

## STUDY ON PERFORMANCE OF GREEN MUTUAL FUNDS IN INDIA: A REVIEW

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### ABSTRACT

Issues like global warming, depletion of natural resources, destruction of ecosystem, pollution etc. have raised the consciousness of many investors around the world. Climate change is fast outpacing and needs immediate action. Indian institutional investors including insurance funds and pension funds need to play a big role to drive this change and pressure companies to ensure the climate change is front and centre in their business decisions. Growing concern about the climate change & its risks for portfolio is encouraging the interest in social responsible investment. Investors are now concerned more about not only the good financial performance of their investments but also the environmental concerns. One of the financial product that can serve the both needs of environmental and financial aim is GREEN MUTUAL FUNDS. Green mutual funds are funds that invest in companies whose activities and projects are beneficial for the environment. Managers of these funds consider both financial and environmental criteria while making investment decisions. The focus of this paper is to examine the various studies that have been conducted in reference to the Various Green mutual funds & their performance in India.

**Key Words:** *Green Mutual funds, Environmental sustainability, financial performance, BSE-GREENEX*

### INTRODUCTION

The first line of National Action Plan on Climate Change (NAPCC) constituted by the Prime Minister's Council clearly states "India is faced with the challenge of sustaining its rapid economic growth while simultaneously actively dealing with the global threat of climate change". Owing to the global warning phenomenon environmental concern is becoming an important investment theme all over the world. Developed in western economies since 1980s, green investing is still in the nascent stages of development in India, one of the advanced emerging markets. Green is often used as a synonym for environmental or ecological, especially as it relates to products and activities aimed at minimising damage to our planet (Ramey 2009). Going green refers to activities aimed to produce environment friendly goods and reducing emission of pollutants. Going green indicates increase in green investments thus resulting in cost saving and gaining competitive advantage.

Green investing is an investment niche to emerge from large socially responsible investment themes that put more emphasis towards the environmental issues. There is no unique definition of what green investing is. In generic sense green investment refers broadly to low carbon & climate resilient investment made in companies, project & financial instruments that operate primarily in the renewable energy, clean technology, environmental technology as well as those investments that are climate specific. (Inderst et al 2012). Keeping our focus on green mutual funds these are the funds that invest in companies whose activities, projects & investments are beneficial for the environment instead of ruining it or causing problems like pollution. These funds will focus on those companies that would provide support to the infrastructure for Green economy.

A green fund is an investment instrument for the companies that are engaged in environmentally supported businesses like water and waste mgmt. etc. companies selected for mutual funds would include those demonstrating exceptionally environmentally friendly conduct & low environmental impact, involvement in natural resource protection, energy efficient projects, clean energy or renewable energy. These corporations while increasing their bottom line and making profit do their bit for the environment too.

Examples of green companies are:

- Having clean & sustainable green business model i.e including those processes which are environmentally supportive.
- Engaged directly in activities that help to preserve environment. Eg: waste management

- Making recycled product or promoting renewable energy

Green funds not only attract investors that are driven by their personal values in investment but are also by investors who believe that during particular time period green investing is a sector that will produce favourable return/ risk trade off (Ramey 2009)

### **BSE-GREENEX**

“It is a first veritable step in creating an inclusive market based mechanism for the promotion of energy efficient practices amongst the largest business entities in India. It is a new index of sustainability stocks that help investors looking for green companies. GREENEX comprises of 20 companies from the broader BSE 100 index that meet energy efficient norms, allowing investors to derive benefit from the related cost savings. The index allows investors to track companies that invest in energy efficient practices. It allows asset managers to create products to help investors put their money in green enterprises and make green investments. GREENEX is targeted at retail as well as institutional investors such as pension funds looking for investment in companies with strong long term prospects and develop green financial products” (The Hindu, February 23, 2012).

Investors opting for the green investing chose those businesses that utilise environmental technologies to reduce carbon footprint. Investors investing in these businesses need a benchmark to assess the performance of green stocks. For this purpose, green Indices have been constructed which constitute the stocks of companies guided by green business philosophy. BSE in association with grade Carbon Ex ratings Services PVT. LTD has co-developed this index. It consists of 25 companies from the broader BSE-100 index that follow green. It consists of Top ranking companies from each sector like steel, cement, power etc. Major constituents of Index includes Tata steel, ICICI bank, State bank of India, HDFC, Sunpharma & Bhel.

BSE GREENEX is such innovative step taken by Indian stock market. It is first green index that allows investors to track the performance of companies in terms of carbon emissions. It applies sector specific algorithms to assess energy efficiency performance of companies on the basis of publically disclosed energy and financial data. It helps investors to identify green investments & co.'s with energy intensive sector.

### **CURRENT SCENARIO IN INDIA**

Since 2007, over \$1.24 trillion has been invested in green companies around the world. The notion of green funding in India is very recent. However, within this short period, notable institutions like SBI, Axis Bank, Power Finance Corporation and a few independent power producers like Renew Power and Greenko have tapped dedicated green funds existing in the West . To scale up the efforts locally, a collective effort on the part of all stakeholders, including the Government, banks, institutions and regulators is needed to build a climate resilient nation via green funding. As per a report by Bloomberg New Energy Finance, India reserved the second position in global ranking in attractiveness for renewable sector investments, primarily coerced by its policy push towards increasing renewable energy. Further, it had the second biggest (2017) renewable energy investment market among all such climate-conscious economies, drawing \$ 9.4 billion fresh funding.

Development finance institutions like IFC and ADB among others may support by credit enhancements instruments like guarantee, besides investing in some key projects and help in slashing the overall cost of capital. A missing piece of the puzzle, however, is a substantial amount of dedicated green capital that exists locally in the Indian markets. This has started with dedicated green funds slowly finding their ground here. Currently, there are a few funds like GEF Capital Partners, Ever source Capital, which are dedicated to green causes. Recently, Avendus, a leading financial service provider, announced that it has launched India's first ESG fund. Thus journey has already started but still more momentum is required to provide the required impetus.

### **REVIEW OF LITERATURE**

**Mahapatra (1984)** investigated the investors reaction to pollution control expenditure & the long term response of corporate social accounting by examining voluntary and legally enforced pollution control expenditures. Framework was developed to measure the effects of pollution control expenditures on profitability , systematic risk and cash positions of affected industries. He Found that pollution control expenditures had a negative impact on the financial performance of US companies in the 1970s. Investors viewed pollution control expenditures as a drain on resources and did not reward the companies for socially responsible behaviour. He suggested that pollution control laws and regulations are necessary to make polluting industries behave in socially responsible manner.

**Diltz (1995)** examined various dimensions of SRI for the US stock market. For this he studied the daily returns for twenty eight common stocks portfolios over the period from 1981 to 1991 that have good environmental performance. He found different performance results, depending on the type of screens he used on a predefined portfolio. It was found that employing environmental and military screens leads to a significantly positive performance, while all other screens do not have a significant impact. Market appeared to reward good environmental performance, charitable giving and an absence of nuclear and defence work. Further market appeared to penalise the firms that provide family related benefits showing social screening did not improve portfolio performance significantly.

**Cohen et al. (1997)** examined the difference in financial performance of heavy polluters and light polluters. They studied new objective data set detailing the environmental performance of the Standard and Poor's 500 companies. They constructed two industry-balanced portfolios and compare both accounting and market returns of the "high polluter" to the "low polluter" portfolio. Overall they found either no "penalty" for investing in the "green" portfolio, or a positive return from green investing. Thereby suggesting that investing in companies that are leaders in environmental protections would neither improve nor reduce portfolio returns.

**Statman (2000)** pointed that socially responsible investors want to do well, not merely do good. Investors want socially responsible mutual funds with a risk/return combination similar to or do not fall short to that of conventional funds. He compared the Domini Social Index (DSI) and the S&P index during the 1990-98 periods. His research showed that the DSI index, an index of socially responsible stocks, performed better during this period. When comparing SR mutual funds performed better than conventional funds of equal size, although the differences between their risk adjusted returns were not statistically significant. Both groups of mutual funds trailed the S&P 500 index.

**King & Lenox (2001)** examined 652 US manufacturing firms over the time period 1987 to 1996 to see whether pollution reduction causes financial gain or not. For the purpose of their study they separated the environmental performance into two constructs and found that firm's environmental performance relative to its industry is associated with higher financial performance but unable to show that firms that move to cleaner industries see an improvement in their financial performance Though they found a relationship between environmental and financial performance, but cannot prove the direction of causality.

**Williams (2005)** developed a general model of investor choice to analyse the social responsible investment. Data was drawn from a large survey of investors across five countries. He characterized SRI investors in terms of demographics and investor attitudes toward social aims. Consumer behaviour and attitudes toward social aims was carried through in portfolio strategies. The results showed that socially conscientious investors select securities not only for their expected yield and volatility, but foremost for social, environmental, and institutional ethicality aspects.

**Statman (2006)** performed a study on the characteristics that define socially responsible companies by comparing the content of the S&P 500 index to the contents of four SRI indexes – Domini 400 social, Calvert Social Index, the Citizens index, Dow Jones sustainability index – US. His studies found that SRI indexes vary in composition and social responsibility scores but the mean social scores of each is higher than that of the S&P 500 index and they vary in the emphasis they place on particular social characteristics. He also concluded based on his research using Fama and French's 3-factor model that returns of SRI indexes were generally higher than those of the S&P 500 Index.

**Olsson (2007)** contributed to the SRI literature by providing evidence on the performances of stock portfolios designed to have distinctly different environmental (EV) risk. For this he analysed the Returns of 30 US industry portfolios from Jan.2004- July2006. Based on EV risk ratings from GES Investment Services, a low EV risk (LoEVR) portfolio and high EV risk (HiEVR) portfolios are constructed. He concluded that responsible low EV risk portfolio does neither underperform nor outperform on a risk-adjusted basis, and this in a period when sectors with high environmental risk produced the highest returns. The LoEVR portfolio is intended to be a more responsible investment than the HiEVR portfolio.

**Fernando et al (2009)** examined the ownership and stock market characteristics of sample of S& P 500 firms with their environmental performance. He found that there is significant & positive effect of environmental performance on number of shareholders but at same time as firm gets greener the average holdings of institutional investors decreases substantially. Confirming the view that institutional investors shy away from green firms and that better environmental performance attracts a disproportionate number of individual investors. Furthermore there is a negative impact of environmental performance on effective and real bid ask spreads

**Mallett & Michelson (2010)** examined the performance of green funds, socially responsible funds (SRI), and index funds. The database contained historical information of over 2000 mutual funds from 1998-2008 from Morningstar Principia Pro Plus. They found that there is no real performance difference between green funds and SRI funds nor are there differences

for index funds and green funds. They found index funds showing better performance with a marginal performance difference than SRI funds. They believed that Green funds & SRI funds not only attract investors that are driven by their personal values in investing but also by investors who believe that green investing is a sector that will produce a favourable risk/return trade off.

**Climent and Soriano (2011)** examined the financial performance of a sample of 7 green mutual funds focussed on US market during the 1987–2009 period, comparing the results with a sample of conventional mutual funds and found that, for the full period analysed (1987–2009), green funds underperform their conventional peers. However, when they analysed the 2001–2009 period, their results indicated that the environmental and conventional mutual funds did not perform differently. They conclude that multifactor models are superior in explaining mutual fund returns.

**Sekhar (2011)** studied the nature of green mutual funds & green investing companies. He explained various green projects undertaken in India. He concluded that green funds as an investment option depends upon what an investor looks in terms of returns and how manager of green mutual fund play with money of investors

**Chang et al. (2012)** compared the financial performance of green and traditional mutual funds in the USA for a period of 15 years. 131 green mutual funds identified by US SIF were compared with traditional mutual funds and were categorised according to the proprietary methodology that will help investors to make conclusion. After Comparison of the operating characteristics as well as risk and performance measures of both funds it was found that green mutual funds have not generated competitive returns relative to other mutual funds in the same fund category. Green mutual funds do report lower annual turnover rates and lower tax cost ratio but exhibit high expense ratio.

**Tripathi and Bhandari (2012)** examined whether green stock portfolio outperformed non green stock portfolios and market portfolio in Indian stock market for twelve years from 2000 to 2012. Using absolute rate of return they found that although green stocks portfolio generated significantly higher return than market portfolio yet underperformed (but not significantly) non -green stocks portfolios during pre-crisis period. However during crisis period it significantly outperformed non green stocks portfolio as well as market portfolio. Green stock portfolio is found to have lower systematic risk as well as total risk than other portfolios. They suggested that for green investment promotion more and more SRI or green funds would be launched in India.

**Berry and Junkus (2013)** surveyed 5000 individual investors, both who have used SRI criteria in investment decisions and those who have not, to infer the attitude of investors towards social responsible funds. They found that both types of investors were inclined to invest in SRI considering the environmental issues to be most important. They also found that investors seem to have a preference to reward those firms who display overall positive social behaviours rather than exclude firms on the basis of particular products or practices. They argued that investors continuously judged socially responsible businesses, their stakeholder relationships and their overall behaviour in the marketplace. They also admitted that most SR vendors focussed on exclusionary approach and this disconnect is limiting the growth of SRI.

**Bhattacharya (2013)** in analysing the BSE GREENEX as against major Indices like BSE SENSEX & BSE 500 tested that whether or not it is financially rewarding for the investors to invest in green stocks .Two parameters of daily returns & variability in daily returns were assessed. Linear multivariate methods & predictive modelling on these indices were used to assess the comparative predictability. Results conveyed that investing in green stocks is found to be comparatively more rewarding to the investors. He suggested that Investing in organisations committed to the environment concerns provide a long term value to its stakeholders. long term . He concluded that over period of time not only BSE GREENEX performed superior but also it was found to be more predictable.

**Adamo et al. (2014)** provided a descriptive analysis of sample of 257 green funds all over the world with particular emphasis on performance and volatility differences (risk) in that sample, however not in comparison to non-green funds. He compared green funds across different sectors as well as with their sector index. He does not only compare returns and Sharpe ratio within the green fund market but also touches upon the issue of green fund risk. The authors present the standard deviation of green fund returns and find that it does not largely deviate across the sectors analysed.

**Munoz et al. (2014)** analysed the financial performance and managerial abilities of sample of US & European socially responsible mutual funds for period from January 1994 to January 2013. The US SR funds obtained statistically insignificant performance in crisis periods but underperform relative to the market in normal periods. Furthermore findings indicated that green mutual funds do not perform worse than other forms of SR mutual funds. Similar to the US findings, green Europe SR funds do not perform worse than other forms of SR mutual funds. When analysing managerial abilities in crisis and non-crisis market periods, US green fund managers achieve better results in crisis market periods and the opposite occurs for green fund managers in European market.

**Riedl and Smeets (2016)** analysed several motives besides perceived financial performance of SRI. They utilised unrepresentative administrative and survey data for investors from a mutual fund provider in the Netherlands. They specifically construct an indicator for social preferences on the basis of a trust game experiment and found that social preferences and social signalling are important factors for SRI decisions. Financial motives play a limited role in SRI decisions. That most socially responsible investors expect returns on SRI funds to be lower than on conventional funds. They suggested that on an average investors with strong social motivation are willing to forgo financial returns in order to invest according to their preference.

**Yuan (2017)** compared the environmental performance and financial performance of green mutual funds and non-green funds for period 2010-2016 in China. He found that from the long term environmental performance of holding enterprises, fund environmental performance is better than non-green fund. But from the perspective of short term, there exists no difference between green and non-green fund. The excess return of green fund is higher than non-green fund.

**Ibikunle & Steffen (2017)** examined the financial performance of European green, black (fossil energy and natural resource) and conventional mutual funds for period 1991-2014. Over the full sample period green mutual funds significantly underperform relative to conventional funds, while there is no significant risk adjusted performance differences between green and black mutual funds during the same period. Their findings also strengthened the assumption that a restricted investment set limits the green funds' diversification endeavours and negatively impacts the financial performance of the class. Further the evidence suggested that green mutual funds outperform their black peers, especially over the 2010-2014 investment window.

**Abhey (2018)** aimed at studying the performance of BSE Greenex vis-à-vis performance of BSE Sensex and BSE-100 indices. He further extended to compare the performance of constituent companies of BSE Greenex and control companies. He defined control companies as that are not a part of BSE Greenex as they are not carbon efficient. Monthly closing values of indices and companies were analysed for a period of six year from 2012 to 2018. He found that performances of BSE Greenex and its constituent companies were not better than the performances of other indices and control companies. He inferred that while searching for an investment option market participant do not look whether company is carbon efficient.

**Das et al (2018)** examined the risk adjusted performance and differential fund flows for socially responsible funds, domiciled in US, using the data from Morningstar. The study uses least square regression models to understand the impact of SRMF fund ratings on the risk adjusted performance and differential fund flows of investments into SRMF funds. The results showed that lower rated SRMF funds underperform the highest rate SRMF during periods of market downturn. The results also showed that medium rated ESG funds had a lower differential flow, but the SRMF funds in the lowest tertile had higher differential flows compared to the SRMF in the highest tertile of ESG scores except during severe market downturn period. The study finds evidence that mutual fund expense ratios are negatively associated with risk-adjusted returns across the entire period of the study. Among other variables, the study finds that fund size is negatively associated with differential flow during most of the study period, but the association between fund size and differential flows is positive during the period of great recession, thus indicating that during periods of market uncertainty, investors possibly look to fund size as a signal of quality.

**Kaur (2018)** discussed in detail India's first Green index, BSE GREENEX, that assesses the carbon performance of stocks based on quantitative performance. In this study Researcher highlighted the major green stocks in India and their performance over the period. For the purpose of study financial performance of index and its comparison with BSE SENSEX both opening & closing values had been taken for period of five years i.e 2013 to 2017 from the official site of BSE. The results showed positive returns of BSE GREENEX specifically in the recession period where in some months it even surpassed the BSE SENSEX returns which brings forth the index as an impactful and profitable avenue both in terms of step towards saving the environment and producing returns for the investors also.

**Martí-Ballester (2020)** analysed the performance of mutual funds focused on biotechnology & healthcare sectors related to sustainable development goal 3(SDG 3) by comparing risk adjusted returns with the conventional mutual funds. It was found that these mutual funds outperformed the conventional funds. One of the factor of outperformance is the superior stock picking skills of fund managers and their market timing ability.

**Humphrey & Li (2021)** investigated whether pro-environmental institutional investors reduce their portfolios' exposure to GHG emissions and its outcomes in terms of financial performance. They identified that there is a segment of financial markets that consciously reduces its portfolio exposure to emissions. The study also found a significant fund flow to signatory families as a consequence of them reducing their emissions which indicates the increasing demand for funds with lower-emission profiles, particularly from institutional investors. The study further revealed that "greener" portfolios are attractive to investors.

## CONCLUSION

India is facing a serious problem of climate change and environmental issues and the industry, the green fund investment in, is highly correlated with environmental investment, such as low-carbon, new energy industry. The anticipated strengthening of the principles behind green investment vehicles by substantiated self-contained economic advantages gives ground to expect intriguing insights through the adoption of a more differentiated and focused analysis. Environmental investments became increasingly popular and number of investors are exploring green mutual funds as an option that promise both long term financial returns and promotion of social good. Many studies revealed that green mutual funds allow a significant comparable risk adjusted returns than conventional mutual funds. Despite evidence of increasing private sector interest in clean energy and associated green investments, the scale of green investments has a lot more to cover.

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