DOES THE PERFORMANCE OF VARIOUS ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FUNDS DIFFER? A STUDY WITH SPECIAL REFERENCE TO SBI ESG FUNDS

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ABSTRACT

Purpose*: This research paper aims to evaluate the performance of six (6) ESG funds offered under different names by SBI Funds Management Ltd.*

Design/Methodology/Approach*: The study has collected annual returns data (in %) of six ESG funds from 2014 to 2022. ANOVA test and t – test are used to test whether there is any statistical difference in the performance of these ESG funds.*

Findings*: It is found after the analysis that there is no statistically significant difference among the performance of these six ESG funds of SBI at 5% level of significance.*

Research Limitations and Implications*: Though SBI is offering 6 types of ESG funds, this research paper found that there is no statistically significant difference in providing returns to the investors of these funds. It means that whatever may be the fund, an investor is choosing the returns obtained by him from that ESG fund is statistically equal at 5% level of significance. It implies that an investor has to choose the ESG fund based on his requirements.*

Originality*: In this research paper, the authors have used complete enumeration method of selecting a sample i.e. six out of six ESG funds of SBI are included in the sample. BSE Morningstar website which provides the real time data on various mutual funds is used to retrieve the data on annual returns in percentage. The findings of the paper are in tune with the original data and recommendations made are useful to individual as well as institutional investors.*

Key Words: ESG Funds, SBI, Performance Evaluation, ANOVA, T-Test.

INTRODUCTION

The Baby Boomers have shaped this World for decades. Now, Generation X and Millennials are shaping the financial, business, and even governance landscapes through ESG investing. For example, the green bond market which is based on ESG investing is growing by leaps and bounds due to the investment preferences of Generation X and Millennials. ESG investing has grown to the extent of surpassing the traditional markets in performance.

One third of the funds in USA are managed under ESG criteria. The mint report mentioned that the ESG funds across the World have attracted USD 168.73 Billion in the year 2020. Half of the fund flows are into ESG in European Union in 2021. Bloomberg Intelligence has estimated that ESG investing may surpass USD 41 trillion AUM in 2022. There is no sign of slowing down in this trend in the near future.

In case of India, ESG funds stood at Rs 12,447 crores as of March 2022. The fund

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management houses of SBI, ICICI Bank, Axis bank, and HSBC et al. have launched ESG mutual funds in India to tap this market with different schemes. In this context, a need is felt to conduct a research study on ESG fund schemes in India with an objective to evaluate their performance. The following section provides an overview of ESG funds, current scenario and challenges of ESG funds in India followed by the need for ESG funds in India.

An Overview of ESG Funds

ESG funds are thematic mutual funds that invest in socially responsible companies by evaluating the environmental (E), social (S), and governance (G) practices of the companies. ESG funds invest in the companies which focus on sustainable development by complying with ESG norms. ESG investing is also called as sustainable investing, responsible investing, impact investing, or socially responsible investing (SRI). The ESG fund managers consider the following dimensions before making the investment in any company.

Environmental (E) Criteria: Environmental criteria include;

1. Corporate climate policies, energy usage, pollution, natural resource conservation, and treatment of animals.
2. Considerations may include direct and indirect greenhouse gas emissions, management of toxic waste, and compliance with environmental regulations.
3. Criteria also include the assessment of environmental risks a company and the strategies of that company in managing these risks etc.

Social (S) Criteria: Social criteria include;

1. Company’s relationships with stakeholders.
2. Does it hold suppliers to its own ESG standards?
3. Does the company donate a percentage of its profits to the local community?
4. Does the company encourage employees to perform volunteer work in local community?
5. Do workplace conditions reflect high regard for employees’ health and safety?
6. Does the company take unethical advantage of its customers? etc.

Corporate Governance (G) Criteria: ESG governance criteria include;

1. Does the company feel accountability towards its shareholders?
2. Does the company use accurate and transparent accounting methods?
3. Does the company pursue integrity and diversity in selecting its leadership?
4. Does the company avoid conflicts of interest in their choice of board members and senior executives?
5. Does the company use political contributions to obtain preferential treatment, or engage in illegal conduct? etc.

Current Scenario of ESG Funds in India

Globally, there are more than 3000 ESG mutual funds available with over 1 trillion assets under management. But, this concept is still new to Indian investors. The data from Morningstar India shows that the Indian ESG funds stood at Rs. 12,447 crore as of March 2022, up from Rs 2,268 crore in March 2019. It means that there is a fivefold jump in ESG funds in the last four years.

Further, Bombay Stock Exchange (BSE) has introduced the S&P BSE 100 ESG Index and National Stock Exchange (NSE) has introduced the Nifty 100 ESG Index to reflect the performance of 100 companies based on ESG scores. NSE also has the Nifty 100 Enhanced ESG Index in which the companies with more than 50% ESG score are included. Recently, a new index – ‘*Nifty 100 ESG Sector Leaders’* was launched by NSE in June 2020, which

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tracks the performance of select large – cap companies within each sector of NIFTY 100. Research firms like Morningstar, MSCI, Sustainalytics et al also have their own ESG indices. The major ESG funds in India are;

1. SBI Magnum Equity ESG Fund
2. Axis ESG Equity Fund
3. ICICI Prudential ESG Fund
4. Aditya Birla Sun Life ESG Fund
5. Kotak ESG Opportunities Fund
6. HSBC Global Equity Climate Change Fund
7. Quantum India ESG Equity Fund
8. Quant ESG Equity Fund
9. Mirae Asset ESG Sector Leaders ETF
10. Invesco India ESG Equity Fund

Challenges of ESG Funds (Investments) In India

The following are the some of the challenges that ESG investments currently facing in India.

Lack of Awareness: ESG investing is slowly gaining popularity among investors, but many of the investors don’t have much awareness on ESG benefits.

Traditional Mindset of Investors and Fund Managers: Many investors and fund managers think that assessing ESG criteria of the companies is an additional exercise that is not required while making investment. This, mindset acts as an obstacle in the growth of ESG investing in India.

Absence of Quality Data on ESG Parameters of Companies: Concrete data about a company’s ESG performance is often procured through an analyst or a fund manager, sustainability report of organizations, and other documents like annual reports, news articles, media releases, etc. For investors, finding concrete data on ESG of any company can be tedious and often inaccurate.

Absence of Measurement Standards: The Indian market currently lacks standardization around ESG investing. There is a lack of standardization in data collection, measurement standards, and methodology used while reporting.

Need for ESG Funds in India

ESG theme is rapidly evolving in India. The government of India is taking a lot of steps to lay the ground for ESG investing. However, there is a need to have ESG funds in India due to following reasons.

If India needs sustainable growth, ESG funds are very much essential because the companies with high ESG scores are expected to deliver long term sustainable growth.

If India wants to bring a culture of good corporate governance, ESG funds are instrumental because these funds invest only in those companies which have acceptable corporate governance practices, obeying the law, and transparent and ethical in their dealings with all the stakeholders.

If India really wants to instill CSR among companies, ESG funds are handy in realizing this dream because ESG funds invest only in those companies which have the culture of giving back to society and work for the welfare of every section of society.

ESG funds are also helpful in building the strong employee and customer relationships by the companies because ESG funds invest only in those companies which are good to their employees as well as to their customers. Hence, these funds are needed in India.

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REVIEW OF LITERATURE

Das et al (2018) have used Fama-French 5-factor model to examine the risk-adjusted performances of Socially Responsible Mutual Funds (SRMF) relative to the market over a 12-year (2005–2016) period. This study also examined whether the ESG ratings assigned to the SRMF signal the fund performance over time. The results indicate that the socially responsible mutual funds have underperformed in the market during the 2005 – 2016 period. Furthermore, the results indicate that the socially responsible mutual funds with higher ESG ratings outperformed the socially responsible mutual funds with lower ESG ratings during the Great Recession period.

Steen et al. (2019) aimed to analyze the relationship between Morningstar's ESG ratings and the performance of 146 mutual funds domiciled in Norway. Dividing the sample into ESG quintiles, they found no evidence of rating level effects, nor found any abnormal risk-adjusted returns. However, they found a recurring notion of a geographical bias in the distribution of sustainability ratings. Analyzing the European categorized funds separately, they found significantly higher returns and positive risk-adjusted returns for the top ESG quintiles.

Gerard (2019) has conducted a review of existing literature on ESG and Socially Responsible Investment (SRI) with a special focus on fixed income investments. He found that most of the academic research is focused on the link between corporate CSR and ESG activities, investors' SR engagement and stock returns and firm value. Very few studies examine the link between firm ESG policies and bond prices, risks and returns, and the performance of SRI funds. The studies linking CSR to firm value suggest that higher CSR leads to higher corporate value, higher equity returns and lower risk, enhancing the general collateral value of the firm. Besides, while issuers' ESG excellence may have led to both their equity and debt outperforming those of poorer ESG issuers in the 90's, this out-performance halved in the first part of the 2000's and completely disappeared after the financial crisis. Markets seem now to largely price ESG performance in equity and bond prices.

Plagge & Grim (2020) have made an empirical attempt to investigate the performance characteristics of investable ESG equity funds. The dataset comprises index and active equity mutual funds and exchange-traded funds with a US investment focus that indicate the use of ESG factors in their investment process and extends over a period of 15 years (2004–2018). The empirical results are rather mixed. The authors find substantial cross-sectional dispersion in performance among funds. After controlling for style factor exposures, the majority of funds in any of the tested ESG categories does not produce statistically significant positive or negative gross alpha. An industry-based performance contribution analysis reveals that systematic differences in allocations relative to the broad market exist. However, their median contribution to performance is close to zero over time. Overall, return and risk differences of ESG funds can be significant but appear to be mainly driven by fund-specific criteria rather than by a homogeneous ESG factor. As a result, investors would be better served by assessing investment implications on a fund-by-fund basis.

Folger Laronde et al (2020) conducted a study with a research interest to explore whether responsible investments (RI) are resilient during the economic downturn caused by crises such as COVID-19. They have used ANOVA and multivariate regression models. They analyzed the differences and relationship between the financial returns of ETFs and their ESG ratings during the COVID-19 pandemic-related financial market crash. The study found that higher levels of the sustainability performance of ETFs do not safeguard investments from financial losses during a severe market downturn. These results contribute to the research by exposing weaknesses of current sustainability scores and rating methods.

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Abate et al (2021) conducted a study with an aim to verify whether funds with high ESG ratings outperform funds with low ESG ratings, considering the risks taken, including higher moments, and costs borne by investors. They have analyzed a sample of 634 European mutual funds. By using data envelopment analysis, the study provides evidence of the superior efficiency of funds investing in high ESG-rated securities.

Domanović (2022) has investigated whether a relationship exists between ESG performance indicators and financial performance measures in the public enterprises in the energy sector of Republic of Serbia and examined whether the application of the ESG indicators implies better financial performance. He selected four large Serbian companies in the energy sector and the financial performance indicators considered are ROA, ROE and economy ratio. The results show that the public enterprises in the energy sector of the Republic of Serbia mainly report on traditional financial measures in their annual financial statements. One of them applies all ESG indicators and the others do it partially. However, no direct and positive correlation between ESG indicators and financial performance measures could be found.

Raghunandan and Rajgopal (2021) in their study attempted to verify whether ESG mutual funds actually invest in firms that have stakeholder-friendly track records. Using a comprehensive sample of self-labeled ESG mutual funds (as identified by Morningstar) in the United States from 2010 to 2018, they found that these funds hold portfolio firms with worse track records for compliance with labor and environmental laws, relative to portfolio firms held by non-ESG funds managed by the same financial institutions in the same years. The researchers show that ESG scores are correlated with the quantity of voluntary ESG-related disclosures but not with firms' compliance records or actual levels of carbon emissions. They concluded that socially responsible funds do not appear to follow through on proclamations of concerns for stakeholders.

Mittal & Bhasin (2021) have undertaken a research work to examine the performance of ethical funds in comparison to the mutual funds that have been serving the investors with the profit motive. They have studied 137 socially conscious mutual funds and 137 traditional funds which are closely matched based on age, objective and size. A comparison was drawn between the ESG funds and matched conventional mutual funds of the five emerging Asian countries namely, China, India, Thailand, South Korea, and Taiwan. The results show that for China, the last 5 years returns are significantly higher for the ESG funds. In India, ESG funds have performed better in terms of generating returns versus the index. In South Korean markets, the matched conventional funds have performed significantly. In Thailand also, the matched conventional funds have outperformed. In Taiwan there is no significant difference between the performance of ESG funds and the matched funds.

Sarkar (2022) conducted a study with an aim to investigate the growth of ESG funds in India as well as to analyze the performance of existing funds in the category. The study found a phenomenal growth of these funds in terms of number of schemes, average AUM and inflow. Based on risk adjusted performance metrics, the study reveals that majority of the funds have beaten the market portfolio in 2021 as well as for the period since inception.

Gupta (2022) has undertaken a study with an objective to analyze the growth of ESG mutual funds in India and evaluate their performance using standalone return and risk measures as well as widely recognized risk-adjusted measures, namely, Sharpe Index, Treynor Ratio, Sortino Measure, and Jensen's Alpha. The study also found that all the sample funds have 'beaten the market' and earned superior returns. The findings of the study substantiate that ESG investing not only leads to the accomplishment of sustainability goals of investors but also provides them returns higher than the traditional route to investing.

Nikolaos et al (2022) have studied the returns of 80 European and 64 US funds and tried to identify whether those funds that invest in companies following ESG principles differ

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from conventional funds in terms of performance. The five-factor Fama-French model is also applied to distinguish possible different influences of explanatory variables on ESG and non-ESG funds. They have also used the matched pair approach for fund evaluation on 4 years of data (2017–2021).

Rohilla (2023) attempted to investigate various issues related to ESG funds which are still unresolved. Some of these issues are—growth in the selected ESG funds, analysis of performance of selected ESG funds on the basis of different parameters, analysis of interdependence of ESG funds and analysis of response of ESG funds to the shocks. Based on the results, he found that ESG funds outperform the market portfolio in the selected period.

Abhishek and Baitali (2023) in their paper focused on analyzing the performance of select ESG funds after the outbreak of Covid-19 based on return and risk evaluation. They found that most of the funds have underperformed in terms of CAGR, Sharpe Ratio and Treynor Ratio. They also noticed that most of the funds are defensive during both time frames.

METHODOLOGY AND DATA SET

Research Questions: SBI Funds Management Ltd offers two growth funds and four dividend or bonus funds under ESG umbrella. They can also be grouped into 3 direct growth funds and 3 regular growth funds. The three *Direct Growth Funds* offered by SBI are; (i) Fund–1 (INF200K01SE0): SBI Magnum Equity ESG Fund Direct Growth, (ii) Fund–2 (INF200K01SD2): SBI Magnum Equity ESG Fund Direct Reinvestment Income Distribution cum Capital Withdrawal (IDCW), and (iii) Fund–3 (INF200K01SC4): SBI Magnum Equity ESG Fund Direct Payout Income Distribution cum Capital Withdrawal (IDCW). The three *Regular Growth Funds* offered by SBI are; (i) Fund–4 (INF200K01214): SBI Magnum Equity ESG Fund Regular Growth, (ii) Fund–5 (INF200K01206): SBI Magnum Equity ESG Fund Regular Reinvestment Income Distribution cum Capital Withdrawal (IDCW), and (iii) Fund–6 (INF200K01198): SBI Magnum Equity ESG Fund Regular Payout Income Distribution cum Capital Withdrawal (IDCW).

Now, the research interest in this paper is that whether the performance of these funds is uniform or different i.e. is there any statistically significant difference in the performance of these ESG funds or not? To be specific, this research paper tries to address the following research questions.

1. Is there any significant difference among the performance of various *direct growth* ESG funds of SBI?
2. Is there any significant difference among the performance of various *regular growth* ESG funds of SBI?
3. Is there any significant difference between the performance of *direct growth category* and *regular growth category* ESG funds of SBI?
4. Is there any significant difference between the performance of *direct growth* and *regular growth* ESG funds of SBI?
5. Is there any significant difference between the performance of *direct reinvestment IDCW* and *regular reinvestment IDCW* ESG funds of SBI?
6. Is there any significant difference between the performance of *direct payout IDCW* and *regular payout IDCW* ESG funds of SBI?

Research Objectives: This research paper has following research objectives.

- To evaluate the performance of various ESG funds offered by SBI funds management Ltd.
- To identify the category of ESG funds vis-à-vis their counterparts that provides better returns to the investors.

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Research Hypotheses: The null hypotheses that will be tested in this research paper are given below.

- *Hypothesis – 1 (H_{01}): There is no significant difference among the performance of various direct growth ESG funds of SBI.*
- *Hypothesis – 2 (H_{02}): There is no significant difference among the performance of various regular growth ESG funds of SBI.*
- *Hypothesis – 3 (H_{03}): There is no significant difference between the performance of direct growth category and regular growth category ESG funds of SBI.*
- *Hypothesis – 4 (H_{04}): There is no significant difference between the performance of direct growth and regular growth ESG funds of SBI.*
- *Hypothesis – 5 (H_{05}): There is no significant difference between the performance of direct reinvestment IDCW and regular reinvestment IDCW ESG funds of SBI.*
- *Hypothesis – 6 (H_{06}): There is no significant difference between the performance of direct payout IDCW and regular payout IDCW ESG funds of SBI.*

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Research Design: The various components of research methodology adopted in this research paper are given below.

Data Sources: The annual returns (%) data collected from BSE Morningstar website for six ESG funds of SBI are given below.

Sampling Frame: The six (6) ESG funds offered by SBI Funds Management Ltd constitute sampling frame.

Sampling Method: Complete enumeration method i.e. six out of six ESG funds of SBI is included in the sample.

Sample Size: The six (6) ESG funds offered by SBI Funds Management Ltd are considered and their returns (in %) from 2014 to 2021 are included in the sample.

Data Analysis Techniques: ANOVA and t – test are used to test the hypotheses.

Limitations of Study: The study is based on the annual returns (in %) of six ESG funds of SBI. Only eight years data set is available in BSE Morningstar website because these funds are launched just eight years back. In order to evaluate the performance of ESG funds on monthly basis, future researchers may collect monthly data that increases number of items in the data set.

RESULTS AND DISCUSSION

Comparing the Performance of Various Direct Growth ESG Funds of SBI

The three (3) *direct growth ESG funds* offered by SBI along with their annual returns (%) are given below Tables 1-5.

Table 1
ANNUAL RETURNS (%) OF VARIOUS DIRECT GROWTH ESG FUNDS OF SBI

Fund Name / Year	2014	2015	2016	2017	2018	2019	2020	2021
Fund – 1 (INF200K01SE0)	43.44	3.23	5.32	25.05	4.52	15.54	14.43	31.35
Fund – 2 (INF200K01SD2)	43.45	3.2	5.34	25.05	4.52	15.54	14.44	31.35
Fund – 3 (INF200K01SC4)	43.45	3.2	5.34	25.05	4.52	15.54	14.44	31.35

(Source: https://bseindia.morningstar.in)

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In order to test, whether there is any statistically significant difference in the performance these funds, I-WAY ANOVA test is conducted and following results are obtained.

Table 2
ANOVA I – WAY TEST RESULTS FOR DIRECT GROWTH ESG FUNDS OF SBI

Source of Variation	SS	dof	MS	F	P-value	F - critical
Between Groups	8.33E-06	2	4.17E-06	2E-08	1	3.4668
Within Groups	4364.853	21	207.8502			
Total	4364.853	23				

(Source: Results after data analysis)

The result of the ANOVA I – WAY test shows that the P-value (= 1) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means that there is no significant difference among the performance of various *direct growth* ESG funds of SBI.

Comparing the Performance of Various Regular Growth ESG Funds of SBI

The three (3) *regular growth ESG funds* offered by SBI along with their annual returns (%) are given below.

Table 3
ANNUAL RETURNS (%) OF REGULAR GROWTH ESG FUNDS OF SBI

Fund Name / Year	2014	2015	2016	2017	2018	2019	2020	2021
Fund – 4 (INF200K01214)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.31
Fund – 5 (INF200K01206)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.32
Fund – 6 (INF200K01198)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.32

(Source: https://bseindia.morningstar.in)

In order to test, whether there is any statistically significant difference in the performance these funds, I-WAY ANOVA test is conducted and following results are obtained.

Table 4
ANOVA I – WAY TEST RESULTS FOR REGULAR GROWTH ESG FUNDS OF SBI

Source of Variation	SS	dof	MS	F	P-value	F - critical
Between Groups	8.33E-06	2	4.17E-06	2E-08	1	3.4668
Within Groups	4374.096	21	208.195			
Total	4372.094	23				

(Source: Results after data analysis)

The result of the ANOVA I – WAY test shows that the P-value (= 1) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means that there is no significant difference among the performance of various *regular growth* ESG funds of SBI.

Comparing the Performance of Direct Growth Category and Regular Growth Category ESG Funds of SBI

The returns of the three *direct growth ESG funds* are summed up and then averaged to estimate the annual returns of direct growth ESG fund category. Similarly, the returns of the three *regular growth ESG funds* are summed up and then averaged to estimate the annual returns of regular growth ESG fund category and their values are tabulated below.

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Table 5 ANNUAL RETURNS (%) OF DIRECT GROWTH AND REGULAR GROWTH ESG FUNDS OF SBI								
Fund Category / Year	2014	2015	2016	2017	2018	2019	2020	2021
Direct Growth ESG Funds Category	43.45	3.20	5.34	25.05	4.52	15.54	14.44	31.35
Regular Growth ESG Funds Category	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.32

(Source: Calculations made based on the data collected from https://bseindia.morningstar.in)

In order to test, whether there is any statistically significant difference in the performance these fund categories, t – test for two samples is conducted and following results are obtained Tables 6-8.

Table 6 RESULTS OF T – TEST FOR TWO SAMPLES (DIRECT AND REGULAR GROWTH ESG FUND CATEGORIES)						
	Mean	Variance	dof	t – Stat	P-value	t – critical (2T)
Direct Growth Fund Category	17.86	207.88	14	0.13	0.90	2.14
Regular Growth Fund Category	16.95	208.20				

(Source: Results after data analysis)

The result of the t – test for two samples shows that the P-value (= 0.90) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means that there is no significant difference between the performance of *direct growth category* and *regular growth category* ESG funds of SBI.

Comparing the Performance of Direct Growth and Regular Growth ESG Funds of SBI

The SBI offers one direct growth ESG fund and one regular growth ESG fund. The annual returns of these funds are tabulated below.

Table 7 ANNUAL RETURNS (%) OF DIRECT AND REGULAR GROWTH ESG FUNDS OF SBI								
Fund Name / Year	2014	2015	2016	2017	2018	2019	2020	2021
Fund – 1 (INF200K01SE0)	43.44	3.23	5.32	25.05	4.52	15.54	14.43	31.35
Fund – 4 (INF200K01214)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.31

(Source: https://bseindia.morningstar.in)

In order to test, whether there is any statistically significant difference in the performance these funds, t – test for two samples is conducted and following results are obtained.

Table 8 RESULTS OF T – TEST FOR TWO SAMPLES (DIRECT GROWTH ESG FUND AND REGULAR GROWTH ESG FUND)						
	Mean	Variance	dof	t – Stat	P-value	t – critical (2T)
Direct Growth Fund	17.86	207.77	14	0.13	0.90	2.14
Regular Growth Fund	16.95	208.16				

(Source: Results after data analysis).

The result of the t – test for two samples shows that the P-value (= 0.90) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means that there is no significant difference between the performance of *direct growth* and *regular growth* ESG funds of SBI.

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Comparing the Performance of Direct Reinvestment IDCW and Regular Reinvestment IDCW ESG Funds of SBI

The SBI offers one direct reinvestment IDCW ESG fund and one regular reinvestment IDCW ESG fund. The annual returns of these funds are tabulated below Table 9.

Table 9
ANNUAL RETURNS (%) OF DIRECT AND REGULAR REINVESTMENT IDCW ESG FUNDS OF SBI

Fund Name / Year	2014	2015	2016	2017	2018	2019	2020	2021
Fund – 2 (INF200K01SD2)	43.45	3.2	5.34	25.05	4.52	15.54	14.44	31.35
Fund – 5 (INF200K01206)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.32

(Source: https://bseindia.morningstar.in)

In order to test, whether there is any statistically significant difference in the performance these funds, t – test for two samples is conducted and following results are obtained Table 10.

Table 10
RESULTS OF T – TEST FOR TWO SAMPLES
(DIRECT AND REGULAR REINVESTMENT IDCW ESG FUNDS)

	Mean	Variance	dof	t – Stat	P-value	t – critical (2T)
Fund – 2 (INF200K01SD2)	17.86	207.88	14	0.13	0.90	2.14
Fund – 5 (INF200K01206)	16.95	208.20				

(Source: Results after data analysis).

The result of the t – test for two samples shows that the P-value (= 0.90) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means there is no significant difference between the performance of *direct reinvestment IDCW* and *regular growth reinvestment IDCW* ESG funds of SBI.

Comparing the Performance of Direct Payout IDCW and Regular Payout IDCW ESG Funds of SBI

The SBI offers one direct payout IDCW ESG fund and one regular payout IDCW ESG fund. The annual returns of these funds are tabulated below Table 11.

Table 11
ANNUAL RETURNS (%) OF DIRECT AND REGULAR PAYOUT IDCW ESG FUNDS OF SBI

Fund Name / Year	2014	2015	2016	2017	2018	2019	2020	2021
Fund – 3 (INF200K01SC4)	43.45	3.2	5.34	25.05	4.52	15.54	14.44	31.35
Fund – 6 (INF200K01198)	42.65	2.43	4.51	24.07	3.33	14.76	13.54	30.32

(Source: https://bseindia.morningstar.in)

In order to test, whether there is any statistically significant difference in the performance these funds, t – test for two samples is conducted and following results are obtained Table 12.

Table 12
RESULTS OF T – TEST FOR TWO SAMPLES
(DIRECT PAYOUT IDCW AND REGULAR PAYOUT IDCW ESG FUND)

	Mean	Variance	dof	t – Stat	P-value	t – critical (2T)
Fund – 3 (INF200K01SC4)	17.86	207.88	14	0.13	0.90	2.14
Fund – 6 (INF200K01198)	16.95	208.20				

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(Source: Results after data analysis)

The result of the t – test for two samples shows that the P-value (= 0.90) is greater than 0.05. Thus, the null hypothesis is accepted at 5% level of significance. It means there is no significant difference between the performance of *direct payout IDCW* and *regular payout IDCW* ESG funds of SBI.

FINDINGS OF THE RESEARCH PAPER

After analyzing the data of SBI's ESG funds, this research paper has found the following.

1. There is no significant difference among the performance of various *direct growth* ESG funds of SBI.
2. There is no significant difference among the performance of various *regular growth* ESG funds of SBI.
3. There is no significant difference between the performance of *direct growth category* and *regular growth category* ESG funds of SBI.
4. There is no significant difference between the performance of *direct growth* and *regular growth* ESG funds of SBI.
5. There is no significant difference between the performance of *direct reinvestment IDCW* and *regular growth reinvestment IDCW* ESG funds of SBI.
6. There is no significant difference between the performance of *direct payout IDCW* and *regular payout IDCW* ESG funds of SBI.

IMPLICATIONS AND RECOMMENDATIONS

Though SBI is offering 6 types of ESG funds, this research paper found that there is no significant difference in providing returns to the investors of these funds. It implies that whatever may be the fund, an investor is choosing to invest, the returns obtained by him from that ESG fund is statistically same at 5% level of significance. Thus, it is recommended to the investors to choose the ESG fund based on their requirements.

1. If an investor wants that the fund house should not have involvement of brokers or agents and payment of commission to them, then, he can select direct growth funds whereas if he wants that the fund house to utilize the professional services of brokers or agents, then, he can select regular funds.
2. If an investor doesn't want to receive any dividend out of the profits earned by the fund, and want to grow his invested amount, then he can select growth funds to invest.
3. If an investor wants to receive regular income on predetermined time intervals, he can select income distribution cum capital withdrawal schemes to invest.
4. If an investor wants to receive certain portion of his investment from equalization reserve as dividend, then he can select payout income distribution cum capital withdrawal to invest.
5. If an investor wants to reinvest the dividend declared by the mutual fund house, then he can select reinvestment income distribution cum capital withdrawal schemes to invest.

FUTURE SCOPE FOR STUDY

The study is based on the annual returns (in %) of six ESG funds of SBI. Only eight years data set is available in BSE Morningstar website because these funds are launched just eight years back. In order to evaluate the performance of ESG funds on monthly basis, future researchers may collect monthly data that increases number of items in the data set. Further, future researchers may consider all the ESG funds offered by all fund management houses operating in India and then evaluate their performance in terms of annual returns. Future researchers may use Sharpe's ratio, Treynor's ratio, Jensen's index, Fama's decomposition of performance etc. methods to evaluate the performance of ESG funds in India.

CONCLUSION

The ESG investing is growing in leaps and bounds across the globe. Nearly one third of the funds managed in US belong to ESG category. The ESG funds in India stood at Rs

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12,447 crores as of March 2022. The fund management houses of SBI, ICICI Bank, Axis Bank et al have launched ESG mutual funds in India to tap this market with different schemes. In this context, this research paper attempted to evaluate the performance of six (6) ESG funds offered under different names by SBI Funds Management Ltd. The annual returns data of these funds are analyzed by using ANOVA and t-test for two samples to know whether there is any statistical difference in the performance of these six ESG funds. It is found after the analysis that there is no statistically significant difference among the performance of these six ESG funds of SBI at 5% level of significance. Hence, it is recommended at the end that the investors can choose any of the funds. But, before selecting a fund to invest, they must consider their investment goal. If the investment goal is to get regular periodical income, they can invest in income distribution cum capital withdrawal schemes whereas if they want to grow their invested amount, they can invest in growth funds.

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