A Causal Linkage Between Corporate Sustainability Performance and Financial Performance of Select IT & ITeS Companies in India

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Abstract

Purpose : The present study examined the association between the environmental, social, and governance (ESG) and corporate financial performance (CFP) of select information technology and information technology-enabled services (IT & ITeS) companies in India.

Methodology : The independent variables of CFP, namely return on sales, return on asset, return on capital employed, return on equity, and Tobin's *Q* and the variables of CSP ESG Score, environmental, social, and governance score individually and control variables firm age and net worth were considered. Causality and influence between CFP and CSP and vice-versa were tested through Grangular causality and panel data regression analysis, respectively, using E-views12. Secondary data were drawn from Integrated Annual Reports of the NSE-rated 27 top disclosure IT & ITeS companies selected on census sampling.

Findings : It was demonstrated that there was a bidirectional correlation between ESG and social and governance and unidirectional causality between Tobin's *Q* and ESG, ESG to net worth, and ESG to return on sales. IT and ITeS firms support the traditional view that sustainability costs constrain financial performance.

Practical Implications : It was suggested the companies consider the elements of sustainability equally to make rational, sustainable investments to augment ESG. Establishing a standard ESG framework would serve as a guide for effective implementation.

Originality : The connection and causation between CFP and CSP, as well as vice versa, were examined in the current study. Additional research could look at the national and local business contexts.

Keywords : **sustainability performance, financial performance, ESG disclosure, causal relationship, IT & ITeS companies**

JEL Classification Codes : Q56, G32, L1, M14, L86

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An integrated strategy that strikes a balance between environmental deterioration and economic growth is necessary for sustainable development. Concern among customers, legislators, analysts, and markets has intensified due to the effects of climate change on corporate operations. Businesses that put sustainability practices first fare financially better than those that don't (Bhullar & Singh, 2017). Openness and disclosure can foster stakeholder credibility, which is crucial for preserving goodwill and preventing adverse effects on reputation. Financial performance is anticipated to be impacted over the long term by environmental, social, and governance (ESG) factors, even though sustainability is in the developing stage (Dhote & Zahoor, 2017); it has made political and economic progress. Considering the tripartite essential structure of sustainable development, India is an intricate combination of opportunities and difficulties. ESG is a non-financial organizational evaluation process that encourages businesses to shift from having just one purpose of maximizing profits to having numerous objectives, including environmental preservation and social responsibility. Listed companies that effectively communicate their strategies to investors and include ESG initiatives in their operations give a complete picture of corporate valuation. The motivations for ESG reporting are significantly impacted by reporting regulations. An increased amount of openness in the disclosure of ESG data allows businesses to access external financial resources on better terms (Raimo et al., 2021). IT and ITeS organizations are advancing ESG practices inside and among themselves. By integrating socially and environmentally responsible practices into their businesses, developing technical solutions for ESG problems, and actively interacting with stakeholders and communities to promote a more sustainable and inclusive future, they make a substantial contribution to ESG practices.

The purpose of the study is to know the current state of corporate sustainability performance (CSP) of Indian IT & ITeS firms about their commitments toward ESG components and simultaneously seeking to comprehend its effect on corporate financial performance (CFP). Corporate governance plays a crucial part in the context of corporate engagement (Singh et al., 2022) and should be considered while assessing a firm's CSP (Jose et al., 2021). By using extensive statistical techniques, this study assesses the causal association among companies' performance on sustainability factors and financial factors in the Indian context. Since the majority of studies on CSP–CFP causality have been conducted for businesses in developed nations, there is a critical need for performing this study in India due to the scanty literature on the topic.

The following research questions are being examined within the context of a few Indian studies:

- ***RQ1 :*** What relationships exist between various CSP and CFP parameters?
- ***RQ2 :*** Does a causal relationship exist between CSP and CFP?

Literature Review and Hypotheses Development

Theoretical Background

Corporate social responsibility (CSR) has been acknowledged as a means of attaining sustainability with a convincing financial justification. The shareholder theory (Hicks, 1963) advocates an increase in economic capital, whereas the contradictory stakeholder theory (Parmar et al., 2010) advocates an increase in economic, ecological, and social capital. Sustainability pertains to the environment and its components – equity, justice, and civil rights and characteristics impacted by corporations (Shanaev & Ghimire, 2022). Legitimacy theory necessitates the disclosure of sustainability information to stakeholders to demonstrate their commitment toward society by supporting the stakeholder theory. Non-financial reports provide stakeholders and the general public with information on the corporation's efforts to address ESG challenges (Poursoleyman et al., 2022). The classical

agency theory, in contrast, makes the argument that financial support for corporate sustainability initiatives enhances a company's reputation at the expense of shareholders.

A mixture of financial and non-financial elements determines a firm's performance. CSP is an appropriate background that places interest in a firm's responsibility and responsiveness to its various stakeholders. With the help of effective CSP, the firm's reputation can be enhanced through preferential access to factor and product markets, which is a valuable strategic asset to any corporation (Lacy & Hayward, 2011). A strong CSP is a sign that a firm has capabilities that will expand its value; thus, investors value the businesses in question (Lourenço et al., 2012).

CSP–CFP Linkage

The CSP–CFP relationship has been extensively studied in the literature. The CSP–CFP connection is continually developing. A majority of research finds a relationship that is either positive (Poursoleyman et al., 2022), negative (Aggarwal, 2013), inconsequential, or U-shaped (Ben Lahouel et al., 2022). The CSP–CFP relationship yields varied results in different economic and cultural contexts; also, there are no standardized criteria for the direction in which this relationship is demonstrated. Inconclusive evidence for the CSP–CFP relationship is noted in the research conducted in developed countries. This is due to the absence of standardized research methodologies (Lu & Taylor, 2016), ambiguity in defining CSP and CFP variables (Busch & Schnippering, 2022), time effect (Zhao & Murrell, 2022), inclusion of confounding factors (Brower et al., 2017), and improper specification of CSP and CFP variables (Gupta & Das, 2022).

A variety of results were obtained from research conducted in developing countries, particularly in India. These included a positive correlation (Manrique & Martí-Ballester, 2017), a negative correlation (Tyagi & Sharma, 2013), a positive or negative correlation (Buallay, 2019), a U-shaped relationship (Shabbir et al., 2020), an insignificant correlation (Bastomi Fahri Zusak et al., 2019), or an uncertain weak association (Lee & Li, 2022).

According to the aforementioned research, there is not enough evidence to support the claim that performance and sustainability are related in the Indian context. Therefore, based on the body of research previously available on stakeholders' theory, the following theories are put forth: CSP is evaluated through the use of ESG metrics that take into consideration both individual and group ESG factors.

- **Ha1 :** The financial performance of companies is positively impacted by CSP (ESG).
- **Ha1A :** CFP is positively influenced by environmental performance (E).
- **Ha1B :** CFP is positively influenced by social performance (S).
- **Ha1C :** CFP is positively impacted by governance (G).

CSP–CFP Reverse Causal Linkage

There is a reciprocal relationship between CSR practices and a company's financial performance (Ramesh & Peswani, 2017; Singh, 2013). It seems obvious that a liquidity constraint could limit expenditures in different efforts that either directly or indirectly reduce emissions, given successful business operations improve environmental performance over time (Hermawan et al., 2019). The correlation between CSP, effective corporate governance, and business value has been significantly strengthened by financial performance (Kumar et al., 2021). The improved efficient use of resources will help companies reduce their operating costs in the long run. It is difficult to determine how directly it affects financial performance (Sharma, 2014).

There is proof that CFP_{t-1} and CSP_t are connected via a unidirectional Granger causal link. As a result,

businesses with strong CFP can utilize their excess financial or non-financial aspects to enhance their CSP (Fischer & Sawczyn, 2013). The slack resource theory states that CSP is contingent upon CFP (Melo, 2012), and a virtuous cycle exists in the CFP and CSP linkage. A reverse causal analysis of CFP and CSR linkage is proved in the performance of public listed companies in developing nations (Tanggamani et al., 2023). Therefore, it is essential to investigate the CSP–CFP linkage's reverse causality by putting out the following hypothesis :

↳ **Ha2 :** CFP and CSP are positively correlated.

Research Design and Methodology

Data Collection

In total, 621 Indian companies were rated by NSE as top disclosures in ESG activities in line with the study's objectives. The sample data for the study is found from 27 IT & ITeS companies, which were selected through census sampling techniques from NSE's rating. ESG scores and firm-specific data were obtained from CRISIL's scores on ESG and the annual reports of the companies were used for collecting corporate-specific financial information for the study period of 2018–2019 to 2022–2023. The annual ESG disclosure on ESG, E, S, and G aspects, ranging from 0 to 100, including 586 businesses across 53 sectors, is presented in CRISIL's ESG scores database (NSE 2023). We assessed the final sets of panel data that were skewed throughout five years. One hundred thirty-five firm-year observations were divided into 27 cross-sections. The panel data have been considered in order to capture any variation over time and across the cross-section, using either constant or random variables.

Data Analysis

Using Eviews-12, all statistical analysis was carried out. All variables were examined and evaluated using descriptive analysis and correlation. Fixed effect regression model was used to test all the proposed models.

The Granger causality (GC) test was employed to confirm a bidirectional causal relationship between CFP and CSP. Numerous techniques were employed in the GC tests, such as determining the factors' stationarity (ADF Test), estimating the ideal lag time using Schwarz information criteria or Akaike information criteria, examining the variables' co-integration (Johansen co-integration test), and utilizing vector autoregression estimation or vector error correction model based on the co-integration test results. The operationalization of the variables is presented in Table 1.

Table 1. ***Operationalization of Variables***

Variable	Name	Mnemonic	Types	Operationalization	Source
CFP	Return on Sales	*ROS*	Ratio	Profitability of a business about sales	Money Control
	Return on Assets	*ROA*		Profitability to its total assets	
	Return on Capital Employed	*ROCE*		EBIT/Capital employed equals ROCE	
	Return on Equity	*ROE*		Earnings after interest and taxes by shareholders' equity	
	Tobin's *Q*	*Tobin's Q*		Market capitalization by total assets	Annual report
CSP	ESG-score	*ESG*	Numeric	Reported by CRISIL, which ranges from 0 to 100	CRISIL's ESG
	E-score	*E*			scores

	S-score	*S*		
	G- score	*G*		
Control	Firm Size	*F* size	Log of market capitalization	Annual report
Variables	Firm Age	*F* age	Distinction between the current year and the incorporation year	

Dependent and Independent Variables of the Study

According to the model, CSP–CFP is employed both as an independent and a dependent variable. CFP is a dependent variable in Models I to IV, and in Models V to IX, CSP is a dependent variable. CRISIL's ESG score, an external measure, has been used as a proxy to measure CSP. The ESG components of sustainability are assessed by ESG score. CFP is a multi-dimensional construct classified as accounting base, market base, and perpetual measure. In the CSP–CFP study, applying accounting and market-based measurements consecutively helps to assess a firm's historical and prospective CFP (Atan et al., 2018). It eliminates the possibility of any deception resulting from operational and accounting policy choices (Gregory & Whittaker, 2013). The market-based metrics included in the study are Tobin's *Q*, ROS, ROCE, ROE, and the accounting-based measure ROA. Numerous studies have shown that Tobin's *Q* captures the value-generating portion of a firm.

Control Variables of the Study

Most contextual factors have an impact on how CSP and CFP are associated. According to Dienes et al. (2016), three frequently used variables in sustainability studies are the company's size, years of operation, and profitability. The CSP–CFP effect is significantly moderated by the company age (Gupta et al., 2022). The firm's size is operationalized through the usage of market capitalization.

Estimation Models

The following estimation models are applied for testing hypotheses Ha1, Ha1A, Ha1B, and Ha1C.

Models I to IV

$$CFP_{ijt} = C + \beta_1 * CSPk_{jt} + \beta_2 * Fage_{jt} + \beta_3 * Fsize_{jt} + \varepsilon_{jt} \quad (1)$$

The following models have been tested with H2:

Models V to IX

$$CSPk_{jt} = C + \beta_1 * CFP_{ijt} + \beta_2 * Fage_{jt} + \beta_3 * Fsize_{jt} + \varepsilon_{jt} \quad (2)$$

Models for GC Test

In order to confirm the bidirectional causation between CSP–CFP, the following models have been employed :

$$CFP_{ijt} = C + \Sigma^{l}_{l=1} \propto lCFP_{ij}(t–l) + \Sigma^{l}_{l=1} \gamma\, lCSP_{ij}(t–l) + \varepsilon_{jt} \quad (3)$$

$$CSPk_{jt} = C + \Sigma^{l}_{l=1} \propto lCSP_{ij}(t–l) + \Sigma^{l}_{l=1} \gamma\, lCFP_{ij}(t–l) + \varepsilon_{jt} \quad (4)$$

*CFP*1 is denoted as ROA, *CFP*2 is ROS, *CFP*3 is ROCE, *CFP*4 is ROE, and *CFP*5 is Tobin's *Q*, where $i = 1, 2,$ and 3. CFP_{ijt} stands for the *CFP* for company *j* during period *t*. Additionally, *CSP*1 to *CSP*4 measure ESG_{jt}, E_{jt}, S_{jt}, *and* G_{jt}, respectively, because $k = 1, 2, 3,$ and 4, showing the *CSP* for company *j* during period *t* as measured by the ESG-score, E-score, S-score, and G-score. *l* stands for the lag orders, while *C* stands for the intercept. $FAge_{jt}$, $Fsize_{jt}$ stands for the firm's age and size in the given period. The error term is represented by ε_{jt}.

Analysis and Results

Descriptive Analysis and Correlation

The results of descriptive statistics for each variable reveal that the data are not normally distributed; all sustainability performance factors have negative skewness (long left tail), while all variables of financial performance have positive values for skewness (long right tail), kurtosis (leptokurtic), and insignificant *p*-values. The observed disclosure scores of the mean for the sustainability performance indicators are highest for governance and followed by social and environmental, with a high standard deviation indicating that sustainability scores are widely distributed. The mean Tobin's *Q* value reveals the companies' financial health. The average age of the firm of 28 years reveals the IT companies established after the implementation of LPG. Mean net worth value supports the financial health of Indian IT & ITeS companies. Table 2 reports the correlation between all the variables. Most sustainability and financial performance metrics have a 0.01 significant correlation. The majority of the variables correlate with firm age, size of firm, and net worth. There is no clear and significant direction in the correlation between the various CSP and CFP variables.

Causality between Sustainability Performance to Financial Performance and Vice Versa

The use of the Granger causality test has verified the stationarity of the variables. According to the results, every factor has the same degree of stationarity (Table 3). The null hypothesis for each of these tests is that the unit root of each variable is reflected when the tests are performed on all variables. It states that the series is non-stationary. Since there is no long-term relationship, the GU test's second stage evaluates the variables that are co-integrated

Table 2. ***Correlation Analysis of Factors of CSP and CFP***

	ROE	*ROS*	*ROA*	*ROCE*	*E*	*S*	*G*	*ESG*	TOBIN'S *Q*	*AGE*	*NETWORTH*
ROE	1										
ROS	0.238**	1									
ROA	0.926**	0.133	1								
ROCE	0.974**	0.323**	0.922**	1							
E	0.315**	0.137	0.297**	0.348**	1						
S	0.279**	0.166	0.266**	0.323**	0.899**	1					
G	0.272**	0.186*	0.227**	0.313**	0.893**	0.982**	1				
ESG	0.296**	0.169*	0.267**	0.335**	0.951**	0.985**	0.985**	1			
TOBIN'S *Q*	0.428**	0.038	0.450**	0.447**	0.366**	0.384**	0.326**	0.363**	1		
AGE	–0.079	0.368**	–0.160	–0.048	0.412**	0.250**	0.265**	0.318**	–0.085	1	
NETWORTH	0.222**	.0199*	0.226**	0.289**	0.641**	0.553**	0.551**	0.595**	0.236**	0.454**	1

Note. *, ** means significance at 0.05 and 0.01 levels, respectively.

Table 3. ***Stationarity Test at Different Levels***

Variables	Levin, Lin, & Chu t*	Im, Pesaran, and Shin *W*-stat	ADF – Fisher Chi-square	PP - Fisher Chi-square
ROE	0.0000	0.0007	0.0260	0.0002
ROS	0.0000	0.2729	0.4753	0.2033
ROA	0.0000	0.1283	0.4117	0.0728
ROCE	0.0000	0.0199	0.1540	0.0225
E	1.0000	1.0000	1.0000	1.0000
S	1.0000	1.0000	1.0000	1.0000
G	1.0000	1.0000	1.0000	1.0000
ESG	1.0000	1.0000	1.0000	1.0000
TOBIN'S *Q*	0.0000	0.0373	0.1484	0.0113
AGE	0.9991	0.9796	0.9924	0.9988
NET WORTH	0.0000	0.0000	0.0081	0.0002

between them because they are all stationary at level 1(0). Hence, the calculation of co-integration is not required. The VAR model with two lag lengths is considered for different pairs of sustainability and financial performance; when assessing the GU, the appropriate variables based on AIC and SIC were utilized in the respective models. To evaluate the variable's causality, the pairwise GU test is used. The stacking technique is used in Eviews for the panel data, which is unbalanced. Table 4 shows the outcome of the GC test pair-wise for the CSP–CFP variables.

Table 4. ***Results of the Granger Causality Test for the CSP–CFP Relationship for the IT and ITeS Sectors***

Null Hypotheses	*F*-Statistic	Prob.
Unidirectional		
ROE does not Granger cause TOBIN'S *Q*.	4.86952	0.0102
ROE does not Granger cause NET WORTH.	3.81927	0.0263
ROS does not Granger cause ROCE.	4.24007	0.018
ESG does not Granger cause ROS.	7.51851	0.001
TOBIN'S *Q* does not Granger cause ROS.	14.9511	3.00E–06
NET WORTH does not Granger cause ROS.	3.40827	0.0382
TOBIN'S *Q* does not Granger cause ROA.	3.83112	0.026
ROA does not Granger cause NET WORTH.	3.42490	0.0377
ROCE does not Granger cause TOBIN'S *Q*.	3.36163	0.0399
ROCE does not Granger cause NET WORTH.	3.69946	0.0293
E does not Granger cause ESG.	8.31986	0.0005
S does not Granger cause NET WORTH.	3.31883	0.0415
G does not Granger cause NET WORTH.	3.51306	0.0347
TOBIN'S *Q* does not Granger cause ESG.	6.89903	0.0018
ESG does not Granger cause NET WORTH.	3.56522	0.0331

Bi-directional		
ESG does not Granger cause S.	5.03127	0.0089
S does not Granger cause ESG.	3.14008	0.0489
ESG does not Granger cause G.	6.32352	0.0029
G does not Granger cause ESG.	9.55139	0.0002

In the case of variables relating to financial performance, the null hypothesis is rejected for causality from ROE to Tobin's *Q*, ROE to net worth, ROS to ROCE, Tobin's *Q* to ROS, net worth to ROS, Tobin's *Q* to ROA, ROA to net worth, ROCE to Tobin's *Q*, ROCE to net worth for all the IT firms. Concerning sustainability performance, none of the null hypotheses are rejected except E to ESG, ESG to S, S to ESG, ESG to G, and G to ESG for all IT firms. Test of causality from variables of sustainability performance to financial performance, all the null hypotheses are accepted except causality from S to net worth, ESG to net worth, G to net worth, ESG to ROS, and Tobin's *Q* to ESG for all companies under IT. Evidence of bidirectional causality between ESG and S and G, as well as unidirectional causality from E to ESG, S to net worth, Tobin's *Q* to ESG, and ESG to net worth, have been presented. Nevertheless, the GU's overall findings do not offer a clear recommendation for the CSP–CFP criteria.

Results of Panel Data Regression Analysis

The fixed effect regression results performed for all models concerning the association between sustainability with financial performance are shown in Table 5, and the outcome of the inverse relationship is shown in Table 6.

Influence of Sustainability Performance on Financial Performance

The outcome shows that, at the 0.01 level of significance, Model II CSP-E has a positive coefficient that affects ROA; on the other hand, it does not affect ROE, ROCE, ROS, or Tobin's *Q*. CSP-S and CSP-G have a considerable impact on ROS at a level of 0.10 for Models I, III, and IV CSP-ESG. However, they don't have any statistically significant effects on Tobin's *Q*, ROA, ROE, or ROCE.

For all of the models, firm size affects ROA. For Models I, II, and III, firm size influences ROCE at a 1% significance level and Tobin's *Q* at a 5% significance level, while in Model IV, firm size influences ROCE at a 5% significance and Tobin's *Q* at a 1% significance. Firm size is insignificant in influencing the ROE and ROS in all models. Firm age affects ROS with a positive coefficient for all models, but it has a statistically insignificant influence on ROE, ROA, ROCE, and also Tobin's *Q*. The results show that all CSP measures, except CSP-E, except for Model II, have significance for all the models. Since a positive association among CSP->CFP is unable to be demonstrated based on the aforementioned, the hypotheses Ha1, Ha1A, Ha1B, and Ha1C have been rejected.

Influence of CSP and CFP for the IT and ITeS Sectors

The result reveals that Model II CSP-E influences ROA at the 0.01 significance with a positive coefficient; however, it is insignificant in impacting the ROCE, ROE, ROS, and Tobin's *Q*. CSP-ESG, CSP-S, and CSP-G effect ROS at a significant level of 0.10 for Models I, III, and IV, but not at a statistically significant level for ROA, ROE, ROCE, or Tobin's *Q*.

Firm size affects ROA across all models with a 0.05 level of significance. For Models I, II, and III, firm size influences ROCE at a 0.10 significance level and Tobin's *Q* at 5% significance. In contrast, in Model IV, firm size influences ROCE at a 0.05 significance level and Tobin's *Q* at a 0.01 significance level. For all models, firm size is

Table 5. ***Results of Panel Data Regression Model (CSP –> CFP)***

	MODEL 1 *ESG*					MODEL 2 *E*					MODEL 3 *S*					MODEL 4 *G*				
DEPENDENT VARIABLES	***ROE***	***ROS***	***ROA***	***ROCE***	**TOBIN'S *Q***	***ROE***	***ROS***	***ROA***	***ROCE***	**TOBIN'S *Q***	***ROE***	***ROS***	***ROA***	***ROCE***	**TOBIN'S *Q***	***ROE***	***ROS***	***ROA***	***ROCE***	**TOBIN'S *Q***
C	11.589	0.410	8.780	13.221	0.034	11.589	0.410	8.780	13.221	0.034	11.589	0.410	8.780	13.221	0.034	11.589	0.410	8.780	13.221	0.034
CFP Co-Efficient	0.075	0.006*	0.006	0.116	0.006	0.075	0.006*	0.006	0.116	0.006	0.075	0.006*	0.006	0.116	0.006	0.075	0.006*	0.006	0.116	0.006
Firm Age	–0.561	0.172***	–0.613	–1.166	–0.390	–0.561	0.172***	–0.613	–1.166	–0.390	–0.561	0.172***	–0.613	–1.166	–0.390	–0.561	0.172***	–0.613	–1.166	–0.390
Firm Size	0.598	–0.029	0.706**	1.195*	0.509**	0.598	–0.029	0.706**	1.195*	0.509**	0.598	–0.029	0.706**	1.195*	0.509**	0.598	–0.029	0.706**	1.195*	0.509**
t-Statistic	3.384	2.109	3.992	3.131	0.027	3.384	2.109	3.992	3.131	0.027	3.384	2.109	3.992	3.131	0.027	3.384	2.109	3.992	3.131	0.027
Prob.	0.001	0.037	0.000	0.002	0.979	0.001	0.037	0.000	0.002	0.979	0.001	0.037	0.000	0.002	0.979	0.001	0.037	0.000	0.002	0.979
R^2	0.538	0.619	0.559	0.535	0.404	0.538	0.619	0.559	0.535	0.404	0.538	0.619	0.559	0.535	0.404	0.538	0.619	0.559	0.535	0.404
Adjusted R^2	0.409	0.513	0.436	0.406	0.238	0.409	0.513	0.436	0.406	0.238	0.409	0.513	0.436	0.406	0.238	0.409	0.513	0.436	0.406	0.238
F-statistic	4.169	5.828	4.545	4.132	2.430	4.169	5.828	4.545	4.132	2.430	4.169	5.828	4.545	4.132	2.430	4.169	5.828	4.545	4.132	2.430
Prob (*F*-statistic)	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.001
AIC	7.202	1.464	6.317	7.621	5.235	7.202	1.464	6.317	7.621	5.235	7.202	1.464	6.317	7.621	5.235	7.202	1.464	6.317	7.621	5.235
Schwarz criterion	7.851	2.113	6.965	8.270	5.883	7.851	2.113	6.965	8.270	5.883	7.851	2.113	6.965	8.270	5.883	7.851	2.113	6.965	8.270	5.883
Hannan–Quinn criteria	7.466	1.728	6.580	7.885	5.498	7.466	1.728	6.580	7.885	5.498	7.466	1.728	6.580	7.885	5.498	7.466	1.728	6.580	7.885	5.498
Durbin–Watson stat.	2.214	1.916	2.046	2.252	2.163	2.214	1.916	2.046	2.252	2.163	2.214	1.916	2.046	2.252	2.163	2.214	1.916	2.046	2.252	2.163

Note. *, **, *** means significance at the 0.05, 0.01, and 0.10 levels, respectively.

Table 6. ***Results of Panel Data Regression Model (CFP –> CSP)***

	MODEL 5 *ROS*				MODEL 6 *ROA*				MODEL 7 *ROCE*				MODEL 8 *ROE*				MODEL 9 TOBIN'S *Q*			
DEPENDENT VARIABLES	***E***	***S***	***G***	***ESG***	***E***	***S***	***G***	***ESG***	***E***	***S***	***G***	***ESG***	***E***	***S***	***G***	***ESG***	***E***	***S***	***G***	***ESG***
C	–2.881	5.783	7.874	3.492	–1.566	–0.277	11.595	5.428	–3.629	5.081	7.768	2.871	3.291	5.472	8.300	3.267	–1.222	7.826	10.917	5.794
CFP Co-Efficient	3.760	4.626***	6.822***	5.189***	0.041	0.603*	–0.078	0.042	0.174	0.199	0.226	0.211	0.173	0.197	0.217	0.211	0.226	0.253	–0.088	0.120
Firm Age	3.252*	1.672	2.460	2.510	4.005**	0.759	3.735***	3.540*	4.113**	2.719***	3.952*	3.675*	4.032**	2.626***	3.845*	3.577*	4.064**	2.661***	3.748*	3.559*
Firm Size	3.805**	3.480**	4.198**	3.825**	3.755**	4.329**	4.218**	3.765**	3.500**	3.130**	3.791**	3.452**	3.631**	3.281**	3.964**	3.610**	3.665**	3.321**	4.208**	3.733**
t-Statistic	–0.573	1.042	1.067	0.603	–0.294	–0.044	1.473	0.879	–0.705	0.892	1.019	0.482	–0.632	0.950	1.077	0.542	–0.247	1.427	1.490	1.009
Prob.	0.568	0.300	0.288	0.548	0.770	0.965	0.144	0.382	0.483	0.375	0.311	0.631	0.529	0.344	0.284	0.589	0.806	0.157	0.139	0.316
R^2	0.850	0.785	0.763	0.804	0.847	0.311	0.755	0.797	0.851	0.784	0.759	0.802	0.849	0.782	0.757	0.801	0.848	0.779	0.755	0.797
Adjusted R^2	0.809	0.725	0.697	0.749	0.805	0.295	0.686	0.741	0.809	0.723	0.692	0.747	0.807	0.721	0.690	0.745	0.805	0.718	0.686	0.741
F-statistic	20.401	13.062	11.541	14.682	19.876	19.595	11.042	14.111	20.405	12.999	11.291	14.549	20.212	12.855	11.188	14.392	19.948	12.661	11.038	14.119
Prob (*F*-statistic)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
AIC	7.930	8.129	8.699	8.215	7.953	8.903	8.732	8.247	7.930	8.133	8.716	8.223	7.938	8.141	8.723	8.231	7.950	8.153	8.733	8.247
Schwarz criterion	8.579	8.778	9.348	8.864	8.601	8.989	9.381	8.896	8.579	8.781	9.364	8.871	8.587	8.790	9.371	8.880	8.598	8.802	9.382	8.895
Hannan–Quinn criteria	8.194	8.392	8.963	8.479	8.216	8.938	8.996	8.511	8.194	8.396	8.979	8.486	8.202	8.405	8.986	8.495	8.213	8.417	8.996	8.510
Durbin–Watson stat.	1.941	1.923	1.834	1.895	1.951	0.676	1.817	1.889	1.970	1.913	1.813	1.895	1.970	1.915	1.817	1.898	1.967	1.913	1.813	1.896

Note. *, **, *** means significance at the 0.05, 0.01, and 0.10 levels, respectively.

insignificant in influencing the ROE and ROS. For all models, the age of the firm is significant at a high level and has a positive coefficient influence on ROS, but there is a statistically insignificant impact on ROE, ROA, ROCE, and for Tobin's *Q*. The findings indicate that every CSP measure, with the exception of CSP-E, is significant for every model except for Model II. Because it was not able to demonstrate a positive link between CSP –> CFP, all of the theories that had been developed, including Ha1, Ha1A, Ha1B, and Ha1C, have been dismissed.

Influence of CFP and CSP for the IT and ITeS Sectors

Models V, VI, VII, VIII, and IX show the reverse effects of the CSP–CFP relationship corresponding to ROS, ROE, ROA, ROCE, and Tobin's *Q* as CFP variables.

In Model V, ROS shows a positive association with CSP-S, CSP-G, and CSP-ESG at a 0.10 significant level, while no correlation with the CSP-E dimension is observed. For Model VI, ROA shows a positive relationship with CSP-S at a 0.05 significant level, but the rest of the dimensions are not significant. Models VII, VIII, and IX with ROCE, ROE, and Tobin's *Q* as financial measures fail to have a significant relationship with any CSP measures. For all of the models, the coefficient on firm size is significant at the 1% significance.

The coefficient of firm age reveals a significantly positive relationship with CSP-E, resulting in ROA, ROCE, ROE, and Tobin's *Q* at the 0.01 level of significance and ROS at the 0.05 significance level. In contrast to ROS and ROA, which are not significant, firm age has a significantly positive connection with CSP-S, yielding ROCE, ROE, and Tobin's *Q* at the 0.10 significant level. The coefficient of firm age reveals a significantly positive relationship with CSP-G, with ROCE, ROE, and Tobin's *Q* at the 0.05 level of significance and ROA at the 0.10 significant level, and ROS does not result significantly. The coefficient of firm age with CSP-ESG shows a significantly positive association for ROA, ROCE, ROE, and Tobin's *Q* at the 0.05 significant level, and ROS is insignificant. Overall, the CFP –> CSP link could not be proven with certainty; hence, Ha2 is rejected.

Discussion

The Companies Act of 2013 mandated companies to publish business responsibility reports that included information on their operations along with the scopes of ESG as well as an allocation of 2% of their average net income corporate sustainability initiatives over the previous three years. Based on the selected CFP measures, namely ROS, ROA, ROE, ROCE, and Tobin's *Q*, the overall results indicate various CSP–CFP relationships, with only a few variables clearly showing causality in either direction. The analysis centered on accounting measures illustrates that CSP's combined ESG, S, and G have a favorable impact. It suggests that Indian IT & ITeS companies that perform better in terms of social or governance factors are not certain to do better financially. Environmental effects will have a negative financial performance impact. All CSP measures have a significant effect on the value of firm or market-based CFP (Tobin's *Q*). This supports the classical theory that a company's investment in sustainability initiatives affects its market value.

These findings are similar to the outcome of many studies that the combined ESG has a positive correlation with the firm's value. In association with the firm value, the individual social and governance scores show a positive relationship. A similar result was reached by Makni et al. (2009), who found that firms that are socially responsible experience lower profitability and lower shareholder wealth, which in turn restricts socially responsible investments. Further, investors penalize firms with low levels of CSP and firms having the capacity to implement higher levels of CSP, however, not engaged in CSP activities (Lourenço et al., 2012). Environmental accountability is a result of erstwhile financial achievement, supporting the slack resources theory (Testa & D'Amato, 2017).

The social dimensions of CSP can affect CFP without having a major effect on the environmental or

governance aspects. ESG slow adopters do poorly in risk-adjusted terms, with the effects of ESG rating levels being small (Shanaev & Ghimire, 2022). At the aggregate level, a firm with a higher score on ESG had performance at a high level while at the individual level, firms with higher scores on ESG contribute to maximising the firm value. When a higher CFP seemed to be important, our results from reverse causal analysis for the CSP–CFP link and the GC test were unable to show that IT and ITeS enterprises with higher CFPs were leading CSP at a greater level cumulatively. As CFP increases, the companies would expect an equal increase in CSP. These findings for Indian IT & ITeS companies advocate the classical theory (Hicks, 1963) that expenses on sustainability activities let down the CFP. This reveals that the accounting-based measures are founded on the company's book value and lack significant influence. Owing to the implementation of the Companies Act 2013, investment in the social dimension is increasing among Indian corporations (Mukhibad & Setiawan, 2020). The investment brought by companies in India for the sustainability dimension will take a while to reap the benefits of improved performance on financial metrics. The current study covers the nascent period of compulsory implementation of business responsibility reporting as mandated by SEBI, and the study period is insufficient to test the impact on CFP.

IT & ITeS firms are comparatively younger in India; as such, the effect of firm age and firm size have a significant impact on CFP and are predicted to be more profitable. Because it is closely tied to accounting-based metrics, market volatility has an intriguing positive effect on ROE, ROCE, ROA, and Tobin's *Q*. This runs counter to research that demonstrates how a firm's risk and environmental performance are inversely related because of the nature of business. CSP and CFP do not directly connect because of the complex relationships that exist between businesses that engage in ESG activities.

Implications

The study has many implications for assessing the causality of the CSP–CFP link in India. In the past, sustainability efforts of the companies were driven by moral obligations voluntarily; whereas, it's viewed from a strategic perspective by companies with the dominance of social dimension. In tune, the firms have made efforts to prove themselves as more responsible on the earth.

As the evidence of causality among CSP–CFP factors is missing, the findings of this study support several contradictory arguments made in the literature for CSP–CFP. These results give direction to throw light on additional variables to be considered during this study. The authorities at the helm of affairs of management of the IT & ITeS companies may use this study to understand the reason for not earning higher returns on the CFP front, despite higher CSP allocations. They can give guidance on whether firms need to focus on a specific component or collective ESG for making investments in sustainability by augmenting ESG scores.

Investors have an opportunity to assess if making socially responsible investments is the best course of action given the present state of the economy in India. Evaluating the correctness of the presented data is challenging because the criteria could not be all-inclusive. When making future investment selections, it will be possible to evaluate whether the choices chosen based on CRISIL ratings accurately represent companies' true CSP.

The outcome of the study to policymakers is that they could find the means of rewarding businesses according to the investments made in all three dimensions, thereby driving them on the path of sustainability. The Indian IT & ITeS companies within this sector will be able to understand their status on ESG practices and identify the areas of improvement.

Conclusion

The outcomes are consistent with prior research on Indian IT & ITeS. The reasons for the same are that there is no

effective disclosure of all sustainability efforts by IT & ITeS companies and thereby not being taken into account by the rating agencies. The Indian IT and ITeS companies could only be splurging in certain domains and this stands not in line with the CRISIL-measured CSP attribute coverage. When CFP is measured using accounting-based measures, the CSP–CFP association is insignificant for Indian IT & ITeS companies. It suggests that the sample companies did not reap any financial rewards from their sustainability-related efforts. Our results, which were largely inconsequential for this relationship, also imply that Indian IT& ITeS companies will perform similarly in terms of CSP whether their CSP is higher or lower on ESG dimensions. It indicates that the sample companies did not benefit financially from the efforts made in sustainability. Finally, there can be a disconnect between the business's efforts to address sustainability elements and what the market expects from sustainability coverage. The results of this study do not fully align with past research conducted in industrialized nations that has demonstrated a positive trend in the CSP–CFP connection. It does, however, continue to align with a number of studies that propose a neutral or negative correlation for this connection. The study under review presents an unexpected claim: although CSP has been increasing since 2018, the largest increase in the environmental factor has been seen in Indian IT and ITeS firms.

Limitations of the Study and the Way Forward

As CSP is calculated using CRISIL's ESG score, which is based on a proprietary algorithm, the exhaustiveness in covering CSP variables cannot be guaranteed in this study. By including the intangible advantages gained from increased CSP into the CSP–CFP model and employing indices on the reputation earned, the study can be further improved. The study was conducted for select Indian IT & ITeS companies, and it can be further extended to other industrial sectors to have a cross-sector comparative study and to incorporate the performance of firms outside India to carry out a cross-country analysis where these findings are comparable across sectors and among developing and developed economies. As suggested by the earlier literature, the study is based on context variables, and the outcomes differ accordingly based on context variables of the country's business environment. The results of the impact analysis may change if moderating and mediating contextual factors are taken into consideration. There is a clear pattern of CSP in places with diverse commercial and regulatory environments. For the CSP–CFP association, a comprehensive cross-country comparison study is thus required to produce a generalized finding.

Authors' Contribution

The concept came from Dr. P. Santhi, who also created the study's quantitative design. Based on keywords, Dr. P. Sasirekha produced concepts and codes related to the study design and assembled the research papers. J. Anija confirmed the analytical procedures. Drs. P. Santhi and P. Sasirekha used Eviews 12 to perform the numerical computations, and they collaborated to write the manuscript.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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