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The Impact of Corporate Social Responsibility on Financial Performance

Evidence from Publicly Listed Indian Companies

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ABSTRACT:
The study investigates the relationship between corporate social responsibility (CSR), and the performance of the publicly listed non-financial firms operating in India. CSR's importance as a strategic component in the corporate world has increased due to increasing demands from various stake holders, instead of just being focused solely on shareholder value. Within the Indian context CSR has been influenced by both voluntary actions by corporations and regulatory requirements; therefore, the environment provides a unique institutional background to determine if there are relationships between sustainable activities and firm performance in an emerging market economy.

This study examines whether ESG performance is associated with firm financial performance. ESG performance is represented by the Environmental, Social, and Governance (ESG) composite score, and represents the quantifiable aspect of socially responsible business operations. The theoretical basis for this study is primarily based on Stakeholder theory. Stakeholder theory posits that companies can achieve higher levels of long-term performance through effective management of their stakeholder relationships. However, CSR may also require additional resources and expenditures for compliance purposes; these expenses or investments may not result in immediate benefits to the company financially. The empirical analysis uses a balanced panel of 98 publicly listed non-financial Indian firms from the Nifty 500 Index covering the period 2018 to 2024. In the main specification, ESG performance in year $(t-1)$ is matched with financial performance in year t. Financial performance is measured using Return on Assets (ROA) to capture accounting profitability and the Market-to-Book Ratio (MBR) to capture market valuation. The study estimates fixed-effects panel regression models with firm and year effects, along with firm-level control variables. To check the robustness of the findings, the analysis also uses a two-year lag of ESG, separate ESG pillar scores, and a subsample of large firms.

The results do not show statistically significant evidence of a relationship between ESG performance and either accounting-based or market-based financial performance over the sample period. Across the robustness tests, the main conclusions remain broadly unchanged. The research shows that although ESG performance does not contribute significantly to short- to medium-term financial performance, the findings appear to also reflect the same trend regardless of the framework used in this research. The findings of this study in terms of the Indian regulatory climate surrounding CSR indicate that ESG measures represent not only substantive strategic actions but also compliance and disclosure. Overall, this study will further contribute to CSR and financial performance through additional information about CSR–financial performance in the context of regulated emerging markets.

KEYWORDS: Corporate social Responsibility (CSR), Corporate financial performance (CFP), Environmental, Social, Governance (ESG), Return-on-Assets (ROA), Market-to-book value (MBR).

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1. INTRODUCTION

1.1 Background and Motivation

The view of Corporate Social Responsibility (CSR) is changing. CSR was previously seen by many as an optional or "social" activity, where corporations would address social and environmental issues in addition to those required by law. While early studies were sceptical about whether CSR contributed financially and suggested that socially responsible activities may cost companies money with no corresponding increase in profit (McWilliams & Siegel, 2000), due to increased concern regarding global warming, environmental damage and inequities, stakeholders' expectations of companies have dramatically shifted (Friede et al., 2015; Orlitzky et al., 2003). Stakeholders today do not just look at a company's performance from a purely financial perspective; rather they expect to see how socially responsible and environmentally conscious companies act (Orlitzky et al., 2003).

The stakeholder theory provides a crucial theoretical basis to understand how corporate social responsibility (CSR) has evolved. As stated by Freeman (1984), businesses can add value over time by building relationships with various stakeholders including employees, consumers, suppliers, community members, and regulatory bodies. From this viewpoint, CSR can be used to improve or maintain legitimacy, build trust, enhance cooperation and ultimately lead to improved organizational resilience and contribute to longer term financial performance (Freeman, 1984; Porter & Kramer, 2006). A similar viewpoint suggests CSR creates strategic value if incorporated into the organization's core operations rather than viewed as simply another external obligation (Carroll, 1991; Porter & Kramer, 2006). On the other hand, there exists another perspective which indicates CSR will incur increased costs and decrease efficiency of a company pursuing CSR initiatives where no clear economic benefit exists, particularly in competitive markets (Friedman, 1970).

The use of CSR by way of environmental, social, and governance (ESG) measures has been increasing over time (Kotsantonis et al., 2016). Many investors and analysts now rely on these measures to assess how companies handle risk and sustainability (Kotsantonis et al., 2016), which makes them useful proxies for CSR in empirical work. However, there is still debate about the relationship between ESG and CSR and a company's financial outcomes. Some past studies have found that this relationship was either positively related, negatively related, insignificant, or dependent on the specific industry or country (Friede et al., 2015; McWilliams & Siegel, 2000; Orlitzky et al., 2003).

The Indian institutional environment offers an interesting background to study the nexus of corporate social responsibility (CSR) and financial performance in an emerging economy. The first large economy to nationalise mandatory CSR expenditure was India, which under the Companies Act, 2013 requires eligible companies to spend at least 2 % of their average net profit on CSR activities under the section 135 (Government of India, 2013). Additionally, the Business Responsibility and Sustainability Reporting (BRSR) framework, which formalised the disclosure of ESG on listed companies, was introduced by the Securities and Exchange Board of India later (SEBI, 2021). Although the impact of the mandatory CSR regulation in India on corporate behaviour and financial policy has been studied previously (Dharmapala and Khanna, 2018; Jadiyappa et al., 2024), there is still a lack of evidence on whether such regulatory changes are related to the enhancement of corporate financial performance, and most importantly, whether the ESG the ESG measures used to capture CSR performance retain the same financial relevance in a legally mandated compliance setting as they do in the voluntary institutional contexts that dominate the existing global literature.

Against this backdrop, a specific and underexplored interpretive question motivates the present study. The available literature mostly considers ESG scores as proxies of substantive sustainability performance. Nevertheless, in a required CSR system like in India (where Section 135 of the Companies Act (2013) requires qualified firms to invest

in CSR and report their actions at that) ESG scores can be an indicator of compliance behaviour and disclosure ability, but not strategic sustainability. Assuming this is true, the economic implication that is contained in ESG ratings can be quite different than the one expected in the voluntary institutional worlds that the existing literature presumes. The main inquiry of this paper is thus not merely whether ESG is associated with financial performance in India, but whether ESG has significant financial relevance when the informational content of ESG is possibly watered down by regulatory and reporting incentives. This difference has not been adequately studied in previous empirical studies and is the essence of the intellectual drive of the current study.

1.2 Purpose of the Study

The study examines whether ESG performance is associated with the financial performance of non-financial Indian firms. Specifically, this study investigates the relationship between a composite ESG score and two distinct dimensions of corporate financial performance: accounting-based profitability and market-based valuation. The focus on the Indian context is analytically significant because it provides a distinctive institutional setting where corporate social responsibility (CSR) is not a discretionary philanthropic activity but is instead governed by Section 135 of the Companies Act, 2013 (Government of India, 2013).

The empirical analysis is conducted on a sample of 98 non-financial Indian firms selected from the Nifty 500 Index. To account for the time required for sustainability initiatives to manifest in financial metrics and to mitigate potential simultaneity bias, the study utilizes a one-year lagged structure (Wintoki et al., 2012). Specifically, ESG performance data from the period 2018–2023 is matched with financial performance outcomes from 2019–2024. Financial performance is operationalized using Return on Assets (ROA) to measure internal operational efficiency and the Market-to-Book Ratio (MBR) to capture external investor expectations and future growth prospects (Orlitzky et al., 2003). ESG

performance is measured using Refinitiv Composite ESG Score. The score is based on many different Environmental, Social and Governance (ESG) factors that are aggregated into one simple numerical measure of overall ESG performance (Refinitiv, 2020). The empirical analysis also includes robustness tests using a two-year lagged ESG measure, as well as testing different ESG pillars separately and a large firm subsample (Dixon-Fowler et al., 2013; Xie et al., 2019). The additional analysis can ensure that the results hold true beyond just the baseline specification.

The purpose of the study is not simply to add new data for the current body of literature on how environmental/social governance (ESG) affects financial performance. Instead, this research will assess how ESG impacts financial performance in an environment where Corporate Social Responsibility (CSR) related behaviour is primarily defined by government regulation. An important issue is whether ESG remains a meaningful indicator in a regulatory environment rather than a voluntary one, where ESG scores are likely reflective of both substantive operational sustainability and the incentive of companies to provide compliant disclosures and reports to meet their CSR obligations.

Extant literature suggests that mandatory CSR regulations can fundamentally alter firm behavior and decouple CSR activities from traditional financial rewards (Dharmapala & Khanna, 2018; Jadiyappa et al., 2024). Furthermore, because accounting-based and market-based measures reflect different economic realities, it is essential to analyze both to determine whether ESG performance interacts differently with a firm's internal profitability versus its external market valuation (Orlitzky et al., 2003). Consequently, this study aims to clarify whether the ESG–financial performance nexus remains observable in a regulated setting where the drivers of ESG performance may diverge from the voluntary assumptions prevalent in much of the broader global literature.

1.3 Structure of the Study

The dissertation is presented in seven chapters, which are briefly described below.

Chapter 2 details the evolving CSR and ESG landscape along with the regulatory issues related to CSR and ESG in India. Specifically, this outlines the regulatory framework of India through an analysis of Section 135 of the Companies Act, 2013, as well as the transition from voluntary sustainability reporting (VSR) to mandatory sustainability reporting under the BRSR framework.

Chapter 3 establishes the theoretical foundation for the study, juxtaposing the Stakeholder Theory of value creation with the Shareholder Theory of CSR as a cost. This chapter also addresses the institutional pressures of mandatory compliance and concludes with the development of formal, testable hypotheses concerning both accounting-based and market-based financial outcomes.

Chapter 4 provides a critical synthesis of existing empirical literature regarding the relationship between CSR and firm performance. It evaluates the inconsistent findings across global studies and identifies the specific research gaps present in the emerging-market and mandatory-compliance literature.

Chapter 5 contains a description of the methodology used for data collection and the econometric approach that will be used to analyse it. The analysis is based on a sample of 98 non-financial firms drawn from the Nifty 500 Index, the operationalization of variables using Refinitiv ESG score, and use of a fixed effect panel regression method. Additionally, analysis will include a range of supporting analyses based on alternative lag structures and measures of ESG pillars, as well as a subsample of larger firms.

Chapter 6 presents and discusses the empirical results from the analysis, specifically focusing on whether the analysis identifies statistically significant relationships between ESG performance and chosen measures of financial performance.

Chapter 7 provides a summary of the main findings, outlines the limitations of the study and provides the recommendations for future research.

2. CORPORATE SOCIAL RESPONSIBILITY AND ESG FRAMEWORK

2.1 Introduction

Although the term Corporate Social Responsibility (CSR) has been around since the 1950s, CSR has become an increasingly important part of the discussion on corporate governance, financial markets, and academic research today. Today companies are no longer simply judged on profit alone but rather how well they use resources to protect the environment, improve social relationships, and implement good governance. The increasing focus on CSR is due to shifting expectations of stakeholders, changes in regulations, and a growing interest among corporations to integrate sustainability into the overall strategic decision-making process. CSR is multifaceted and there is no single universal definition. Initially CSR was thought of as a voluntary moral obligation of business to contribute to society positively beyond what would be required of them by law. CSR has expanded to include environmental protection, social welfare, ethics, and governance quality.

Carroll (1991) created one of the most popular models of CSR. His CSR Pyramid Model includes four layers of CSR. The bottom layer represents the firm's obligations to be economically viable and comply with all applicable laws. The second layer of CSR refers to the firm's obligations to behave ethically. The third layer of CSR refers to the firm's obligations to make charitable contributions to the community. The fourth and top layer of CSR refers to the firm's obligations to engage in philanthropy. Carroll's Pyramid Model is still widely used today because it shows the hierarchy and multi-dimensionality of CSR.

Another major aspect of the CSR paradigm is Stakeholder Theory. Freeman (1984) stated that the best way for a company to achieve long-term success is to develop positive relationships with various stakeholders. These stakeholders can be employees, customers, suppliers, local communities, and government agencies. A key point to note here is that this approach to CSR differs from the traditional view held by Friedman (1970)

that a company's only responsibility is to maximize profits if it complies with the law. Although the shareholder-focused approach to CSR focuses on maximizing immediate financial returns, Stakeholder Theory offers a broader rationale for why firms should pursue socially responsible actions to increase long-term sustainability.

As a result of recent advances in both financial research and investment practices, CSR is now being quantified through the measurement of Environmental, Social, and Governance (ESG) criteria. ESG converts abstract CSR concepts into measurable indicators that are usable in quantitative research and investment analysis. Kotsantonis et al. (2016) provide examples of how these criteria are being applied to quantify CSR in a variety of ways. In addition to using other measures of CSR, this dissertation uses the Refinitiv composite ESG score to measure CSR performance across firms and over time. The Refinitiv composite ESG score is based upon several different ESG indicators and then combines them into a single numerical score (Refinitiv, 2020). As a result, it is possible to compare CSR performance across firms and over time.

2.2 CSR - A Historical Perspective

Bowen (1953) is generally credited as one of the earliest writers to establish an intellectual foundation for Corporate Social Responsibility (CSR), stating that "the social responsibility of business enterprise extends far beyond the narrow classical notion of making products at a profit, its responsibilities are to pursue policies, to plan and act in ways which contribute to the welfare of all members of society" (p.6). The increasing visibility of environmental issues and the rising tide of social activism during the 1960s and 1970s added momentum to the discussion of corporate accountability and responsibility to society (Carroll, 1999).

Friedman (1970) is often considered the leading proponent of the opposing view that the primary responsibility of business is to maximize profits while operating within the legal boundaries established by the government. However, this view of the role of

business has been significantly challenged over time by other views of what constitutes appropriate responsibility by businesses.

Stakeholder Theory - Freeman (1984) The Stakeholder Theory by Freeman (1984) is perhaps the most effective alternative theory to the ideas of Friedman on corporate responsibility. It assumes that the relationships with all groups interested in the actions of a firm must be considered and coordinated to implement the successful long-term planning of a corporation. The 1990s decade continued to embrace the concept of CSR as a responsible corporate practice and even came up with formal models like the Pyramid by Carroll (1991) and the triple bottom line model (economic, social, and environmental) introduced by Elkington (1997).

In the first years of the 21st century CSR had developed into an accepted and integrated part of corporate strategy and reporting practice. Today the reporting of CSR is getting even more formalized as there is the development of standardized sustainability reporting frameworks (such as GRI) and ESG measures (Environmental, Social, Governance) (Global Reporting Initiative, 2000). These evolutions show how CSR has evolved to become more formal and structured in its governance and risk management activity, not necessarily a voluntary philanthropic activity. The influence of this transformation can also be observed in countries that have incorporated CSR into regulatory requirements such as India, which made CSR mandatory for certain firms through Section 135 of the Companies Act,2013 (Government of India, 2013).

2.3 Factors That Influence CSR Activity

There are several factors that influence CSR activity. Economic, Institutional and Strategic factors all impact CSR activity.

First, the pressure from stakeholders is a significant factor. The expectation from investors, consumers, employees and regulators for corporations to be socially responsible and transparent is growing (Freeman, 1984). Non-compliance with these

expectations could lead to negative impacts on reputation, regulatory action, and increased risk (Clarkson, 1995).

Second, regulatory pressures drive CSR activity in some jurisdictions. For example, in India, Section 135 of the Companies Act (Government of India, 2013) mandates eligible corporations to spend at least 2% of their average net profits towards CSR activities under a compliance or explanation framework. India is therefore the first large economy to require CSR spending nationally.

Third, CSR can serve as a risk reduction tool. By being environmentally and socially responsible, corporations can reduce their potential for lawsuits, fines, and damage to their reputation (Godfrey, 2005). Additionally, if corporations are perceived as having low risk, they should receive a lower cost of capital and higher valuations (El Ghoul et al., 2011). Fourth, strategic factors motivate CSR adoption. Porter and Kramer (2006) suggest that CSR can create shared value for corporations by aligning their corporate strategies with societal needs, thus enhancing their competitive position.

2.4 CSR Reporting and ESG Standardization

As CSR continues to grow in importance, so too do the number of standardized reporting frameworks used by corporations to increase the transparency and comparability of their CSR reports.

The Global Reporting Initiative (GRI) is the most widely recognized sustainability reporting standard globally (Global Reporting Initiative, n.d.). The United Nations Global Compact (UNGC) is an initiative that promotes ten universally accepted principles relating to human rights, labour standards, environmental protection, and anti-corruption (United Nations Global Compact, n.d.).

Integrated Reporting (IR) is an initiative of the IFRS Foundation that encourages

corporations to integrate their financial and non-financial information to illustrate how they create long-term value (IFRS Foundation, n.d.-a). The Sustainability Accounting Standards Board (SASB) develops industry specific sustainability disclosure guidelines for investors (IFRS Foundation, n.d.-b).

Business Responsibility and Sustainability Reporting (BRSR) is a new form of sustainability reporting recently introduced by the Securities and Exchange Board of India (SEBI, 2021), which aims to harmonize domestic sustainability reporting with international ESG expectations. Commercial ESG data providers like Refinitiv convert CSR data into standardized ESG ratings. Refinitiv's ESG rating system aggregates hundreds of different indicators into four categories (environmental, social, governance, and overall) that enable comparative analysis across firms (Refinitiv, 2020). Therefore, commercial ESG data is particularly well-suited for quantitative studies due to its standardization.

2.5 CSR in the Indian Context

Historically there has been a tradition of business group philanthropy in India. In addition to this there are also statutory regulations governing CSR in India. The introduction of mandatory CSR spending under the Companies Act (Government of India, 2013), created a new regulatory framework which was intended to create institutionalized CSR within corporate governance. CSR in India is still developing empirically. There have been some studies on the economic impact of CSR in India. For example, Jadiyappa et al., (2024), found that companies changed their financial strategies after CSR was introduced. Similarly, Dharmapala & Khanna (2018) showed how mandatory CSR affects company decision making. Therefore, CSR should be researched with consistent ESG measurements and current financial performance metrics.

2.6 Measuring CSR Through ESG Scores

There are many difficulties in measuring CSR because CSR can be measured by many different metrics and is very subjective in nature. Most previous research studies have analysed CSR using either content analysis or through surveys and therefore may be biased because they were developed through surveys and subjectively (Waddock & Graves, 1997).

The advent of ESG ratings will allow for greater accuracy in measuring CSR. Refinitiv ESG scores will measure a company's sustainability by aggregating the companies' sustainability indicators and giving them a total composite score ranging from 0-100 (Refinitiv, 2020). The composite score measures the company's overall corporate responsibility as opposed to individual CSR initiatives.

Therefore, the composite ESG score is used as the primary proxy for CSR performance in this dissertation. The methodology chosen for this dissertation aligns with the theoretical understanding that corporate social responsibility represents a broad business strategy orientation; it does not represent merely the accumulation of distinct or separate ESG activities. However, since there is additional robustness checks included in the final empirical design to test for sensitivity to alternative lag structures and the three individual ESG components, the study can determine whether the major findings of this research remain consistent across all methodologies for measuring ESG performance

2.7 Measuring Financial Performance

Corporate financial performance is commonly evaluated through two methods: Accounting-based and Market-based measures.

Accounting-based measures such as ROA provide information about operational efficiency, and historical profitability of the company, while Market-based measures like MBR will measure how investors see the future performance of the firm (Orlitzky et al., 2003). Accounting based measures will give an idea of where the firm has been in the past, and managerial accounting decisions can affect these numbers. The same way that accounting based measures look at the past, the market-based measures look at the future and what investors expect to happen with the firm. When you use both measures together, it gives a complete view of the performance of the firm and lets you investigate whether the ESG performance of the firm will influence the operational profitability, and/or the market value of the firm.

2.8 Direction of Causality Between CSR and Financial Performance

Much of the literature concerned with Corporate Social Responsibility (CSR) has focused on the issue of causal direction. The "slack resources" hypothesis asserts that financially successful companies have access to more resources to invest in CSR-related activities. (Waddock & Graves, 1997). On the other hand, the "good management" hypothesis posits that CSR will lead to better relations with stakeholders, reduced risk, improved operational efficiencies, etc., all of which result in higher levels of financial success (Waddock & Graves, 1997).

Although meta-analysis indicates a significant positive correlation between CSR and financial success (Orlitzky et al., 2003), it is possible for the relationship to be two-way and depend upon the context, especially where regulatory environments are involved, e.g., India. Therefore, the focus of this dissertation is on identifying the relationship between environmental-social-governance (ESG) performance and financial performance; not establishing causal direction. The analysis provides evidence from an emerging economy where mandatory CSR regulations exist.

3. THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

3.1 Objective of the Chapter

Chapter 2 discussed CSR/ESG frameworks and institutional settings in India. The current chapter will develop arguments about how ESG performance may affect a company's financial performance. The chapter connects the primary CSR theories and their implications for the two measures of performance that are used in this research: accounting-based profitability (ROA) and market-based valuation (MBR). Finally, the chapter concludes with a set of testable hypotheses.

3.2 The Shareholder Theory and the "Cost" of CSR

One of the oldest perspectives on CSR is the shareholder theory, which was primarily articulated by Friedman (1970). From this viewpoint, a company's main responsibility is to maximize shareholder value, and therefore, managerial decisions should only be made to improve the company's value within the bounds of the law. CSR actions can be seen as a misappropriation of company funds and resources as they produce social benefits but do not produce commensurate financial returns.

From this viewpoint, CSR spending can decrease profitability as it increases costs (i.e., compliance costs, reporting systems, sustainability programs) without increasing revenue. CSR actions that are undertaken for reputational purposes or by manager's preference rather than to maximize firm performance can represent agency problems, where managers undertake CSR activities to increase their own prestige or to reduce external pressures rather than to improve firm performance. Therefore, the shareholder theory would predict no effect or a negative effect between ESG performance and financial outcomes — unless ESG actions clearly provide a competitive advantage

(Friedman, 1970). This viewpoint is particularly relevant in emerging economies where ESG-related expenditures are seen as non-essential, especially when companies have high levels of price competition, limited access to funding, or weak regulation of environmental and labour standards. In this case, the cost of ESG improvements can be high and not translate into financial gains in the short term.

3.3 The Stakeholder Theory and the Value Creation Perspective of CSR

On the other hand, the stakeholder theory states that companies achieve long-term value by developing relationships with all stakeholders, including employees, customers, suppliers, regulators, communities, and investors (Freeman, 1984). The CSR/ESG practices which companies are now employing, as they become increasingly reliant on stakeholders for their resources and legitimacy, should be viewed as strategically orientated investments designed to foster an environment of trust and cooperation amongst stakeholders with the goal of improving company-wide performance over the long term.

In this regard, there are four ways that positive stakeholder perceptions regarding a company's ESG performance could potentially lead to improvements in its financial performance: Reduced risk and greater operational stability due to the minimization of potential operational disruptions, workplace disputes, supply chain problems, and regulatory fines associated with better environmental and social practices. Increased employee motivation, reduced employee turnover, and improved productivity due to enhanced labour practices. Increased customer loyalty and stronger brands due to socially responsible behaviours enhancing a company's brand credibility and ability to retain customers. Lower financing costs due to the improved governance and increased transparency of a company's ESG performance creating lower perceived risks to lenders and investors. According to Freeman (1984), Stakeholder Theory suggests that ESG performance will result in better financial performance; however, this is expected to

occur over the long term and will likely depend upon the level of credibility and the quality of ESG performance implementation.

3.4 Legitimacy, Institutional Pressures, and Mandatory CSR in India

CSR effects cannot be assessed in isolation of national institutions. India presents an especially interesting case since CSR is affected by mandatory requirements established by Section 135 of the Companies Act (Government of India, 2013). Under mandatory CSR, companies are required to dedicate some portion of their resources towards CSR-related activities and report their expenditures and initiatives. In doing so, CSR transitions from being discretionary to being partially compliant based.

The institutional environment in India impacts the CSR-performance relationship in two significant ways:

CSR as compliance vs strategy: If companies consider CSR as merely a requirement of compliance, CSR is likely to be implemented in a "check-the-box" manner. As such, companies with higher CSR/ESG ratings are unlikely to experience enhanced financial outcomes because the expenditures did not result in improved productivity, competitiveness, or stakeholder trust.

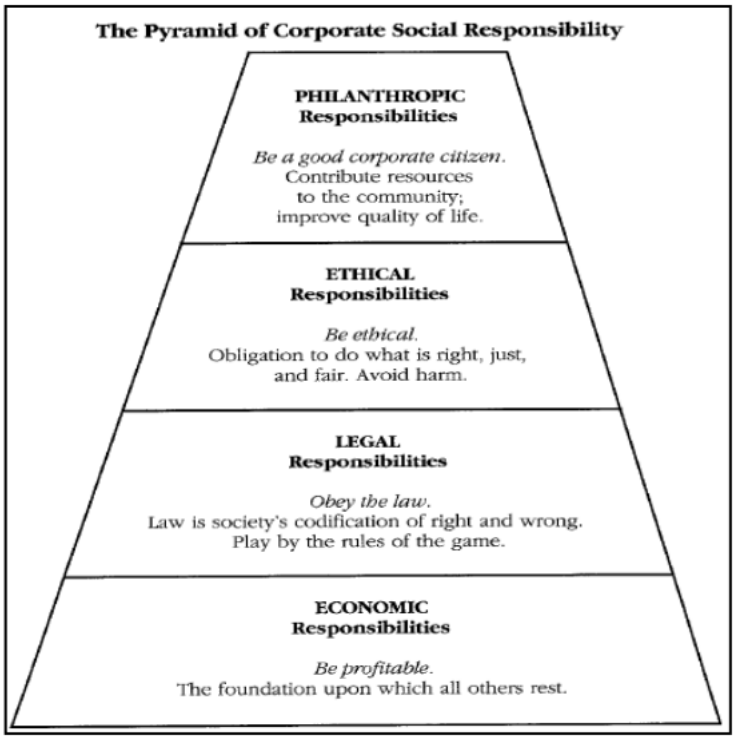
Legitimacy and reputation impacts: Mandatory CSR brings an increased level of scrutiny and expectations on the part of the people and regulators. Companies that can demonstrate credible CSR initiatives and maintain high-quality ESG disclosure can reap rewards through enhanced legitimacy amongst regulatory bodies, investors, and customers. As such, ESG performance may reflect a company's ability to manage institutional expectations and public accountability in India.

As such, in the Indian setting, it is not only the presence of CSR expenditures that matter; the quality, credibility, and transparency of ESG performance may be the critical determinant that distinguishes companies.

3.5 Carroll's CSR Pyramid and Strategic Integration

Carroll's (1991) CSR pyramid represents a structured approach to conceptualizing CSR as consisting of four primary components: economic, legal, ethical, and philanthropic. The economic component represents the necessity for companies to be profitable. The legal component represents compliance with laws and regulations — as is the case in India, because of Section 135 CSR provisions (Government of India, 2013). The ethical component represents fair and responsible behaviours that exceed those mandated by law. The philanthropic component represents voluntary contributions to social welfare. Carroll's model implies that CSR is not antagonistic to profitability. Rather, CSR can reinforce company strategy through enhancing legitimacy and stakeholder relationships. CSR is most likely to enhance financial performance when CSR is strategically integrated into the company's core operations and governance processes rather than being viewed as a separate or symbolic expense (Carroll, 1991).

Figure 1. Carroll's pyramid (Carroll A. B., 1991)



3.6 The Triple Bottom Line and ESG as Multidimensional Performance Signals

The TBL framework advocates that companies create sustainable value by achieving balanced outcomes with respect to the three bottom lines: economic, social, and environmental (Elkington, 1997). As such, the TBL framework is aligned with contemporary ESG measurement. According to the TBL framework, ESG improvements can help support long-term economic performance by reducing risks, promoting resource efficiency, and building stakeholder trust. Examples include:

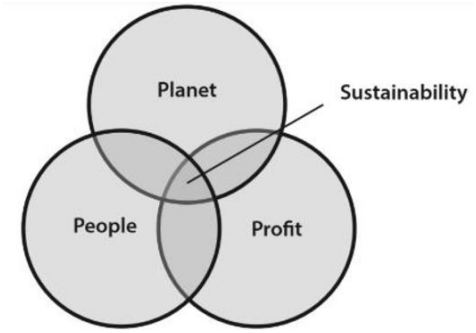
Environmental initiatives may reduce energy and waste costs and reduce the likelihood of regulatory fines.

Social initiatives may improve employee retention, employee productivity, and customer satisfaction.

Governance improvements may improve transparency, reduce the likelihood of fraudulent activity, and enhance investor confidence.

Thus, composite scores across each of the three dimensions (i.e., environmental, social, and governance) will serve as proxies for their respective filters in the preliminary analyses, and individual filters for the three ESG components will be used for robustness checks later.

Figure 2. Triple bottom line (Elkington, 1997)



3.7 Categorization of CSR Theories and Why Empirical Results Vary

Garriga and Melé (2004) categorized CSR theories into instrumental, political, integrative, and ethical views. This classification aids in understanding why empirical evidence often indicates an inconsistent CSR -- performance relationship across contexts and studies. Instrumental views believe that CSR has value only if it enhances competitive performance.

Political views argue that corporations have a great deal of power and that corporate responsibility exists within society.

Integrative views advocate that CSR is achieved when corporate behaviour is consistent with societal expectations, and as such, is closely aligned with legitimacy. Ethical views argue that CSR is a moral obligation, regardless of the financial implications.

India's CSR environment includes both political and integrative aspects as CSR is institutionalized and subject to public monitoring (Government of India, 2013). Therefore, ESG performance may indicate a company's ability to meet both stakeholder expectations and regulatory pressures.

3.8 Theoretical Mechanisms That Explain the Relationship Between ESG and ROA and MBR

This study examines two types of financial performance: accounting-based (ROA) and market-based (MBR). The relationship between ESG and these measures may differ, as they measure different economic realities.

3.8.1 ESG and ROA (Accounting-Based Performance)

ROA represents operating efficiency and profitability per dollar of assets. ESG can positively impact ROA through: Reduced operational risks, Improved human capital and

productivity, Increased operational stability and reduced supply chain disruptions, Enhanced stakeholder cooperation.

But short-term costs (i.e., systems, reporting, compliance, program spending) can also be incurred in CSR initiatives. As such, if CSR investments do not result in improved operating outcomes, ROA may show little or no effect — particularly in the short term.

3.8.2 ESG and MBR (Market-Based Performance)

MBR represents market expectations regarding future growth and risk. ESG performance can positively affect valuation if investors perceive ESG as: a signal of better governance and reduced long-term risk, an indication of stronger brand and long-term competitiveness, an indicator of sustainable growth and resilience.

On the contrary, when markets perceive CSR as a compliance or a token gesture (especially when forced by a mandatory regime) ESG could not enjoy high valuation. Credibility and investor perceptions, in this case, are likely to be influential in the relationship between ESG and MBR.

3.9. Hypotheses

Theoretical views explored in this chapter provide a rationale to conclude that the relationship between firm Environmental, Social and Governance (ESG) performance and the firm's financial performance is both complicated versus one-dimensional. From a shareholder viewpoint, ESG related initiatives may create additional expenses for the firm from compliance requirements, reporting, and sustainability investments. These expenses could result in lower profit margins if they do not create corresponding economic benefits (Friedman, 1970). Prior studies have also supported the theory that observed relationships between Corporate Social Responsibility (CSR) and Financial

Performance may at times be due to Model Specification errors, as opposed to a definitive causal relationship (McWilliams & Siegel, 2000).

On the other hand, stakeholder based and Strategic CSR theories provide evidence that higher levels of ESG performance will create greater financial returns for the firm. Stakeholder based theories support that a better relationship with key stakeholders will enhance the firm's financial returns. Stakeholder based theories also indicate that ESG related practices will strengthen the firm's legitimacy, reduce operational and regulatory risks and create long term economic value (Freeman, 1984; Carroll, 1991; Elkington, 1997). In this context, ESG related initiatives are not just costs of compliance, they may be considered long term strategic investments that increase the firm's resilience, reputation, and competitive advantage (Freeman, 1984; Carroll, 1991; Elkington, 1997). Previous empirical research has shown frequent positive associations between corporate social responsibility and financial performance, however the strength and direction of these associations have been dependent upon the Institutional Context, Measurement Choices, and Model Specification used (Orlitzky et al., 2003).

These differing arguments are particularly applicable within the Indian setting. Mandatory CSR is provided under Section 135 of the Companies Act, therefore while it is not fully voluntary for eligible companies, it is partially driven by mandatory regulations (Government of India, 2013). As such, India represents an interesting case study of whether ESG performance indicates the true strategic alignment of the company, or if it is simply a response to compliance requirements. While mandatory CSR may diminish the signalling ability of ESG in certain contexts, the majority of stakeholder and legitimacy-based arguments presented in this chapter suggest that superior ESG performance would be generally positively associated with superior firm performance.
Financial performance was evaluated using two complementary measures: Return on Assets (ROA), which captures accounting-based profitability; and Market-to-Book Ratio (MBR), which captures market-based valuation. Since these measures capture different aspects of performance, separate hypothesis was formed for each measure.

Therefore, the study posits the following hypotheses:

H1: There is a positive association between higher levels of ESG performance and Accounting-Based Financial Performance (ROA).
H2: There is a positive association between higher levels of ESG performance and Market-Based Financial Performance (MBR).

The empirical hypotheses were tested using a fixed-effects panel regression model with firm and year effects as outlined in Chapter 5. The empirical analysis was conducted using a one-year lagged ESG measure in addition to other robust specifications, including a two-year lagged ESG measure, three different disaggregated pillars of ESG, and a large firm subsample.

4. LITERATURE REVIEW

4.1 Background to the CSR- CFP Debate

The connection between corporate social responsibility (CSR) - operationalised in more recent studies as environmental, social and governance (ESG) indicators - and corporate financial performance (CFP) is one of the most thoroughly studied questions in business, finance and management literature in the last forty years. Regardless of this amount of investigation, the literature has failed to come to a consistent conclusion. Margolis and Walsh (2001), Orlitzky et al. (2003), and Friede et al. (2015) all point to the existence of a positive association as more likely than a negative one, but the strength, direction, and consistency of the association differ significantly across studies, contexts, and measures. Instead of indicating a determined empirical regularity, the CSRCFP relationship seems to be contingent on theoretical assumptions, methodological decisions, institutional context, and the manner, in which CSR and financial performance are measured (Galant and Cadez, 2017).

A portion of this conflict lies in the competing theoretical bases. In the shareholder viewpoint linked with Friedman (1970), CSR is the misplacement of firm resources to non-financial goals which yield no corresponding financial payback. In this perspective, an increase in ESG expenditure is predicted to decrease profitability, especially in competitive markets where companies cannot transfer compliance costs to consumers. Conversely, there is the stakeholder theory (Freeman, 1984), with its related good management hypothesis (Waddock & Graves, 1997), which holds that better managed firms overall, achieved via better stakeholder relationships, improved governance and more responsible environmental and social practices, are more likely to achieve superior long term financial results. According to this perspective, ESG performance is not an expense, but an indicator of organisational quality and strategic discipline.

The empirical record is associated with these rival theoretical predictions. There are results of some studies in which the positive associations are consistent, others in which

the results are null or negative, and a growing body of literature indicates that the results might be non-linear, context-specific or an artefact of methodological decisions, rather than a causal phenomenon. To comprehend the variation in findings, it is important to understand what studies find, but how they arrive at the findings- this is a key point that puts the current study into context.

4.2 Studies Reporting Positive Relationships

A large part of the CSR-CFP literature has documented positive relationships, and this has been confirmed by multiple large meta-analyses. A synthesis of 52 studies by Orlitzky et al. (2003) revealed that there was a positive correlation between CSR and financial performance which was generalised indicating that the association is stronger between accounting-based measures compared to market-based. In a broader and more comprehensive review of evidence (over 2,000 empirical studies), Friede et al. (2015) also found that the weight of evidence supported a positive relationship, especially in the long term. These meta-analytic results are often quoted as the business case of ESG investment.

But these generalisations should be interpreted with care. Meta-analyses combine the findings of studies which vary considerably regarding sample composition, country setting, time frame, definition of CSR, and estimation procedure. An overall positive result can thus conceal a lot of heterogeneity. Specifically, as explained in Section 4.4, a disproportionate number of studies that are reporting positive associations are based on cross-sectional or pooled OLS designs which are predisposed to omitted variable bias (McWilliams and Siegel, 2000). In the event that the financial outperformance of firms with better underlying characteristics can be attributed to ESG activity is also the result of OLS estimates when both firms are more profitable (as well as more likely to invest in CSR) and have better underlying characteristics (in terms of strong management, established brands, access to capital, etc.) where there is no causal relationship between these factors.

Finer grained studies have tried to determine the most financially relevant dimensions of CSR. According to Edmans (2011), long-run equity returns were positively related to the social aspect of ESG, which is employee satisfaction, indicating that human capital practices can be financial over the long-term. According to Guenster et al. (2011), corporate eco-efficiency positively correlated with market valuation, which is in line with the opinion that environmental performance can lower regulatory risks and operational expenses. These findings are informative, yet they also point to a significant drawback of composite ESG scores: combining across dimensions with diverse financial implications can mask pillar-level effects that are not reflected in the composite (Kotsantonis et al., 2016). This issue is the driving force behind the pillar-level robustness analysis that is performed in the current research.

4.3 Studies Reporting Insignificant, Negative, or Non-linear Relationships

There is a parallel body of literature that questions that CSR is a guaranteed way of boosting financial performance. McWilliams and Siegel (2000) established that the seemingly positive correlation between CSR and CFP is statistically meaningless when R&D intensity, which is a variable that is correlated with both CSR involvement and financial performance is added as a control. The methodological relevance of their criticism is in the fact that it argues that most of the positive results in the literature could be due to omitted variable bias and not to a real effect of CSR. This point holds in the current study as not all the sample firms have complete data on R&D intensity, which is a limitation highlighted in Section 5.6.

Weak or negative associations have also been reported in studies undertaken in the context of sector or country. Atan et al. (2018) have found weakly significant associations between CSR and financial performance among Malaysian listed companies, whereas Soana (2011) did not find significant relationships between CSR and financial performance in the financial sector. These findings do not necessarily conflict with the positive literature, but instead they show that the financial reward of CSR is not

consistent and can be determined by the extent to which the stakeholders proactively reward responsible conduct, the vigour of institutional enforcement, and the competitive nature of the market in which such practices are involved.

The other complication is that the linkage between CSR and financial performance might not be linear. One of the earliest to suggest a curvilinear effect was Barnett and Salomon (2006), who argued that early CSR investment will have net costs that lower short-run profitability and eventually have reputational and relational benefits that enhance long-run financial returns. This non-linear trend has been further empirically supported by later work. In their study of the CSR financial performance relationship in a variety of industries, through a disaggregated approach, Nollet et al. (2016) determined that moderate levels of CSR engagement were linked to the best financial performance, with both very low and very high levels of CSR spending showing relatively weak results - an inverted U-shaped relationship. Collectively, these results have indicated that research whose observation periods are brief might only obtain the cost stage of the CSR investment cycle and yield null or negative results that do not always imply the lack of long-term value-generation. The given temporal argument is directly applicable to the current research, in which the observation window is six years long, and one- and two-year lagged ESG specifications are used. When the financial payoff of ESG-related activities is not realised in the space of two years, the current empirical design can be designed in a way that it cannot identify such payoffs even when they are present.

4.4 Methodological Differences in Prior Studies

Systematic variation in empirical methodology is one of the main causes of inconsistency in the CSR-CFP literature. The decision to use estimation technique is not a simply technical one; it carries with it substantive consequences regarding the likelihood of, and the magnitude of, finding a CSR–CFP relationship. A general tendency can be identified in the literature: the size of the CSR coefficient and its statistical significance only decrease with the rigour of the identification strategy.

Initial research was based on cross-sectional OLS or pooled regressions studies. Although they are easy to apply, these methods are especially susceptible to omitted variable bias and reverse causality. In cases where firms with better underlying attributes - quality of management, brand equity, ability to innovate - are both more profitable and more apt to invest in CSR, conflation of the effect of ESG and the effect of underlying firm quality arises in OLS estimates. Empirically, McWilliams and Siegel (2000) demonstrated that the introduction of relevant controls significantly decreases or removes the estimated CSR impact, and they speculated that a part of the positive correlations found in previous literature can be due to the misspecification of the model, not necessarily to causality.

The methodological development with the introduction of panel data techniques and, more specifically, fixed effects (FE) estimation was a significant development. Fixed-effects models minimize the omitted variable bias that plagues cross-sectional designs by exploiting within-firm variation across time, and by controlling time-invariant unobserved heterogeneity - e.g., corporate culture, ownership structure, or entrenched managerial quality. Empirically, the fixed-effect model generally produces smaller or insignificant coefficients of ESG as compared to OLS (Galant and Cadez, 2017), which is consistent with the explanation that a part of positive OLS results is due to the cross-sectional heterogeneity of firms rather than due to causal ESG impact.

Identification issues are not however solved by fixed-effects estimation. A possible source of bias is time-varying omitted variables, or factors that vary with time and impact on both the ESG performance and financial outcomes simultaneously. To be more precise, a group of studies has utilised instrumental variable (IV) techniques, difference-in-differences (DiD) designs, and system generalised method of moments (GMM) estimators.

IV methods aim to isolate exogenous variation in CSR by determining instruments - variables that are related to ESG performance and are not related to the error term in

the financial performance equation. Although the method is conceptually attractive, the validity of the IV estimates is critically based on the strength and exogeneity of the selected instrument, which is challenging to meet and measure in CSR studies, where valid instruments are not easily found. The invalid or weak instruments may give biased and inconsistent estimates which restrict the empirical application of this method in most empirical studies.

DiD designs are more appropriate in the context of an environment where a treatment or policy intervention forms a natural experiment, which will result in the formation of treatment and control groups, the trends in which their pre-treatment responses can be compared. This approach has been exploited in the Indian context with Section 135 of the Companies Act (2013) being used by both Dharmapala and Khanna (2018) and Jadiyappa et al., (2024) to determine causal impacts of the mandatory CSR threshold on corporate financial policy. In this context, the identification of DiD designs is more transparent than the OLS or IV but is still based on the parallel trends assumption and only captures short- to medium-term effects, which is not necessarily indicative of the implication of sustained ESG investment.

The system GMM estimators proposed by Arellano and Bover (1995) and Blundell and Bond (1998) are especially useful in dynamic panel models where there is a lagged dependent variable and simultaneity issues. GMM can cope with the feedback between CSR and financial performance by employing the internal instruments that are made of lagged levels and of difference of the endogenous variables. This method is used by Dwibedi et al. (2024), who present the results based on the Indian context, which is not comparable to less complicated fixed-effects specifications, and reflect the sensitivity of the results to the method of estimation. Nevertheless, GMM estimations are prone to instrument proliferation and model specification, and in short panels with moderate sample sizes, like the current study, 98 firms over a six-year period, GMM may generate unreliable estimations, because of weak instruments and overfitting (Wooldridge, 2010).

Combined, the methodological literature suggests a rather large and consistent trend: the estimated ESG effects are larger in less rigorous designs and smaller or non-existent in more rigorous designs. The current research takes a fixed-effects panel model, which is the least common source of bias in this literature - time-invariant unobserved heterogeneity - although the methodology is unable to overcome endogeneity due to time-varying confounders. The reason to use fixed effects instead of GMM is the short length of the panel and medium size of the sample, which under such circumstances, the proliferation of the GMM instruments is a feasible issue. The estimated coefficients are to be accordingly construed to reflect conditional within-firm relationship as opposed to causal effects.

4.5 Measurement Issues in ESG Research

Measurement is a second significant source of discrepancy in the literature. The proxies of CSR and ESG have been operationalised with a broad range of disclosure indices, reputation rankings, content analysis and commercial rating systems (Galant and Cadez, 2017). Such actions cannot be substituted. They both represent the other aspect of corporate conduct, and both possess their own strengths and weaknesses.

This question concerns the case of Refinitiv ESG scores. Even though these scores are appealing as they deliver standardized and comparable firm-level data, they are mostly constructed based on publicly available disclosures (Refinitiv, 2020). This implies that they can capture not only substantive sustainability performance but also the quality, completeness and level of sophistication of corporate reporting. This poses a significant measurement error issue. When the ESG variable fails to measure substantive CSR performance, then the estimated relationships with CFP might be weakened or misstated. Classical measurement error in statistical terms is biased to zero.

4.6 Evidence from Emerging Markets and India

Historically, the CSR-CFP literature has been biased towards developed market studies, specifically the United States and Western Europe. Emerging markets evidence is relatively scarce, and the results are less uniform, as the institutional settings, regulatory environment as well as capital market conditions tend to be more heterogeneous in the emerging markets (Galant and Cadez, 2017).

India is a rather important and analytically special case in the new market literature. India became the first leading economy to require its companies to spend on CSR when Section 135 of the Companies Act (2013) came into force, and this radically changed the nature of corporate social responsibility as an optional act of philanthropy into a compulsory duty (Government of India, 2013). This shift has both practical and interpretive consequences on the ESG research. In practice, it implies that a significant percentage of Indian listed companies must by law participate in CSR and report their spending and efforts, providing a minimum on CSR participation that does not exist in voluntary contexts. Interpretively, it poses a query of whether the ESG scores in this environment indicate the actual strategic sustainability commitment or the compliance with regulations and adequacy of reporting.

In a study by Dharmapala and Khanna (2018) the authors investigated the causal impact of the Section 135 mandate by regression discontinuity design and concluded that the regulation caused an adjustment in the corporate financial policy, such as cash holding reduction and investment behaviour change, in companies with a CSR spending threshold exceeding the requirement. Their results indicate that compulsory CSR provisions have an impact on firm behaviour, albeit not always in a manner that enhances financial performance. Similar results were obtained by Jadiyappa et al. (2024), who concluded that the mandatory CSR regulation had an impact on corporate financing decisions, especially by firms with limited access to capital, indicating that the financial impact of mandatory CSR might have been facilitated by other channels than the stakeholder value creation mechanisms highlighted in the voluntary CSR literature.

Dwibedi et al. (2024) explicitly test the relationship between ESG and CFP of Indian listed companies based on a system GMM model and find that the relationship is mixed across the dimensions of ESG, with the governance-related aspects showing more consistent results in terms of their association with firm value than environmental or social dimensions. Their results have informative value but cannot be directly compared to the current study because of a different scheme of samples, time frame, and method of estimation. Taken collectively, the Indian empirical evidence has not been conclusive, and no agreement has been reached on whether the ESG performance is financially material in the context of a required CSR that India represents.

4.7 Research gap and positioning of the present study

As noted in the review above, the lack of consensus in the CSR-CFP literature cannot be ascribed to any source. Rather, it is indicative of a mix of theoretical ambiguity, methodological heterogeneity, measurement constraints, and institutional variance. Against this larger backdrop, the current research sits on a particular and under researched question: is the ESGCFP relationship still discernible in an institutional setting where the informational content of ESG scores can be systematically watered down by compliance and disclosure pressures?

The question is different than the general emergence market contribution of the implementation of existing methods in the new country environment with new information. The analysis contribution is that the mandatory regime of CSR in India is not just a situational attribute but a source of interpretive ambiguity regarding the nature of ESG scores. Within a voluntary context, a company with a high score on ESG has presumably undertaken strategic investments in sustainability that are not required by regulations, and the financial implications of that investment, whether positive, neutral or negative are what the ESG-CFP literature seeks to determine. Within a compulsory environment, though, a high ESG score can be a sign of advanced

compliance management, broad disclosure ability or reputational signalling to regulators, but not of operational sustainability. In such an eventuality one should anticipate the estimated relationship between ESG and financial performance in a mandatory CSR environment to be different than that in voluntary ones - perhaps weaker, noisier, and statistically non-significant even if actual sustainability performance is financially material in theory.

The current study is a test of this hypothesis based on a balanced panel of 98 non-financial companies in the Nifty 500 Index between 2018 and 2024 estimated using a fixed-effects panel regression with firm and year effects. It can be analysed using both accounting-based (ROA) and market-based (MBR) performance measures to determine whether any of the ESG effects may be working in an operational channel or through investor perception. The extra robustness tests two-year lagged ESG, ESG pillar scores, and a large-firm subsample enable evaluation of the sensitivity of results to lag structure, ESG aggregation, or heterogeneity in firm size.

The study will add to the literature not by asserting that ESG does not overall affect the performance of firms, but by offering evidence that under a regulated CSR context, the ESG and financial performance nexus is more difficult to find using commercially available disclosure-based ESG ratings. These findings have implications for how ESG–CFP research is interpreted in mandatory CSR contexts and suggest that future empirical work in similar institutional settings should carefully consider the informational content of commercially available ESG ratings.

5. DATA AND METHODOLOGY

5.1 Sample and Data Collection

This study investigates the relationship between corporate social responsibility (CSR), represented through environmental, social & governance (ESG) performance, and the financial outcomes of publicly listed non-financial companies in India. A sample size of companies was selected from the Nifty 500 Index, which is a broad indicator of the overall Indian Stock Market. The Nifty 500 Index also represents a solid base on which to test the financial materiality of ESG in one of the world's largest emerging markets. Financial Institutions were specifically removed from the final sample due to differences in Capital Requirements, Accounting Practices and Regulatory Environments as compared to non-financial Entities. This removal would have distorted the comparison among the remaining firms if included.

The primary dataset covers a seven-year time frame from 2018 to 2024. Initially, it had 686 Firm Year Observations based on 98 separate firms. Following the data construction process, the dataset takes the form of a balanced panel. Since the empirical model uses a lagged structure to more accurately reflect the impact of sustainability initiatives on future financial performance, the efficient estimation period across models is different. The major one-year lag model applies to 588 firm-years of 2019-2024, and aligns the ESG performance of year t-1 to the financial performance of year t. Also, there are robustness tests with a two-year lag model 2020-2024 including 490 observations and specific ESG pillar models to analyse single environmental, social, and governance sub-scores.

The fact that India is chosen as the object of this research has an analytic significance since it presents a unique institutional environment where CSR is not completely voluntary. The Companies Act of 2013 provides that under Section 135, qualifying firms must engage in CSR-related activities, and therefore, India is an appropriate context in which to consider whether or not ESG performance has the same economic connotation in a mandatory CSR environment as it has in more voluntary settings (Government of

India, 2013; Dharmapala and Khanna, 2018). In this environment, ESG scores can indicate not just real sustainability initiatives, but also compliance requirements and disclosure benefits. This renders India a good place to investigate whether ESG remains linked to financial performance of firms under a controlled CSR regime.

Financial and market-based variables were obtained from LSEG, formerly Refinitiv DataStream, while ESG measures were collected from Refinitiv ESG. Refinitiv ESG scores are widely used in empirical finance because they provide standardized and comparable firm-level indicators across time (Refinitiv, 2020). However, because these scores are constructed primarily from publicly available disclosures, they may reflect disclosure quality and reporting capacity in addition to underlying sustainability performance (Galant & Cadez, 2017; Refinitiv, 2020). This issue is particularly relevant in the Indian context, where mandatory CSR and reporting requirements may influence corporate disclosure behaviour. To reduce the influence of extreme values, all continuous variables were winsorized at the 1st and 99th percentiles.

Table 1: Industry Composition of the Sample

Industry	Number of Firms	Percentage
Construction and Materials	11	11.22
Oil, Gas and Coal	9	9.18
Industrial Metals and Mining	8	8.16
Pharmaceuticals and Biotechnology	8	8.16
Automobiles and Parts	7	7.14
Software and Computer Services	6	6.12
Electricity	6	6.12
General Industrials	4	4.08
Personal Care, Drug and Grocery Stores	4	4.08
Industrial Transportation	4	4.08
Food Producers	3	3.06
Telecommunications Service Providers	3	3.06
Personal Goods	3	3.06
Leisure Goods	3	3.06
Industrial Engineering	3	3.06
Beverages	2	2.04
Chemicals	2	2.04
Travel and Leisure	2	2.04
Electronic and Electrical Equipment	2	2.04
Household Goods and Home Construction	1	1.02
Health Care Providers	1	1.02
Gas, Water and Multi-utilities	1	1.02
Media	1	1.02
Retailers	1	1.02
Real Estate Investment and Services	1	1.02
Real Estate	1	1.02
Tobacco	1	1.02
Total	**98**	**100**

Notes: This table reports the distribution of firms across industries in the full sample. The sample consists of 98 publicly listed non-financial firms.

5.2 Variable Definitions

5.2.1 Dependent Variables – Corporate Financial Performance Measures

Corporate financial performance (CFP) is measured using two complementary indicators: one accounting-based measure and one market-based measure. Using both indicators is important because ESG performance may affect firms through different channels. The accounting-based measure captures internal profitability and operating efficiency, whereas the market-based measure captures investor perceptions and external valuation. Return on Assets (ROA) was used as an accounting-based performance measure. It calculates the net income to total assets ratio. ROA represents the degree of proficiency with which a company uses all its resources to generate profit.

ROA also presents a snapshot of a company's past profitability. Thus, it gives an idea about a company's ability to utilize resources effectively and make effective internal management decisions. With reference to the theoretical background of this study, ROA will be used to find out if companies with high quality sustainability can achieve greater operating efficiencies than other companies, e.g., increased productiveness of resources or lower waste related cost.

$$ROA_{i,t} = \frac{Net\ Income_{i,t}}{Total\ Assets_{i,t}}$$

Market-to-book ratio (MBR) will be used as a market-based indicator of firm value. Accounting based measures are typically backward looking. Therefore, MBR assesses the market's prospective view of a company compared to its book value. Furthermore, this ratio shows investors' general expectations of future development opportunities, systemic risk reduction, and long-term competitiveness. A higher MBR indicates that investors perceive a company's non-financial sustainability activities (e.g., strong corporate governance and reputation building) as credible contributors to future resilience and sustainable value generation. This study integrates both ROA and MBR to take account of the different ways in which ESG performance may have positive

economic effects. ROA examines the influence of CSR on the "bottom line" via operational paths. However, MBR demonstrates the signalling effect of CSR on investor confidence and market sentiment. Using a complete strategy of measurements (both realized financial success and expected future value) for assessing the influence of India's mandatory CSR-regime enables this study to demonstrate the financial success and future value potentialities of CSR in India.

$$MBR_{i,t} = \frac{Market\ Capitalization_{i,t}}{Book\ Value\ of\ Equity_{i,t}}$$

5.2.2 Independent Variables: CSR Performance

The composite environmental, social and governance (ESG) score was used by this research as the primary independent variable. The composite ESG score has been used in previous studies as a quantifiable proxy for companies' commitments to socially responsible business practices. The use of a composite measure provides an opportunity to operationalize abstract CSR concepts into measurable indicators that can be analysed using statistical methods. ESG scores were obtained from Refinitiv ESG, which uses a scoring system of 0-100, where the ESG score reflects how well a company performs according to hundreds of separate data points disclosed via public disclosure. Using composite measures aligns with the conceptual view of CSR as a total or comprehensive approach to sustainable business strategies versus the sum of its component parts.

The main specification uses a one-year lagged ESG variable, denoted as $ESG_{i,t-1}$. This lag structure is adopted for two reasons. First, the financial effects of sustainability-related activities may take time to appear in firm outcomes, rather than emerging immediately. Second, lagging the ESG variable helps reduce simultaneity concerns, since current financial performance may also influence current ESG performance. This approach is consistent with established empirical practice in the CSR–CFP literature.

To make the empirical design so robust, the research uses two other specifications of the independent variable. To examine the possibility of financial effects of social responsibility to be more affected over a longer horizon, first, a two-year lagged ESG score $ESG_{i,t}$ is used. Second, the composite score is disaggregated into its three foundational pillars: the environmental ($ENV_{i,t-1}$), social ($SOC_{i,t-1}$,) and governance ($GOV_{i,t-1}$) scores. The disaggregate analysis is important because composite ratings may conceal divergent impacts on the individual dimensions within them. For example, while an improvement in governance has the potential to produce instant value, an environmental investment has the potential to produce value over a longer time frame. As a result, the analysis that will be subjected to evaluation within the current study will allow for a more comprehensive understanding of interactions between the different dimensions of ESG performance and their related financial outcomes, particularly under the mandatory CSR (corporate social responsibility) framework in India's economy.

5.2.3 Control Variables

To better isolate the relationship between ESG performance and corporate financial performance, the regression models include a set of firm-level control variables. These controls are included to reduce omitted variable bias by accounting for firm characteristics that may independently influence profitability and market valuation.

The following are the principal control variables that have been used in this study:
Firm Size (LN_ASSET) is Operationalized as the natural logarithm of total assets; this variable controls for size differences related to organizational scale and differences in resource availability. Larger firms are more likely to enjoy economies of scale (cost reductions due to their larger size) and have greater organizational capacity hence may exhibit superior financial results and greater levels of ESG participation than smaller firms.

$$LN\_ASSET_{i,t} = \ln(Total\ Assets_{i,t})$$

LEVERAGE is total debt divided by total assets and represents a firm's capital structure, i.e., its financial risk. LEVERAGE is needed for controls because the financing decisions and debt obligations affect the firm's profitability and the way which the market perceives its risk profile.

$$LEVERAGE_{i,t} = \frac{Total\ Debt_{i,t}}{Total\ Assets_{i,t}}$$

ASSET TURNOVER is measured by the ratio of net sales to total assets and is an indicator of how efficiently a firm is operating by using its asset base to generate revenue. Therefore, ASSET TURNOVER is fundamentally linked to the accounting profits earned by the firm.

$$ASSET\_TURNOVER_{i,t} = \frac{Sales_{i,t}}{Total\ Assets_{i,t}}$$

SALES GROWTH is defined as the annual percentage change in total revenue, which represents the degree of expansion of the firm and the level of demand for the firm's goods or services in the marketplace.

$$SALES\_GROWTH_{i,t} = \frac{Sales_{i,t} - Sales_{i,t-1}}{Sales_{i,t-1}}$$

Asset Growth (ASSET_GROWTH): This measure is defined as the annual change in the total value of the firm's assets and demonstrates the firm's level of investment and its overall growth and expansion as an organisation.

$$ASSET\_GROWTH_{i,t} = \frac{Total\ Assets_{i,t} - Total\ Assets_{i,t-1}}{Total\ Assets_{i,t-1}}$$

The inclusion of these growth-oriented control measures ensures that the estimated ESG coefficients do not inadvertently capture the effects of overall firm expansion. By adjusting for the opportunities for growth and the investment cycles, the model provides

a more accurate estimate of the relationship between ESG performance and financial success. In addition, the models include year fixed effects to control for macroeconomic shocks that might impact all companies in the sample during a given period.

5.3 Preliminary Diagnostic Tests

Before estimating the regression models, a set of preliminary diagnostic tests based on the primary one-year lag estimation sample was performed. Descriptive statistics were created to determine the distribution of the variables and Pearson correlation coefficients were determined to assess the linear relationship between the variables in pairs. The variance inflation factor (VIF) was determined on each explanatory variable to determine the possibility of multicollinearity with the other explanatory variables. These diagnostic tests will be discussed in further detail, and the results of the tests will be provided in the next chapter.

5.4 Econometric Methodology

The core empirical analysis of this study is conducted using fixed-effects (FE) panel regression models, incorporating both firm-specific and year-specific fixed effects This research design will be especially effective in the study of the CSR-financial performance relationship due to the possibility to control the unobservable firm-specific attributes that do not change over time but can both affect the ESG rating of a certain firm and its financial performance. Deep-rooted corporate culture, brand equity, the natural quality of management talent, etc. are usually hard to measure and are well represented by incorporating firm fixed effects (μ_i). This method essentially isolates the within-firm variation, which tests more strictly whether variations in sustainability performance of a company resulted in the similar variation in its financial performance.

In addition, year fixed effects (λ_t) are included to control for time-varying macroeconomic shocks and common external conditions that affect all firms each year.

This specification is more robust than pooled Ordinary Least Squares (OLS), which is more vulnerable to omitted variable bias. As argued by McWilliams and Siegel (2000), failure to account for unobserved time-invariant firm characteristics may lead to misspecification, causing the estimated ESG coefficient to reflect underlying firm quality rather than the effect of CSR itself.

To ensure the statistical validity of the findings, standard errors are clustered at the firm level. This is to take into consideration the possibility of heteroscedasticity and within-firm serial correlation which is very common in longitudinal data where data of the same company are recorded at multiple years. Through these stringent econometric methods, the research will have an assuring stable and plausible empirical base on which the resulting inferences on the financial materiality of ESG will be done.

5.4.1 Main Regression Models

The main empirical tests of the research are organized based on two different models. The initial equation measures the relationship between sustainability activities and internal accounting-based profitability (ROA), and the second measures the consequences of sustainability activities on market-based valuation (MBR). A one-year lag structure is estimated on the ESG variable to capture the potentially delayed financial effect of sustainability initiatives, and to allow the elimination of simultaneity issues.

Model 1: ESG and Accounting Profitability (ROA)

$$ROA_{i,t} = \alpha + \beta_1 ESG_{i,t-1} + \beta_2 LN\_ASSET_{i,t} + \beta_3 LEVERAGE_{i,t} + \beta_4 ASSET\_TURNOVER_{i,t} + \beta_5 SALES\_GROWTH_{i,t} + \beta_6 ASSET\_GROWTH_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

Model 2: ESG and Market-Based Firm Value (MBR)

$$MBR_{i,t} = \alpha + \beta_1 ESG_{i,t-1} + \beta_2 LN\_ASSET_{i,t} + \beta_3 LEVERAGE_{i,t} + \beta_4 ASSET\_TURNOVER_{i,t} + \beta_5 SALES\_GROWTH_{i,t} + \beta_6 ASSET\_GROWTH_{i,t} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

Variable Definitions:

$ROA_{i,t}$ = Return on Assets

$MBR_{i,t}$ = Market-to-Book Ratio

$ESG_{i,t-1}$ = One-year lagged ESG score

$LN\_ASSET_{i,t}$ = Firm size measured as the natural logarithm of total assets

$LEVERAGE_{i,t}$ = Total debt divided by total assets

$ASSET\_TURNOVER_{i,t}$ = Sales divided by total assets

$SALES\_GROWTH_{i,t}$ = Annual growth in sales

$ASSET\_GROWTH_{i,t}$ = Annual growth in total assets

μ_i = Firm fixed effects

λ_t = Year fixed effects

$\varepsilon_{i,t}$ = Error term

5.5 Robustness and Additional Analyses

To ensure the statistical reliability of the primary results and to address potential limitations in the baseline empirical specification, this study incorporates three distinct robustness and sensitivity analyses. These tests are developed to test the stability of the results in relation to the different lag structures, the degree of aggregation of variables, and firm specifics.

To begin with, two-year lagged ESG scores ($ESG_{i,t-2}$) are re-estimated on the main regression models. This robustness test is essential to investigate whether the financial impact of corporate social responsibility (CSR) initiatives requires a more extended developmental period to manifest in a firm's accounting profits or market valuation. The

correlation between social and financial performance, in most instances, as Brammer and Millington (2008) contend, is evolutionary in nature; hence, one year lag might not be adequate to reflect the extensive long-term benefits of the strategy.

Second, the composite ESG score is disaggregated into its three foundational components: the environmental ($ENV_{i,t-1}$), social ($SOC_{i,t-1}$), and governance ($GOV_{i,t-1}$) pillar scores. While the primary analysis adopts a holistic view of sustainability, this additional specification allows for the identification of potential dimension-specific effects. This is particularly relevant in the Indian context, where recent scholarship, such as the study by Dwibedi et al. (2024), suggests that governance-related factors may serve as more consistent drivers of firm value than environmental or social metrics. The analysis can identify whether individual dimensions of sustainability are financially significant even when the composite score is not statistically significant by substituting the aggregate score with its individual pillars.

Third, subsample analysis is carried out with large-cap firms considered. For the purposes of this test, firms are classified as "large" if their logged total assets are equal to or exceed the sample median. As a result of this analysis, it is established that the association of ESG performance and financial performance depends on the size and resources of a firm. Larger companies tend to have more organizational slack and internal resources and as such, it may allow them to better translate CSR activities into competitive advantages than their smaller counterparts.

All these extra tests are aimed at enhancing the rigor of the conclusions drawn in the study by alleviating the fears that the overall results could be conditional on a restricted lag structure, a certain measurement method, or a heterogeneous sample.

5.6 Estimation Strategy and Limitations

While the adoption of a fixed-effects (FE) framework provides a significant methodological advancement over pooled cross-sectional models, it is essential to acknowledge that this approach does not eliminate the risk of endogeneity. Even though inclusion of firm-level fixed effects (μ_i) is a successful method of controlling the unobservable and time-invariant variables like ingrained company culture, management talent, or structure of ownership, it cannot capture time-varying omitted variables that can simultaneously affect the sustainability performance of a firm and its financial performance. The coefficients obtained in the current research, therefore, can only be deemed as conditional intra-firm relationships, not a conclusive demonstration of a causal relationship.

One of the main constraints of this study is the ESG performance measurement. The construction of Refinitiv ESG scores mainly relies on publicly accessible disclosures and, consequently, they can capture the quality of disclosure and ability of a firm to report on its disclosures and not its underlying operational sustainability. This difference is especially relevant in the context of Indian institutions with Section 135 of the Companies Act (2013) requiring CSR activities of eligible companies. This may make high ESG scores under such a compulsory system reflect compliance-driven reporting - a box-ticking exercise - instead of active strategic behaviour, which can weaken the apparent correlation between ESG measures and financial prosperity.

Another implication of using disclosure-based ESG scores is classical measurement error, which biases estimated coefficients towards zero (attenuation bias). The extent of this bias varies with the strength of the ESG proxy - the ratio of true-score variance to observed-score variance. The empirical findings regarding the inter-rater disagreement among the leading providers of ESG indicators indicate that the correlation between ratings by various agencies is between 0.38 and 0.71, and the cross-study average is about 0.54 (Berg et al., 2022; Gibson et al., 2021). Classical attenuation theory would suggest that our estimated ESG coefficients would be biased with a 30 % decrease in the

real parameter under the assumption that Refinitiv scores are associated with a reliability of about 0.70. In practical terms, the minimum ROA coefficient of -0.027 would be the same true coefficient of say -0.039 assuming this level of reliability - a small difference, yet indicative that the null result is merely consistent with a small true effect that the current design is not able to measure. This cannot save a causal interpretation, but it does imply that the lack of statistical significance cannot be interpreted to indicate that ESG is non-existent in the performance of firms.

Also, the fixed-effects model only uses within-firm variation over time to estimate relationships. Since ESG scores usually change at a very gradual rate, the sample size considered in this research (2019-2024) might not be sufficiently long to offer a significant longitudinal change. This within-firm nonvolatility may lead to a decreasing likelihood in establishing statistically significant relationships, if there are economically significant differences across firms in a larger cross-sectional setting.

The selected methodology is the most suitable to the aim of this study despite these intrinsic constraints. The fixed-effects specification offers the required control of the time-invariant firm heterogeneity, and the rigorous control framework and the lagged variables guarantee a plausible estimation of the ESG-financial performance relationship in a regulated emerging-market context. Overall, the estimation plan adheres to the existing empirical research in the literature of corporate social responsibility (CSR) and financial performance which adopts panel-based designs and lagged explanatory variables to test the relationship between sustainability and the firm performance (Brammer and Millington, 2008; Wooldridge, 2010).

6. EMPIRICAL RESULTS AND DISCUSSION

This chapter presents the empirical results of the study. It first reports the descriptive statistics, correlation analysis, and multicollinearity diagnostics for the main estimation sample. It then presents the fixed-effects regression results for the main model, followed by the additional robustness analyses based on the two-year lag specification, the ESG pillar models, and the large-firm subsample.

6.1 Descriptive Statistics

Descriptive statistics of the main one-year lag estimation sample that includes 588 firm-year observations are reported in Table 2. The average value of the return on assets (ROA) is 9.327, and the standard deviation of 8.116. Its minimum and maximum, -26.840 and 95.340 respectively, show that there is a significant dispersion in the accounting profitability among firms and across time.

The mean market-to-book ratio (MBR) is equal to 8.145 with a relatively big standard deviation, 30.010. Its large variation, ranging between -33.770 and 631.770 indicates high dispersion of market-based valuation among the sample. This means that investor valuation of the value of firms vary significantly among firms over the period of the study. The standard deviation of the mean lagged ESG score is 15.583 and the mean lagged ESG score is 57.532. This implies that the average performance of the firms in the sample is moderate with regards to ESG performance, however, the values also display significant variation among firms and years. The lowest ESG score is 9.350 and the highest score is 92.230.

The control variables are firm size (LN_ASSET), leverage, and asset turnover, with mean values of 15.306, 0.219 and 0.855, respectively. The mean value of sales growth and asset growth is 0.083 and 0.069 respectively. Generally, the descriptive statistics reveal that there is adequate variability in the key variables to facilitate panel-data estimation.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min	Max
Return on Assets (ROA)	588	9.327	8.116	-26.840	95.340
Market-to-Book Ratio (MBR)	588	8.145	30.010	-33.770	631.770
Lagged ESG Score	588	57.532	15.583	9.350	92.230
Firm Size (Ln Assets)	588	15.306	1.350	12.151	19.139
Leverage	588	0.219	0.198	0.000	1.318
Asset Turnover	588	0.855	0.490	0.070	2.856
Sales Growth	588	0.083	0.188	-0.653	1.087
Asset Growth	588	0.069	0.202	-0.566	2.401

Notes: This table reports descriptive statistics for the main regression sample (N = 588). ROA is return on assets, MBR is market-to-book ratio, ESG_L1 is the one-year lagged ESG score, LN_ASSET is the natural logarithm of total assets, LEVERAGE is total debt divided by total assets, ASSET_TURNOVER is sales divided by total assets, and SALES_GROWTH and ASSET_GROWTH are expressed in decimal form.

6.2 Correlation Analysis and Multicollinearity Diagnostics

Table 3 shows the Pearson correlation table of the variables that are included in the main specification. The regression between the lagged ESG score and ROA is 0.116, which shows that ESG performance and accounting-based profitability have weak positive unconditional relationship. In comparison, the ESG_L1-MBR correlation is about zero, indicating that there is no substantial unconditional linear relationship between the lagged ESG performance and market-based valuation.

Among the control variables, ROA is positively correlated with asset turnover (0.419) and asset growth (0.271), while it is negatively correlated with firm size (-0.295) and leverage (-0.471). MBR exhibits only weak pairwise correlations with most explanatory variables. These coefficients provide only preliminary evidence, as they do not account for other covariates or unobserved firm-level heterogeneity.

The largest absolute correlation among the explanatory variables is between firm size and leverage (0.403). This does not, by itself, suggest a serious multicollinearity problem. To assess this issue more directly, Table 4 reports the variance inflation factor (VIF) values for the explanatory variables used in the main model.

All VIF values are low, ranging from 1.055 to 1.327. Firm size (1.327) and leverage (1.292) have the highest value. As all the values are significantly lower than the typically utilized thresholds, multicollinearity does not seem to be a critical issue in the analysis.

Table 3: Pearson Correlation Matrix

Variable	ROA	MBR	ESG(t-1)	LnAssets	Leverage	Turnover	SalesGr	AssetGr
ROA	1.0	0.138	0.116	-0.295	-0.471	0.419	0.107	0.271
MBR	0.138	1.0	-0.0	-0.134	-0.0	0.162	0.059	0.12
ESG(t-1)	0.116	-0.0	1.0	0.253	0.017	0.007	0.048	-0.005
LnAssets	-0.295	-0.134	0.253	1.0	0.403	-0.277	0.004	-0.022
Leverage	-0.471	-0.0	0.017	0.403	1.0	-0.336	0.026	-0.021
Turnover	0.419	0.162	0.007	-0.277	-0.336	1.0	0.14	-0.005
SalesGr	0.107	0.059	0.048	0.004	0.026	0.14	1.0	0.22
AssetGr	0.271	0.12	-0.005	-0.022	-0.021	-0.005	0.22	1.0

Notes: This table reports Pearson correlation coefficients for the main regression sample. ESG(t-1) denotes the one-year lagged ESG score, LnAssets is the natural logarithm of total assets, Turnover is asset turnover, SalesGr is sales growth, and AssetGr is asset growth.

Table 4: Variance Inflation Factor (VIF) Diagnostics

Variable	VIF
Lagged ESG Score	1.084
Firm Size (Ln Assets)	1.327
Leverage	1.292
Asset Turnover	1.195
Sales Growth	1.084
Asset Growth	1.055

Notes: This table reports variance inflation factor (VIF) values for the explanatory variables included in the main regression model. VIF values below 5 generally indicate that multicollinearity is not a serious concern.

6.3 Main Regression

The principal fixed-effects regression results are in Table 5. The model is given in Column 1 where ROA is the dependent variable and in Column 2 where MBR is the dependent variable. Both models have firm fixed effects, year fixed effects and firm-clustered standard errors. The coefficient of ROA model on one-year lagged ESG score is negative (-0.027) with a standard error of 0.020. The coefficient is not statistically significant, although it is negative. This indicates that once the firm-specific impacts, time impacts, and the firm-level controls included, the analysis does not reveal a statistically significant relationship between the lagged ESG performance and the accounting based-profitability.

In the MBR model, the coefficient on the lagged ESG score is -0.013, with a standard error of 0.064. This coefficient is also statistically insignificant. Thus, the main market-based specification likewise does not provide evidence of a statistically significant association between lagged ESG performance and firm valuation. Among the control variables, asset turnover is the only variable that is statistically significant in the ROA model. Its coefficient is 13.093 and it is significant at the 1 percent level. This indicates that higher operating efficiency is associated with higher accounting profitability within firms over time. By contrast, firm size, leverage, sales growth, and asset growth do not appear to be statistically significant in the ROA specification.

In the MBR model, none of the explanatory variables is statistically significant. This suggests that within-firm changes in market valuation are not strongly explained by lagged ESG performance or the included controls during the sample period.
The within $R^2$is 0.191 in the ROA model and 0.011 in the MBR model. This indicates that the specification explains a greater share of within-firm variation in accounting profitability than in market valuation. Overall, the main regression results do not provide

statistically significant support for a relationship between lagged ESG performance and either ROA or MBR.

Table 5: Main Fixed-Effects Regression Results

Variable	(1) ROA	(2) MBR
Lagged ESG Score	-0.027	-0.013
	(0.020)	(0.064)
Firm Size (Ln Assets)	0.555	3.837
	(2.208)	(5.511)
Leverage	4.601	-7.731
	(6.967)	(14.594)
Asset Turnover	13.093***	19.114
	(4.077)	(13.892)
Sales Growth	-1.109	1.411
	(2.407)	(3.744)
Asset Growth	11.288	15.911
	(6.894)	(18.913)
Observations	588	588
Within R^2	0.191	0.011
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Clustered SE (Firm)	Yes	Yes

Notes: This table reports firm fixed-effects panel regression results with year fixed effects. Standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

6.4 Robustness Results

6.4.1 Two-Year Lagged ESG Specification

The robustness test based on the two-year lagged ESG score is reported in Table 6. This specification is approximated to determine whether the financial effects of ESG performance are realized over a more extended period than the main model.

The coefficient of the two-year lagged ESG score in the ROA model is 0.016 with a standard error of 0.026. The relevant coefficient in the MBR model is -0.096, and the standard error of 0.118. The coefficients in both instances are not statistically significant.

These findings indicate that there is no significant difference in the primary findings between having the lag structure of one year and two years.

As in the baseline specification, asset turnover remains positive and statistically significant in the ROA model, with a coefficient of 13.302 at the 1 percent level. The remaining control variables do not appear to be statistically significant in either model. The within R^2 values of the ROA model and MBR model are 0.203 and 0.034 respectively. Although this explanatory power is a little bit less than the baseline models, the substantive conclusion is the same: the analysis does not find statistically significant results regarding the association between lagged ESG performance and either accounting profitability or market valuation during the sample period.

Table 6: Two-Year Lag Robustness

Variable	**(1) ROA**	**(2) MBR**
Lagged ESG Score (t-2)	0.016	-0.096
	(0.026)	(0.118)
Firm Size (Ln Assets)	0.619	3.163
	(2.798)	(10.013)
Leverage	2.668	-83.848
	(11.227)	(96.734)
Asset Turnover	13.302***	19.272
	(4.713)	(17.809)
Sales Growth	-1.354	-0.716
	(2.666)	(6.151)
Asset Growth	14.099	21.919
	(9.100)	(27.579)
Observations	490	490
Within R^2	0.203	0.034
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Clustered SE (Firm)	Yes	Yes

Notes: This table reports firm fixed-effects panel regression results with year fixed effects. Standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

6.4.2 ESG Pillar Models

Table 7 reports the results from the ESG pillar models, in which the composite ESG score is replaced by its environmental, social, and governance components. In the ROA model, the coefficients on the environmental, social, and governance scores are -0.001, -0.016, and -0.011, respectively. None of these coefficients is statistically significant. In the MBR model, the corresponding coefficients are -0.036, 0.038, and -0.010, and again none is statistically significant.

The results indicate that the pillar-specific relationships between the accounting-based profitability and the market valuation of the composite ESG score are not statistically significant when the score is disaggregated. That is, the lack of statistical significance in the baseline model does not seem to be caused by counteracting effects between the three ESG components.
As in the earlier specifications, asset turnover remains positively associated with ROA and is statistically significant at the 1 percent level. No control variable is statistically significant in the MBR model.

The within R^2values are 0.191 in the ROA model and 0.012 in the MBR model. Overall, the pillar-level analysis is consistent with the baseline finding that the study does not detect a statistically significant relationship between lagged ESG-related measures and firm financial performance.

Table 7: ESG Pillar Regression

Variable	(1) ROA	(2) MBR
Environmental Score (t-1)	-0.001	-0.036
	(0.017)	(0.092)
Social Score (t-1)	-0.016	0.038
	(0.019)	(0.038)
Governance Score (t-1)	-0.011	-0.010
	(0.018)	(0.052)
Firm Size (Ln Assets)	0.601	3.685
	(2.244)	(5.293)
Leverage	4.668	-7.851
	(7.015)	(13.659)
Asset Turnover	13.138***	18.889
	(4.118)	(14.300)
Sales Growth	-1.118	1.402
	(2.426)	(3.845)
Asset Growth	11.269	15.908
	(6.914)	(18.864)
Observations	588	588
Within R^2	0.191	0.012
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Clustered SE (Firm)	Yes	Yes

Notes: This table reports firm fixed-effects panel regression results with year fixed effects. Standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

6.4.3 Large-Firm Subsample Analysis

The results of the large-firm subsample are given in table 8. The analysis aims to determine the extent to which the ESG performance is correlated with the financial outcomes across firms with larger sizes of scale and resource capacity.

In the large-firm ROA model, the coefficient on the lagged ESG score is -0.059, with a standard error of 0.045. In the large-firm MBR model, the coefficient is -0.036, with a standard error of 0.196. Neither coefficient is statistically significant. This indicates that restricting the analysis to larger firms does not materially change the baseline result.
Most of the control variables also remain statistically insignificant in the large-firm subsample. The only exception is asset growth in the ROA model, which has a coefficient of 4.107 and is significant at the 10 percent level. This provides only weak evidence of a

positive association between asset expansion and accounting profitability among larger firms. Importantly, however, this does not change the main ESG-related conclusion.

The within R^2values of ROA model and the MBR model are 0.040 and 0.097 respectively. These values suggest a weak explanatory power in the large-firm subsample especially in the ROA model. The large-firm analysis when combined with the baseline findings does not contradict but promotes the strength of the findings.

The ROA model and MBR model have values of 0.040 and 0.097 respectively. These values suggest that the explanatory power is limited in the large-firm subsample, especially in the ROA model. Combined, the large-firm analysis helps to strengthen the findings given by the base but does not refute them.

Table 8: Large-Firm Subsample Regression

Variable	(1) ROA	(2) MBR
Lagged ESG Score	-0.059	-0.036
	(0.045)	(0.196)
Firm Size (Ln Assets)	-1.429	-20.997
	(4.016)	(37.416)
Leverage	3.000	-143.516
	(16.497)	(163.743)
Asset Turnover	0.205	54.353
	(5.272)	(55.113)
Sales Growth	2.523	-12.528
	(1.953)	(15.315)
Asset Growth	4.107*	47.634
	(2.251)	(62.835)
Observations	250	250
Within R²	0.04	0.097
Firm Fixed Effects	Yes	Yes
Year Fixed Effects	Yes	Yes
Clustered SE (Firm)	Yes	Yes

Notes: This table reports firm fixed-effects panel regression results with year fixed effects. Standard errors clustered at the firm level are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.10.

6.5 Interpretation of the Findings

Collectively, the empirical findings do not offer statistically significant support of a correlation between lagged ESG performance with either accounting-based profitability or market-based valuation of the sample of Indian non-financial firms. The conclusion is largely similar in all the one-year lag model, the two-year lag model, the ESG pillar regressions and the analysis of large-firm subsample.

The strongest result that is common to all the estimated models is the positive and statistically significant coefficient of asset turnover in the ROA regressions. This implies that operating efficiency is more strongly correlated with accounting profitability than the ESG performance in the years of observation. On the other hand, the market-based models have lower explanatory strength and none of the primary ESG variables are significant in those specifications.

These findings should be interpreted with caution. They do not imply that ESG is universally irrelevant to firm performance. Rather, they indicate that within this sample, over this period, and under the adopted empirical specification, the analysis does not identify statistically significant evidence of a relationship between lagged ESG performance and the selected financial performance measures.

One possible interpretation is that, in a mandatory CSR environment such as India, ESG scores may reflect compliance-oriented behaviour and disclosure practices as much as substantive sustainability performance. If so, the economic meaning of ESG may differ from that assumed in more voluntary institutional settings. A second possibility is that ESG-related benefits require a longer time horizon to influence financial outcomes than the present data allow. A third is that commercially available ESG scores may remain imperfect proxies for underlying sustainability quality, even when disaggregated into their individual pillars.

Another interpretative issue is the measurement error in the ESG variable. Refinitiv ESG scores are built mainly on publicly reported data, i.e., they reflect the quality of disclosure and reporting ability, and - or possibly absent - meaningful sustainability performance (Galant & Cadez, 2017; Refinitiv, 2020). This type of classical measurement error generates attenuation bias, resulting in biased estimated coefficients towards zero. With reasonable reliability assumptions based on inter-rater disagreement in the ESG rating literature (Berg et al., 2022), this attenuation would be as large as 25-35%, i.e. that true ESG coefficients of moderate size would be statistically invisible in a fixed effects design with the current sample dimension. In line with this, the null findings provided in this study can be statistically consistent with two different interpretations, one being that ESG performance truly exerts no short- to medium-term financial impact in this sample, and the other one is that the ESG variable is not a sufficient measure of the underlying construct it is supposed to be a proxy of. The current study is incapable of disentangling these two explanations, but this is a key direction that the future research should take.

In summary, the results of the regression analysis do not show a statistically significant relationship between lagged ESG performance and current ROA or current MBR for the sample of firms. The additional robustness tests did not change this conclusion.

7. CONCLUSION, LIMITATIONS & FUTURE RECOMMENDATIONS

7.1 Conclusion

This study analyzed whether ESG performance is associated with the financial performance of publicly listed non-financial firms in India. Using a balanced panel of 98 firms over the period 2018–2024, the analysis focused on two dimensions of firm performance: return on assets (ROA) as an accounting-based measure and market-to-book ratio (MBR) as a market-based measure. The empirical strategy was based on fixed-effects panel regression models with firm and year effects, while standard errors were clustered at the firm level. In addition to the main one-year lag specification, the study also estimated a two-year lag model, ESG pillar models, and a large-firm subsample model to test the robustness of the findings.

The main results do not provide statistically significant evidence of an association between lagged ESG performance and either accounting-based profitability or market-based firm valuation. The coefficient of the lagged composite ESG score was not statistically significant in the ROA and MBR regressions in the baseline models. This general finding was not substantially different in the further analysis. The two-year lag specification found no statistically significant effect of ESG, the individual scores of the three pillars of environment, social, and governance were statistically non-significant, and the big-firm subsample did not substantially change the overall pattern of results.

Meanwhile, the results show that certain traditional firm-level attributes are still useful in explaining financial performance. In both the main and robust specifications, the assets turnover was positively and statistically related to the ROA. This indicates that operational efficiency is directly related to accounting profitability compared to ESG performance during the sample period under this research. In comparison, the market-based models showed less overall explanatory power and none of the important ESG

variables were found to be statistically significant in explaining within-firm changes in market valuation.

The results should be interpreted carefully. They do not suggest that ESG is unimportant in all settings, nor do they imply that sustainability initiatives cannot create long-term value. Rather, the findings indicate that within the present sample, period, and empirical specification, no statistically significant relationship was detected between lagged ESG performance and the selected measures of financial performance. In this sense, the study contributes by showing that the ESG–financial performance relationship may be weaker or harder to detect in a regulated CSR environment such as India, where ESG scores may reflect compliance and disclosure incentives in addition to substantive sustainability performance.

More broadly, the study supports the view developed in the literature review that context matters. In a mandatory CSR regime, the economic meaning of ESG may differ from that assumed in studies based on more voluntary settings. As a result, the absence of statistically significant results should not be interpreted simply as evidence against the relevance of ESG, but rather as an indication that the relationship is more complex and may depend on institutional setting, time horizon, and measurement approach.

7.2 Limitations

There are several limitations that must be noted in the interpretation of the results of this study. To begin with, even though the fixed-effects framework provides a better solution compared to the pooled cross-sectional models due to its ability to control the confounding factors of the time-in varied firm characteristics, it does not address the issue of endogeneity completely. Even time-varying omitted variables can have an impact on ESG performance and financial performance. The estimated coefficients are, accordingly, to be taken as conditional within-firm relationships, but not as conclusive causes.

Second, the study relies on Refinitiv ESG scores as the main proxy for CSR performance. While these scores are widely used in empirical research, they are largely based on publicly disclosed information. This creates the possibility that the ESG measure captures reporting quality, disclosure practices, or compliance behavior in addition to underlying sustainability performance. This limitation is particularly relevant in the Indian context, where the regulatory environment may encourage firms to strengthen reporting in response to mandatory CSR requirements. As a result, ESG scores may not always fully reflect the substantive quality of a firm's sustainability practices. This study does not include sufficient data to accurately measure how much this effect decreases; however, the correlation data from previous studies (Berg et al., 2022; Gibson et al., 2021) suggests that commercial ESG score reliability is likely between 0.5 - 0.7. Thus, null results would indicate that they are uninformative about actual effects of ESG rather than providing evidence against them.

Third, the sample period may still be relatively short for evaluating the financial implications of ESG performance. Sustainability-related benefits may take longer to materialize than can be captured by one-year or even two-year lag structures. Some ESG investments may influence firm reputation, stakeholder trust, and strategic positioning

gradually rather than producing immediate effects on profitability or market value. This means that the present study may not fully capture longer-term financial consequences of ESG activity.

Fourth, the research is limited in its sample to publicly listed non-financial companies in India, although the data is augmented by extra controls and robustness tests. This enhances internal consistency, however, at the expense of generalizability of findings. They can be described as particular to this institutional and market context and not as generalizations about the ESG-financial performance relationship in every country and sector.

Finally, the study has analyzed aggregate ESG scores, as well as the three pillars of ESG, but it was still quantitative and firm-level-based. These measures are applicable in empirical testing, but they might not exhaust the qualitative aspects of implementation of CSR and sustainability strategies in practice by firms. This can be especially relevant in environments where formal disclosure and substantive change in organizations do not necessarily proceed together.

7.3 Recommendations for Future Research

This study can be expanded in various beneficial ways in future research. To begin with, more time horizons would be desirable. A more extended panel with a greater post-regulation duration could assist in establishing the possibility of ESG-related advantages coming in later and whether the lack of statistically significant findings in this research is partially because of timing. The possibility of extending the period may also enhance the chances of capturing more within-firm variation in ESG scores.

Second, future studies could use alternative identification strategies to address endogeneity more directly. While fixed-effects estimation is appropriate for controlling time-invariant unobserved heterogeneity, designs such as instrumental variable approaches, difference-in-differences strategies, or dynamic panel models may provide additional insight into the direction and strength of causality between ESG performance and firm outcomes.

Third, further research might be done on other ESG measurement strategies. Because commercially availed ESG scores might be in part a measure of disclosure quality, it is possible to future studies compare Refinitiv ESG measures with other ESG data, firm-reported metrics or more precisely defined sustainability variables. This would assist in deciding whether the findings are sensitive to the way ESG performance is computed and whether some of the dimensions of ESG are more strongly related to financial performance than aggregate scores imply.

Fourth, subsequent studies might create more sophisticated subsample analyses. The current research discussed large companies as a robust test, but there are other dimensions that can be significant. As an example, future research may look at comparing companies in different industries, ownership types, export orientation, or

regulations exposure. This can assist in determining whether ESG is more financially pertinent within certain institutional or organizational environments than others.

Fifth, the Indian setting could be more directly studied as a controlled CSR setting instead of being looked at as another national setting. Additional research in the future may examine how ESG in India is more of a strategic sustainability, regulatory compliance or disclosure adaptation. This would enhance the knowledge of how compulsory CSR regulations influence the meaning and financial materiality of ESG measures.

And, lastly, the current findings could be supplemented by qualitative or mixed-methods research. Interview/case-based research could assist in clarifying why statistically significant correlations are challenging to identify in panel regressions and whether firms themselves see ESG as more of a strategic instrument, a reporting requirement, or a reputational device. These methods might help to learn more about the institutional and managerial procedures that support the quantitative findings.

In general, the results of the present research indicate that the relation between ESG and financial performance must be regarded with care, especially in more regulated contexts where the definition of ESG can vary as compared to a more liberalized one. These relationships could be elucidated further by future research adding longer time horizons, alternative identification measures, and more precise ESG measures.

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Appendices

- **List of Companies**

S.N.	Name of Companies
1	ADANI ENTERPRISES
2	ADANI PORTS AND SEZ.
3	AIA ENGG LTD.
4	APOLLO HOSPS.ENTERPRISE
5	APOLLO TYRES
6	ASHOK LEYLAND LTD
7	ASIAN PAINTS LTD
8	AUROBINDO PHARMA LTD
9	AVENUE SUPERMARTS
10	BAJAJ AUTO LTD
11	BATA INDIA LIMITED
12	BERGER PAINTS INDIA
13	BHARAT FORGE LTD
14	BHARAT HEAVY ELS.
15	BHARAT PETROLEUM
16	BHARTI AIRTEL LTD
17	BLUE STAR LIMITED
18	BOSCH LTD
19	BRITANNIA INDUSTRIES
20	CESC LIMITED
21	CIPLA LIMITED
22	COAL INDIA LTD
23	CONTAINER CORP.OF INDIA
24	CRMPTN.GREAVES CSM.ELEC
25	CUMMINS INDIA LTD
26	DABUR INDIA LIMITED
27	DALMIA BHARAT
28	DIVIS LABORATORIES
29	DLF LTD.
30	DR REDDYS LABORATORIES
31	EICHER MOTORS LTD
32	EXIDE INDUSTRIES LTD

33	GAIL (INDIA) LTD
34	GLENMARK PHARMACEUTICALS
35	GMR AIRPORTS LTD
36	GODREJ CONSUMER PRODUCTS
37	GRASIM INDUSTRIES
38	GUJARAT STATE PETRONET
39	HAVELLS INDIA LTD
40	HCL TECHNOLOGIES
41	HERO MOTOCORP
42	HINDALCO INDUSTRIES
43	HINDUSTAN PETROLEUM
44	HINDUSTAN UNILEVER
45	INDIAN HOTELS
46	INDIAN OIL CORP
47	INFO EDGE (INDIA)
48	INFOSYS LTD
49	INTERGLOBE AVIATION
50	ITC LTD
51	JINDAL STEEL LTD
52	JK CEMENT LTD
53	JSW STEEL LTD
54	LARSEN & TOUBRO
55	LUPIN LTD
56	MAHINDRA & MAHINDRA
57	MARICO LTD
58	MARUTI SUZUKI INDIA
59	MRF
60	NATIONAL ALUMINIUM
61	NCC LTD
62	NESTLE INDIA LIMITED
63	NTPC LTD
64	OBEROI REALTY
65	OIL & NATURAL GAS
66	OIL INDIA LTD
67	PAGE INDUSTRIES
68	PETRONET LNG LTD
69	PIDILITE INDUSTRIES
70	POWER GRID CORPORATION
71	RELIANCE INDUSTRIES
72	RELIANCE INFRASTRUCTURE
73	RELIANCE POWER LTD.
74	SAMVARDHANA MOTHER
75	SHREE CEMENT LTD
76	SIEMENS LTD.

77	STEEL AUTHORITY OF INDIA
78	SUN PHARM.INDUSTRIES
79	TATA COMMUNICATIONS
80	TATA CONSULTANCY SVS.
81	TATA MOTORS PASSENGER
82	TATA POWER CO
83	TATA STEEL LTD
84	TECH MAHINDRA
85	THE RAMCO CEMENTS
86	THERMAX LIMITED
87	TITAN COMPANY LTD
88	TORRENT PHARMACEUTICALS
89	TRENT LTD
90	ULTRATECH CEMENT
91	UNITED BREWERIES
92	UNITED SPIRITS LTD
93	UPL LTD
94	VEDANTA LTD
95	VODAFONE IDEA LTD
96	VOLTAS LIMITED
97	WIPRO LIMITED
98	ZEE ENTERTAINMENT ENTS.