

RESEARCH ARTICLE

Emerging paradigms in socially responsible investment (SRI)—A study with focus on ESG mutual funds in India

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ABSTRACT

Socially Responsible Investment (SRI) is an emerging investment avenue in India, encompassing various Environmental, Social, and Governance (ESG) mutual funds within the financial markets. This study adopts both an exploratory and empirical approach, aiming to provide historical insights into the landscape of SRI within India's financial markets. The study's objectives include elucidating the concept of SRI, assessing the performance of selected ESG funds in India, and examining the opportunities and challenges within this domain. To evaluate the effectiveness of Environmental, Social, and Governance (ESG) funds, the study employs various risk-adjusted performance measures. Notably, the ICICI Prudential ESG Fund in the Direct Plan-Growth (FDPG) option demonstrates superior overall performance compared to other selected ESG fund schemes in India. Conversely, the Aditya Birla Sun Life ESG FDPG option ranks as the least performer when contrasted with other schemes within the Direct Plan-Growth category.

Keywords: socially responsible investment; ESG mutual funds; financial markets; investment

JEL Classification: E2; G11; O16

1. Introduction

Across many disciplines, there is a growing body of literature on ethical investment. Ethical trading represents a unique strategy to invest, where an individual's ethical principles, encompassing morality, spirituality, social values, prioritized over mere financial profit. This form of investment predominantly appeals to those who seek to channel their financial resources toward noble and socially responsible causes. A noticeable transformation is occurring in the mindset of investors, as they increasingly embrace this ethical investment strategy. As a result of this shift, investors are considering environmental and social concerns to evolve the term SRI.

Socially Responsible Investment (SRI) has established itself as a distinct category of investment opportunities, attracting both individual and institutional investors. This concept has gained significant prominence within the financial market^[1,2]. A growing number of investors exhibit strong preferences for stocks or portfolio funds that prioritize socially responsible investing principles. These investors actively steer clear of businesses involved in the production of goods contrary to their social, ethical, or religious convictions. SRI employs Environmental, Social, and Governance (ESG) funds as a screening tool to weed out investments that run counter to their fundamental beliefs. ESG comprises a set of criteria used to evaluate a company's

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sustainability practices and policies, making it an integral part of the SRI framework.

An investment approach that places substantial emphasis on factors beyond mere financial considerations, encompassing Environmental, Social, and Governance (ESG) aspects, is referred to as SRI, which is also known as sustainable investing, ethical investing, or responsible investing. In addition to SRI, it is often referred to by alternative terms such as ethical investing, responsible investing, and sustainable investing.

The study of the United Nations Principles for Responsible Investment (UNPRI) published in 2006 provided a definition for SRI, characterizing it as “the incorporation of environmental, social, and governance (ESG) factors into the processes of investment analysis and decision-making. This incorporation empowers investors to effectively handle risks while fostering the generation of sustainable, enduring returns.” This definition places a strong emphasis on the integration of ESG elements within the realms of investment research and decision-making.

According to the Global Sustainable Investment Alliance (GSIA), SRI is delineated as an investment methodology that takes into account environmental, social, and governance (ESG) factors when making choices regarding portfolio composition and its management^[3]. This definition underscores the comprehensive nature of SRI, encompassing the incorporation of ESG considerations from the initial selection of securities for the portfolio, all the way through ongoing management and assessment of investments.

The Sustainable Development Goals (SDGs), which were unanimously adopted by the United Nations (UN) in 2015 as a worldwide initiative, encompass 17 objectives to be realized by 2030 and promote socially responsible investment funds. The UN’s SDGs actively advocate for businesses and investments that align with their objectives, making ESG investments particularly relevant in the current landscape.

1.1. Drivers of SRI

Institutional investors have witnessed a notable uptick in the realm of Socially Responsible Investments (SRIs) over the past decade, driven by an enhanced awareness of social issues. They increasingly gravitate toward businesses that exhibit a strong commitment to social responsibility^[4]. Similarly, certain private investors align themselves with the principles of SRIs, aiming to make investments that mirror their deeply held values, which may be influenced by political or religious convictions^[5]. Lewis and Mackenzie^[6,7] researched the intentions of socially responsible investors and found that 84 percent of investors eliminated hazardous businesses, 73 percent by the desire to support enterprises that benefit society, and 69 percent by the expectation that their investments were ethical. Michelson et al.^[8] suggested that shifts in education may serve as a plausible explanation for the growing popularity of SR investments. Additionally, Sparkes^[9] found that SR investors tend to have above-average incomes and well-rounded educational backgrounds, leading to the conclusion that they are more likely to excel in fields such as medicine. Investors are drawn to SRI funds not only due to their social considerations but also because they share concerns about environmental sustainability, which allows them to make meaningful and worthwhile investments^[10]. Furthermore, it’s important to note that the Indian economy has experienced remarkable growth among Asian nations and occupies a prominent position in the group of emerging nations known as BRICS (Brazil, Russia, India, China, and South Africa)^[11].

Both retail and institutional investors employ Socially Responsible Investing (SRI) as a means to align their investments with their values while also pursuing financial gains. The substantial increase in the capital allocated to SRI principles is indicative of this heightened interest. Nevertheless, there remains a lack of consensus in research regarding whether the primary motivation behind the surge in SRI interest stems from one specific cause or if it is a result of a combination of factors.

The study has examined the following objectives:

- 1) To study the historical perspective on the evolution of SRI.
- 2) To analyze the performance of chosen ESG funds in India.
- 3) To evaluate opportunities and challenges in the field of SRI in India.

Hence, this paper aims to delineate the concept, evolution, and process of Socially Responsible Investing (SRI). The subsequent sections delve into the literature review, which focuses on tracing the historical developments, evolution, and processes underpinning socially responsible investments. This is followed by an examination of the performance status of Environmental, Social, and Governance (ESG) funds within the context of India.

1.2. Need for the study

Many investors express a strong inclination to integrate social and environmental factors into their investment approaches. Those who wish to direct their resources toward socially responsible ventures often explore Environmental, Social, and Governance (ESG) investments. Nonetheless, a discourse arises regarding the actual impact and efficacy of these investments. Consequently, conducting research to evaluate the effectiveness of Socially Responsible Investment (SRI) has become a crucial undertaking. Analyzing the performance of these investments can provide valuable insights, enabling investors to make well-informed decisions and align their investments with their values and objectives.

2. Review of literature

The literature review is structured into four distinct segments. The initial part of this section revolves around the evolution of SRI, followed by an exploration of the SRI process, and historical developments of SRI in India and the final component delves with the emerging paradigm shifts in ESG mutual funds.

2.1. Evolution of SRI

The origin of socially responsible investment may be linked to the religious development starting in Judaism (1500–1300 BC), which prohibited their disciples from investing in morally offensive companies (coal, oil, and gas). Islam forbids alcoholic beverages, cigarettes, and pork products; it also prevents the payment or receipt of any form of usury, including all aspects of interest and gambling. Quakers forbade members from making an investment that facilitated the slave trade or the war effort. Miller^[12,13] claimed that people and organizations with strong ethical, moral, religious, or political beliefs should allocate their financial resources in accordance that reflects their values. Next is the development era (1950–1980). The Pioneer Fund, established in 1952 in Boston, was one of the initial funds to enforce SRI principles and practices^[14,15]. 1960s Numerous thematic campaigns resulted from the political climate, including anti- Vietnam war protests, Cold War concerns, and social injustice. During the 1970s, the first earth day was renowned, the first Spectrum Fund and the Pax World Fund became available, and a list of socially responsible stocks was designed and published.

The United States Sustainable Investment Forum (SIF) was founded in the 1980s by campaigners who were among the first to organize an alliance of environmentally conscious businesses. Socially responsible investors attract attention to equality concerns involving women and members of minority groups^[4]. Furthermore, the MSCI KLD 400 Social Index (formerly known as the Dominion 400 Social Index) became available in 1990. The worldwide media started to focus more on issues such as climate change, the melting of the ozone layer, etc.^[16]. During the Modern Era, the term ESG originated on account of the United Nations' Principles for Responsible Investment. In 2015, the United Nations Sustainable Development Goals (UN SDGs) were created to provide universal objectives for achieving sustainable development. Socially

responsible investment (SRI) mutual funds engage in proactive partnerships with the forest sector, collaborating closely with Non-Governmental Organizations and community stakeholders to advance sustainability and also noted a declining significance of forest certification over the years, pinpointing the Forest Stewardship Council scheme as the preeminent and most credible choice^[17]. In 2020, the total amount of global assets that explores ESG data in their investment decisions was \$40 trillion, and during 2021 Inflows into European sustainable funds increased compared to the same period in the previous year.

2.2. Process of SRI

The procedural aspect of Socially Responsible Investing (SRI) involves establishing mechanisms to inform investors about a company's ethical practices or enticing practices^[18]. Within the SRI process, one essential action is screening, which is sometimes referred to as SRI investment methods. Screening revolves around the selection or exclusion of companies from a portfolio based on social or environmental criteria. This process encompasses both negative and positive screening approaches, where companies are either included or excluded^[19-21]. Optimal abnormal returns materialized when investors embraced a best-in-class screening methodology, integrating multiple socially responsible screens concurrently, and adhering exclusively to stocks with exceptionally high socially responsible ratings^[22,23]. The "best-in-class" approach entails selecting the top-performing investments according to Environmental, Social, and Governance (ESG) considerations. The idea behind this tactic is that successful companies can serve as role models for underperforming counterparts^[24]. A portfolio constructed using this method may be considered excellent, but it may not be kept clean^[25]. Shareholder activism, also known as the activist approach, involves investors utilizing proxy votes to encourage companies to adopt ethical practices^[26]. It promotes the notion that shareholders can leverage their rights and influence to instigate social change^[27]. Prospective investors should carefully examine prospectuses to assess a fund's performance and ethical criteria^[28]. In some cases, the companies held by Ethical or Socially Responsible Funds (SRF) and the rationale behind their inclusion may not be fully disclosed^[29].

2.3. Historical developments of SRI in India

The historical evolution of Socially Responsible Investment (SRI) in India commenced in 2007 and is still in its nascent stages of development. Several factors contribute to this, ranging from a lack of investor awareness to the absence of readily accessible Environmental, Social, and Governance (ESG) data to inform financial decisions regarding corporations^[30,31]. Socially Responsible Investment (SRI) in India was marked by the launch of the first SRI Mutual Fund in March 2007 by ABN AMRO, which is now managed by BNP Paribas. The perceived advantage of investing in socially responsible mutual funds might be impacted by heightened costs associated with maintaining social responsibility, such as screening expenses and opportunity costs^[32]. Collaborative efforts involving the International Finance Corporation (IFC), Standard & Poor's, Credit Rating Information Services of India Limited (CRISIL), and KLD Research & Analytics, Inc. resulted in the creation of India's first ESG index in 2007, aimed at quantifying ESG practices. Additionally, the BSE TASI Shariah 50 Index, established in January 2008 through a partnership between the Bombay Stock Exchange (BSE) and TASI, focused on companies adhering to Shariah principles. In 2008, the Emerging Market Disclosure Project (EMDP) assessed ESG reporting quality in developing economies, including Brazil, India, Indonesia, South Africa, and Korea. In 2009, Taurus Mutual Fund introduced the Taurus Ethical Fund, the first ethical fund in India that exclusively accepts investments adhering to Shariah law. The fund offers diversification options while accommodating socially conscious investment. The Global Reporting Initiative (GRI) plays a pivotal role in India with respect to SRI^[30]. GRI strives to standardize sustainability reporting in the same manner as financial reporting. In 2012, the Bombay Stock Exchange (BSE) introduced the BSE GREENEX, a novel sustainability equities index designed to assist traders in identifying eco-friendly companies. In November 2012, BSE unveiled a new offering called BSE CARBONEX to aid investors in

managing long-term climate change-related risks.

2.4. Emerging paradigm shifts in ESG mutual funds

Sekhar and Gudimetla^[33] indicates that investors who prioritize environmental and social objectives, in addition to financial returns, find green mutual funds to be an appealing investment choice. The international market for eco-friendly businesses is expanding, driven by growing environmental awareness and the favorable policies of governments and regulators and recommended that Indian mutual funds should take advantage of the opportunities in the green fund sector and actively contribute to the vision of a pollution-free India through sustainable investments.

A fuzzy multicriteria decision-making method for portfolio selection was examined by the study of top of form. Gladish et al.^[34] encompassing elements like return on investment, risk assessment, and social responsibility factors. They contended that this approach could effectively account for the uncertainty and vagueness inherent in investors' preferences and objectives. Furthermore, they asserted that the model could generate an optimal portfolio encompassing both ethical and conventional mutual funds. A comparison was made by the study of Hamilton et al.^[35-38] between the performance of socially responsible mutual funds and regular mutual funds. Socially responsible mutual funds did not yield statistically significant additional returns. And the performance of these mutual funds was not markedly different from that of typical mutual funds. Thus, socially conscious investors can opt for socially responsible mutual funds without compromising their financial objectives.

Socially responsible investors are willing to forego certain financial returns and accept higher fees to ensure their investments align with their ethical beliefs. This implies that SRI decisions are motivated not only by economic considerations but also by intrinsic moral values. Investors who engage in regular discussions about their investments are more inclined to opt for socially responsible investment options. This implies that social interactions and peer influence play a role in shaping the SRI choices of investors^[39].

Socially Responsible Investment (SRI) mutual funds incorporate both financial and non-financial criteria into their decision-making approach and demonstrate superior performance compared to conventional funds. This study implies that SRI mutual funds offer advantages not only for society and the environment but also for investor^[40].

The study of Banu^[41] analyzed the impact of socially mindful investors in financial markets, with a specific emphasis on the accessibility and effectiveness of mutual fund companies' environmental, social, and governance (ESG) fund schemes. Performed a correlation analysis between SBI Mutual Fund and NIFTY, comparing various categories of SBI ESG funds. The outcomes indicated that mutual funds have the potential to attain elevated financial returns while effectively handling the risk profile linked to ESG funds.

The study of Tripathi and Bhandari^[42] did a comparative analysis of six ethical fund schemes and three general fund schemes offered by Taurus Mutual Fund. Various metrics, including the Sharpe ratio, Treynor ratio, Jensen's alpha, Fama's decomposition measure, paired samples t-test, and growth regression equation, were employed to gauge return, risk, and risk-adjusted performance of the funds. The results indicated that ethical funds exhibited superior performance compared to other funds and the benchmark index, despite carrying higher risk.

By using Data Envelopment Analysis (DEA) methodology, Ayadi et al.^[43] assessed the performance of mutual funds. Their focus was on Canadian socially responsible investment (SRI) mutual funds, and they took into account a range of indicators, including higher-order moments, tail-risk measures, fee structures, net returns, and fund size. The findings of their study highlighted that both front-end loads and fund size had a

substantial adverse effect on the efficiency of SRI mutual funds.

2.5. Research gap

A substantial gap exists in scholarly research concerning the evaluation of mutual fund performance that incorporates ESG (Environmental, Social, and Governance) direct plan criteria within their investment strategies. Inadequate awareness and understanding regarding the inherent opportunities and risks linked to Socially Responsible Investing (SRI) are clearly observed. Moreover, there persists a shortage of empirical studies assessing the performance of ESG direct plan mutual funds using risk-adjusted metrics. Furthermore, within the Indian context, no prior research paper has been found to encompass all of these funds, underscoring a research gap that drove the initiation of this present study and a comprehensive study on ESG funds in the Indian context is notably lacking.

3. Data and methodology

This study employs a comprehensive approach that combines both exploratory and empirical methods to shed light on the historical landscape of Socially Responsible Investing (SRI) within the Indian financial market. A secondary dataset constructed based on individual mutual funds' databases, reports provided by AMFI and NSE, as well as relevant published literature. Specifically, the study delves into the performance of select ESG direct plan mutual funds. In pursuit of this objective, data spanning from April 2022 to March 2023 has been gathered to assess the efficacy of these investment strategies. **Table 1** provides information about the selected schemes, its data have been collected from Association of Mutual Funds India (AMFI)^[44]. Furthermore, the paper includes a detailed portfolio composition of ESG funds were annexed (Appendix A) to provide additional insights into the study's findings.

Table 1. ESG equity schemes.

Name of the schemes	Launch date	Asset under management (31-3-23) (Amount in Cr)
SBI Magnum Equity ESG Fund	01/01/2013	₹4,412
Quantum India ESG EF	21/06/2019	₹61
Axis ESG Equity Fund	22/01/2020	₹1,461
ICICI Prudential ESG Fund	21/09/2020	₹1,217
Quant ESG Equity Fund	15/10/2020	₹156
Kotak ESG Opportunities Fund	20/11/2020	₹1100
Aditya Birla Sun Life ESG Fund	04/12/2020	₹798
Invesco India ESG EF	26/02/2021	₹599

Source: amfiindia.com.

The Indian mutual fund industry offers a wide range of investment plans and opportunities to investors. However, this study focuses exclusively on the evaluation of ESG mutual funds. The analysis is centered on a specific subset of ESG direct plan mutual funds, and data was collected during the period spanning from 2022 to 2023. The data analysis was conducted over a one-year timeframe because some of the funds included in the study were recently introduced. Consequently, there was an insufficient amount of data available to perform analyses for longer periods, such as three or five years.

In evaluating the performance of ESG funds, this study employs four risk-adjusted portfolio performance assessment metrics: the Sharpe Ratio, Jensen's Alpha, Treynor Ratio, and Sortino Ratio. In these calculations, the return rate from 364-day Treasury bills serves as the risk-free rate of return (Rf), while the market rate of return (Rm) is determined by the annualized return of the Nifty 100 ESG index.

3.1. Sharpe ratio

The Sharpe ratio, introduced by Nobel laureate William F. Sharpe in 1966, quantifies the risk premium achieved in relation to the inherent risk of a portfolio, encompassing both systematic and unsystematic risks. **Table 2** shows the analysis based on Sharpe ratio of the selected ESG direct plan mutual funds. This ratio is calculated using the formula below. $Sharpe\ Ratio = (Rp - Rf) / \sigma p$. Where, Rp = Return of Portfolio, Rf = Risk free rate, σp = Standard deviation (SD)

Table 2. Analysis based on Sharpe ratio.

Name of the Fund	Annual return	Annual risk (SD)	Risk free rate	Sharpe ratio
SBI Magnum Equity ESG Fund—DPG Option	14%	0.3431	7.00%	0.196
Quantum India ESG EFDG	14%	0.3375	7.00%	0.219
Axis ESG Equity Fund—DPG Option	9%	0.3339	7.00%	0.068
ICICI Prudential ESG Fund—DPG Option	17%	0.3344	7.00%	0.300
Quant ESG Equity Fund—DPG Option	15%	0.3877	7.00%	0.218
Kotak ESG Opportunities Fund—DPG Option	12%	0.3620	7.00%	0.139
Aditya Birla Sun Life ESG FDPG	7%	0.3291	7.00%	-0.011
Invesco India ESG EFDPG	8%	0.3289	7.00%	0.0214

Source: Results of analysis based on compiled data by the authors.

Whenever the ratio is higher, the risk-adjusted return of the fund’s performance is better. This table reveals that ICICI performs better compared to other schemes. Based on the analysis, from the table (**Table 2**), the ICICI Prudential ESG Fund—DPG Option has exceeded beyond selected ESG funds. So, the risk-adjusted performance is better, which indicates ICICI fund generates higher returns in proportion to the level of risk it takes.

3.2. Treynor ratio

This metric, devised by J. L. Treynor, serves to assess the surplus return that a portfolio could generate per unit of systematic risk, which is quantified by its beta value. The concept of “systematic risk” pertains to the fluctuation in a portfolio’s returns in reaction to changes in the overall market’s returns. $T = (Rp - Rf) / \beta p$. T = Treynor Ratio, Rp = Return of Portfolio, Rf = Risk free rate, βp = Beta of the portfolio.

The higher ratio indicates that the portfolio is performing better concerning its systematic risk. Aditya Birla shows a negative Treynor ratio signifies that the ESG fund has underperformed in contrast to the stock market performance. In the case of other funds, it is positive and indicates that the entire portfolio has beaten its risk-free rate compared to the value of overall systematic risk taken. **Table 3** shows that ICICI is performing better in terms of its systematic risk indicating the amount of extra profit made for each additional unit of the portfolio’s risk.

Table 3. Analysis based on Treynor ratio.

Name of the Fund	Annual return	Beta	Risk free rate	Treynor ratio
SBI Magnum Equity ESG Fund—DPG Option	14%	1.189	7.00%	0.0566
Quantum India ESG EFDG	14%	1.177	7.00%	0.0628
Axis ESG Equity Fund—DPG Option	9%	1.130	7.00%	0.0202
ICICI Prudential ESG FUND—DPG Option	17%	1.158	7.00%	0.0867
Quant ESG Equity Fund—DPG Option	15%	1.359	7.00%	0.0623

Table 3. (Continued).

Name of the Fund	Annual return	Beta	Risk free rate	Treynor ratio
Kotak ESG Opportunities Fund—DPG Option	12%	1.257	7.00%	0.0401
Aditya Birla Sun Life ESG FDPG	7%	1.141	7.00%	-0.0033
Invesco India ESG EFDPG	8%	1.143	7.00%	0.0062

Source: Results of analysis based on compiled data by the authors.

3.3. Jensen’s alpha

In 1968, Michael Jensen introduced this metric to evaluate portfolio performance based on risk-adjusted returns. It evaluates the abnormal return of an investment portfolio relative to the expected return at a given level of systematic risk (represented by beta). **Table 4** shows the analysis based on Jensen’s alpha of the selected ESG direct plan mutual funds. This calculation is carried out using the formula below. Jensen’s Alpha (α) = $R_p - [R_f + B_p * (R_m - R_f)]$. where, R_p = Return of Portfolio, R_f = Risk free rate, R_m = return on market, B_p = Beta of the portfolio

Table 4. Analysis based on Jensen’s alpha.

Name of the Fund	Annual return	Market return	Beta	Risk free rate	Jensen’s alpha
SBI Magnum Equity ESG Fund—DPG Option	14%	0.0440	1.189	7.00%	0.0983
Quantum India ESG EFDG	14%	0.0440	1.177	7.00%	0.105
Axis ESG Equity Fund—DPG Option	9%	0.0440	1.130	7.00%	0.052
ICICI Prudential ESG Fund—DPG Option	17%	0.0440	1.158	7.00%	0.131
Quant ESG Equity Fund—DPG Option	15%	0.0440	1.359	7.00%	0.120
Kotak ESG Opportunities Fund—DPG Option	12%	0.0440	1.257	7.00%	0.083
Aditya Birla Sun Life ESG FDPG	7%	0.0440	1.141	7.00%	0.026
Invesco India ESG EFDPG	8%	0.0440	1.143	7.00%	0.037

Source: Results of analysis based on compiled data by the authors.

In **Table 4**, the alpha is higher, which means that the performance of the portfolio is better relative to its risk. The table shows that during 2022–2023, ICICI has outperformed compared to all other schemes, and the positive value indicates that the portfolio manager’s ability to choose stocks has resulted in greater risk-adjusted returns.

3.4. Sortino ratio

The alteration of the Sharpe Ratio offers a risk-adjusted performance metric that focuses on downside risk (also known as negative deviations or losses) rather than the overall risk (Standard Deviation). This ratio is particularly suitable for retail investors who prioritize minimizing losses and are more risk-averse due to its lower volatility. Its calculation is based on the formula provided below. Sortino Ratio = $(R_p - R_f) / \sigma_d$. where: R_p = Actual or expected portfolio return, R_f = Risk-free rate, σ_d =Standard deviation (SD) of the downside.

When the ratio is higher, portfolio returns are gains that exceed the measured risk. **Table 5** shows that during 2022–2023, ICICI outperformed all other funds followed by SBI. ICICI signifies that the investment has a higher return for each component of risk taken, which reveals a better chance of preventing terrible losses when compared with other funds.

Table 5. Analysis based on Sortino ratio.

Name of the fund	Annual return	Risk free rate	Sortino ratio
SBI Magnum Equity ESG Fund—DPG Option	14%	7.00%	1.517
Quantum India ESG EFDG	14%	7.00%	1.269
Axis ESG Equity Fund—DPG Option	9%	7.00%	0.809
ICICI Prudential ESG FDPG	17%	7.00%	3.017
Quant ESG Equity Fund—DPG Option	15%	7.00%	1.510
Kotak ESG Opportunities Fund—DPG Option	12%	7.00%	1.218
Aditya Birla Sun Life ESG FDGP	7%	7.00%	0.427
Invesco India ESG EFDPG	8%	7.00%	0.633

Source: Results of analysis based on compiled data by the authors.

4. Results and discussion

This section encompasses four sub-topics, including SRI opportunities, SRI challenges, Future scope, concluding observations, limitations and implication of the study.

4.1. Opportunities of SRI

India stands as one of the world’s largest and most dynamic economies, with ambitious goals to reach a five-trillion-dollar economy by 2025^[45]. Within this thriving economic landscape, the concept of socially responsible investing offers a diverse range of avenues for investors to explore. Below are some of the most significant opportunities associated with SRI.

Positive impact: Socially Responsible Investing (SRI) empowers investors to align their investment decisions with their personal values, allowing them to exert a positive influence on society and the environment through their financial choices. Investors contribute to driving positive change by directing their funds toward businesses that advocate environmentally friendly practices, contribute to social causes, or engage in both endeavors simultaneously.

Risk management: Integrating environmental, social, and governance (ESG) factors into investment decisions can be instrumental in effectively identifying and mitigating risks. Companies that exhibit robust ESG performance often demonstrate enhanced risk management practices, thereby reducing the possibility of negative financial consequences due to factors such as regulatory violations, reputational damage, or disruptions in supply chain operations.

Long-term performance: Numerous studies indicate that businesses with excellent environmental, social, and governance (ESG) performance, as well as sustainability practices, tend to generate favorable financial results over the long term. Companies that exhibit a greater potential for enduring growth and resilience, ultimately leading to heightened investment returns, are often referred to as well-positioned or superior companies.

Regulatory support: The importance of environmentally responsible investment is gaining recognition from governments and regulatory bodies. They are taking steps to promote disclosure regarding Environmental, Social, and Governance (ESG) practices and responsible investing. These regulatory initiatives are creating an environment conducive to Socially Responsible Investment (SRI), fostering transparency, and expanding opportunities for sustainable investments.

ESG integration: SRI enables investors to include environmental, social, and governance considerations in their investing decision-making. This integration offers the potential to provide a more comprehensive

assessment of a company's overall performance, extending beyond conventional financial metrics. Investors may improve their understanding of an organization's operations, management quality, and long-term sustainability by considering ESG elements. This, in turn, enables investors to make more informed and well-rounded investment decisions.

Socially responsible investing (SRI) is centered on the dual objective of generating returns while investing in companies committed to addressing social issues and engaging with socioeconomic concerns. Over the past decade, SRI has witnessed substantial growth, driven not only by investor enthusiasm but also by its capacity to tackle non-financial challenges like climate change and employment discrimination. As SRI continues to expand and evolve, it is expected to encompass a wide range of investment vehicles, including real estate assets, hedge funds, venture capital funds, mutual funds, and more. While SRI offers numerous advantages, it is not without its challenges and demands rigorous research and thorough due diligence. Investors looking to navigate the opportunities and pitfalls associated with SRI effectively may find it beneficial to seek guidance from financial professionals or SRI experts.

4.2. Challenges of SRI

The practice of SRI, although offering rewards is also complicated by several obstacles that investors need to take into account. The following are some of the most significant difficulties linked with SRI:

Subjectivity and differing values: People can have varying perspectives on social and environmental problems, and investors can have diverse understandings of what it means to engage in responsible or ethical investment. Some investors may set a higher priority on ESG concerns than they do on others, which may lead to differences in investing strategies and results. In an investor environment with so many different options, it may be challenging to find investments that are consistent with one's particular beliefs.

Limited investment universe: When strong ESG standards are applied, few investors may discover that their investing alternatives are restricted. It's possible that businesses operating in some areas, like fossil fuels or defense, won't be able to achieve specific ESG criteria, leading to a smaller number of available investments. Because of this, there may be difficulties with diversity and allocation of asset techniques.

Performance attribution: Attributing the success of a financial investment exclusively to ESG aspects may be difficult. Investment returns are influenced by other macroeconomic variables, trends in the market, and dynamics particular to a firm. Performing the task of identifying the impact that ESG elements have on performance may be difficult and may need advanced research.

Higher costs: Strict guidelines for ESG analysis, investigation, and monitoring might result in additional expenditures for managers of investments. Resources may be necessary for activities gaining access to specialized ESG data, shareholder action, or doing ESG audits. These expenses could be carried on to investors with increased fees if the company chooses to do.

Problems with accuracy and reliability tend to be a hindrance in the way of establishing SRI investments in India. The majority of the ESG funds are just launched or introduced in the market within the last 2–3 years. Therefore, it is still in an early stage of growth in the cycle of the investment environment.

As a result, India does not have a long track record of ESG funds; hence, it cannot attract much investment as a total investment asset (like Asset Under Management) under one investment scheme. The SRI options are the most preferred stock option getting more popular in other countries but still not well promoted or channelized in India. It is significant to educate investors on the multiple benefits of SRI investment. When it comes to identifying SRI investments, the market does not have any established standards. Impact investing, socially responsible investing, and ESG investing were assigned to these types of investments. In addition,

there is a lack of uniformity in the ESG data collection process. Likewise, there is an absence of standards for impact measuring and reporting techniques of such funds.

To effectively address these difficulties, continual improvements in data quality, ongoing initiatives toward standardization, and transparent ESG reporting are required. When deciding whether or not to use SRI methods in their investing portfolios, investors must take their personal risk tolerance, financial objectives, and time horizon. Consultation with financial advisers or experts in sustainable investment may give substantial insights and direction in successfully managing these obstacles.

4.3. Future scope of SRI

In recent years, there has been a significant surge in the popularity of ESG funds in India, and experts in the industry anticipate that this trend will persist. The following are some significant aspects that will play a role in determining the future scope of ESG funds in India:

Growing awareness: Investors are becoming increasingly mindful of sustainable investing and the critical role of ESG factors in their investment decisions. This heightened awareness is driving the demand for ESG funds as investors seek to align their investments with their values and beliefs. The significance of institutional efforts takes center stage in enhancing investor awareness of responsible investment practices^[46,47].

Government initiatives: The Indian government is actively promoting sustainable development and responsible investment through various recent initiatives. The legislative and regulatory framework in India, focusing on ESG issues, is creating a favorable environment for the growth of ESG funds.

Investor preferences: The recent surge in socially conscious investors has led to a greater desire for investments that reflect individual values and contribute to a more sustainable future. ESG funds direct their investments toward companies that uphold ethical standards and demonstrate strong governance practices.

Performance and returns: The conventional notion that environmentally friendly investments come at the expense of profits is being challenged by the promising performance of ESG investments in recent times. As investors recognize the potential for superior investment returns, the demand for ESG funds is expected to rise.

Regulatory push: Regulatory bodies in India are actively considering new policies and procedures that promote sustainable investment. For instance, SEBI has made it mandatory for 1,000 listed companies in India to disclose their ESG-related actions. Such regulatory initiatives compel investors and fund managers to give due consideration to ESG factors.

Integration of ESG factors: Traditional investment firms and portfolio managers in India are increasingly committed to integrating environmental, social, and governance (ESG) issues into their investment processes. This integration has broadened the range of ESG investment options available to investors across various asset classes and investment strategies.

It is important to note that the outlook for any investment category is influenced by a multitude of factors, including market conditions, investor sentiment, and changes in regulatory policies. Socially Responsible Investing (SRI) encompasses a wide range of approaches, categorized into investment-driven, ethically grounded, and value-added strategies^[48]. For individuals considering ESG funds in India, thorough research and due diligence are essential steps before making any investment decisions.

4.4. Concluding observations

The investigation into SRI funds, specifically ESG mutual funds, has provided valuable insights into their growth potential and the prominent ESG schemes operating in India. Despite witnessing an upward trend in their growth within India, the expansion of these funds has been relatively slow. This can be attributed, in part,

to the fact that investors across India are still somewhat hesitant about the concept of constructing their investment portfolios with sustainability considerations in mind. The research conducted for this study encompassed an analysis of various academic papers, focusing on the evolution, processes, and historical developments within the realm of socially responsible investing. By utilizing key performance indicators such as the Sharpe ratio, Jensen's alpha, the Treynor ratio, and the Sortino ratio, the objective was to assess the performance of a select group of ESG funds in India. Ultimately, the findings indicate that the ICICI Prudential ESG Fund's Direct Plan-Growth option outperforms other schemes among the selected ESG funds in India. Conversely, the Aditya Birla Sun Life ESG Fund's Direct Plan-Growth option demonstrates the lowest performance among these schemes.

The regulatory framework established by the Securities and Exchange Board of India (SEBI) now includes new provisions related to the Social Stock Exchange (SSE). The SSE serves as a platform for the listing of social enterprises and voluntary organizations dedicated to advancing social welfare objectives. Through this exchange, these entities can access capital by issuing equity, debt, or units akin to mutual funds. The introduction of SSE not only fosters the growth of the investment industry but also contributes to a more regulated capital market in India. Subsequently, it enhances the accessibility of impact investing, which will increase funds toward sustainable development initiatives.

4.5. Limitations and future research directions

This study does come with certain limitations, and it is evident that there are certain areas of research remain largely unexplored, requiring further investigation and attention from future researchers. It's important to acknowledge that this study is narrowly focused on the Indian market and exclusively examines the performance of ESG direct plan mutual funds. Consequently, there is a need for more extensive and comprehensive research regarding the assessment of ESG mutual fund performance in India, utilizing a diverse set of risk-adjusted indicators, multiple benchmarks, and extended timeframes for analysis.

Additionally, future research endeavors could benefit from the inclusion of socially responsible indices such as GREENEX, CARBONEX, and SENSEX for a more holistic evaluation. Furthermore, there is an opportunity for research that delves into the influence of investor behavior and preferences on the demand and supply dynamics of environmental, social, and governance (ESG) mutual funds. Such studies can provide valuable insights for fund managers, aiding them in improving the design and marketing of their products. Additionally, it can address potential disparities that may exist between a fund's performance and investor expectations.

4.6. Practical implications

This study carries substantial implications for a broad spectrum of stakeholders, including government regulators, policymakers, and investors at large. It stands to offer valuable assistance to investors in evaluating the risk-return dynamics associated with ESG funds. Furthermore, it has the potential to enhance awareness of the opportunities and risks entailed in Socially Responsible Investment (SRI), thereby fortifying the processes related to fund selection and portfolio construction for investors.

Government regulators and policymakers can also derive benefits from this study. It can serve as a valuable resource in formulating and implementing effective regulations and standards pertaining to SRI investing, thus fostering transparency and accountability within the market.

Moreover, this research holds significance for the academic and research community. It can facilitate further exploration of the theoretical and practical aspects of SRI investment, contributing to the advancement of knowledge and innovation in this field.

Author contributions

Conceptualization, MV and MSMK; methodology, MV; software, MV; validation, MV and MSMK; formal analysis, MV; investigation, MV; resources, MV; data curation, MV; writing—original draft preparation, MV; writing—review and editing, MV; visualization, MV; supervision, MV; project administration, MV; funding acquisition, MSMK. All authors have read and agreed to the published version of the manuscript.

Conflict of interest

The authors declare no conflict of interest.

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Appendixes

Name of the scheme	Sector allocation				Company holdings			
SBI Magnum Equity ESG Fund	Financial	Technology	Automobile	Capital Goods	Infosys Ltd.	Housing Development Finance Corporation Ltd.	ICICI Bank Ltd.	TCS Ltd.
Quantum India ESG Equity Fund	Financial	Technology	Consumer Staples	Automobile	TVS Motor Co. Ltd.	Housing Development Finance Corporation Ltd.	HDFC Bank Ltd.	TCS Ltd.
Axis ESG Equity Fund	Financial	Services	Technology	Consumer Staples	Nestle India Ltd.	Avenue Supermarts Ltd.	Bajaj Finance Ltd.	TCS Ltd.
ICICI Prudential ESG Fund	Technology	Financial	Capital Goods	Healthcare	Infosys Ltd.	Bharti Airtel Ltd.	HDFC Bank Ltd.	Sundaram Finance Ltd.
Quant ESG Equity Fund	Financial	Technology	Consumer Staples	Metals & Mining	HDFC Bank Ltd.	Reliance Industries Ltd.	SBI	Indian Hotels Co. Ltd.
Kotak ESG Opportunities Fund	Financial	Technology	Automobile	Materials	State Bank of India	ICICI Bank Ltd.	Infosys Ltd.	TCS Ltd.
Aditya Birla Sun Life ESG Fund	Financial	Technology	Consumer Discretionary	Automobile	LTI Mindtree Ltd.	ICICI Bank Ltd.	HDFC Bank Ltd.	Infosys Ltd.
Invesco India ESG Equity Fund	Financial	Technology	Capital Goods	Healthcare	HDFC Bank Ltd.	Tata Consultancy Services Ltd.	Infosys Ltd.	ICICI Bank Ltd.

Source: Data taken from respective funds website.