Impact of ESG on Firm's Financial Performance in India

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Abstract

There is evolving interests in exploring how ESG impacts the Financial Performance. Recently Indian Investors are interested in ESG performance of the companies and simultaneously, how it is affecting the financial performance factors. This study examines the impact of ESG (Environmental, Social, and Governance) scores on the financial performance of listed firms. The research specifically focuses on empirical evidence from India. Impact of ESG disclosure scores on firm's financial performance of 64 Indian firms listed in NSE during 2020-2023. Using data from National Stock Exchange listed Indian companies. Data is extracted from Eikon Refinitiv. Using hierarchal regression analysis, the study concludes that the there is no significant relationship of financial performance with Environment score and Governance score. But we have found that the significant relation with respect to Social score.

INTRODUCTION

ESG stands for Environmental, Social and Governance, it is a framework which guides the organisation for its risk management to deal with the issues surrounding sustainability. In 2004, The term ESG was originated from the notable report of "Who Cares Wins: Connecting Financial Markets to a Changing World" it is commonly used in place of "sustainable finance" in literature, the ESG framework is used to assess the long-term sustainable considerations for the investment decisions taken out by the financial firms. It takes into account the financial decisions, economic activities and strategies by the firms and its direct impact on the society. Considering ESG into account paves the way for making sustainable decision making by the firms. United Nations took the initiative to consider the financial sectors to play their part in making the society sustainable by encouraging its integration. Since then, the importance of ESG has been ever growing in the modern literature, the integration of non-financial data into the financial investment decisions and its overall impact on the society is significant. With rising awareness on the sustainable development, climate change, social inclusion and ethical corporate governance, ESG can emerge as a guiding light for the conscious firms and investors for making sustainable choices on a firm level.

The motivation behind this paper comes from the fact that importance of ESG's relation with firm's financial performance is in itself complex and contextual in global context, In India ESG is a relatively new concept, recently in 2021 SEBI has introduced the Business

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Responsibility and Sustainability report which is in equal standards with ESG frameworks of thew Global reporting Initiative. Thus the context of Indian perspective becomes more relevant. India has also faced challenges in different aspects of ESG activities, thereby the findings of the study would add value to the existing literature, it would have a pragmatic application in policymaking, corporate decision making and for investors. This research adds the new perspective for the policymakers and investors and paves the way for better understanding and implementation of the financial performance with respect to the ESG. In India due to the recent advancements in ESG and its adaptation, its association with financial performance is a new avenue to explore. Adaption of ESG framework is still in early phase and is still maturing , there is a lag wherein the company adopt the policies related to ESG and the results of the benefits are reflected with a lag, the investors are short-sighted and generally do not focus on the long term benefits, it takes time for the stakeholders to start valuing ESG factors.

LITERATURE REVIEW

Several existing theories have been developed to explain how ESG practices can influence financial performance - stakeholder theory, agency theory, resource-based view, signalling theory, sustainable value creation theory, Risk Management theory. Although the expanding literature in this area is ever evolving but in context of India this is a novel concept, the nexus between financial performance and ESG activities find very few investigations, specially which takes into account the different economic periods i.e. during financial crisis and how it leads to different association between ESG and firm profitability (Brogi and Lagasio , 2018). It criticises the limitations of traditional "vote-counting methods used in prior literature reviews, which tend to draw false inferences. Instead, the meta-analysis uses statistical techniques to aggregate results across studies and correct sampling and measurement errors, providing more precise estimates of the true relationship. The meta-analysis examines different operationalizations of CORPORATE SOCIAL PERFORMANCE (e.g. disclosure, reputation indices, social audits) and CORPORATE FINANCIAL PERFORMANCE (e.g. market- based, accountingbased, perceptual measures). The results show an overall positive correlation between CORPORATE SOCIAL PERFORMANCE and CORPORATE FINANCIAL PERFORMANCE, with variations based on the specific measures used Disaggregated analyses reveal that the relationship is stronger for reputation-based CORPORATE SOCIAL PERFORMANCE measures and market-based CORPORATE FINANCIAL PERFORMANCE metrics compared to accounting-based CORPORATE FINANCIAL PERFORMANCE.

An academic research in recent years has emphasised the importance of in enhancing the financial performance. (Maji and Lohia, 2023) tries to find the impact of ESG performance on financial performance of selected Indian Companies, Ordinary least squares and simultaneous quantile regression models are used for empirical investigation. the influence of ESG performance at different locations of the distribution of firm performance by using quantile regression.The study is based on the CRISIL ESG ratings. Numerous studies have been conducted in the literature on the connection between financial performance and the ESG framework, plenty of them have discovered a favourable correlation between ESG practices and a number of financial performance metrics, such as stock market performance, return on equity (ROE), and return on assets (ROA).

A meta-analysis by Friede et al. (2015) examined over 2,000 empirical studies on the ESGCORPORATE FINANCIAL PERFORMANCE (corporate financial performance) link. The study found a positive correlation between ESG and CORPORATE FINANCIAL PERFORMANCE, with the highest correlations observed for the governance dimensions.

However, the relationship is not always straightforward, as some studies have found mixed or even negative results. A study by Narteh et al. (2022) on Ghanaian SMEs found no significant relationship between ESG factors and financial performance. Another study by Sunartie et al. (2022) on Indonesian firms found a negative relationship between ESG and ROA .

Moreover, the relationship between ESG and financial performance may be nonlinear or contingent on other factors. Some studies have found a U-shaped or inverted U-shaped relationship, suggesting that there is an optimal level of ESG investment beyond which the benefits may diminish.

(Malik and Kashiramka, 2024) examines the impact of ESG disclosure on the financial performance and cost of debt of Indian firms. It is motivated by the growing importance of sustainability and the need to understand the financial implications of ESG disclosure, particularly in the context of emerging economies. ESG has been hypothesized to have

three main effects on firms: lowering agency costs, reducing information asymmetry, and improving reputation.

Prior research in this area has primarily focused on developed markets, while research in emerging markets like India is limited. The ESG disclosure may vary across different industries, which remains unexplored and gives a chance to further dwell into the topic. The relationship between ESG disclosure and firm performance during crises like the COVID-19 pandemic is also not understood.

The paper (Rao et al., 2023) examines the impact of ESG disclosure on the financial performance and cost of debt of Indian firms. It is motivated by the growing importance of sustainability and the need to understand the financial implications of ESG disclosure, particularly in the context of emerging economies like India. Prior research has primarily focused on developed markets, while research emerging markets is limited. The impact of ESG disclosure may vary across different industries, which remains an unexplored area. The relationship between ESG disclosure and firm performance during crises like the COVID-19 pandemic is also not well understood. The study is grounded in agency theory and stakeholder theory, which provide the theoretical framework for understanding the potential benefits of ESG disclosure.

The stakeholders of the organisation get a better insight to screen potential investments, future potential performance of the company and environmental and social impact of the organisation at global level. Investors and stakeholders reap good long-term gains and gives organisation an edge over their competitors. In recent years, public awareness of the role of companies in society has grown, as has the interest in social, environmental, and ethical issues (Reverte, C. ,2009).

The mixed findings in the literature may be due to various factors, such as differences in the measures of ESG and financial performance, the use of different methodologies and the influence of contextual factors like industry, country, and firm characteristics. Overall, the saturation of the ESG framework is required to find the actual impact of the scores on financial performance, altogether the developed countries wherein the ESG framework has saturated i.e. U.S.A, Australia etc, the influence of ESG factors on performance are easier to study.

There is growing importance of sustainability and corporate social responsibility, the theoretical arguments for a positive relationship are based on several mechanisms: Reputation and stakeholder management: Engaging in ESG activities can help firms build a stronger reputation and improve their relationships with key stakeholders, such as customers, suppliers, employees, and regulators. This can lead to better access to resources, markets, and financing, ultimately enhancing financial performance. Operational efficiency and risk management: ESG practices can enable firms to enhance their operational efficiency, reduce costs, and manage risks more effectively. For example, improving environmental performance can lead to energy and resource savings, while strong governance can help mitigate legal and reputational risks. Investor preferences: Investors, particularly institutional and socially responsible investors, may value firms with strong ESG performance, leading to higher stock prices and better financial performance.

The gaps in the literature are explained by examining the relationship between comprehensive ESG disclosure and firm performance (profitability, market valuation) as well as cost of debt for Indian listed firms. Conducting a disaggregated analysis to understand the industry-specific effects i.e. Exploring the impact of ESG disclosure after the COVID-19 pandemic period. The study is grounded in agency theory and stakeholder theory, which provide the theoretical framework for understanding the potential benefits of ESG disclosure. Overall, the paper seeks to provide fresh empirical evidence on the financial implications of ESG disclosure in the Indian context, with implications for managers, investors, and policymakers.

OBJECTIVE OF THE STUDY

The study highlights the importance of ESG framework and its impact on financial performance with context to India which can be achieved by breaking it down to following sub objectives-

I. To find if ESG scores have a significant impact on profitability (ROE, ROA) of Indian listed firms.

II. To assess whether firm size, age of the firm, moderates the relationship between ESG and Financial performance.

HYPOTHESIS

Based on our hypothesis, Analysis of the relationship between firm's financial performance and sustainability in India is the main theme.

H1 : A significant relationship exists between Environmental, Social, and Governance (ESG) scores and a firm's financial performance.

Following equations are used for estimation

ROE = a0 + b0*E score + b1 *S score + b2*G score + b3*Risk + b4*Sales + b5*Age + e (1)

ROCE = a0 + b0*E score + b1 *S score + b2*G score + b3*Risk + b4*Sale + b5*Age + e (2)

In these aforementioned equations 2 separate dependent variables i.e. ROE (Return on Equity) and ROCE (Return on capital Expenditure) are used. The independent variables are E score, environment score; S score, social score; G score, governance score. Risk, sales and Age are other control variables used in the model referring to the debt to equity, total sales, and the age of the firm. e is the error term.

DATA COLLECTION

Data for analysing the performance of ESG is ROCE (Return on capital expenditure) and ROE (Return on Equity) of listed Indian companies for the year 2020 to 2023. Data is collected from National stock exchange, it is provided by Refinitiv Eikon.

The ESG scores of 66 Indian firms listed on National Stock Exchange is collected, All the firms are non-financial due to availability of the data, sub grouped in 10 Economic sector i.e. Industrial, healthcare, Consumer cyclical, Basic material, Consumer non-cyclical, Energy, Utility, Technology, Real Estate and Consumer Discretionary.

Dependent variables ROCE and ROE are both positively skewed, ROCE being more positively skewed than ROE. Both are positively skewed with high kurtosis, suggesting a few extreme values and a non- normal distribution.

The firm specific variables are also collected from Eikon Refinitiv database 2020-2023. Logarithmic transformation of dependent variable (ROCE and ROE) was done

to make the data more normal. Researchers have adopted Return on capital expenditure as measure of financial performance (Aras, Aybars, & Kutlu, 2010); (Otman, 2014) and Return on Equity is considered as dependent variable for profitability performance or operating performance.

Control variables that are also included in the study are sales which measures the firm size, Debt to equity ratio which measures the risk or leverage and age which is used as an impact of company's life span on the firm value.

DATA ANALYSIS AND INTERPRETATION

Descriptive analysis clearly depicts that the S-score's mean is greater than E-score and G-score. The lowest score in the ESG disclosure is 0 (E score) and maximum is 97.37 (G score), it reflects that firms have started to publish their ESG scores In India, contrary to (Giannarakis et al., 2014). Standard deviation of G score is highest among ESG scores which reflects the highest scattering in the governance closure among the sample companies. These scores have near-normal distributions with low skewness and kurtosis close to 3.

Table 1: Descriptive Statistics

	ROCE	ROE	E score	S score	G score	Risk	Age	Sales
Mean	0.161406	0.172305	52.84461	61.66688	53.86727	0.515938	47.35938	0.1454576
Std. Deviation	0.107625	0.103396	21.18271	17.51511	23.50894	0.552067	23.30959	0.1849772
Minimum	0.03	0.01	0	10.86	9.04	0	5	-0.4616513
Maximum	0.9	0.64	97.03	92.89	97.37	2.65	113	1.06945
Skewness	2.644322	1.631073	-0.17914	-0.43978	0.069017	1.317524	0.896057	1.225083
Kurtosis	14.35249	6.752387	2.58574	2.544921	1.986568	4.115918	3.234398	7.563095
Observation	256	256	256	256	256	256	256	256

DESCRIPTIVE ANALYSIS

The VIF test results suggest that multicollinearity is not a significant issue in our model. This means that the independent variables (E score, S score, G score) are not highly correlated with each other, and the estimates of the regression coefficients should be reliable. Our results for Modified Wald test for groupwise heteroskedasticity indicate there is significant evidence of heteroskedasticity across the groups in our panel data model, Appropriate measure for its rectification i.e addressing heteroskedasticity through robust standard errors was done.

Table 2 and 3 shows the hierarchal regression results. The E and G pillar score of ESG is not statistically significant with any firm performance measures. This is contrary to the previous research, which has reported no significant relationship or weak between social parameters and financial performance (Weston & Nnadi, 2021). Table also reflects the impact of different control variables on concerned independent variable i.e. ROCE and ROE. Sales has overall positively significant with ROCE and negatively significant with ROE. Age of the firm shows positively significant relationship suggesting older firm have higher ROCE.

Table 2: The hierarchal regression results for ROCE

	model1 b	model2 b	model3 b	model4 b	model5 b	model6 b
sales	.5056178	.4725088	.481751	.4836248	.4953292	.4945675
age		.0381769	.0411058	.0605552	.0550125	.0544816
risk1lera~y			.0678654	.0766882	-.0561977	-.0593833
e_score				-.003867	-.0062133	-0627877
S_Score					-.0074272	-.0074544
g_score						-.000371
_cons	-2.069924	-3.876927	-4.052106	-4.785633	-4.858894	-4.853692

Table 3: The hierarchal regression results for ROE

	model1b b	model2b b	model3b b	model4b b	model5b b	model6b b
sales	-.4011298	-.3800455	-.3589097	-.3596968	-.3778807	-.3813051
age		-.0243116	-.0176137	-.0257838	-.0171726	-.0195592
risklevera~y			.1551985	.1514923	.1211826	.1375268
e_score				.0015488	.0054736	.0051796
s_score					-.0115388	-.0114163
g_score						.001668
_cons	-1.870316	-.7195901	-1.120198	-.8120659	-.6982484	-.6748603

A) Step wise Hierarchical regression results for dependent variable (ROE)

The model specification used in the study is sequential regression or hierarchical regression, initially adding control variables i.e sales of the firm, Age of the firm, D/E ratio (Table 1, Table 2, Table 3) and then the main independent variable i.e E,S,G scores (Table 4, Table 5, Table 6) to find the additional variance in dependent variable being explained by independent variables. It has been found that the individual significance of the independent variable increases by adding more variables into the model. In conclusion E and G score are not found significant when considering ROE as our Dependent variable. It means E score and G score does not influence the financial performance when ROE is taken as an indicator, although results show a negatively significant S score related to financial performance.

Table 4 : Step 1 – Regressing Independent variable sales on Dependent variable ROE

```
Fixed-effects (within) regression               Number of obs      =       255
Group variable: crossid                         Number of groups   =        64

R-sq:                                           Obs per group:

     within = 0.0394                                         min =         3
     between = 0.0029                                        avg =       4.0
     overall = 0.0064                                        max =         4

                                                F(1,63)            =      5.11
corr(u_i, Xb) = -0.0506                         Prob > F           =    0.0273

                                    (Std. Err. adjusted for 64 clusters in crossid)
```

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	-.4011298	.1775333	-2.26	0.027	-.7559018	-.0463577
_cons	-1.870316	.0258852	-72.25	0.000	-1.922043	-1.818589
sigma_u	.5111236					
sigma_e	.38177098					
rho	.64189099	(fraction of variance due to u_i)				

Table 5: Step 2 – Regressing Independent variables Sales and Age of the firm on Dependent variable ROE

```
Fixed-effects (within) regression               Number of obs      =       255
Group variable: crossid                         Number of groups   =        64
R-sq:                                           Obs per group:
     within = 0.0458                                         min =         3
     between = 0.0163                                        avg =       4.0
     overall = 0.0083                                        max =         4
                                                F(2,63)            =      2.75
corr(u_i, Xb) = -0.7741                         Prob > F           =    0.0719

                                    (Std. Err. adjusted for 64 clusters in crossid)
```

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	-.3800455	.1777082	-2.14	0.036	-.735167	-.024924
age	-.0243116	.0258597	-0.94	0.351	-.0759882	.027365
_cons	-.7195901	1.227338	-0.59	0.560	-3.172229	1.733049
sigma_u	.80664207					
sigma_e	.38150427					
rho	.8172037 (fraction of variance to u_i) due					

Table 6: Step 3 – Regressing independent variables sales ,age of the firm , D/E ratio on dependent variable ROCE

Fixed-effects (within) regression — Number of obs = 255
Group variable: crossid — Number of groups = 64
R-sq:
Obs per group:
within = 0.0500 — min = 3
between = 0.0256 — avg = 4.0
overall = 0.0120 — max = 4
F(3,63) = 2.21
corr(u_i, Xb) = -0.6860 — Prob > F = 0.0958

(Std. Err. adjusted for 64 clusters in crossid)

lnroe_score	Coef.	Robust Std.Err.	t	P>|t	[95% Conf.	Interval]
sales	-.1868309	-1.92	.3589097	0.059	.7322615	-.014442
age	-.026965	-0.65	.0176137	0.516	.0714989	-.0362716
risk leverage debt to equity	.1551985	.2757876	0.56	0.576	.3959191	-.706316
cons	1.120198	-1.3349	-0.84	0.405	3.787784	-1.547387
sigma_u	.70064151					
sigma_e	.38168009					
rho	.7711519 (fraction of t u_i) 3 variance due o					

Table 7: Step 4 – Regressing Independent variables Sales, Age of the Firm, D/E ratio and E score on dependent variable ROCE

Fixed-effects (within) regression — Number of obs = 255
Group variable: crossid — Number of groups = 64
R-sq:
Obs per group:
within = 0.0510 — min = 3
between = 0.0201 — avg = 4.0
overall = 0.0104 — max = 4
F(4,63) = 1.66
corr(u_i, Xb) = -0.7894 — Prob > F = 0.1713

(Std. Err. adjusted for 64 clusters in crossid)

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	-.3596968	.1876322	-1.92	0.060	-.7346498	.0152561
age	-.0257838	.0308671	-0.84	0.407	-.0874667	.0358992
risk leverage debt to equity	.1514923	.2742455	0.55	0.583	-.3965437	.6995282
e_score	.0015488	.0037063	0.42	0.677	-.0058576	.0089553
_cons	-.8120659	1.413733	-0.57	0.568	-3.637185	2.013053
sigma_u	.83199882					
sigma_e	.38248585					
rho	.82553085 (fraction of variance to u_i)due					

Table 8: Step 5- Regressing Independent variable Sales, Age of the Firm, D/E ratio, E score, S score on Dependent variable ROE

```
Fixed-effects (within) regression               Number of obs      =       255
   Group variable: crossid                      Number of groups   =        64

   R-sq:                                        Obs per group:

        within = 0.0871                                         min =         3
        between = 0.0335                                        avg =       4.0
        overall = 0.0125                                        max =         4

                                                F(5,63)            =      4.00
   corr(u_i, Xb) = -0.7005                      Prob > F           =    0.0032

                                               (Std. Err. adjusted for 64 clusters in crossid)
```

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	-.3778807	.1828698	-2.07	0.043	-.7433167	-.012444
age	-.0171726	.0306611	-0.56	0.577	-.0784439	.044098
risk leverage debt to equity	.1211826	.2657105	0.46	0.650	-.4097974	.652162
e_score	.0054736	.003486	1.57	0.121	-.0014926	.012439
s_score	-.0115388	.0037341	-3.09	0.003	-.0190007	-.004076
_cons	-.6982484	1.378188	-0.51	0.614	-3.452337	2.0558
sigma_u	.71982998					
sigma_e	.37614994					
rho	.78550736	(fraction of variance due to u_i)				

Table 9: Step 6- Regressing Independent variable Sales, Age of the Firm, D/E ratio , E score, S Score, G score on Dependent variable ROE

```
Fixed-effects (within) regression               Number of obs      =       255
Group variable: crossid                         Number of groups   =        64
R-sq:                                           Obs per group:

     within =  0.0884                                           min =         3
     between = 0.0317                                           avg =       4.0
     overall = 0.0125                                           max =         4

                                                F(6,63)            =      3.47
corr(u_i, Xb) =  -0.7330                        Prob > F           =    0.0050

                                               (Std. Err. adjusted for 64 clusters in crossid)
```

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	-.3813051	.1827311	-2.09	0.041	-.7464641	-.0161461
age	-.0195592	.0308729	-0.63	0.529	-.0812539	.0421354
risk leverage debt to equity	.1375268	.2747287	0.50	0.618	-.4114747	.6865283
e_score	.0051796	.00366	1.42	0.162	-.0021344	.0124935
s_score	-.0114163	.0037582	-3.04	0.003	-.0189266	-.0039061
g_score	.001668	.0033768	0.49	0.623	-.00508	.0084161
_cons	-.6748603	1.370903	-0.49	0.624	-3.414391	2.06467
sigma_u	.75549402					
sigma_e	.37689966					
rho	.80071765	(fraction of variance to u_i) due				

B) Step wise Hierarchical regression results for dependent variable (ROCE)

The steps discussed in the part (A) are followed, only the dependent variable is changed . Table 10 to Table 15 independent variables are added stepwise to find the if they add to the marginal variance in the dependent variable. The results show that E and S score are not significant in the model, although S score has a positive impact on the ROCE.

Table 10: Step 1 - Regressing Independent variable sales on Dependent variable ROCE

```
Fixed-effects (within) regression        Number of obs =       255
Group variable: crossid                  Number of groups =     64

R-sq:                                    Obs per group:

     within = 0.0825                                 min =        3
     between = 0.0009                                avg =      4.0
     overall = 0.0200                                max =        4

                                         F(1,63)       =    11.93

corr(u_i, Xb) = -0.0196                  Prob > F      =   0.0010

                                    (Std. Err. adjusted for 64 clusters in crossid)
```

lnroe_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	.5056178	.1464128	3.45	0.001	.2130351	.7982004
_cons	-2.069924	.0213477	-96.96	0.000	-2.112584	-2.027264
sigma_u	.51577628					
sigma_e	.32504307					
rho	.71574064	(fraction of variance due to u_i)				

Table 11: Step 2 – Regressing Independent variables Sales and Age of the firm on Dependent variable ROCE

```
Fixed-effects (within) regression        Number of obs     =       255
Group variable: crossid                  Number of groups  =        64

R-sq:                                    Obs per group:

     within = 0.1033                                 min =         3
     between = 0.0220                                avg =       4.0
     overall = 0.0205                                max =         4

                                         F(2,63)       =      7.76

corr(u_i, Xb) = -0.8421                  Prob > F      =    0.0010

                                    (Std. Err. adjusted for 64 clusters in crossid)
```

lnroce_score	Coef.	Robust Std. Err.	P>|t|	t	[95% Conf.	Interval]
sales	.4725088	.1377184	3.43	0.001	.1973004	.7477171
age	.0381769	.0195395	1.95	0.055	-.0008696	.0772234
_cons	-3.876927	.9276327	-4.18	0.000	-5.730653	-2.023201
sigma_u	.95849243					
sigma_e	.32219315					
rho	.89847747	(fraction of variance to u_i) due				

Table 12: Step 3 – Regressing independent variables sales ,age of the firm , D/E ratio on dependent variable ROCE

```
Fixed-effects (within) regression               Number of obs      =       255
Group variable: crossid                         Number of groups   =        64

R-sq:                                           Obs per group:

     within = 0.1043                                         min =         3
     between = 0.0182                                        avg =       4.0
     overall = 0.0171                                        max =         4

                                                F(3,63)            =      5.07

corr(u_i, Xb) = -0.8635                         Prob > F           =    0.0033

                                               (Std. Err. adjusted for 64 clusters in crossid)
```

lnroce_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	.481751	.1422775	3.39	0.001	.1974322	.7660698
age	.0411058	.0218773	1.88	0.065	-.0026126	.0848242
risk leverage debt to equity	.0678654	.2044983	0.33	0.741	-.3407919	.4765226
_cons	-4.052106	1.091673	-3.71	0.000	-6.23364	-1.870572
sigma_u	1.0273268					
sigma_e	.32285944					
rho	.91011146	(fraction of variance due to u_i)				

Table 13: Step 4 – Regressing Independent variables Sales, Age of the firm, D/E ratio and E score on dependent variable ROCE

```
Fixed-effects (within) regression               Number of obs      =       255
Group variable: crossid                         Number of groups   =        64

R-sq:                                           Obs per group:

     within = 0.1043                                         min =         3
     between = 0.0182                                        avg =       4.0
     overall = 0.0171                                        max =         4

                                                F(3,63)            =      5.07

corr(u_i, Xb) = -0.8635                         Prob > F           =    0.0033

                                               (Std. Err. adjusted for 64 clusters in crossid)
```

lnroce_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	.481751	.1422775	3.39	0.001	.1974322	.7660698
age	.0411058	.0218773	1.88	0.065	-.0026126	.0848242
risk leverage debt to equity	.0678654	.2044983	0.33	0.741	-.3407919	.4765226
_cons	-4.052106	1.091673	-3.71	0.000	-6.23364	-1.870572
sigma_u	1.0273268					
sigma_e	.32285944					
rho	.91011146	(fraction of variance due to u_i)				

Table 14: Step 5 - Regressing Independent variable Sales, Age of the Firm, D/E ratio , E score, S score on Dependent variable ROCE

```
Fixed-effects (within) regression        Number of obs =       255
Group variable: crossid                  Number of groups =     64

R-sq:                                    Obs per group:
     within = 0.1319                                 min =       3
     between = 0.0184                                avg =     4.0
     overall = 0.0170                                max =       4

                                         F(5,63)       =      5.98
corr(u_i, Xb) = -0.9181                  Prob > F      =    0.0001

                                (Std. Err. adjusted for 64 clusters in crossid)
```

lnroce_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	.4953292	.1411153	3.51	0.001	.2133328	.7773255
age	.0550125	.0235173	2.34	0.023	.0080168	.1020081
risk leverage debt to equity	.0961977	.1942374	0.50	0.622	-.2919547	.4843501
e_score	-.0062133	.0034282	-1.81	0.075	-.0130639	.0006373
s_score	.0074272	.0028336	2.62	0.011	.0017646	.0130897
_cons	-4.858894	1.105832	-4.39	0.000	-7.068723	-2.649066
sigma_u	1.3141795					
sigma_e	.31954859					
rho	.94417643 (fraction of variance due to u_i)					

Table 15: Step 6- Regressing Independent variable Sales, Age of the Firm, D/E ratio , E score, S Score G score on Dependent variable ROCE

```
Fixed-effects (within) regression        Number of obs =       255
Group variable: crossid                  Number of groups =     64

R-sq:                                    Obs per group:
     within = 0.1319                                 min =       3
     between = 0.0184                                avg =     4.0
     overall = 0.0170                                max =       4

                                         F(5,63)       =      5.98
corr(u_i, Xb) = -0.9181                  Prob > F      =    0.0001

                                (Std. Err. adjusted for 64 clusters in crossid)
```

lnroce_score	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf.	Interval]
sales	.4945675	.1405287	3.52	0.001	.2137432	.7753918
age	.0544816	.0238317	2.29	0.026	.0068578	.1021054
risk leverage debt to equity	.099833	.2007041	0.50	0.621	-.301242	.5009081
e_score	-.0062787	.0034993	-1.79	0.078	-.0132715	.000714
s_score	.0074544	.0028165	2.65	0.010	.0018261	.0130827
G_score	.000371	.002572	0.14	0.886	-.0047687	.0055107
_cons	-4.853692	1.108492	-4.38	0.000	-7.068838	-2.638547
sigma_u	1.3030391					
sigma_e	.32039562					
rho	.94298823 (fraction of variance due to u_i)					

FINDING AND CONCLUSION

Our research investigates the impact of ESG scores on firm's financial performance of 64 Indian firms listed in NSE for the period of four years i.e. 2020-2023. ESG scores along with other concerned variables have been collected from Eikon Refinitiv. The firm's financial performance is measured by ROE and ROCE which depict the financial performance of a company. Two different hierarchical regression analyses are performed for each of the E, S, and G factors with control variables such as D/E(Debt to equity) ratio, Sales and age of the firm. Our research findings show that there is no significant relation between the E and G pillar score with any of the firm performance's variable. A positively significant S pillar score with firm performance (ROCE) and strongly negative with (ROE). After statistically controlling for firm-specific variables such as risk and sales growth, the impact of these variables is negatively significant on the firm performance, whereas the age of the firm positively impacts the firm performance suggesting older firm have higher ROCE, all other control variable are not found significant.

IMPLICATION OF THE STUDY

It suggests that companies that invest in socially responsible practices—such as fair labour practices, community engagement, and employee well-being etc, are not only contributing positively to society but are also likely to be rewarded with better financial outcomes. This could encourage more firms to adopt socially responsible practices, leading to broader societal benefits. It is suggested that companies that integrate social responsibility into their operations not only benefit financially but also contribute positively to society. Overall, this study makes it clear the adaptability of ESG framework in India needs time, moreover it requires a decent investment to reap benefits out of it. the saturation will take time to study the concrete relationship between the concerned variables. This particular study would bridge the gap in literature, wherein the evidence from a growing economy i.e India would be taken into account. In contrast to the Developed Economies, India is at an initial stage of ESG framework adaptation, it can help finding loopholes in the framework. For the Regulatory authorities these results can be valuable for strengthening the ESG disclosure. Scrutinising the implementation of ESG would become more standardised. Global investors are now more aware about sustainability and encourage firms who follows ESG framework thoroughly, by addressing the link between ESG adaption and financial performance Indian firms can attract the global audience.

LIMITATIONS OF STUDY

The limitation includes the following -

1. Limited availability of Data – ESG data availability is an issue, transitioning and accommodating changes requires time.

2. Ambiguity in the reporting of ESG scores – The Blackbox methodology used by the Data collection sources does not follow uniform and transparent, rating provided by the agencies do not reveal the full information.

3. Model specification differences- Different variables or Indicators can be taken to test the same hypothesis, i.e. Tobin's Q can be used in place of ROCE. Results may differ by using different indicators of the variables.

SCOPE OF FUTURE RESEARCH

This study opens up new avenues for policymakers and corporate stakeholders to do their bit in caressing sustainability, India need to standardise and scrutinise the ESG framework rigorously to get desired results.

1. The consistency and transparency of data would be fruitful for future researcher to get comprehensive results.

2. Use of Artificial Intelligence can be done to applied to automate data collection, it can be used for better structuring of data.

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