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EVALUATION OF PERFORMANCE OF SELECTED INDIAN ESG FUNDS

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Abstract

ESG is a buzz word nowadays and gaining popularity day by day. It is claimed that these funds help in achieving sustainable growth and investors should select these funds as an alternative to the traditional mutual funds to achieve their long-term goals. India lags behind the leading countries such as USA and UK in terms of number of ESG schemes but these funds are gaining momentum in India though at a slow pace. This sector has not been fully explored in India and is expected to provide good returns in the years to come. Present paper attempts to investigate various issues related to these 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, study shows that ESG funds outperform the market portfolio in the selected period.

Keywords: *Annualized Return, Annualized Risk, CUSUM Test, ESG, Mutual Funds, Return, Risk, Sharpe Ratio, Sustainability*

INTRODUCTION

Investors consider various factors before investing in any investment avenue. They consider the fundamentals and technical of companies. Also, they can invest in shares, bonds, debentures or mutual funds. We know that energy cannot be generated and cannot be wasted. So, business models are moving from traditional practices to environmental, social and governance-oriented practices. Companies are trying to ensure that business should develop in a way which can ensure sustainability which further ensures that our generations do not compromise with the scarce resources such as fossil fuel, minerals, etc. Mutual fund companies are trying to ensure sustainable growth by launching ESG (environmental, social and (corporate) governance) funds. Investors are contributing in achieving sustainable growth when they decide to invest in these funds.

Idea of ESG Funds

The idea of ESG is an effort to achieve sustainable growth by creating an investment portfolio with an application of sustainable and socially responsible attitude. On a daily basis different types of risk are appearing before businesses which have never dealt with earlier. Issues such as global warming, climate changes, data breaches, changes in demographics, political pressures, changes in taxation policies, *etc*. are posing new risks. If businesses do not consider these risks while creating strategies, then sustainability cannot be ensured in the long-run. It is a known fact that those companies have excelled in the past who followed the path of sustainability. Investors while investing must have a long-run outlook before they invest in companies. They should invest in those companies which can provide not only good returns but can give a minimum guarantee to promote sustainability.

Motivations Behind ESG Investment

There are many factors which are motivating ESG investment. These are discussed as follows—

1. **Changes in magnitude and types of risks:** Changes around the globe such as terrorism, climate changes, data breaches, *etc*. have posed a lot of new risks before the companies. Only those companies are going to survive which can deal with risks. So, it is necessary that companies must follow the principles of ESG.
2. **Young and aware investors:** Today we have a maximum number of young investors in India who are much aware of ESG investing. They know how to play their role in promoting ESG investing and how to secure the future of themselves and their generations.
3. **Availability of large amounts of data:** When investors incorporate the ESG philosophy while selecting companies, they need data on the performance of companies and parameters of sustainability. The Government of India has made it mandatory for the companies to disclose the data which is helpful for the investors. It has enhanced the volume and quality of data and thus helping investors in evaluating companies on the basis ESG principles.

4. **Advancement in technology:** Technology has made it possible for the investors to analyze the data in a short period of time. They can make ESG investment decisions in a much easier manner than before.

ESG Funds as an Alternative to the Traditional Mutual Funds

In the last decade ESG mutual funds have been a good choice of investment instead of directly investing in business following ESG philosophy. Direct investment in a company following ESG philosophy requires analysis of voluminous data on different parameters which is not a cost-effective method of investment. Thus, to make the investment process easy and cost effective, one should invest in ESG funds which provide additional advantages such as reduced risk and professional management of the funds. ESG funds are gaining popularity over time. The global inflows in the ESG funds have increased from $ 258 billion in 2019 to $660 billion in 2021 (**Source:** Reuters).
According to Bloomberg Intelligence, the global ESG assets are expected to reach a level of $50 trillion by the end of 2025. Further, over the next 5 years, there will be an annual inflow of more than $0.20 trillion in ESG ETF. Also, there are high chances that the ESG debts market will also increase from $2.2 trillion to $11 trillion by the end of 2025.

Working of ESG Mutual Funds

ESG funds are like thematic funds which can perform well on three parameters *i.e*. environmental (E), social (S) and governance (G). ESG mutual fund companies invest in those companies which try to attain sustainable growth and comply with the ESG philosophy. While selecting stocks for the ESG funds, mutual fund companies follow an ESG framework. Operations, culture and risk profile of the companies under consideration are investigated deeply to assess the companies. Such an assessment helps in ranking stocks. Scoring of stocks is done on the basis of data on ESG parameters which is in the public domain. It is also assessed how these ESG parameters are going to affect the long-term sustainability and growth of the company. Once the companies are selected on the basis of ESG framework then the financials of these companies are also analyzed. ESG scores further help in determining weights of the securities which are to be included in the portfolio of the mutual fund company.

The Research Issues

ESG mutual funds are gaining popularity day by day. Globally there are more than 3,000 ESG schemes. However, in India the number is quite low when compared to the US and UK (more than 500), Japan (more than 180) and China (more than 120). In India, investors are becoming more aware of the ESG philosophy. At present there are 10 funds under the umbrella of ESG funds which are being offered by companies *viz*. Aditya Birla Sun Life Capital Mutual Fund, Axis Mutual Fund, ICICI Prudential Mutual Fund, Quantum India Mutual Fund, SBI Magnum Mutual Fund, Mirae Asset Mutual Fund, Kotak Mahindra Mutual Fund, SBI Magnum Mutual Fund, HSBC Mutual Fund and Invesco India Mutual Fund. There is a need that the growth and performance of Indian ESG funds shall be evaluated and investigated upon.

REVIEW OF LITERATURE

Tripathi and Bhandari (2014) reported that socially responsible (ESG) portfolios are able to generate higher returns than other portfolios over boom and recession. This enshrined the importance of ESG funds as compared to other mutual funds.
Das et al. (2018) reported that the Socially Responsible Mutual Funds (SRMF) underperformed in the market over a period of 2005–2016, but there was no difference in the SRMF performance with respect to the market during the Great Recession period. The study used the Fama-French 5-factor model to analyze the risk-adjusted performances of Socially Responsible Mutual Funds (SRMF) relative to the market. Study also examined whether the ESG ratings assigned to the SRMF signal fund performance over a period of time.
Xiao-Guang Yue et al. (2020) analyzed the risk profile of different mutual funds and concluded that it is less risky to invest in ESG funds than traditional funds.
Naffa and Máté (2020) analyzed the return of selected ESG funds using FF5 model and reported that ESG funds have outperformed the market over a period of five years.
Atz et al. (2021) examined the relationship between ESG and financial performance in more than 1,000 studies published between 2015 to 2021. 58% of the studies reported a positive relationship between ESG and financial performance. 13% of the studies showed a neutral impact, 21% gave mixed results and 8% showed a negative relationship. Authors also reported that ESG disclosure on the part of the companies does not ensure the financial performance.
Mosson (2022) studied the data from April 2019 to September 2021 and reported that ESG funds are cheaper and perform better than non-ESG funds. It was also reported that ESG funds are oriented towards large cap companies and developed countries.
Not much literature is available in this field in the context of India. Through the present study we wish to add more to the existing body of literature.

RESEARCH GAPS

Following are the observations after the review of literature—

1. There is small number of studies on ESG funds in India
2. There is hardly any study conducted on comparison of different ESG funds and their relationship with each other in India.

OBJECTIVES OF THE STUDY

Primarily this paper investigates the performance of selected ESG funds and their cross relationship in India over a short period of time. We divide our primary objective in sub objectives as follows—

1. To analyze the AAUM in ESG funds in India.
2. To analyze the performance of selected ESG funds in terms of annualized return and risk.
3. To assess the performance of ESG funds on the basis of different ratios.
4. To analyze the interdependence of selected ESG funds using granger causality test.
5. To identify shocks in the selected ESG funds and their timing.

RESEARCH METHODOLOGY

Present study is empirical in nature and analyses the secondary data which is in public domain especially published by the Association of Mutual Funds in India. Further, the growth in ESG funds has been analyzed on the basis of the number of schemes floated by mutual fund companies in various years, funds inflows, and average assets under management. To measure and analyze the funds' performance we have calculated the **annualized return** and **risk**.

Risk has been defined as the standard deviation of daily return from 3 selected schemes. It is calculated by subtracting the risk-free rate of return from the fund's returns and then dividing the result by the standard deviation.

Downside risk (VAR) has been calculated using variance-covariance method as follows—

$$VAR = -Z \times (z - Value\ based\ on\ Confidence\ Interval) \times Standard\ Deviation \ldots\ldots\ldots (1)$$

Annualized return has been calculated using the given formula—

$$Annualised\ Return\ = \left(\frac{Final\ Investment\ Value}{Initial\ Investment\ Amount}\right)^{\frac{1}{Number\ of\ Years}} - 1 \ldots\ldots\ldots (2)$$

Sharpe ratio has been used which is a risk-adjusted measure of the fund performance. It was developed by William Sharpe (Sharpe, 1966). This ratio explains how much excess return an investor has received for the volatility of holding a riskier portfolio. It is defined as follows—

$$Sharpe\ Ratio = \frac{R_p - R_f}{\sigma_p} \ldots\ldots\ldots (3)$$

Where,

$R_p = Portfolio\ return$

$R_f = Risk - free\ rate\ of\ return$

$\sigma_p = Total\ portfolio\ risk\ as\ given\ by\ the\ standard\ deviation$

91-days treasury bill rate has been used as a proxy to the risk-free rate of interest (R_f). **Annualized return of the Nifty 50 index** has been used as a proxy to the market return (R_m). **The study period** is from December 29, 2020 to August 12, 2022. This period was selected for the sake of uniformity as some of the funds were discontinued and some of the new funds started in the same period.

To analyze the interdependence of funds, **Granger Causality test** has been used in the EViews 12 (Granger, 1969). Further, to identify the shocks in the selected funds and their timings, **recursive estimates** (CUSUM) and their charts have been prepared using EViews 12.

The study has used three selected ESG funds *viz*. Aditya Birla Sun Life ESG Fund-Direct Plan-Growth, ICICI Prudential ESG FUND-Direct Plan-Growth and Kotak ESG Opportunities Fund-Direct Plan-Growth Option. All the selected funds have been compared against benchmark Nifty 100 ESG Sector Leaders Index (TRI index). All the selected funds invest 80% to 100% in the equities.

RESULTS AND FINDINGS OF THE STUDY

Growth of ESG funds in India

We have already focussed on the issue of unawareness of ESG funds in India. As of August 12, 2022 only 10 ESG schemes (excluding one fund of fund) were there in the Indian mutual fund market. This is very low as compared to the counterparts of India such as the USA, UK, Japan and China. Till 2018 there was only SBI mutual fund in this category but since 2019 there has been an increase in the number of investments made in the ESG funds. Accordingly, nine more schemes have been launched by various companies including one fund of funds and one ETF. According to SEBI, total ESG assets under management were ₹12,447 crore (https://www.moneycontrol.com) as on March 31, 2022. The ESG fund of fund was ₹140.64 and ESG ETF was ₹166.73 crores as on March 31, 2022. In the year 2019-20 the inflow in the ESG fund was over ₹2,094 crores. But then the inflow was ₹4,884 crores in 2020-21 and only ₹315 crores in 2021-22. So, these funds saw a growth of 133.23% and only 6.45% in 2020-21 and 2021-22.

Descriptive Statistics of the Samples

Descriptive statistics are given in table 1.

Table 1: Sample Statistics

Statistic	ABSLESG	ICICIESG	KOTAKESG
Mean	0.000511	0.000406	0.000385
Median	0.001458	0.001120	0.000994
Maximum	0.031179	0.027122	0.027837
Minimum	-0.049634	-0.035857	-0.049030
Std. Dev.	0.011273	0.008696	0.010128
Skewness	-0.724798	-0.544391	-0.684382
Kurtosis	4.722976	4.130650	4.905389
Observations	402	402	402

(Source: Author's Own Compilation)

Performance Evaluation of the Selected Funds

As on August 12, 2022 there were 10 schemes out of which we have selected three schemes the details of which are in table 2.

Table 2: Sample Details

Name of the Scheme	Launch Date	Assets under management (₹ lakhs as on March 31, 2022)	Expense Ratio (Percentage as on March 31, 2022)
Aditya Birla Sun Life ESG Fund-Direct Plan-Growth	December 24, 2020	1,07,531.7	2.37
ICICI Prudential ESG FUND-Direct Plan-Growth	September 9, 2020	1,57,885.41	2.19
Kotak ESG Opportunities Fund-Direct Plan-Growth Option	December 11, 2020	1,65,004.95	0.38

Source: Author's Own Compilation

Portfolio Composition of Selected ESG Funds

Table 3 gives the composition of the portfolios of the selected ESG schemes. It is interesting to note that in India not all the companies follow the ESG practices. Due to this reason, the composition of the portfolio of the selected schemes is more or less the same. Infosys is the most preferred stock followed by the TCS. As far as sectors are concerned, the financial services sector is the most sought sector followed by basic materials, industrials and then consumer cyclicals.

Table 3: Portfolio Composition

Name of the Scheme	Top five sectors	Top five companies
Aditya Birla Sun Life ESG Fund-Direct Plan-Growth	Technology, Financial Services, Consumer Cyclical, Industrials, Basic Materials	Infosys, L & T, Bajaj Finance, Mindtree, HCL Technologies
ICICI Prudential ESG FUND-Direct Plan-Growth	Financial Services, Technology, Consumer Cyclical, Basic Materials, Industrials	Infosys, Divi's Lab, Wipro, TCS, Marico
Kotak ESG Opportunities Fund-Direct Plan-Growth Option	Financial Services,	Infosys, TCS, ICICI

	Technology, Basic Materials, Industrials, Healthcare	Bank, SBI, Tech Mahindra

Source: Author's Own Compilation

Annualized Return and Risk of Selected ESG Funds

We have calculated the annualized return, standard deviation of the returns and beta factor for selected ESG funds for the period under study. Standard deviation is the absolute measurement of the risk whereas beta is the measurement of systematic risk. We have also calculated the downside risk. Absolute risk is divided into systematic and unsystematic risk. Systematic risk is due to the factors internal to the company whereas systematic risk is due to the factors external to the company and beyond control. Retail investors are more concerned with the downside risk. An estimation of the potential loss in the value of a security due to the declining conditions specific to the security in the market. Results are compiled in table 4.

Table 4: Annualized Return and Risk

Name of the Scheme	Annualized Return	Annualized Risk	Downside Risk	Beta Factor
Aditya Birla Sun Life ESG Fund-Direct Plan-Growth	35.6356	16.3456	12.58	0.918756
ICICI Prudential ESG FUND-Direct Plan-Growth	21.7645	12.3289	8.98	0.763562
Kotak ESG Opportunities Fund-Direct Plan-Growth Option	21.3239	13.9871	10.23	0.821534

(**Source:** Author's Own Compilation)

The results confirm that funds have generated good returns except ICICI Prudential which have generated a negative return. Aditya Birla Sun Life ESG fund has outperformed other funds. So far as annualized risk is concerned, it is maximum in Aditya Birla Sun Life ESG fund. Downside risk and beta factor are the highest for this fund but minimum for the ICICI Prudential ESG fund.

Risk Adjusted Performance (Sharpe Ratio) of Selected ESG Funds

As the mutual funds opt for different strategies, their risk and return profiles are also different. Performance of a mutual fund can be compared using different risk adjusted measures such as Treynor Ratio, Jensen Alpha, Sharpe Ratio, *etc*. In our study we have used Sharpe Ratio to measure the performance of our selected ESG funds. If this ratio is higher, it means that the fund is performing well. Table 5 gives the Sharpe ratio for the selected funds.

Table 5: Sharpe Ratio

Scheme name	Annualized Return	Risk-free Rate of Return	Annualized Risk	Sharpe Ratio	Rank
Aditya Birla Sun Life ESG Fund-Direct Plan-Growth	35.6356	3.3896	16.3456	2.299357	I
ICICI Prudential ESG FUND-Direct Plan-Growth	21.7645	3.3896	12.3289	1.657533	II
Kotak ESG Opportunities Fund-Direct Plan-Growth Option	21.3239	3.3896	13.9871	1.392421	III

(**Source:** Author's Own Compilation)

Table 5 shows that Aditya Birla Sun Life ESG Fund is ranked I followed by ICICI Prudential ESG Fund (Rank II) and Kotak ESG fund (Rank III). Though the annualized return of ICICI is negative, Sharpe Ratio is higher than Kotak due to its risk profile.

Inter-Correlations and Returns of Selected ESG Funds

Table 6 gives us the intercorrelations calculated for all the funds. All the correlations are significant at 5%. It implies that all the selected funds move in tandem with each other with a high degree of correlation.

Table 6: Inter Correlations

Fund	**ABSLESG**	**ICICIESG**	**KOTAKESG**
ABSLESG	1	0.9162853700865032*	0.9441281903866612*
ICICIESG	0.9162853700865032*	1	0.9177549828575546*
KOTAKESG	0.9441281903866612*	0.9177549828575546*	1

*Significant at 5%

(Source: Author's Own Compilation)

Figure 1 gives a bird's-eye view of the return of selected funds. The graph also confirms that all the selected funds move in tandem with each other.

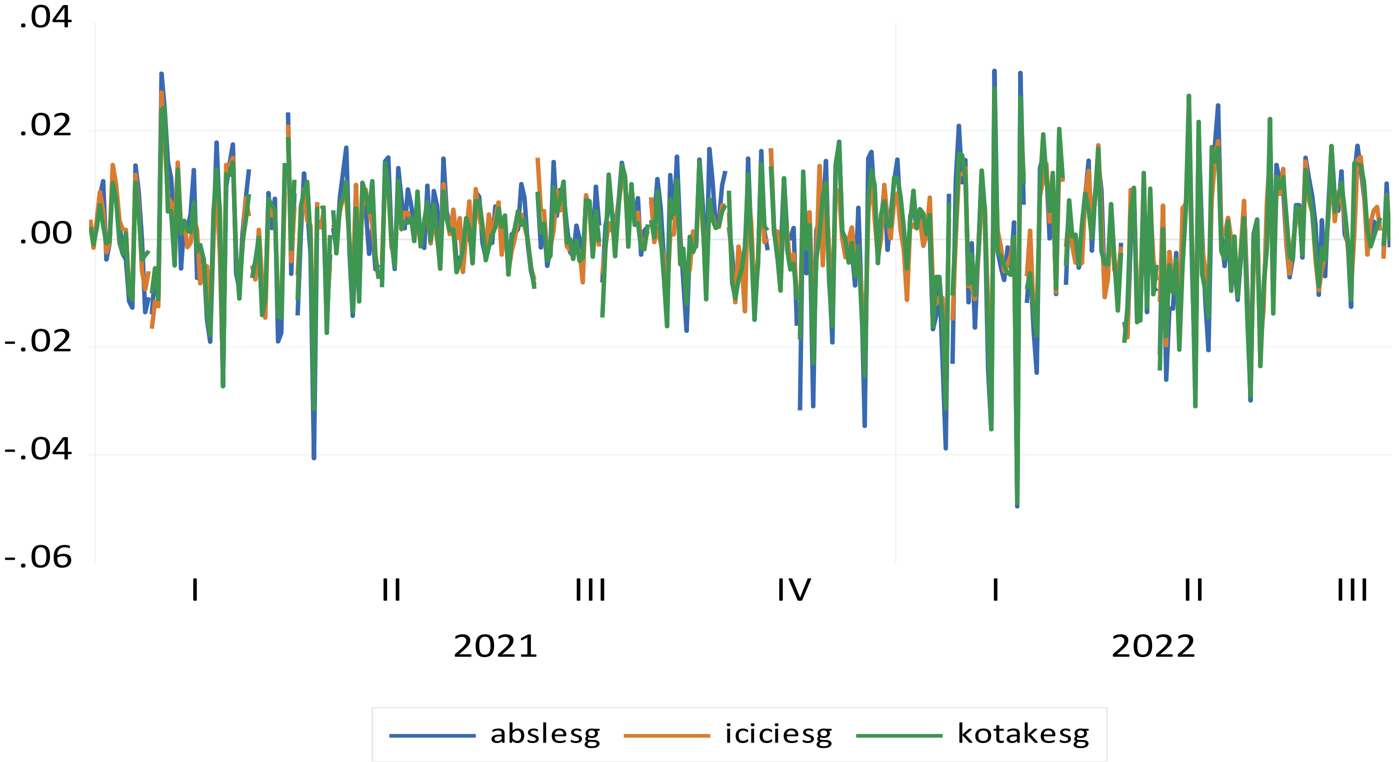

Figure 1: Return of selected funds

Analyzing Interdependence of Selected ESG Funds using Granger Causality Test

We have used the Granger Causality test at first lag to confirm whether all the selected funds react to the shocks differently and at different timings. The null hypothesis for the Granger Causality test is that variable X does not Granger Cause variable Y. The p value is more than 0.05 which results in the acceptance of null hypothesis. Results confirm that no Granger Causality exists between ABSLESG and ICICIESG, ICICIESG and KOTAKESG and ABSLESG and KOTAKESG.

Table 7: Granger Causality Test

Null hypothesis	**Observations**	**F-statistic**	**Probability**
ICICIESG does not Granger Cause ABSLESG	401	0.01895	0.8906
ABSLESG does not Granger Cause ICICIESG		1.31116	0.2529
KOTAKESG does not Granger Cause ABSLESG	401	0.06692	0.7960
ABSLESG does not Granger Cause KOTAKESG		0.54616	0.4603
KOTAKESG does not Granger Cause ICICIESG	401	0.69613	0.4046
ICICIESG does not Granger Cause KOTAKESG		0.26332	0.6081
Test: Pairwise Granger Causality Tests **Sample:** 12/30/2020 8/12/2022 **Lags:** 1			

(Source: Author's Own Compilation)

It is concluded that the series of these funds cannot be used to predict the series of other funds.

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Identification of Shocks and Their Timings for Selected ESG Funds

We have tested our data for the identification of shocks and their timings. The CUSUM test charts are given in figure 2, 3 and 4.

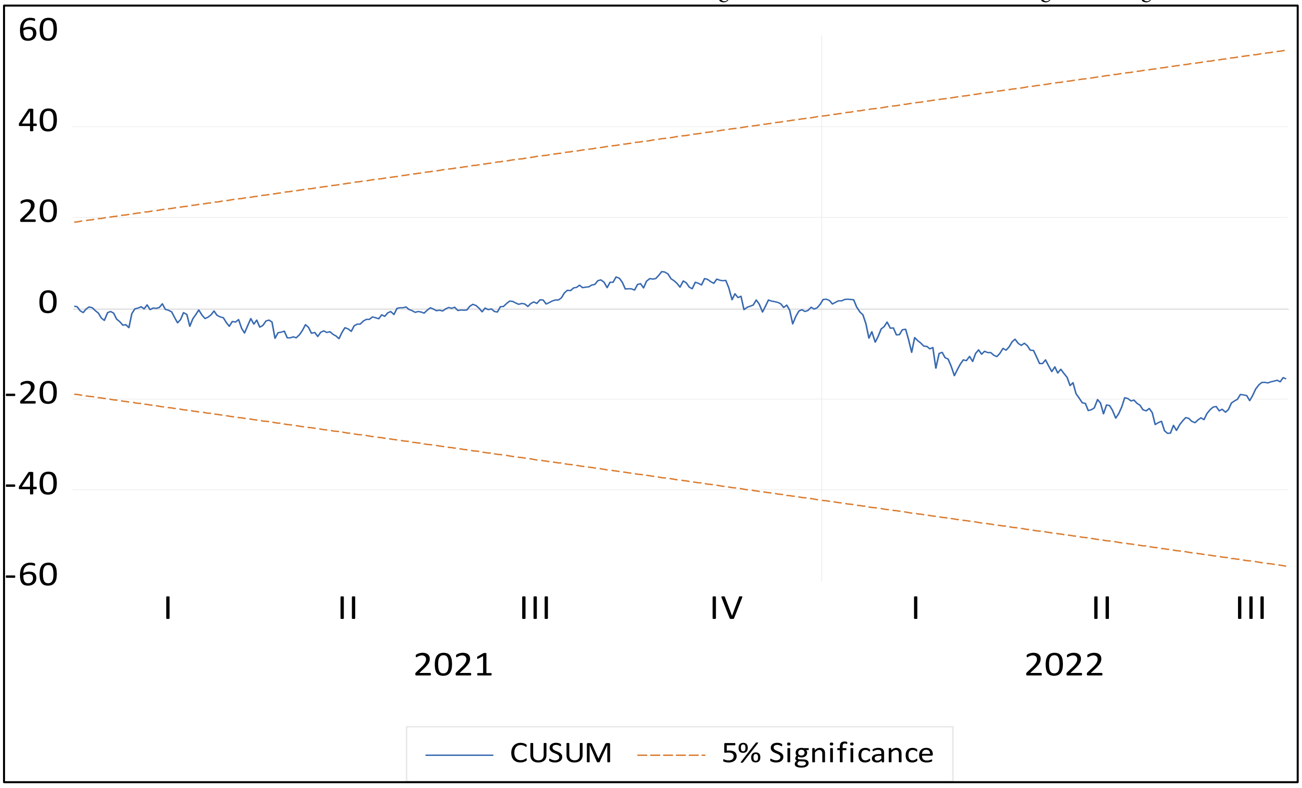

Figure 2: CUSUM test for Aditya Birla Sun Life ESG Fund-Direct Plan-Growth

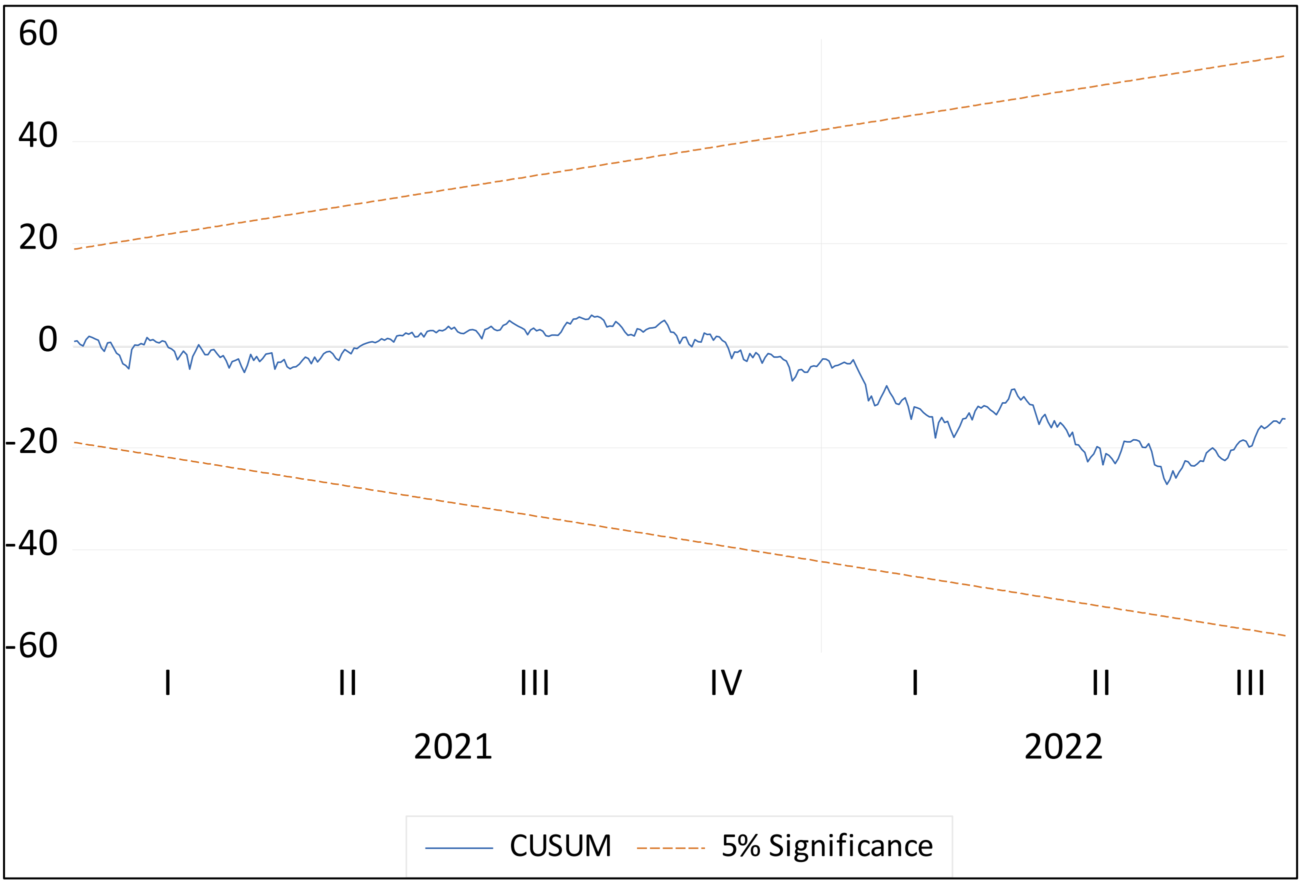

Figure 3: CUSUM ICICI Prudential ESG FUND-Direct Plan-Growth

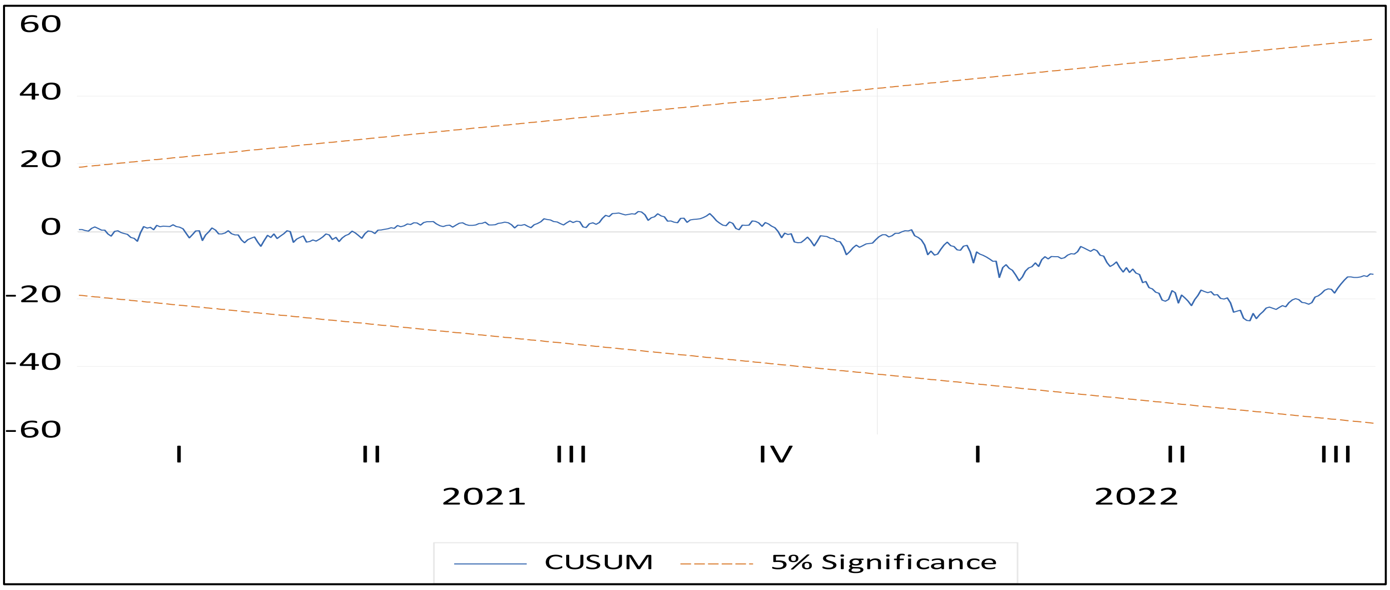

Figure 4: CUSUM test for Kotak ESG Opportunities Fund-Direct Plan-Growth Option

In all the graphs, it can be seen that a downward trend has been developed at around December 31, 2021 but the process mean has not been shifted. It means that structural changes are not there in the series and no shocks are there. However, in the market the downward trend came on a very later stage *i.e*. after around 20-25 days and continued for a period of about 40 days. Thus, all the selected ESG funds gave an indication well in advance about the expected drifts in the market. In the light of above results it can be said that all the funds have the same trend at the same time and in the same manner.

CONCLUSION

Summary of Results

With respect to the performance of the ESG funds, our study reveals that the Aditya Birla Sunlife ESG fund is the newest fund in the sample and is the best performer. However, Kotak Mahindra ESG fund did not perform well when compared to its counterparts *viz*. Aditya Birla Sun Life and ICICI Prudential which have very good Sharpe ratios. This demonstrates that ESG funds can also provide good risk-adjusted returns.

Granger Causality results show that no Granger Causality exists among the selected funds. Further, when the data was tested for shocks using CUSUM, it was found that all the funds respond to the shocks at the same time. One of the reasons for this behavior is that all of the funds have invested their money in more or less the same sectors.

Limitations

There is limitation of the study with respect to the selection of funds and time period. Only three ESG funds have been considered for the study and over a period of approximately 20 months.

Future Scope

It is suggested that in future more funds shall be considered for the evaluation of performance over a long period of time. Auto Regressive Distributed Lag model can be used to identify evidence of long-term relationship with the benchmark index. Further, it is suggested that investors should not hesitate in investing ESG funds if they want long-run healthy returns.

Concluding Remarks

The growth of ESG funds is slow in India as compared to the leading western world, nevertheless these funds are gaining popularity day by day. Due to the reason that the pace of growth is slow, investors are still not convinced to include these funds in their portfolios, especially young investors. SEBI as a leading policy maker and regulator in the fanatical market is taking initiatives to take the ESG philosophy to the investors. Changes do not come in a day and it is expected that changes will be there in coming years for sure.

Appendix

Variable names and their description is as follows—

Aditya Birla Sun Life ESG Fund-Direct Plan-Growth	ABSLESG
ICICI Prudential ESG FUND-Direct Plan-Growth	ICICIESG
Kotak ESG Opportunities Fund-Direct Plan-Growth Option	KOTAKESG

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