ESG DISCLOSURE AND FIRMS'PERFORMANCE: COMPARATIVE ANALYSIS BETWEEN MANUFACTURING AND SERVICE SECTOR

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ABSTRACT

This study analyzes the effect of sustainability disclosure on firms' financial performance, i.e., profitability (Return on Assets)and market-based performance (Tobin's Q) of the Indian manufacturing and service sectors. The sample for the study involves firms listed on the National Stock Exchange (NSE) comprising manufacturing and service sector firms for ten years, i.e., 2012 to 2021.To test the study's formulated hypotheses, panel data regression analysis was used. The research outcomes revealed a significantly positive relationship between ESG performance (ESG combined score) and firms' performance in both sectors; however, the outcomes are diverse in the individual pillars of ESG disclosure. This study's practical implications will benefit academicians, business groups, corporations, policymakers, government authorities, and other stakeholders to effectively comprehend the relevance of the connection between ESG practices and firms' performance. It can also encourage entities to incorporate sustainable practices more proficiently in emerging countries like India.

Keywords: ESG Performance; Sustainability, ESG Disclosure, Firm Performance, Tobin's Q, Emerging Country

INTRODUCTION

In the current time of superior growth and sustainable progress, ESG issues have become the focus of corporations (Almeyda and Darmansya, 2019). Organizations are progressively seeking to integrate varied factors, such as the stakeholders' needs and sustainability performance, into their business model, instead of considering them isolated business activities. As an outcome, firms understand how they create value for their stakeholders and realize that long-term value creation and financial returns are inseparably linked to their core purpose. Environmental, Social, and Governance (ESG) disclosure, also known as sustainable disclosure, provides investors with a comprehensive view of an organization's strategy, position, and performance on sustainability-related topics.

The increasing relevance of sustainability reporting is evident in the global survey (PwC 2021), which states that there is great demand for sustainability practices and disclosures of companies by investors and other stakeholders. Given the growing

awareness of environmental stability, socioeconomic development, and adherence to ethical norms, Sustainable and responsible investment (SRI) strategies have gained more and more significance over time. Environmental, Social, and Governance (ESG) investment has grown in favor among investors as an effective technique for portfolio selection within the larger theme of Sustainable and Responsible Investment.

In recent years, ESG performance has become a crucial component of sustainable corporate practices, aiding in implementing the regulations that assist businesses in improving their efficacy (Eccles et al., 2014). By creating innovative environmentally suitable products and services with the help of sustainability, businesses may moderate risk, prevent wastage, and improve the efficiency of materials. ESG ratings are a quantitative tool for measuring stakeholders' satisfaction and provide a competitive advantage in the way of lower the cost of capital (Chen and Yang, 2020), moderating risk factors (Li et al., 2022), and greater financial (profitability and market-based) performance (Ahmad et al., 2021) by creating credibility for the business practices.

Through this procedure, businesses may best balance these three factors and include their environmental, social, and economic goals in their company plans (Székely and Knirsch, 2005). In emerging nations, sustainability initiatives now go beyond philanthropy to include more strategic components. Businesses, especially in India, are now engaging in CSR to enhance their company's value, strengthen their relationships with the community, and promote their brand image (Shirodkar et al., 2018). ESG facilitates the evaluation of a company's sustainable initiatives, i.e., ESG performance. These three dimensions of ESG, when combined, produce an inclusive performance measure where an entity's environmental performance represents its initiatives in terms of elevating resource efficiency as well as lessening emanations; however, corporate social performance imitates its efforts to improve working conditions, product quality, employees rights and relations with society and the third dimension, i.e., corporate governance performance of a firm shows how managerial authorities are fulfilling their obligations and protecting the shareholders' interest.

ESG disclosures help socially conscious investors to assess the viability of investments in companies with high and poor sustainability levels, as with reforms to trade, financial, and investment regulations, the global economy is undergoing a fundamental development (Kundu and Malhan, 2011). According to Alareeni and Hamdan (2020), investors with a thorough awareness of sustainability disclosure and the significance of the disclosure (scores) in public can increase their rewards by using superior investing techniques. Given the significance of ESG, numerous research has investigated its effect on organizations' performance, although the results vary: According to several academics, firm performance and ESG have a positive relationship (Bauer et al., 2010; Cek and Eyupoglu, 2020; Yu et al., 2018). Sharma et al. (2020) investigation into the relationship between Indian companies' financial performance and ESG disclosures from 2013 to 2016 and the results indicated a significant and positive relationship between both of them. In contrast, some researchers have discovered a negative correlation between ESG and company performance (Barnea and Rubin, 2010; Smith et al., 2007). However, because the majority of the research was carried out in developed nations, firms in those markets are under pressure to address these problems more broadly due to the effects of globalization and a deficient institutional environment.

To encourage more socially responsible investments in emerging nations like India, essential transparency concerning ESG disclosure is required. It would be interesting to see how socially responsible investors respond to significantly increasing sustainable practices of entities in fast-growing areas like India, where there are untapped resources, large populations, and provide growth opportunities (Gupta, 2011). After reading the available literature, it is discovered that limited studies are conducted on analyzing the linkages between organizations' ESG performance and financial performance, particularly in the Indian industry. Although earlier research engrossed in analyzing the impact of ESG pillars (environmental, social, or governance) in isolation, very few studies have comprehensively examined the effects of all three ESG components. The motivation behind this study is that ESG reporting and its association with a firm's performance represents a field of continuous interest for researchers and practitioners.

The existing literature makes it even more challenging to conclude as it shows inconclusive outcomes. Our study seeks to address the research question: How does the ESG performance of NSE-listed manufacturing and service sector enterprises affect their financial performance? Prior research concentrated on developed economies, which differ significantly in terms of institutional and cultural aspects. As a result, given the lack of research on developing countries, it is crucial to study emerging markets, particularly India. To significantly add to the body of knowledge by taking into account how ESG factors affect various business performance perspectives, i.e., profitability (ROA) and market-based performance (Tobin's Q) together comprehensively by providing a comparative analysis of two major sectors, i.e., the Manufacturing and Service sector in India. According to the author's knowledge, this is the first study to examine the relationship between companies' financial performance and their disclosure of their sustainability efforts in the context of India's manufacturing and service sectors. The study provides a multi-theoretical framework by incorporating the stakeholder theory and signaling theory and adds to the literature on sustainability in an emerging country like India.

The objective of the study is to provide comparative analyses of sustainability performance on the National Stock Exchange (NSE)-listed firms of two different sectors, i.e., manufacturing and service sectors. As a result, the findings are intended to broaden awareness of sustainability at the business level across industries. Lastly, the insights of the study may aid future researchers, decision-makers, and managers in comprehending the value of including ESG disclosures in all aspects of their work and undertaking efforts to promote sustainability.

REVIEW OF LITERATURE

Firm Performance and ESG Disclosure

Over the last few years, the research studies related to the association between Sustainability reporting disclosure and its impact on firms' performance have been growing. After reviewing the existing literature, we found mixed arguments for the association between ESG performance and firm performance. Numerous studies outlined the advantages of encouraging ESG disclosure for the organization and stakeholders. Sustainability disclosure encourages greater transparency and financial stability, helps in decision-making (Verga Matos et al., 2020), and contributes better to society and the environment (Eccles et al., 2015; Krzus, 2011). As per the study by Li et al., (2022), ESG disclosure help firms in reducing their risks, whereas Kaiser and Welters (2019) states that sustainability reporting helps businesses minimize their cost of capital and improve their performance. Numerous empirical studies have examined the correlation between CSP (Corporate Social Performance), which is reflected in ESG scores, and financial performance. The impact of ESG reporting on financial performance has been the center of various research (Drempetic et al., 2020; Duque-Grisales and Aguilera-Caracuel, 2021). Friede et al. (2015) examined the linkages between corporate financial success and sustainability reporting as a stand-in for corporate social performance, where more than 2,200 observational studies have been undertaken. However, there has been little advancement in the field of international environmental, social, and governance research; this is particularly evident in emerging nations like India, where there are a much smaller number of studies.

It has been investigated in the past how ESG practices affect business performance. Most of the research concentrated on just one ESG dimension. Wagner and Schaltegger (2004) found that the connection between environmental and economic performance and the firms with strategies to protect shareholders' interest is more favorable than for firms when they looked at European industrial companies for the impact of corporate environmental strategy choice. The most challenging issues affecting the environment worldwide are climate change and global warming. This issue may affect the future performance of businesses and the planet. Businesses are now required to set environmental standards and policies and disclose information regarding their commitment to this crucial aspect due to increased public awareness of this global issue (Buallay, Hamdan, et al., 2020; Buallay, Kukreja, et al., 2020).

The association between the company's social activities and firm performance includes all its

relations with its various stakeholders (employees, customers, suppliers, government). Eklof et al. (2020) conducted research on Scandinavian banks from 2004 to 2014 to assess the nexus between the satisfaction of customers and their loyalty and specific metrics of the stock market and accounting. The results revealed a strong positive relationship.

Articulating the earlier research reveals that companies use CSR as a strategy for value creation. Profitability allows the business sector to fulfill its social responsibility obligations by satisfying employee requirements, returning capital to investors, and supplying consumers with high-quality goods and services. Fama and Jensen (1983) concluded that excellent corporate governance is crucial to improving a company's performance in the best of investors' interest and other stakeholders, minimizing agency expenses, and assisting companies in remaining in business.

The lack of commonalities in the outcomes is acknowledged by an adequate evaluation of the body of literature. The results from a few research were favorable and positive, Peiris and Evans (2010) analyzed the link between sustainability (ESG) characteristics and portfolio returns, and researchers examined the effect of ESG variables on firm value. The study found a favorable relationship between ESG dimensions and valuations of firms, which shows that those firms which are rated high are also earning high and therefore are essential for investment decision-makers. Achim et al. (2016) discovered that between 2001 and 2011, corporate governance and the financial performance of 76 companies registered on the Bucharest Stock Exchange (Romania) were positively and significantly correlated. However, another study by Orlitzky et al. (2003) concluded that Corporate social practices were positively linked with firm performance and were more strongly correlated with accounting-based indicators. Studies of a similar nature show a favorable relationship between CSR activities and firm performance, with a corporation's profitability serving as its primary concern when making decisions about CSR initiatives (Adamkaite et al., 2023; Bauer et al., 2010; Hu et al., 2018; M. Khan et al., 2016).

Apart from the above studies, certain studies showed that sustainability practices are negatively associated with corporate performance (Barnea and Rubin, 2010; Fisher-Vanden and Thorburn, 2011; Smith et al., 2007). Furthermore, Crisóstomo et al. (2011) Investigated the relationship between CSR practices and the firm's performance in Brazil. They discovered a statistically significant inverse association between corporate social responsibility and firm value, and there is an insignificant connection between CSR of the firm and its financial accounting performance.

However, some analysts believe that the benefits outweigh the costs associated with taking these steps and that there is no direct link between ESG and corporate performance. Waddock and Graves (1997) reported that the results of their study are unclear and inconclusive between the sustainability performance of the chosen samples and firm performance.

ESG Disclosure in the Manufacturing Sector

The three elements of sustainability, namely the environmental, economic, and social factors, are considered when measuring the manufacturing performance indicators for product designing, process planning as well as production systems (Lee and Lee, 2014).

In the manufacturing industry, sustainability issues are the center of concern, such as forming sustainability committees, regulations, and reports. Even after the efforts, concerns about creating, implementing, and reporting sustainability practices continue to surface. Answering these issues is very hard in the manufacturing sector for several reasons. Firstly, the solution "one size fits all" is not suitable for sustainable manufacturing; bringing sustainable efforts into manufacturing is a contentious topic because the manufacturing sector includes a variety of divisions, and each division consists of different sustainability-related challenges (Searcy and Buslovich, 2014). Second. The manufacturing industry evolves very quickly, necessitating ongoing adjustments to the company model's sustainability plan (Stock and Seliger, 2016). Third, The logistics process is incredibly complicated and involves numerous suppliers and distributors, making it difficult to monitor and

report sustainability in the manufacturing industry (Fletcher and Grose, 2012).

Despite the abovementioned difficulties, several manufacturers have begun integrating and disclosing sustainability through ESG performance. In recent times, there has been an increase in the disclosure of ESG activities; still, the literature examining the impact of ESG Disclosure of manufacturing sector firms on their performance is lacking. Therefore, it is vital to examine how ESG disclosure influences the performance of manufacturing firms.

ESG Disclosure in Service Sector

To attain a suitable balance between economic, social, and environmental goals, a society must be sustainable. For businesses, this means preserving and accelerating financial growth, shareholder wealth, company goodwill, client relationships, and the caliber of goods and services (Székely and Knirsch, 2005). For the service sector to be sustainable, it must consider factors related to the environment, society, and economic issues in the design, development, management, and execution of service providers. The effect of marketing methods, such as announcements for CSR initiatives on the customers or the demanding route, on stock prices of service firms, has a direct and indirect value for investors (Kalaignanam et al., 2013). In this support, Khan and Fatma (2023) also argued that the socially responsible behavior of a firm positively influences the overall valuation of its service quality. Humdan et al. (2023) stated that firms in the service sectorare required to anticipate customers' needs and preferences more prudently in comparison to other sectors, and Becker-Olsen et al. (2006) have proposed that CSR activities benefit service sector companies more, given the significant overlap between their services and the social and environmental initiatives. ESG disclosure may help the firms of the service sector, in the long run, to communicate their company's sustainability issues with the stakeholders, which helps the firms in attaining sustainability. Therefore, it becomes crucial to analyse the linkages between ESG practices and the financial viability of service sector companies.

Sustainability practices have gradually adapted to stakeholders' needs. Studies from the past few years, however, indicate that the consequence of ESG performance on company performance is not entirely favorable because some practices are unrelated to firm financial performance, and some can have a detrimental or negative influence on firm performance. As per the findings, this study's goal is to see if and how ESG disclosures affect company performance indicators through a cross-sector analysis of manufacturing and service sector companies.

Theoretical Framework and Research Hypotheses

Stakeholder Theory

According to stakeholder theory, sustainable business practices boost an organization's performance by enhancing its reputation and goodwill, which will positively impact its financial results and ability to add value to the firm (Freeman et al., 2021). The theory makes a clear connection between the issue of sustainability and how much businesses value or neglect shareholder rewards (Campbell, 2007; Donaldson and Preston, 1995). On this premise, the ESG score has been created to measure a company's incorporation of sustainability challenges (Birindelli et al., 2018). ESG refers to the critical factors for making an investment by evaluating the non-financial performance of the firm (Atan et al., 2018), on that stakeholders are paying immense attention to understanding how well a firm is performing by incorporating sustainable practices (Diez-Cañamero et al., 2020).

Signaling Theory

Signaling theory states that the reporting related to ESG practices of a firm can improve its public image, boost confidence among consumers as well as assist the businesses in constructing a better-committed association with shareholders, customers, and other stakeholders (Bae et al., 2018). Signaling theory describes how organizations often send out signals that reduce information asymmetry among themselves and stakeholders and allow them to communicate their organizational intentions, image, behavior, and performance (Cui et al., 2018; Karaman et al., 2020). Cuadrado-Ballesteros et al.

(2016) indicate that shareholders' transaction costs can get lower by having transparency in communication as it reduces the information asymmetry, eventually allowing a company to distribute greater returns. This improves the acquisition and use of natural resources while lowering transaction costs and resolving disagreements over distribution among key stakeholders. Ultimately, this increases the value of the corporate (Dhaliwal et al., 2011).

Based on the above theories, we have formulated the following hypotheses:

H_1: ESG performance positively affects the financial performance of manufacturing sector firms.

H_{1a}: ESG performance positively affects the profitability (ROA) of manufacturing sector firms.

H_{1b}: ESG performance positively impacts the market-based performance,i.e., Tobin's Q of manufacturing sector firms.

H_2: ESG performance positively affects the financial performance of service sector firms.

H_{2a}: ESG performance positively affects the profitability (ROA) of service sector firms.

H_{2b}: ESG performance positively impacts the market-based performance,i.e., Tobin's Q of service sector firms.

RESEARCH METHODOLOGY

Study Sample

The research includes panel data of 60 large-cap firms gathered from secondary sources listed on the National Stock Exchange (NSE) for ten years from 2012 to 2021. This study includes 30 large manufacturing firms and 30 service sector firms listed on NSE-100, India. The study has taken these companies because the NSE-100 index, which contains major publicly traded companies on the basis of market capitalization, serves as a representative of the Indian manufacturing and service industries. To ensure reliability and conduct meaningful panel data regression analysis, a longer period, i.e., ten years data has been used to analyze the influence of ESG disclosure on entities' financial performance. The financial information and ESG scores were gathered using the Refinitiv Eikon database. It is the most reliable and comprehensive financial and accounting data database, including around 35 million and 8.5 million instruments from all major asset classes and economic indicators, respectively. It provides data on 175 economies for about 120 years (Refinitiv Eikon Datastream, 2022).

Study Variables

Dependent Variables

The Firm's financial performance measures, i.e., Return on Assets (ROA) for the profitability of the Firm, and Tobin's Q is used to estimate a firm's performance in the market, are the dependent variables. These variables have been used in line with previous literature (Atan et al., 2018; Peng and Yang, 2014).

Independent Variables

In this study, the independent variables are ESG performance measures, i.e., ESG Combined score, environmental disclosure (E score), social disclosure (S score), and governance disclosure (G score) retrieved from Refinitiv Eikon database to gather data about the firm's performance in environmental, social, and corporate governance aspects. These variables have been used in studies like Atan et al. (2018) and Peiris and Evans (2010).

Control Variables

The current study uses three control variables, i.e., firm leverage, firm size, and firm age (Ching et al., 2017; Crisóstomo et al., 2011). Firm leverage has been measured through total debt divided by the total equity of the firm. In line with previous studies, we measured a firm's size as a log of the total assets of the firm (Yang and Baasandorj, 2017). The difference between the current year and the year of incorporation for a specific year is used to calculate firm age. These control variables have been considered essential for analyzing the effects on a firm's performance caused by ESG disclosure (Alareeni and Hamdan, 2020; Waddock and Graves, 1997). The description of the independent, dependent, and control variables is presented in Table 1.

Online shopping became more popular and convenient shopping rather than conventional

shopping among all sections of people around the world. The result of this study identified the most influencing factors are discounts and offers, customer care service, website features, payment facilities and delivery performance as predictors for the PI of online shopping of consumers. Among the independent variables, delivery performance has a less influencing factor on the PI. The study also showed that website features are highly correlated with the PI of online shopping. It is therefore suggested that online sellers need to focus more on the delivery system adopted to satisfy the consumers shopping online and also to motivate the PI of consumers shopping online.

DATA ANALYSIS AND ESTIMATION MODEL

The panel data regression analysis has been used to examine the impact of ESG disclosure on the financial performance of manufacturing and service sector firms. Panel data analysis offers more efficiency, more degrees of freedom, more variability, less cross-collinearity, and more accurate information. The sample firms' potential unobservable heterogeneity is eliminated using panel data methods. Some earlier studies have also pointed out the endogeneity issue (Bhagat and Bolton, 2008; Hermalin and Weisbach, 2003). By including instrumental variables in the study or employing estimate techniques like the random-effects model and the fixed-effects model, endogeneity biases can be minimised (Arora, 2022). We used the Hausman test to determine which of the two models, the fixed-effects model or the random-effects model, should be used (Hausman and Taylor, 1981). The Hausman test has been used in earlier studies to choose whether a fixed-effects model or a random-effects model is appropriate for the research (Akram et al., 2020; Ararat and Yurtoglu, 2021).

To examine the impact of ESG disclosure on firms' financial performance, using independent variables of ESG disclosures, including ESG combined score, Environmental disclosure score, Social score, and Governance score, the following estimation model is used to respond to the hypotheses formulated in section 3 -

$$Perf_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 E_{it} + \beta_3 S_{it} + \beta_4 G_{it} + \beta_5 FLeverage_{it} + \beta_6 FSize_{it} + \beta_7 FAge_{it} + \varepsilon_{it}$$

Where, $Perf_{it}$ is a continuous and dependent variable, that shows the financial performance of the firm, measured by models, i.e., ROA (profitability) and Tobin's Q model (market performance). ESG performance, i.e., independent variables are measured by ESG combined score, E score (environmental disclosure), S score (social disclosure), and G score (governance disclosure). $FLeverage_{it}$, $FSize_{it}$ and $FAge_{it}$ represents firm leverage, firm size, and firm age for the firm (i) in the period (t),ε_{it} represents the error term. This model has been used in various studies to study the impact of ESG performance (Alareeni and Hamdan, 2020).

Table 1: Description of Study Variables

Variables	Labels	Measurements	Source
Dependent Variables			
Profitability	ROA	The ratio of net income to average total assets	RefinitivEikon (Thomson Reuters Eikon)
Market Performance	Tobin's Q	The ratio of the Enterprise (market) value of a firm to total assets.	RefinitivEikon (Thomson Reuters Eikon)
Independent Variables			
ESG disclosure	ESG Score	It ranges from 0-100, where a higher value indicates a higher ESG score. This score is based on 186 company-level metrics grouped into ten categories before rolling them up into the three pillars of ESG.	RefinitivEikon (Thomson Reuters Eikon)
Environment disclosure	E Score	This score is derived from a predetermined weighted score on indicators related totheutilization of resources, emissions, andinnovation.	RefinitivEikon (Thomson Reuters Eikon)
Corporate social disclosure	S Score	This score is derived from a predetermined weighted score on indicators related to workforce, human rights,community, and product responsibility.	RefinitivEikon (Thomson Reuters Eikon)
Corporate governance disclosure	G Score	This score is derived from a predetermined weighted score on indicators related to management, shareholders, and CSR strategy.	RefinitivEikon (Thomson Reuters Eikon)
Control Variables			
Firm Leverage	F LEV	Total Debt/ Total Equity	RefinitivEikon (Thomson Reuters Eikon)
Firm Size	F SIZE	Log of Total Assets	RefinitivEikon (Thomson Reuters Eikon)
Firm Age	F AGE	Difference between the current year from the year of incorporation	RefinitivEikon (Thomson Reuters Eikon)

Source: Author's Work

RESULTS AND FINDINGS

Descriptive Statistics

The descriptive statistics for all selected variables of the manufacturing and service sector firms are exhibited in Table 2. The findings show that in the case of the manufacturing sector, the mean value of the social score (58.71) is the highest, followed by the Governance score (53.44), while the environment disclosure (50.88) has the lowest value. On the other hand, the mean of social disclosure (56.57) is the highest, while the environmental score (40.94) is the lowest among the service sector firms. This implies that both manufacturing and service firms positively make efforts to integrate social disclosure policies and are more encouraged to take initiatives related to employees and the community, among other sustainability measures. For the performance measures, ROA in both sectors has the highest value, whereas Tobin's Q has the lowest value, which shows that in both the selected sectors, firms have better profitability as compared to market performance.

Table 2: Descriptive Statistics

Descriptive Statistics (Manufacturing Sector)									
	ESG SCORE	**E SCORE**	**S SCORE**	**G SCORE**	**ROA**	**TOBIN S Q**	**F LEV**	**F SIZE**	**F AGE**
Mean	51.073	50.880	58.712	53.436	10.027	3.330	65.503	12.747	47.986
Median	53.660	54.640	59.715	52.660	8.100	2.107	44.750	12.435	46.000
Maximum	85.130	97.320	96.770	96.480	34.800	24.427	301.600	16.397	113.000
Minimum	11.780	0.810	5.380	16.380	-9.000	0.099	0.000	10.224	5.000
Std. Dev.	17.445	24.850	22.991	21.094	8.205	3.793	69.325	1.321	23.643
Observations	288	288	288	288	288	288	288	288	288
Descriptive Statistics (Service Sector)									
	ESG SCORE	**E SCORE**	**S SCORE**	**G SCORE**	**ROA**	**TOBIN S Q**	**F LEV**	**F SIZE**	**F AGE**
Mean	48.473	40.940	56.573	53.265	5.091	1.298	277.509	14.031	39.404
Median	43.565	39.010	55.190	56.445	1.800	0.870	119.250	13.825	30.000
Maximum	92.440	90.320	94.900	96.120	32.400	8.762	7932.600	17.696	115.000
Minimum	16.030	0.000	11.550	0.470	-32.300	-0.075	0.000	10.673	8.000
Std. Dev.	17.739	22.976	19.653	24.335	8.329	1.444	623.220	1.505	28.132
Observations	272	272	272	272	272	272	272	272	272

Source: Authors' calculations

Correlation Analysis

Table 3 summarizes the correlation between the variables that are used in this research for both sector firms. In the case of the manufacturing sector, the results exhibit that the ESG combined score, Environmental and Social disclosures have significant and negative linkage with ROA but have an insignificantly positive association with the governance disclosure. However, Tobin's Q has an insignificant but positive connection with ESG combined score and S score, whereas the association between the environmental dimension and Tobin's Q comes out to be significantly negative; on the other hand, the service sector results revealed that all independent variables, i.e., ESG combined score, as well as its dimensions (E, S, and G) score, has a significantly positive relation with ROA and Tobin's Q, it implies that companies with a high level of ESG disclosures have good profitability and strong market performance. In addition, we also conducted the Variance inflation factor (VIF) test presented in Table 4, which showed that all the values are less than the widely accepted value of 10in both sectors, which demonstrates that there is no multicollinearity issue with our data.

Table 3: Correlation Matrix

Correlation Analysis (Manufacturing Sector)									
Correlation	**ESG SCORE**	**E SCORE**	**S SCORE**	**G SCORE**	**ROA**	**TOBIN S Q**	**F LEV**	**F SIZE**	**F AGE**
ESG SCORE	1.000								
E SCORE	0.770	1.000							
S SCORE	0.806	0.745	1.000						
G SCORE	0.491	0.248	0.326	1.000					
ROA	-0.148	-0.413	-0.172	0.060	1.000				
TOBIN S Q	0.049	-0.261	0.057	0.132	0.732	1.000			
F LEV	0.175	0.406	0.130	-0.110	-0.656	-0.470	1.000		
F SIZE	0.347	0.616	0.440	-0.026	-0.646	-0.554	0.595	1.000	
F AGE	0.322	0.470	0.347	0.055	-0.162	0.072	0.268	0.287	1.000
Correlation analysis (Service Sector)									
Correlation	**ESG SCORE**	**E SCORE**	**S SCORE**	**G SCORE**	**ROA**	**TOBIN S Q**	**F LEV**	**F SIZE**	**F AGE**
ESG SCORE	1.000								
E SCORE	0.630	1.000							
S SCORE	0.815	0.708	1.000						
G SCORE	0.720	0.301	0.423	1.000					
ROA	0.476	0.288	0.390	0.344	1.000				
TOBIN S Q	0.196	0.075	0.126	0.325	0.634	1.000			
F LEV	-0.047	-0.019	-0.120	-0.027	-0.248	-0.106	1.000		
F SIZE	-0.117	0.235	0.135	-0.397	-0.417	-0.528	-0.073	1.000	
F AGE	-0.167	0.131	0.055	-0.470	-0.067	-0.182	-0.126	0.373	1.000

Source: Authors' calculations

Regression Analysis

We conduct a Unit root test using the Augmented Dickey-Fuller (ADF) test to determine the data's stationarity before starting the regression analysis. The findings show that for both sectors, the data series is stationary.

Manufacturing Sector Results

The outcomes of the regression analysis for the manufacturing sector are shown in Table 5. The fixed-effect and the random-effect are two types of panel data regression models. To determine which model is suitable for our study, we conducted the Hausman test, and as per the results obtained, we applied the random effects model for ROA, whereas the fixed effects model is conducted for Tobin's Q (p-value = 0.3320 and 0.000 respectively).

The regression results reveal that in the ROA model, ESG combined score has a significantly positive relation with ROA, while the S score is significant but negatively associated with ROA, whereas the Environmental score and Governance score coefficients are insignificantly negative.

In Tobin's Q model, the coefficient of the ESG combined score is significant and positive, which means ESG disclosure has favorable impact on firm's market performance, whereas the E score, i.e., the environmental score, is also significant but negatively associated with Tobin's Q model. However, the other dimensions, i.e., S score and G score, have insignificant relation to the market performance of the manufacturing firms; this outcome is aligned with the study of Aggarwal (2013).

For the control variables, the findings demonstrate that in the ROA model, the age of the firm has a positive impact on firm performance, whereas leverage and firm size have a negative impact. Tobin's Q model, however, shows a negative association between firm size and performance and a positive association of firm leverage and age with firm performance.

Therefore, as per regression analysis of manufacturing firms, ESG combined score is significantly positively connected with both the measures of firm financial performance, i.e., ROA and Tobin's Q, which implies that the greater extent of sustainability disclosure enhances the financial performance of the firm, i.e., profitability

and market-based performance. Thus, the H_1 hypothesis, which suggests that ESG score has a positive impact on the financial performance of manufacturing companies, is supported and aligned with Alareeni and Hamdan (2020).

Table 5: Regression Analysis (Manufacturing Sector)

	ROA Model			TOBIN'S Q Model		
Variable	Coefficient	t-statistic	P-value	Coefficient	t-statistic	P-value
Constant	41.084	6.438	0.000***	4.618	1.186	0.237
Independent Variables						
ESG SCORE	0.070	2.450	0.015**	0.039	2.747	0.006***
E SCORE	-0.032	-1.220	0.223	-0.054	-3.868	0.000***
S SCORE	-0.061	-2.363	0.019**	-0.012	-0.868	0.386
G SCORE	-0.021	-1.065	0.288	0.001	0.117	0.907
Control Variables						
F LEV	-0.037	-4.567	0.000***	0.008	1.706	0.089*
F SIZE	-2.116	-3.758	0.000***	-1.675	-3.483	0.001***
F AGE	0.019	0.485	0.628	0.435	6.070	0.000***
R-squared	0.2619			0.8265		
Adjusted R-squared	0.2434			0.8017		
F-statistic	14.195***			33.233***		

Note: *, **, *** represent significant at 10%, 5% and 1% levels, respectively
Source: Authors' calculations

Service Sector Results

Table 6 exhibits the panel data regression results for the service sector firms. In accordance with the outcomes of Hausman test, the Fixed effects model has been applied for ROA, whereas the Random effects model has been used for Tobin's Q since the p-value are 0.0093 and 0.0674, respectively.

The ROA model's regression analysis shows that the ESG combined score's coefficient is substantial and positive, indicating a positive correlation between the ESG combined score and the profitability of service sector firms, whereas the Governance score is negative but significantly associated with ROA. However, ROA is inversely linked with both Environmental and Social disclosure but insignificantly, and our result is consistent with Ahmad *et al.* (2021).

In Tobin's Q model, the firm's market performance is positively and significantly correlated with the ESG combined score, and the G score also has a positive but insignificant association, while the Environmental and Social scores have insignificant negative relationships with Tobin's Q.

For the control variables, the results show that firm leverage is negatively related to ROA but has a positive relation with Tobin's Q. While the firm age is positively associated with ROA and Tobin's Q model but insignificantly, whereas the firm size is significantly and negatively related to both of these models.

Therefore, the hypothesis H_2 is supported as the ESG combined score positively influences firms' financial performance, which infers that ESG combined disclosure positively enhances the profitability (ROA) and market performance (Tobin's Q) of service sector firms aligned with Zhao *et al*. (2018).

Table 6: Regression analysis (Service Sector)

	ROA Model			TOBIN'S Q Model		
Variable	Coefficient	t-statistic	P-value	Coefficient	t-statistic	P-value
Constant	57.924	5.977	0.000***	4.134	3.492	0.001***
Independent Variables						
ESG SCORE	0.130	4.180	0.000***	0.011	2.089	0.038**
E SCORE	-0.019	-1.044	0.297	-0.001	-0.447	0.655
S SCORE	-0.038	-1.068	0.287	-0.002	-0.323	0.747
G SCORE	-0.072	-3.503	0.001***	0.002	0.488	0.626
Control Variables						
F LEV	-0.001	-1.369	0.172	0.000	0.791	0.430
F SIZE	-4.078	-4.211	0.000***	-0.245	-2.517	0.012**
F AGE	0.127	0.921	0.358	0.003	0.388	0.698
R-squared	0.890			0.065		
Adjusted R-squared	0.874			0.040		
F-statistic	53.034***			2.620**		

Note: *, **, *** represent significant at 10%, 5% and 1% levels, respectively.
Source: Authors' calculations

CONCLUSION

In recent years, the ethical role of businesses has become increasingly important to fulfill wide-ranging societal expectations and responsibilities. In the existing literature on the association between ESG practices and the performance of the firm have mixed outcomes. Therefore, this study aims to investigate the relationship between ESG performance and Firm performance, i.e., ROA (profitability) and Tobin's Q model (Market performance) of the manufacturing and service sector listed in the NSE, India.

The study's findings demonstrated that ESG performance (ESG combined score) positively affects the profitability and market performance of the manufacturing sector firms which indicates that ESG activities of the firms help to generate value for its stakeholders as well as better performance but the individual dimensions (E score, S score, and G score) exhibit the diverse and inconclusive impact on Firm performance. Similarly, the results of the service sector analysis also show a positive relation between ESG disclosures(combined score) and the organizations' performance in the service sector which implies that firms in the service sector are benefitted from disclosing sustainability information by satisfying the needs of stakeholders that ultimately leads to an increase in the firm's reputation and better customer relations, but the

dimensions, i.e., the disclosure related to environmental performance, social practices, and performance related to governance individually depicts the diverse relationship with firm performance. Therefore, in both sectors, i.e., the manufacturing and service sector, firms need to manage and strategize their sustainability practices of all three pillars of ESG with better techniques.

The outcome of our study suggests a significant positive inter linkages between sustainability disclosure and financial performance of firms in both sectors which will have some relevant implications for practice as well as managerial implications. The study's results have important inferences for academicians, investors, business participants, and policymakers who aim to examine the connection between an organization's financial performance and its ESG performance. Business professionals may also benefit from our study's findings as it will help them decide whether to indulge in sustainability practices and disclose pertinent information. When making investment decisions, consider ESG-related factors that impact the risk and return of the investment in addition to conventional financial factors. As ESG practices are integrated with financial benefits, our study is helpful for s takeholders who aim to invest in businesses that outperform competitors on one or more ESG-related performance criteria and aids them in formulating well-informed investment-related decisions. Policymakers can use the results of this study to create new rules, revise existing ones, and implement the required corrective measures to improve the performance of businesses. In order to achieve societal goals, sustainability practices must work in parallel with the government. This is especially true for emerging nations like India because limited resources, inequality, and escalating ambitions make achieving sustainable progress more challenging. Government bodies in India have been attempting to incorporate sustainability reporting to progress towards sustainable practices. The benefits connected with them may take longer to manifest even though the corresponding legislation is already in existence. Thus, to ensure increased transparency and avoid "green washing," our study suggests regulatory agencies pay more attention to ESG disclosure and its implementation. Our study can help organizations recognize areas where corporate sustainability can be more effectively put into operation, which has managerial ramifications.

As this study focuses on two sectors' firms, i.e., manufacturing and service sectors, over a limited period (2012-2021), future research might include sample firms in other sectors over a more extended period. It can examine how the Covid-19 pandemic affects the link between ESG practices and company performance. A future study can compare the firms of developed and developing countries. This will provide a broader perspective by considering the diverse business and regulatory environments of different countries to generalize the association between sustainability practices and the performance of the firm.

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