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Sustainability Initiatives and Firm Performance in Indian Companies: An Empirical Examination

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Abstract

This study examines the impact of Sustainability initiatives initiated by Indian companies on financial performance. The study was based on ESG ranking scores in the Thomson Reuters database, and the sample comprised 418 companies from six different sectors, namely Basic Industry, Energy, Healthcare, Industrials, Technology, and Utilities. Six models of regression were used for the study where the valuation variables of enterprise value to market capitalization and PE ratio were regressed upon the variables of ESG consisting of ESG score, social, governance, and environmental pillar scores, and control variables. The category scores of pillars were used as independent variables. ESG initiatives have a significant positive effect on the firm performance. The study finds that smaller firms tend to have higher valuation effects. Environmental innovative initiatives to reduce environmental costs and create market opportunities through new environmental technologies and processes have positive valuation effects in the market. Firms in the technology sector tend to have higher valuation effects.

Keywords: *Company Performance, India, Sustainability, Corporate Social Responsibility, ESG.*

Introduction

Sustainability has become a major concern in many disciplines. Sustainability has become a main influencing factor in how business activities are designed and executed, and many firms make sustainability disclosures as part of their annual reports (Kitzmueller & Shimshack, 2012). As the business landscape shifts its focus from delivering value solely to shareholders to serving a broader array of stakeholders, such as suppliers, employees, and customers, sustainability has become a pivotal benchmark for measuring organizational success. Internal stakeholders rely on dependable, actionable data to shape their strategies and day-to-day operations. Meanwhile, external stakeholders seek well-informed insights to decide whether to engage in business relationships with a particular organization. In both cases, there is a strong demand for robust corporate governance that aligns with an organization's stated mission and values. Additionally, effective management should be geared towards addressing sustainable business risks and capitalizing on opportunities that enhance overall value (Zahra et al., 2023).

There are different views on stakeholder welfare and value. From one view, stakeholder welfare represents intangible assets and is positively associated with firm value. Another view states that stakeholder welfare is driven by managers' personal interests and is expected to have a negative effect on firm value (Bhaskaran et al., 2020). During the past five decades, plenty of research has been conducted on the relationship between corporate social performance and corporate financial performance, which during the recent past shows a trend toward sustainability. Similarly, listed companies worldwide are shifting from short-term goals of maximizing profits to long-term sustainable environmental, social, and governance (ESG) goals. At a time of growing global focus on sustainability issues, this research examines sustainability initiatives in Indian companies and their impact on firm performance.

Of course, Sustainability is a cost centre. However, the researcher's thought process was that the resources expended on sustainability in the right direction and volume consistently can lead to better financial performance and the betterment of all stakeholders. This thought process, coupled with many academic researches that have been done showcasing how companies benefit from sustainability initiatives despite

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the increasing amount of money spent on sustainability initiatives, has motivated and initiated this study, which aims to study the sustainability initiatives in Indian companies and their impact on the firm performance and firm value. Moreover, there is a general belief that the manufacturing sector is one of the major contributors to present-day environmental issues. This study was on companies in the manufacturing industry and large-scale manufacturing firms from various sectors representing Basic Industry, Energy, Healthcare, Industrials, Technology, and Utilities.

The study aims to understand the valuation impact of ESG initiatives with respect to Indian companies. The study explores whether the adoption of ESG initiatives by companies in different sectors leads to wealth creation. In other words, the research question explored is whether the adoption of ESG initiatives would lead to increased financial performance of Indian Companies. The study examines the impact of environmental, governance and social investments on value creation in Indian companies. The study is relevant for policymakers and other stakeholders as it throws light on the value relevance of ESG investments, which are pertinent for the wealth maximization of firms.

Environmental, Social, and Governance (ESG) criteria have gained significant prominence in the global business landscape as investors, stakeholders, and corporations recognize the importance of sustainable and responsible business practices. India, as one of the world's largest and fastest-growing economies, has been subject to extensive empirical research to assess the adoption and impact of ESG factors on businesses and investments within the country.

ESG encompasses a spectrum of considerations that extend beyond mere financial metrics, encompassing environmental impact, societal responsibility, and corporate governance practices. The integration of ESG initiatives into business strategies represents a profound shift in the corporate landscape, driven by an increasing awareness of the interconnectedness between business activities and global challenges such as climate change, social inequality, and ethical governance.

With corporations facing growing scrutiny and pressure to adopt sustainable practices, understanding the tangible effects of ESG integration on their financial and operational performance is of paramount importance.

As the world faces challenges like climate change, social justice issues, and corporate accountability, understanding the implications of ESG initiatives for businesses is not just academically intriguing but also practically urgent. Investors are increasingly factoring in ESG metrics when making investment decisions, and regulators in many jurisdictions are mandating ESG disclosures. Thus, gaining insights into the relationship between ESG and firm performance can provide valuable guidance for corporate leaders, investors, policymakers, and stakeholders alike.

The primary objective of this study is to empirically examine the impact of ESG initiatives on firm performance across various industries in Indian context. The data source was the ESG database of Thomson Reuters for the period 2021 to 2022. The study was based on Indian companies. Initially, a survey was conducted among the selected samples to identify India's most ESG-intensive companies. It was followed by the identification of the top scorers with respect to Environmental intensity, Governance intensity and Social intensity. Regression analysis was used to study the impact of ESG investments on value creation in Indian firms. The main finding of the study is that the adoption of innovative environmental initiatives reduces environmental costs and, which creates market opportunities through new environmental technologies and processes, has a positive impact on valuation creation for Indian firms. Smaller firms and firms in the technology sector tend to have higher valuation effects.

One of the key implications of this research finding involving innovative environmental initiatives and firm performance is that sustainable and responsible business practices can contribute to enhanced long-term financial returns. Investments in ESG initiatives can contribute to addressing critical global challenges, such as reducing greenhouse gas emissions in developing countries such as India. These benefits extend beyond financial gains and are crucial for the well-being of society and the planet.

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As a beginning, the current study focuses only on the manufacturing industries in India. Of course, that can be viewed as a limitation of this study. However, has plans to expand into wider geographical areas and industries in the near future.

Literature Review

Asheim (1994) defines sustainability as a "requirement of our generation to manage resource base such that the average quality of life that we ensure ourselves can potentially be shared by all future generations". Sustainability encompasses "quality of life", which alludes to the factors that determine the conditions in which people live, not just in the present but in future generations as well. Sustainability development is a way of extending a good quality of life to future generations. Development is sustainable if it ensures a non-declining average quality of life. Sustainability is essential in achieving intergenerational justice because it encourages us to prioritize sustainable development over non-sustainable development to ensure that the quality of life does not decrease for future generations.

It was observed that in 1975, less than 50 per cent of the Fortune 500 companies mentioned Corporate Social Responsibility (CSR) in their annual reports. However, by 1990, around 90 per cent of the Fortune 500 firms had accepted CSR as a core element of their goals and objectives and actively promoted their CSR efforts in their annual reports. Asian firms often lag behind their Western counterparts in CSR practices. Rising consumer expectations following the advent of globalization, liberalization, and the entry of Multinational Corporations (MNCs) in Asian markets have put pressure on Asian firms to strengthen their CSR practices (Krishna, 1992). Parket and Eilbirt (1975) Compared 80 firms with the companies listed on the Fortune 500 list in 1973. The 80 firms that were picked were all socially active and responsible firms. They were compared to the companies from the Fortune 500 list based on four measures: net income as a percentage of sales, net income as a per cent of stockholders' equity, net income and earnings per share. The median values across all four dimensions were higher for those firms that were socially responsible. The authors stated that one possible reason may have been more efficient management. The primary concern of this study is that the dependent variables are not equivalent across firms or industries. The financial data may vary significantly based on factors like debt-to-equity ratio, firm size, etc.

Cochran and Wood (1984) found a positive co-relationship between social responsibility ranking and the average age of corporate assets. The content analysis method was used in the study. One of the downsides of the content analysis method is the degree of prevailing subjectivity in choosing the variables to measure. Further, the study was on a relatively small sample of 61 firms.

McGuire, Sundgren, and Schneeweis (1988) analysed the relationship between a firm's financial performance and corporate social responsibility. They concluded that a lack of social responsibility may leave the firm vulnerable to additional risks of lawsuits and fines. They also stated that firms that are low in social responsibility also have lower Return on Assets (ROA) and stock market returns when compared to firms that are high in social responsibility.

Spicer (1978) sought to prove the validity of the view that a strong to moderate association existed between a firm's social performance and the investment value of its common shares. He states that the rising public concern over the environmental and social consequences of business activities resulted in a situation where the investment decision-making process was now introduced to two new factors, the first one being a new-found concern for the ramifications that the decisions and actions of the business had on the environment and society at large, which led to sanctions being placed on certain business activities, the second being the fact that lots of investors were backing away from projects that did not align with them morally or ethically – the 'ethical investors' category. The sample for the study was 18 firms within the pulp and paper industry - a small sample size within a limited industry.

A survey conducted by Holmes in the year 1976 indicated that several executives had started to see social responsibility as something that was both desirable and necessary, even if it resulted in a short-run reduction of profits or a long-run with no returns. The survey disclosed that the main benefits that the business people

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hoped to receive from being more involved in social responsibility were increased long-term profitability, forestalling government restrictions, improving the business environment and preservation of the firm.

A study by Sturdivant and Ginter (1977) investigated the relationship between social responsibility and growth in earnings per share. The study was conducted on 28 firms out of a sample of 67 firms from 1964-1974. The companies were divided into three categories: best, honourable mention and worst regarding social responsibility. The study indicated that compared to the average industry growth, the growth of both best and honourable mention was significantly higher than the growth for worst companies. Those firms that managed their firms responsibly enjoyed better economic performance in general.

Graves and Waddock (1994) studied the relationship between institutional ownership and corporate social responsibility performance. Their findings pointed out that a high CSR profile may boost the attractiveness of the firm to institutional investors.

Moskowitz (1972) states that a management team that is socially conscious and attentive will also have the necessary abilities to operate a top-notch company in terms of financial performance, thereby making their business an appealing investment opportunity. Moskowitz analysed the rate of return on the common stock of 14 firms he believed were socially responsible during the first half of 1972. He observed that these 14 stocks had increased by an average of 7.28 per cent, which was a tremendous increase compared to significant market indices like the Dow Jones Industrials. Based on these findings, Moskowitz inferred that his theory was valid.

Cornell and Shapiro (1987) state that companies with a solid commitment to social responsibility tend to have lower accounting and market-based total risk levels than other companies. This is due to their decreased sensitivity to external factors and lower debt levels. A company needs to meet the expectations of not just shareholders and debt holders but also those with implicit or less explicit demands. From this perspective, a company's resources are not only claimed by its stockholders and bondholders but also by stakeholders who have precise demands on the company, such as wage agreements and those with whom the company has unspoken agreements. Suppose the company fails to operate in a socially responsible manner; in that case, parties involved in the implicit agreements concerning the company's social responsibility may attempt to turn those tacit agreements into explicit ones that would be more expensive for the company.

Some studies have examined the relationship between financial performance and non-financial factors with respect to ESG initiatives. Garcia, Mendes-Da-Silva and Orsato (2019) document a positive relationship between ESG factors and the financial profile of firms from BRICS countries. Based on accounting and market-based indicators, Dalal and Thaker (2019) suggest that ESG investments improve the financial performance of firms listed on the National Stock Exchange. Ziolo et al. (2019) find that ESG compliance by Chinese firms leads to improved profitability as proxied by return on capital employed.

This study bridges a few of the gaps found in the existing literature by including a larger sample representing different sectors. Indian ESG studies have used one index for sustainability. This study uses the combined ESG score and its component pillars to understand the impact on financial performance. In other words, the study dissects sustainability from the dimensions of governance, social and environmental angles separately and examines its impact on financial performance. To the best of our knowledge, this study is the first of its kind, which uses the Thomson Reuters Eikon database. Basically, sustainability studies use market value measures of PE and operating performance variables of ROE and ROA. This study uses Enterprise Value to Market Capitalization as the proxy for performance variables. This ratio can be considered as a proxy for value and provides insight into a company's capital structure and financial risk.

Hypothesis Development

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Environmental, Social, and Governance (ESG) initiatives have gained significant attention from both investors and corporations as they seek to understand the relationship between sustainable practices and financial performance.

The following hypotheses are formulated for the study

Hypothesis 1: ESG Investments and financial performance are positively related. Indian firms which have significant ESG Investments have higher operating and market performance. Companies with higher ESG performance scores tend to perform better financially.

Hypothesis 2: Companies which make investments related to environmental initiatives have higher market performance.

Hypothesis 3: Firms which invest in governance initiatives tend to create more value in the market.

Hypothesis 4: Firms which undertake social initiatives have higher valuation effects

Hypothesis 5: Firms that invest in product responsibility, innovation, CSR strategy and workforce welfare initiatives will have higher market valuation effects.

Research Methodology

Objective of the Study

The study aims to understand the valuation impact of ESG initiatives with respect to Indian companies. The study explores whether the adoption of ESG initiatives by companies in different sectors leads to wealth creation. In other words, the research question explored is whether the adoption of ESG initiatives would lead to increased financial performance of Indian Companies. The study examines the impact of environmental, governance and social investments on value creation in Indian companies. The study is relevant for policymakers and other stakeholders as it throws light on the value relevance of ESG investments, which are pertinent for the wealth maximization of firms.

Data and Methodology

The main objective of the study is to examine the relationship between ESG initiatives and firm wealth creation. The data source was the ESG database of Thomson Reuters (https://www.refinitiv.com/en/financial-data/company-data/esg-research-data) for the period 2021 to 2022. A period of two years, from 2021 to 2022, was chosen to reflect the latest current trend. The study was based on Indian companies. Initially, a survey among the selected samples was carried out to identify the most ESG-intensive companies in India. It was followed by the identification of the top scorers with respect to Environmental intensity, Governance intensity and social intensity. Regression analysis was used to study the impact of ESG investments on value creation in Indian firms.

Table 1: Initial Sample Distribution

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Industry	No. of firms
Basic Industry	168
Energy	18
Healthcare	61
Industrials	134
Technology	69
Utilities	22
Total	472

The initial sample size for the empirical research was 472 firms. Basic industry represented 35.5 per cent of the total initial sample size. It was followed by industrial sector with 28 per cent of the total sample.

Table 2: Final Sample Distribution

Industry	No. of firms
Basic Industry	145
Energy	17
Healthcare	56
Industrials	121
Technology	57
Utilities	22
Total	418

The final sample chosen for the study was 418 firms. The sample size was truncated due to the non-availability of ESG data for 54 firms.

Thomson Reuters ESG Score measures the company's ESG performance based on available reported data. The ESG Combined Score is discounted for significant ESG controversies, which impact the firms in the sample data. The data are based on approximately 400 company-level ESG measures, which are categorized into 10 categories. The category scores are combined into three pillar scores of ESG. ESG score consists of 178 critical measures, which reflect ESG elements. There are 23 controversial measures included in the ESG Controversies category. The controversial issues include anticompetition, business ethics issues, intellectual properties, public health, tax fraud, child labour, consumer controversies, shareholder issues and workforce issues. Table 3 presents the three pillars of ESG with their major components.

Table 3: Environmental, Social and Governance Pillars

Pillar	Major Components
Environmental	Resource Use, Emissions, Innovation
Governance	Management, Shareholders, CSR Strategy
Social	Workforce, Human Rights, Community, Product Responsibility

Source: https://www.refinitiv.com/en/financial-data/company-data/esgresearch-

Table 4: Category Scores Used in the Study

Category Score	

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Product Responsibility Score	The Product Responsibility Score reflects a company's capacity to produce quality goods and services integrating the customer's health and safety, integrity, and data privacy.
Innovation Score	The Innovation Score reflects a company's capacity to reduce the environmental costs and aims to create new market opportunities through new environmental technologies and processes or eco designed products.
CSR Strategy Score	The CSR Strategy Score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day to day decision making processes
Work Force Score	The Work Score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities and development opportunities for its workforce.

Source: https://www.refinitiv.com/en/financial-data/company-data/esgresearch: Thomson Reuters Eikon Thomson Reuters ESG Scores

Table 5: Variables Definition

Variable	Description
ESG Variables	
ESG Combined	ESG Combined represents the average ESG Score for the company during the period 2021 and 2022.
EP	Average of the Environmental Pillar Score for the period 2021 and 2022.
GP	Average of the Governance Pillar Score for the period 2021 and 2022.
SP	Average of the Social Pillar Score for the period 2021 and 2022.
CSR	Average of the CSR Strategy Sub Pillar Score for the period 2021 and 2022.
PRS	Average of the Product Responsibility Sub Pillar Score for the period 2021 and 2022.
EIS	Average of the Environmental Innovation Sub Pillar Score for the period 2021 and 2022.
WFS	Average of the Work Force Sub Pillar Score for the period 2021 and 2022
Financial Variables	
EVMARCAP	The ratio of enterprise value to market capitalization for the period 2021 and 2022. The variable is taken as proxy for performance measure
PE	The ratio of Price to Earning (PE) is the average value for PE for the period 2021-2022. The variable is taken as proxy for performance measure.
SIZE	Size is proxied by log of the average market capitalization during the period 2021 -2022. The average market capitalization is given in millions of dollars.
Dummy Variables	Sectors
D1	Dummy 1 for Basic Materials; Otherwise 0
D2	Dummy 1 for Energy; Otherwise 0
D3	Dummy 1 for Healthcare; Otherwise 0
D4	Dummy 1 for Industrials; Otherwise 0
D5	Dummy 1 for Technology; Otherwise 0
D6	Dummy 1 for Utility; Otherwise 0

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Variable Measurement

All ESG and financial data values are average values for a two-year period. Averaging values from two recent years can help smooth out fluctuations and short-term variations in the data. ESG-related metrics, such as carbon emissions and employee turnover, can be subject to year-to-year volatility. Averaging values from multiple years can better capture a company's sustained commitment to ESG initiatives.

The dependent variable used in the study is EVMARCP, which is the ratio of enterprise value to market capitalization. This financial metric provides insights into a company's financial structure and valuation. The ratio provides a more comprehensive view of the company's total value, which can be important for investors, analysts and acquirers. Another independent variable is the Price to Earnings (P/E) ratio.

The ESG scores, component pillar scores of environment, governance and social pillar scores are taken as independent variables. Other independent variables are the sub-pillar category scores of CSR, PRS, EIS and WFS. The variable SIZE is the control variable. Dummy variables representing different sectors are also included as independent variables.

Regression Model

The regression model used in the study is given by

$$EVMARCAP = a+\beta_1 ESG + \beta_2 EP+ \beta_3 GP+ \beta_4 SP+ \beta_5 CSR+ \beta_6 CSR+ \beta_7 PRS+ \beta_8 EIS+ \beta_9 WFS+ \beta_9 WFS + \beta_{10} SIZE+\beta_{11} Di \quad \textbf{(1)}$$

$$PE = a+\beta_1 ESG + \beta_2 EP+ \beta_3 GP+ \beta_4 SP+ \beta_5 CSR+ \beta_6 CSR+ \beta_7 PRS+ \beta_8 EIS+ \beta_9 WFS+ \beta_9 WFS + \beta_{10} SIZE+\beta_{11} Di \quad \textbf{(2)}$$

Where Di represent different dummy sectors.

Results and Discussions

The primary research objective was to gain insight into the ESG trends among Indian firms. To achieve this objective, the researcher conducted a ranking analysis based on overall ESG scores, as well as separate rankings for environmental, governance, and social scores. This analytical approach enabled the researcher to address key questions, such as whether companies pursue different investment strategies across various ESG pillars and if those excelling in environmental initiatives also exhibit similar commitment to governance and social initiatives. The study finds that overall, Infosys are in the top scorer category related to ESG and pillar scores of governance and social investments. Being in the IT industry, environmental initiatives may not be that much significant. Table 6 gives the ranking of the top ten companies in India in average ESG ranking.

Table 6: Top Ten Companies in ESG Ranking

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Rank	Company Name	Sector Name	ESG Combined Score	Company Market Capitalization (USD in Million)
1	Infosys Ltd	Technology	81.05	72,785.74
2	Biocon Ltd	Healthcare	79.95	3,771.35
3	Vakrangee Limited	Technology	79.11	201.14
4	Tata Elxsi Ltd	Technology	77.38	5,498.54
5	Wipro Ltd	Technology	77.19	26,801.30
6	Persistent Systems Ltd	Technology	76.46	5,140.66
7	Hindalco Industries Ltd	Basic Materials	76.04	12,993.78
8	Tata Consultancy Services Ltd	Technology	75.56	150,378.30
9	Mastek Ltd	Technology	75.35	870.88
10	Zensar Technologies Ltd	Technology	74.97	1,465.24

ESG combined average score is calculated as an average value of ESG combined scores in the years 2021 and 2022. Infosys Ltd had the highest ESG Combined average score of 81.05. It was followed by Biocon Ltd, representing the healthcare sector with an average score of 79.95 based on the fiscal years 2021 and 2022. Out of the top ten companies in the ESG ranking, 8 companies belonged to the technology sector and one each to the healthcare and basic materials sector. Tata Consultancy Services Ltd, with an average ESG score of 75.56, was the most valuable company in terms of average market capitalization based on the years 2021 and 2022. Tata Consultancy Services Ltd had an average market capitalization of $150.38 billion. Infosys Ltd, the highest-ranked company in terms of ESG score, had an average market capitalization of $72.79 billion.

Table 7: Top Ten Companies in Social Pillar Ranking

Rank	Company Name	Sector Name	Social Pillar Score	Company Market Capitalization (USD in Million)
1	Tata Consultancy Services Ltd	Technology	93.47	150,378.30
2	Infosys Ltd	Technology	93.38	72,785.74
3	Reliance Industries Ltd	Energy	90.73	197,304.32
4	Vakrangee Limited	Technology	90.53	201.14
5	Tech Mahindra Ltd	Technology	88.70	14,646.20
6	Wipro Ltd	Technology	88.60	26,801.30
7	Zensar Technologies Ltd	Technology	87.81	1,465.24
8	Biocon Ltd	Healthcare	86.45	3,771.35
9	Cipla Ltd	Healthcare	86.34	12,125.26
10	LTIMindtree Ltd	Technology	86.13	19,085.10

On proceeding with the descriptive analysis of the different pillars of the ESG combined score, we are beginning with the Social Pillar. Table 7 presents the top ten companies in India ranked by their average Social Pillar score. The social Pillar average score is calculated as the average value of Social Pillar scores in the years 2021 and 2022. Tata Consultancy Services Ltd had the highest average social pillar score of 93.47. Infosys Ltd closely followed it with an average score of 93.38 based on the fiscal years 2021 and 2022. Out of the top ten companies in the Social Pillar ranking, seven companies belonged to the technology sector, two belonged to the healthcare and one to the energy sector. Reliance Industries Ltd., representing the energy sector, with an average Social Pillar score of 90.73, was the most valuable company

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in terms of average market capitalization based on the years 2021 and 2022. Reliance Industries Ltd had an average market capitalization of $ 197.30 billion. Tata Consultancy Services Ltd, the highest-ranked company in terms of Social Pillar score, had an average market capitalization of $150.38 billion.

Table 8: Top Ten Companies in Governance Pillar Ranking

Rank	Company Name	Sector Name	Governance Pillar Score	Company Market Capitalization (USD in Million)
1	Infosys Ltd	Technology	95.99	72,785.74
2	Dr Reddy's Laboratories Ltd	Healthcare	94.30	11,307.45
3	Tata Power Company Ltd	Utilities	93.39	9,939.33
4	Advanced Enzyme Technologies Ltd	Basic Materials	91.90	438.57
5	Wipro Ltd	Technology	90.49	26,801.30
6	Biocon Ltd	Healthcare	89.87	3,771.35
7	Narayana Hrudayalaya Ltd	Healthcare	89.65	2,517.94
8	UltraTech Cement Ltd	Basic Materials	88.81	29,357.73
9	Sudarshan Chemical Industries Ltd	Basic Materials	87.42	428.33
10	Transport Corporation of India Ltd	Industrials	87.20	763.31

Table 8 displays the ranking of the leading ten Indian companies based on their average Governance Pillar score. The Governance Pillar average score is calculated as the average value of Governance Pillar scores for the years 2021 and 2022. Infosys Ltd has the highest average Governance Pillar score of 95.99. Dr Reddy's Laboratories is a close second with an average score of 94.30. All of the scores are based on the fiscal years 2021 and 2022. Out of the top ten companies in the Governance Pillar rankings, three companies belonged to the Healthcare sector, three belonged to the Basic Materials sector, two belonged to the Technology sector, one each belonged to the Industrials sector and Utilities sector. Infosys Ltd, the highest-ranked company in terms of Governance Pillar Score, had an average market capitalisation of $72.78 billion, making it the most valuable company in terms of market capitalisation. Noteworthy is that Infosys Ltd had the highest rank in governance and the highest value in terms of market capitalisation

Table 9: Top Ten Companies in Environmental Pillar Ranking

Rank	Company Name	Sector Name	Environmental Pillar Score	Company Market Capitalization (USD in Million)
1	Larsen and Toubro Ltd	Industrials	91.43	46,002.96
2	Shree Cement Ltd	Basic Materials	88.05	10,865.58
3	Dr Reddy's Laboratories Ltd	Healthcare	87.33	11,307.45
4	Havells India Ltd	Industrials	87.26	10,366.24
5	Ambuja Cements Ltd	Basic Materials	87.25	10,504.83
6	Adani Green Energy Ltd	Utilities	86.82	18,275.34
7	Indian Oil Corporation Ltd	Energy	86.17	15,290.55
8	Adani Ports and Special Economic Zone Ltd	Industrials	85.02	20,902.87

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9	Ashok Leyland Ltd	Industrials	84.84	6,531.59
10	Torrent Pharmaceuticals Ltd	Healthcare	81.02	7,392.42

Table 9 presents the ranking of the leading ten Indian companies based on their average Environmental Pillar score. The Environment Pillar average score is calculated as the average value of the Environmental Pillar scores in the years 2021 and 2022. Larsen and Toubro Ltd had the highest average environmental Pillar score of 91.43. Shree Cement Ltd closely follows it with an average score of 88.05. Out of the top ten companies in the Environmental Pillar ranking, four companies belong to the Industrials sector, two to the Basic Materials sector, two to the Healthcare sector, one to the Energy sector and one to the Utilities sector. Larsen and Toubro Ltd, the highest-ranked company in terms of Social Pillar Score, had an average market capitalisation of $46 billion, making it the most valuable company in terms of market capitalisation. Adani Ports and Special Economic Zone Ltd of the Industrials sector comes in at second place with an average market capitalisation of $20.90 billion and an Environmental Pillar average score of 85.02.

Table 10: Top Ten Companies in CSR Strategy Score Ranking

Rank	**Company Name**	**Sector Name**	**CSR Strategy Score**	**Company Market Capitalization** (USD in Million)
1	Tata Consultancy Services Ltd	Technology	97.75	150,378.30
1	Wipro Ltd	Technology	97.75	26,801.30
1	Tech Mahindra Ltd	Technology	97.75	14,646.20
4	Infosys Ltd	Technology	95.48	72,785.74
5	LTIMindtree Ltd	Technology	92.49	19,085.10
6	Tata Communications Ltd	Technology	88.91	6,436.13
7	Persistent Systems Ltd	Technology	88.00	5,140.66
8	HCL Technologies Ltd	Technology	87.34	39,584.75
9	Vakrangee Limited	Technology	84.74	201.14
10	Bharti Airtel Ltd	Technology	80.19	58,509.33

Table 10 shows the ranking of the leading ten Indian companies based on their average CSR strategy score. The CSR strategy score average is calculated as the average value of CSR strategy scores for the years 2021 and 22. Three companies share the top rank with a score of 97.75, namely Tata Consultancy Services Ltd, Wipro Ltd and Tech Mahindra Ltd. All the top ten companies in the CSR strategy score rankings are from the technology sector. Tata Consultancy Services Ltd, with an average CSR strategy score of 97.75, was the most valuable company in terms of average market capitalisation based on the years 2021 and 2022. Tata Consultancy Services Ltd had an average market capitalisation of $150.38 billion. Infosys Ltd, with a CSR strategy score of 95.48, was the second most valuable company in terms of average market capitalisation of $72.79 billion.

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Table 11: Top Ten Companies in Product Responsibility Score Ranking

Rank	Company Name	Sector Name	Product Responsibility Score	Company Market Capitalization (USD in Million)
1	Larsen and Toubro Ltd	Industrials	98.06	46,002.96
2	Hinduja Global Solutions Ltd	Technology	97.88	567.72
3	Reliance Industries Ltd	Energy	97.46	197,304.32
4	Glenmark Pharmaceuticals Ltd	Healthcare	97.11	2,590.55
5	Sun Pharmaceutical Industries Ltd	Healthcare	97.11	32,172.73
6	Ashok Leyland Ltd	Industrials	96.27	6,531.59
7	NTPC Ltd	Utilities	95.58	27,348.18
8	Oil India Ltd	Energy	95.40	3,612.41
9	Kirloskar Brothers Ltd	Industrials	94.89	797.07
10	JSW Steel Ltd	Basic Materials	93.77	23,774.48

Table 11 reveals the ranking of the leading ten Indian companies based on their average Product Responsibility score. The Product Responsibility average score is the average value of Product Responsibility scores in the years 2021 and 2022. Larsen and Toubro Ltd had the highest average Product Responsibility score of 98.06. Hinduja Global Solutions Ltd closely followed it with an average Product responsibility score of 97.88 based on the fiscal years 2021 and 2022. Out of the top ten companies in the Product Responsibility score ranking, three belonged to the Industrials sector, two belonged to the energy sector, one belonged to the Basic Materials sector, one belonged to the Healthcare sector, one belonged to the Technology sector, and one belonged to the Utilities sector. Reliance Industries Ltd., representing the energy sector, with an average Product Responsibility score of 97.46, was the most valuable company in terms of average market capitalization based on the years 2021 and 2022. Reliance Industries Ltd had an average market capitalization of $ 197.30 billion. Larsen and Toubro Ltd, the highest-ranked company in terms of Product Responsibility score, had an average market capitalization of $46 billion.

Table 12: Top Ten Companies in Environmental Innovation Score Ranking

Rank	Company Name	Sector Name	Environmental Innovation Score	Company Market Capitalization (USD in Million)
1	Gujarat State Petronet Ltd	Utilities	95.64	1,889.25
2	Shree Cement Ltd	Basic Materials	92.59	10,865.58
3	Berger Paints India Ltd	Basic Materials	90.92	8,384.66
4	Coromandel International Ltd	Basic Materials	90.51	3,964.09
5	Amber Enterprises India Ltd	Technology	87.93	1,222.82
6	ITI Ltd	Technology	87.93	1,442.45
7	Ramco Cements Limited	Basic Materials	87.65	2,586.01
8	Styrenix Performance Materials Ltd	Basic Materials	86.28	231.69
9	Adani Green Energy Ltd	Utilities	86.04	18,275.34

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10	Havells India Ltd	Industrials	83.55	10,366.24

Table 12 shows the ranking of the leading ten Indian companies based on their average Environmental innovation score. The Environmental innovation average score is calculated as the average value of Environmental innovation scores in the years 2021 and 2022. Gujarat State Petronet Ltd had the highest average Environmental innovation score of 95.64. It was followed by Shree Cement Ltd in second place with an average Environmental innovation score of 92.59. Out of the top ten companies in the Environmental innovation score ranking, five companies belonged to the Basic Materials sector, two to the Technology sector, two to the Utilities sector, and one to the Industrial sector. Adani Green Energy Ltd, which belongs to the Utilities sector with an average environmental innovation score of 86.04, was the most valuable company in terms of average market capitalisation. Adani Green Energy Ltd had an average market capitalisation of $18.28 billion. Gujarat State Petronet Ltd, the highest-ranked company in terms of environmental innovation score, had a market capitalisation of $1.89 billion.

Table 13: Top Ten Companies in Workforce Score Ranking

Rank	**Company Name**	**Sector Name**	**Workforce Score**	**Company Market Capitalization** (USD in Million)
1	Infosys Ltd	Technology	99.77	72,785.74
2	Wipro Ltd	Technology	99.72	26,801.30
3	Tata Consultancy Services Ltd	Technology	99.26	150,378.30
4	Zensar Technologies Ltd	Technology	98.93	1,465.24
5	Tech Mahindra Ltd	Technology	98.29	14,646.20
6	Vakrangee Limited	Technology	97.61	201.14
7	Indian Oil Corporation Ltd	Energy	93.86	15,290.55
8	Dr Reddy's Laboratories Ltd	Healthcare	93.77	11,307.45
9	Bayer Cropscience Ltd	Basic Materials	93.61	2,614.23
10	HCL Technologies Ltd	Technology	93.07	39,584.75

Table 13 displays the ranking of the leading ten Indian companies based on their average Workforce score. The Workforce average score is calculated as the average value of workforce scores in the years 2021 and 2022. Infosys Ltd had the highest average workforce score of 99.77. Wipro Ltd closely followed it, with an average workforce score of 99.72. Out of the top ten companies in the workforce ranking, seven companies belong to the technology sector, one company belongs to the Basic Materials sector, one company to the Healthcare sector, and one company to the Energy sector. Tata Consultancy Services Ltd, of the technology sector, with an average workforce score of 99.26, had a market capitalization of $150.38 billion, which made it the most valuable company in terms of average market capitalization based on the years 2021 and 2022. Infosys Ltd, the highest-ranked company in terms of the Workforce score, had an average market capitalization of $72.79 billion.

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Table 14: Top Ten Companies in Market Capitalization Ranking

Rank	Company Name	Sector Name	Company Market Capitalization (USD in Million)	ESG Combined Score
1	Reliance Industries Ltd	Energy	197,304.32	57.59
2	Tata Consultancy Services Ltd	Technology	150,378.30	75.56
3	Infosys Ltd	Technology	72,785.74	81.05
4	Bharti Airtel Ltd	Technology	58,509.33	33.87
5	Larsen and Toubro Ltd	Industrials	46,002.96	59.96
6	HCL Technologies Ltd	Technology	39,584.75	69.74
7	Asian Paints Ltd	Basic Materials	37,651.94	58.61
8	Adani Enterprises Ltd	Industrials	33,914.27	45.84
9	Sun Pharmaceutical Industries Ltd	Healthcare	32,172.73	51.13
10	UltraTech Cement Ltd	Basic Materials	29,357.73	64.97

Table 14 exhibits the ranking of the leading ten Indian companies based on their average market capitalisation with their respective ESG combined scores. The Average company market capitalisation is calculated as the average value of company market capitalisation in the years 2021 and 2022. Reliance Industries Ltd has the highest average market capitalisation of $197.30 billion. Tata Consultancy Services Ltd comes in second place with an average market capitalisation of $150.38 billion. Out of the top ten companies in the market capitalisation ranking, four companies belong to the technology sector, two belong to the Basic Materials sector, two belong to the Industrials sector, one to the Energy sector, and one to the Healthcare sector. Infosys Ltd has the highest ESG combined score of 81.05 and has an average market capitalisation of $72.79 billion, which makes it No.3 on the top ten list. Reliance Industries, which had the highest average market capitalisation of $197.30 billion, has an ESG combined average score of 57.59.

Descriptive Statistics

Table 15 discusses the descriptive statistics of the financial variables of the sample companies.

Table 15: Descriptive Statistics of Financial Variables

Overall sample	Average	Median	Max	Min
EV/Market Cap	1.62	1.01	170.22	0.09
P/E	53.99	33.48	1376.59	3.60
Market Capitalization (USD in Million)	4,597.77	1,293.99	197,304.32	28.87
Basic Materials				
EV/Market Cap	1.16	1.03	3.37	0.46
P/E	63.77	31.10	1376.59	4.26
Market Capitalization (USD in Million)	2,898.50	971.73	37,651.94	172.91
Energy				
EV/Market Cap	1.62	1.17	4.03	0.72

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P/E	14.73	7.11	55.16	3.60
Market Capitalization (USD in Million)	17,183.96	3,612.41	197,304.32	197.34
Healthcare				
EV/Market Cap	1.04	1.00	1.97	0.09
P/E	44.35	38.90	163.51	15.60
Market Capitalization (USD in Million)	3,297.07	1,866.54	32,172.73	79.76
Industrials				
EV/Market Cap	1.14	0.99	4.96	0.15
P/E	59.33	37.15	692.56	6.82
Market Capitalization (USD in Million)	3,147.52	1,211.42	46,002.96	230.69
Technology				
EV/Market Cap	4.09	0.96	170.22	0.30
P/E	45.52	35.39	114.72	6.87
Market Capitalization (USD in Million)	8,566.26	1,566.11	150,378.30	48.94
Utilities				
EV/Market Cap	2.20	1.75	6.61	1.00
P/E	33.55	17.37	143.27	8.38
Market Capitalization (USD in Million)	7,077.12	3,893.72	27,348.18	28.87

The sample firms had an average market capitalization of $4,598 million with an average PE ratio of 53.99 and enterprise value to market capitalization ratio of 1.62. The energy sector, followed by the technology sector, had the highest average market capitalization values of $17,184 million and $8,566 million, respectively. The technology sector had the highest EV/Market Capitalization, with an average value of 4.09. The basic material sector had the highest average PE ratio of 63.77, followed by industrial sectors with an average PE ratio of 59.33.

Table 16: Correlation Analysis

	ESG	SP	GP	EP	CSR	PRS	EIS	WFS	EVMARCAP	PE	SIZE
ESG	1	.874**	.633**	.815**	.619**	.582**	.376**	.752**	-0.014	-0.027	.423**
SP	.874**	1	.336**	.745**	.631**	.698**	.299**	.807**	-0.03	-0.062	.502**
GP	.633**	.336**	1	.304**	.337**	.168**	0.065	.334**	-0.007	0.044	0.093
EP	.815**	.745**	.304**	1	.626**	.489**	.611**	.678**	0.014	-0.029	.530**
CSR	.619**	.631**	.337**	.626**	1	.458**	.275**	.617**	-0.009	-0.041	.370**

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PRS	.582**	.698**	.168**	.489**	.458**	1	.185**	.487**	0	-0.088	.321**
EIS	.376**	.299**	0.065	.611**	.275**	.185**	1	.192**	0.083	-0.057	.197**
WFS	.752**	.807**	.334**	.678**	.617**	.487**	.192**	1	-0.059	-0.002	.475**
EVMARCAP	-0.014	-0.03	-0.007	0.014	-0.009	0	0.083	-0.059	1	-0.024	-.137**
PE	-0.027	-0.062	0.044	-0.029	-0.041	-0.088	-0.057	-0.002	-0.024	1	-0.068
SIZE	.423**	.502**	0.093	.530**	.370**	.321**	.197**	.475**	-.137**	-0.068	1

** Correlation is significant at the 0.01 level (2-tailed)

Results and Discussion on Regression Results

The ESG variable and pillar scores of social, governance and environmental are highly correlated. To manage multicollinearity, variables are introduced stepwise in different regression models. The correlations between the ESG variables and performance variables are presented in the correlation table (Table 16).

The first two models only consider all the variables so as to understand the overall impact of the ESG Variables on two dependent variables of EVMARCAP and PE. PE variable model was weak model. Hence, the dependent variable of PE was not further used in the rest of the models. In the rest of the models, only one pillar of ESG was used for each regression model. First, the environmental pillar score was used, followed by governance and social pillar scores.

In the first regression model (Table 17), all the independent variables are regressed upon the dependent variable EVMARCAP.

Table 17: Regression Model 1 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.137[a]	.019	.016	8.29881
2	.189[b]	.036	.031	8.23780
3	.218[c]	.048	.041	8.19590

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	541.960	1	541.960	7.869	.005[b]
	Residual	28167.912	409	68.870		
	Total	28709.872	410			
2	Regression	1022.473	2	511.236	7.534	.001[c]
	Residual	27687.399	408	67.861		
	Total	28709.872	410			

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3	Regression	1370.530	3	456.843	6.801	.000[d]
	Residual	27339.342	407	67.173		
	Total	28709.872	410			

Dependent Variable: EVMARCAP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.264	2.404		3.437	.001
	SIZE	-.899	.320	-.137	-2.805	.005
2	(Constant)	8.304	2.387		3.480	.001
	SIZE	-.963	.319	-.147	-3.019	.003
	D5	3.137	1.179	.130	2.661	.008
3	(Constant)	8.651	2.379		3.636	.000
	SIZE	-1.104	.323	-.169	-3.415	.001
	D5	3.103	1.173	.128	2.645	.008
	EIS	.035	.016	.112	2.276	.023

Dependent Variable: EVMARCAP

The variable SIZE is negatively related to the dependent variable of EVMARCAP with statistical significance. Small firms tend to have higher valuation effects. The variable EIS is positively related to EVMARCAP (t statistics=2.27 with statistical significance at 5 per cent level of significance. The results suggest that innovative environmental initiatives to reduce environmental costs and which create market opportunities through new environmental technologies and processes have positive valuation effects in the market.

In the second regression model (Table 18), all the independent variables are regressed upon the dependent variable PE.

Table 18: Regression Model 2 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
2	.182[a]	.033	-.004	109.15046

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	149052.068	14	10646.576	.894	.566[b]
	Residual	4372372.957	367	11913.823		
	Total	4521425.026	381			

Dependent Variable: PE

Coefficients[a]

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Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
2	(Constant)	101.688	41.682		2.440	.015
	ESG	-.058	1.516	-.009	-.038	.969
	SP	-.519	.858	-.099	-.605	.545
	GP	.241	.506	.048	.477	.634
	EP	.638	.703	.129	.907	.365
	CSR	-.299	.310	-.075	-.966	.334
	PRS	-.213	.295	-.056	-.724	.469
	EIS	-.391	.299	-.095	-1.309	.191
	WFS	.592	.451	.126	1.313	.190
	SIZE	-5.327	6.023	-.062	-.884	.377
	D2	-37.410	29.659	-.071	-1.261	.208
	D3	-31.039	20.248	-.095	-1.533	.126
	D4	-6.062	15.028	-.025	-.403	.687
	D5	-16.729	20.530	-.052	-.815	.416
	D6	-17.562	29.012	-.034	-.605	.545

Dependent Variable: PE

The regression results with PE as dependent variable displayed insignificant results.

In model 3 (Table 19), the dependent variable of EVMARKETCAP was regressed on the ESG variable and other financial variables along with dummy variables.

Table 19: Regression Model 3 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
3	.199[a]	.040	.023	8.27125

Predictors: (Constant), D6, ESG, D2, D3, D5, SIZE, D4

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
3	Regression	1139.200	7	162.743	2.379	.022[b]
	Residual	27570.672	403	68.414		
	Total	28709.872	410			

Dependent Variable: EVMARCAP

Predictors: (Constant), D6, ESG, D2, D3, D5, SIZE, D4

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Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
3	(Constant)	8.569	2.436		3.518	.000
	ESG	.014	.028	.027	.489	.625
	SIZE	-1.115	.361	-.171	-3.092	.002
	D2	1.524	2.148	.036	.710	.478
	D3	.127	1.311	.005	.097	.923
	D4	.268	1.043	.014	.257	.797
	D5	3.340	1.327	.138	2.517	.012
	D6	2.059	1.920	.055	1.072	.284

Dependent Variable: EVMARCAP

The regression results show that variable SIZE was negatively related to EVMARCAP and firms in the technology sector had higher valuation effects.

In model 4 (Table 20), the EVMARCAP variable was regressed upon the environmental pillar score and other financial variables along with dummy variables.

Table 20: Regression Model 4 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
4	.240[a]	.057	.031	8.23542

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, D4, SIZE, PRS, CSR, EP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
4	Regression	1648.843	11	149.895	2.210	.013[b]
	Residual	27061.029	399	67.822		
	Total	28709.872	410			

Dependent Variable: EVMARCAP

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, D4, SIZE, PRS, CSR, EP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
4	(Constant)	9.519	2.640		3.606	.000
	EP	.044	.038	.116	1.153	.250
	CSR	.014	.022	.045	.636	.525
	PRS	-.002	.018	-.007	-.112	.911
	EIS	.018	.022	.057	.831	.407
	WFS	-.035	.028	-.097	-1.261	.208
	SIZE	-1.328	.394	-.203	-3.367	.001

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	D2	1.861	2.207	.044	.843	.400
	D3	.864	1.392	.035	.621	.535
	D4	.796	1.085	.043	.733	.464
	D5	3.964	1.355	.164	2.926	.004
	D6	2.130	1.928	.057	1.105	.270

Dependent Variable: EVMARCAP

In model 4, size is negatively related to EVMARCAP. Technology sector firms have higher valuation effects.

In model 5 (Table 21), the EVMARCAP variable was regressed upon the governance pillar score and other financial variables along with dummy variables.

Table 21: Regression Model 5 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
5	.233[a]	.054	.028	8.24880

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, GP, D4, SIZE, PRS, CSR

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
5	Regression	1560.813	11	141.892	2.085	.020[b]
	Residual	27149.058	399	68.043		
	Total	28709.872	410			

Dependent Variable: EVMARCAP

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, GP, D4, SIZE, PRS, CSR

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
5	(Constant)	8.586	2.623		3.274	.001
	GP	-.004	.021	-.009	-.176	.861
	CSR	.021	.022	.069	.988	.324
	PRS	.002	.017	.008	.125	.901
	EIS	.035	.016	.110	2.136	.033
	WFS	-.021	.026	-.058	-.817	.415
	SIZE	-1.186	.375	-.181	-3.164	.002
	D2	1.678	2.214	.040	.758	.449
	D3	1.093	1.381	.045	.791	.429
	D4	.764	1.089	.041	.701	.483
	D5	3.935	1.359	.163	2.895	.004
	D6	1.985	1.940	.053	1.023	.307

Dependent Variable: EVMARCAP

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EIS score is positively related to EVMARCAP.

In model 6 (Table 22), the EVMARCAP variable was regressed upon the social pillar score and other financial variables along with dummy variables.

Table 22: Regression Model 6 Results

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
6	.233[a]	.054	.028	8.24858

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, D4, SIZE, PRS, CSR, SP

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
6	Regression	1562.288	11	142.026	2.087	.020[b]
	Residual	27147.583	399	68.039		
	Total	28709.872	410			

Dependent Variable: EVMARCAP

Predictors: (Constant), D6, WFS, D2, D3, EIS, D5, D4, SIZE, PRS, CSR, SP

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
6	(Constant)	8.372	2.483		3.372	.001
	SP	-.010	.045	-.025	-.229	.819
	CSR	.022	.022	.070	.998	.319
	PRS	.005	.021	.017	.233	.816
	EIS	.036	.017	.112	2.144	.033
	WFS	-.017	.032	-.048	-.543	.587
	SIZE	-1.166	.380	-.178	-3.067	.002
	D2	1.673	2.213	.040	.756	.450
	D3	1.120	1.389	.046	.807	.420
	D4	.796	1.091	.043	.730	.466
	D5	3.985	1.385	.165	2.876	.004
	D6	2.000	1.931	.054	1.036	.301

Dependent Variable: EVMARCAP

EIS is positively related to EVMARCAP. Firms in technology sector have higher valuation effects.

Conclusion

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ESG investments have gained prominence as they align with sustainability goals. Globally, research evidence suggests that integrating ESG factors can positively influence long-term financial performance, as companies focusing on environmental, social, and governance aspects tend to mitigate risks, enhance reputation, and access new opportunities, benefiting both investors and society.

This study aims to understand if adoption of ESG investments are value creation activities for Indian firms representing different sectors. The study focusses on sectors such as basic industry, energy, healthcare, industrials, technology and utilities. The final sample size was 418 firms. In the regression methodology used, the valuation variables of enterprise value to market capitalization and PE ratio was regressed upon the variables of ESG consisting of ESG score, social, governance and environmental pillar scores and control variables. The category scores of pillars were used as independent variables. Altogether six models of regression were used for the study.

The findings derived from the ranking analysis, encompassing both comprehensive ESG scores and individual rankings for environmental, governance, and social criteria, are as follows. On the combined ESG scores, Infosys Ltd was the highest-ranked company, with a combined average score of 81.05 and an average market capitalisation of $72.79 billion. Tata Consultancy Services Ltd, with an average ESG score of 75.56, was the most valuable company in terms of average market capitalisation, with an average market capitalisation of $150.38 billion during the study period.

On the Social Pillar, Tata Consultancy Services Ltd was the highest-ranked company with an average score of 93.47 and had a market capitalisation of $150.38 billion. Reliance Industries Ltd., representing the energy sector, with an average Social Pillar score of 90.73, was the most valuable company in terms of average market capitalisation, with a market capitalisation of $ 197.30 billion.

On the Governance Pillar, Infosys Ltd had the highest rank, with the highest average score of 95.99 and the highest value in terms of market capitalisation, with an average market capitalisation of $72.79 billion.

On the Environmental Pillar, Larsen and Toubro Ltd had the highest average score of 91.43 and an average market capitalisation of $46 billion, making it the most valuable company.

The analysis of the major components of the pillars of ESG led to these findings. On the CSR strategy, Tata Consultancy Services Ltd was the highest ranked with an average CSR strategy score of 97.75 and was the most valuable company in terms of average market capitalisation with an average market capitalisation of $150.38 billion. Furthermore, all the top ten companies in the CSR strategy score rankings were from the technology sector.

On Product Responsibility, Larsen and Toubro Ltd had the highest average score of 98.06 with an average market capitalisation of $46 billion. Reliance Industries Ltd., representing the energy sector, with an average Product Responsibility score of 97.46, was the most valuable company in terms of average market capitalisation with a market capitalisation of $ 197.30 billion.

On Environmental innovation, Gujarat State Petronet Ltd had the highest average score of 95.64, with a market capitalisation of $1.89 billion. Adani Green Energy Ltd, which belongs to the Utilities sector with an average environmental innovation score of 86.04, was the most valuable company in terms of average market capitalisation, with an average market capitalisation of $18.28 billion.

On the Workforce score, Infosys Ltd had the highest average workforce score of 99.77, with an average market capitalisation of $72.79 billion.

Tata Consultancy Services Ltd, also from the technology sector, with an average workforce score of 99.26, was the most valuable company in terms of average market capitalisation, with a market capitalisation of $150.38 billion.

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The study documents evidence for the fact that smaller firms tend to have higher valuation effects. Environmental innovative initiatives to reduce environmental costs and which create market opportunities through new environmental technologies and processes have positive valuation effects in the market. Firms in the technology sector tend to have higher valuation effects.

The study has a few limitations, namely the non-availability of data, as only data of 418 firms are used for this study. The study focuses only on manufacturing firms, and the focus is only on large companies. It would be interesting to see how mid-cap companies would be performing with respect to ESG investments.

In the future, it is proposed to do comparative studies of ESG investments in different regions of the world. Further studies may be conducted to assess the impact of sustainability initiatives on the firm performance of various developing countries in Asia because these countries' governance, environmental, and social characteristics may vary. Similarly, a study can be carried out on the same ground on companies in the Middle East countries.

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