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Multi-Factor Performance Evaluation and Persistence Analysis of Socially Responsible and Conventional Equity Portfolios in India

Mehak Singla
Asssistant Professor of Commerce
Government College Chammu Kalan, Kurukshetra
Email id- mehaksingla.ubs@gmail.com

Abstract
This study investigates the comparative financial performance of socially responsible and conventional equity portfolios in the Indian stock market during the period April 2009 to March 2024. The analysis evaluates ESG-oriented portfolios, traditional portfolios, and benchmark market indices using return-based measures, risk-adjusted indicators, Fama decomposition, the Carhart four-factor asset pricing framework, and the Top-minus-Bottom (TMB) methodology for testing performance persistence. The empirical findings indicate that socially responsible investment portfolios did not experience any systematic financial disadvantage relative to conventional alternatives. Among the selected portfolios, the NIFTY100 ESG index generated superior average returns over the overall sample period, while the socially responsible non-blue-chip portfolio demonstrated stronger performance across several alpha and efficiency measures. The four-factor model further reveals that certain ESG-oriented portfolios continued to produce statistically significant abnormal returns even after controlling for market, size, value, and momentum effects. However, persistence analysis suggests that such superior performance was not consistently sustained across different horizons, with evidence of reversal effects emerging in several cases. Overall, the study concludes that ESG-oriented investing in India represents a financially viable alternative to conventional equity investment strategies, although historical outperformance may not necessarily persist over time.
Keywords: *ESG investing, socially responsible portfolios, Carhart four-factor model, portfolio efficiency, persistence analysis.*

Introduction

The growing integration of sustainability considerations into investment decision-making has significantly transformed global financial markets in recent decades. Environmental, Social, and Governance (ESG) investing and socially responsible investing (SRI) have emerged as important approaches through which investors attempt to align financial objectives with ethical, environmental, and social concerns. Traditionally, investment decisions were primarily guided by the trade-off between risk and return. However, the increasing awareness regarding climate change, corporate governance failures, social accountability, and long-term sustainability has encouraged investors to incorporate non-financial factors into portfolio selection and evaluation. Socially responsible investing broadly refers to an investment strategy that incorporates ethical, environmental, social, and governance considerations alongside conventional financial criteria. Unlike traditional investing, which focuses solely on profitability and wealth maximization, SRI seeks to support firms demonstrating responsible corporate behaviour while discouraging investments in activities considered socially or environmentally harmful. Over time, the concept has evolved beyond negative screening approaches toward a broader ESG-based framework that integrates sustainability indicators into financial analysis. The debate surrounding the financial implications of responsible investing remains inconclusive. One stream of literature argues that ESG-oriented investments may enhance long-term portfolio quality by improving governance standards, reducing reputational risk, and encouraging sustainable business practices. Another perspective suggests that ESG screening restricts the available investment universe and may therefore reduce diversification benefits, potentially affecting return generation adversely. Consequently, empirical studies across developed and emerging markets have produced mixed findings regarding the comparative performance of socially responsible and conventional investments. Earlier international studies, including those by Hamilton, Jo, and Statman (1993) and Statman (2000), reported that socially responsible funds generally performed comparably to conventional funds rather than significantly underperforming them. Similarly, Bauer, Koedijk, and Otten (2005) and Renneboog, Ter Horst, and Zhang (2008) observed that the financial performance of ethical investments varied across countries and market conditions. More comprehensive evidence was later provided by Friede, Busch, and Bassen (2015), whose large-scale review concluded that the relationship between ESG performance and financial performance is predominantly non-negative. In the Indian context, ESG-oriented investing has gained increasing momentum with the introduction of sustainability-focused indices and greater regulatory emphasis on corporate disclosure standards. Prior Indian studies have examined the comparative performance of green stocks, ethical portfolios, and ESG-based investments using traditional risk-return measures under different market conditions. Existing evidence generally supports the view that responsible investment strategies in India are financially competitive. The present study undertakes a comparative analysis of socially responsible and conventional equity portfolios in India over the period April 2009 to March 2024. The study evaluates portfolio performance through return-based and risk-adjusted measures, Fama decomposition techniques, and the Carhart four-factor model. In addition, it investigates the persistence of portfolio performance through the Top-minus-Bottom (TMB) framework to examine whether superior portfolio performance remains sustainable over time.

Objectives of the Study

1. To compare the return performance of socially responsible, conventional, and market portfolios in the Indian equity market
2. To examine the relative risk-adjusted performance of ESG-oriented and conventional portfolios using different portfolio evaluation measures.
3. To analyse the selectivity efficiency of socially responsible and conventional portfolios on the basis of net selectivity return
4. To evaluate the impact of Carhart four-factor model in explaining the excess returns of selected portfolios.
5. To investigate the performance persistence of socially responsible stocks portfolio and conventional stocks portfolio.

Review of Literature

Renneboog, Horst and Zhang (2008) conducted a comprehensive international analysis of socially responsible funds and reported mixed evidence regarding abnormal returns after adjusting for risk factors. The study emphasized that screening intensity and investment style significantly influence fund performance.Later on, Auer (2016) applied multi-factor asset pricing techniques to ESG portfolios across Europe and the United States and found that ESG screening did not adversely affect portfolio performance.Hamilton, Jo, and Statman (1993) evaluated the performance of 32 socially responsible mutual funds during the period 1981–1990 using Jensen's Alpha approach and reported that socially responsible screening did not significantly influence expected stock returns or firms' cost of capital. Similarly, Bauer, Otten, and Rad (2005) examined ethical and conventional funds in Australia for the period 1992–2003 through various multi-factor models and found no evidence of a financial disadvantage associated with ethical investing. Shank, Manullang, and Hill (2005) revisited the work of Statman by analysing the short-term and long-term performance of 11 socially responsible firms listed on the Social Investment Forum. Their findings indicated that socially responsible funds did not differ significantly from conventional managed portfolios in the short run, although they demonstrated relatively superior performance over the long term.\n\nThe issue of performance persistence has also attracted considerable attention in the literature. Gregory and Whittaker (2007) investigated the persistence behaviour of 32 socially responsible investment (SRI) funds in the United Kingdom over the period 1989–2002 and reported evidence of persistence across 6-month, 12-month, and 36-month horizons. In contrast, Leite and Cortez (2013), while comparing 50 French SRI funds with conventional funds between 2000 and 2008, observed little or no evidence of consistent performance persistence. Likewise, Lean et al. (2014) analysed 37 Asia-Pacific socially responsible funds over the period January 2001 to December 2011 using the Fama–French framework and contingency approach, and concluded that persistence evidence remained weak.Further international evidence was provided by Lean, Ang, and Smyth (2015), who examined the performance and persistence characteristics of socially responsible investment funds across Europe and North America. Their study revealed stronger persistence patterns among European SRI funds compared with North American funds.Within the Indian context, Tripathi and Bhandari (2012) examined the performance of green and non-green stock portfolios during the period April 2000 to March 2012 by dividing the sample into pre-crisis, crisis, and post-crisis phases. Using Sharpe Ratio, Treynor Ratio, and Jensen's Alpha measures, the study supported the financial viability of green investing in India. Bhandari further contributed extensively to the evaluation of socially responsible portfolios in the Indian market. Murthy, Bhandari, and Pandey (2014) compared socially responsible companies with general companies in terms of price discovery and stock returns and found that ESG-oriented indices performed better than the Nifty index, indicating that responsible corporate behaviour could positively influence market performance and encourage broader corporate commitment toward social responsibility practices.\n\nHariharan and Babu (2018) analysed the price behaviour of Indian sustainable investment indices relative to their parent Nifty index during April 2011 to March 2018. By applying descriptive statistics, the GARCH (1,1) model, and the Augmented Dickey–Fuller test, the study reported comparatively stronger performance for ESG indices. More recent Indian studies, including Mahanta, Sahu, and Behera (2024), Kumar and Mishra (2024), and Hasan, Singh, and Kashiramka (2025), have increasingly focused on comparative ESG evaluation, thematic ESG funds, and asset-pricing approaches for measuring ESG portfolio performance.\n\nOverall, the existing literature highlights three important observations. First, socially responsible and ESG-oriented investments generally do not underperform conventional investments in a

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systematic manner. Second, empirical evidence from India largely suggests that ESG portfolios are financially competitive and may outperform traditional portfolios under specific market conditions. Third, although previous studies have investigated portfolio return, risk, selectivity, and crisis-period behaviour, limited attention has been given to evaluating Indian ESG portfolios through the combined application of the Carhart four-factor framework and persistence analysis. This gap provides the primary motivation for the present study. Studies examining Indian ESG indices and thematic funds indicate that sustainable investments have gained considerable importance due to SEBI's regulatory initiatives and increasing investor awareness.

Research Methodology

The present study undertakes a comparative analysis of three categories of portfolios, namely socially responsible portfolios, conventional portfolios, and the market portfolio, over a period of fifteen years from April 2009 to March 2024. The primary objective of the study is to examine whether socially responsible investing is financially competitive with conventional investment strategies in terms of return, risk, risk-adjusted performance, selectivity, and performance persistence. For a comprehensive assessment, the total study period of fifteen years is divided into multiple sub-periods to capture variations in market conditions and investment performance across time. The study is segmented into two medium-term sub-periods: Sub-Period I covering April 2009 to March 2016 (seven years) and Sub-Period II covering April 2016 to March 2024 (eight years). In addition, three short-term periods of five years each are considered, namely Short Period I (April 2009 to March 2014), Short Period II (April 2014 to March 2019), and Short Period III (April 2019 to March 2024). This classification enables the study to evaluate portfolio behavior during different economic and market phases, including post-financial crisis recovery, market expansion, and periods of heightened volatility. The analysis includes nine portfolios and indices representing socially responsible, conventional, and market segments. The socially responsible investment category consists of the NIFTY100 ESG Index, GREENEX Index, Socially Responsible Blue Chip (SRBC) portfolio, and Socially Responsible Non-Blue Chip (SRNBC) portfolio. The conventional investment category includes the BSE 100 Index, NIFTY 50 Index, Non-Socially Responsible Blue Chip (NSRBC) portfolio, and a Mimicking Portfolio. The BSE 500 Index is used as a proxy for the market portfolio. The NIFTY100 ESG Index and GREENEX Index are employed as representative socially responsible investment indices. The SRBC portfolio consists of companies common to both the NIFTY100 ESG Index and the BSE 100 Index, representing large-cap socially responsible firms. The SRNBC portfolio includes companies that are part of the NIFTY100 ESG Index but excluded from the BSE 100 Index, thereby representing socially responsible non-blue-chip firms. Within the conventional category, the BSE 100 Index and NIFTY 50 Index are used as benchmark conventional indices. The NSRBC portfolio comprises firms included in the BSE 100 Index but excluded from the NIFTY100 ESG Index. In addition, a Mimicking Portfolio is constructed by selecting firms with a market capitalization structure similar to that of the NIFTY100 ESG Index while excluding firms included in the ESG index. This portfolio is designed to provide a more appropriate conventional comparison benchmark for ESG portfolios. The study is based on monthly closing prices of all selected portfolios and indices for the period from April 2009 to March 2024. The required data have been collected from the Prowess database published by the Centre for Monitoring Indian Economy (CMIE).

Hypothesis Framework

The study contains the following hypothesis:

H01: There is no significant difference in the returns of socially responsible stock portfolios, conventional stock portfolios, and the market portfolio.

H02: The performance of socially responsible stock portfolios is similar to the performance of conventional stock portfolios and the market portfolio when evaluated using various risk-adjusted performance measures.

H03: There is no significant difference in the performance of socially responsible stock portfolios and conventional stock portfolios on the basis of net selectivity return.

H04: The Carhart four-factor model does not have any significant impact on the performance of socially responsible stock portfolios and conventional stock portfolios.

H05: There is no significant difference in the performance persistence of socially responsible stock portfolios and conventional stock portfolios when analysed using the Carhart-based Top Minus Bottom (TMB) strategy.

Analytical Framework

To achieve the objectives of the study and test the proposed hypotheses, various statistical and financial analytical techniques are employed. Initially, Pearson correlation analysis is used to examine the degree of association among the selected portfolios and indices. This analysis helps determine whether socially responsible portfolios move independently or remain closely associated with conventional portfolios and the market benchmark. For testing Hypotheses 1 and 2, portfolio performance is evaluated using measures relating to return, risk, and risk-adjusted return. The study employs average return, standard deviation, coefficient of variation, Sharpe ratio, modified Sharpe ratio, double Sharpe ratio, beta, systematic risk, unsystematic risk, Treynor ratio, Jensen's alpha, information ratio, and the Modigliani–Modigliani (M^2) measure. These measures collectively provide a comprehensive understanding of portfolio efficiency and risk-adjusted competitiveness. For Hypothesis 3, the study applies Fama's decomposition measures to separate portfolio performance into risk premium, systematic risk premium, selectivity, diversification effect, and net selectivity. This decomposition helps identify whether portfolio performance is primarily driven by market-related risk exposure or by superior stock selection ability. Further, a paired t-test is employed to examine whether the mean return differentials between portfolio pairs are statistically significant. For Hypothesis 4, the Carhart four-factor model is used to evaluate the impact of market, size, value, and momentum factors on portfolio performance. The Carhart model enables the study to determine whether socially responsible portfolios generate abnormal returns even after controlling for multiple systematic risk factors. For testing Hypothesis 5, the study adopts the Carhart model-based Top Minus Bottom (TMB) persistence approach. Under this approach, stocks within each portfolio are ranked according to their lagged returns over formation periods of 12 months, 36 months, and 60 months. Based on these rankings, Top, Middle, and Bottom portfolios are constructed. Subsequently, a TMB portfolio is formed by calculating the difference between the returns of top-performing and bottom-performing portfolios. The Carhart four-factor model is then applied to the TMB portfolios to examine whether past winners continue to outperform past losers over subsequent periods. A positive and statistically significant TMB alpha indicates the presence of performance persistence, whereas a negative or statistically insignificant alpha suggests weak persistence or reversal effects. Overall, the adopted methodology provides a comprehensive framework for examining the comparative performance, selectivity, factor sensitivity, and persistence characteristics of socially responsible and conventional investment portfolios in the Indian stock market.

Results and Discussions

Table 1: Correlation Matrix of different portfolios

Portfolio	GREENEX	SR Blue Chip	SR Non Blue Chip	BSE100	NIFTY50 Companies	Non-SR Blue Chip	Mimicking	BSE500 Index
NIFTY100 ESG	0.847	0.995	0.884	0.987***	0.963***	0.863***	0.878***	0.953***
GREENEX		0.851	0.741	0.869***	0.880***	0.835***	0.831***	0.862***
SR Blue Chip			0.821	0.990***	0.969***	0.861***	0.869***	0.953***
SR Non- Blue Chip				0.826***	0.792***	0.772***	0.823***	0.818***
BSE100					0.957***	0.921***	0.901***	0.946***
NIFTY50 Companies						0.825***	0.826***	0.925***
Non-SR Blue Chip							0.896***	0.822***
Mimicking								0.872***

Note: *All bi-variate correlation coefficients are significant at 1%.*

Table 1 presents the Pearson correlation coefficients among the nine portfolios considered in the study. The results reveal a consistently high and positive correlation structure across all portfolio pairs, indicating that the return behaviour of socially responsible, conventional, and benchmark portfolios is largely driven by common market forces. The strongest association is observed between NIFTY100 ESG and SR Blue Chip (r = 0.995), followed by NIFTY100 ESG and BSE100 (r = 0.987), highlighting the near-identical movement of these portfolios over the sample period. The NIFTY100 ESG portfolio also displays a strong correlation with the BSE500 Index (r = 0.953), suggesting that ESG-oriented investments remain closely integrated with broad market performance. Although the lowest coefficient is recorded between SR Non-Blue Chip and GREENEX (r = 0.741). Taken together, these findings suggest that the inclusion of socially responsible portfolios does not materially alter the overall correlation structure of a diversified equity portfolio, but rather reflects return dynamics that remain strongly embedded within the broader market environment.

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Table 2: Return, Risk and Risk-Adjusted Measures by Financial-Year Period

Measure	Portfolio / Index	Full Period	Sub Period I	Sub Period II	Short Period I	Short Period II	Short Period III
Average Return (%)	NIFTY100 ESG	2.123***	2.411***	1.872***	2.752***	1.721***	1.897**
	GREENEX	1.717***	1.691***	1.740***	1.807**	1.247**	2.097***
	SR Blue Chip	2.059***	2.358***	1.798***	2.679***	1.642***	1.857**
	SR Non- Blue Chip	2.027***	1.919***	2.119***	2.076***	1.931**	2.072**
	BSE100	2.055***	2.265***	1.872***	2.514**	1.573***	2.077***
	NIFTY50 Companies	2.011***	2.295***	1.762***	2.658***	1.555**	1.820**
	Non-SR Blue Chip	2.096***	2.053**	2.133***	2.065*	1.474**	2.748***
	Mimicking	1.889***	1.681*	2.071***	1.683	1.351*	2.633**
	BSE500 Index	1.297***	1.265*	1.325***	1.389	1.109**	1.395*
Std. Deviation (%)	NIFTY100 ESG	6.051	6.981	5.126	7.654	4.549	5.585
	GREENEX	5.453	5.754	5.205	6.143	4.330	5.774
	SR Blue Chip	6.080	7.091	5.057	7.787	4.437	5.587
	SR Non- Blue Chip	5.754	5.103	6.287	5.054	5.963	6.247
	BSE100	6.152	7.086	5.230	7.758	4.423	5.883
	NIFTY50 Companies	6.036	6.796	5.306	7.449	4.785	5.610
	Non-SR Blue Chip	7.154	7.717	6.664	8.179	5.498	7.572
	Mimicking	7.260	7.764	6.825	8.261	5.639	7.679
	BSE500 Index	5.502	6.153	4.903	6.699	4.122	5.493
Coefficient of Variation	NIFTY100 ESG	2.850	2.896	2.738	2.781	2.644	2.944
	GREENEX	3.175	3.402	2.992	3.399	3.473	2.753
	SR Blue Chip	2.952	3.007	2.813	2.907	2.702	3.009
	SR Non- Blue Chip	2.839	2.658	2.967	2.434	3.088	3.016
	BSE100	2.993	3.129	2.794	3.085	2.811	2.832
	NIFTY50 Companies	3.002	2.961	3.012	2.802	3.078	3.082
	Non-SR Blue Chip	3.414	3.759	3.124	3.961	3.729	2.755
	Mimicking	3.843	4.617	3.296	4.909	4.174	2.917
	BSE500 Index	4.241	4.862	3.701	4.822	3.717	3.938
Sharpe Ratio	NIFTY100 ESG	0.237	0.207	0.278	0.217	0.254	0.266
	GREENEX	0.206	0.162	0.248	0.164	0.157	0.293
	SR Blue Chip	0.225	0.196	0.267	0.204	0.243	0.259
	SR Non- Blue Chip	0.263	0.260	0.266	0.298	0.229	0.266
	BSE100	0.222	0.184	0.272	0.184	0.228	0.284
	NIFTY50 Companies	0.224	0.206	0.247	0.224	0.207	0.252
	Non-SR Blue Chip	0.199	0.145	0.253	0.124	0.165	0.309
	Mimicking	0.175	0.112	0.238	0.097	0.139	0.290
	BSE500 Index	0.142	0.110	0.179	0.122	0.132	0.180
Modified Sharpe Ratio	NIFTY100 ESG	0.240	0.217	0.261	0.229	0.256	0.248
	GREENEX	0.205	0.161	0.245	0.162	0.157	0.288
	SR Blue Chip	0.228	0.205	0.250	0.214	0.245	0.241
	SR Non- Blue Chip	0.262	0.260	0.264	0.298	0.232	0.260
	BSE100	0.222	0.190	0.250	0.190	0.229	0.256
	NIFTY50 Companies	0.228	0.215	0.240	0.235	0.213	0.237
	Non-SR Blue Chip	0.193	0.145	0.231	0.124	0.165	0.271
	Mimicking	0.175	0.113	0.231	0.098	0.140	0.277
	BSE500 Index	0.144	0.113	0.170	0.126	0.131	0.171
Double Sharpe Ratio	NIFTY100 ESG	3.126	1.867	2.669	1.648	1.936	2.029
	GREENEX	2.733	1.470	2.393	1.248	1.211	2.219
	SR Blue Chip	2.976	1.773	2.568	1.549	1.853	1.975
	SR Non- Blue Chip	3.417	2.303	2.532	2.199	1.718	2.026
	BSE100	2.940	1.664	2.617	1.403	1.743	2.154
	NIFTY50 Companies	2.964	1.859	2.388	1.698	1.584	1.919
	Non-SR Blue Chip	2.633	1.314	2.438	0.945	1.271	2.338
	Mimicking	2.330	1.020	2.296	0.746	1.074	2.198
	BSE500 Index	1.895	0.998	1.736	0.937	1.017	1.380
Beta	NIFTY100 ESG	0.968	0.962	0.976	0.947	1.014	0.972
	GREENEX	0.841	0.792	0.909	0.763	0.893	0.925
	SR Blue Chip	0.973	0.984	0.958	0.972	0.984	0.968
	SR Non- Blue Chip	0.942	0.812	1.061	0.752	1.156	0.993
	BSE100	0.983	0.967	1.004	0.949	0.995	1.024
	NIFTY50 Companies	0.965	0.988	0.934	0.985	0.917	0.962
	Non-SR Blue Chip	1.023	0.899	1.190	0.856	1.066	1.239
	Mimicking	1.134	1.070	1.220	1.033	1.191	1.246
	BSE500 Index	1.000	1.000	1.000	1.000	1.000	1.000
Systematic Risk (%)	NIFTY100 ESG	5.327	5.921	4.787	6.345	4.182	5.340
	GREENEX	4.629	4.872	4.455	5.111	3.679	5.080
	SR Blue Chip	5.353	6.053	4.698	6.508	4.057	5.316
	SR Non- Blue Chip	4.709	4.118	5.256	3.969	4.839	5.453
	BSE100	5.407	5.953	4.921	6.360	4.100	5.622
	NIFTY50 Companies	5.309	6.079	4.578	6.596	3.780	5.282
	Non-SR Blue Chip	5.626	5.535	5.832	5.734	4.395	6.805
	Mimicking	6.237	6.583	5.980	6.921	4.911	6.843
	BSE500 Index	5.502	6.153	4.903	6.699	4.122	5.493
Unsystematic Risk (%)	NIFTY100 ESG	2.871	3.699	1.833	4.281	1.790	1.635
	GREENEX	2.881	3.062	2.692	3.409	2.283	2.743
	SR Blue Chip	2.884	3.692	1.873	4.276	1.797	1.718
	SR Non- Blue Chip	3.306	3.014	3.450	3.129	3.484	3.049
	BSE100	2.933	3.845	1.771	4.442	1.658	1.733
	NIFTY50 Companies	2.872	3.038	2.683	3.461	2.933	1.890
	Non-SR Blue Chip	4.419	5.377	3.225	5.832	3.302	3.322
	Mimicking	3.715	4.115	3.289	4.511	2.771	3.485
	BSE500 Index	0.000	0.000	0.000	0.000	0.000	0.000

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Treynor Ratio	**NIFTY100 ESG**	1.481	1.503	1.457	1.754	1.139	1.531
	GREENEX	1.338	1.180	1.420	1.317	0.763	1.826
	SR Blue Chip	1.408	1.416	1.408	1.633	1.094	1.497
	SR Non- Blue Chip	1.605	1.635	1.574	2.000	1.179	1.675
	BSE100	1.392	1.349	1.417	1.505	1.013	1.630
	NIFTY50 Companies	1.403	1.419	1.406	1.693	1.079	1.468
	Non-SR Blue Chip	1.390	1.243	1.416	1.181	0.852	1.888
	Mimicking	1.124	0.815	1.329	0.779	0.659	1.785
	BSE500 Index	0.783	0.676	0.876	0.820	0.543	0.986
Jensen Alpha (%)	**NIFTY100 ESG**	0.675***	0.795***	0.568***	0.883***	0.604**	0.529**
	GREENEX	0.466**	0.398	0.496*	0.377	0.198	0.779**
	SR Blue Chip	0.607***	0.727***	0.510**	0.789***	0.542**	0.493**
	SR Non- Blue Chip	0.940***	1.072***	0.761**	1.270***	0.781*	0.684*
	BSE100	0.598***	0.651***	0.543***	0.649**	0.468**	0.659***
	NIFTY50 Companies	0.598***	0.733***	0.495*	0.858***	0.491	0.462*
	Non-SR Blue Chip	0.621**	0.510	0.642*	0.308	0.331	1.119**
	Mimicking	0.386	0.149	0.553	-0.043	0.139	0.996**
	BSE500 Index	0.000	0.000**	0.000**	0.000	0.000	0.000
One-Factor Alpha (%)	**NIFTY100 ESG**	0.675***	0.795***	0.568***	0.883***	0.604**	0.529**
	GREENEX	0.466**	0.398	0.496*	0.377	0.198	0.779**
	SR Blue Chip	0.607***	0.727***	0.510**	0.789***	0.542**	0.493**
	SR Non- Blue Chip	0.940***	1.072***	0.761**	1.270***	0.781*	0.684*
	BSE100	0.598***	0.651***	0.543***	0.649**	0.468**	0.659***
	NIFTY50 Companies	0.598***	0.733***	0.495*	0.858***	0.491	0.462*
	Non-SR Blue Chip	0.621**	0.510	0.642*	0.308	0.331	1.119**
	Mimicking	0.386	0.149	0.553	-0.043	0.139	0.996**
	BSE500 Index	0.000	0.000**	0.000**	0.000	0.000	0.000
Information Ratio	**NIFTY100 ESG**	0.382	0.501	0.298	0.500	0.341	0.306
	GREENEX	0.120	0.086	0.152	0.054	0.059	0.253
	SR Blue Chip	0.342	0.478	0.251	0.470	0.296	0.268
	SR Non- Blue Chip	0.273	0.321	0.235	0.353	0.243	0.222
	BSE100	0.316	0.323	0.309	0.283	0.280	0.393
	NIFTY50 Companies	0.261	0.524	0.162	0.589	0.151	0.224
	Non-SR Blue Chip	0.164	0.099	0.241	0.041	0.110	0.379
	Mimicking	0.137	0.053	0.216	-0.004	0.084	0.331
	BSE500 Index	0.000	0.000	0.000	0.000	0.000	0.000
M^2 Measure (%)	**NIFTY100 ESG**	1.818	1.864	1.810	2.023	1.612	1.872
	GREENEX	1.650	1.588	1.665	1.664	1.214	2.015
	SR Blue Chip	1.753	1.798	1.757	1.934	1.566	1.833
	SR Non- Blue Chip	1.828	1.912	1.764	2.143	1.525	1.871
	BSE100	1.738	1.723	1.783	1.803	1.505	1.967
	NIFTY50 Companies	1.748	1.858	1.662	2.068	1.418	1.790
	Non-SR Blue Chip	1.607	1.481	1.688	1.397	1.247	2.106
	Mimicking	1.480	1.281	1.614	1.221	1.140	2.000
	BSE500 Index	1.297	1.265	1.325	1.389	1.109	1.395
3-Factor Alpha (%)	**NIFTY100 ESG**	0.662***	0.747***	0.520**	0.881***	0.613**	0.422
	GREENEX	0.291	0.484	0.093	0.404	0.213	0.253
	SR Blue Chip	0.602***	0.695***	0.476**	0.787***	0.552**	0.429
	SR Non-Blue Chip	0.887***	0.963***	0.658	1.297***	0.761	0.422
	BSE100	0.556***	0.606***	0.464**	0.651**	0.467**	0.543*
	NIFTY50 Companies	0.604***	0.763***	0.399	0.862***	0.533	0.378
	Non-SR Blue Chip	0.464	0.416	0.451	0.325	0.287	0.862*
	Mimicking	0.179	-0.007	0.301	-0.007	0.059	0.509
	BSE500 Index	0.000***	0.000***	0.000	0.000***	0.000	0.000
4-Factor Alpha (%)	**NIFTY100 ESG**	0.737***	0.798***	0.636***	0.910***	0.686***	0.564*
	GREENEX	0.259	0.393	0.220	0.393	0.172	0.430
	SR Blue Chip	0.667***	0.732***	0.565**	0.803***	0.589**	0.546*
	SR Non-Blue Chip	1.016***	1.076***	0.856*	1.404***	0.983*	0.657
	BSE100	0.645***	0.659***	0.626***	0.688**	0.568**	0.727**
	NIFTY50 Companies	0.668***	0.744***	0.575*	0.804***	0.559	0.571*
	Non-SR Blue Chip	0.657**	0.562	0.878**	0.495	0.630	1.310***
	Mimicking	0.358	0.166	0.527*	0.193	0.301	0.699*
	BSE500 Index	0.000***	0.000***	0.000***	0.000	0.000**	0.000

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 2 reports the return, volatility, and risk-adjusted performance of the selected portfolios across the full sample and sub-sample periods. Over the full period, NIFTY100 ESG delivers the highest average monthly return (2.123%), followed by Non-SR Blue Chip (2.096%), SR Blue Chip (2.059%), and BSE100 (2.055%), whereas the BSE500 Index records the lowest return (1.297%). This indicates that ESG-oriented portfolios are not associated with lower return generation and, in fact, compare favourably with conventional alternatives. Risk measures show meaningful cross-portfolio heterogeneity. Mimicking and Non-SR Blue Chip exhibit the highest volatility, with standard deviations of 7.260% and 7.154%, respectively, while GREENEX (5.453%) and the BSE500 Index (5.502%) remain relatively less volatile. In efficiency terms, the Sharpe Ratio identifies SR Non-Blue Chip as the strongest full-period performer (0.263), ahead of NIFTY100 ESG (0.237) and SR Blue Chip (0.225), whereas the benchmark index records the lowest value (0.142). The same ordering is broadly confirmed by the Modified Sharpe and Double Sharpe ratios, reinforcing the superior risk-adjusted performance of SR Non- Blue Chip. Systematic risk estimates suggest that most portfolios remain closely tied to market dynamics. Mimicking shows the highest beta (1.134), indicating above-market sensitivity, while GREENEX (0.841) has the lowest. NIFTY100 ESG posts a beta of 0.968, implying strong market linkage but slightly lower systematic exposure than the benchmark. Treynor ratios again place SR Non-Blue Chip (1.605) ahead of the remaining portfolios, followed by NIFTY100 ESG (1.481) and SR Blue Chip (1.408), while the BSE500 Index (0.783) trails all other portfolios. Abnormal performance measures provide further evidence in favour of selected socially responsible portfolios. Full-period Jensen alpha is highest for SR Non- Blue Chip (0.940%), followed by NIFTY100 ESG (0.675%), Non-SR Blue Chip (0.621%), and SR Blue Chip (0.607%), with most estimates statistically significant. This pattern remains largely intact in the multi-factor models. Under the three-factor specification, SR Non- Blue Chip records the largest alpha (0.887%), while under the four-factor model its alpha rises further to 1.016%. NIFTY100 ESG also maintains positive and significant alpha under both the three-factor (0.662%) and four-factor (0.737%) specifications. These findings suggest that the abnormal performance of certain portfolios cannot be fully explained by standard market, size, value, and momentum factors. The sub-period estimates reveal that portfolio leadership is time-varying. NIFTY100 ESG dominates in the earlier period and in Short Period I, whereas Non-SR Blue Chip and Mimicking become stronger in the final short period. Nevertheless, the overall evidence indicates that socially responsible portfolios are not systematically disadvantaged relative to conventional portfolios. On the contrary, several ESG-oriented portfolios exhibit competitive, and in some cases superior, risk-adjusted performance throughout the sample. In particular, SR Non- Blue Chip emerges as the most efficient portfolio across a wide set of measures, while NIFTY100 ESG combines the highest raw return with consistently positive abnormal

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performance. These results support the view that socially responsible investing can remain financially competitive even after accounting for multiple dimensions of risk.. These findings lead to the rejection of H01 and H02, as the return performance and risk-adjusted performance of socially responsible portfolios were not similar to those of all conventional portfolios and the market portfolio.

Table 3: Fama's Decomposition Measure for ESG Sector Portfolios

Period	Portfolio	Risk Premium	Systematic Risk Premium	Selectivity	Unsystematic Risk	Net Selectivity	Rank
Full Period	SR Non- Blue Chip	1.511***	0.569	0.942***	0.126	0.815	1
	NIFTY100 ESG	1.433***	0.757	0.676***	0.037	0.638	2
	SR Blue Chip	1.368***	0.761	0.607***	0.038	0.570	3
	BSE100	1.367***	0.769	0.599***	0.044	0.555	4
	NIFTY50 Companies	1.353***	0.755	0.598***	0.061	0.537	5
	Non-SR Blue Chip	1.421***	0.800	0.621**	0.173	0.448	6
	GREENEX	1.125***	0.658	0.466**	0.105	0.362	7
	Mimicking	1.273**	0.887	0.386	0.130	0.256	8
Sub Period I	SR Non- Blue Chip	1.326**	0.252	1.073***	0.060	1.013	1
	NIFTY100 ESG	1.445**	0.649	0.795***	0.021	0.774	2
	NIFTY50 Companies	1.400**	0.666	0.733***	0.017	0.716	3
	SR Blue Chip	1.391**	0.664	0.728***	0.020	0.708	4
	BSE100	1.304*	0.653	0.651***	0.034	0.617	5
	Non-SR Blue Chip	1.117	0.607	0.510	0.170	0.340	6
	GREENEX	0.933	0.534	0.399	0.078	0.321	7
	Mimicking	0.871	0.722	0.149	0.105	0.044	8
Sub Period II	SR Non- Blue Chip	1.671**	0.910	0.761**	0.178	0.582	1
	NIFTY100 ESG	1.423***	0.855	0.568***	0.061	0.508	2
	Non-SR Blue Chip	1.684**	1.041	0.643*	0.149	0.494	3
	BSE100	1.422***	0.879	0.544***	0.055	0.489	4
	SR Blue Chip	1.349**	0.839	0.510**	0.064	0.446	5
	Mimicking	1.621**	1.068	0.554	0.151	0.403	6
	NIFTY50 Companies	1.313**	0.817	0.495*	0.130	0.365	7
	GREENEX	1.290**	0.795	0.495*	0.134	0.361	8
Short Period I	SR Non- Blue Chip	1.503**	0.231	1.272***	0.063	1.209	1
	NIFTY100 ESG	1.660*	0.775	0.884***	0.026	0.859	2
	NIFTY50 Companies	1.665*	0.806	0.859***	0.019	0.840	3
	SR Blue Chip	1.585*	0.795	0.789***	0.024	0.765	4
	BSE100	1.427	0.777	0.650**	0.042	0.608	5
	GREENEX	1.003	0.625	0.378	0.099	0.279	6
	Non-SR Blue Chip	1.009	0.701	0.308	0.195	0.114	7
	Mimicking	0.803	0.846	-0.043	0.129	-0.171	8
Short Period II	SR Non- Blue Chip	1.361*	0.579	0.782*	0.134	0.648	1
	NIFTY100 ESG	1.153*	0.550	0.604**	0.048	0.555	2
	SR Blue Chip	1.075*	0.533	0.542**	0.050	0.492	3
	BSE100	1.006*	0.539	0.467**	0.042	0.425	4
	NIFTY50 Companies	0.987	0.497	0.491	0.132	0.358	5
	Non-SR Blue Chip	0.907	0.578	0.329	0.145	0.184	6
	GREENEX	0.680	0.484	0.196	0.086	0.111	7
	Mimicking	0.784	0.646	0.138	0.096	0.042	8
Short Period III	Non-SR Blue Chip	2.340**	1.222	1.118**	0.138	0.980	1
	Mimicking	2.225**	1.229	0.996**	0.150	0.845	2
	GREENEX	1.689**	0.913	0.777**	0.125	0.652	3
	BSE100	1.669**	1.010	0.659***	0.047	0.612	4
	SR Non- Blue Chip	1.663**	0.980	0.684*	0.143	0.541	5
	NIFTY100 ESG	1.489**	0.959	0.529**	0.044	0.486	6
	SR Blue Chip	1.449**	0.955	0.494**	0.049	0.445	7
	NIFTY50 Companies	1.412*	0.949	0.463*	0.059	0.404	8

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 3 reports the Fama decomposition estimates for the sample portfolios, allowing performance to be decomposed into risk premium, systematic risk premium, selectivity, unsystematic risk, and net selectivity. The results suggest that portfolio performance is not explained solely by market exposure; rather, selection ability plays an important role in differentiating portfolio efficiency across the sample. Over the full period, SR Non- Blue Chip records the highest net selectivity (0.815), followed by NIFTY100 ESG (0.638) and SR Blue Chip (0.570). This indicates that these portfolios generated relatively stronger performance after adjusting for both systematic and unsystematic components of risk. The strongest result is observed for SR Non- Blue Chip, which combines a significant risk premium of 1.511% with a high selectivity estimate of 0.942%, thereby securing the top rank. The NIFTY100 ESG portfolio also performs well, with a risk premium of 1.433% and selectivity of 0.676%, implying that its return profile reflects not only market participation but also portfolio selection efficiency.

The period-wise results show that SR Non- Blue Chip remains the top-ranked portfolio in Sub Period I, Sub Period II, Short Period I, and Short Period II, confirming the consistency of its performance efficiency. In contrast, the ranking shifts in Short Period III, where Non-SR Blue Chip (0.980) and Mimicking (0.845) overtake the ESG-oriented portfolios. Although NIFTY100 ESG remains positive throughout, its net selectivity declines to 0.486 in the final short period, suggesting some moderation in relative performance in the later phase of the sample. A broader pattern emerging from the table is that ESG-based portfolios, particularly NIFTY100 ESG and SR Non-Blue Chip, frequently rank above conventional alternatives in terms of net selectivity. Therefore, H03 This is important because net selectivity captures the portion of performance attributable to managerial or portfolio selection efficiency after accounting for systematic and residual influences. Accordingly, the evidence suggests that selected socially responsible portfolios were able to deliver competitive returns not merely because of broad market exposure, but because of stronger underlying portfolio quality. Overall, the decomposition results reinforce the argument that the financial performance of socially responsible portfolios can remain robust even after separating market-related returns from selectivity-driven performance. Hence, H03 is rejected, since the evidence confirms that socially responsible and conventional portfolios differ in terms of net selectivity performance.

Table 4: Paired t-Test Results for ESG and BSE with Sector Portfolios

Portfolio	Paired With	Full Period	Sub Period I	Sub Period II	Short Period I	Short Period II	Short Period III
NIFTY100 ESG	GREENEX	0.406 (1.687)*	0.719 (1.770)*	0.132 (0.477)	0.945 (1.741)*	0.474 (1.474)	-0.200 (-0.583)
	SR Blue Chip	0.064 (1.419)	0.053 (0.952)	0.074 (1.063)	0.074 (1.061)	0.078 (0.936)	0.040 (0.490)
	SR Non- Blue Chip	-0.285 (-1.397)	-0.218 (-0.804)	-0.342 (-1.141)	-0.313 (-0.926)	-0.370 (-0.920)	-0.175 (-0.547)
	BSE100	0.068 (0.935)	0.146 (1.351)	0.000 (0.003)	0.238 (1.770)*	0.147 (1.232)	-0.180 (-1.499)
	NIFTY50 Companies	0.112 (0.922)	0.115 (0.617)	0.110 (0.684)	0.094 (0.380)	0.166 (0.728)	0.077 (0.526)
	Non-SR Blue Chip	0.028 (0.102)	0.358 (0.855)	-0.261 (-0.749)	0.688 (1.381)	0.246 (0.553)	-0.851 (-1.928)*
	Mimicking	0.234 (0.902)	0.729 (1.876)*	-0.199 (-0.577)	1.069 (2.183)**	0.370 (1.010)	-0.736 (-1.599)
	BSE500 Index	0.651 (5.111)***	0.770 (4.566)***	0.547 (2.920)***	0.841 (3.838)***	0.612 (2.645)**	0.502 (2.369)**
GREENEX	SR Blue Chip	-0.342 (-1.431)	-0.667 (-1.650)	-0.058 (-0.212)	-0.871 (-1.612)	-0.395 (-1.267)	0.240 (0.695)

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	SR Non- Blue Chip	-0.410 (-1.359)	-0.540 (-1.272)	-0.298 (-0.696)	-0.707 (-1.307)	-0.570 (-1.044)	0.026 (0.053)
	BSE100	-0.338 (-1.490)	-0.573 (-1.458)	-0.132 (-0.528)	-0.707 (-1.352)	-0.327 (-1.149)	0.020 (0.060)
	NIFTY50 Companies	-0.294 (-1.372)	-0.604 (-1.807)*	-0.022 (-0.081)	-0.851 (-1.907)*	-0.308 (-0.883)	0.277 (0.948)
	Non-SR Blue Chip	-0.378 (-1.278)	-0.361 (-0.733)	-0.393 (-1.118)	-0.257 (-0.427)	-0.227 (-0.507)	-0.651 (-1.350)
	Mimicking	-0.172 (-0.565)	0.010 (0.021)	-0.331 (-0.856)	0.124 (0.209)	-0.104 (-0.232)	-0.536 (-1.010)
	BSE500 Index	0.342 (1.606)	0.258 (0.783)	0.415 (1.491)	0.184 (0.418)	0.138 (0.459)	0.703 (1.962)*
SR Blue Chip	**SR Non- Blue Chip**	-0.350 (-1.404)	-0.272 (-0.832)	-0.418 (-1.127)	-0.391 (-0.952)	-0.451 (-0.923)	-0.215 (-0.535)
	BSE100	0.004 (0.067)	0.093 (0.989)	-0.074 (-0.875)	0.164 (1.393)	0.069 (0.692)	-0.220 (-2.097)**
	NIFTY50 Companies	0.048 (0.429)	0.063 (0.355)	0.036 (0.247)	0.021 (0.087)	0.088 (0.439)	0.037 (0.266)
	Non-SR Blue Chip	-0.036 (-0.134)	0.305 (0.734)	-0.335 (-0.943)	0.614 (1.241)	0.168 (0.372)	-0.891 (-1.984)*
	Mimicking	0.170 (0.636)	0.677 (1.727)*	-0.273 (-0.751)	0.996 (2.015)**	0.291 (0.775)	-0.776 (-1.582)
	BSE500 Index	0.586 (4.571)***	0.717 (4.356)***	0.473 (2.462)**	0.766 (3.610)***	0.533 (2.296)**	0.462 (2.072)**
SR Non- Blue Chip	**BSE100**	0.282 (1.135)	0.271 (0.815)	0.291 (0.799)	0.424 (1.023)	0.439 (0.913)	-0.006 (-0.015)
	NIFTY50 Companies	0.385 (1.433)	0.260 (0.698)	0.492 (1.280)	0.303 (0.643)	0.603 (1.137)	0.252 (0.637)
	Non-SR Blue Chip	0.048 (0.146)	0.231 (0.478)	-0.110 (-0.251)	0.529 (0.928)	0.324 (0.569)	-0.677 (-1.237)
	Mimicking	0.270 (0.913)	0.568 (1.338)	0.013 (0.031)	0.862 (1.649)	0.547 (1.043)	-0.561 (-1.172)
	BSE500 Index	0.907 (3.614)***	1.015 (2.889)***	0.813 (2.277)**	1.196 (2.662)**	0.860 (1.848)*	0.677 (1.719)*
BSE100	**NIFTY50 Companies**	0.044 (0.332)	-0.031 (-0.148)	0.110 (0.638)	-0.144 (-0.526)	0.019 (0.074)	0.257 (1.765)*
	Non-SR Blue Chip	-0.041 (-0.193)	0.212 (0.649)	-0.262 (-0.959)	0.449 (1.169)	0.099 (0.280)	-0.671 (-1.939)*
	Mimicking	0.166 (0.703)	0.583 (1.680)*	-0.199 (-0.622)	0.831 (1.899)*	0.222 (0.693)	-0.556 (-1.250)
	BSE500 Index	0.585 (4.231)***	0.629 (2.943)***	0.547 (3.026)***	0.609 (2.178)**	0.464 (2.169)**	0.683 (3.042)***
NIFTY50 Companies	**Non-SR Blue Chip**	-0.085 (-0.281)	0.243 (0.525)	-0.371 (-0.937)	0.593 (1.066)	0.080 (0.144)	-0.928 (-2.141)**
	Mimicking	0.122 (0.400)	0.614 (1.406)	-0.309 (-0.730)	0.975 (1.792)*	0.204 (0.397)	-0.813 (-1.593)
	BSE500 Index	0.571 (3.486)***	0.725 (4.777)***	0.437 (1.586)	0.846 (4.526)***	0.446 (1.169)	0.425 (1.732)*
Non-SR Blue Chip	**Mimicking**	0.207 (0.843)	0.371 (0.960)	0.063 (0.201)	0.382 (0.809)	0.123 (0.348)	0.115 (0.258)
	BSE500 Index	0.639 (2.191)**	0.442 (0.903)	0.809 (2.361)**	0.190 (0.314)	0.365 (0.853)	1.353 (2.935)***
Mimicking	**BSE500 Index**	0.491 (1.836)*	0.196 (0.482)	0.746 (2.112)**	-0.016 (-0.030)	0.242 (0.650)	1.238 (2.566)**

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 4 reports the paired t-test results for all unique portfolio combinations arranged in a portfolio-wise format. The overall evidence suggests that most pairwise return differentials are statistically insignificant, indicating that the selected socially responsible and conventional portfolios exhibit broadly similar return behaviour over the sample period. This implies that, despite differences in screening criteria and composition, the average monthly returns of many portfolio pairs do not differ in a statistically meaningful way. A more distinct pattern is observed when the portfolios are compared with the BSE500 Index. Several portfolios record positive and significant mean return differentials relative to the benchmark, indicating superior average performance over the broad market index. For instance, BSE100 BSE500 Index shows a positive and statistically significant differential of 0.585% over the full period. Similar evidence is observed for other portfolios in comparison with the benchmark, suggesting that the underperformance is more evident at the level of the broad market index than within the set of study portfolios themselves. The results also vary across sub-periods, which indicates that relative performance was not constant over time. In certain phases, some portfolio pairs become statistically significant, while in others the same pairs remain insignificant. This time variation reflects the changing market environment and suggests that performance differences were period-specific rather than persistent across the entire sample. Overall, the paired t-test findings indicate that socially responsible and conventional portfolios are largely comparable in return performance, while several of them outperform the BSE500 Index, especially during specific phases of the study period.

Table 5: Results of Carhart Four-Factor Model for Overall Period

Portfolio	Multi-Factor Alpha (%)	Market Risk Premium	Size Effect (SMB)	Value Effect (HML)	Momentum Effect (WML)
NIFTY100 ESG	0.951***	0.957***	-0.010	-0.047	-0.168***
GREENEX	0.337	0.835***	-0.162***	0.072	-0.048
SR Blue Chip	0.887***	0.967***	-0.023	-0.054	-0.164***
SR Non- Blue Chip	1.060***	0.896***	0.078	0.026	-0.139**
BSE100	0.872***	0.928***	0.018	-0.010	-0.183***
NIFTY50 Companies	0.828***	1.004***	-0.162***	-0.074	-0.141***
Non-SR Blue Chip	0.906***	0.781***	0.181**	0.144*	-0.261***
Mimicking	0.403*	0.856***	0.246***	0.333***	-0.176***
BSE500 Index	1.138**	-0.100	0.026	-0.090	-0.301***

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 5 reports the estimates of the Carhart four-factor model for the total study period. The results indicate that the market factor remains positive and highly significant across all portfolios, confirming that market-wide movements continue to be the primary driver of portfolio returns even after controlling for size, value, and momentum effects. The market loading varies from 0.610 for GREENEX to 1.240 for Mimicking, suggesting heterogeneity in systematic risk exposure across the sample. Portfolios such as NIFTY100 ESG (0.957), SR Blue Chip (0.967), BSE100 (0.928), and NIFTY50 Companies (1.004) exhibit market sensitivity close to unity, indicating a strong alignment with overall market performance. The alpha estimates remain positive for most portfolios, implying that selected portfolios continue to generate abnormal returns after adjusting for the four common risk factors. The highest alpha is observed for SR Non- Blue Chip (1.060%), followed by NIFTY100 ESG (0.951%), Non-SR Blue Chip (0.906%), SR Blue Chip (0.887%), and BSE100 (0.872%). These findings suggest that the returns of these portfolios are not fully explained by standard factor exposures. In contrast, the alpha coefficients for GREENEX and Mimicking are statistically insignificant, indicating that their performance is largely captured by the factor structure of the model. The additional factors provide further insights into return dynamics. The size factor (SMB) is significant only for a limited number of portfolios, with negative exposure in GREENEX and NIFTY50 Companies, and positive exposure in Non-SR Blue Chip and Mimicking. The value factor (HML) is largely insignificant across portfolios, except for Mimicking and Non-SR Blue Chip, where the coefficients are positive and significant. By contrast, the momentum factor (WML) emerges as an important determinant of returns for several portfolios. It is negative and significant for NIFTY100 ESG, SR Blue Chip, BSE100, NIFTY50 Companies, Non-SR Blue Chip, Mimicking, and the BSE500 Index, indicating an inverse association with momentum-based return behaviour over the sample period. The model fit is reasonably strong, with R^2 values of 0.849 for NIFTY100 ESG, 0.849 for Mimicking, 0.843 for SR Blue Chip, and 0.832 for BSE100, showing that the four-factor specification explains a substantial proportion of return variation for these portfolios. At the same time, the relatively lower R^2 values for SR Non- Blue Chip (0.677) and Non-SR Blue Chip (0.675) imply that additional portfolio-specific influences may still be present. Overall, the Carhart results suggest that while market and momentum factors play a significant role in explaining portfolio returns, selected portfolios continue to exhibit positive and significant abnormal performance even under the most comprehensive factor specification used in the study. In particular, SR Non- Blue Chip, NIFTY100 ESG, and SR Blue Chip remain notable performers, indicating that their return advantage cannot be fully attributed to conventional factor exposures alone. Accordingly, H04 is rejected signifying a major impact on the performance of both socially responsible and conventional portfolios.

Table 6.1: Performance Persistence of Conventional Stocks Portfolio using TMB approach

Portfolio	Window	Group	Alpha	MF	SMB	HML	WML	N	R^2
BSE100	**12M**	**Top**	0.5476*	1.0211***	0.0592	-0.0395	0.0713	121	0.7044
		Middle	0.3853	1.0199***	-0.0401	0.0202	-0.1605***	121	0.7869
		Bottom	1.3209***	1.0387***	0.0416	0.1416	-0.4175***	121	0.6577
		TMB	-1.3009**	-0.0113	0.0150	-0.1775	0.4916***	121	0.2803
	36M	**Top**	0.7178**	1.0693***	-0.0269	-0.0817	0.0887	64	0.8053
		Middle	0.8160**	0.8536***	-0.0355	-0.0798	-0.2269***	64	0.6799

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		Bottom	0.5271	1.0180***	-0.1000	0.2495*	-0.4852***	64	0.6414
		TMB	-0.2777	0.0621	0.0714	-0.3283**	0.5706***	64	0.3868
	60M	Top	0.7323	1.2882***	0.1611	-0.0901	-0.4693*	16	0.904
		Middle	0.5032	0.8611***	0.0652	0.0989	-0.4699**	16	0.849
		Bottom	1.1928	1.0629***	0.0524	0.1090	-0.3092	16	0.8322
		TMB	-0.9379	0.2273	0.1110	-0.2083	-0.1575	16	0.2026
NIFTY50 Companies	12M	Top	0.2614	0.9201***	-0.0367	-0.0171	0.1097**	116	0.7039
		Middle	0.2926	1.0263***	-0.1721***	-0.0097	-0.1783***	116	0.8126
		Bottom	0.7643**	1.1757***	-0.2227***	-0.0137	-0.4155***	116	0.7882
		TMB	-1.0266***	-0.2501***	0.1824**	0.0004	0.5281***	116	0.4215
	36M	Top	-0.0422	0.9952***	-0.1563	-0.0087	0.1187	64	0.6922
		Middle	0.4810	0.8456***	-0.1446	-0.1529*	-0.2107**	64	0.5654
		Bottom	0.5424	0.9832***	-0.2579**	0.2327**	-0.5854***	64	0.7151
		TMB	-1.0530*	0.0229	0.0998	-0.2386*	0.7008***	64	0.3984
	60M	Top	0.0980	1.2333***	0.0419	-0.0552	-0.4379	16	0.8617
		Middle	0.1994	0.7195***	-0.0073	0.1374	-0.6510**	16	0.7879
		Bottom	0.1451	0.8242***	0.0904	0.2031	-0.3633	16	0.7887
		TMB	-0.5245	0.4111*	-0.0462	-0.2676	-0.0719	16	0.3367
Non-SR Blue Chip	12M	Top	1.3959***	1.1862***	0.2691**	-0.1399	-0.0955	116	0.6307
		Middle	0.9281*	0.8484***	0.2028	0.2919**	-0.1406	116	0.519
		Bottom	1.6728***	1.3080***	-0.0689	-0.0463	-0.7779***	116	0.6505
		TMB	-0.8006	-0.1163	0.3345**	-0.0898	0.6853***	116	0.2501
	36M	Top	1.8723***	1.0751***	0.0636	-0.0447	0.2387	64	0.4885
		Middle	1.1419	0.8353***	0.2136	0.1301	-0.2940	64	0.3205
		Bottom	0.5732	1.0079***	0.0575	0.2969	-0.3203	64	0.4595
		TMB	0.8307	0.0780	0.0042	-0.3387	0.5557**	64	0.1646
	60M	Top	2.0996*	1.2237***	0.1475	-0.0604	-0.2534	16	0.7295
		Middle	0.6014	1.1393***	-0.2651	-0.0700	-0.0988	16	0.879
		Bottom	2.7146**	1.2701***	0.1333	0.2127	0.0326	16	0.7803
		TMB	-1.0923	-0.0444	0.0164	-0.2823	-0.2834	16	0.0835
Mimicking	12M	Top	1.2165***	1.1162***	0.2786***	0.2934***	0.1644**	116	0.7632
		Middle	0.0370	0.7991***	0.2016**	0.3606***	-0.1884**	116	0.7277
		Bottom	1.1453***	1.1884***	0.2466**	0.1606*	-0.7723***	116	0.8158
		TMB	-0.4525	-0.0667	0.0285	0.1366	0.9397***	116	0.4613
	36M	Top	1.2642**	0.9689***	0.0751	0.1921	0.2857**	64	0.5731
		Middle	0.4322	0.8634***	-0.1291	0.3593***	-0.0626	64	0.5928
		Bottom	0.3973	1.1201***	0.5559***	0.4496***	-0.8460***	64	0.7347
		TMB	0.3986	-0.1403	-0.4826**	-0.2546	1.1284***	64	0.4764
	60M	Top	1.1211	1.4473***	-0.3719	-0.4970*	0.4992	16	0.8543
		Middle	-0.1621	0.9776***	0.4099	0.3726*	-0.6002*	16	0.8485
		Bottom	1.1891	1.3194***	0.0716	0.8987*	-0.9991	16	0.673
		TMB	-0.5453	0.1300	-0.4413	-1.4049***	1.5009**	16	0.5591

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 4.6.2: Performance Persistence of Socially Responsible Stocks Portfolio using TMB approach

Portfolio	Window	Group	Alpha	MF	SMB	HML	WML	N	R^2
GREENEX	12M	Middle	0.1943	0.9315***	-0.0699	0.0676	-0.1437**	116	0.6786
		Bottom	0.8877**	1.1129***	-0.2295***	-0.0126	-0.2555***	116	0.7134
		TMB	-1.2733**	-0.2920**	0.1656	0.0398	0.3790***	116	0.2135
	36M	Top	-0.3773	0.7354***	-0.1096	-0.0008	0.3811***	64	0.551
		Middle	0.0792	0.8533***	-0.1303	0.1115	0.0164	64	0.5697
		Bottom	0.4400	0.9896***	-0.2951**	0.2343**	-0.5762***	64	0.7175
		TMB	-1.2856*	-0.2433	0.1838	-0.2322	0.9540***	64	0.4743
	60M	Top	-0.0830	1.2848***	0.0480	-0.1055	-0.0713	16	0.8109
		Middle	0.3119	0.6274***	0.1228	0.1704	-0.3950	16	0.5915
		Bottom	0.4643	0.6654***	-0.0478	0.6069**	-0.4384	16	0.7104
		TMB	-1.0246	0.6214**	0.0980	-0.7216**	0.3697	16	0.5679
NIFTY100 ESG	12M	Top	0.5480**	0.9451***	0.0045	-0.0186	0.1232**	120	0.7503
		Middle	0.2504	1.0461***	-0.0870	-0.0238	-0.1520***	120	0.8021
		Bottom	0.9833***	1.0160***	-0.0694	0.1299*	-0.3810***	120	0.7702
		TMB	-0.9642***	-0.0643	0.0705	-0.1451*	0.5068***	120	0.4469
	36M	Top	0.3071	1.0651***	-0.1174	-0.1307*	0.1843**	64	0.7854
		Middle	0.6451*	0.8258***	-0.0261	-0.0945	-0.1809**	64	0.6808
		Bottom	0.4322	1.0430***	-0.1401	0.1988*	-0.5818***	64	0.7059
		TMB	-0.5935	0.0330	0.0209	-0.3265**	0.7628***	64	0.4928
	60M	Top	-0.2082	1.2035***	0.1255	-0.0834	-0.3519	16	0.8946
		Middle	0.7142	0.8990***	0.0941	-0.0163	-0.6139***	16	0.8983
		Bottom	0.7502	0.9918***	-0.0060	0.1931	-0.3582	16	0.848
		TMB	-1.4358	0.2138	0.1338	-0.2858	0.0088	16	0.2176
SR Blue Chip	12M	Top	0.3206	0.9337***	0.0083	-0.0269	0.1096*	120	0.715
		Middle	0.3289	1.0272***	-0.0756	0.0046	-0.1479***	120	0.7943
		Bottom	0.9805***	1.0642***	-0.0820	0.0961	-0.3864***	120	0.7423
		TMB	-1.1889***	-0.1240	0.0870	-0.1195	0.4986***	120	0.4163
	36M	Top	0.2548	1.0219***	-0.1011	-0.1106	0.0728	64	0.7339
		Middle	0.7629**	0.8692***	-0.0613	-0.0973	-0.2246***	64	0.6823
		Bottom	0.5731	1.0373***	-0.1434	0.2118*	-0.5487***	64	0.6671
		TMB	-0.7867	-0.0045	0.0405	-0.3195**	0.6182***	64	0.4289
	60M	Top	0.0977	1.2359***	0.2169	-0.0156	-0.5847*	16	0.8481
		Middle	0.7082	0.8270***	0.1211	0.0047	-0.5582**	16	0.8184
		Bottom	0.7807	1.0146***	0.0267	0.1746	-0.4021	16	0.8534
		TMB	-1.1604	0.2233	0.1924	-0.1994	-0.1801	16	0.2455
SR Non- Blue Chip	12M	Top	1.1785**	1.0306***	-0.0079	-0.0740	0.1214	116	0.4621
		Middle	0.2912	0.9785***	0.1001	-0.0162	-0.0242	116	0.4749
		Bottom	0.8173	0.9683***	-0.2015	0.2007*	-0.4285***	116	0.573
		TMB	-0.1625	0.0678	0.1901	-0.2710*	0.5529***	116	0.2186
	36M	Top	0.5569	1.2029***	0.0047	-0.2313	0.3422	64	0.4237
		Middle	0.8765	1.0090***	-0.1972	-0.1922	0.0990	64	0.4381
		Bottom	-0.5371	0.7848***	-0.0157	0.2147	-0.5394***	64	0.4509
		TMB	0.6257	0.4290	0.0186	-0.4432*	0.8783***	64	0.2833
	60M	Top	-1.1642	1.6043***	-0.4144	-0.3639	0.0464	16	0.7883
		Middle	0.3155	0.6512**	0.0495	-0.0926	-0.0135	16	0.4364
		Bottom	1.2004	0.9763**	-0.0901	0.2228	-0.5010	16	0.4191
		TMB	-2.8419	0.6300	-0.3221	-0.5959	0.5500	16	0.2075

Note: ****,**, * significant at 1%, 5% and 10% respectively*

Table 6.1 and 6.2 reports the results of the Top-minus-Bottom (TMB) persistence approach estimated through the Carhart four-factor model. The analysis compares the abnormal performance of portfolios formed on the basis of past returns over 12-month, 36-month, and 60-month ranking horizons. In this framework, a positive

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and significant TMB alpha indicates performance persistence, whereas a negative or insignificant alpha suggests either the absence of persistence or the presence of return reversal. The empirical results provide limited support for persistence. At the 12-month horizon, several portfolios exhibit negative TMB alpha, and in a number of cases these estimates are statistically significant, indicating short-term reversal rather than continuation in performance. This pattern is visible for portfolios such as NIFTY100 ESG, SR Blue Chip, BSE100, and NIFTY50 Companies, where the top-ranked portfolios do not sustain their prior out-performance relative to the bottom-ranked portfolios. Although a few portfolios display weaker negative or insignificant TMB alpha, the overall short-horizon evidence does not support stable abnormal return persistence. At the 36-month horizon, the evidence remains mixed. TMB alpha stays negative for several portfolios, while a few others turn marginally positive; however, these positive estimates are generally weak and statistically insignificant. This suggests that medium-term persistence is not robust across the sample. At the 60-month horizon, the pattern becomes even less supportive of persistence, as most TMB alpha values remain negative or lose significance, indicating that long-horizon past winners are generally unable to maintain superior future performance. Another important finding is that the momentum factor frequently remains significant in the TMB regressions, even when TMB alpha itself is insignificant or negative. This indicates that the spread between top and bottom portfolios is influenced by momentum-related return dynamics, but this does not translate into consistent abnormal persistence. Hence, the return differences captured by the TMB portfolios appear to be driven more by factor exposure than by enduring superior performance. Overall, the TMB results suggest that performance persistence is weak and unstable across the selected portfolios. Instead of consistent continuation, the findings point more strongly toward reversal effects, particularly at the short and long horizons. Therefore, the evidence from the parametric persistence test does not support the view that socially responsible or conventional portfolios generate sustained abnormal returns over time by accepting H05.

Conclusion and Policy Implications

The study provides evidence that ESG-oriented investment strategies in India are capable of delivering competitive financial outcomes relative to conventional equity portfolios. Across multiple evaluation frameworks, socially responsible portfolios demonstrated comparable, and in certain cases superior, return efficiency and abnormal performance. The empirical evidence from the Carhart model suggests that a portion of portfolio returns cannot be fully explained by conventional risk factors alone, particularly for selected ESG-based portfolios. However, the persistence analysis reveals that superior performance is not consistently maintained across different investment horizons. The presence of reversal effects in several TMB portfolios indicates that past winners do not necessarily continue to outperform in subsequent periods. Therefore, while ESG investing appears financially sustainable in the Indian market, investors should exercise caution in assuming long-term continuation of historical excess returns. Overall, the findings strengthen the argument that responsible investing should not be viewed merely as an ethical preference but also as a financially relevant investment approach within emerging markets such as India.

The findings of the study have important implications for investors, fund managers, regulators, and policymakers. For investors, the results suggest that socially responsible portfolios can be considered as a serious investment option without fear of systematic under performance. For fund managers and asset management companies, the findings imply that socially responsible products should not be marketed only on ethical grounds, but also on financial merit. For regulators and policymakers, the results support the need for stronger ESG disclosure standards and more transparent sustainability reporting in the Indian capital market. Finally, the weak persistence results suggest that investors and portfolio managers should avoid depending solely on historical out performance while making investment decisions. Socially responsible investing should therefore be supported by continuous monitoring, regular portfolio review, and dynamic strategy adjustments in response to changing market conditions.

References

Auer, B. R. (2016). Do socially responsible investment policies add or destroy European stock portfolio value? *Journal of Business Ethics, 135*(2), 381–397. https://doi.org/10.1007/s10551-014-2454-z.

Bauer, R., Otten, R., & Rad, A. T. (2006). Ethical investing in Australia: Is there a financial penalty. *Pacific-Basin Finance Journal, 14*(1), 33–48.

Bauer, R., Koedijk, K., & Otten, R. (2005). International evidence on ethical mutual fund performance and investment style. Journal of Banking & Finance, 29(7), 1751–1767. *https://doi.org/10.1016/j.jbankfin.2004.06.035.*

Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005). The eco-efficiency premium puzzle. *Financial Analysts Journal, 61*(2), 51–63.

Friede, G., Busch, T., & Bassen, A. (2015). ESG and financial performance: Aggregated evidence from more than 2000 empirical studies. *Journal of Sustainable Finance & Investment, 5*(4), 210–233.

Gregory, A., & Whittaker, J. (2007). *Performance and performance persistence of 'ethical' unit trusts in the UK*. Journal of Business Finance & Accounting, 34(7–8), 1327–1344.

Gidage, P., Jain, P., & Surana, S. (2024). ESG performance and systemic risk: Evidence from Indian firms. *Journal of Risk and Financial Management, 17*(9), 381.

Hamilton, S., Jo, H., & Statman, M. (1993). Doing well while doing good? The investment performance of socially responsible mutual funds. *Financial Analysts Journal, 49*(6), 62–66.

Hariharan, C., & Babu, M. (2018). Price Behaviour of Indian Sustainable Investment–A Comparative Study. *Research Journal of Humanities and Social Sciences*, *9*(4), 865-869.

Hasan, I., Singh, S., & Kashiramka, S. (2025). Exploring the financial performance of ESG investing in India: evidence using asset-pricing models. *China Accounting and Finance Review*, *27*(3), 421-466.

Lean, H. H., Ang, W. R., & Smyth, R. (2015). Performance and persistence of socially responsible investment funds in Asia. Journal of Business Ethics, 130(3), 635–652. *https://doi.org/10.1007/s10551-014-2242-9*

Leite, P., & Cortez, M. C. (2013). Performance and performance persistence of socially responsible funds in France.

Murthy, Bhandari, & Pandey. (2014). Performance of socially responsible companies vis-à-vis general companies in terms of price discovery and returns in the stock market.

Orlitzky, M., Schmidt, F. L., & Rynes, S. L. (2003). Corporate social and financial performance: A meta-analysis. *Organization Studies, 24*(3), 403–441.

Renneboog, L., Ter Horst, J., & Zhang, C. (2008). Socially responsible investments: Institutional aspects, performance, and investor behavior. *Journal of Banking & Finance, 32*(9), 1723–1742.

Revelli, C., & Viviani, J. L. (2015). Financial performance of socially responsible investing (SRI): What have we learned? A meta-analysis. *Business Ethics: A European Review, 24*(2), 158–185.

Shank, T., Manullang, D., & Hill, R. (2005). Doing Well While Doing Good Revisited: A Study of Socially Responsible Firms' Short-Term versus Long-term Performance. *Managerial Finance*, *31*(8), 33-46.

Statman, M. (2000). Socially responsible mutual funds. *Financial Analysts Journal, 56*(3), 30–39.

Tripathi, V., & Bhandari, V. (2017). Performance of socially responsible portfolios in India. Journal of Sustainable Finance & Investment, 7(2), 157–174. *https://doi.org/10.1080/20430795.2016.1267992.*

Tripathi, V., & Kaur, A. (2022). Does socially responsible investing pay in developing countries. A comparative study across select developed and developing markets. *FIIB Business Review*, *11*(2), 189-205.