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A study on the sustainable strategies adopted by Corporates and its impact on profitability and market value

Smriti Pathak *
Department of Management
Symbiosis International (Deemed University)
Pune 412115
Maharashtra
India

Sonali S. Shrotri
Department of Management
Indira Institute of Management
Pune 411033
Maharashtra
India

Sabiha Fazalbhoy [§]
Deparment of Management
Savitribai Phule Pune University
Doha 122104
Qatar

Sadhna Bagchi [‡]
Department of Media and Arts
AAFT University of Media and Arts
Raipur 493225
Chhatisgarh
India

* *E-mail:* **Smriti.pathak@scmspune.ac.in (Corresponding Author)**
[§] *E-mail:* **sabihafazalbhoy@miesppu.edu.qa**
[‡] *E-mail:* **drsadhnab@gmail.com**

Abstract

Background: On the ground that there is a need to become planet-positive, the UN in 1987, introduced the concept of sustainable development which was accepted and was included in the Sustainable Development Goal (SDG) by nearly 100 nations, India is one of them. Sustainable investing has since then been driving the Corporate Social Responsibility (CSR) activities of Indian corporates. Thus the research examines the Indian corporates through the relationship between CSR, Environmental, Social and Governance (ESG) and Economic development.

Purpose: The purpose of this research is to study the relationship between CSR, ESG and Gross Domestic Product (GDP) of Indian Corporates using various statistical tools and methods. The purpose is also to find how investors should evaluate the investment in ESG by developing a model.

Method: This research is both quantitative and qualitative in nature and based on secondary data. Purposive sampling has been used to collect the CSR information, ESG scores and GDP prices (In billion USD) from 2015 to 2023. This study has tried to answer five research questions. First three research questions have been answered with the help of literature review and to answer the last two questions 2 hypotheses have been framed. Data has been collected for top 15 ESG fund corporations. Regression and Correlation analysis is done using SPSS 16 to check the relationship between ESG with Market value and ESG with profitability.

Conclusion: The results indicated that there is a linear relationship between CSR, ESG and GDP and there is positive correlation between the three. The sustainable development goal can be achieved if the investors keep increasing and investing in ESG funds and there is ROI for both the stakeholders. The findings also show that ESG effect is positive on market value of ESG fund corporations. This paper suggests that high ESG performance is rewarded with higher market valuation and high GDP as well.

Subject Classification: *91B82, 91G50.*

Keywords: *Environmental, Social and governance, Corporate social responsibility, Economic development, Gross domestic product, Sustainable development, Profitability.*

1. Introduction

The United Nations [1] provides support to promote sustainable development to many nations, India being one of them. The Sustainable Development Framework (UNSDF) between the Government of India and the United Nations is a framework made to formulate strategies and work towards the attainment of the Sustainable Development Goals (SDGs). This is being executed at the national level under the supervision of NITI Aayog – a premier think tank entrusted with the task of coordinating and mapping the SDGs. Sustainable Development as per the UN [2], is "the development which meets the needs of the present without compromising the ability of future generations to meet their own needs". There are 17

SDGs [3] defined over the period from 2015 to 2030 which should be met by all nations to benefit individuals, communities, and businesses. These 17 SDGs are ideal for businesses to work towards the well-being of any society.

Indian Corporations were already involved in sustainable development through CSR (Corporate Social Responsibility), [4] a belief formed during the 1950s to help and support society. CSR [5] was considered an act of philanthropy or a 'social investment' strategy for economic change. It became a part of the Indian business setup after its inclusion in the Companies Act, 2013 under section 135 [6] as it mandates that companies distribute a part of their earnings towards society for sustainable development, a mandatory practice for only a few premium companies earning to a certain limit.

In both Corporate social responsibility (CSR) and (ESG) Environmental, Social, and Governance concepts, the investment decision of an investor is based on the score of the environmental, social and governance work done by the company. Both CSR and ESG, aim to achieve sustainable development goals ('SDG') by undertaking corporate activities aimed toward the welfare of society. ESG [7] entered the Indian corporate environment due to a 'sustainability revolution' and investors have also started to critically analyze the ESG practices undertaken by the corporates. Indian corporates have been directed by The Securities and Exchange Board of India (SEBI) to follow certain ESG-specific disclosures. CSR spending by Indian corporates has increased by 13% over the last five years [8] and is nearly 52,000 crore by 2027. Economic survey 2022-23 [9] expects GDP growth of nearly 7 per cent year ending March 2023.

As defined by the [10] Global Sustainable Investment Alliance (GSIA), "Sustainable investing is an investment approach that considers environmental, social and governance (ESG) factors in portfolio selection and management". These new ESG factors for portfolio selection can maximize the share value or investment cost for a shareholder, according to [11] research. Therefore, it is also called impact investing as it considers both financial returns and society returns before deciding to invest. If the companies incorporate ESG in their strategies, investors will get double the benefit of financial returns along with the satisfaction of investing in sustainable decisions. It has also been studied that, [12] [13] by implementing these factors into investment choices, the shareholders may benefit the social environment around them. The Securities and Exchange Board of India (SEBI) [14] mandates corporates to disclose important details related to sustainability under the new framework of business

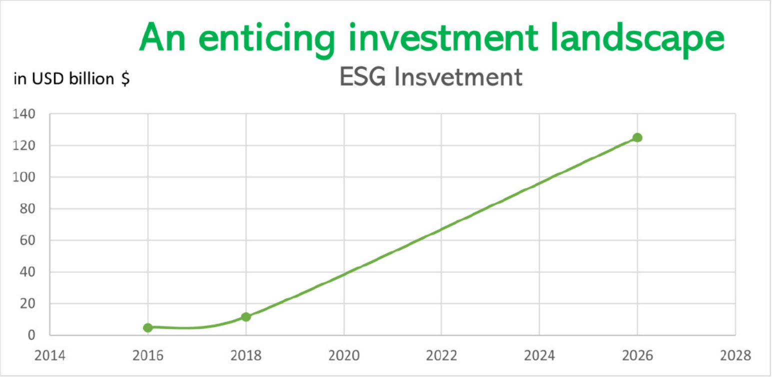


Figure 1

Indian Sustainability Investment Landscape

Source: www.linkedin.com

responsibility and sustainability reporting (BRSR) with nine major ESG attributes.

From Figure 1 below, we can see a rise in sustainable investing in India from 2016 to 2026, and in a recent article published on LinkedIn [15] the driving force behind sustainable investing in India is the increasing demand for such ESG-based products among customers, The LinkedIn article also stated that there are around 50 mutual funds and ETFs available with a focus on sustainability in the Indian market today. A report by Benori Knowledge also predicted an increase in investments in sustainable projects by 2026.

One of the reasons for the rise in the responsible investing is the recent Solar Alliance (*International Solar Alliance (ISA), aims at mobilizing more than USD 1000 billion of investment by 2030 for the deployment of solar energy* – [16]) and the callout by many Indian MNCs committing to sustainable practices. The government is also planning to invest in sustainable research. [17] GOI has started the invest India mission to encourage preparation and marketing of sustainable projects with the development of new partnerships to enable sustainable investments. Government Policies aligned with SDG goals of sustainable investing is aimed to generate long-term financial returns while promoting positive ESG outcomes.

To understand this in much more depth, many articles and papers are reviewed to understand the post, present and future of sustainable investment strategies (ESG) adopted by Indian corporates. The literature review is also done to understand the various CSR policies followed by Indian corporates and to understand the ESG based products by the corporates.

Review of Literature

Sustainable Development

The United Nations Brundtland Commission in 1987 introduced the concept of sustainable development. During that time it was defined as "meeting the requirements of the present without jeopardizing future generation's needs" [18]. This concept was accepted and was included in the SDG where more than 100 nations have accepted and included the same in their agenda, India being one of them. On behalf of the Government of India, NITI Aayog is responsible for SDG mapping, setting targets and formulating strategies [19].

There are 17 SDGs [1] adopted by 193 Member States at the UN General Assembly Summit in September 2015. The main goal for 2030 is to 'Leave No One Behind' where there will be growth in all proportions for everyone to make a beautiful planet. India is an important stakeholder in the future success of SDG as they are best placed to 'put people first' and to ensure that 'no one is left behind'. Sustainable Development Goals (SDGs) and Corporate Social Responsibility (CSR) are tangled similar to strands of DNA [20], where CSR is a humanitarian engagement by corporations including donations for sustainable development and SDGs state the use of social welfare by corporates for economic good.

According to a recent study, [21] Green HRM practices provide a competitive advantage to corporates to attain environmental and commercial sustainability. Another study [22] has looked into the sustainable solution of using renewable resources by reviewing publications of the last 20 years. The authors tried to understand the energy needs of corporates and how they can use renewable resources to harness energy for the sustainable betterment of the community around them. One more study [23] looks into different ways in which the corporates can curb pollution similar to the COVID-19 period to reduce the impact of climate change.

Sustainable Strategies adopted by Developed Countries

The US is among the top developed countries to publish on the global state of the research on sustainability and its impact on corporate financial performance. The research talks about the papers published in Scopus on sustainability and the impact, [24] from 2002 to 2017. The other countries in the list include Spain, Taiwan, and China [25]. Taiwan, China, and Malaysia are on the list of leading developing economies [30] publishing on sustainability.

In a recently published research, the authors have used a path analysis model for G7 economies to find sustainable strategies [26] for reducing environmental impact. The study found Fin-tech affecting negatively and has suggested policymakers adopt environmental governance policies to reduce the negative impact. Also, policies to revolutionize Fin-tech should make these technologies more environmentally friendly.

Another research focuses on implementation in EMNEs by providing insights into strategy development [27] of Latin America. It discusses the sustainability strategies adopted to enhance business competitiveness. NASA scientists also focused on sustainable lunar exploration in a conference conducted in 2020. Many such sustainable strategies are being adopted by the developed economies and the other economies are treading the path.

SDG and CSR

The fulfillment of SDGs cannot be achieved by government effort alone, it should be supported by collective action from society and the private sector [28]. In India, CSR has been regulated after the Companies Act of 2013 [Section 135] which lays down clear rules and processes. CSR and SDGs are the pillars of a sustainable growth model where CSR provides a robust framework and SDGs define targets to be achieved. Thus, the co-working of public and private sectors together will achieve 360-degree results for economic, social, and environmental growth and welfare. A study done to understand the relationship between CSR and GDP [29] suggests that to make CSR activities impactful and long-lasting for economic growth, a holistic ideology must be adopted. The researchers also suggested an innovative approach - “SMART” i.e., sincere, moral, accountable, responsible, and transparent. This will have long-lasting and affirmative economic growth which will have far-reaching impacts.

The awareness about CSR [30] among investors is now making corporates rethink or re-evaluate their CSR projects to align them with the SDGs. As per the multi-stakeholder approach, CSR is now a sustainable business strategy to adopt, demonstrate, and practice holistic approaches for investor acceptance. This acceptance will determine its success for which corporations should have empathy towards the society and have a good score on the social report card. ESG (environmental, social, and governance) is the new buzzword and [31] there are mandatory corporate disclosures required to be filled up on ESG/CSR activities undertaken by the corporates. PRI (Principles for Responsible Investment) [32] have been defined to mark a pathway toward a sustainable global financial system and also to suggest ways of integrating ESG norms into investment practices done by corporates.

CSR and ESG

CSR and ESG [33] are the new important tools for investors to look into before making any investment. The Indian regulators now focus on sustainable investment and reporting with CSR, Business Responsibility and Sustainability Report (BRSR) which includes the environment, social, and governance (ESG) principles. The potential investors (including retail investors, private high capital investors, people with high net worth and institutional investors) are looking at the company strategies being adopted for ESG and CSR. As compliances are becoming more strict, the new sustainable models or projects undertaken or built or developed will be important for any business today. In their article for CSR Journal, ELP's Manendra Singh and Tanvi Goyal, analyze the CSR and ESG regimes in India and how corporations and investors would be impacted by these measures.

Investors consider the impact of ESG based investments on environment and are eager to understand if the investment decision they make, can influence any business to practice sustainability through different strategies. The research talks about how responsible investors can bring changes to a company's adoption of environmental measures and look toward forming sustainable business strategies. A CSR [34] program, as per a published study has zero effect on the market value of a company and there is a moderate relationship between investor decision, CSR, and market capitalization. The research used CSR index [35] of Indian companies to study their investment in CSR practices beyond the legally mandated expenditure recommended by the Companies Act 2013. The following Figure 2 shows the investment of Indian Corporates for CSR activity state-wise since 2016.

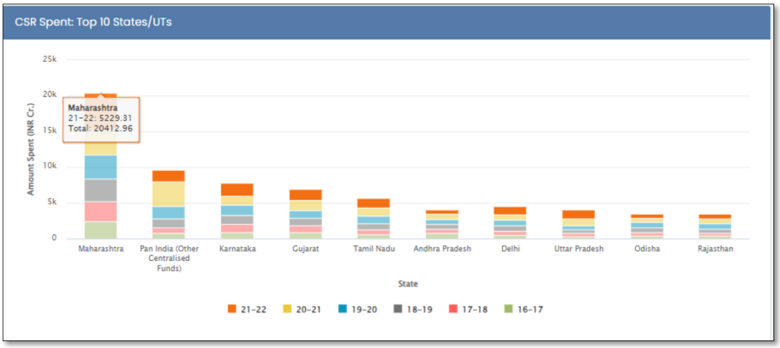


Figure 2

CSR Spending by Top 10 Indian states from 2016 to 2022

Source: https://www.csr.gov.in

Maharashtra tops the charts with maximum CSR spending followed by Karnataka and Gujarat. As per 2022 government records as shown in Table 1, the top companies as per CSR spending are:

Table 1

CSR Amount by Companies as per Government Records 2022

S. No	Company Name(s)	Amount (INR Cr.)
1	Reliance Industries Limited	922
2	Tata Consultancy Services Limited	674
3	HDFC Bank Limited	634.42
4	Tata Sons Private Limited	545.83
5	Oil And Natural Gas Corporation Limited	531.45
6	Indian Oil Corporation Limited	445.09
7	NTPC Limited	418.87
8	Infosys Limited	361.82
9	ITC Limited	335.43
10	Wipro Limited	246.99

Source: https://www.csr.gov.in

Current Scenario of GDP, CSR and ESG

The decisions of Indian companies to strive to become ESG compliant will help them in long run and also bring in distinguishing changes to the people around. A study [36] done in 2022 shows that capital investment has no impact on the market value of the company and it uses TB's-Q test to find empirical evidence between business profitability and ROA. The process of becoming ESG complaint is long and risky but it is essential and required today for any economy and for the future generations. The scores or metrics are made after diligent decision making where every stakeholder is accounted for. The paper tries to study the current scenario in detail and the strategies of companies towards ESG.

Research Questions

RQ1 - To identify the current standing for ESG (Environment, social and governance) investment in India.

RQ2 - To ascertain the sustainable strategies of corporates towards ESG (Environment, social and governance) investment in India

RQ3 – To propose a model for GDP (Gross Domestic Product), CSR (Corporate Social Responsibility) and ESG (Environment, social and governance) for attainment of SDGs (Sustainable Development Goals)

RQ4: Does ESG (Environment, social and governance) score have positive impact on company's market value.

RQ5: Does ESG (Environment, social and governance) score have positive impact on profitability.

Research Methodology

Research Method: Mixed-method – The paper has used both quantitative and qualitative data for the study. The reason for selecting the method is that ESG is a new concept and secondary data which is available, is very less. Thus research questions 1 to 2 are analyzed from the literature review, for research question 3 a model is prepared whereas for research questions 4 and 5 secondary data is analyzed in SPSS 16 using statistical tools to find the relationships.

Data Collection - The data is gathered and collected through Company Websites, Company Annual Reports, Capitaline database, S & P global database, and GOI websites.

Research instruments –Financial data has been cleaned using MS Excel. Then various financial tools like Tobin's Q and ROA have been applied to find the market value and profitability of companies respectively. Finally, statistical tools such as Pearson correlation and regression tests have been applied using SPSS 16 to determine the relationship between the company's ESG score and its Market value and profitability

Sampling – The data is collected using the non-probability Sampling Method – Convenient Sampling. As the data for ESG was very less (as the concept is new), all the data is collected since the companies have stared reporting the ESG score.

Hypotheses:

H_0: ESG (Environment, social and governance) score have no impact on company's market value.

H_1: ESG (Environment, social and governance) score have positive impact on company's market value.

H_0: ESG (Environment, social and governance) score have no impact on profitability.

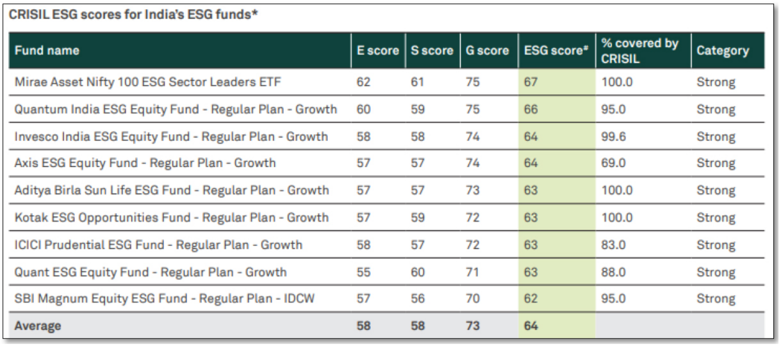
H_1: ESG (Environment, social and governance) score have positive impact on profitability.

Data Analysis and Interpretation

To answer **RQ1** the analysis is done under 4 subheads – Regulatory, Company Performance, ESG Index and Way ahead. Some of the regulatory aspect around ESG was covered in the review of literature like

- BRSR framework created by SEBI for ESG disclosure,
- Stewardship Code – guidelines by SEBI for ESG disclosure,
- ESG Rating Agencies – for rating the company investment products like bonds and funds
- ESG based Mutual Funds - aligned with sustainability and responsible practices

In order to attain SDGs by 2025, the government of India is focused to make ESG mandatory for companies doing CSR activities under the Companies Act with minimum requirement. The focus of the strategies and practices should be critical to promoting sustainable and responsible investment practises. Regulatory bodies are making substantial efforts to promote transparency (BSBR framework), accountability (Stewardship Code), and disclosure of ESG information. There is a rise in the number of ESG based Mutual funds investing towards sustainable growth. The ESG-based MF [37] as per Figure 3 are


CRISIL ESG scores for India's ESG funds*

Fund name	E score	S score	G score	ESG score*	% covered by CRISIL	Category
Mirae Asset Nifty 100 ESG Sector Leaders ETF	62	61	75	67	100.0	Strong
Quantum India ESG Equity Fund - Regular Plan - Growth	60	59	75	66	95.0	Strong
Invesco India ESG Equity Fund - Regular Plan - Growth	58	58	74	64	99.6	Strong
Axis ESG Equity Fund - Regular Plan - Growth	57	57	74	64	69.0	Strong
Aditya Birla Sun Life ESG Fund - Regular Plan - Growth	57	57	73	63	100.0	Strong
Kotak ESG Opportunities Fund - Regular Plan - Growth	57	59	72	63	100.0	Strong
ICICI Prudential ESG Fund - Regular Plan - Growth	58	57	72	63	83.0	Strong
Quant ESG Equity Fund - Regular Plan - Growth	55	60	71	63	88.0	Strong
SBI Magnum Equity ESG Fund - Regular Plan - IDCW	57	56	70	62	95.0	Strong
Average	58	58	73	64		

Figure 3

ESG Funds [CRISIL Score] 2023

Source: www.crisil.com

From the above figure 3 we can see that the ESG score of mostly all the ESG funds lie between 62 to 67 with an average of 64. Also, SBI is the oldest ESG Fund followed by Kotak and Aditya Birla. The number of ESG based MF funds for investors are less. In India for ESG, there is a MSCI India ESG Leaders Index - a free float-adjusted market capitalization-weighted index and Nifty100 ESG Index – is based on the ESG score of the top 100 companies registered on Nifty and their commitment to sustainability. Infosys, HDFC and Tata topped the charts as the maximum spending on ESG in Oct 2023. The Nifty 100 index in figure 4 is based on ESG [38] risk score assigned to the company from 2012 to 2024 where we can see an increase in the number of companies falling in the CSR / ESG bracket, number of products increasing and overall spending by companies also increasing.

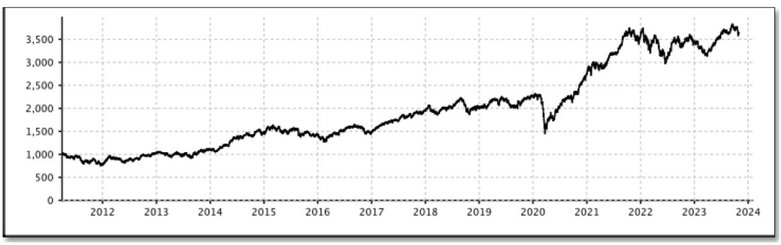


Figure 4

Top Companies based on ESG score Oct 2023

Source: https://niftyindices.com

Government of India is continuously upgrading the disclosure guidelines to calculate to measure CSR and ESG. All Indian corporates must comply with the disclosure procedure as per the Business Responsibility Reports (BRR) as part of their annual report. From 2023 onwards the same is applicable to the top 1,000 listed entities (by market capitalization) against the nine principles of the 'National Guidelines on Responsible Business Conduct' (NGBRCs). This will help the companies to score well on the ESG and ultimately achieve the SDGs

To answer **RQ2** the study is done for a few Indian companies based on the Annual Report 2022 – 2023 published by them. The ESG performance has been mandated recently to understand the companies responsible investment efforts for overall sustainability. One more report assessed opinions from over 1,300 global CEOs, including 125 CEOs [39] from India, highlighted RIL reported reduced GHG emissions by 10%, TCS reported that it had hired over 100,000 people from underprivileged backgrounds and Sterlite Tech (STL) received a rating of 'A' for its ESG efforts. Some of the leading Indian companies that are reporting under BRSR include -

1. Diageo India (United Spirits Ltd.) a alco-bev company, announced in its annual report that (https://www.diageoindia.com/) it is progressing as per ESG action plan in line with "Society 2030: Spirit of Progress". The main initiatives undertaken were – Water Campaign (Water Conservation and fresh water preservation for nearby villages), Reduced greenhouse gas emissions as compared to previous year, Recycling Campaign – Reuse Material, Or Make from materials which are easily recyclable, Workforce inclusion.
2. SBI - India's largest public sector bank (www.sbi.com) in its report published that it has undertaken green initiatives like chargers for Electric Vehicle (EVs) and Green cover project loan for few residential properties. The loans are also sanctioned for projects working in renewable energy and alternate energy. They have also planted many trees to increase the green cover. It endeavors for workforce inclusion i.e people across varying identities feel welcomed.
3. Infosys - an IT giant published in its ESG report (www.infosys.com) that maintaining the carbon neutrality through varied projects is one of its top priority, It is also intending to pursue 100% wastewater recycling for the infrastructure and the villages around it. The company follows a zero waste policy for everything intended. It is

also striving for energizing local community and overall employee wellness.

4. Reliance – one of the multifaceted giant in its recent sustainability report published that Energy and Greenhouse gas emissions, Sustainable products, Community Awareness are some of its top priorities this year (https://www.rwc.com/). The company is diligent in using sustainable versions of commonly used fabrics. It is using carbon neutral crude oil and alternative sources of energy for green impact.
5. NTPC – is again a public corporation, which has plans to add 10 GW of conventional (https://www.ntpc.co.in/) and 16 GW of renewable energy for green impact and lower carbon emission. As an alternate energy source thermal capacity of 7.2 GW is also being planned to be increased. Some part of the CSR is also directed towards environmental conservation efforts and to increase the green cover.
6. Tata – A leading and one of the oldest MNC is planning on green mobility – through a new entity called TCPL Green Energy Solutions Pvt. Ltd. (GES) aimed at developing sustainable powertrain solutions to mitigate greenhouse gas emissions. It will also improve air quality which will lead to net-zero ambitions. (www.tatasustainability.com) Smart solution to plastic is also one of the initiatives undertaken for E-waste solution. An alternate source of fuel - bamboo based bio-refinery is also being developed by the company.
7. HUL – an FMCG company, (www.hul.co.in) in its recent report said that the company believes to leave a carbon footprint with every product sold and to reduce the environmental footprint, the company is investing in new technologies, using alternative renewable sources etc. They have set up a fund to find scalable solutions to address water challenges.
8. Cipla – a pharmaceutical company, (www.cipla.com) was recently awarded as ESG champion for its contribution in COVID times. The company ensured a supply of necessary drugs for non-communicable diseases under the 'Caring for Life' program where enriching lives has been the purpose.
9. HDFC – a private sector bank, (www.hdfc.com) as per the ESG statement follows smart green housing and affordable lending solutions. It does due diligence on non-individual loans and many other activities for sustainability.

10. Colgate – At https://www.colgateinvestors.co.in/ the ESG report states the commitment of the company towards sustainable packaging to minimize waste and maximise recyclability. The company has efficient waste management practices and regularly

Collaborates with stakeholders to accelerate sustainable practices.

The adoption of BRSR by Indian companies shows positivity looking at the ESG reports which in turn will improve the quality of life and society as a whole. The common and easy practices are towards (E) environment – less plastic, waste management, improve green cover, water management, low carbon emission, alternate fuel or source of energy etc which are now being followed by many companies. (S) society practices like improving the villages around, drinking water provision, work opportunity to all, education to the needy etc are helping the society at large. (G) governance part is also now being looked at sincerely with the top management looking at the gender inclusion or all around inclusion, global reach, sustainable products etc. A welfare based ESG practice will companies to maintain good credibility and balance.

To answer **RQ3** a model had to be made in order to support investors form an opinion about the company's work in ESG area for better decision making. After an extensive review of literature no model could be found as the concept is new and upcoming and the regulations are still being made. ESG factors into traditional financial analysis and goes beyond looking and evaluating mere profitability of the company. It examines a company's ESG performance [By looking at score or the annual report] to understand the sustainable business practices undertaken. The ESG report mandated by the government, wants companies to disclosing metrics such as cardon emissions, water management, waste management, employee diversity, and other CSR practices. This will give investors a holistic view of a company's future CSR so that they can weigh the financial success with ethical choices. Many external rating agencies / research firms / organizations are involved in evaluating/assessing the ESG performance of Indian companies. On the other hand Indian companies also want to enrich their ESG performance score to attract investors.

According to FIS' 2023 Global Innovation Report (www.fisglobal.com), More than fifty percent of the firms based on financial technology are now focused on developing ESG based products and services. The investors looking for investing in ESG based funds should –

1. Look at the available ESG options for investment and search for top 3/5 funds to invest on reliable webpages
2. Study the funds base company's last 5 years financials (CSR/AUM/ Profits).
3. Understand the vision and initiatives of the company towards ESG [Annual Reports / ESG score].
4. Any news related to the future projects / initiatives undertaken by the company.
5. Invest small amount in the beginning and diversify the investment.

A small model is made so that investors understand that the before investing into a fund based on ESG some important elements need to be considered. The company financials need to be studies, ESG score of the company or ESG projects undertaken should be studied from the annual reports published and finally the CSR Index or initiatives that drive sustainability must also be looked at.

From the above figure 5, if any retail investor wants to invest in ESG based funds the study will be useful. A holistic view of the fund will reduce the risk of investing. The model is very basic as the concept is still evolving and regulatory bodies are making guidelines for better understanding of the same. Even though the companies have been doing CSR activities since a long time but the proper framework is just being made.

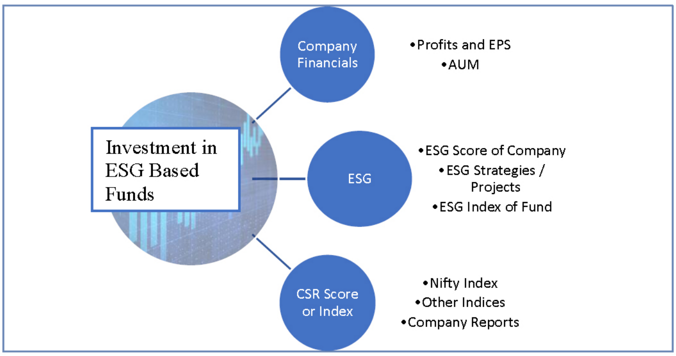


Figure 5

Model for ESG based investment (Retail investors perspective)

Source: Data Analysis and Review of Literature by Authors

Table 2
Sample Data

	Annual Financial Data from Capitaline Database	ESG Scores
Sample Period	2015-2023	2015-2023 (2015-2017 and 2022-2023)
Number of Companies	(NSE Listed ESG Co.)15	15
Sampling Method	Convenient Sampling	Convenient Sampling

The literature review studies state that many researchers have proven a positive relationship between ESG scores and profitability and market value. But there are few studies which suggested negative or mixed results also. This research is an effort to add the researcher's experience to this debate by using hypotheses with a recent Indian companies database. To answer **RQ4** and **RQ5** this study has used annual financial data from 2015 retrieved from the Capitaline database for selectively listed Indian companies and ESG scores of those selected companies' were collected from S & P global database.

15 NSE listed companies from 2023 top 100 ESG companies were selected for the study. The regulatory scenario in India has witnessed several policy changes in the past decade. As per Revised Companies Act 2013, large companies need to spend 2% of their net annual profit on CSR activities. Gradually, Environmental, social, and governance (ESG) based portfolio selection has gained popularity among investors. Therefore data of 15 Indian companies covering the period from 2015 to 2017 has been considered for this study. Table 2 provides a summary of the data.

Dependent variables:

Many researchers prefer Tobin's Q to measure market value [40] [41] [42] [43] [44] [45]. Similarly many researchers use retrn on assets (ROA) as a representative for profitability [46] [45] [43] [44]. We find both the dependent variables from Capitaline database. Tobin's Q is a ratio of market value of a firm to its intrinsic value. In this paper Tobin's Q is computed as Market Value to Book Value [40]:

$$\text{Tobin's Q} = \frac{\text{Market Value}}{\text{Book Value}}$$

ROA demonstrates how efficiently the company utilizes its resources to generate profits. Higher ROA indicates successful utilization of assets. This paper has used universally accepted formula of ROA as follows:

$$ROA = \frac{\text{Net Income}}{\text{B Total Assets}}$$

Independent Variables:

This study uses one independent variables namely ESG score. In India ESG score data is not available in annual reports, NSE, BSE sites, etc. So for selected 15 companies, 2023 ESG scores are taken from S & P global database, 2022 ESG scores are collected from published S & P Global scores by CRISIL, 2015 to 2017 ESG scores are collected from the existing research paper by Dalal and Thaker published in 2019. ESG scores from 2018-21 are not considered due to unavailability of data. This data is considered as complete data as it technically includes ESG scores of starting and ending period.

Control Variables:

We select leverage and size as control variables [47] [42] Debt/ Equity and Log total-assets are considered as leverage and size respectively. A summary of variables are provided in Table 3.

Table 3

Variables of the Study

Variables	**Explanation**
Dependent Variables	
Return on Assets (ROA)	Net Income/ Total Assets
Tobin's Q (TQ)	Market Value/ Book Value
Independent Variables	
ESG score	S & P global/ CRISIL database
Control Variables	
Leverage	Debt/Equity
Size	Log of Total Assets

Descriptive Statistics: The database consists of 15 NSE listed ESG companies from 2015-2023. Descriptive statistics results are provided in Table 4 below:

Table 4

Descriptive statistics

	N	**Mean**	**Median**	**Std. Deviation**	**Minimum**	**Maximum**
	Valid					
Independent Variable						
ESG	15	61.493	59.600	10.356	43.600	79.400
Dependent Variables						
ROA	15	8.207	5.870	8.423	-0.310	26.590
TQ	15	7.463	4.937	8.229	0.862	31.696
Control Variables						
LTA	15	11.465	11.861	1.495	8.637	13.590
DE	15	1.682	0.574	2.615	0.000	9.124

The mean for ESG scores is 61.493. ROA mean score is 8.207% and the mean for Tobin's Q is 7.463. ROA above 5% is always desirable. The mean score 8.207% indicates that companies under study are using its resources efficiently and are able to generate desirable profits [48] [49]. Tobin's Q ratio above 1 means that a company's current market value is higher than its total asset value. This indicates that the company is being overvalued by the market [50-53]. About control variables, the mean for size is 11.465 and for leverage it is 1.682. Here leverage ratio of 0.0 minimum and 9.124 maximum with the standard deviation of 2.615 indicates that majority of companies under study are self-reliant or with very low debt capital.

We use two formulas to investigate research objective of the study, one for Tobin's Q and one for ROA as follows:

Tobin's Q (TQ)

$$TQ_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 \log (TA)_{it} + \beta_3\, DE_{it} + \varepsilon_{it}$$

$$ROA_{it} = \beta_0 + \beta_1 ESG_{it} + \beta_2 \log (TA)_{it} + \beta_3\, DE_{it} + \varepsilon_{it}$$

Where TQ_{it} and ROA_{it} are dependent variables, ESG_{it} is independent variable, $log\ (TA)_{it}$ and DE_{it} are control variables and ε_{it} is the error term for the period t.

Table 5

Pearson Correlation

	ESG	ROA	TQ	LTA	DE
ESG	1.000				
ROA	0.576	1.000			
TQ	0.261	0.566	1.000		
LTA	0.111	-0.273	-0.523	1.000	
DE	-0.253	-0.507	-0.237	0.521	1
*. Correlation is significant at the 0.05 level (2-tailed).					

Table 6

Regression Analysis (Dependent Variable: Tobin's Q)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637[a]	.406	.243	7.1577858

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	384.419	3	128.140	2.501	.114[a]
	Residual	563.573	11	51.234		
	Total	947.992	14			

a. Predictors: (Constant), DE, ESG, LTA
b. Dependent Variable: TQ

Coefficients

Model		Unstandardized Coefficients		t	Sig.
		B	Std. Error		
1	(Constant)	30.019	18.233	1.646	.128
	ESG	.310	.200	1.553	.149
	LTA	-3.730	1.568	-2.379	.037
	DE	.673	.921	.731	.480

From above table we can see that size of correlation between ESG scores and ROA is 0.576 indicating moderately positive relationship. Whereas size of correlation between ESG scores and Tobin's Q is 0.261 indicating relatively low positive relationship. Company size (LTA) with 0.111, indicates negligible/ very low positive relationship and leverage is negatively (-0.253) correlated to ESG scores. This indicates that small and self-reliant companies have higher ESG scores [54].

Regression Results: For this study all tests are conducted using SPSS 16. Table 6 and table 7 show regression analysis results of ESG scores effect on Market Value and Profitability respectively.

Table 6 shows that 40.6% are independent variables explaining dependent variable. After adding few more companies' data in study, it is showing $P > 0.05$. So For this study we can say that these results support null hypothesis. Results might have different effect with more data.

On the basis of these results we can express formula as follows:

$$\boldsymbol{TQ_{it} = 30.019 + (0.310)ESG_{it} + (-3.730) \log (TA)_{it} + (0.673) DE_{it} + \varepsilon_{it}}$$

Table 7

Regression Analysis (Dependent Variable: Profitability i.e. (ROA)

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.703[a]	.495	.357	6.7555123

ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	491.189	3	163.730	3.588	.050[a]
	Residual	502.006	11	45.637		
	Total	993.195	14			

a. Predictors: (Constant), DE, ESG, LTA
b. Dependent Variable: ROA

Coefficients

Model		Unstandardized Coefficients		t	Sig. Tolerance	Collinearity Statistics	
		B	Std. Error			VIF	
1	(Constant)	-4.487	17.208	-.261	.799		
	ESG	.429	.188	2.274	.044	.856	1.169
	LTA	-1.062	1.480	-.717	.488	.666	1.501
	DE	-.887	.869	-1.021	.329	.631	1.584

Table 7 shows that 49.5% are independent variables explaining dependent variable. After adding few more companies' data in study, it is showing P = 0.05. We find that ESG score has a positive relationship with ROA, means these results support alternate hypothesis. On the basis of these results we can express formula as follows:

$$ROA_{it} = -4.487 + (0.429)ESG_{it} + (-1.062) \log (TA)_{it} + (-0.887)\, DE_{it} + \varepsilon_{it}$$

Findings

The Indian companies are mandated by GOI to file ESG compliance every year and for 2022 – 2023 the annual reports of companies show a lot of work done. The average score of most of the ESG based funds is 64 and there are new products coming up based on ESG [55-57]. Rating agencies are also coming up to score the funds for investor purpose. Many startups are based on Green/ESG based mission too [58-60]. Thus overall the current state of ESG in India looks promising but as the regulatory compliances are new, to actually give it a score or rating will be too early.

ESG-centric Indian corporates will have sustainable and impactful businesses in the coming years as the amalgamation of ESG based business practices have 360 degree benefits for all. The companies will have sustainable profits, which will in turn help increase shareholder value by meticulously safeguarding people and earth. The E(Environment) part looks at the company's commitment to green practices and carbon neutrality along with the adoption of alternate fuels. This if practised by the Indian companies can enrich their character and value in market. The S(Society) includes the initiatives of companies towards society like diversity in workplace, welfare of community, inclusion of everyone in society, contribution towards the marginalised and providing education etc. The G (governance) looks at policies towards E and S and also towards the various stakeholders. There are many initiatives taken by Indian companies towards the same covering most of the aspects. There is still a lot that needs to be done to achieve the SDGs [61, 62].

This study has tried to introduce a ESG cycle after an indepth review of literature and data analysis which can be used for future studies:

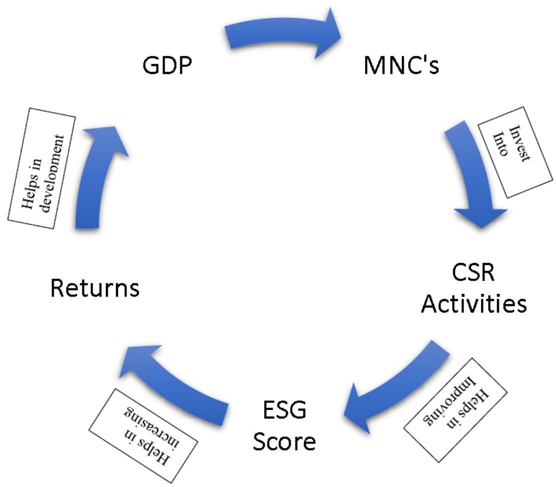


Figure 6

ESG Cycle

Source: Post Data Analysis by authors

A simple model is made to understand how investors can invest in ESG based funds after evaluating the CSR activities of the company, Annual Reports of the company and Any other metrics measuring ESG score. The model will help investors understand the importance of ESG practices followed by the company towards sustainability. The above model (Figure 6) explains the long term impact of the ESG policies of the corporates on GDP of our country in a detailed way and is the culmination of the data analysis done by the authors.

The data analysis is done using Tobin's Q to measure market value and ROA to understand the efficiency in utilization of resources by the Indian corporates. The mean score 8.207% indicates that companies under study have used the resources efficiently and are able to generate desirable profits. Tobin's Q ratio above 1 means that a company's current market value is higher than its total asset value which indicates that the company is being overvalued by the market.

It has been observed that ESG scores have no impact on companies' market value but it is positively impacting profitability of the company and thus helping in increasing the GDP. The analysis also indicates that the small and self-reliant companies have higher ESG scores.

Conclusion:

Among all the regulations, mandates, policy disclosures necessary for Indian corporates, ESG provides hope for a better society and sustainable living. Indian companies need to delve deep and think about a win-win situation for both them and society. Only then can real ESG principles be fulfilled and the investments in ESG can be sustainable. Many companies are doing a lot of CSR activities with ESG focus but the number and amount is still less. The ESG and ROA will have a better relationship when the strategies are reflected in CSR, GDP and ultimately the SDGs. Also the ESG metrices should be holistic to critically rate the ESG based investments and ensure a cleaner, greener and sustainable earth.

Limitations

The study is based on primary data collected from a few Indian corporates and therefore the results are not very accurate. The ESG scoring for all Indian corporates is not openly available and therefore the authors have derived the same from various available secondary data. Also as the concept of ESG for the Indian corporates is something new, the data available is not complete and accurate for the early years. The statistical results will be more accurate after a few years when a substantial number of Indian corporates publish the ESG score in their annual reports.

Managerial Implications

ESG initiatives can help a company achieve long term business success as it has become a key element today. Investment of company in ESG will increase profitability and attract investors which will increase the market value too. The society will benefit from ESG investment and this will improve the goodwill of the company. GOI schemes can be taken up for funds and tax exemptions to again increase earnings. Our nation's standing will overall improve by small sustainable investment initiatives among the UN member nations. Investors will be content in investing in such companies with sustainable investment strategies.

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