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Do Environmental, Social, and Governance Performance Impact Firm Performance? Evidence from Indian Firms

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Abstract: This paper investigates the impact of individual environmental (E), social (S), and governance (G) and the overall ESG performance on the firms' performance in Indian context. Three dimensions of a firm's performance, i.e., operational, financial, and market performance, are measured through return on assets, return on equity, and firm value (Tobin's Q), respectively. The study spans the period from 2012 to 2019, with NSE 500 firms as the first sample set and NSE 100 ESG enhanced index firms as the second sample set. Panel data analysis was performed with efficiency tests for the random and fixed-effects models. The study deduced that the ESG index listed firms have better operational and financial performance than the non-listed ESG firms. With the second sample set, the impact of ESG and its subcomponents' performance on firms' performance was examined. Overall, ESG had a positive and significant association with operational and market performance. All the subcomponents positively impact operational performance and negatively impact market performance. The impact of ESG and its subcomponents on financial performance could not be established except for the governance score. The study findings will be beneficial for investors, regulators, and corporate sustainability decision-makers in their different capacities and roles across global markets.

Keywords: ESG disclosure, firm performance, NSE100 ESG Index, sustainability.

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INTRODUCTION

The traditional method of measuring any business success is through financial performance. However, in the last two decades, various stakeholders have begun seeking non-financial information beyond the traditional metrics to evaluate a business. The stakeholders expect the business manager to undertake capital investment decisions by wisely considering Environmental, Social and Governance (ESG) aspects. ESG has broader implications than CSR since it also encompasses environmental and governance aspects with social factors (Gillan et al., 2021). The sensitivity of firms towards environmental and climatic impacts from the business operations is measured under the environmental performance. Governance performance signifies the independence of board members, minority shareholder policies, transparency in corporate disclosures, and ownership structure. Social factors like

human rights, workplace equality and diversity, and societal contribution are reflected in social performance. Investors who look for long-term prospects and challenges for businesses benchmark companies' basis their response to environmental, social, and governance (ESG) considerations as important non-financial factors. The research looks at how the non-financial performance of firms, such as environmental, social, and governance (ESG) performance impacts firms' financial performance.

Although ESG has a broader dimension for firms' non-financial performance, the studies covering ESG aspects are limited. Nevertheless, there has been no conclusive evidence of whether ESG impacts companies' cash flows, financial position, reputation, and value. Therefore, the motivation for carrying out the study is to extend further to the limited existing ESG centric literature.

The academic reviews carried out on ESG studies have identified the concentration of ESG studies on one aspect at a time or a combination of two (Brooks & Oikonomou, 2018; Friede et al., 2015). In addition, there have been limited studies with combined ESG performance (Alareeni & Hamdan, 2020). In their meta-analysis, Clark et al. (2014) found that 85 percent of ESG research looks at only one component of ESG at a time. The studies also reveal a mixed association between ESG and firm performance. Meta-analysis of empirical studies on ESG and its impact on various measures of corporate performance further evidenced positive, negative and neutral results (Brooks & Oikonomou, 2018; Friede et al., 2015; Griffin & Mahon, 1997; Malik, 2015). This study overcomes this limitation by considering the sampled companies' combined ESG performance and individual ESG performance.

Another major challenge highlighted in ESG studies is the measurement of ESG factors and performance. Researchers have tried to overcome this challenge of collecting ESG data using Fortune 500 rankings and content analysis (Ameer & Othman, 2012; Beck et al., 2010) of annual reports. To remove subjectivity in the above methods, usage of ESG indices and sustainability indices (Aboud & Diab, 2018; López et al., 2007; Sharma et al., 2020) have found encouraging usage. Even one of the Indian studies on ESG has used the listing of a company in S&P ESG India Index as a representation of ESG practices (Sharma et al., 2020). However, this method ignores the relative ESG performance of each firm. The drawback of such studies on ESG aspects is that the ESG related proxies do not comprehensively project the underground reality. To overcome the shortcomings mentioned earlier, the researchers used ESG scores from Thomson Reuters Datastream ASSET4, reflecting corporate ESG performance. By adopting the ESG performance scores dataset, the study has overcome the ESG measurement weaknesses in ESG related literature.

The literature has also been bidirectional while debating corporate performance and ESG (Ameer & Othman, 2012). Some studies favour corporate performance driving ESG aspects of an organisation (Chaklader & Gulati, 2015; Sharma et al., 2020), while other hypotheses ESG impacts firm performance (Atan et al., 2018; Elsayed & Paton, 2005). In their study on determinants of ESG disclosures, Sharma et al., (2020) carried out the content analysis and found that ESG disclosure and financial performance have a significantly positive relationship. One study of Egyptian firms (Aboud & Diab, 2018) reported higher firm value for firms listed in the ESG index. Further, the firm index rankings also positively impacted the firm's value.

On ESG and corporate performance, there are two schools of thinking. The first school proposes that ESG activities burden firms with additional costs, and firms struggle to trade-off between these costs and their financial performance. The second school of thought proposes that firms benefit from the ESG activities related costs. This has led to the business case for ESG aspects evolving and driven scholars to examine through their research (Ameer & Othman, 2012). The literature on ESG disclosure's impact on financial performance has been found as positive (Alareeni & Hamdan, 2020; Ameer & Othman, 2012; Li et al., 2018), neutral (Atan et al.,

2018; Chetty et al., 2015) and negative (López et al., 2007; Mittal et al., 2008; Nollet et al., 2016). Research on ESG has tried to evaluate the impact of ESG on profitability, firm performance, firm value, and cost of capital (Atan et al., 2018). Li et al., (2018), in their study of FTSE 350 listed firms, found a positive relationship between ESG disclosures and firm value.

The environmental performance dimension is assumed to have a higher cost due to its inherent technicalities. This assumption is reflected in Wu et al. (2010)'s survey of 100 S&P firms from 2004 to 2008, where environmental disclosures negatively affected company results. Similarly, the study carried out on Malaysian firms reported a negative association between environmental initiatives with firm performance (Saleh et al., 2013). Contrary to this, financial performance was positively impacted by environmental practices like reduction in greenhouse gas emissions and water consumption (Zamil & Hassan, 2019). Similarly, Iwata & Okada (2011) documented a significant and positive association between environmental and financial performance in their study of Japanese firms. Environmental performance was found to positively impact firm performance (Iwata & Okada, 2011; Wang et al., 2021). While observing environmental aspects, Alareeni & Hamdan (2020) found a negative impact on ROA and ROE and a positive impact on Tobin's Q. Elsayed & Paton (2005) reported a neutral impact of environmental performance on firm performance.

Studies on corporate social responsibilities and firm performance have also reported mixed results. In the study using MCSI data, CSR reported positive effects on firms' performance in the Korean setup (Kim et al., 2013). In their study of Malaysian firms, Saleh et al. (2013) reported that higher investment in CSR activities enhances firms' performance. Contradicting the above results, CSR was found to negatively impact firm value in the study of Indonesian Stock Exchange-listed banking firms (Mukhtaruddin et al., 2019). In the study of Australian firms, Jones & Wright (2018) did not find any causality between CSR and firms' performance.

Corporate governance studies also have mixed results on its impact on firm performance. For example, Alareeni & Hamdan (2020) found a positive relationship between ROA and Tobin Q with corporate governance but negative with ROE. On the other hand, Nollet et al., (2016) found corporate governance as the main factor in improving corporate performance in their multidimensional study with combined ESG and individual E, S and G components.

Building upon the above discussions, the study focuses on understanding the impact of the combined ESG and individual E, S and G on firm performance amongst Indian companies. Following are the research questions of this study: 1) Do firms listed in the ESG index perform better than non-listed firms? 2) Is there a positive association between ESG performance and a firm's performance? 3) Is there a positive association between individual E, S, G performance and a firm's performance?

The study contributes to the existing literature on ESG and firm performance in the following aspects. First, this study used combined ESG performance and individual ESG performance to find the relationship between ESG and firm performance, thus making it more detailed and more profound. Second, using ESG with its subcomponents scores to measure ESG performance further strengthens the study by overcoming the subjectivity biases. Third, the more extended study period from 2012 through 2019 with more extensive firm observations makes findings more statistically reliable and robust. Fourth, by deploying the study in India, the study extends the limited ESG studies literature in emerging markets. Finally, the study found that firms listed in the ESG index performed better than the non-ESG index firms, thus positively promoting businesses to consider ESG investments in their decision-making process. The authors believe this study is highly insightful for policymakers, regulators, global and national investors, and reporting companies from all the above discussions.

METHODS

The study contains two sample sets from the same population. The first set is of all NSE500 Index companies (NSE500) to examine the impact of the ESG factor on a firm's performance. The firm which was listed from 2017 onwards was excluded from the sample. The second set comprises companies from the NSE500 Index, part of the NSE 100 Enhanced ESG Index (ESG Index). Overall, 80 firms constitute the NSE 100 Enhanced ESG Index. The second sample set examined the association of ESG performance scores with a firm's performance. Refinitiv, Thomson Reuters ASSET4 Datastream was the source for data collection.

Extreme outliner observations were not considered in the study. The period covered in all three is from 2012 (ESG Index base date being 01st April 2011) through 2019. All listed firms from both the Indices with available data from DataStream are used in the analysis. The final selection of the number of observations is given in Table 1.

Table 1 Firm Observations

Items	NSE500 INDEX	NSE100 Enhanced ESG Index
Expected Observations	4,000	640
Missing observations	807	179
Extreme Ouliner observations	163	23
Firm observations with less than 4 years in Index	127	NA
Final Observations	2,903	438

Source: Authors' Calculations

For the first (NSE 500) and second (NSE 100 Enhanced ESG Index) sample sets, there are 500 and 80 firms listed over eight years, respectively.

Accounting and market-based performance measures are applied in ESG and firm performance-based literature. Following Alareeni & Hamdan (2020), the study used three dimensions to measure firms' performance – operational, financial and market performance. These were measured with Return on Assets (ROA), Return on Equity (ROE) and firm value (Tobin Q), respectively (Aboud & Diab, 2018; Alareeni & Hamdan, 2020; Atan et al., 2018; Bauer et al., 2004; Elsayed & Paton, 2005; Li et al., 2018; Saleh et al., 2013). Although Tobin Q is measured in different manners in various literature, the methodology by Aboud & Diab (2018), i.e. market value of assets divided by replacement value of assets, is deployed in the current study. The market value of assets is the total of the book value of assets and the market value of the common stock. The book value of common stock and deferred tax was subtracted from this sum. The replacement value of assets is the book value of assets (Bauer et al., 2004)

ESG Listing, a dummy variable, takes '1' as a value if a company forms part of the NSE ESG Enhanced 100 Index and '0' where a company does not form part of the NSE ESG Enhanced 100 Index.

The challenge faced in ESG focused studies is the measurement of ESG. Studies have used a company's inclusion in the ESG index or Social index as a proxy for ESG (Aboud & Diab, 2018; Chelawat & Trivedi, 2016; Sharma et al., 2020), while Bloomberg's ESG disclosure has been used in a few research to measure ESG (Atan et al., 2018; Buchanan et al., 2018). In the study, the measurement of ESG performance was based on ESG scores[1] from Refinitiv Thomson Reuters ASSET4 Datastream. These scores are based on publicly available

1 https://www.refinitiv.com/en/sustainable-finance/esg-scores#company-esg-scores

data and are intended to assess a company's relative ESG performance across ten themes categorised into groups to form three-pillar scores – environmental, social, and corporate governance. The ESG pillar score is proportional to the unit weights for the 'Environmental' and 'Social' categories, which differ by sector. The weights for 'Governance' are the same in all sectors. Thomson Reuter's ESG performance scores range from 0 (poor relative ESG performance) to 100 (excellent relative ESG performance)[2].

Firm leverage (LEV), assets turnover (TURNOVER), firm growth (GROWTH) and firm size (SIZE) are the control variables used in the study. The usage of these variables is justified by the vast literature examining the impact of ESG scores on firm performance (Alareeni & Hamdan, 2020; Atan et al., 2018; Sharma et al., 2020). The firm's leverage has been calculated as Total Debt / Total Equity (FL), the Firm's size has been calculated as the logarithmic value of total assets (TA), assets turnover as Net Sales over Total Assets (AT) and the firm's growth as a change in total assets in the period t over period t-1.

The pairwise correlation was performed to check the correlation between the variables. A T-test with unequal variances was performed to test the mean differences statistically. Finally, panel data regression methods were used to explain the relationship between the dependent and independent variables. Multicollinearity problems were not discovered in the VIF multicollinearity check.

The following empirical models were regressed to investigate the relationship between firm operational, financial and market performance, ESG listing and disclosures.

$$ROA_{it} = \beta_0 + \beta_1 ESGListing_{it} + \beta_2 LEV_{it} + \beta_3 AT_{it} + \beta_4 Growth_{it} + \beta_5 Size_{it} + \varepsilon \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 ESGListing_{it} + \beta_2 LEV_{it} + \beta_3 AT_{it} + \beta_4 Growth_{it} + \beta_5 Size_{it} + \varepsilon \quad (2)$$

$$TobinQ_{it} = \beta_0 + \beta_1 ESGListing_{it} + \beta_2 LEV_{it} + \beta_3 AT_{it} + \beta_4 Growth_{it} + \beta_5 Size_{it} + \varepsilon \quad (3)$$

$$ROA_{it} = \beta_0 + \beta_1 TESG_{it} + \beta_2 EPS_{it} + \beta_3 SPS_{it} + \beta_4 GPS_{it} + \beta_5 LEV_{it} + \varepsilon + \beta_6 AT_{it} + \beta_7 Growth_{it} + \beta_8 SIZE_{it} + \varepsilon \quad (4)$$

$$ROE_{it} = \beta_0 + \beta_1 TESG_{it} + \beta_2 EPS_{it} + \beta_3 SPS_{it} + \beta_4 GPS_{it} + \beta_5 LEV_{it} + \varepsilon + \beta_6 AT_{it} + \beta_7 Growth_{it} + \beta_8 SIZE_{it} + \varepsilon \quad (5)$$

$$TobinQ_{it} = \beta_0 + \beta_1 TESG_{it} + \beta_2 EPS_{it} + \beta_3 SPS_{it} + \beta_4 GPS_{it} + \beta_5 LEV_{it} + \varepsilon + \beta_6 AT_{it} + \beta_7 Growth_{it} + \beta_8 SIZE_{it} + \varepsilon \quad (6)$$

The empirical studies on cross-sectional time-series data rely on pooled OLS (OLS) or panel data analysis. Since it applies a similar intersect and slope coefficient across cross-sections, pooled OLS ignores individual firm heterogeneity. The Breusch and Pagan Lagrangian multiplier test for random effects and discovered that panel data regression was more effective was applied. For static panel data, there are two approaches, i.e., random effects (RE) and fixed effects (FE) models. For the first three models, the variable of interest is ESG listing which is a time-invariant variable. Hence, the RE model was used as it was more efficient for estimations. However, for the models 4 to 6, Hausman test results were relied on to compare the RE and FE estimator and applied the one which was found to be more efficient. As per the Hausman test results, the RE estimator was found to be more efficient (p-value = 0.1674) for model 4 and for models 5 and 6, the FE estimator was found to be more efficient (p-value = 0.0000).

RESULTS AND DISCUSSION

The descriptive statistics from the two sample firm observations are presented and analyzed in this section. Panel A and Panel B of Table 2 present the summary statistics for both the sample sets as the study has been carried out with two sample sets, discussing the analysis in the same order. The mean observations in Table 2

2 https://www.refinitiv.com/en/sustainable-finance/esg-scores#methodology

show the mean value of dependent and independent variables in three categories, namely overall (comprising of all observations), non-ESG index (for firms that do not form part of ESG Index) and ESG index (for firms that form part of ESG index). The mean and standard deviation of ESG and its sub-component scores, in addition to the dependent and control variables, are indicated in Panel B of Table 2. The mean of ESG scores for Indian firms is around 53.14, with the environment performance score mean (43.55) much below the overall average. The social performance score average (56.90) is the highest, followed by the Governance performance score (53.43).

Table 2 Summary statistics

	PANEL A						PANEL B	
	Overall		Non-ESG Index		ESG Listing		ESG Index	
	mean	sd	mean	sd	mean	sd	mean	sd
Dependent Variables								
ROA	0.09	0.07	0.09	0.07	0.1	.07	.09	.07
ROE	.16	.12	.15	.12	.18	.12	.18	.12
TOBINQ	3.01	2.48	2.97	2.48	3.16	2.48	2.88	2.1
Independent Variables								
TESG							53.14	18.34
EPS							43.55	26.16
GPS							53.43	22.67
SPS							56.90	20.95
Control Variables								
LEV	.88	1.13	.81	1.04	1.13	1.38	1.27	1.43
AT	.93	.7	.96	.72	.79	.62	.74	.58
GROWTH	1.15	.52	1.16	.58	1.13	.16	1.15	.16
SIZE	17.92	1.81	17.44	1.51	19.84	1.61	20.18	1.49

Source: Authors' Calculations

T-tests for significance in the mean value differences were performed (see Table 3), and all the mean differences were statistically significant, signaling to establish the research findings further. The results show that the ESG index listed firms perform better in operational, financial and market dimensions of measure when compared with the non-ESG index listed firms. The financial performance exceeds by 3.2 percent ($p<0.01$), operational performance by 0.5 percent ($p<0.10$) at and firm value by about 0.2 times ($p<0.10$).

Further analysis of the trend in the study variables is discussed in Table 4, where an upward trend in ESG and its sub-component environment and social scores over the year 2012-2019 is observed. Although the environment scores have increased from 37.80 to 51.96, and social scores from 48.88 to 64.52 during this period, the story of governance scores is quite different. The governance scores have a falling trend from the year 2013

(55.10) to 2017 (50.31) before registering growth in 2018 and 2019 (from 50.31 to 56.20). This reflects that Indian companies have implemented positive environment and social practices, but somehow the companies have not been consistent in implementing good governance practices. In addition, ROA has shown an increasing trend from 2012-2014 and then post fall in 2015 has remained constant till 2019. While the Tobin Q peaked in 2015 before a downfall up to 2018, the ROE has been showing a constant downward trend from the year 2012 to 2019 (from 20.0 % to 14.4 %). These trends motivated us to further understand the financial performance impact by carrying out a pairwise correlation analysis.

Table 3 Two sample T test – Pre- IFRS and Post-IFRS

IFRS		N	Mean	Std. Deviation	T	Df	Sig. (2-tailed)
ROA	NON ESGINDEX	2,315	0.091	0.001			
	ESG INDEX	588	0.096	0.003			
	Difference		0.006	0.003	-1.941	868.78	0.0526
ROE	NON ESGINDEX	2,315	0.152	0.003			
	ESG INDEX	588	0.184	0.005			
	Difference		0.032	0.006	-5.7088	930.07	0.0000
TOBINQ	NON ESGINDEX	2,315	2.967	0.052			
	ESG INDEX	588	3.158	0.102			
	Difference		0.191	0.115	-1.665	909.236	0.0963

Source: Authors' Calculations

Table 4 ESG and Performance through years 2012-2019

	DEPENDENT VARIABLES			INDEPENDENT VARIABLES			
Mean	ROA	ROE	TobinQ	TESG.	EPS	GPS	SPS
2012	0.088	.200	2.46	48.57	37.80	54.39	48.88
2013	0.096	.200	2.59	51.97	41.43	55.10	54.04
2014	0.098	.204	2.73	51.51	41.20	53.80	53.97
2015	0.086	.178	3.18	52.05	41.80	53.21	56.20
2016	0.090	.177	2.93	52.29	42.51	51.42	57.19
2017	0.090	.175	2.99	52.19	42.67	50.31	57.54
2018	0.089	.173	2.92	55.24	46.54	53.93	59.43
2019	0.088	.144	3.04	59.61	51.96	56.20	64.52

Source: Authors' Calculations

The pairwise correlation in Table 5 – Panel A also shows that the ESG listed firm has a positive and significant association with ROA, ROE, and Tobin Q. From the pairwise correlation matrix (see panel B of Table 5), mixed relationships between firm performance with ESG and its' subcomponents were found. While ROE was found to correlate with overall ESG score significantly negatively, environment, and social performance score, it did not have any significant relationship with governance score. This shows that the improvement of Indian firms in these parameters has led to a decrease in ROE. Return on Assets was found to have a positive and significant correlation with only government scores. As discussed earlier, the increased environmental and social scores have therefore not aided in any improvement of ROA. It reflects that Indian firms have taken up the environment and social practices in their true spirit without looking much into the financial returns. Finally, Tobin Q was found to have a negative and significant correlation with overall ESG, environment and social performance while having a significant positive relationship with governance scores. It reflects that Indian companies so far are not able to generate firm value by adopting better ESG practices. Leverage firms were found to have a negative relationship with ESG and its' sub-components which shows that the Indian levered firms are unable to adopt the ESG practices, which may be due to the financial risks involved in those activities. Firm size was found to have a significant positive correlation with overall ESG, environment and social performance. However, it was significantly negatively correlated with governance performance.

Table 5 Pairwise correlations

Panel A: Pairwise correlations

Variables	(roa)	(roe)	(tobinq)	(esglist)	(lev)	(at)	(growth)	(size)
ROA	1.00							
ROE	0.831***	1.00						
	(0.000)							
TOBINQ	0.643***	0.483***	1.00					
	(0.000)	(0.000)						
ESGLIST	0.037**	0.103***	0.031*	1.00				
	(0.044)	(0.000)	(0.096)					
LEV	-0.386***	-0.236***	-0.394***	0.113***	1.00			
	(0.000)	(0.000)	(0.000)	(0.000)				
AT	0.282***	0.305***	0.290***	-0.098***	-0.277***	1.00		
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)			
GROWTH	0.02	0.040**	-0.01	-0.02	0.030*	-0.058***	1.00	
	(0.245)	(0.032)	(0.541)	(0.385)	(0.105)	(0.002)		
SIZE	-0.371***	-0.249***	-0.336***	0.534***	0.442***	-0.401***	0.01	1.00
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.499)	

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' Calculations

Panel B: Pairwise correlations

Variables	(roa)	(roe)	(tobinq)	(tesg)	(eps)	(gps)	(sps)	(lev)	(at)	(growth)	(size)
ROA	1.00										
ROE	0.774***	1.00									
	(0.000)										
TOBINQ	0.756***	0.533***	1.00								
	(0.000)	(0.000)									
TESG	-0.00	-0.138***	-0.092*	1.00							
	(0.941)	(0.004)	(0.054)								
EPS	-0.03	-0.158***	-0.099**	0.828***	1.00						
	(0.566)	(0.001)	(0.038)	(0.000)							
GPS	0.158***	0.05	0.156***	0.602***	0.221***	1.00					
	(0.001)	(0.279)	(0.001)	(0.000)	(0.000)						
SPS	-0.04	-0.172***	-0.136***	0.896***	0.774***	0.278***	1.00				
	(0.468)	(0.000)	(0.004)	(0.000)	(0.000)	(0.000)					
LEV	-0.482***	-0.257***	-0.548***	-0.159***	-0.245***	-0.174***	-0.125***	1.00			
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)	(0.000)	(0.009)				
AT	0.539***	0.482***	0.527***	0.05	0.180***	-0.01	0.05	-0.513***	1.00		
	(0.000)	(0.000)	(0.000)	(0.283)	(0.000)	(0.819)	(0.279)	(0.000)			
GROWTH	0.00	0.091*	-0.07	-0.02	-0.082*	0.07	-0.080*	0.128***	-0.123**	1.00	
	(0.990)	(0.056)	(0.165)	(0.637)	(0.087)	(0.146)	(0.093)	(0.007)	(0.010)		
SIZE	-0.597***	-0.402***	-0.697***	0.217***	0.181***	-0.085*	0.273***	0.542***	-0.542***	0.06	1.00
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.076)	(0.000)	(0.000)	(0.000)	(0.246)	

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Source: Authors' Calculations

Regression Analysis

After performing the above analysis and further understanding the impact of ESG listing, ESG and its sub-components performance and firm performance, regression analysis as per the empirical models was conducted. Results of the Breusch and Pagan Lagrangian multiplier test for random effects suggested panel data regression for all six models. Since the first three models had a time-invariant variable dummy variable of ESG listing, panel regression analysis with random effects was conducted. The results are provided in Panel A, columns (1 to 3) of Table 6. For the following three models consisting of the impact of ESG and its subcomponent scores, the Hausman test to find the efficiency of the random effects estimator was performed. The Hausman test results (p-value = 0.1674, 0.000 and 0.0000, respectively) suggest the random effects model (REM) for the first panel and the fixed effects model (FEM) for the remaining two models. The results are given in Panel B, columns (4 to 6) of Table 6.

The results of regression Models 1 and 2 further evidence that the firms which are listed in the ESG index have better operational and financial performance similar to the findings of Aboud & Diab (2018) and López et al., (2007). Model 3 results indicate that the ESG index listed firms' market performance has a positive coefficient but was not statistically significant. Unlike prior studies (Aboud & Diab, 2018), financial leverage was found to impact firms' performance negatively. Findings on asset turnover leading to positive and significant performance are similar to other studies (Alareeni & Hamdan, 2020). The firm's growth was significant and positively impacting operational and financial performance, but its impact on market performance is not established. The firm size negatively impacted the operational and financial performance, similar to findings by López et al., 2007 but advanced market performance. The finding on firm size impact on market performance is similar to findings by Alareeni & Hamdan (2020). All three were found to be statistically significant.

Overall ESG and firm performance

The results from Panel B, Table 6 indicate that ESG scores positively and significantly impact the operational performance (ROA), but the magnitude is very moderate. The results reaffirm other studies (Alareeni & Hamdan, 2020; Buallay et al., 2021; Chong et al., 2018), demonstrating that ESG scores positively impact ROA suggesting the positive potential of ESG driven investments. The ESG scores, which are consequences of corporate inclination towards ESG practices positive association with firm operation performance, further supports the stakeholder theory (Lee & Fame, 2009). The current study results are different from studies that observed that ESG activities have a significantly negative impact on the firm's performance (Atan et al., 2018; Ruan & Liu, 2021).

The impact of overall ESG performance on financial performance (ROE) is not established for Indian firms contradicting the results of Buallay et al. (2021), which assert that ESG has a positive impact on ROE, but are in line with (Buallay, 2019b, 2019a; Duque-Grisales & Aguilera-Caracuel, 2021) findings of the negative impact of ESG on ROE. The result indicates the weaker capacity of ESG investments in providing a return to equity holders.

The firm value measured by Tobin Q is positively impacted by overall ESG performance, in alignment with the results of Alareeni & Hamdan (2020) and Chong et al. (2018) but contradicting the results of Buallay et al. (2021). These results indicate that market participants are aware of corporate ESG performances and recognize the firms for their ESG initiatives. This further indicates that the information disclosed by corporates is reliable for the stock market participants. The investors consider the firms with ESG investments and their adequate disclosures to be more valued than the other firms. The positive relationship suggests that the strength derived from ESG in achieving sustainable goals positively impacts investor sentiments.

Individual E, S, G and firm performance

E, S, and G moderately but significantly impact the operational performance (ROA). It reconfirms the overall ESG scores' results, indicating the support of the stakeholder's theory. Social and Environmental factors have no impact on the ROE, suggesting that a firm's financial performance is indifferent to its social and environmental initiatives. On the other hand, ROE is negatively impacted by governance scores, although the magnitude is very minimal. This signifies that better corporate governance practices come at the cost of going away with specific financial profit-making opportunities for the firms. The results are similar to findings from other studies (Atan et al., 2018). Unlike the findings by Atan et al., 2018, the individual components of ESG had a negative and significant impact on firm value. This may be due to inherent limitations of ESG performance to impact firms' value. Nevertheless, it also implies that firms need to strategically focus on all three categories with proper combined impact assessment. The impact of control variables on ROA, ROE and Tobin Q was found to be similar as discussed in Panel A below, except for firm size's impact on Tobin Q, which was found to be insignificant.

Table 6 Regression Analysis

	PANEL A			PANEL B		
	(1)	(2)	(3)	(4)	(5)	(6)
	ROA	ROE	TOBINQ	ROA	ROE	TOBINQ
ESGLIST	0.034***	0.089***	0.019			
	(0.007)	(0.013)	(0.277)			
TESG				0.003***	.004	.114***
				(0. 001)	(.003)	(.031)
EPS				0.000***	-.001	-.026***
				(0.000)	(.001)	(.009)
GPS				0.001***	-.002*	-.037***
				(0.000)	(.001)	(.009)
SPS				0.001***	-.002	-.039***
				(0.001)	(.002)	(.015)
LEV	-0.014***	-0.021***	-0.588***	-0.011***	-.048***	-.244**
	(0.001)	(0. 003)	(0.049)	(0.0030)	(.011)	(.107)
AT	0. 018***	0.043***	0.581***	0.020**	.086***	.773**
	(0.018)	(0/005)	(0.085)	(0.008)	(.032)	(.307)
GROWTH	0.004***	0.012***	-0.041	0.019**	.082***	-.132
	(0. 001)	(0. 003)	(0.0500)	(0.009)	(.026)	(.249)
SIZE	-0.008***	-0.016***	0.204***	-0.019***	-.069***	.059
	(0. 001)	(0. 003)	(0.0519)	(0. .004)	(.015)	(.148)
_cons	0.221***	. 397***	-0.557	0.442***	1.499***	.916
	(0.024)	(0.050)	(0.9256)	(0.075)	(.303)	(2.908)
Observations	2903	2903	2903	438	438	438

*Standard errors are in parentheses, *** p<.01, ** p<.05, * p<.1*

Source: Authors' Calculations

CONCLUSION

The study examined the impact of ESG on the firm performance of Indian firms from 2012 through 2019. The study concluded that the firms which adopted ESG practices have better operational performance (ROA) and financial performance (ROE), but indifferent market performance (Tobin Q) as compared to the firms which do not have ESG practices. This reflects that Indian corporates have been efficient to select ESG capital investment with both financial and non-financial benefits. However, a lower market response might be due to lower awareness or confidence amongst investors while making their investment choices between ESG and non-ESG firms. Amongst the ESG firms, the operational performance (ROA) has been positively benefited from ESG related practices. This reconfirms the above argument that business has carried out ESG related capital investments without compromising operational efficiencies and benefits. The market performance (Tobin' Q) amongst ESG listed firms has been positive, which reflects that there exist categories of investors who follow

SRI practices while making investment decisions in the Indian capital market. At the sub-component's levels, the E S and G performance scores have a negative impact on market performance. This may be due to inherent limitations of ESG performance to impact firms' value. However, it also implies that firms need to strategically focus on all three categories with proper combined impact assessment. The impact of ESG practices could not be well established with financial performance (ROE). This indicates that ESG firms' financial performance is like their peers'. The findings of the study recommend non-ESG firms shift towards ESG practices. The study vouch ESG firms as an investment option as these firms' performance is better when compared to non ESG firms. The positive firm performance of ESG firm's vis a vis non ESG firms supports regulators to devise a mechanism for enhancing ESG practices. Like other research, this research is also not free from limitations. One of the critical limitations of the undertaken study is that it does not consider other factors like taxes, capital expenditure, research and development expenses, dividend policy, industry-specific parameters, and various macroeconomic factors that can also impact a firm's financial performance. Further studies can be carried out with industry-level analysis, sub-activities under the individual E, S and G pillars, and considering tax and government benefit schemes for ESG related capital investments.

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