# BIDIRECTIONAL ASSOCIATION BETWEEN CORPORATE FINANCIAL PERFORMANCE AND ENVIRONMENTAL, SOCIAL, AND GOVERNANCE PERFORMANCE

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### **Abstract**

The growing emphasis on sustainability has positioned environmental, social, and governance (ESG) practices as a key driver for businesses seeking long-term value creation. While existing research has extensively analysed the impact of ESG performance (ESGP) on corporate financial performance (CFP), slack resource theory suggests that strong CFP can also enhance ESGP, indicating a two-way relationship (Miralles-Quirós et al., 2019). This study explores this bidirectional dynamic — specifically, the "CFP-ESGP-CFP" link — using a panel dataset of 304 firm-year observations from Indian companies listed on the Nifty100 ESG Index between 2018 and 2022. ESGP is assessed using ESG disclosure scores from the Bloomberg database, while CFP is evaluated through return on assets (ROA) as an accounting-based metric and Tobin's Q as a market-based measure. Applying correlation analysis and fixedeffect regression models, the findings reveal a positive relationship between CFP and ESGP for market-based measures. However, ESGP negatively affects CFP across both accounting and market metrics. These insights underscore the complex interplay between ESGP and financial outcomes, enriching the discourse on sustainable business practices (Debnath et al., 2024). A key limitation of this study is its focus on Indian firms within the Nifty100 ESG Index, suggesting opportunities for future research to expand into other geographic regions and market indices for broader applicability.

**Keywords:** Bidirectional Relationship, ESG Performance, ESGP, Financial Performance, Sustainability, Corporate Social Responsibility

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# 1. INTRODUCTION

Environmental, social, and governance (ESG) has become a pivotal aspect of corporate social responsibility (CSR), focusing on the ESG factors that influence a firm's performance (Miralles-Quirós et al., 2019). While CSR broadly addresses the responsibility of businesses toward societal wellbeing (Matten & Moon, 2008), ESG narrows its scope to three specific areas: 1) environmental responsibility, 2) social considerations. 3) corporate governance. The term ESG gained prominence after the release of the United Nations Global Compact (2004). In recent years, the importance of ESG performance (ESGP) has grown significantly for both policymakers and investors (Cioli et al., 2023; Debnath et al., 2024; Nekhili et al., 2021; Tarmuji et al., 2016; Velte, 2017). Companies now view ESG as a crucial factor for gaining competitive advantage, improving operational efficiency, and managing reputation (Alotaibi & Al-Dubai, 2024; Alsayegh et al., 2020; Aouadi & Marsat, 2018; Buallay, 2019; Filbeck et al., 2019; Ghofar et al., 2024). For example, firms with strong ESGPs often receive more media attention and attract substantial investments (Liu & Hamori, 2020). In India, the Securities and Exchange Board of India (SEBI) (2015) has promoted greater ESG disclosure through Regulation 34(2)(f) of the Listing Obligations and Disclosure Requirements (LODR).

Despite the increasing relevance of ESG, there remains a gap in the literature regarding the bidirectional relationship between corporate financial performance (CFP) and ESGP. Existing studies primarily focus on how ESGP impacts financial performance but often neglect the reverse relationship — how financial performance influence ESGP (Ahmed et al., 2021; Do & Kim, 2020; Landi & Sciarelli, 2019). Additionally, there is limited research on the Indian context, particularly using firm-level panel data from indices such as the Nifty100 ESG Index. This study aims to address this gap by examining the relationship between CFP and ESGP in Indian firms listed on the Nifty100 ESG Index. The theoretical foundation of this research is based on stakeholder theory and resource-based theory, which highlight the role of ESG initiatives in achieving sustainable performance and satisfying stakeholders. This framework positions ESG goals as essential for long-term corporate success, rather than being solely driven by financial motives (Alsayegh et al., 2020; Ruggiero & Cupertino, 2018). The study utilizes firm-level panel data from 2018 to 2022, comprising 304 firm-year observations, and employs fixed-effect regression models to analyze the bidirectional CFP-ESGP relationship. The findings contribute to a deeper understanding of ESG as a dynamic driver of corporate sustainability and offer practical insights for policymakers investors. Given the growing focus on ESG in India, this study is highly relevant for stakeholders aiming to align financial performance with sustainable practices. Exploring the CFP-ESGP-CFP relationship addresses critical gaps in the literature and provides evidence to enhance corporate ESG strategies, ensuring competitiveness in a resource-constrained environment.

This paper offers a detailed exploration of the two-way relationship between CFP and ESGP. The structure of this paper is as follows. Section 2 surveys existing literature, analysing the link between CFP and ESGP while developing the study's hypotheses. Section 3 describes the research design and analytical methods employed. Section 4 presents the empirical findings. Section 5 interprets their significance. The final Section 6 addresses study limitations, suggests areas for further research and summarizes the main conclusions.

# 2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The words corporate social responsibility/CSR and environmental, social, and governance/ESG are frequently used interchangeably in the literature. Carroll (1979) divided CSR spending into these three categories. Neoclassical researchers are credited with developing the fundamental argument about the connection between ESG and CFP, which is commonly known as the trade-off hypothesis (Friedman, 1970; Vance, 1975; Wright & Ferris, 1997). These academics maintained that maximizing financial gains for shareholders is a company's top social duty and that funding "ESG initiatives" needlessly raises operating expenses, which lowers profitability. On the other hand, proponents of stakeholder theory (Freeman, 1984; Jones, 1995) asserted that other stakeholders, besides business owners, are as important to a company's success since they allow for more advantageous contracting that promotes stability and growth (Fatemi & Fooladi, 2013). Strong performance across a range of ESG dimensions can therefore have wider ramifications from a strategic management standpoint than just being seen as an expense, limitation, or altruistic gesture (Waddock & Graves, 1997).

The slack resource argument, on the other hand, contends that better CFP results in better ESGP rather than the other way around (Waddock & Graves, 1997). Improved financial performance enables businesses to devote more funds to socially conscious endeavors, including fostering better employee relationships, giving back to the community, and tackling environmental issues (Preston & O'Bannon, 1997). Waddock and Graves (1997) have postulated the possibility of a reciprocal relationship, in which ESG influences CFP and CFP affects ESG at the same time. This idea is known as the positive/negative synergy hypothesis.

This study contends that the interaction between "ESG and CFP constructs" must be taken into consideration if such a reciprocal link is there. Many of the older research, however, failed to consider this factor, which calls into doubt the validity of their conclusions. For example, Flammer (2014), Siegel and Vitaliano (2007), Surroca et al. (2010), and Zhao (2018) did not take into account the potential for a concurrent correlation between ESG and CFP when analyzing the causative relationship. Recent studies (Anderson et al., 2014; Chollet & Sandwidi, 2018; Kang et al., 2016) have found a reciprocal relationship between corporate social conduct and firm performance in order to overcome this restriction. To establish the validity of the positive/negative synergy theory as a conceptual framework, Nakamura (2015) relationship examined the mutual a company's environmental and social performance and its overall performance. However, despite these advancements, research exploring the bidirectional link between ESG factors and a firm's financial performance remains limited, particularly emerging economies such as India.

A study by Behl et al. (2022), focusing specifically on India's energy sector, found no reciprocal connection between ESG practices and corporate value. In contrast, Lin et al. (2019) investigated the two-way relationship between ESG scores and CFP, concluding that stronger ESG engagement tends to correlate with improved financial outcomes. However, their research also indicated that higher ESG involvement does not always guarantee better financial results. A key limitation of Lin et al.'s (2019) study was its exclusive reliance on overall ESG scores and accounting-based performance measures. The present study addresses this gap by incorporating both market-based and accounting-based performance indicators. By doing so, it aims to overcome the constraints of prior research and explore the bidirectional relationship within the context of Indian firms listed on the Nifty100 ESG Index. Based on this foundation, the following hypotheses are proposed for empirical testing:

H1: Accounting performance (return on assets, ROA) leads to improved environmental, social, and governance performance of the company.

H2: Market performance (Tobin's Q) leads to improved environmental, social, and governance performance of the company.

According to Scherer and Palazzo's (2007) legitimacy theory, a company's stakeholders grant it the right to operate through a social compact that needs to be continuously reaffirmed. According to this viewpoint, a company's ESG initiatives play a critical role in creating a moral basis for this underlying social contract. Nonetheless, businesses have limited funding, which needs to be distributed wisely across different investment endeavors (Ahmed et al., 2021). The one-way impact of investments in ESG-related activities on CFP has been generally acknowledged by empirical investigations. But research on the "doing well by doing good" theory is still conflicting and unclear (Kruger, 2015; Margolis & Walsh, 2003). There are conflicting findings from several studies that show both positive and negative associations between CFP and ESGP (Yang et al., 2024). For example, some scholars have found that environmental performance and CFP are positively correlated (Zhou et al., 2022; King & Lenox, 2002; Lee et al., 2016; Park, 2023; Stanwick & Stanwick, 1998), while others have found that CFP is negatively impacted by CSR dimensions like society, environment, and employment practices (Alotaibi & Al-Dubai, 2024; Brammer et al., 2006). Furthermore, investments in long-term value-maximizing initiatives may be hampered by surplus cash held in working capital accounts (Akbar et al., 2022).

Yang et al. (2019) examined the relationship between CSR performance and the financial performance of Chinese pharmaceutical companies in the Chinese environment and came to the conclusion that a company's CFP is positively impacted by its complete CSR rating. CSR policies also have a favorable impact on accounting-based performance measures, according to Wu and Shen (2013). Through panel-based regression, Zhao et al. (2018) investigated this link in China's energy and power generation sector and confirmed that improved ESGP had a positive stimulant effect on CFP. These results motivate companies to fund governance, social, and environmental projects. More recent research has confirmed that ESGP has a favorable effect on financial results. Using the causal steps technique

and the Sobel-Goodman and Bootstrap tests, Zheng et al. (2022) discovered that financial performance is enhanced by ESGP. Additionally, Rossi et al. (2021) emphasized how CSR policies improve a company's financial performance. The simulation study was utilized by Fatemi et al. (2015) to show how CSR increases corporate value. Quantile regression was also used by Wang et al. (2015) to find positive impacts of CSR and brand equity on business performance. According to Wang and Sarkis' (2017) analysis of the top 500 green United States (U.S.) companies' overall ESG scores, CSR governance improves financial results by boosting CSR performance. Achim et al. (2016) examined companies listed on the Bucharest Stock Exchange (BVB) from the standpoint of corporate governance and discovered a positive relationship between market value and the caliber of corporate governance. Esteban-Sanchez et al. (2017) observed that while product responsibility and society aspects have no positive impact on CFP, better scores in corporate governance and employee dimensions do in the banking industry.

There is agreement that ESG-related investments affect business financial performance, despite different definitions and analytical techniques in previous studies (Nelling & Webb, 2009; Peloza & Papania, 2008; Surroca et al., 2010; Xie et al., 2019; Yu et al., 2018). Because they invest more in the environment than their male counterparts, female business executives, for example, are viewed as better corporate citizens (Jiang & Akbar, 2018). Nonetheless, there are expenses associated with being a responsible corporate entity because businesses need to actively cultivate and preserve their social reputation, which can have intangible advantages. It is difficult for stakeholders to evaluate the long-term value of ESG efforts because they also come with observable costs (Broadstock et al., 2020).

However, other research suggests that company performance and ESGP are negatively correlated. Although their use of linear regressions raises questions regarding endogeneity, Garcia et al. (2017) looked at businesses in the BRICS nations and discovered a negative correlation between profitability and environmental performance. Additionally, Jain et al. (2017) found a negative correlation between CFP and ESG scores. In their study of Romanian businesses, Achim and Borlea (2014) discovered that while environmental investments have a beneficial effect on market metrics like total quality (TQ), they also increase internal financial pressure and lower overall financial performance.

Friede et al. (2015) did a thorough systematic literature analysis and came to the conclusion that there is a well-established relationship between ESGP and CFP, with approximately 90% of research indicating a non-negative connection that is primarily positive. The majority of ESG activities and CFP have a positive link, according to a recent international study (Xie et al., 2019). The research's hypothesis, which is in line with stakeholder theory, is based on the previous debate.

H3: Environmental, social, and governance performance leads to improved accounting performance (ROA) of the company.

H4: Environmental, social, and governance performance leads to improved market performance (Tobin's Q) of the company.

This study's conceptual framework explores the dynamic relationship between CFP and ESGP, supported by stakeholder theory, resource-based theory, legitimacy theory, and slack resource theory. Together, these theories offer a robust basis for analyzing the two-way link between financial outcomes and sustainability initiatives among Indian companies listed on the Nifty100 ESG Index. Stakeholder theory emphasizes that businesses should address the needs of diverse stakeholders, such as investors, employees, customers, and regulators, rather than focusing exclusively on shareholder profits. According to this perspective, strong ESGP strengthens long-term value by building trust, mitigating risks, and ensuring adherence to regulations. ESG-related efforts, including environmental conservation measures, fair labor policies, and transparent governance structures, can improve corporate reputation and financial resilience. As a result, firms with robust ESG practices may achieve better financial performance by attracting investor confidence, lowering capital costs, and optimizing operational efficiency.

The resource-based theory highlights that companies with robust financial health can dedicate more resources to ESG initiatives, strengthening their sustainability performance. This idea is supported by the slack resource theory, which posits that firms with strong financial performance have surplus resources to invest in socially responsible activities. Enhanced financial stability enables organizations to fund ESG-related projects, including green innovation, employee welfare programs, and governance improvements, creating a virtuous cycle where financial strength drives ESGP, which then further enhances financial outcomes. Additionally, legitimacy theory reinforces this perspective by underscoring that businesses function within a social framework where maintaining legitimacy is essential for long-term viability. Firms that actively engage in ESG practices build a positive reputation, gain regulatory approval, and secure their social license to operate. Regulatory measures, such as SEBI's ESG reporting mandates, further encourage companies to adopt transparent sustainability disclosures.

To empirically validate this bidirectional relationship, this study employs panel data from 2018

to 2022, comprising 304 firm-year observations. The research incorporates both accounting-based (ROA) and market-based (Tobin's Q) measures of CFP to provide a comprehensive analysis. Fixed-effect regression models are used to assess the causal linkages, addressing potential endogeneity concerns. By integrating these theoretical perspectives, this study contributes to the growing literature on ESG and CFP, particularly in the Indian context, where sustainability concerns are gaining prominence. The findings will offer practical insights for investors, policymakers, and corporate managers, helping them align financial strategies with sustainability goals to ensure competitive advantage and long-term corporate success.

### 3. RESEARCH METHODOLOGY

This section describes the research methodology, including the study design, sampling approach, data gathering techniques, variable measurement, and analytical models employed to examine the bidirectional link between CFP and ESGP.

### 3.1. Research design

The research adopts an analytical approach, analyzing firm-level panel data from 2018 to 2022 to assess the link between CFP and ESGP. A fixed-effects regression model is used, chosen after conducting the Hausman test. To strengthen reliability, the model accounts for heteroscedasticity and autocorrelation by integrating robust standard errors. Furthermore, lagged variables are incorporated to better determine the causal relationship between the studied variables over time.

## 3.2. Population and sample selection

The study focuses on companies included in the Nifty100 ESG Index as of March 29, 2023. This index tracks the performance of companies weighted by their free-float market capitalization and ESG scores, which are used to rank them. Financial institutions, banks, and firms with missing data were omitted, resulting in a final sample of 304 firm-year observations for analysis.

Table 1. Sample selection

Sample selection	2018	2019	2020	2021	2022
Nifty100 ESG Index companies in the database	89	89	89	89	89
Financial and banking companies	23	23	23	23	23
Missing data companies	4	3	3	7	9
Final sample	62	63	63	59	57

Source: Authors' elaboration.

### 3.3. Data sources and variables

The study uses secondary data obtained from the Bloomberg database. Financial variables and control variables were extracted along with ESG disclosure scores. The CFP is proxied by *ROA* and *Tobin's Q*, while ESGP is represented by *ESG*. Control variables include firm size (*SIZE*), financial leverage (*LEV*), and industry dummies (*INDS*).

**Table 2.** Selection of variables and measurement

Variables	Measurement	Explanation	Cited articles		
	ROA	Net income / Total assets	Garcia et al. (2017), Ruggiero and Cupertino		
CFP	Tobin's Q	Market value of equity / Book value of equity	(2018), Chelawat and Trivedi (2016), Velte (2017), Dalal and Thaker (2019), and Kumar and Dua (2020).		
ESGP	ESG	ESG scores disclosures	Ruggiero and Cupertino (2018), Garcia et al. (2017), and Sharma et al. (2020).		
	Control variables				
Firm size	SIZE	Log of total assets	Landi and Sciarelli (2019), Paltrinieri and Allegrini (2020), Singh et al. (2022), Miralles- Quirós et al. (2019), and Garcia et al. (2017)		
Financial leverage	LEV	Net debt to shareholders' equity ratio	Landi and Sciarelli (2019), Paltrinieri and Allegrini (2020), Singh et al. (2022), and Miralles-Quirós et al. (2019).		
Industry dummies	INDS	The sector dummies obtain a value of 1 for the firm's sector and 0, otherwise	Landi and Sciarelli (2019), Paltrinieri and Allegrini (2020), Singh et al. (2022), Garcia et al. (2017), and Miralles-Quirós et al. (2019).		

Source: Authors' elaboration.

### 3.4. Statistical model and procedure

The analysis employs fixed-effect regression to examine panel data, with models specifically addressing potential econometric issues like multicollinearity, heteroscedasticity, autocorrelation, stationarity, and normality to strengthen the reliability of the results. The Hausman test validated the suitability of the fixed-effect approach. To account for delayed effects, the study incorporates one-year lagged variables.

Two models are constructed:

- ullet Model 1 investigates how CFP at time t affects ESGP at time t+1.
- ullet Model 2 assesses the reverse relationship, analyzing the effect of ESGP at time t on CFP at time t+1.

This approach ensures a robust examination of the bidirectional relationship between financial and sustainability performance over time.

Empirical model

$$Y_{it} + 1 = \beta_0 + \beta_a X_{it} + \beta_s C_{it} + \varepsilon_{it} \tag{1}$$

where, in Model 1,  $Y_{it}$  represents ESGP, while in Model 2, it denotes CFP. Conversely,  $X_{it}$  stands for CFP in Model 1 and ESGP in Model 2. The term  $C_{it}$  refers to a set of control variables for firm i at time t, while  $\varepsilon_{it}$  represents the error term in each model. The subscript t indicates the time period, and i corresponds to the cross-sectional units (firms). This formulation ensures clarity in distinguishing the dependent and independent variables across the two models.

Figure 1. Flow of models



Source: Authors' compilation.

### 4. RESULTS

### 4.1. Descriptive statistics

The analysis of the relationship between CFP-ESGP-CFP is presented through descriptive statistics, a correlation matrix, and fixed effects regression.

**Table 3.** Descriptive statistics

Variables	Obs.	Mean	Std. dev.	Min	Max
ESG	318	49.902	11.373	22.36	76.98
ROA	329	10.848	13.223	-74.98	95.18
Tobin's Q	324	12.04	34.683	.37	566.62
LEV	328	63.421	580.594	-182.98	10186.44
SIZE	330	9.140e+1	1.850e+1	1.351e+1	1.714e+1

Source: Authors' elaboration using STATA-14.

Table 4. Correlation matrix

Variables	ESG	ROA	Tobin's Q	LEV	SIZE
ESG	1.000				
ROA	-0.116	1.000			
Tobin's Q	-0.208*	0.026	1.000		
LEV	-0.072	-0.134*	0.049	1.000	
SIZE	0.417*	-0.292*	-0.190*	0.077	1.000
VIF	1.273	1.352	1.248	1.086	1.548

Note: VIF — variance inflation factors. \*\*\* p < 0.01, \*\* p < 0.05, \* p < 0.1. Source: Authors' elaboration using STATA-14.

The average ESG scores in the sample are around 50, suggesting that companies are responding positively to ESG initiatives. Among the sample companies, the average Tobin's Q (12.04) is higher than the average ROA (10.85) (see Table 3). Table 4 shows the pair-wise correlation among the variables, with values below 0.70 in the correlation

matrix confirming the absence of multicollinearity issues in the data. Additionally, the VIFs in the data are all below 1.55, further indicating that multicollinearity is unlikely to affect the results. Both performance measures used in the study,  $Tobin's\ Q$  and ROA, exhibit a negative correlation with ESG. Notably,  $Tobin's\ Q$  significantly influences

ESG in the opposite direction, which warrants further investigation. Furthermore, the control variable SIZE shows a significant positive correlation with ESG, whereas LEV demonstrates a negative correlation with ESG in the companies.

### 4.2. Regression analysis

The fixed-effect regression analysis is carried out to examine the impact of CFP on ESGP in Table 5 and ESGP on CFP in Table 6, for the sample firms.

**Table 5.** Regression results for the impact of CFP on ESGP

Marialda.	ESG	ESG	
Variables	(1)	(2)	
ROA	-0.018		
	(0.049)		
Tobin's Q		0.18***	
		(0.034)	
LEV	0.0001	-0.01***	
	(0.0003)	(0.002)	
SIZE	7.641***	7.028***	
	(1.769)	(1.397)	
Constant	-150.818***	-136.353***	
	(46.676)	(36.854)	
Observations	254	253	
R-squared	0.909	0.923	
Adj. R-squared	0.875	0.894	
F-statistic	7.872	33.75	
INDS	Yes	Yes	

Note: Robust standard errors are in parentheses. \*\*\* p < 0.01, \* p < 0.05. \* p < 0.1.

Source: Authors' elaboration using STATA-14.

Table 5 depicts the significant value of the f-statistics that confirm the statistical significance of both models. The results show that *ROA* and *Tobin's Q* are going in opposite directions. *ROA* has a negative but insignificant effect on ESGP, but *Tobin's Q* has a significant and positive effect on ESGP at 1% (approx.) significance. In addition, LEV also has a positive but negligible relationship with ESG, however, SIZE is positively related to ESGP.

Table 6. Regression results for the impact of ESGP on CFP

Variables	ROA	Tobin's Q	
variables	(1)	(2)	
ESG	-0.099	-0.037	
	(0.181)	(0.473)	
LEV	-0.001	0.018	
	(0.001)	(0.058)	
SIZE	9.439	9.333	
	(7.121)	(11.131)	
Constant	-232.744	-232.108	
Constant	(181.345)	(277.079)	
Observations	256	255	
R-squared	0.66	0.651	
Adj. R-squared	0.539	0.59	
F-statistic	0.971	0.522	
INDS	Yes	Yes	

*Note: Robust standard errors are in parentheses.* \*\*\*p < 0.01, \*\* p < 0.05, \* p < 0.1. Source: Authors' elaboration using STATA-14.

Table 6 depicts the significant value of statistical f-statistics" that confirm the significance of both models. The ESG disclosure explain more than 53% variation in accounting measure (ROA) and 59% in market measure (Tobin's Q) of CFP, and the results show that ESG has a negative impact on both ROA as well as Tobin's Q, even though it's insignificant. Furthermore, the impact of ESG on ROA is stronger

than on our market-based measure of CFP, Tobin's Q. In addition, LEV also has a negative relationship with *ROA*, however, *SIZE* is positively related to both *ROA* and Tobin's Q. The results indicate that an increased *ESG* will lead to lower performance.

### 5. DISCUSSION

This study employs a data set of the Nifty100 ESG Index for five years (2018–2022) to investigate the causal nexus between CFP-ESGP-CFP. The empirical investigation of the relationship between CFP-ESGP-CFP using a panel dataset of 304 firm-year observations based on Indian-listed firms is Consistent with the slack resource theory. Our study confirms the findings of Lin et al. (2019), who assessed the bidirectional association between ESGP scores and CFP and found that better financial performance leads to improved ESG engagement. While better ESG engagement does not necessarily lead to superior financial performance. Our study finds a positive CFP-ESGP relationship, but in respect of market measures only, while there is a negative ESGP-CFP relationship in respect of both accounting and market measures. However, this research study comes with certain limitations. Firstly, our measurement of ESGP relies on Bloomberg's ESG, remains uncertain whether these comprehensively cover all ESG factors. To enhance the study, future research could incorporate reputational indices as a measure of non-financial performance, capturing intangible benefits derived from higher ESGP within the CFP-ESGP relationship framework. Secondly, our analysis is based on limited number of companies listed the Nifty100 ESG Index in India. Subsequent studies in this area could explore the CFP-ESGP relationship on a larger sample size. Additionally, our measurement of ESGP considers overall ESG scores. It might be valuable for future studies to examine separate social (S), environment (E), scores for governance (G) factors. Furthermore, this exclusively focuses on Indian firms. A valuable extension would involve conducting a cross-country comparative study, allowing for a comparison of results between developed and developing economies.

### 6. CONCLUSION

The relationship between CFP and ESGP has been widely studied, with mixed results observed across various research efforts (Margolis & Walsh, 2003; Lu et al., 2014; Yang et al., 2024). These inconsistent findings highlight the need for further empirical investigation to clarify the interaction between these two performance dimensions. While many studies argue that ESG activities can create a competitive advantage by enhancing corporate reputation (Porter et al., 2006; Porter et al., 2019), managers typically prioritize ESG initiatives only when they contribute to improved financial outcomes. This study adopts a distinct perspective by recognizing that firms must balance multiple performance objectives, with ESGP holding equal importance alongside financial metrics in managerial decisionmaking. Effective corporate management requires allocating limited financial resources across diverse investments to satisfy the expectations of all stakeholders, not just shareholders. The primary objective of this research is to explore how financial resource availability influences firms' ESGP and, conversely, how ESGP affects financial performance.

The findings reveal a positive relationship between CFP and ESGP when measured using market-based indicators, but a negative association emerges when accounting-based measures are considered. These results suggest that greater financial resources enhance a firm's flexibility, allowing it to develop strategies aligned with its current and future operational environment. Higher financial profitability increases adaptability, shaping managerial choices. These significantly insights are particularly valuable for academics seeking to evaluate the causality and impact of the CFP-ESGP relationship in emerging economies like India. Corporate leaders can also benefit from this research by understanding why higher financial performance, measured through ROA, does not necessarily lead to increased ESG engagement and why ESG investments may negatively influence financial outcomes. The study highlights additional factors that should be incorporated into similar analyses, offering guidance on whether firms should focus on specific ESG dimensions or an aggregate approach for sustainable investments. Investors relying on ESG scores can also use these findings to assess the financial implications of socially responsible investments in the Indian context.

Given the inconsistent findings on the CFP-ESGP relationship, this study sets the stage for future research to explore several critical areas. Sector-specific

analyses could determine whether certain industries exhibit stronger ESG-financial performance linkages. Longitudinal studies with extended time frames may help assess whether ESG investments yield financial benefits over the long term. Additionally, future research could examine how corporate governance structures, regulatory policies, and firm-specific characteristics moderate the ESG-CFP relationship. A deeper understanding of these factors would enable businesses to refine their sustainability strategies while maintaining financial efficiency.

Despite its contributions, this study has limitations. The sample is confined to Indian firms listed on the Nifty100 ESG Index, which may not fully represent smaller companies or those in other markets. The reliance on secondary data also restricts the ability to capture managerial perspectives and strategic nuances in ESG decision-making. Future studies incorporating qualitative methods, such as executive interviews, could provide richer insights into how firms integrate ESG considerations into financial planning. Macroeconomic factors, including policy shifts and global sustainability trends, should also be incorporated into future models to strengthen the validity of findings. Addressing these limitations and expanding the scope of research will lead to a more comprehensive understanding of the ESG-CFP relationship, offering valuable insights for academics, corporate leaders, and investors.

### REFERENCES

- Achim, M.-V., & Borlea, S. N. (2014). Environmental performances Way to boost up financial performances of companies. *Environmental Engineering and Management Journal*, *13*(4), 991–1004. https://doi.org/10.30638/eemj.2014.103
- Achim, M.-V., Borlea, S. N., & Mare, C. (2016). Corporate governance and business performance: Evidence for the Romanian economy. *Journal of Business Economics and Management*, 17(3), 458–474. https://doi.org/10.3846/16111699.2013.834841
- Ahmed, B., Akbar, M., Sabahat, T., Ali, S., Hussain, A., Akbar, A., & Hongming, X. (2021). Does firm life cycle impact corporate investment efficiency? *Sustainability*, 13(1), Article 197. https://doi.org/10.3390/su13010197
- Akbar, A., Jiang, X., & Akbar, M. (2022). Do working capital management practices influence investment and financing patterns of firms? *Journal of Economic and Administrative Sciences*, 38(1), 91-109. https://doi.org/10.1108/JEAS-07-2019-0074
- Alotaibi, K. O., & Al-Dubai, S. A. A. (2024). Board diversity impact on corporate profitability and environmental, social, and governance performance: A study of corporate governance. *Corporate Law & Governance Review, 6*(2), 93–106. https://doi.org/10.22495/clgrv6i2p9
- Alsayegh, M. F., Abdul Rahman, R., & Homayoun, S. (2020). Corporate economic, environmental, and social sustainability performance transformation through ESG disclosure. *Sustainability*, *12*(9), Article 3910. https://doi.org/10.3390/su12093910
- Anderson, N., Potočnik, K., & Zhou, J. (2014). Innovation and creativity in organizations: A state-of-the-science review, prospective commentary, and guiding framework. *Journal of Management*, 40(5), 1297–1333. https://doi.org/10.1177/0149206314527128
- Aouadi, A., & Marsat, S. (2018). Do ESG controversies matter for firm value? Evidence from international data. *Journal of Business Ethics*, 151, 1027–1047. https://doi.org/10.1007/s10551-016-3213-8
- Auer, B. R., & Schuhmacher, F. (2016). Do socially (ir)responsible investments pay? New evidence from international ESG data. *The Quarterly Review of Economics and Finance*, *59*, 51–62. https://doi.org/10.1016/j.qref.2015.07.002
- Behl, A., Kumari, P. S. R., Makhija, H., & Sharma, D. (2022). Exploring the relationship of ESG score and firm value using cross-lagged panel analyses: Case of the Indian energy sector. *Annals of Operations Research*, 313, 231–256. https://doi.org/10.1007/s10479-021-04189-8
- Brammer, S., Brooks, C., & Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial Management*, *35*(3), 97–116. https://doi.org/10.1111/j.1755-053X .2006.tb00149.x
- Broadstock, D. C., Matousek, R., Meyer, M., & Tzeremes, N. G. (2020). Does corporate social responsibility impact firms' innovation capacity? The indirect link between environmental & social governance implementation and innovation performance. *Journal of Business Research*, 119, 99–110. https://doi.org/10.1016/j.jbusres.2019.07.014
- Buallay, A. (2019). Is sustainability reporting (ESG) associated with performance? Evidence from the European banking sector. *Management of Environmental Quality, 30*(1), 98–115. https://doi.org/10.1108/MEQ-12-2017-0149
- Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance. *Academy of Management Review*, 4(4), 497–505. https://doi.org/10.5465/amr.1979.4498296

- Chelawat, H., & Trivedi, I. V. (2016). The business value of ESG performance: The Indian context. Asian Journal of Business Ethics, 5, 195–210 (2016). https://doi.org/10.1007/s13520-016-0064-4
- Ching, H. Y., Gerab, F., & Toste, T. H. (2017). The quality of sustainability reports and corporate financial performance: Evidence from Brazilian listed companies. Sage Open, 7(2). https://doi.org/10.1177 /2158244017712027
- Chollet, P., & Sandwidi, B. W. (2018). CSR engagement and financial risk: A virtuous circle? International evidence. Global Finance Journal, 38, 65-81. https://doi.org/10.1016/j.gfj.2018.03.004
- Cioli, V., Giannozzi, A., Pescatori, L., & Roggi, O. (2023). Are environmental, social and government factors incorporated in the credit ratings? Risk Governance and Control: Financial Markets & Institutions, 13(3), 22-32. https://doi.org/10.22495/rgcv13i3p2
- Dalal, K. K., & Thaker, N. (2019). ESG and corporate financial performance: A panel study of Indian companies. IUP Journal of Corporate Governance, 18(1). https://www.researchgate.net/profile/Karishma-Anklesaria-Dalal-2/publication/371177996
- Debnath, P., Bhuyan, A. K., Das, S., Saikia, B., Saha, A., Chakravarty, E., Debi, H., & Kanoo, R. (2024). Nexus between ESG reporting and financial performance in the banking sector. Corporate Law & Governance Review, 6(4), 103-116. https://doi.org/10.22495/clgrv6i4p10
- Do, Y., & Kim, S. (2020). Do higher-rated or enhancing ESG of firms enhance their long-term sustainability? Evidence from market returns in Korea. *Sustainability*, *12*(7), Article 2664. https://doi.org/10.3390/su12072664 Esteban-Sanchez, P., de la Cuesta-Gonzalez, M., & Paredes-Gazquez, J. D. (2017). Corporate social performance and
- its relation with corporate financial performance: International evidence in the banking industry. Journal of Cleaner Production, 162, 1102-1110. https://doi.org/10.1016/j.jclepro.2017.06.127
- Fatemi, A. M., & Fooladi, I. J. (2013). Sustainable finance: A new paradigm. Global Finance Journal, 24(2), 101-113. https://doi.org/10.1016/j.gfj.2013.07.006
- Fatemi, A. M., Fooladi, I. J., & Tehranian, H. (2015). Valuation effects of corporate social responsibility. Journal of Banking & Finance, 59, 182-192. https://doi.org/10.1016/j.jbankfin.2015.04.028
- Filbeck, A., Filbeck, G., & Zhao, X. (2019). Performance assessment of firms following sustainalytics ESG principles. The Journal of Investing, 28(2), 7-20. https://doi.org/10.3905/joi.2019.28.2.007
- Flammer, C. (2014). Spheroidal wave functions. Dover Publications.
- Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
- Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. Journal of Sustainable Finance & Investment, 5(4), 210-233. https://doi.org/10.1080 /20430795.2015.1118917
- Friedman, M. (1970). A theoretical framework for monetary analysis. Journal of Political Economy, 78(2), 193-238. https://doi.org/10.1086/259623
- Garcia, A. S., Mendes-Da-Silva, W., & Orsato, R. J. (2017). Sensitive industries produce better ESG performance: Evidence from emerging markets. Journal of Cleaner Production, 150, 135-147. https://doi.org/10.1016 /j.jclepro.2017.02.180
- Ghofar, A., Muhammad, M., & Maneemai, P. (2024). Adapting to uncertainty: Gender diversity in boardrooms and its role in enhancing sustainable corporate governance and ESG performance in the era of COVID-19. Corporate Board: Role, Duties and Composition, 20(1), 80-91. https://doi.org/10.22495/cbv20i1art7
- Jain, T., Aguilera, R. V., & Jamali, D. (2017). Corporate stakeholder orientation in an emerging country context: A longitudinal cross industry analysis. *Journal of Business Ethics*, 143, 701-719. https://doi.org/10.1007 /s10551-016-3074-1
- Jiang, X., & Akbar, A. (2018). Does increased representation of female executives improve corporate environmental investment? Evidence from China. Sustainability, 10(12), Article 4750. https://doi.org/10.3390/su10124750
- Jones, T. M. (1995). Instrumental stakeholder theory: A synthesis of ethics and economics. The Academy of
- Management Review, 20(2), 404-437. https://doi.org/10.5465/amr.1995.9507312924

  Kang, C., Germann, F., & Grewal, R. (2016). Washing away your sins? Corporate social responsibility, corporate social irresponsibility, and firm performance. *Journal of Marketing*, 80(2), 59-79. https://doi.org/10.1509/jm.15.0324
- Kapoor, S., & Zeilina, L. (2017). The promise of sustainable investing: The case of the Norwegian Oil fund. Re-Define. https://coilink.org/20.500.12592/4jhms7
- King, A., & Lenox, M. (2002). Exploring the locus of profitable pollution reduction. *Management Science*, 48(2), 289-299. https://doi.org/10.1287/mnsc.48.2.289.258
- Kruger, P. (2015). Corporate goodness and shareholder wealth. Journal of Financial Economics, 115(2), 304-329. https://doi.org/10.1016/j.jfineco.2014.09.008
- Kumar, S., & Dua, P. (2022). Environmental management practices and financial performance: Evidence from large listed Indian enterprises. Journal of Environmental Planning and Management, 65(1), 37-61. https://doi.org/10.1080/09640568.2021.1877641
- Landi, G., & Sciarelli, M. (2019). Towards a more ethical market: The impact of ESG rating on corporate financial performance. Social Responsibility Journal, 15(1), 11-27. https://doi.org/10.1108/SRJ-11-2017-0254
- Lee, K.-H., Cin, B. C., & Lee, E. Y. (2016). Environmental responsibility and firm performance: The application of an environmental, social and governance model. Business Strategy and the Environment, 25(1), 40-53. https://doi.org/10.1002/bse.1855
- Lin, W. L., Law, S. H., Ho, J. A., & Sambasivan, M. (2019). The causality direction of the corporate social responsibility Corporate financial performance Nexus: Application of panel vector autoregression approach. The North American Journal of Economics and Finance, 48, 401-418. https://doi.org/10.1016/j.najef.2019.03.004
- Liu, G., & Hamori, S. (2020). Can one reinforce investments in renewable energy stock indices with the ESG index? Energies, 13(5), Article 1179. https://doi.org/10.3390/en13051179
- Lu, W., Chau, K. W., Wang, H., & Pan, W. (2014). A decade's debate on the nexus between corporate social and corporate financial performance: A critical review of empirical studies 2002-2011. Journal of Cleaner
- Production, 79, 195-206. https://doi.org/10.1016/j.jclepro.2014.04.072

  Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies: Rethinking social initiatives by business. 
  Administrative Science Quarterly, 48(2), 268-305. https://doi.org/10.2307/3556659

  Matten, D., & Moon, J. (2008). "Implicit" and "explicit" CSR: A conceptual framework for a comparative understanding of corporate social responsibility. Academy of Management Review, 33(2), 404-424. https://doi.org/10.5465/amr.2008.31193458

- McGuire, J. B., Schneeweis, T., & Branch, B. (1990). Perceptions of firm quality: A cause or result of firm performance. *Journal of Management, 16*(1), 167–180. https://doi.org/10.1177/014920639001600112
- Miralles-Quirós, M. M., Miralles-Quirós, J. L., & Redondo Hernández, J. (2019). ESG performance and shareholder value creation in the banking industry: International differences. *Sustainability*, 11(5), Article 1404. https://doi.org/10.3390/su11051404
- Miralles-Quirós, M. M., Miralles-Quirós, J. L., & Valente Gonçalves, L. M. (2018). The value relevance of environmental, social, and governance performance: The Brazilian case. *Sustainability*, *10*(3), Article 574. https://doi.org/10.3390/su10030574
- Nakamura, E. (2015). The bidirectional CSR investment Economic performance relationship. *Journal of Global Responsibility*, *6*(1), 128-144. https://doi.org/10.1108/JGR-05-2014-0021
- Nekhili, M., Boukadhaba, A., Nagati, H., & Chtioui, T. (2021). ESG performance and market value: The moderating role of employee board representation. *The International Journal of Human Resource Management, 32*(14), 3061–3087. https://doi.org/10.1080/09585192.2019.1629989
- Nelling, E., & Webb, E. (2009). Corporate social responsibility and financial performance: The "virtuous circle" revisited. *Review of Quantitative Finance and Accounting, 32*, 197–209. https://doi.org/10.1007/s11156-008-0090-y
- Paltrinieri, R., & Allegrini, G. (2020). *Partecipazione, processi di immaginazione civica e sfera pubblica. I laboratori di quartiere e il bilancio partecipativo a Bologna* (Participation, processes of civic imagination and public sphere. Neighborhood laboratories and participatory budgeting in Bologna). FrancoAngeli.
- Park, J. W. (2023). ESG performance and corporate value: Evidence from Korean IT companies. *International Journal of Internet, Broadcasting and Communication*, 15(3), 185–190. https://doi.org/10.7236/IJIBC.2023.15.3.185
- Peloza, J., & Papania, L. (2008). The missing link between corporate social responsibility and financial performance: Stakeholder salience and identification. *Corporate Reputation Review, 11*, 169–181. https://doi.org/10.1057/crr.2008.13
- Porter, M. E., & Kramer, M. R. (2006). Strategy and society: The link between competitive advantage and corporate social responsibility. *Harvard Business Review*, 84(12), 78–92. https://hbr.org/2006/12/strategy-and-society-the-link-between-competitive-advantage-and-corporate-social-responsibility
- Porter, M. E., & Kramer, M. R. (2019). Creating shared value: How to reinvent capitalism—And unleash a wave of innovation and growth. In G. G. Lenssen & N. C. Smith (Eds.), *Managing sustainable business* (pp. 323–346). Springer. https://doi.org/10.1007/978-94-024-1144-7\_16
- Preston, L. E., & O'Bannon, D. P. (1997). The corporate social-financial performance relationship: A typology and analysis. *Business & Society*, *36*(4), 419–429. https://doi.org/10.1177/000765039703600406
- Rossi, M., Chouaibi, J., Chouaibi, S., Jilani, W., & Chouaibi, Y. (2021). Does a board characteristic moderate the relationship between CSR practices and financial performance? Evidence from European ESG firms. *Journal of Risk and Financial Management, 14*(8), Article 354. https://doi.org/10.3390/jrfm14080354
- Ruggiero, P., & Cupertino, S. (2018). CSR strategic approach, financial resources and corporate social performance: The mediating effect of innovation. *Sustainability*, 10(10), Article 3611. https://doi.org/10.3390/su10103611
- Scherer, A. G., & Palazzo, G. (2007). Toward a political conception of corporate responsibility: Business and society seen from a Habermasian perspective. *Academy of Management Review, 32*(4), 1096-1120. https://doi.org/10.5465/amr.2007.26585837
- Securities and Exchange Board of India (SEBI). (2015). SEBI (Listing Obligations and Disclosure Requirements) Regulations, 2015. https://www.sebi.gov.in/legal/regulations/sep-2015/sebi-listing-obligations-and-disclosure-requirements-regulations-2015\_31425.html
- Shah, M. H., Wang, N., Ullah, I., Akbar, A., Khan, K., & Bah, K. (2021). Does environment quality and public spending on environment promote life expectancy in China? Evidence from a nonlinear autoregressive distributed lag approach. *The International Journal of Health Planning and Management, 36*(2), 545–560. https://doi.org/10.1002/hpm.3100
  Sharma, P., Panday, P., & Dangwal, R. C. (2020). Determinants of environmental, social and corporate governance
- Sharma, P., Panday, P., & Dangwal, R. C. (2020). Determinants of environmental, social and corporate governance (ESG) disclosure: A study of Indian companies. *International Journal of Disclosure and Governance, 17*, 208–217. https://doi.org/10.1057/s41310-020-00085-y
- Siegel, D. S., & Vitaliano, D. F. (2007). An empirical analysis of the strategic use of corporate social responsibility. *Journal of Economics & Management Strategy, 16*(3), 773–792. https://doi.org/10.1111/j.1530-9134 .2007.00157.x
- Singh, A., Singh, P., & Shome, S. (2022). ESG-CFP linkages: A review of its antecedents and scope for future research. *Indian Journal of Corporate Governance*, 15(1), 48–69. https://doi.org/10.1177/09746862221089062
- Stanwick, P. A., & Stanwick, S. D. (1998). The relationship between corporate social performance, and organizational size, financial performance, and environmental performance: An empirical examination. *Journal of Business Ethics*, 17, 195–204. https://doi.org/10.1023/A:1005784421547
- Surroca, J., Tribó, J. A., & Waddock, S. (2010). Corporate responsibility and financial performance: The role of intangible resources. *Strategic Management Journal*, *31*(5), 463–490. https://doi.org/10.1002/smj.820
- Tarmuji, I., Maelah, R., & Tarmuji, N. H. (2016). The impact of environmental, social and governance practices (ESG) on economic performance: Evidence from ESG score. *International Journal of Trade, Economics and Finance, 7*(3), 67–74. https://doi.org/10.18178/ijtef.2016.7.3.501
- United Nations Global Compact. (2004). Who cares wins: Connecting financial markets to a changing world. https://www.unglobalcompact.org/docs/issues\_doc/Financial\_markets/who\_cares\_who\_wins.pdf
- Vance, S. G. (1975). Are socially responsible corporations good investment risks? *Management Review, 64*(8), 19–24. https://surl.li/auestn
- Velte, P. (2017). Does ESG performance have an impact on financial performance? Evidence from Germany. *Journal of Global Responsibility*, 8(2), 169–178. https://doi.org/10.1108/JGR-11-2016-0029
- Waddock, S. A., & Graves, S. B. (1997). The corporate social performance-Financial performance link. *Strategic Management Journal*, 18(4), 303–319. https://doi.org/10.1002/(SICI)1097-0266(199704)18:4<303::AID-SMJ869>3.3.CO;2-7
- Wang, D. H.-M., Chen, P.-H., Yu, T. H.-K., & Hsiao, C.-Y. (2015). The effects of corporate social responsibility on brand equity and firm performance. *Journal of Business Research*, 68(11), 2232–2236. https://doi.org/10.1016/j.jbusres.2015.06.003

- Wang, Q., Dou, J., & Jia, S. (2016). A meta-analytic review of corporate social responsibility and corporate financial performance: The moderating effect of contextual factors. *Business & Society*, *55*(8), 1083–1121. https://doi.org/10.1177/0007650315584317
- Wang, Z., & Sarkis, J. (2017). Corporate social responsibility governance, outcomes, and financial performance. *Journal of Cleaner Production, 162*, 1607–1616. https://doi.org/10.1016/j.jclepro.2017.06.142
- Wright, P., & Ferris, S. P. (1997). Agency conflict and corporate strategy: The effect of divestment on corporate value. Strategic Management Journal, 18(1), 77–83. https://doi.org/10.1002/(SICI)1097-0266(199701)18:1<77: AID-SMJ810>3.3.CO;2-I
- Wu, M.-W., & Shen, C.-H. (2013). Corporate social responsibility in the banking industry: Motives and financial performance. *Journal of Banking & Finance*, *37*(9), 3529–3547. https://doi.org/10.1016/j.jbankfin .2013.04.023
- Xie, J., Nozawa, W., Yagi, M., Fujii, H., & Managi, S. (2019). Do environmental, social, and governance activities improve corporate financial performance? *Business Strategy and the Environment, 28*(2), 286–300. https://doi.org/10.1002/bse.2224.
- Yang, C., Yang, R., Zhou, Y., & Liu, Z. (2024). E, S, and G, not ESG: Heterogeneous effects of environmental, social, and governance disclosure on green innovation. *Corporate Social Responsibility and Environmental Management*, 31(2), 1220-1238. https://doi.org/10.1002/csr.2627
- Yang, M., Bento, P., & Akbar, A. (2019). Does CSR influence firm performance indicators? Evidence from Chinese pharmaceutical enterprises. *Sustainability*, 11(20), Article 5656. https://doi.org/10.3390/su11205656
- Yu, E., P., Guo, C. Q., & Luu, B. V. (2018). Environmental, social and governance transparency and firm value. *Business Strategy and the Environment, 27*(7), 987–1004. https://doi.org/10.1002/bse.2047 Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance:
- Zhao, C., Guo, Y., Yuan, J., Wu, M., Li, D., Zhou, Y., & Kang, J. (2018). ESG and corporate financial performance: Empirical evidence from China's listed power generation companies. *Sustainability*, 10(8), Article 2607. https://doi.org/10.3390/su10082607
- Zheng, J., Khurram, M. U., & Chen, L. (2022). Can green innovation affect ESG ratings and financial performance? Evidence from Chinese GEM listed companies. *Sustainability*, *14*(14), Article 8677. https://doi.org/10.3390/su14148677
- Zhou, G., Liu, L., & Luo, S. (2022). Sustainable development, ESG performance and company market value: Mediating effect of financial performance. *Business Strategy and the Environment, 31*(7), 3371–3387. https://doi.org/10.1002/bse.3089