

A Comparative Study of Bse Carbonex & Bse Esg Indices: Performance Appraisal and Future Prospects

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Abstract:

As a part of society, business entities are focusing not only to the profit making, but also towards the conservation of the environment. Nowadays, Sustainable development is the need of time. And in this regards, all the companies are trying their best and cutting their carbon emission. For the purpose of it, stock exchanges are also taking some measures. They prepare several indices on the basis of certain parameters, like BSE Carbonex, BSE ESG, BSE 100, BSE Greenex and many more. The objective of this paper is to examine the performance of BSE Carbonex vis-à-vis performance of BSE ESG index. Six years monthly data from 1 November 2017 to 31st August 2023 has been taken. For the purpose of analysis Sharpe ratio, Treynor ratio and Jensen's Alpha have been applied. The study found that BSE-Carbonex stocks are better option to investors as comparison to BSE-ESG stocks. Companies that understand the risks and opportunities, and position themselves well in relation to them, will deliver the higher long run returns than those which fail to adopt.

Keywords: BSE Carbonex, BSE ESG index, Sharpe Ratio, Treynor Ratio, Jensen's Alpha

1. INTRODUCTION

In the era of expansion and profitability, all the sustainable and environmental goals put aside by the business firms. Now-a-days, businesses are focusing only the increment of its net worth and shareholders wealth. In recent years, world has experienced so many problems related to the climate. So there is a need arises for the climate control and conservation of environment. It is the need of time to promote the sustainably responsible business. To promote the sustainable practices in business, regulating authorities are making more and more efforts. In this regards, stock markets are also taking initiatives. The concept of Green capital market was introduced in the year 2011 with the LIVING PLANET GREEN TECH EUROPE INDEX 1. In the connection of it, BSE India launched BSE Greenex and BSE Carbonex in 2012. After it, BSE ESG launched in 2017. The companies included in these indices are based on the Environmental performance & sustainability contribution.

The perception of the investors have changed in the last decade, people now prefer to invest in the green stock. For the long term investment and promote sustainability, they are investing in those companies which are doing well for environment and sustainability. This paper focuses on the performance of the ESG stocks and Carbonex.

BSE-ESG index is a special type of index. It is designed to measure the securities that meet sustainability investing criteria of risk and performance. It was started in the year 2017 by BSE.

BSE-Carbonex is a first index of its kind, which maintains the track record of the performance of the companies based on the commitment of mitigating the risks arising from climate change.

This section of the paper analyses the previous study done in this area;

Swati Sharma in her paper, ‘BSE- Greenex: A Pre & Post Covid-19 Empirical Study’, inferred that Greenex was showing consistency in return over the period of time and index was better in Post COVID period.

Narendra Pal Singh, PriyaMakhija and Elizabeth Chacko in their paper, ‘Sustainable investment and the COVID-19- volatility analysis of ESG index’, inferred that there is no effect of pandemic on return and volatility of S & P ESG index.

Ting Li and Kai Wang in the paper titled, ‘ESG: Research Progress and Future Prospect’ inferred that ESG factors are the important part of the company policies, as they are affecting the performance of the company directly.

Khalid Alsaifi, Marwa Elnahass and Aly Salama in their paper, ‘Carbon Disclosure and Financial Performance: UK Environmental policy’, concluded that voluntary carbon disclosure is positively associated with firm financial performance.

Monika Kadam in her research paper ‘GREENEX (Carbon Index): A Comparative Study On Returns of BSE-Greenex, BSE-Sensex & BSE-Sensex 500, inferred that investment in the Green Stock gives more consistent and less volatile return.

Abhay Raja in his paper, ‘Sustainable business practices and stock performance: a study of Greenex and its Constituents’, told that the stock of the Greenex company are not doing well as comparison to other index.

E. Divya and Swarna Shirisha, ‘A Study of Greenex (BSE)’, inferred that in near future Greenex Could be the better option for investors.

MM Goyal and Khushboo Aggarwal in their research paper, ‘ESG index is good for socially responsible investor in India’, told that the Green Stocks are giving more abnormal return than those of Blue chip companies.

Ruchika Bammi in her paper, ‘BSE GREENEX IMPACT ON INDIAN STOCK MARKET PERFORMANCE: AN EVENT STUDY’, inferred that the BSE Greenex gave negative return during the event study, which was against the expectation of the researcher.

2. NEED OF THE STUDY

The above discussion presents that ESG factors are directly linked to the performance of Company and carbon disclosure practices helps in the improvement of the financial performance of Company. Few studies have been conducted in the Indian context and no longitudinal study has been conducted to know the performance of BSE CARBONEX and BES ESG index. Hence there is need to know the performance of BSE CARBONEX as compared to the performance of BSE ESG index. This study aims to analyse the returns of two indices i.e. BSE CARBONEX and BSE ESG Indices.

3. OBJECTIVES OF THE STUDY

The present study is carried out for analysis of the two indices by comparing the return of the two indices (BSE CARBONEX and BSE ESG) to find out which is profitable to invest in. For this purpose the data of the Six Financial Years, i.e. 2017-18 to 2022-23 have been collected and analyzed on monthly basis.

4. RESEARCH METHODOLOGY

The present study is based on the profitability analysis of two indices with the help of some certain ratio. For this purpose the data on the basis of monthly return has been collected for the six years. The details of methodology are given below:**Sample indices:** BSE-ESG & BSE-Carbonex indices are taken.

Duration of study: 1 November, 2017 to 31 August, 2023.

Following formulae have been used to calculate

A. **AVERAGE RETURN:** The daily return has been calculated to the investors. After it, mean, standard deviation has been calculated for both the indices. For this following formula has been used;

$$AR = (R_t - R_{t-1}) / R_{t-1}$$

B. **SHARPE RATIO:** Economist William F. Sharpe propounded this ratio in 1966. It is a mathematical equation to measure the risk adjusted performance of an investment. Sharpe ratio considers both systematic as well as unsystematic risk to check the performance. It is calculated by comparing portfolio return with the risk free rate of base index.

$$Sharpe = (R_P - R_F) / S.D.P$$

C. **TREYNOR RATIO:** This ratio evaluates the performance of a portfolio based on the systematic risk of a fund. This ratio is used to examine how well a portfolio outperforms the Equity Market as a whole. It helps to assess the excess return expected for each unit of risk.

$$Trenyor\ Ratio = (R_P - R_F) / BETA_P$$

D. **JENSEN’S ALPHA:** This formula is used to calculate the return on a portfolio in excess of its theoretical expected return. In other words, it is the difference between actual return of the portfolio and those that could have been earned on a benchmark portfolio with the same amount of market risk.

$$Jensen's\ alpha = R_F + BETA * (R_P - R_F)$$

Where,

AR= Average return

R_t = Closing price of the month

R_{t-1}= Closing price of the previous month

R_P= Mean return of the portfolio

R_F= Mean return of the base index

5. DATA ANALYSIS AND INTERPRETATION

Table 1: Descriptive statistics of the BSE-ESG and BSE- Carbonex

	BSE-ESG	BSE-CARBONEX
Mean return in percentage	2.01465	2.395443
Standard deviation in percentage	0.08702	0.075616

Standard error mean	0.82248	0.20268
Kolmogorov-Smirnov test	0.2695	0.0892
N	25	25
Correlation	0.974631	
Significance	0.1135	

Average monthly return of BSE- ESG was 2.014 with the S.D. 0.087, while the Average monthly return of BSE- Carbonex was 2.395 with the S.D. 0.075, it means BSE- Carbonex stocks can be a better option as they are providing more return. To check its significance, normality test was done and it was found that one series was not normal and second series was normal. And there is a positive correlation between both the series.

Table 2: Test for Equality of Means

	T-Test Statistic	df	Significance 2 tailed
BSE-ESG & BSE- Carbonex	0.9628	46	0.3865
	Mann- Whitney test Significance value		0.4263

As both the series are not normal, so to test the equality of mean both parametric and non-parametric tests are applied. The result of both tests is similar. The null hypotheses of no significance difference between returns of both the indices was failed to reject according to independent sample T-test and Mann- Whitney test. Hence there is no significant difference in the average return of the portfolios.

Table 3: Portfolios Performance Analysis

	BSE-ESG	BSE-Carbonex
Portfolio Beta	1.3749	1.1334
Treynor's ratio	1.0946	1.6638
Jensen's alpha	-0.5642	-0.6517
Sharpe's ratio	1.7294	2.4939

The Portfolio beta of BSE-ESG is more volatile as comparison to BSE-Carbonex, it will result into good if the market goes up, but in case of market goes downward it will result into more decrease in the prices of the stocks. It means BSE-ESG stocks are more sensitive to the market movement. Treynor's performance and Jensen's alpha indicate that the BSE-Carbonex is better option, and provide good return to the investors. If we look at the Sharpe's ratio, it is also indicating that the value of BSE-Carbonex is more than that of the value of BSE-ESG. It indicates the lower value of BSE-ESG index.

6. FINDING AND CONCLUSION

The result of the study is interesting. Mean return of both the portfolio are close enough. BSE-Carbonex stocks are better option to investors as comparison to BSE-ESG stocks. As per Treynor's performance and Jensen's Alpha BSE-Carbonex is better option as it proves the better return to investors. Here in

this paper, statistical test are applied only on the return of the portfolio, but the performance of the portfolio also affected by the market return, risk free return, market beta and other factors. But indices are much more reliable if we see the portfolio performance results.

According to Sharpe performance, BSE-Carbonex is better option as comparison to BSE-ESG. It can be inferred as that while investing or trading the investor will see whether the company is BSE-Carbonex or BES-ESG stock company because BSE-ESG is more volatile as compared to BSE-Carbonex.

It is concluded that Investors prefer to invest in BES-Carbonex Indices. BSE-Carbonex incorporates forward looking criteria that assess the potential future consequences of climate change and economic responses to it. Companies that understand the risks and opportunities, and position themselves well in relation to them, will deliver the higher long run returns than those which fail to adopt.

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