COMBINING ESG RISK RATINGS AND FUNDAMENTALS OF COMPANIES FOR BETTER INVESTING

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Abstract *The environment has a major impact on not just the planet, but also on the people and the economy; nations around the world are now becoming increasingly aware of it. Investors, both retail and institutional, are interested in investing in companies that are ethical in their work and have societal concerns. Apart from just looking at the fundamentals, investors are now also looking at the impact that the company is making on the society and environment because of their business activities. This paper aims at understanding the fundamental analysis, by including ESG as one of the parameters for investment. This study focuses on 54 product companies for which the ESG risk rating data is available publically on the Sustainanalytics website. A total of 12 fundamental ratios have been identified for the study, based on their relevance and available data. The period of study is from 2011 to 2020. The objective of the study is to ascertain whether the ESG ratings influence the financial performance of the company. The study concludes that there is no correlation between the financial performance and ESG ratings.*

Keywords: *ESG, Risk Rating, Nifty, Regression, Investment*

INTRODUCTION

A total of 195 nations have signed the Paris Agreement to date, with India being the 62nd nation to sign. The main objective of the Paris Agreement is to reduce the carbon footprint by encouraging sustainable growth, and combat climate change for a sustainable future. India accounts for 7% of the global greenhouse gas emissions, making it the world's fourth largest greenhouse gas emitter. India has committed to reduce the emissions intensity per unit GDP by 33-35% below the 2005 level, by 2030 (Shah, 2018).

The environment has a major impact on not just the planet, but also on the people and the economy; nations around the world are now becoming increasingly aware of it. The impact on our planet can be seen in the form of natural disasters which have now become annual routine. Mishra et al. (2021) studied the impact of natural disaster-led shock in the stock market and found that the recurring landslides in Uttarakhand did impact the stock market returns negatively. Investors, both retail and institutional, are interested in investing in companies that are ethical in their work and have societal concerns (Shah, 2018). Apart from just looking

at the fundamentals, investors are now also looking at the impact that the company is making on the society and environment because of their business activities. Natural Resources Accounting (NRA) framework for evaluating the utilisation of natural resources has started gaining the required importance. Abhishek et al. (2021) studied the awareness levels of NRA among academicians and found that the academicians have an awareness in the Indian as well as the global context.

The ESG (Environmental, Social, and Governance) strategy of investment revolves around focussing and quantifying the non-financial parameters of a company's stock performance – environment friendliness, social responsibility, and governance. Babu et al. (2018) found that ESG investing focuses on identifying and investing in companies that are environmentally friendly, have socially responsible products and services, and operate businesses in an ethical way. The underlying motivation behind ESG investing is generating superior risk-adjusted returns from socially responsible and ethical firms, since these firms are expected to perform better and sustain longer. There are numerous advantages of investing in companies that adhere to E, S, & G standards (Mirae Asset MF, 2020).

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- They do not incur any additional costs or losses if regulation norms tighten, since adhering to tight norms requires extra practices to be incorporated and additional investments in man and machinery.

- Such companies tend to have strong risk management practices, which lower the probability of sudden/severe shock to the investor by lowering the occurrence of such events.

- An ESG compliant firm can increase its market share during regulatory changes, while other non-conforming firms struggle to abide by the protocols.

- ESG compliant firms have a better reputation and goodwill among the various investors and stakeholders.

- Companies which have good ESG scores have strong mechanisms in place, which foresee the possible regulatory changes in the future, adapt to these changes, and hence can prepare and recover at a faster pace.

Central Banks are also increasingly focussing on the relationship between financial stability and climate change risks. It is very difficult to measure the impact of climate change or the importance of business ethics in the balance sheet or in the profit and loss statement. The top 1,000 listed companies have to prepare the annual Business Responsibility Report (BRR) starting in 2021, as mandated by the Securities and Exchange Board of India. A BRR is a disclosure of the adoption of responsible business practices by a company to all its stakeholders. This will lead to more data availability, expanding the horizon for ESG funds.

Environment	Social	Corporate Governance
• Climate Change • Carbon Emission • Air & Water Pollution • Bio Diversity • Deforestation • Energy Efficiency • Waste Management • Water Scarcity	• Customer Satisfaction • Data Protection • Data Privacy • Gender and Diversity • Employee Engagement • Community Relations • Human Rights • Labour Standard	• Board Composition • Audit Committee Structure • Bribery and Corruption • Executive compensation • Lobbying • Political Contribution • Whistle-blower Scheme

Source: CFA Institute.

Fig. 1: Factors of ESG

LITERATURE REVIEW

A lot of studies have been done to compare the returns offered by companies or portfolios comprising of stocks in ESG indices, compared to other portfolios which are not a part of those indices. Hariharan et al. (2018) compared the returns of NIFTY100 ESG and NIFTY100 Enhanced ESG index with the parent index NIFTY 100 for a period of eight years, from April 2011 to March 2018, and found that the ESG indices had marginally outperformed the parent

index. In addition, the study showed that the volatility of the sustainable indices was lower compared to the parent index.

Omura et al. (2020), on the other hand, compared the returns of MSCI SRI Indices of the world, the US, Japan, and Europe, with the respective conventional indices during the COVID-19 period, and found that the sustainable indices perform better before, during, and after economic downturns, except in Japan. The study reasons that ESG activities of the companies help build a strong brand image and customer/shareholder loyalty, which makes those companies perform better, whereas competitors face issues. The study further shows that the performance of ESG ETFs (Exchange Traded Funds) is inferior compared to the benchmark indices. This is because of the mixture of positive/negative screening strategies of various funds, cancelling out their performance superiority. Other reasons could be the fees charged by the ETF funds or the time required by the funds to reflect changes in benchmarks.

Pollard et al. (2018) demonstrated that using ESG risk premium to identify stocks provides better returns compared to selecting stocks using other risk premia methodologies. This means that ESG indicators can be used to identify stocks that will perform better than others, irrespective and independent of other indicators. Pollard et al. (2018) added to Fama and French's 'five-factor asset pricing model' an ESG risk premium factor that covers the uncertainty present in the former model and produces a higher long-term average expected returns distribution.

Dorfleitner et al. (2015) compared the ESG ratings, and the methodology used to rate the companies, of three independent ESG rating providers – ASSET4 by Thomson Reuters, Kinder Lydenberg Domini & Co. (KLD) by MSCI & Sustainability Asset Management Group (SAM), and the ESG data set of Bloomberg Sustainability. The study showed that the three rating agencies had varied methodologies, producing varied ESG ratings for different companies. The ESG rating of any single agency may not provide a clear correlation to the financial performance of the company; however, combining the ESG ratings of different agencies can provide a better understanding in selecting sustainable and better performing stocks.

Torre et al. (2020), in their study, used the information that ESG information influences stock markets more sensitively for companies with average ESG scores, i.e., not too high nor too low, and that stock markets react more strongly to improvement in ESG rather than a drop in ESG performance. Research has been done to analyse the performance of companies in the Euro Stoxx 50 index, according to their ESG scores. The research shows that the

correlation between the ESG index and stock returns is weak and the excess returns are not significant enough. They also showed that a few stocks, especially in sectors like energy and utilities that are affected greatly by ESG ratings, do have a high correlation between the ESG values and stock returns. A similar study done by Diaz et al. (2020) shows that the impact of ESG ratings on companies varies across the industries, and companies with high ESG scores outperform the benchmark indices, whereas companies with low ESG scores underperform the benchmark indices.

Duuren et al. (2015) argued that ESG investing is very similar to fundamental investing, in a way that the ESG-based analysis similar to fundamental analysis is done at the company level rather than the industry level, and emphasis is on the long-term performance of the company, rather than short-term. ESG-based analysis emphasises on the non-financial dimensions of the corporate performance, unlike fundamental analysis; the former can be used as an independent method of stock selection screening rather than just an additional parameter to look at while investing.

Gopal (2021) analysed the participation of employees in framing the sustainability reporting practices. The study confirmed that the performance was linked with standard and appropriateness of environmental disclosures.

Mondal et al. (2021) conducted a study to assess the extent to which Indian SMEs followed the sustainability reporting guidelines. It was concluded that the disclosure levels were moderate.

Chawla et al. (2020) focussed on the sustainability of earnings by comparing the intensity of operating earnings vis-à-vis that of non-operating earnings. They showcased that operating components of earnings outperformed non-operating ones, thereby proving a positive relation between operating earnings and sustainable earnings.

Maqbool et al. (2018) studied how CSR activities affect a company's performance. Stocks of the Indian banking sector were taken into consideration and a five-factor model was used in the study, which included return on equity (ROE), return on assets (ROA), net profit (NP), price to earnings ratio (PE), and Sharpe's ratio (SR). The study showed that CSR activities positively impact the stock returns and the profitability of the company. A similar study by Amuktha et al. (2019) on the manufacturing sector of Indian companies shows that CSR expenditure has a positive impact on the company's performance and financials.

Griffin et al. (1997) examined the relationship between CSR and corporate financial performance (CFP). While measuring CSR, they incorporated four different types of measures and compared each one of them with the financial performances of the companies and concluded that no relation exists between them. Abbott et al. (1979) also compared the social involvement of the firms with profitability and inferred that the social involvement of the firms does not increase or decrease the investor's total rate of return. McWilliams et al. (2000) initially compared CSR and CFP, which showed an upward trend of the financial impact on CSR; however, when R&D intensity was incorporated, the model showed a neutral relationship. Ullmann (1997) argued that there is an inconsistent relationship between social disclosure and social performance and economic performance of corporations; because of the varied interposing variables between CSR and CFP, that relationship hardly exists.

NIFTY100 ESG Index is designed based on the underlying companies in the NIFTY 100 index and reflects the performance of the companies based on the environmental, social, and governance (ESG) score. The weight of each constituent in the index is calculated from its free float market capitalisation and ESG score. To form part of the NIFTY100 ESG Index, stocks should satisfy the following eligibility criteria [1]:

- Stocks should form part of NIFTY 100.
- Companies should have an ESG score.
- Companies with a controversy category of 4 and 5 will be excluded (scale: 1-5, category 1 being the least controversial).
- Companies engaged in the business of alcohol, tobacco, controversial weapons, and gambling operations shall be excluded. Controversial weapons include biological weapons, chemical weapons, cluster bombs, and anti-personnel mines.

ESG risk score measures the risk of material financial impacts driven by ESG factors. ESG risk score has two dimensions: exposure and management.

- *Exposure:* It is a set of ESG-related risk factors that poses a potential financial risk for companies. It is the company's vulnerability or susceptibility to ESG risk. For example, an oil/gas company has a high vulnerability to environmental risk, whereas consumer technology product companies are more vulnerable to social risks like privacy.
- *Management:* It is the company's commitments and actions that demonstrate how a company approaches and handles an ESG issue.

The ESG risk rating specifies the remaining unmanaged ESG risk exposure of a company, after taking into account its management of such risks. The rating is measured on a 0-100 scale, with 0 indicating that a company has no unmanaged ESG risk and 100 indicating the highest level of unmanaged

ESG risk. A key component of Sustainalytics ESG research is assessing a company's involvement in incidents and controversies which may potentially imply higher risk to the investors. Controversial events are scored on a scale of one to five, where 'Category 1' controversy event has a low impact, whereas 'Category 5' controversy event has the highest and most severe impact on stakeholders.

METHODOLOGY

This study focuses on 54 product companies for which the ESG risk rating data is available publically on the Sustainalytics website. A total of 12 fundamental ratios have been identified for the study, based on their relevance and available data. The period of study is 2011 to 2020, depending on the data availability when this study was conducted. Data for ESG risk rating and ratio analysis has been collected from secondary sources. Data for ESG risk rating has been collected from the Sustainalytics website, and for fundamental ratio analysis, data has been collected from the Screener website.

The dependent variable in the study is the financial performance of the companies. In this study, a total of 12 financial ratios have been identified for evaluation. Factor analysis is used for dimension reduction and construction of a composite index of performance. Factor analysis has been performed on SPSS. The general equation for factor score is given as:

$$F = Y_1\lambda_1 + Y_2\lambda_2 + Y_3\lambda_3 + \ldots\ldots\ldots\ldots + Y_n\lambda_n + \delta \quad (1)$$

$$\therefore F = \left(\sum_{j=1}^{n} Y_j\lambda_j\right) + \delta$$

Here, Y_j are the fundamental ratios under consideration, λ_j are the factor loadings (constants) for the respective ratios, and n represents the number of fundamental ratios ($n = 12$ in this study). δ represents the error term.

After calculating the factor scores for all the companies, each factor has been compared with the ESG ratings of the company to check if there is any correlation between them. From here on in this paper, we will refer to the financial ratios as variables.

ANALYSIS AND RESULTS

The descriptive statistics of the variables considered in the study are shown in Table 1. The first requirement of factor analysis is a high correlation between the variables. The correlation matrix formed between the variables has

a determinant value of 0.0004, which is greater than 1.0 x 10^{-6}, and hence acceptable. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is another method to show the appropriateness of the data. The KMO value is 0.552, which is greater than the required value of 0.5. Bartlett's test of sphericity is the third method to check for appropriateness. The Chi-square value of 4019.841 is significant, with a significance value of less than 5%, as required. All these tests indicate that factor analysis can be applied to the variables for dimension reduction (Maqbool, 2018).

Table 2 indicates the rotated factor matrix as a result of factor analysis, which shows that the analysis has extracted five factors with the grouping of variables as shown in the table. Within factor 1, high weightage is given to ROE, ROCE, and ROA. Factor 2 has given high weightage to proprietary ratio and debt equity ratio. Factor 3 is based on net profit ratio and EPS. Similarly, factor 4 has high loadings for PE ratio and current ratio, and factor 5 is based on the measure of sales growth, net profit growth, and OPM. Factors that have eigenvalues greater than 1 are considered for this study (Maqbool, 2018), as shown in Table 3. The index for the present solution accounts for 74.085% of the total variance. It shows how the total factor solution represents the variables.

Table 1: Descriptive Statistics

Variable Description	Variable Name	Mean	Std. Dev.
OPM	Y_1	18.78%	12.45%
Current Ratio	Y_2	1.642	1.061
Debt Equity Ratio	Y_3	0.65	0.723
Proprietary Ratio	Y_4	47.53%	18.33%
Net Profit Ratio	Y_5	12.17%	34.28%
ROE	Y_6	22.36%	18.87%
ROA	Y_7	10.71%	8.69%
ROCE	Y_8	26.68%	24.46%
EPS	Y_9	46.82	84.35
PE Ratio	Y_{10}	28.13	45.49
Sales Growth	Y_{11}	15.27%	101.81%
Net Profit Growth	Y_{12}	5.45%	106.18%

Table 2: Rotated Factor Matrix

Variables	Factors				
	F_1	F_2	F_3	F_4	F_5
ROE	0.973				
ROCE	0.970				
ROA	0.811				
Proprietary Ratio		0.927			
Debt Equity Ratio		−0.882			

Variables	Factors				
	F_1	F_2	F_3	F_4	F_5
Net Profit Ratio			0.851		
EPS			0.650		
PE Ratio				0.873	
Current Ratio				0.809	
Sales Growth					0.717
Net Profit Growth					0.612
OPM					0.466

Table 3: Total Variance Explained

Factors	Initial Eigen Values			Rotated Sums of Squared Loadings		
	Value	% Variance	Cumu-lative %	Value	% Variance	Cumul-ative %
F_1	3.620	30.165	30.165	2.824	23.535	23.535
F_2	1.749	14.577	44.742	1.901	15.843	39.378
F_3	1.298	10.817	55.560	1.545	12.873	52.251
F_4	1.128	9.399	64.959	1.505	12.544	64.795
F_5	1.095	9.126	74.085	1.115	9.290	74.085
F_6	0.950	7.913	81.997			
F_7	0.899	7.488	89.486			
F_8	0.704	5.870	95.356			
F_9	0.341	2.839	98.195			
F_{10}	0.139	1.158	99.353			
F_{11}	0.046	0.832	99.735			
F_{12}	0.032	0.265	100.00			

For each company, a vector of factor scores for each of the five factors has been calculated using equation 1. In equation 1, the error term is ignored as it is the unexplained variance. The factor loadings (λ) are given by the factor score coefficient matrix, as shown in Table 4. The value of Y is the average value of the corresponding variable of a company. For example, Y_1 (for company X) = average OPM for company X over the study period.

**Table 4: Factor Score Coefficient Matrix**

	F_1	F_2	F_3	F_4	F_5
OPM	−0.039	−0.053	0.134	0.121	0.413
Current Ratio	−0.080	−0.052	0.168	0.517	−0.020
Debt Equity Ratio	−0.033	−0.505	0.172	0.048	0.046
Proprietary Ratio	−0.167	0.545	0.035	0.006	0.038
Net Profit Ratio	0.004	−0.184	0.614	−0.011	−0.018
ROE	0.395	−0.145	−0.047	0.012	0.003
ROA	0.244	0.062	0.118	0.000	0.008

	F_1	F_2	F_3	F_4	F_5
ROCE	0.385	−0.073	−0.094	0.015	−0.022
EPS	−0.092	0.084	0.450	−0.113	−0.019
PE Ratio	0.104	0.000	−0.270	0.626	−0.001
Sales Growth	−0.041	−0.027	−0.021	−0.039	0.652
Net Profit Growth	0.035	0.055	−0.106	−0.051	0.551

After calculating the five factor scores for each company, a correlation test has been performed between the factor scores and the ESG ratings of the company. The study shows that there is no significant relationship between the financial performance and ESG ratings. The R^2 values confirm the absence of any significant relationship. The results for the same are displayed in Table 5 and Fig. 2.

Table 5: Correlation and R^2 Results

	Factors				
	F_1	F_2	F_3	F_4	F_5
Correlation	−0.239	0.382	0.308	0.200	−0.389
R^2	0.0571	0.1456	0.0949	0.0401	0.1516
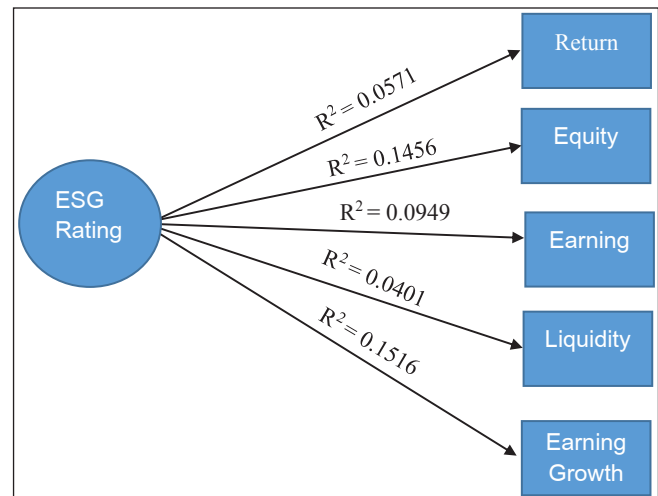
Fig. 2: Regression Result

CONCLUSION

As per the literature review, ESG compliant stocks have provided good returns in the past, which means that having an additional check of ESG scores will benefit the investors as they can make a more informed decision. However, very little study is done to check if a good ESG score does result in a good financial performance of the company. In this study, we can observe that the correlation between the fundamental ratios and ESG ratings is very low, and thus, they can be considered uncorrelated. This means that high or low ESG

ratings will not influence the fundamentals of the company. Hence, ESG ratings can be used as an independent unit of measurement along with the fundamentals of the company, as they do not have an influence over each other.

DISCUSSION

The results of this study are consistent with some of the previous studies (Abbott et al., 1979; Griffin et al., 1997; McWilliams et al., 2000; Ullmann, 1985). One of the reasons, as per the literature review, is that the company does not profit by being socially responsible and that profitability is linked to its business model and management efficiency. Hence, CSR activities cannot be viewed as adding profitability to a company.

This study, firstly, takes consideration of only 54 product companies; however, a more detailed study of different companies and sectors needs to be undertaken to provide any generalised results. The study has been undertaken with the limited data of ESG ratings of only a few companies. In the future, with the availability of ESG scores of more companies, a more detailed study needs to be undertaken. Secondly, a comparison of financial performance and ESG should be carried out on different industries, taking them one at a time (Griffin, 1997). Thirdly, this study considered the ESG score from only one rating agency, and as per Dorfleitner (2015), a triangulation of ESG scores from different agencies will give more enhanced results.

SCOPE FOR FURTHER STUDY

The current study should be followed by a comparison of stock market performance of high ESG rated companies vis-à-vis unrated/low-rated companies.

The stock market is a gauge of the economic health of a country. The relationship between climate change risk and economy, as well as the stock market, should be studied. This is in line with the environmental aspect of ESG-based investing. ND-GAIN vulnerability index and readiness index can mirror the climate risk. Macro-economic variables such as GDP, GST collection, unemployment rate, interest rate, and others, along with the stock market, can mirror the economy.

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