EXPLORING CORPORATE SOCIAL RESPONSIBILITY EXPENDITURES IN MANUFACTURING FIRMS

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Abstract

The main aim of this study is to explore corporate social responsibility expenditure in Indian manufacturing firms. The study sample consists of 62 firms listed on the Bombay Stock Exchange (BSE). Findings revealed that environment and pollution control expenses vary significantly between mature and young firms and before and after the pandemic as well. Moreover, regression analysis results show that employee compensation expenses negatively affect firms' performance. these results contradict Nwanne (2016), Walker (2019), and Tulcanaza-Prieto et al. (2020). Similarly, social and community expenses negatively and significantly impact the performance of Indian manufacturing firms. These results consist with Gangi et al. (2018), Tulcanaza-Prieto et al. (2020), Kvasić et al. (2016), and Nwanne (2016). On the contrary, donation-related expenses positively affect the profitability of Indian manufacturing firms. These results are consistent with Nwanne (2016), and Gangi et al. (2018). Therefore, this study has three folds of contributions. Firstly, it attempts to unveil corporate social responsibility (CSR) expenditures after the Companies Act, 2013 using a large sample and a longer period of study and making a comparison between mature and young firms Indian manufacturing companies. Secondly, this study examines the impact of the COVID-19 pandemic on CSR expenditures. Finally, hardly any study has relied on secondary data for conducting sustainability or CSR expenditure research in the Indian context. Hence, this study addresses this void by relying on secondary data to examine CSR expenditures during the pandemic.

Keywords: Sustainability Expenditures, Indian Manufacturing Companies, India

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1. INTRODUCTION

Over time, the concept of corporate social responsibility (CSR) has altered dramatically. As a stakeholder, it highlights an organization's commitment to society. There is a common assumption that the phrase refers to an organization's environmental concerns advocacy work (Dahiya & Singh, 2021).

The principles that serve as guiding frameworks for promoting sustainable global business practices include key documents such as

the Declaration of Principles Concerning Multinational Enterprises on Social Policy, and the United Nations (UN) Global Compact, etc., widely utilized in the corporate realm to play a crucial role in steering businesses towards adopting and implementing sustainable operations on a global scale (Garg & Gupta, 2021).

In the Indian context, the government has implemented regulations mandating corporate social responsibility (CSR) spending for businesses of a specific scale to ensure their equitable contribution to societal well-being. Section 135 of the Companies Act, 2013 establishes a regulatory framework outlining CSR obligations in India. Companies meeting specific criteria, such as a net worth exceeding Indian rupee (INR) 5000 million, a turnover surpassing INR 10,000 million, or a net profit exceeding INR 50 million, are obligated to adhere to a statutory CSR expenditure requirement. India, along with Malaysia and Japan, has emerged as a leading nation in Asia for CSR reporting since the inception of the CSR regulations. The adoption of the CSR provisions outlined in the Indian Companies Act, 2013 has notably contributed to the enhancement of CSR reporting practices by corporations. This regulatory framework reflects the government's commitment to encouraging responsible corporate behavior and channeling corporate resources toward initiatives that benefit the broader community (KPMG, 2018). However, numerous academics looked at sustainability spending before the Companies Act of 2013, including Bihari and Pradhan (2011), Sial et al. (2018), and Kapoor and Sandhu (2010), who found a link between CSR activities and business performance in the Indian setting. However, several academics have also made an effort to look into sustainability spending after the CSR mandate was put into place (Mukherjee & Bird, 2016). Following the adoption of the CSR legislation, Nair and Bhattacharyya (2019) discovered a rise in overall corporate expenditure on CSR, with mandated spenders raising their expenditures and optional spenders dropping them. Additionally, with the introduction of corporate social responsibility legislation in India, studies have shown conflicting results about the effect of corporate social responsibility expenditures on firms' performance, including negative results (Kuntluru, 2019), favorable (Bhagawan & Mukhopadhyay, 2019), and inconsequential (Nair & Bhattacharyya, 2019; Dharmapala & Khanna, 2018). According to Garg and Gupta (2020), the government sector that must comply with obligatory corporate social responsibility expenditures has worse business performance. According to the previous review, several researchers looked at the relationship between CSR and sustainability reporting and corporate performance. It is argued that a small number of research focused on corporate social responsibility expenditure Indian context.

CSR has shown to be a critical component in improving company performance during the COVID-19 epidemic. Businesses that had strong CSR programs showed flexibility and resilience, which promoted good stakeholder interactions. Proactively adopting socially responsible practices enhanced brand image and facilitated long-term viability, so placing these companies in a positive light in the post-pandemic commercial environment. Therefore, the main research question is:

RQ1: What are the differences in CSR spending during the COVID-19 pandemic?

This is an attempt to respond to the increasing demand for thorough studies concerning the dynamics of CSR implementation over time, especially before and following crises (Lin et al., 2021). The second research question is:

RQ2: How do mature companies manage their CSR expenses and navigate the obstacles presented by COVID-19?

The third research question is:

RQ3: How has the epidemic affected CSR expenditure and how has this affected manufacturing companies' performance?

Given previous crises that showed the need for CSR constraints and downsizing to survive (Kottika et al., 2020; Magrizos et al., 2021). In line with the issues expressed by Manuel and Herron (2020), this study also critically examines the question of how CSR responses to COVID-19 connect with organizations' overall performance.

Therefore, this study has three folds of contributions. Firstly, this study attempts to unveil CSR expenditures after the Companies Act, 2013 using a large sample and a longer period of study and making a comparison between mature and young firms Indian manufacturing companies. Secondly, the COVID-19 pandemic has exerted a substantial influence on consumer spending patterns and has resulted in disruptions to the supply side. The unprecedented challenges posed by the pandemic have reshaped the dynamics of how consumers allocate their expenditures, with discernible shifts in preferences and priorities. Additionally, supply-side disruptions have been a prominent feature, causing ripple effects across various industries. These disruptions, stemming from factors such as lockdowns, restrictions, and shifts in demand, have prompted businesses to adapt their supply chain strategies and operational models to navigate the evolving landscape (Brodeur et al., 2021; Gatenholm & Halldórsson, 2023). Due to revenue losses, it has resulted in great financial stress for many sorts of enterprises, raising the demand for financial liquidity (Fassas et al., 2021). Thus, the author tried to examine the impact of the COVID-19 pandemic on corporate social responsibility expenditure. Thirdly, the study asserts that research has mostly focused on CSR or sustainability disclosures and corporate activities. Hardly any study has relied on secondary data about sustainability or CSR expenditure to provide empirical evidence in the Indian context. Hence, this research seeks to fill this gap in the literature.

The subsequent sections of this study are organized as follows. Section 2 delves into a comprehensive review of prior research to offer an in-depth understanding of how CSR spending is interconnected with various aspects of corporate performance. Section 3 elucidates the research design adopted for this study. This section serves to articulate the approach taken to investigate the relationship between CSR expenditure and firms' performance. Moving on to Section 4, this part of the study showcases the analysis and interpretation of gathered data. Results are presented and discussed in detail, shedding light on the intricate

dynamics of how CSR expenditure influences different dimensions of firms' performance. Lastly, Section 5 presents the study's core insights and findings. This section offers a concise overview, emphasizing the study's implications and potentially guiding future research inquiries.

2. LITERATURE REVIEW

Globally, businesses and scholars have paid close attention to sustainability spending and its effects on company success. Numerous academics have investigated how diverse factors affect CSR expenditures. This section will review previous research on corporate social responsibility expenditures.

2.1. Corporate social responsibility expenditures and COVID-19

The global impact of the COVID-19 pandemic is unprecedented, representing one of the most severe shocks in recorded history (Verma & Gustafsson, 2020; Brammer et al., 2020). The ramifications of this crisis, both direct and indirect, stem from essential security measures, including lockdowns, restrictions on space capacity, and the imperative for social distancing. These precautionary measures highlight the profound vulnerability of businesses to unforeseen external forces. The pandemic has not only brought about immediate and tangible challenges but has also underscored the broader susceptibility of businesses to extraordinary circumstances, prompting a reassessment of resilience and adaptive strategies in the face of unforeseen global disruptions. As a result, businesses may be persuaded to make decisions that are short-sighted and centered on immediate profits. Decisions within a firm are often guided by the imperative of ensuring its survival, and the target audience for these decisions can vary. It may involve prioritizing the interests of a specific group, such as shareholders or employees, or encompassing a broader spectrum of stakeholders, including both shareholders and employees. These decision-making considerations align with established theories such as equilibrium and stakeholder theories. These theories emphasize the need for a balanced approach that recognizes and addresses the diverse interests of stakeholders, thereby contributing to the sustained viability of the business irrespective of how the epidemic affects society (Melé, 2009). However, we have additionally observed that many companies have taken an active part in a variety of CSR projects, particularly those that may offer immediate assistance and support in the fight against the virus. According to this perspective, social advancements have significantly influenced CSR to the point that businesses have pushed for more sincere and honest policies that aid in tackling the most pressing global issues (Aguinis et al., 2020; He & Harris, 2020). Decisions that, following the philosophy of the common good, emphasize the human component (Melé, 2010) and work to enhance a society's overall standard of living by advancing its hygienic resources and economic well-being for all its members.

Several researchers have endeavored to investigate the ramifications of the COVID-19 pandemic that unfolded in March–April 2020. For instance, Akhtaruzzaman et al. (2021) observed a significant influence of media coverage on environmental, social, and governance (ESG) leading indexes in the wake of COVID-19. Guérin and Suntheim (2021) delved into the impact of the pandemic on environmental performance, revealing that COVID-19-related restrictions and adverse economic conditions contributed to a decline in environmental performance. This empirical data addresses the concerns articulated by He and Harris (2020), who questioned whether businesses, confronted with the challenges of the COVID-19 era, might either intensify their commitment to CSR or succumb to financial pressures. The findings suggest a nuanced relationship, indicating that certain factors associated with the pandemic, such as media coverage and economic conditions, play pivotal roles in shaping ESG performance and CSR outcomes for businesses. This research contributes valuable insights to the ongoing discourse on the dynamics of corporate behavior amid unprecedented global events like the COVID-19 pandemic. As highlighted by García-Sánchez and García-Sánchez (2020), the largest Spanish corporations, comprising the top 100, proactively devised strategies and implemented measures to assist numerous stakeholders in navigating the challenges posed by the unforeseen difficulties brought about by the COVID-19 pandemic. Despite the contention from Talbot and Ordonez-Ponce (2020), who asserted that banks seldom provided support to their clients and communities during this period, recent research by Mahmud et al. (2021) and Gürlek and Kılıç (2021) presents a contrasting perspective. These studies reveal a notable increase in businesses' regard for their employees, customers, and communities. Moreover, the research underscores how companies undertook various CSR initiatives aimed at mitigating the adverse impacts of the COVID-19 pandemic. This evolving narrative sheds light on the multifaceted responses of businesses to the unprecedented challenges of the global health crisis and emphasizes the varying approaches taken by different sectors in addressing the needs of their stakeholders. Based on the discussion the researchers go in line with the literature and formulate the following hypothesis:

H1: There is no significant difference in corporate social responsibility expenditure of manufacturing firms before and after the COVID-19 pandemic.

This hypothesis is divided into the following sub-hypotheses:

H1a: There is no significant difference between environment and pollution control-related expenditure of manufacturing firms before and after the COVID-19 pandemic.

H1b: There is no significant difference between donations-related expenditure of manufacturing firms before and after the COVID-19 pandemic.

H1c: There is no significant difference between employees' compensation-related expenditure of manufacturing firms before and after the COVID-19 pandemic.

2.2. Corporate social responsibility expenditures and firms' maturity (Age)

Firm size is frequently cited as one of its crucial and essential aspects in empirical investigations. The amount of years a firm has been in operation is referred to as its age. As they have a history of growth, elder companies are often larger than newer ones. According to certain research, a company's age is a factor in determining its profitability (Loderer & Waelchli, 2010; Bertrand & Mullainathan, 2003). In one of the research articles, Liu (2017) examined whether younger businesses learn from exporting than mature ones. Chinese firm-level data for the period from 1998–2007 were used. The author found strong learning-by-exporting benefits for elder businesses, particularly those involved in research and development (R&D), had large-scale manufacturing, and were privately owned. Mateev et al. (2013) used a panel data set of 3,175 enterprises from the years 2001 to 2005 to evaluate the effect of firm characteristics on capital structure. Their findings showed that elder companies with adequate internal resources required less external funding. According to Afrifa's (2013) findings, there is a direct correlation between a company's age and its financial success. These findings support the market learning hypothesis. Moreover, he discovered that older businesses are less dangerous than newer ones. It is stated that mature companies have more predictable performance and financial flows, making them more stable. Maturity allows businesses to invest more in CSR. Younger businesses, in comparison, have more erratic cash flows, experience greater growth, and thus have less money to spend on CSR initiatives. According to this theory, mature corporations spend more money on CSR initiatives than younger firms. Based on the reviewed literature, the following hypothesis is formulated:

H2: There is no significant difference between corporate social responsibility expenditures and among mature and young manufacturing firms.

This hypothesis is divided into the following sub-hypotheses:

H2a: There is no significant difference between environment and pollution control-related expenses among mature and young manufacturing firms.

H2b: There is no significant difference between donations-related expenses among mature and young manufacturing firms.

H2c: There is no significant difference between employees' compensation-related expenses among mature and young manufacturing firms.

2.3. Corporate social responsibility expenditures and firm performance

CSR expenditures as a research topic have gained much concern from manufacturers more than before. Numerous researches have looked at this matter, yet the findings are still conflicting. Some studies indicated a favorable correlation between performance and CSR (Kvasić et al., 2016; Gangi et al., 2018; Nwanne, 2016; Tulcanaza-Prieto et al., 2020), Others, however, were unable to connect the two (El Moslemany & Etab, 2017; Walker, 2019). As a result, the link between CSR and profitability is still up for dispute, and further research is needed to determine if one factor influences the other. In a comprehensive study conducted by Walker (2019), an in-depth exploration was undertaken to investigate the potential link between CSR and financial performance (FP). The study placed particular emphasis on critical financial metrics such as return on assets (ROA), return on equity (ROE), and net profit margin (NPM). Despite a thorough examination of indicators of FP, including NPM, ROE, and ROA, the findings did not reveal any statistically significant correlation among these variables. This suggests that, based on the conducted analysis, there is no discernible statistical association between CSR activities and the selected financial performance metrics — ROA, ROE, and NPM. The absence of a significant correlation highlights the nuanced nature of the relationship between CSR efforts and specific financial indicators, prompting further exploration and discussion within the realm of corporate sustainability and financial outcomes. Employing ownership concentration as a moderating factor, Akben-Selcuk (2019) delved into the influence of CSR on FP within a sample of 100 companies listed on the Borsa Istanbul (BIST) over the period spanning 2014 to 2018. The study by Akben-Selcuk (2019) unearthed a positive correlation between CSR initiatives and financial performance. Notably, the research revealed that this positive relationship was mitigated when considering ownership concentration as a moderating variable. In essence, the impact of CSR on financial performance was adversely influenced in instances where there was a higher concentration of ownership. This nuanced finding underscores the importance of considering ownership structure when assessing the relationship between CSR activities and financial outcomes, providing valuable insights into the intricate dynamics at play within corporate contexts. Examining the interplay between CSR and FP, Kabir and Thai (2017) investigated this relationship with corporate governance (CG) serving as a mediator. The study encompassed a comprehensive sample comprising 524 Vietnamese companies over the six years from 2008 to 2013, totaling 1,960 firm-year observations. Corporate governance was assessed using variables such as board size, board independence, state ownership, and foreign ownership. This research design allowed for a thorough exploration of how CSR practices, when mediated by corporate governance factors, contribute to or influence financial performance within the context of Vietnamese companies. Results revealed a positive correlation between CSR and business performance, with factors such as board size, board independence, and foreign ownership substantiating this relationship. Furthermore, the study highlighted that organizations with larger boards, a higher degree of board independence, and a notable presence of foreign ownership demonstrated a more pronounced alignment between their CSR initiatives and positive business performance outcomes. This suggests that certain governance and ownership characteristics may play a supportive role in enhancing the impact of CSR on overall business success. The nuanced exploration of these factors contributes valuable insights to the ongoing discourse on the intersection of corporate social responsibility and organizational performance.

The examination of CSR spending and its correlation with financial success has garnered

significant scholarly attention, as evidenced by the work of Amini and Dal Bianco (2017). Within existing academic literature, diverse relationships between CSR expenditures and firm performance have been observed, encompassing both positive and negative associations. This research focus extends particularly to developed economies, shedding light on the complex dynamics that exist in the interface between CSR initiatives and the overall performance of companies. The multifaceted nature of these associations emphasizes the need for nuanced and context-specific analyses to comprehensively understand the impact of CSR spending on the financial outcomes of firms.

This suggests that the connection between CSR expenditures and the performance of firms is intricate, exhibiting a diverse range of outcomes that are not consistently positive or negative across various settings. The intricacies of these relationships highlight the challenges in comprehending how CSR initiatives influence the overall performance of companies within developed economies. This ongoing discussion provides valuable perspectives on the complex interplay between corporate social responsibility and organizational success in well-established business environments (Blasi et al., 2018; Salehi et al., 2018). The findings, however, occasionally indicated that there was no correlation between CSR expenditure and firms' value (Velte, 2017). Researchers continue to question whether all the variables influencing the correlation between CSR spending and firms' performance have been considered. Likewise, studies examining the connection between CSR and financial success in developing and emerging economies have typically identified a positive correlation. This suggests that, in the context of developing and emerging economies, there is commonly observed evidence indicating a favorable relationship between the implementation of CSR practices and the financial performance of businesses. The positive correlation underscores the potential benefits that CSR initiatives may bring to companies operating in these dynamic and evolving economic landscapes. Understanding this relationship contributes valuable insights for businesses and policymakers seeking to navigate the intersection of social responsibility and financial outcomes in developing and emerging markets (Long et al., 2019; Choi et al., 2019; Maqbool & Zameer, 2018). In the context of the current scenario of sustainability, which attempts to address social challenges in a developing economy, the mixed and positive link promotes additional research into the link between CSR expenditure and firms' performance. Studies on CSR and financial success are also lacking as they do not include how financial performance affects CSR spending in both directions. The correlation between firms' performance and CSR also revealed mixed relationships (Al-Hajri & Al-Enezi, 2019; Rodríguez-Ruiz et al., 2016), much as the association between CSR and firms' performance did. For instance, the authors of research on CSR reporting and financial performance looked into how CSR and financial success were correlated in Spanish-listed firms. According to them, there is an association between CSR and firms' performance (Rodríguez-Ruiz et al., 2016). Because most research demonstrated a stronger favorable correlation than a negative association, the authors hypothesize a positive association between CSR spending and financial success in a bi-directional study.

Based on existing literature, Indian researchers such as Priyanka (2013), Malik and Nadeem (2014), Kiran et al. (2015), and Mahbuba and Farzana (2013), alongside counterparts in both developed and developing nations, have contributed to the body of knowledge by conducting studies on sustainability practices and their impacts on business performance. These scholarly investigations reflect a global interest in understanding the relationship between sustainable business practices and organizational success, with researchers in India actively contributing to this discourse. In light of this objective, the authors formulate the third hypothesis that scrutinizes the relationship between expenditures on corporate social responsibility and financial performance within the context of an emerging economy. By delving into this specific aspect, the study endeavors to contribute contemporary evidence, shedding light on how CSR spending may influence the financial outcomes of companies operating in emerging economies. This proposed hypothesis forms the foundation for our investigation into the nuanced dynamics of corporate social responsibility and its impact on the overall performance of firms within this particular economic context. The hypothesis states that:

H3: Corporate social responsibility expenditures have an insignificant impact on firms' performance.

This hypothesis is divided into the following sub-hypotheses:

H3a: Environment and pollution control-related expenditures have an insignificant impact on firms' performance.

H3b: Donations-related expenditures have an insignificant impact on firms' performance.

H3c: Employees' compensation-related expenditures have an insignificant impact on firms' performance.

3. METHODOLOGY

This study relies on secondary data that are extracted from ProwessIQ database. It stands out as one of the most extensive and widely utilized databases in the academic and research community, having been employed by numerous researchers for diverse investigations. The ProwessIQ has gained prominence for its depth and breadth of information, making it a go-to resource for researchers across various fields. Its widespread use underscores its reliability and the valuable insights it offers, contributing significantly to the body of knowledge in academic and research endeavors (Gupta et al., 2016; Bhullar et al., 2018). This research focuses exclusively on manufacturing companies. Manufacturing companies are businesses that use materials processing, transformation, or assembly to produce commodities. According to Bajaj et al. (2018), carrying out industry-specific research is crucial to developing a sophisticated grasp of company dynamics. Various industries function within distinct economic, regulatory, and commercial environments. Different industries may have quite different competitive environments, technology breakthroughs, and demand-supply dynamics. Researchers may dive extensively into the unique possibilities, problems, and trends that create a given industry by concentrating on it. A more thorough examination of the dynamics unique to each industry is made possible by this

focused approach. Moreover, to make informed decisions, industry stakeholders such as corporations, legislators, and investors frequently need in-depth knowledge relevant to their industry. Results from lone research with an industrial emphasis may directly and practically affect these stakeholders. According to Singh et al. (2013), one of the foundations for the expansion of any economy is the manufacturing sector. Given that it produces commodities, works with complicated technology, and handles dangerous materials, it is expected to be socially conscious (Ehsan & Kaleem, 2012). As a result, it is more likely to raise issues relating to the environment, the labor force, and the community. The study has filtered the extracted data set and excluded all firms that had missing values. Therefore, the study sample consists of 62 manufacturing firms with 620 observations covering ten years from 2012 to 2021. However, SCR reporting in India has been mandatory since 2014. The reports that are published by Indian firms are not standardized and thus it is not audited. thus, only a few firms disclose the SCR expenditures in their financial statements which were taken as a sample for this study return on assets is used to capture firms' performance. Corporate social responsibility expenditures are measured by environment and pollution control expenses, donations, and compensations to employees. Table 1 shows the variable definition.

Table 1. Variable definition

Variable	*Symbol*	*Definition*
Dependent variable		
Return on assets	*ROA*	It is a financial indicator that evaluates the capacity of a business to turn a profit from its total assets (TA). It gives information on how well a business is using its resources to turn a profit.
Independent variables		
Environment and pollution control-related expenses	*EPCRE*	It refers to the expenses that businesses bear to control and lessen the effects of their operations on the environment and to abide by laws about pollution prevention. These charges, which are a portion of an organization's total operational expenses, are earmarked for initiatives that support environmental sustainability and adherence to legal and regulatory requirements. These are the main elements of this group.
Employees' compensation-related expenses	*ECRE*	It refers to the expenses borne by a business or group as a means of paying workers for their labor and services. This category of costs includes a range of items that contribute to the overall benefits package that employers offer to their staff. It includes salaries and wages, bonuses and incentives, benefits, paid time off, payroll taxes and contributions, etc.
Donations-related expenses	*DRE*	It refers to the expenses that a business or organization bears when it donates to charity causes, non-profits, neighborhood projects, or philanthropic events. These costs are related to the organization's charitable endeavors and demonstrate its dedication to social responsibility and community involvement.
Social and community expenses	*SCE*	These are the costs that businesses endure to benefit society or the community at large. They might take the form of contributions to social events, creating or maintaining public parks, keeping gardens, and erecting temples.
Control variables		
Firm size	*SIZE*	Log of total assets.
Market capitalization	*MCAP*	It shows how much the outstanding shares of a firm are worth on the open market. It is computed by multiplying the number of outstanding shares by the current market price per share. Market capitalization, which gives an overview of a company's total market worth, is frequently used for benchmarking and investment analysis by analysts, investors, and other financial professionals.

For achieving the first objective of the study, examining the difference in sustainability expenditures before and after COVID-19 pandemic, Wilcoxon test was run in which the year 2018 (from 01/04/2018 to 31/03/2019) is considered the period before COVID-19, while, the year 2020 (from 01/04/2020 to 31/03/2021) is considered the period post COVID-19. The year 2019 was not included to avoid any misleading results. Because only the fourth quarter of the year 2019 (from 01/01/2020 to 31/03/2021) was affected by the pandemic. Numerous scholars have examined the effects of periodic events using periodic event analysis, including Kesimli and Gunay (2011) who examined the impact of the global financial crisis on working capital, and Al-Malkawi and Pillai (2013), who examined how the global financial crisis has affected the real estate and construction industries in the United Arab Emirates (UAE), highlighting these sectors' adaptation and resilience in trying times. Because financial ratios are so useful in decision-making processes, they are widely acknowledged as essential instruments for assessing and measuring the performance of firms. These ratios provide decision-makers with important insights into many facets of a company's operational effectiveness and financial health by condensing complicated financial data into clear and useful indicators. Financial ratios are quite flexible and may be used in many different contexts. Some examples of these contexts are liquidity, profitability, solvency, and efficiency ratios. Financial ratios are an essential benchmarking tool that makes it easier to compare businesses between various sectors or within the same industry. For analysts, investors, and decision-makers who want to know how a company's financial performance compares to that of its competitors, this comparative study is invaluable (Ketz et al., 1990; Needles et al., 2010). For achieving the second objective of examining the difference in corporate social responsibility expenditures volume and trend between young and mature manufacturing firms, the Mann-Whitney test is run. The study sample consists of 44 mature companies that were established before 1950 and 18 young companies that were established after 1991. The cluster analysis based on establishment date has been used by several researchers (Al-ahdal et al., 2018; Farhan, 2023). The Mann-Whitney test and Wilcoxon test are both non-parametric statistical tests that serve as alternatives to their parametric counterparts, the independent sample

t-test and paired sample t-test, respectively. These non-parametric tests are particularly useful when assumptions of normal distribution cannot be met or when dealing with ordinal or non-normally distributed data.

The primary motivation for opting for non-parametric tests, such as the Mann-Whitney test for independent samples and the Wilcoxon test for paired samples, lies in their robustness to data that do not conform to a normal distribution. Non-parametric tests can be used with a wider variety of data types since they are distribution-free or need fewer distributional assumptions. Non-parametric tests offer a trustworthy substitute for hypothesis testing in situations when the assumption of normalcy cannot be satisfied or is dubious. Because non-parametric tests, such as the Mann-Whitney and Wilcoxon tests, are flexible and can handle data that deviates from normality, their usage is recommended. The decision between parametric and non-parametric tests in the particular context of analyzing the effect of corporate social responsibility expenditure on firms' performance is based on the distributional features of the data and the ability of the selected statistical method to handle the particular features of the dataset, the following regression model were examined:

$$ROA_{it} = \alpha + \beta_1 EPCRE_{it} + \beta_2 ECRE_{it} + \beta_3 DRE_{it} + \beta_4 SCE_{it} + \beta_5 SIZE_{it} + \beta_6 MCAP_{it} + \varepsilon_{it} \quad (1)$$

4. DATA ANALYSIS AND DISCUSSION

4.1. Descriptive statistics

Descriptive statistics serve the purpose of summarizing the characteristics of a sample or dataset, employing measures of central tendency such as mean, median, and standard deviation. These statistical tools provide a concise and informative overview, capturing essential features and patterns within the data. By utilizing central tendency measures, including the mean representing the average, the median indicating the middle point, and the standard deviation portraying the dispersion, descriptive statistics offer a comprehensive means of understanding the key attributes of the analyzed data.

Table 2. Descriptive statistics

	EPCRE	*DRE*	*ECRE*	*SCE*	*ROA*	*MCAP*	*TA*	*TE*	*PAT*
Mean	44.465	12.446	584.557	140.504	5.03528	46,139.3	55,698.6	9,343.43	866.695
Median	7.75	14.847	113.85	140.504	4.325	1,415.03	3,000.7	2,462.1	83.2
Minimum	0	0	2.3	4073.5	53.71	1,128,192	2,740,857	35.8	-2,140.1
Maximum	1410	520	15,470.1	0	-54.03	11.14	59.9	132,976	31,129.1
% out of total expenses	0.003	0.006	0.046	0.057					
% out of total income	0.093	0.178	1.368	1.688					

Note: TA — total assets; TE — total expenses; PAT — profit after tax.

Table 2 reports the descriptive statistics of sustainability expenditure variables. The table reveals that the mean and median values of *environment and pollution control-related expenses* are 44.46469 and 7.75000 INR million respectively. In comparing this median value to the median of total expenses and total income we see that it accounts for 0.0031 and 0.093 respectively. These results mean that the selected firms spend what amounts to 0.09 of their profit in a safe environment. This goes in line with the Indian mandatory law of CSR which came into effect on April 1, 2014. The results reveal that Indian manufacturing companies are spending more than what is stipulated in the CSR law. Manufacturing organizations are recognizing and implementing sustainable business practices because these activities have significant advantages for both the environment and the bottom line. Economic, social, and environmental factors are combined to drive this transition toward sustainability, which reflects a greater awareness of the connection between corporate activities and the health of the aircraft. Further, to boost growth and worldwide competitiveness, manufacturing companies are making environmental expenses a priority in their strategy and operations. *Donations-related expenses*, results in Table 2 show that the mean and median values are 12.446 and 14.847 INR million. In comparing the donations to total expenses and total income, we see that Indian manufacturing companies donate what amount for 0.006 and 0.178 of their total expenses and total income respectively. These results mean that Indian manufacturing firms are donating 0.178 of their profit. *Employees' compensation-related expenses*, results show that minimum and maximum values are 2.3 and 15,470.1 INR million respectively. Further, results reveal that Indian manufacturing firms spend almost 113.85 INR million as compensation to their employees which accounts for 0.046 of their total expenses. Regarding *social and community expenses*, it is revealed that the mean and median value is 140.504 INR million, which indicates that Indian manufacturing firms are spending almost 140.504 INR million for enduring benefit to society or the community at large.

4.2. Multivariate analysis

To conduct the study, the data's normal distribution was checked using the normality tests Kolmogorov-Smirnov and Shapiro-Wilk. The normality test recommends the type of test to run — a parametric or non-parametric test. As the p-values for all variables across various sectors were below the significance threshold of 0.05, the outcomes of the normality tests presented in Table 3 indicate a departure from a normal distribution within the data. This suggests that the data deviate significantly from a normal pattern, as evidenced by the consistently low p-values across all examined variables and sectors. Consequently, a non-parametric test is the proper method.

Table 3. Tests of normality

Variable	*Kolmogorov-Smirnov*		*Shapiro-Wilk*	
	Statistic	*Sig.*	*Statistic*	*Sig.*
Environment and pollution control-related expenses	0.358	0.000	0.362	0.000
Donations-related expenses	0.427	0.000	0.237	0.000
Employees' compensation-related expenses	0.348	0.000	0.396	0.000
Social and community expenses	0.338	0.000	0.386	0.000

4.2.1. Wilcoxon test

The results of the Wilcoxon test in Table 4 show the findings regarding the difference in sustainability expenditure before and after the COVID-19 pandemic. Wilcoxon test examines variances between medians, whereas the paired sample t-test examines variances between means. Thus, the results in the table show a significant difference between the amount spent on pollution management and environmental issues before and during the epidemic. Between these two time periods, there is a considerable difference at a 0.01 level of significance. The descriptive statistics in Table 4 shows that *environment and pollution control-related expenses* before the pandemic were 11.90 INR million and 14.60 INR million after the pandemic, which indicates that Indian manufacturing firms did not reduce their environmental and pollution control expenses mid the pandemic. On the other hand, results in Table 4 show that there is no significant difference between *donations-related expenses* before and after the pandemic the median is 14.85 before and after the pandemic. Conversely, the results show a significant difference in the pay scales of employees before and during the pandemic. The results of the statistical analysis show that there is a significant difference between these two time periods at a 0.01 level of significance. The main values of *employees' compensation-related expenses* before and after the pandemic are 155.80 and 176.75 respectively. Similarly, results in Table 4 reveal that there is a significant difference in *social and community expenses* before and after the COVID-19 pandemic at 0.01 level of significance. The median values of social expenses before and after the pandemic are 13.65 and 21.15, respectively. This means that Indian manufacturing firms spend more during the pandemic to help society overcome the challenges.

Table 4. Wilcoxon signed ranks test statistics

			EPCRE		*DRE*		*ECRE*		*SCE*	
			Before	*After*	*Before*	*After*	*Before*	*After*	*Before*	*After*
Mean			56.38	91.65	19.28	11.46	798.67	1022.64	68.8	90.62
Median			11.9	14.6	14.85	14.85	155.8	176.75	13.65	21.15
Z			-3.052		-0.535		-4.417		-4.378	
Asymp. Sig. (2-tailed)			0.002		0.592		0.00		0.00	
Monte Carlo Sig. (2-tailed)	Sig.		0.002		0.603		0.00		0.00	
	95% confidence interval	Lower bound	0.001		0.593		0.00		0.00	
		Upper bound	0.003		0.613		0.00		0.00	
Monte Carlo Sig. (1-tailed)	Sig.		0.001		0.302		0.00		0.00	
	95% confidence interval	Lower bound	0		0.293		0.00		0.00	
		Upper bound	0.001		0.311		0.00		0.00	

4.2.2. Man-Whitney U-test

Results of the Mann-Whitney U-test in Table 5 reveal that there is a significant difference between environmental and pollution control expenses of mature and young firms at 0.05 level of significance. The reason behind the increase in environmental expenditure could be attributed to the fact that manufacturing firms aim to minimize their water use, packaging waste, carbon footprints, and other environmental harm. in contrast, results reveal an insignificant difference between donations and employee compensation of mature and young firms at 0.05 level of significance, which means that the age of the companies does not make a significant difference in terms of donations and employees' compensation. Similarly, the results of the Mann-Whitney U-test in the table, show that in terms of social expenses, there is a statistically significant difference between mature and young firms at a 0.01 level of significance.

Table 5. Mann-Whitney U-test

		EPCRE	*ECRE*	*DRE*	*SCE*
Mann-Whitney U		42,762.5	45,493.5	47,606.5	43,842.500
Wilcoxon W		160,132.5	162,863.5	67,307.5	63,543.500
Z		-2.207	-1.037	-0.141	-1.926
Asymp. Sig. (2-tailed)		0.027	0.3	0.888	0.054
Monte Carlo Sig. (2-tailed)	Sig.	0.027	0.298	0.887	

4.2.3. Correlation analysis

The results of a correlation study are shown in Table 6, which indicates a positive and statistically significant association between *environment and pollution control-related expenses* and Indian manufacturing companies' profitability as determined by *return on assets*. The positive association suggests that Indian manufacturing companies who invest in pollution and environmental control initiatives typically see increased profitability when looking at their return

on assets. This implies a possible correlation between financially successful and sustainable company practices, suggesting that investments in environmental responsibility might have a favorable impact on overall corporate performance. The positive association indicates that incorporating pollution control and environmental measures into business plans may provide real financial benefits in addition to fulfilling corporate social responsibility. Businesses may take this association into account when deciding how best to allocate resources, take on sustainability projects, and design their entire company strategy. Likewise, there exists a positive and statistically significant correlation between *employees' compensation-related expenses* and the profitability of Indian manufacturing firms, as quantified by *return on assets*. Conversely, *donations-related expenses* display a negative and statistically insignificant association with the profitability of Indian manufacturing firms, as measured by *return on assets*. In the same line, *social and community expenses* have a negative and significant association with the profitability of Indian manufacturing firms. Talking about controlling variables the results in Table 6 show that *firm size* and *market capitalization* are positively and significantly associated with the performance of Indian manufacturing firms measured by *return on assets*.

Table 6. Correlation analysis

	ROA	***EPCRE***	***ECRE***	***DRE***	***SCE***	***SIZE***	***MCAP***
ROA	1						
EPCRE	0.120**	1					
ECRE	0.178**	0.572**	1				
DRE	-0.004	0.595**	0.286**	1			
SCE	-0.145**	0.313**	0.422**	0.129**	1		
SIZE	0.133**	0.618**	0.898**	0.385**	0.402**	1	
MCAP	0.183**	0.621**	0.833**	0.394**	0.428**	0.788**	1
Variance inflation factor (VIF)		2.377	4.459	1.609	1.507	2.040	3.808

*Note: ** correlation is significant at the 0.01 level (2-tailed).*

4.2.4. Regression analysis

The research investigated the influence of sustainability expenditures on the performance of Indian manufacturing firms, utilizing a sample size of 62 companies. This sample size appears adequate for conducting panel data analysis, a method that offers distinct advantages over cross-sectional and time-series approaches. Panel data analysis provides more precise estimates, enhancing the accuracy of the study's findings compared to alternative analytical methods (Baltagi et al., 2005). Panel data analysis, according to Kyereboah-Coleman (2007), is the best technique to control individual multicollinearity and heterogeneity. Thus, this research runs panel data analysis on 62 firms for ten years. Following previous researchers who applied panel data analysis (Al-ahdal et al., 2020; Masood et al., 2012; Farhan et al., 2020; Chowdhury & Rasid, 2017; Almaqtari et al., 2020), the study is following the same approach. Based on this background, robust least square regression models are used in this study. Table 7 shows that the regression assumptions are met. Table 6 shows that there is no multicollinearity in the model; VIF values are less than 5. Further, Table 7 reveals that the regression models do not suffer from hetrocedasity, prob. chi-square of the Breusch-Pagan test is greater than 0.05. Moreover, Table 6 demonstrates that the models are free from autocorrelation; the Durbin-Wats-stat is between 1 and 2. In addition, the study used generalized method of moments (GMM) estimations which account for heteroscedasticity and autocorrelation (Roodman, 2006). Furthermore, using a GMM estimate model tackles endogeneity issues. The generalized method of moments, according to Gupta and Mahakud (2020), is suitable for dealing with endogeneity issues. Results in Table 7 demonstrate that the GMM outcomes are robust and accurate as the assumptions of GMM have been met; the lagged dependent variable is significant (p-value < 0.05), prob (J-statistic), and AR^2 are greater than 0.05 in all models.

The findings in Table 7 reveal a statistically significant negative influence of expenses related to *environment and pollution control-related expenses* on the performance of manufacturing firms. This suggests that the financial aspects associated with environmental and pollution control measures play a consequential role in shaping the overall performance dynamics of these companies. After the introduction of CSR law, the results of the sub-sample reveal that environmental and pollution control-related expenses have an insignificant impact. The reason behind this change in the results after 2014 is attributed to the implementation of CSR law, in which it seems that firms have been able to justify their CSR expenditures and include these expenditures in the total cost of the products.

Concerning *employees' compensation-related expenses,* the outcomes presented in Table 7 reveal a significant and negative effect on the performance of Indian manufacturing enterprises at a significance level of 0.01, as indicated by a coefficient of 0.195. On the other hand, in the subsample from 2015 to 2021, after the introduction of CSR law, it has been observed that profitability is adversely and significantly affected by employee compensation expenses. Concerning *donation-related expenses*, results in Table 7 show that *donation-related expenses* insignificantly impact *return on assets*. On the contrary, in the subsample after the introduction of CSR laws in India, donation-related expenses positively and significantly affect financial performance. This effect is significant at a 0.01 level of significance with a 0.156 coefficient. The outcomes presented in Table 7 concerning *social and community expenses* indicate a substantial and statistically significant positive influence on the *ROA* for Indian manufacturing firms. This suggests that the financial commitment to social and community initiatives plays a constructive and meaningful role in enhancing the return on assets within the context of these companies. This impact is significant at a 0.01 level of significance with a 0.031 coefficient. Regarding *market capitalization*, the outcomes

presented in Table 7 indicate a positive and statistically significant impact on the profitability of Indian manufacturing firms, evident in both the overall sample and the subsample. Conversely, the size of firms demonstrates a negative and significant association with the profitability of Indian manufacturing firms.

Table 7. OLS and GMM estimates

Variable	*Whole sample 2012–2021*				*Sub-sample 2015–2021*			
	OLS		*GMM*		*OLS*		*GMM*	
	Coeff/ Prob.	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*
C/ROA1(-1)	1.786	0.017	0.335	0.003	1.787	0.023	-0.096	0.031
	0.000	107.250	0.000	129.833	0.000	77.815	0.002	-3.099
EPCRE	0.016	0.004	-0.087	0.006	0.015	0.004	0.064	0.040
	0.000	4.527	0.000	-14.987	0.001	3.515	0.109	1.607
ECRE	-0.020	0.014	0.195	0.015	-0.027	0.020	-0.192	0.057
	0.170	-1.372	0.000	12.651	0.181	-1.339	0.001	-3.390
DRE	-0.013	0.006	0.001	0.003	-0.001	0.008	0.156	0.045
	0.024	-2.256	0.703	0.381	0.870	-0.164	0.001	3.454
SCE	-0.013	0.003	0.031	0.003	-0.014	0.005	-0.019	0.009
	0.000	-4.025	0.000	10.807	0.003	-2.969	0.027	-2.212
SIZE	-0.006	0.010	-0.025	0.009	-0.019	0.014	0.005	0.031
	0.545	-0.606	0.008	-2.650	0.190	-1.311	0.874	0.159
MCAP	0.031	0.005	0.066	0.005	0.046	0.010	0.028	0.008
	0.000	5.831	0.000	12.245	0.000	4.846	0.001	3.477
Adjusted R-squared	0.150	J-statistic	45.813	AR^2	0.196	J-statistic	28.551	
Prob (F-statistic)	0.000	Prob (J-statistic)	0.180	Prob (F-statistic)	0.000	Prob (J-statistic)	0.771	
Durbin-Wats-statistic	1.315	AR^2	0.268	Durbin-Wats-statistic	1.475	AR^2	0.542	
$(ROA)_{it=}\ \alpha + \beta_1 (EPCRE)_{it} + \beta_2 (ECRE)_{it} + \beta_3 (DRE)_{it} + \beta_4 (SCE)_{it} + \beta_5 (MCAP)_{it} + \varepsilon_{it}$								

4.2.5. Sensitivity analysis

To identify the robustness of the results, the firms are classified based on their establishment date into two groups: the first group is elder firms that were established before 1990 which consist of 50 firms with 550 years of observations, and *the second group* is young firms that were established after 1990 consists of 18 firms with 198 years of observations. Results in Table 8 show that *environment and pollution control-related expenses* negatively and significantly impact the performance of manufacturing firms, *employees' compensation-related expenses,* has a negative impact on the financial performance. *Social and community expenses* were insignificantly impacting the *return on assets* of Indian manufacturing firms. It can be concluded that the results in Table 8 are similar to those in Table 7 with little variation in the coefficient and inconsistent results in terms of *social and community expenses* only. This indicates the robustness of the study results.

Table 8. OLS and GMM estimates for clustered groups

Variable	*Elder firms (established before 1990)*				*Young firms (established after 1990)*			
	OLS		*GMM*		*OLS*		*GMM*	
	Coeff/ Prob.	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*	*Coeff/ Prob.*	*Std. error/ t-statistic*
C/ROA1(-1)	1.752	0.023	0.206	0.020	1.786	0.017	0.223	0.060
	0.000	75.502	0.000	10.450	0.000	107.250	0.000	3.713
EPCRE	0.019	0.004	-10.411	2.868	0.016	0.004	-8.910	2.883
	0.000	4.364	0.000	-3.629	0.000	4.527	0.002	-3.090
ECRE	-0.042	0.020	12.311	3.464	-0.020	0.014	8.950	3.886
	0.033	-2.134	0.000	3.554	0.170	-1.372	0.023	2.303
DRE	-0.015	0.008	-1.031	1.019	-0.013	0.006	0.739	0.534
	0.052	-1.945	0.312	-1.011	0.024	-2.256	0.168	1.384
SCE	-0.022	0.005	0.499	0.388	-0.013	0.003	0.298	0.484
	0.000	-4.686	0.199	1.286	0.000	-4.025	0.539	0.616
SIZE	0.018	0.015	-16.486	2.847	-0.006	0.010	-11.648	2.166
	0.222	1.223	0.000	-5.791	0.545	-0.606	0.000	-5.379
MCAP	0.033	0.006	9.844	1.058	0.031	0.005	6.647	2.650
	0.000	5.676	0.000	9.305	0.000	5.831	0.013	2.508
Adjusted R-squared	0.181	J-statistic	38.911	AR^2	0.150	J-statistic	10.395	
Prob (F-statistic)	0.000	Prob (J-statistic)	0.429	Prob (F-statistic)	0.000	Prob (J-statistic)	0.495	
Durbin-Watson statistic	1.330	AR^2	0.093	Durbin-Watson statistic	1.315	AR^2)	0.862	
$(ROA)_{it=}\ \alpha + \beta_1 (EPCRE)_{it} + \beta_2 (ECRE)_{it} + \beta_3 (DRE)_{it} + \beta_4 (SCE)_{it} + \beta_5 (MCAP)_{it} + \varepsilon_{it}$								

5. DISCUSSION

The findings in Table 7 reveal a negative influence of expenses related to environment and pollution control on the performance of manufacturing firms. These results contradict the findings of El Moslemany and Etab (2017) as well as Walker (2019), both of whom discovered no discernible connection between CSR initiatives and the performance of firms. Further, the results reveal a significant and negative effect on the performance of Indian manufacturing firms. This result

contradicts Nwanne (2016), Walker (2019), and Tulcanaza-Prieto et al. (2020) who believe that there exists a favorable correlation between employee compensation expenses and the performance of firms. This perspective suggests that there is a constructive and beneficial link between the costs associated with employee compensation and the overall success of businesses. Concerning donation-related expenses, results in Table 7 show that donation-related expenses insignificantly impact return on assets. On the contrary, in the subsample after the introduction of CSR laws in India, donation-related expenses positively and significantly affect financial performance. These results are attributed to the fact that the implementation of the CSR Act after 2014 has forced firms to spend more, which enables them to reach all areas of the society which enhanced its image. The current results are in harmony with the investigations carried out by Tulcanaza-Prieto et al. (2020), Nwanne (2016), and Gangi et al. (2018). All of these studies reported a noteworthy and statistically significant positive association between companies' performance and their dedicated expenditures on CSR. This observation underscores a meaningful and beneficial relationship between the allocation of resources to CSR initiatives and the overall success of firms. Further, the positive connection suggests that businesses might gain strategically from integrating strong CSR practices into their business models. This would allow them to meet their social and environmental obligations while also improving their overall performance. Moreover, results also indicate that social and community expenses have a significant positive influence on the ROA for Indian manufacturing firms. This suggests that the financial commitment to social and community initiatives plays a constructive and meaningful role in enhancing the return on assets within the context of these companies. This impact is significant at a 0.01 level of significance with a 0.031 coefficient. This result is consistent with Gangi et al. (2018), Tulcanaza-Prieto et al. (2020), Kvasić et al., (2016), and Nwanne (2016). On the contrary, the results of the sub-sample after the introduction of CSR law revealed a negative and significant effect on the performance of Indian manufacturing firms. The rationale behind these findings can be elucidated by considering the nature of social and community expenses, which often encompass activities such as establishing or maintaining public parks, landscaping gardens, constructing temples, building roads, and organizing social events. The key insight is that while these endeavors come with substantial costs, they may not necessarily contribute significantly to enhancing a company's reputation. This outcome aligns with the perspectives of Makni et al. (2009) and Peng and Yang (2014), both of whom posit that CSR exerts a negative and statistically significant influence on firms' performance. According to these researchers, the negative and statistically significant relationship between CSR and performance challenges conventional assumptions, prompting a deeper exploration into the complexities of this dynamic. This perspective suggests that, in certain contexts or under specific conditions, the allocation of resources to CSR activities may not necessarily translate into improved financial outcomes for companies. Further research and nuanced analysis may be required to unravel the underlying mechanisms and contingencies that contribute to this observed negative association.

Regarding market capitalization, results indicate a positive and statistically significant impact on the profitability of Indian manufacturing firms, evident in both the overall sample and the subsample. Conversely, the size of firms demonstrates a negative and significant association with the profitability of Indian manufacturing firms. These findings align with the research perspectives of Farhan (2021) and Almaqtari (2022). The agreement of these findings with the viewpoints of Farhan (2021) and Almaqtari (2022) emphasizes the importance of market capitalization and the possible drawbacks of higher business sizes in the Indian manufacturing setting. Theoretical and empirical findings from Farhan (2021) and Almaqtari (2022) are probably going to confirm the observed patterns and add to our knowledge of how company size and market dynamics affect profitability in the manufacturing industry.

6. CONCLUSION

This study's main goal is to conduct a thorough analysis of the trends and dynamics about CSR spending in the context of Indian manufacturing companies. This study seeks to delve into the financial commitment and practices related to corporate social responsibility initiatives undertaken by these companies. More specifically, this research investigates variations in CSR spending levels both pre- and post-the COVID-19 pandemic. Additionally, the study delves into disparities in CSR expenditure between established and emerging manufacturing firms. Furthermore, the study assesses the influence of corporate social responsibility expenditure on the performance of Indian manufacturing firms. This involves a thorough examination of how the financial commitment to corporate social responsibility initiatives may affect and shape the overall performance dynamics of these companies. The research comprises a sample size of 62 companies that are publicly listed on the Bombay Stock Exchange. These firms form the basis of the study, providing a representative selection from the stock exchange for comprehensive analysis and insights into the subject under investigation. The results indicated a notable disparity in environmental and pollution control expenses both pre- and post-pandemic. Additionally, a significant distinction was observed in the environmental and pollution control expenses between mature and young firms. This highlights the impact of the pandemic on expenditure patterns and underscores the distinct approaches taken by mature and young firms in managing environmental considerations. Moreover, the outcomes of the regression analysis reveal that expenses associated with environmental and pollution control exert an inconsequential influence on the profitability of Indian manufacturing firms. Conversely, employee compensation expenses and social and community expenses demonstrate a significant and adverse impact on the profitability of these companies. This suggests that the financial aspects tied to employee compensation and social

and community initiatives play a noteworthy role in shaping the profitability dynamics of Indian manufacturing firms. Expenditures related to donations exhibit a positive and substantial impact on the performance of Indian manufacturing firms, as evidenced by statistically significant findings. This implies that companies allocating resources towards donations experience a beneficial influence on their overall performance, underscoring the importance of philanthropic activities in contributing to the success of these manufacturing enterprises. Therefore, this study has three folds of contributions. Firstly, this study attempts to unveil CSR expenditures after the Companies Act, 2013 using a large sample and a longer period of study and making a comparison between mature and young Indian manufacturing companies. Secondly, this research investigates the effects of the COVID-19 pandemic on the expenditure related to corporate social responsibility. In the wake of the global health crisis, the study seeks to analyze and understand how the pandemic has influenced the financial commitment and practices associated with corporate social responsibility initiatives. Finally, hardly any study has relied on secondary data for conducting sustainability or CSR research in India. Hence, the present study addresses and bridges the existing void in the scholarly literature on this particular subject. This study aims to contribute valuable insights and knowledge to an area where there is currently insufficient information or understanding. Regardless of these contributions, the current research has certain limitations. Firstly, the governance factor could be investigated as another pillar of sustainability, but due to the unavailability of data, it was not possible. Therefore, it is suggested to be taken in future research. Secondly, a comparison could be made between different sectors. Thus, researchers are recommended to make a comparison between the manufacturing sector and other sectors.

Many businesses are actively working to decrease their packaging waste, cut back on water use, reduce carbon footprints, and address other environmental impacts. These programs provide economic benefits in addition to favorable environmental effects. For instance, cutting back on packaging materials is both cost-effective and environmentally sustainable, which might improve overall operational effectiveness. Moreover, these methods might result in higher fuel efficiency, which would be advantageous from both an environmental and an economic standpoint. Therefore, Indian manufacturing firms should take action to minimize waste and footprints as they are the most carbon footprint producers. Further, sustainable firms should be in favor of their shareholders, employees, and the community in which a firm operates. Although strategies for obtaining and maintaining this kind of support might differ, they are always centered around the core values of treating workers fairly and acting responsibly in local and international communities. This means that businesses need to put treating employees fairly at the top of their priority list and adopt ethical behaviors that go beyond local communities to a larger, global scale. Creating a work environment that supports the values of justice, equality, and moral conduct is fundamental to building support. Encouraging an inclusive atmosphere, offering equal chances, and making sure workplace regulations are impartial and reasonable are all parts of treating people fairly. Concurrently, ethical behavior on a global level necessitates that businesses consider how their actions affect the larger society and integrate sustainable and moral practices into their operation. By following these guidelines, companies not only improve the well-being of their workers but also position themselves as morally and responsibly operating within the broader community. In turn, this may improve their standing with stakeholders, foster trust, and help them succeed over the long run in a corporate environment that is becoming more socially conscious and linked. Hence, it is suggested that firms should look into different production processes that are safer for the community. From an employee's perspective, businesses should give top priority to methods that keep and engage their staff. This entails putting in place several initiatives that improve the working environment in general and encourage dedication and contentment among employees. Given the perspective of the community, businesses ought to develop a wide variety of tactics meant to improve the community's quality of life. This entails taking part in a range of activities, including investing in local public projects, volunteering, fundraising, and sponsoring. Finally, companies should understand that adopting sustainability offers a chance to combine several endeavors under a single, comprehensive idea, which will help them become more well-known to the public. This strategic strategy not only unites disparate business activities around a shared objective, but it also establishes the organization as an entity that is ecologically responsible.

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