR involvement of companies nor the social sector expenditure from the government has a strong relationship with the SDG status of states. A negative association with the SDG score would have indicated that more attention is paid to low SDG areas. However, CSR spending shows a positive relationship, which is positive and significant only in the case of education and related SDG scores. In the case of government social sector spending, though the nature of the relationship is negative, it is not significant.

To investigate what could be the possible driving factor for the companies to decide their CSR engagement, we examine the relationship between the CSR presence and the plant locations, and we find that this relationship is positive and strong, indicating the preference of the corporate sector to spend in the states with a higher number of plant locations, i.e. where their activities are based.

The government and the corporate sector must realign their policies based on the SDG targets. Rather than a simple convenience-based approach, areas for priority spending need to be identified, and investment should be directed in such areas. Based on the priority areas and the states identified, the companies can be required to undertake CSR investment, at least partially, in such areas apart from their local regions' spending. The skew in geographical and sector-wise spending is evident in CSR spending (Bansal et al., 2017; GoI, 2019). The skew in geographical expenditure may be attributed to the preference for the local area specified in the act. However, considering the overall objectives of the CSR mandate, such preference needs to be regarded as a 'directory' and not 'mandatory' (GoI, 2019). The companies need to be directed to combine local area preferences with a preference for national priorities through guidelines (GoI, 2019). Such initiatives in the form of a series of guidelines that have already been issued in the case of public enterprises can be extended to all companies, especially those responsible for a more significant investment in CSR. Such a planned approach will help the states and the country to achieve SDGs effectively.

This chapter has practical implications for assessing the impacts of CSR spending on achieving SDGs. Effective use of investment in development ventures requires that it be spread equitably. Otherwise, it may result in a widening of the existing social disparities. Taking the SDGs as the benchmarks for sustainable development, this chapter examined the spread equity in CSR spending. This dimension has been relatively unexplored in the existing literature. The next chapter is the conclusion, which provides a summary of the findings based on the study's research objectives and concludes the thesis.

Chapter 8

CONCLUSION

This chapter provides a summary of the findings and concludes the thesis.

The concept of sustainability has contributed to improving the importance of environmental well-being and social justice. Such well-being and social justice target intra and intergenerational equity. The idea of sustainability is used by different sectors of society, including the government and businesses. Companies produce reports on their commitment to sustainable societies through sustainable operations. Sustainability is also widely used in policy development, especially in denoting the government's and regulators' efforts to contribute to sustainability requirements.

Business corporations are driven by the objective to improve their revenues and increase profitability. The continuous growth expected to improve the revenues and profits will impact the social and environmental systems. However, the well-established conventional financial reporting systems did not provide for reporting corporate operations' social and environmental impacts. A sustainable company leaves the natural environment and social justice no worse at the end of the accounting period than at the beginning of the year. Achieving these objectives, along with the economic one of profitability, will require a change in attitude towards the environment, society, and economics. Achieving corporate sustainability requires a reorientation towards economic, social, and environmental goals.

The study focuses on the following research questions:

1. What is the response of Indian companies to voluntary sustainability reporting? Does this differ based on size, group affiliation, ownership, sector, and CSR voluntarism?
2. What are the determinants of corporate environment performance with specific reference to energy intensity?
3. How have the policy interventions influenced energy intensity?
4. What are the determinants and outcomes of corporate social responsibility expenditure of large Indian companies?
5. How have policy changes impacted such expenditure?

6. Is the nature of CSR expenditure addressing national and international sustainability challenges?

The terms corporate sustainability and corporate social responsibility have been used synonymously in literature. For clarity, we classified the literature into two strands on sustainability: first, the one that deals with corporate sustainability performance, and second, the corporate SR. The literature considers the relationship between sustainability and financial performance and other relevant themes like theories, sector or industry affiliation, ownership, size, countries, board attributes, and mandatory or voluntary nature.

The existing literature on SR frameworks has mostly relied on a single framework. The energy performance literature has not sufficiently explored the influence of schemes like PAT. The CSR-CFP relationship widely explored in the literature needs a contextual orientation based on different factors, in order to get a holistic view. The contribution of corporate social engagement in the achievement of SDGs is a relatively unexplored area. Based on the research gaps identified through a literature review, the study considers two global SR frameworks, GRI and CDP. The energy intensity determinants have been explored by taking into consideration the influence of the PAT scheme. We examine the CSR-CFP relationship by including factors like peer pressure, mandatory pressure and normative pressure. These factors have been included as a part of the institutional isomorphism based on the previous literature. The contribution of CSR expenditure in achieving the SDGs has been examined in order to assess whether the corporate sector is addressing the sustainability challenges.

The study has used a sample of BSE 500 companies representing the top companies. This thesis examines the SR among the top 500 companies in India. It also examines the social and environmental performance, the sustainability parameters, forming a part of non-financial reporting. It further studies whether the corporate sector's participation in the development process, through its involvement in CSR spending, contributes to addressing the SDG targets. The study has used data from multiple sources, including the CMIE Prowess IQ database, GRI database, SDSN database, RBI –eSTATES, CDP annual reports, company annual reports, and websites.

The thesis examines the SR of the top 500 companies in India. SR can be mandatory and voluntary. The BRR, now the BRSR framework, is the mandated SR framework in India. The companies can also voluntarily prepare sustainability reports under the global frameworks.

The study has used GRI, a comprehensive SR framework, and CDP, a SR framework covering environmental reporting. Using these two frameworks, we examine whether such reporting differs based on size, ownership, industry affiliation, and business group affiliation. The study then focuses on the individual corporate non-financial sustainability performance parameters. Here, we examine the determinants of corporate environmental performance and social performance. We take energy intensity as an environmental performance measure for the energy audit. Similarly, CSR expenditure by the companies is considered a measure of social performance. The next part of the study examines the contribution of corporate social spending in terms of CSR expenditure in achieving the SDGs.

The following objectives were set for the study:

1. To study the trend and spread of voluntary sustainability reporting in India by size, group affiliation, ownership, sector, and CSR voluntarism.
2. To examine the determinants of energy intensity as a part of environmental audit in the selected companies.
3. To examine the influence of Perform Achieve and Trade, among others, on energy intensity.
4. To examine the existing and less explored determinants of CSR in India and the financial outcomes of such corporate social performance.
5. To study the impact of CSR mandate in the Companies Act, among others, on CSR expenditure.
6. To assess whether the CSR expenditure is meeting SDG targets.

In the subsequent section, we present a summary of the chapters and the findings based on the objectives finalised for the study.

8.1 Summary of the Chapters

The thesis consists of eight chapters. Chapters 4, 5, 6, and 7 cover the six research objectives. Chapter 2 deals with the analysis of the discourse on sustainability-related themes. The data and methods used for the study are discussed in Chapter 3. Chapters 1 and 8 are the introduction and the conclusion chapters, respectively.

8.1.1 Chapter 1: Introduction

This chapter gives an introduction to the thesis. It describes the structure of the thesis in terms of the chapterisation scheme. It states the research questions and objectives of the study.

8.1.2 Chapter 2: Corporate Sustainability – A Narrative Review

This chapter reviews the existing literature relevant to the themes being explored in this study. It describes how the literature on the topic has developed and the different areas that have been investigated. The chapter describes different strands evident in the prior literature. The literature uses sustainability, social, and environmental responsibility to refer to corporate sustainability. Such an overlap arises since the social and environmental aspects are the components of corporate sustainability. The literature on SR is a mixture of CSR and corporate sustainability (Socoliuc et al., 2020). The relationship of corporate sustainability with corporate financial performance is a widely researched theme. An extensive literature review revealed that research on sustainability has covered SR and performance. Hence, under the themes of sustainability, authors have considered comprehensive sustainability as well as a single indicator of social or environmental. The triple bottom line or sustainability covers economic, social, and environmental indicators. Single parameters are when studies have considered a single indicator in terms of social performance or reporting and when environmental reporting or performance is considered. Studies have also looked at the double bottom-line performance and reporting focusing on the non-financial parameters of sustainability, namely, companies' social and environmental responsibility.

The concepts of ‘corporate social performance’(Carroll, 1979) and ‘sustainability’(Venkataraman, 2019) are broad and multi-dimensional, hence making it difficult to define the same (Margolis et al., 2007).

Hence, we find that terms like ‘sustainability reports’, ‘social reports’, ‘corporate social responsibility reports’, ‘social and community reports’, and ‘environmental reports have all been used to denote SR (Junior et al., 2014).

Using the literature reviewed, we examine SR under global voluntary sustainability frameworks. We choose one comprehensive framework, i.e. GRI, covering the triple bottom line, economic, social and environmental indicators for SR. The other framework we have used

is the Carbon Disclosure Project (CDP) framework, a single-parameter framework covering environmental reporting.

While considering the sustainability performance perspective, we look at the environment and social parameters individually. From the environmental audit perspective, we examine the energy intensity. The social parameter is reviewed with the help of the CSR expenditure by the companies in India.

The corporate sector can contribute effectively to handling national development challenges and help achieve globally defined goals. We include examining this lesser-explored area in literature to study whether CSR in India contributes to achieving SDGs. Considering the uneven development in the country, we also study this relationship at the state level.

8.1.3 Chapter 3: Materials and Methods

This chapter outlines the process followed for sample selection and finalisation, the data sources, and the techniques used for analysis.

The top 500 listed companies on the BSE forming a part of the BSE 500 were selected as the sample for the study. The group of 500 companies was then divided into the top 100 from the BSE 100 and the BSE rest 400 from the BSE 500. This would give us an insight into the SR performance of the topmost group of companies in India. The BSE 500 companies cover all major industries and broadly represent the Indian market (<https://www.asiaindex.co.in/indices/equity/sp-bse-500>). Secondly, these companies are responsible for over 50% of the total corporate social responsibility expenditure after introducing the CSR mandate. Being the most prominent companies, these will be better positioned to invest in sustainability initiatives than the smaller ones.

In this chapter, we describe the data sources used in the previous studies and the ones we have used for this study. The primary data sources used in the prior literature include databases like GRI, ASSET4 from Thomson Reuters, Bloomberg, Centre for Monitoring Indian Economy's (CMIE) Prowess IQ, Kinder, Lydenberg, and Domini (KLD), Compustat, Hexun CSR, Vigeo CSR Rankings, the Ethical Investment Research Service (EIRIS).

Studies have also relied on indices and rankings by agencies like the Dow Jones Sustainability Index (DJSI), Korea Economic Justice Institute (KEJI Index), and Fortune 500 Ranking by Fortune Survey of Corporate Reputations.

As regards the corporate reports being analysed, annual reports and sustainability reports also called CSR reports in some cases, are the primary sources for getting information on sustainability-related issues (Hahn & Kühnen, 2013; Roberts, 1992).

Studies have also calculated indices based on rankings and data from different sources. These include content analyses using measures like the number of words or sentences in CSR or annual or sustainability reports to calculate the rankings of CSR or sustainability indices. Such rankings and indices, however, have the limitation of subjectivity and limited sample size (Cochran & Wood, 1984) and are difficult to validate (Margolis et al., 2007).

We rely on an objective measure of corporate social performance, the CSR spending by companies, rather than a calculated index or ranking. Multiple data sources are used based on the requirement and availability of data. We have used data primarily from the CMIE Prowess IQ database. The annual CSR reports available as a part of the company's annual reports have been used for the breakup of CSR spending based on different Schedule VII areas and the state-wise CSR presence of companies. We have used the GRI database and websites to determine whether companies are preparing sustainability reports under GRI. Similarly, the CDP annual reports have been used to collect data on reporting under the CDP framework.

We also use data from the Sustainability Development and Solutions Network (SDSN) for the national SDG scores and the Niti Aayog's SDG dashboard for the state-level SDG scores. The RBI's eSTATES database is used for the data on government spending on social sector sectors. The annual reports and websites were used to obtain data on companies' adoption of SR.

We have used panel fixed effects regression, bar, line, scatter graphs, and Pearson's correlation to analyse and present the findings.

8.1.4 Chapter 4: The State of Sustainability Reporting in India

An overview of the SR landscape is provided in this chapter. The chapter first briefly describes the MSR initiatives introduced at the national level. After that, the VSR by the sampled companies is analysed to identify the factors influencing the adoption of such reporting.

The increasing pressure from non-shareholding stakeholders led to a rise in voluntary reporting on social and environmental problems (Sideri, 2021). The lack of success with VSR initiatives (Buhr et al., 2014) and the availability of multiple SR frameworks (PwC, 2021) prompted many nations to introduce a mandate on SR in some form. The introduction of mandatory regulations on SR gained momentum during the 21st century (Mion & Loza Adauí, 2019).

Corporate SR finds a basis in different theories that offer different explanatory perspectives on such reporting (Tavares & Dias, 2018). Literature has linked SR with different theories like the social contract theory (Gray et al., 1997), stakeholder theory (Burhan & Rahmanti, 2012; Hahn & Kühnen, 2013), legitimacy theory (Baldini et al., 2018; Brooks & Oikonomou, 2018; Burhan & Rahmanti, 2012; Gnanaweera & Kunori, 2018; Hahn & Kühnen, 2013; Hedberg & von Malmborg, 2003), signalling theory (Hahn & Kühnen, 2013), institutional theory (Baldini et al., 2018; Hahn & Kühnen, 2013), and visibility (Hahn & Kühnen, 2013).

Studies on MSR have studied the influence of mandates on sustainability or social or environmental reporting (Chen et al., 2018; Mion & Loza Adauí, 2019). While examining VSR, most of the studies have used a single reporting framework like GRI (Barkemeyer et al., 2015; Dilling, 2010; Fifka & Drabble, 2012; Makarenko & Sirkovska, 2017), CDP (Ben-Amar et al., 2017), ISO 26000 (Mohammadi et al., 2018).

We used two global SR frameworks, GRI and CDP, to analyse VSR among companies in India. A single theory may not sufficiently explain the rationale for corporate SR, and a combination of theories is required to provide a holistic perspective. Hence, we used a combination of SR theories, namely visibility, legitimacy, institutional, and signalling theories, to examine the similarities and differences in SR. Factors like size, industry affiliation, and ownership are frequently discussed in literature since they are the significant determinants of SR (Dienes et al., 2016; Hahn & Kühnen, 2013). In addition to these measures, we analyse SR

in India based on business group affiliation and CSR voluntarism, which are relatively unexplored in the literature.

8.1.5 Chapter 5: Environmental Audit in India with a Specific Focus on Energy

The energy-related performance of the company is studied in this chapter. Industrial activity is a prerequisite for the development of the economy. However, the industrial sector also has high environmental impacts, which vary depending on the industry. Defining corporate environmental responsibility or environmental performance is difficult (Rahman & Post, 2012). Authors have used measures like energy intensity (Haider et al., 2019; Prasad et al., 2019; Soni et al., 2017) and pollution propensity measured as the ratio of pollution measures like toxic wastes to sales (Clarkson et al., 2008) to measure the environmental performance of companies. In this chapter, we have considered energy-related performance as a measure of environmental performance.

The industrial sector is a significant consumer of energy. Energy efficiency in this sector can contribute to the country's overall energy efficiency. Some sectors are highly energy-intensive compared to others (Soni et al., 2017). Energy efficiency is measured using energy intensity. Literature has examined the energy intensity among companies in different energy-intensive sectors.

The studies have used physical unit energy consumption to measure energy intensity (Goldar & Goldar, 2022). Regarding monetary measures, energy intensity is calculated as the ratio of power and fuel expenses to sales (Kumar et al. 2023; Misra, 2019; Oak & Bansal, 2019 2022; Sharma et al., 2019; Soni et al. 2017). Studies have also used a combination of physical and monetary measures (Prasad et al., 2019).

We use the monetary measure of energy consumption by using the power and fuel expenses. Using the energy intensity calculated as the ratio of power and fuel expenses to sales, we examine the different determinants of energy intensity among the companies in India. We explore the determinants of energy intensity for the entire sample. After that, we classify the companies into those belonging to the grossly polluting industries and others and study the determinants for both groups separately. Next, we classify the companies from the sample based on their inclusion as Designated Consumers (DCs) under the Perform Achieve and Trade (PAT)

scheme. We then examine the determinants of energy intensity for the companies that belong to sectors identified as energy-intensive under PAT and others. In addition to the commonly examined operational factors influencing energy intensity, we also add environmental reporting to study how it influences energy intensity. Reporting under CDP as a measure of environmental reporting.

8.1.6 Chapter 6: Trends in Corporate Social Responsibility

This chapter looks at the CSR spending of the BSE 500 companies over the ten-year study period. It also analyses the over and underspending in the context of the mandated 2% spending as required by the CSR mandate in India. To examine the trends in CSR spending, we classify the BSE 500 companies into the BSE top 100 and the rest 400 from the BSE 500, and also on factors like CSR voluntarism, ownership, and the polluting sector status.

Section 135 of the Companies Act has been a significant regulation on mandatory CSR. This regulation mandates that every company eligible, per the specified criteria, spend a minimum of 2% of its average net profits on CSR. The introduction of the CSR mandate has led to the exploration of the CSR-CFP relationship from a new perspective, as well as the influence of the mandate on different areas related to CSR. These include social performance in terms of spending, the influence of mandatory social performance on financial performance, the impact of the mandate on peer pressure, the focus of companies' CSR spending, and the relationship of CSR with earnings management.

Earlier studies have mainly considered the influence of the mandate in terms of increase in spending and over and underspending, which were comparatively for shorter periods covering the post-mandate period (Bansal et al., 2017; GoI, 2019). Considering the CSR investment by the companies in India before the CSR mandate, we include five years of the pre-mandate period and five years of the post-mandate period in our analysis. Including the pre-mandate period allows us to examine the change from the pre- to the post-mandate period. The five-year period after the introduction of the mandate also provides an extended period to evaluate the effect of the mandate. For the different groups considered for analysis, we consider the total CSR spending and spending as a percentage of average net profits.

The second part of this chapter examines the determinants of CSR spending, including financial performance. We also include an examination of the influence of CSR spending on the financial performance of the companies. Existing literature has examined CSR as an outcome and determinant of financial performance. Literature also explores this relationship from a bidirectional perspective, assuming that both social and financial performance are interdependent and that one influences the other. The financial performance is measured from the perspective of profitability and market performance. Both are important since profitability represents the historical basis, while market performance indicates the expected future financial performance. Based on these two perspectives, the authors have considered accounting and market-based measures for measuring financial performance. The results of the CSR-CFP relationship have been positive and negative depending upon the contextual factors, including industry, country, and ownership structures.

The examination of CSR as an outcome of financial performance is based on theories like slack resources, visibility, and legitimacy theory (Waddock & Graves, 1997, 2020). The slack resources theory proposes that the availability of resources will motivate companies to spend more on CSR. Profitable companies are more visible, hence higher expectations to contribute to society. The more profitable the companies, the higher the social and environmental impact of the corporate activity. Therefore, companies will engage more in social activities to establish legitimacy among the different groups of stakeholders. Financial performance, thus, acts as a determinant of CSR spending. Along with financial performance, studies have also explored factors like board characteristics, size, regulations, and ownership, among others, as determinants of CSR.

The examination of CSR as a determinant of financial performance is based on theories like the stakeholder, social contract, and legitimacy theories. When the companies ‘do good’ regarding their social performance, they fulfill their responsibility towards a wider group of stakeholders besides the shareholders. Such demonstration of commitment to multiple stakeholders results in a positive image in the minds of the stakeholders, like the customers, investors, employees, and society at large (Godfrey, 2005; Godfrey et al., 2009; Margolis et al., 2007). Such a positive image serves as a competitive advantage which can be translated into improved financial performance strategically. This has been described as ‘good management’

(Quéré et al., 2018; Waddock & Graves, 1997). The positive image in the minds of the stakeholders also acts as an ‘insurance-like’ protection to shareholder wealth (Luo & Bhattacharya, 2006, 2009).

The third approach, evident in the literature, examines this relationship from a bi-directional perspective. This approach assumes that when companies ‘do well’, they are motivated to ‘do good’. Similarly, when the companies ‘do good’, they create a positive reputation among the stakeholders and the society, indicating that they are functioning legitimately as per the social contract and hence ‘do well’ financially (Alshehhi et al., 2018). This leads to a cyclical relationship, wherein financial performance leads to social performance and vice versa.

This relationship has been described from the ‘retrospective’ and the ‘prospective’ approach (Quéré et al., 2018). How CSR is influenced by past financial performance is the retrospective approach, and how CSR will influence future financial performance is the prospective approach.

In this chapter, we examined the determinants of CSR expenditure of the top companies in India and the influence of such spending on financial performance to get a holistic idea of the CSR-CFP relationship in India. Based on the literature reviewed and considering the Indian context, we have used the previously established measures and added some lesser-explored factors. We use CSR spending to measure corporate social performance, which is more objective than subjective indices or rankings. Both accounting and market-based measures have been included to measure financial performance, namely ROA and Tobin’s Q. The relationship between CSR and CFP unfolded in the literature has not been consistent, implying that other factors, along with financial performance, determine corporate social involvement. The ‘institutional logics’ which arise from the institutional values and beliefs is a critical factor in such decisions (Herremans & Nazari, 2016)). Hence, we apply the theory of institutional isomorphism in the Indian context to examine corporate social involvement. The three elements of institutional isomorphism, mimetic isomorphism, coercive isomorphism, and normative isomorphism (DiMaggio & Powell, 1983) are considered for this purpose. The following three factors represent the three types of isomorphism spelt out in the institutional isomorphism

literature. CSR mandate is coercive pressure, CSR spending by peers is mimetic, and voluntarism in CSR spending is normative.

The ‘good management theory’ (Waddock & Graves, 1997) will be evident if the company strategically adopts CSR investment. Hence, we add the element of ‘strategic CSR’ to examine whether the companies in India plan their CSR spending to reap the benefits of such investment to ‘create shared value’ (Carroll, 2021; Porter & Kramer, 2006, 2011). The examination of this factor is vital since CSR in India has been mainly viewed as a ‘philanthropy’ (PricewaterhouseCoopers et al., 2013).

8.1.7 Chapter 7: Role of Corporate Social Spending in the Achievement of Sustainable Development Goals

Literature on CSR has primarily focused on how companies view social engagement. Studies have focused on how corporate financial performance is related to social performance in examining CSR. The relationship has been extensively researched from different perspectives to understand the business rationale for such spending.

CSR spending is influenced by and influences its financial performance. However, such social involvement is relevant and vital in the broader social, national, and international contexts. As corporate citizens, every action of a company, including its CSR spending, has important implications for the development process of the nation, which also needs to be explored. Such contribution of CSR to the handling of national and global development and sustainability challenges is relatively unexplored in sustainability-related literature.

This chapter examined this unexplored area to examine how CSR spending contributes to national and global sustainability challenges. We consider the Sustainable Development Goals (SDGs) to be the international benchmarks for sustainability. The CSR areas earmarked in schedule VII of the Companies Act 2013 for corporate spending indicate different national priority areas and can contribute to different SDGs.

The CSR regulation in India is one of the first to mandate CSR spending and report on it. Schedule VII of the Companies Act 2013 specifies different areas of national priorities for the companies to spend the mandated CSR expenditure. For development, all the national challenges must be addressed, and all the regions must be given an equal opportunity to develop. The government allocates its spending to different prioritised social sector areas. A close

examination reveals that the schedule VII CSR areas seem to be aligned with the government budget's social sector spending areas and the SDGs. While investment in the social sector areas for development is the government's primary responsibility, the corporate sector's role cannot be undermined. The role of the corporate sector in the national development agenda is important from two perspectives. One is the role that this sector plays in terms of social and environmental impact, hence rationalising their involvement in handling the challenges related to such effects. Secondly, their immense financial potential can make them ideal partners with the government in handling sustainability and development challenges. Corporate social investment in CSR spending can be a way for companies to be a part of the solution to the challenges and problems for which they are partially responsible (Visser & Tolhurst, 2017). However, such spending should be planned so as not to be a cause for social and spatial inequalities.

This chapter examines the distribution of CSR expenditure by the companies in different Schedule VII sectors and states in the country. We discuss how the CSR expenditure is contributing to the achievement of SDGs. Development in India has been uneven across states. Hence, the SDG scores for different states are different. Therefore, we examine the contribution of CSR to the SDGs in various states. Companies' CSR engagement is not uniform across the states. We find that the CSR involvement of companies is not related to the state SDG scores but is positively related to their presence in terms of plant locations.

8.1.8 Chapter 8: Conclusion

This is the last chapter of the thesis, which provides a summary of all chapters. It summarises the thesis and recapitulates the findings based on the chapters and objectives of the study.

8.2 Summary of the Findings Based on the Research Objectives

Research objective 1 is covered in Chapter 4. Research objectives 2 and 3 are discussed in Chapter 5. Chapter 6 deals with research objectives 4 and 5. Research objective 6 is discussed in Chapter 7.

8.2.1 Research objective 1: To study the trend and spread of voluntary sustainability reporting in India by size, group affiliation, ownership, sector, and CSR voluntarism.

This objective is based on the research question: what is the response of Indian companies to voluntary sustainability reporting? Does this differ based on size, group affiliation, ownership, sector, and CSR voluntarism?

Chapter 4 on SR examined the spread and breadth of SR. India follows a combination of mandated and voluntary SR. BRR, now called the BRSR, is the leading national MSR framework. SEBI mandates the framework as a part of its the Listing Obligations and Disclosure Requirements (LODR) for specified companies. Being mandated by a regulatory authority, the mandated framework is complied with by the specified companies. However, the consistency and the standardisation of the data reported in the BRR have not been satisfactory. This has prompted the regulator to revise the format of the BRR and issue a new framework, BRSR, which became applicable in the financial year 2021. Hence, we focus more on VSR under the global frameworks.

For this chapter, we considered SR under two global voluntary frameworks: GRI and CDP. We find that the VSR in India, though growing, is limited. The decade from 2010 to 2019 has seen a rise in the overall SR reporting under the two examined frameworks. However, we also see an increase in the uptake of only GRI reporting and a decrease in exclusive CDP reporting. The number of companies that prefer to report under both frameworks is also rising. Looking at the trends, the companies that start reporting exclusively under CDP also choose to adopt GRI reporting subsequently. Environmental reporting under CDP may prompt companies to disclose their social performance data. GRI is a comprehensive reporting framework covering the three sustainability parameters: economic, social, and environmental. It is a report based on the indicators specified. Hence, there is room for companies to do selective reporting, which is inconsistent throughout the report and over the years. The CDP reporting, however, is based on the questions as part of the structured questionnaire by the CDP. As such, it asks for specific data, and the answers provide more consistent data. The companies can, therefore, be encouraged to report more on the environmental dimension, enabling them to undertake comprehensive SR covering the triple bottom line.

From the trends in SR observed, we find that companies differ in adopting SR based on factors like size, ownership, etc. Such adoption and differences in SR are grounded in different SR theories. Larger companies in the BSE 100 group are more involved in SR than the smaller

ones from the BSE rest 400 from the BSE 500 group. Similarly, companies exhibiting voluntarism in social performance also lead in VSR.

Based on ownership, the government-owned companies prefer GRI reporting, while the foreign-owned companies prefer to report under both. The Indian privately owned companies show an equal preference for exclusive reporting under GRI or CDP. However, the companies from this ownership group also report jointly under both frameworks.

As expected, the companies belonging to the business groups prepare more sustainability reports than the ones that work exclusively without any group affiliation. Surprisingly, the companies not forming a part of the sectors notified as a polluting report under GRI and CDP jointly more than those belonging to the notified polluting sectors. On the other hand, the companies belonging to these notified sectors are involved more in SR under GRI.

8.2.2 Research objective 2: To examine the determinants of energy intensity as a part of environmental audit in the selected companies

This objective answers the research question: what are the determinants of corporate environment performance with specific reference to energy intensity?

Chapter 5 examined the determinants of energy intensity for the selected group of companies.

Financial health in terms of profitability contributes to a company's energy efficiency by reducing energy intensity. Similarly, expenditure on repairs is a significant indicator of energy intensity. Higher repair expenditure may be a sign of older machinery and also higher energy intensity.

Profitability is a significant factor influencing energy intensity. Profitable companies are in a position to take measures to control energy consumption and improve energy efficiency. Hence, profitability has a negative influence on the energy intensity. Only companies in the PAT-notified sectors do not show this variable as significant. These companies have the threat of being included under the regulation as pressures rather than profitability. Hence, they might adopt measures to control energy consumption irrespective of profitability.

Though larger companies are more energy-intensive, the asset composition is a significant factor in determining energy efficiency. The capital intensity measured by the fixed assets positively influences energy intensity and is a sign of less energy-efficient companies.

Energy-intensive industries might be expected to use such reporting to legitimise their operations. However, environmental reporting under CDP is not significant except in the case of non-PAT DCs.

We find that the companies belonging to the PAT-notified sectors show a negative influence of research intensity on energy intensity. This indicates that these companies are involved in effective research investments to reduce energy intensity. Such a reduction in the energy intensity will help them to either be excluded from the PAT-notified DC status or avoid being included in the future.

8.2.3 Research objective 3: To examine the influence of Perform Achieve and Trade, among others, on energy intensity

This research objective answers the question: how have the policy interventions influenced energy intensity?

Chapter 5 examines the influence of policy interventions on corporate environmental performance in terms of energy intensity.

When examining the environmental performance, we have examined the determinants of energy intensity for different groups of companies. We have considered here two policy interventions. One is the notification of the grossly polluting industry, and the second is the notification of the company unit as a Designated Consumer under the Perform Achieve and Trade (PAT) scheme. The main difference between the two is that under the classification as a grossly polluting industry, the industry, in general, is included as a polluting industry. In the case of PAT, specific energy-intensive units are notified as PAT Designated Consumers. We find that the companies belonging to the PAT-notified sectors show a negative influence of research intensity on energy intensity. This may be due to the steps taken by such companies to reduce or control energy intensity. We do not find such a relationship in the case of any other group included in the study. This group is the only group where energy intensity is not significantly influenced by profitability, while the other groups experience a negative impact of profitability on energy intensity.

8.2.4 Research objective 4: To examine the existing as well as less explored determinants of CSR in India and the financial outcomes of such corporate social performance

What are the determinants and outcomes of corporate social responsibility expenditure of large Indian companies?

Chapter 6 of the thesis explores the determinants and the outcomes of CSR expenditure for the companies in India. It also differentiates these determinants and outcomes for the mandatory and voluntary companies in the pre and post-mandate context.

The Companies Act 2013 introduced the landmark regulation on CSR as a part of Section 135 of the act. The act requires the specified companies to spend 2% of their average net profits on CSR in the areas specified in Schedule VII. Analysing the impact of the regulatory intervention of the act on the CSR spending by the companies in India, we find that the act has resulted in the companies spending more on CSR. The positive influence is seen in the case of voluntary as well as mandatory companies.

CSR spending in India is better explained as an outcome of financial performance rather than a determinant. Such spending, though, positively influences voluntary companies' profitability. CSR spending is more influential in improving accounting-based financial performance than market-based financial performance. The approach towards CSR in India is more philanthropic than a strategic one. The isomorphism in the form of normative pressures has resulted in philanthropic CSR spending even before the mandatory pressures. The coercive isomorphism introduced through mandatory CSR has forced companies to increase their CSR spending. However, the mandated target of 2% of the average net profit took some time.

Financial performance, normative pressures before the act, and mandatory pressures post the mandate drive CSR spending in India for voluntary companies. This group of companies also enjoys the returns in terms of the positive influence of CSR spending on profitability. The mandatory companies are driven by financial profitability as well as mandatory pressure. These companies do not enjoy the positive impact of CSR on profitability. Thus, normative pressure-driven CSR helps companies improve their financial performance. Though voluntary spending companies consider the market performance in deciding their CSR

investment, the market performance, in turn, is not influenced by such investment. The market performance is not influenced by CSR spending in the case of the mandatory companies either.

The findings confirm those of (McGuire et al., 1988) that the prior financial performance is more related to social performance than the subsequent performance. The prior financial performance in the case of voluntary companies is the accounting and market-based measures, and only the accounting-based measure is for mandatory companies. The study also finds that, in general, accounting-based measures of ROA are better related to CSR as compared to the market-based measures, as reported by (McGuire et al., 1988).

Peer pressure is a motivating factor in mandatory and voluntary companies' CSR spending. However, the differentiation in CSR spending as compared to the industry peers does not influence the financial outcomes for both groups of companies. This contrasts with the findings of (Ding, 2016), who found that differentiation from peers positively influences market value.

The next set of variables relates to the strategic approach towards CSR. Long-term engagement in CSR should help companies gain experience in such investing, resulting in more financial benefits. However, we do not see any significant relationship between such experience and financial performance, either accounting or market-based. Similarly, the companies in India do not relate advertisement and CSR.

The increase in CSR expenditure is an expected outcome of the introduction of the mandate on CSR for both groups of companies. However, the influences of CSR spending are different for voluntary and mandatory CSR spending companies. Voluntary companies show evidence of a bidirectional relationship with the accounting-based measure of financial performance. However, the CSR spending by mandatory companies has yet to experience positive financial outcomes from such social performance.

8.2.5 Research objective 5: To study the impact of CSR mandate in the Companies Act, among others, on CSR expenditure

Research objective 5 answers the research question: how much have policy changes impacted such expenditure?

Chapter 6 has examined the influence of policy interventions on corporate social performance regarding CSR expenditure.

Mandates strongly influence the corporate social and environmental performance of the top 500 companies in India. In the case of the mandate on CSR, we find that both the voluntary and the mandatory companies have shown a considerable increase in the proportion of their profits being devoted to CSR. While normative pressures have been responsible for voluntary CSR spending among companies, coercive mandatory pressures have increased the number of companies and the total amount spent on CSR in India.

8.2.6 Research objective 6: To assess whether the CSR expenditure is meeting SDG targets

This research objective deals with the following question: Is the nature of CSR expenditure addressing national and international sustainability challenges?

The relationship between CSR spending and the SDGs is studied in Chapter 7. The non-strategic approach to CSR also limits its ability to address national and global sustainability challenges. Though the act provides a holistic and wide range of areas for companies to spend, the companies focus on a few. The Schedule VII areas are based on national challenges and specify the priority areas where the companies must intervene. However, there is an imbalance in CSR spending across such areas. Education, health, rural development, and health receive significant shares of the company's CSR spending. As a result, we find that CSR expenditures and the SDG scores are correlated in a positive manner, which indicates that such expenditure is going to areas that are already performing well. However, based on the relationship between the proportion of government and corporate social spending with the SDGs, the corporate sector seems to be aligning its spending with government spending to address sustainability challenges.

Another limitation that has been seen is the regional imbalance in CSR spending. We find that the CSR spending in India is concentrated in states that are doing well rather than those that need such expenditures. The state-level SDG scores do not show a definitive relationship with either the government or the corporate spending except in the case of education, where it is positively related to CSR instead of the expected negative. However, we see a positive correlation between the plant locations and the number of companies spending on CSR in the states.

The local area spending directive can be considered a significant reason for such influence. However, the specification must be followed in spirit rather than according to the local area spending directive.

The study finds evidence of the influence of corporate profitability on corporate social and environmental performance. The profitability measure of ROA is found to be influential in deciding the proportion of the profits that will be allocated to CSR by companies. Similarly, in the case of environmental performance, companies with higher profitability tend to become more energy efficient by reducing the energy intensity.

The relationship between social, environmental, and financial performance indicates that companies need to focus on all three aspects of sustainability: economic, social, and environmental. They are interdependent, and performance on one influences the other.

8.3 Contribution of the Study

Since the term sustainability is multifaceted, it has been explored and studied for its different elements separately and together. It has been explored for the performance and reporting on different sustainability parameters. Literature uses the terms associated with corporate sustainability interchangeably. The study identifies and reviews different sustainability-related themes covered in the literature.

The study uses multiple data sources and examines corporate sustainability from different perspectives. It adds to the literature on corporate SR by discussing the VSR performance of the top 500 companies under two global reporting frameworks. Earlier studies have mainly covered reporting under a single framework.

The study adds to the existing literature on the relationship between corporate sustainability and financial performance. However, we contribute by including the factors specific to the Indian context. These include the influence of the mandates and regulations like the CSR mandate for social and the Perform, Achieve, and Trade (PAT) for environmental performance. The classification of the companies based on CSR voluntarism allowed us to examine the coercive and normative isomorphism concerning CSR. We also include the lesser explored factors like the mimetic pressure and the strategic approach towards CSR.

The relationship between CSR and CFP has been explored in depth. However, in addition to the influence of social performance on the financial outcomes of the companies, the study examines the contribution of corporate social performance in achieving global benchmarks in the form of the SDGs.

8.4 Limitations

The study has some limitations. First, is with respect to the period of study. It covers a period of five years after implementing the CSR mandate. The subsequent amendments to the act have not been covered in the study since it was beyond the purview of the study period. There is a lack of data on CSR expenditures by state. For state-wise CSR spending, we use the CSR presence, i.e. the number of companies having CSR projects in a particular state and not the CSR spending by companies in the respective states. There is also limited data availability on the physical units of energy consumption. This required the use of monetary measure, which some consider an incomplete measure of energy accounting. The study considered voluntary sustainability reporting under global frameworks. The mandatory sustainability reporting could not be analysed due to the limited or missing data in the BRR, which needed to be more consistent in the units used to measure different parameters.

8.5 Policy Suggestions

The relationship of profitability with corporate social and environmental performance proves that elements of corporate sustainability are closely related and interdependent. Financial performance is a significant determinant of corporate social performance and environmental performance. The nature of such unilateral or bilateral relationships depends on corporate volunteerism in adopting socially and environmentally responsible behaviour. However, government initiatives are significant drivers in promoting corporate social and environmental action. The positive influence of the CSR mandate on CSR spending and the PAT scheme on energy intensity affirm this. Corporate involvement in social and environmental areas can supplement the government's efforts in development. Proper planning and investment of social spending by the government and the corporate sector can contribute to solving social and environmental challenges. The CSR mandate has increased social contribution from the

corporate sector. It has to be steered in a proper direction to contribute effectively to address the national and international development targets.

8.6 Scope for Future Research

Future research can focus on the mandatory sustainability reporting performance using the Business Responsibility and Sustainability Reports. The BRSR framework intends to encourage companies to provide data on sustainability-related principles more consistently and in a standardised manner.

There is also a scope to study the impact assessment, which is now a part of the CSR mandate in case of specified companies. The contribution of corporate social expenditure in the development of aspirational districts can be studied by extending the state-level examination of CSR and development areas to the district-level social spending of companies.

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