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Impact of CSR Expenditure on Profitability Indicators: A Fixed-Effects Panel Study of Indian Steel Companies

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ABSTRACT

The aim of this paper to detects the connection CSR expenditure and financial performance selected Indian steel companies during the post-COVID period, covering financial years 2020 to 2025. The study used secondary data. By engaging correlation and panel regression models, the research examines that whether higher CSR investments have a relationship with stronger profitability indicators. This study found a significant and relevant link between a Company's financial well-being and its corporate social responsibility activities. It notes that firms that dedicate greater resources to CSR efforts demonstrate enhances financial outcomes regarding Profitability and asset efficiency. This pattern suggest that CSR is increasingly viewed not just a compliance requirement by as strategic investment aligned with overall corporate objectives. The stable efforts recognise by companies like Tata Steel and Vedanta highlight how sustained social engagement and reputational development can improve their financial stability. Though, there was a slight deterioration in CSR expenditure in the year 2023-24 for some companies. Instead of diminished promise to social obligation, this seems to be effect of an instant recalibration. Firms are encouraged not to consider CSR as an impartial initiative rather a core component of corporate strategy. Socially responsible investors can judge a company's sustainability, ethical governance and goodwill by its CSR activities.

Keywords: *Corporate Social Responsibility, Financial Performance, ROA, ROE, Net Profit, Panel Data, Indian Steel Industry.*

Introduction

In contemporary business world, the evaluation of the businesses are not exclusively done on the basis of financial performance; rather their contributions to society and sustainability have become equally significant. Corporate Social Responsibility (CSR) is no longer a mere voluntary initiative but an essential strategy that affect reputation, stakeholder relationships and financial prosperity over the long term. With a view to create positive social and environmental change while maintaining profitability, companies are spending significant amounts for CSR activities. However, the financial inferences of CSR spending remain widely questioned. Some literatures show that company's reputation, customer trust and financial performance have been positively affected by CSR while others suggested that CSR can be a financial strain for industries like steel manufacturing that require heavy capital investment. Although extensive research have been carried out on CR and financial performance, gap remains in understanding the impact of CSR spending on the Indian Steel Industry in the post-pandemic era.

During the COVID-19 pandemic, global supply networks were disturbed and demand was reduced and businesses faced mounting financial stress. CSR investments may be seen as a strategic tool for recovery and growth or it can be seen as an extra financial burden, in this challenging environment. As steel industry plays a crucial role in infrastructural development and economic growth, it is critical to examine the influence of CSR spending on key financial metrics like Return on Assets, Return on Equity and Net Profit Margin. The aim of this study to tie that gap by adopting a quantitative approach to analyse financial data extracted from annual reports, sustainability disclosures and financial databases. The relationship between CSR expenditure and financial performance of the Indian steel industry will be assessed with the help of a relational research design.

This research seeks to provide valuable insights into whether CSR investments have any contribution to financial stability and growth or pose economic challenges. Corporate decision-makers, policymakers and investors who navigate the balance between corporate responsibility and financial sustainability will be benefitted from the findings of the research. The valuable insights extended from this study will help businesses elevate their CSR approaches while upholding profitability and long-term sustainability.

Review of Literature

Corporate Social Responsibility (CSR) has increasingly been identified as a key factor effecting financial performance (FP) in businesses. Many studies have showed how CSR initiatives contribute to corporate profitability, sustainability and goodwill. In this section, existing research on the relationship between CSR and financial performance, focusing on the Indian steel industry, have been reviewed.

The deliberation on CSR's financial implications arises from two opposing perspectives. Friedman (1970) suggested that social concerns should not be a corporate priority as a company's primary role is to maximize shareholder value. On the other hand, Narver (1971) discoursed that businesses can improvement their long-term value by proactively addressing external societal issues (Lee & Park, 2010). Since then, numerous researchers have evaluated CSR's influence on financial performance, providing a larger vision into its effects. Reddy and Adavelli (2021) conducted a cross-industry analysis to measure the inferences of CSR spending on performance of company. Their findings suggested that firms with higher CSR expenditures generally experienced better financial outcomes. El Ghoul et al. (2017) showed in their study that CSR initiatives give firms a competitive advantage by reducing transaction costs and improving resource access. They studied data of 2,445 firms from 53 countries (2003–2010) and revealed that, in markets with feebler institutional frameworks, CSR had a greater impact on the value of the firm.

However, the financial benefits of CSR are not even for all firms. Hu et al. (2018) discovered that companies that heavily advertise sometimes face adverse stakeholder reactions to CSR initiatives, decreasing their effectiveness. Similarly, Fernández-Guadano and Sarria-Pedroza (2018) opined that while large corporations are able to enhance shareholder value by CSR efforts, small and medium-sized enterprises (SMEs) need to adopt more structured approach to CSR implementation. Kesari and Rawat (2023) studied a number of firms listed on the National Stock Exchange (NSE) to assess the influence of CSR on financial performance. They found a weak but positive correlation between CSR and financial performance matrices including Profit before Tax (PBT), Return on Assets (ROA) and Return on Equity (ROE). However, they did not find any significant impact of CSR on market measures like stock performance, suggesting that investor behavior is not is not directly affected by CSR. Maurya (2016), in his study on Steel Authority of India Limited (SAIL), highlighted CSR's contributions to environmental education, healthcare and sustainability. The findings advocated that CSR initiatives help to attract skilled employees and strengthen brand image, fostering long-term growth. However, the study also highlighted inefficiencies in fund utilization and impact assessment.

Objectives of the Study

This study seeks to find if Corporate Social Responsibility (CSR) expenditures have any influence on the financial results of key players in India's steel industry in the post COVID-19 period (2020–2024). The specific objectives of the research are as follows:

i. To inspect the CSR investment trends of the selected companies across a five-year timeframe.

ii. To examine the impact of CSR expenditure on the profitability indicators such as Return on Equity (ROE), Return on Assets (ROA) and Net Profit Margin (NPM).

Methodology

This study is based exclusively on secondary data. Based on market value, revenue and CSR track record, the following five companies were selected:

a. Tata Steel Ltd.

b. SAIL (Steel Authority of India Limited)

c. Jindal Steel & Power Ltd.

d. JSW Steel Ltd.

e. Vedanta Ltd.

Sampling Technique: In order to target financially steady firms with stable CSR reporting, Purposive sampling was applied.

Analysis and Discussion

The Indian steel industry, in order to support the nation's progress across environmental, economic and social dimensions, has been actively engaged in Corporate Social Responsibility (CSR) initiatives. Lately, the association between CSR activities and financial success of a company has gained substantial attention; especially in major industries that are vital to national growth like steel. However, research findings could not give clear consensus as the studies have found mixed relationships. This conflict is often associated to the conflicting ways in which CSR and financial performance are understood and appraised. Given this context, the chapter focuses on analysing how CSR initiatives influence financial outcomes within India's steel sector, aiming to provide a clearer understanding of this important dynamic. For measuring the relationship, we have considered a total of four variables here, i.e., CSR, three variables of profitability indicators viz. Return on Assets (ROA), Return on Equity (ROE), and Net profit (NP). Correlation helps to measure the strength and direction of the relationship between two variables. Correlation analysis between CSR and profitability indicators of panel data is shown below:

Table – 1: Correlation Analysis

	CSR	ROA	ROE	NP
CSR	1			
ROA	.125**	1		
	(.002)			
ROE	.054	.037	1	
	(.195)	.371		
NP	.744**	.110**	.065	1
	.000	.008	.115	

Sources: Author's Computations

The table shows that ROA is positively somewhat (0.125) associated with CSR but their relationship is statistically significant at a 1% level of significance. Again, CSR and ROE are positively related to each other but their relationship is not significant. If CSR is increased by one unit, then ROE will be increased by 0.054 unit. CSR is positively (0.130) related to DPS and their relationship is statistically significant at a 1%. CSR is positively (highly) related to NP and their relationship is statistically significant at a 1% level of significance level.

In model 1, CSR has been considered as a dependent variable, and the rest of the thirteen variables have been considered as independent variables. Two-panel regression models, that is, the fixed-effects model and random-effects model have been employed and the results of both models have been presented in the table.

Table - 2: Panel Regressions Test Results

	Fixed Effects		Random Effects	
Variable	**Coefficient**	**t-statistic**	**Coefficient**	**t-statistic**
Intercept	30.2045	9.382058 (0.00)	5.391275	2.468716 (0.01)
ROA	0.049684	2.779784 (0.03)	0.078806	1.585901 (0.11)
ROE	0.00104	0.067953 (0.94)	-0.00275	-0.19608 (0.84)
NP	0.004671	3.936085 (0.00)	0.011419	12.60259 (0.00)
R2	0.68		0.5	
Adjusted R2	0.63		0.57	
F-statistic (prob.)	12.67 (0.00)		59.74 (0.00)	

Sources: Author's Computations

In order to move further, in order to find out perfect panel model, the Hausman specification test has been used should be used among three-panel regression models. In connection to this, the null hypothesis (H_0) asserts that the "random effects model is suitable" and the alternative hypothesis (H_1) "random effects model is not suitable". In table 3 the Hausman specification test results have shown

Table – 3: Hausman Specification Test Results

Test Summary	Chi-Sq. Statistic	d.f.	Prob.
Cross-section random	100.29	3	0.00

Sources: Author's Computations

Table 3 demonstrates that the null hypothesis is rejected because the probability is less than 0.05; therefore, all of the individual effects in these models are fixed. Specifically, the alternative hypothesis tells that the fixed effects model is more useful than the random-effects model. So, the panel data regression has been described by the fixed effects model in the present research work.

Panel regression analysis based on the fixed-effects model (Table 2) illustrates that CSR is positively related to CEE, DPS, NP, ROA, ROE, CSR is also positively related to ROA and their relationship is also statistically significant. If ROA increases by one unit, then CSR will also be increased by 0.049684 unit. That means the higher the ROA; the higher will be the CSR. If Selected steel companies can utilise their assets efficiently, then they have more profit to do CSR activities. Here the ROA is an important element to explore the impact of the financial performance of Selected steel companies on their CSR expenditures in India. Again, CSR is positively associated with ROE but their relationship is not statistically significant. For one unit increase in ROE, CSR will increase by 0.00104 unit. ROE is meagrely positively affected by CSR. This indicates that if Selected steel companies can earn a high rate of return on their equity, then these companies can spend more money on CSR activities and ROE is not an important variable to explain the impact of financial performance on CSR because the p-value of t statistics is more than 0.05. CSR has a positive and significant relationship with NP. If NP is increased by one unit, then CSR will be increased by 0.004671 unit. This indicates that the higher the NP of the companies, the higher will be their CSR expenditures (Menezes, 2019)[28]. Here we can say that if Selected steel companies are in a better situation to earn enough net profit, then these companies can also spend money on CSR activities and NP is an important variable (p value<0.05) to show the impact of financial performance on CSR of Selected steel companies in India.

The value of R^2 is the coefficient of determination which indicates that percentage change in dependent variable due to percentage change in other independent variables. Since the value of R^2 is 0.68, it means that 68% of the dependent variable can be predicted by the independent variables and we can say that our regression model is moderately fitted to explain the CSR variable. The value of adjusted R^2 indicates the percentage change of variation independent variable by only those predictors that really affect the dependent variable. Here the value of adjusted R^2 is 0.63 which means that the model is moderately (high) good for explaining the financial performance indicators that influence CSR. F statistics (12.67) with probability (0.00) indicate that the regression model is perfectly fitted.

Conclusion

The findings of this paper emphasis a clear and meaningful connotation between a company's financial health and Corporate Social Responsibility. Companies that tend to allocate more resources toward CSR initiatives, prove stronger financial performance in relation of net profit and asset efficiency. This trend highlights that CSR is no longer seen as a mere regulatory obligation but as a strategic investment in accordance with overall corporate objectives. The steady efforts made by companies like Tata Steel and Vedanta highlight how sustained social engagement and reputational development can improve financial strength. However, there was a minor drop in CSR expenditure in the year 2023-24 for some companies. Instead of a weakened commitment to social obligations, this seems to be the consequence of an instant recalibration.

Policy Implications

The backdrop of CSR for any the companies can be enhanced and sustained an impactful investment in social development. For investors socially responsible investors can judge a company's sustainability, ethical governance and goodwill by its CSR track record. Form the view point of businesses, the enclosure of CSR into financial and strategic planning can enlarge both social and business sustainability. Companies are encouraged CSR a core component of corporate strategy rather than standalone initiative.

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