

Performance of Socially Responsible Stocks Portfolios – The Impact of Global Financial Crisis

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Abstract

For the effective and better implementation of CSR law, development of SRI market in the investment world is essential. Unless the investors turn socially responsible, CSR principles cannot be enforced in practice. This paper examines whether the companies that are socially responsible are performing better than general companies in terms of risk, return and various risk-adjusted measures during pre-crisis, crisis and post-crisis periods. We find that despite having higher risk, socially responsible stocks portfolios generated significantly higher returns and hence outperformed other portfolios on the basis of all risk-adjusted measures, as well as net selectivity returns during crisis period. The results uphold even with the use of Fama-French three factor model for estimating excess returns. Besides augmenting existing literature, our results clearly corroborate the fact that investors can derive benefits by investing in socially responsible companies (especially in crisis period). The study supports the view that socially responsible products

can be used as a safe investment vehicle by investors during adversity. Therefore, regulators, policy makers and mutual funds should construct and make available various socially responsible investment products to initiate the movement of socially responsible investing in India.

Keywords: Socially Responsible Investing, ESG Index, GREENEX Index, Dummy Variable, Market Model, Fama-French Three Factor Model

Introduction

The origin of SRI came into prominence in 1920 when Church organizations began to divest in “sin stocks” of companies that produced alcohol, tobacco and engaged in gambling activities. With the growing awareness of environmental, social, governance (ESG) and ethical factors, attitude of today’s investor is changing. This development is fuelling the investors (retail and institutional) to invest their money in an ethical way. In today’s world of finance, SRI is attracting lot of investors’ attention. According to Social Investment Forum (SIF), approximately 10% of all US investments are managed according to some screening process related to environment, social, governance and ethical issues.

For the effective and better implementation of CSR law, development of SRI market in the investment world is essential. Indian Companies Act, 2013 makes it mandatory for certain companies to undertake CSR activities. Tripathi and Bhandari (2014) have argued that SRI can bolster the CSR law and said that “Unless the investors turn socially responsible, CSR principles cannot be enforced in practice”. They argue that if stock market values socially responsible companies and does not value non-socially responsible companies, then the CSR law will witness better and effective implementation.

The concept of SRI is not new to the world of finance, but it has gained momentum in the last decade. Socially responsible investing (SRI) is an investment process that considers the social and environmental consequences of investments besides financial consequences, both positive and negative, within the rigorous framework of financial analysis. It can also be defined as a process of

identifying and investing in a company that meets certain standards of CSR and is increasingly practiced internationally.

The first question that may be asked by every investor before investment in SRI products is whether such investment generates returns higher than their peers or not. The reason for this could be unwillingness to sacrifice financial returns for ESG issues. Thus, this paper tries to examine an interesting notion that whether the portfolios of socially responsible companies outperform those of general companies in the Indian stock market during the identified break periods, especially the period surrounding the financial crisis? This will help investors in examining how socially responsible stocks portfolios performed during adversity (crisis) in comparison with general stocks portfolios. On account of the identified break periods, the main objectives of the paper are:

- To examine whether socially responsible stocks portfolio generated significantly higher returns than the general stocks portfolio and market portfolio.
- To assess whether socially responsible stocks portfolio outperformed general stocks portfolio and market portfolio on the basis of various risk-adjusted measures.
- To analyze the performance of different socially responsible and general stocks portfolio on the basis of net selectivity return.
- To evaluate the impact of break periods (pre-crisis, crisis and post-crisis) on the returns of various portfolios using Modified Market Model and Fama-French Three Factor Model.

The remainder of this paper is organized as follows. Section 2 provides brief review of literature regarding performance of socially responsible products with general products. Section 3 describes the data and methodology of the research work. Section 4 discusses the empirical evidence and the results, while Section 5 concludes the research. It concludes that by considering social, environmental and ethical factors, investors can derive financial benefits from their investment.

Hamilton, Jo and Statman (1993) found that socially responsible mutual funds did not earn statistically significant excess returns and that the performance of such funds is not significantly different from conventional funds. Their results indicated that the market does not value social responsibility factors and such factors have no significant effect on expected stock returns.

Statman (2000) reported that performance of Domini Social Index was identical to S&P 500 over the period 1990-1998. He compared the returns of 31 SRI funds with 62 conventional funds and finds no significant difference in their returns. However, the return of 31 SRI funds underperformed the S&P 500 by an average of 6.26% p.a.

King and Lenox (2001) examined whether stronger environmental firms outperform weaker environmental firms and concluded that the financial performance of stronger environmental companies was significantly better. According to the report of RBC Global Asset Management (2007), socially responsible investing does not result in lower investment returns. This is an important finding because it lends support to the case of SRI. Retail and institutional investors can invest in SRI related products with the expectation that the returns will be similar to those from traditional investment options.

Kempf and Osthoff (2007) reported significant positive risk-adjusted returns for a US portfolio based on SRI during 1992-2004. Their portfolio was based on long-short strategy by investing in the 10% best SRI stocks within each industry and shorting the 10% worst SRI stocks in each industry.

Hume and Larkin (2008) showed that the return of socially responsible firms was higher prior to 2000, reflecting that investors require more investments in socially responsible firms. Their results also reported that the portfolio of “vice stocks” had the best performance on a risk-adjusted basis, especially in the more recent years, suggesting that the investors underestimated the benefits of being social irresponsible.

Amenc and Sourd (2008) established that using Fama-French three factor model, socially responsible funds in France were not able to produce significant positive alpha over the period Jan. 2002 – Dec. 2007. However, Amenc and Sourd (2010) updated these results by considering the period of crisis. Their results revealed that SRI funds provided no protection from market downturns as the risks of these funds were quite high.

Tripathi and Bhandari (2012) tried to examine whether there is a significant difference in the returns of various green and non-green stocks portfolio and found that green blue chip stocks portfolio generated significantly higher returns than market returns implying that green investing was more rewarding and could be safer bet for investors during the crisis period. Elias (2012) analyzed the performance of

Shariah compliant stocks and found that the returns of these stocks showed the effect of positive net selectivity.

Bhanumurthy, Bhandari and Pandey (2014) checked whether price discovery and returns of socially responsible companies is higher than by general companies which are not surrounding the financial crisis period. They found that both, price discovery and returns of socially responsible companies were significantly superior to general companies both, during and post crisis period.

Tripathi and Bhandari (2015a) supported the existing literature by analyzing the performance of socially responsible stocks portfolio and general stocks portfolio in the Indian stock market using various risk-adjusted measures over the 18 year period and period surrounding the financial crisis. They find that socially responsible stocks portfolio generated significantly higher returns and outperformed other portfolios, especially during crisis period. Their findings lend support to the case of socially responsible investing in India.

Tripathi and Bhandari (2015b) have compared the performance of socially responsible stocks portfolios with general stocks portfolios over different business economic conditions. They find that socially responsible portfolios generated significantly higher returns than general portfolios and outperformed them using single factor alpha and multi factor alpha. Their findings support the view that socially responsible investing is boon for investors in India.

Tripathi and Bhandari (2015c) have evaluated the performance of ethical mutual funds with their conventional peers and reported that despite having higher risk, ethical funds outperformed on the basis of various risk-adjusted measures and net selectivity returns.

Tripathi and Bhandari (2015d) have examined the performance of socially responsible firms and general firms in terms of growth rate, risk and various risk-adjusted measures during different structural break periods. They find that growth rate of socially responsible companies were significantly better than by general companies during crisis period. Socially responsible companies outperformed general companies in terms of return and various risk-adjusted measures, but not on the basis of risk.

Methodology and Data

The study examines the performance of three types of portfolios (viz. socially responsible stocks portfolio, general stocks portfolio and market

portfolio) over a 9 year period, from January 2005 to December 2013. Various proxies have been used to represent socially responsible stocks portfolio and general stocks portfolio. S&P ESG India Index, S&P BSE GREENEX Index, Socially Responsible Blue Chip (SRBC) stocks portfolio and Socially Responsible Non Blue Chip (SRNBC) stocks portfolio have been used as the proxies for socially responsible stocks portfolios. General stocks portfolios comprise of the portfolios of large cap companies. Hence, NIFTY, SENSEX, Blue Chip Non Socially Responsible (BCNSR) stocks portfolio and Mimicking stocks portfolio are representing general stocks portfolios as these portfolios include the large cap companies. Theoretically, market portfolio comprises of all available stocks in the stock market. Hence, CNX 500 Equity Index is being used as the proxy for market portfolio. ESG Index is used to get the names of socially responsible companies. SRBC stocks portfolio comprises of those companies which are common in ESG Index and NIFTY. However, SRNBC stocks portfolio includes those companies which are in ESG Index only but not in NIFTY and BCNSR stocks portfolio contains companies listed in NIFTY but not in ESG. We have constructed Mimicking stocks portfolio by using the same sectoral composition as that of ESG Index, but selecting 50 different companies on the basis of same size (in terms of market capitalization). The calculations are done on the basis of stock price data of these companies. Monthly adjusted closing index values and company stock prices were collected from PROWESS database of CMIE (Centre for monitoring Indian economy). These values are then converted into simple percentage returns as $(Pt - Pt-1)/Pt-1$. Implicit yield on 91 days T-bills have been taken as a proxy for risk-free rate of return. Next we calculated Karl Pearson's coefficient of correlation among all these nine portfolios, descriptive statistics, portfolio beta and various risk adjusted measures for performance evaluation. The analysis has been done for total period (9 years) to evaluate the returns over a longer period and for different break periods as identified by Tripathi and Bhandari (2015). Different dates for break periods are as follows:

January 2005 – September 2008 (Pre-Crisis Period)

October 2008 – December 2009 (Crisis Period)

January 2010 – December 2013 (Post-Crisis Period)

Methodology

Extant literature is available on socially responsible investing but not much empirical work has been done so far with respect to performance of various socially responsible portfolios and general portfolios during

identified break periods. Apart from conventional measures of performance evaluation, we are trying to use new methodology for evaluating the performance of various portfolios during the above said periods. To accomplish our objectives, following hypotheses have been tested:

1. There is no significant difference in the returns of socially responsible stocks portfolio, general stocks portfolio and market portfolio during the overall period and identified break periods.

2. Performance of socially responsible stocks portfolio matches with the performance of general stocks portfolio and market portfolio using various risk adjusted measures during overall period and identified break periods.

3. There is no difference in the performance of socially responsible stocks portfolio and general stocks portfolio on the basis of net selectivity return during overall period and identified break periods.

4. Identified break has no impact on the returns of various portfolios using Modified Market Model and Fama-French Three Factor Model.

Methods used:

1. Sharpe Ratio: This ratio measures the return of the portfolio (AR_p) in excess of risk-free rate (R_F), compared to total risk of the portfolio (σ_p). Since it uses standard deviation as a measure of risk, it does not assume that the portfolio is well diversified.

$$\text{Sharpe ratio} = \frac{AR_p - R_F}{\sigma_p}$$

2. Treynor Ratio: This ratio measures the relationship between return of the portfolio, above the risk-free rate, and its systematic risk indicated by portfolio beta (β_p). Since it only takes systematic risk into account, hence this ratio is relevant for evaluating the performance of well diversified portfolios.

$$\text{Treynor ratio} = \frac{AR_p - R_F}{\beta_p}$$

3. Modified Sharpe Ratio: Israelsen (2005) argued that Sharpe ratio may lead to spurious ranking when excess returns of portfolios are negative. He proposes to correct this anomaly by modifying the standard Sharpe ratio, introducing an exponent to the denominator of Sharpe ratio. It can be calculated as:

$$\text{Modified Sharpe Ratio} = \frac{AR_P - R_F}{\sigma_P \left[\frac{(AR_P - R_F)}{ABS(AR_P - R_F)} \right]}$$

4. Double Sharpe Ratio: Since Sharpe ratio considers only sample of returns, this ratio is being used to represent the whole population of returns. Estimation of this ratio requires series of Sharpe ratio using individual return, standard deviation and risk free rate. It can be calculated as:

$$\text{Double Sharpe Ratio} = \frac{A(S_P)}{\sigma(S_P)}$$

where, $A(S_P)$ = Average of Sharpe Ra
 $\sigma(S_P)$ = Standard Deviation of Sharpe Ratios

5. M^2 Measure: Generally we compare the returns of portfolios with different levels of volatility (standard deviation). Modigliani and Modigliani (1997) showed that portfolio and its benchmark must have the same level of risk to be compared in terms of risk-adjusted performance. We imagine that a particular risky portfolio (P) is mixed with risk-free asset (T-bills), so that the resultant or adjusted portfolio (P^*) matches the volatility of market portfolio (CNX 500 Equity Index). With the same standard deviation of market index and managed portfolio, we may evaluate their performance by comparing returns.

$$M^2 = R_{P^*} - R_M$$

where, R_{P^*} = Return of Managed Portfolio
 R_M = Return of Market Portfolio

6. Jensen's Alpha: It is used to determine the abnormal return (α) of a security or portfolio of securities over the theoretical expected return. The theoretical return is predicted by a market model. A portfolio with a consistently positive excess return (adjusted for risk) will have a positive alpha and vice-versa. It can be calculated as:

$$R_P - R_F = \alpha + \beta_P (R_M - R_F)$$

or

$$\alpha = R_P - [R_F + (R_M - R_F) \beta_P]$$

7. Multi Factor Alpha (Alpha Based on Fama-French Three Factor Model): Several studies have employed a single factor CAPM or market model to measure the performance of socially responsible and general stocks portfolios. Apart from market risk, there could be other factors as well which may potentially affect the cross section variation in portfolio return like size effect, value effect, momentum effect etc. It can be estimated as:

$$R_P - R_F = \alpha + \beta_1 (R_M - R_F) + \beta_2 (\text{SMB}) + \beta_3 (\text{HML})$$

where, α = Multi Factor Alpha

SMB = Small Minus Big (Size Effect)

HML = High Minus Low (Value Effect)

8. Information Ratio: It is also known as Appraisal Ratio and is defined as residual return of the portfolio divided by tracking error, where residual return is the difference between the return of the portfolio and the return of a selected benchmark index and tracking error is the standard deviation of residual return. It can be calculated as:

$$\text{Information Ratio} = \frac{E[R_P - R_B]}{\sigma_{ep}} = \frac{\alpha_P}{\sigma_{ep}}$$

where, α_P = Jensen's alpha or abnormal return of the portfolio

σ_{ep} = Unsystematic risk of the portfolio

9. Fama's Decomposition Measure: Fama (1972) decomposed the alpha produced by CAPM model into non-diversification, net selectivity and diversification. In terms of Fama's framework, a portfolio's excess return constitutes the following three main components:

(a) Compensation for non-diversification (Systematic risk) = $\beta_P (R_M - R_F)$

(b) Compensation for diversification (Unsystematic risk) = $(R_M - R_F) [(\sigma_P/\sigma_M) - \beta_P]$

(c) Net selectivity = $(R_P - R_F) - (\sigma_P/\sigma_M) (R_M - R_F) = \text{Selectivity} - \text{Compensation for unsystematic risk}$

Fama's decomposition takes advantage of the ability to convert risks into their return equivalents. Thus, both return and risk are analysed, but risk is expressed in terms of the return gained or foregone to achieve that level of risk. Selectivity is the portion of the excess return that is not explained by the portfolio beta and the market risk premium. Selectivity includes diversification and net selectivity. Compensation for unsystematic risk is the difference between the return that should have been earned according to capital market line (CML) and the return that should have been earned according to the security market line (SML). If the portfolio is perfectly diversified, this will be equal to zero because there will be no unsystematic risk. We can determine how much of the risk premium comes from ability to select stocks (net selectivity) by subtracting diversification from selectivity.

In order to check whether there is a significant difference between the returns of socially responsible stocks portfolios and general stocks portfolios, we have used t-test. In applying t-test we compare the returns for the whole period as well as for identified boom and recessionary periods.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

where, \bar{x}_1 and \bar{x}_2 are the returns of two portfolios

S_1 and S_2 are the standard deviations of two portfolios

n_1 and n_2 are the sizes of two portfolios.

To check if there is a significant difference in the alphas and slope (beta values) of different portfolios during the various identified break periods, we have estimated equation (1) in respect of all indices by introducing two dummy variables. One can see that equation (1) is a modified market model equation to capture the impact of break periods i.e. pre-crisis, crisis and post-crisis on various parameters i.e. alpha and slope. The original market model estimates the expected return of a portfolio on the basis of a single factor i.e. market risk premium. The alpha of the model shows return over and above its theoretical expected return while its slope captures the sensitivity of a portfolio's return vis-à-vis market return.

$$R_P - R_F = \alpha_0 + \alpha_1 D_1 + \alpha_2 D_2 + \beta_0 (R_M - R_F) + \beta_1 D_1 (R_M - R_F) + \beta_2 D_2 (R_M - R_F) \quad (1)$$

where, R_P = Return of i^{th} Index

R_F = Risk - Free Rate of Return

R_M = Return of CNX 500 Equity Index

$D_1 = 0$ and $D_2 = 0$ for Pre-Crisis Period

$D_1 = 1$ and $D_2 = 0$ for Crisis Period

$D_1 = 0$ and $D_2 = 1$ for Post-Crisis Period

α_0 = Excess Return for Pre-Crisis Period in respect of i^{th} Index

$\alpha_0 + \alpha_1$ = Excess Return for Crisis Period in respect of i^{th} Index

$\alpha_0 + \alpha_2$ = Excess Return for Post-Crisis Period in respect of i^{th} Index

β_0 = Slope or Beta of i^{th} Index for Pre-Crisis Period

$\beta_0 + \beta_1$ = Slope or Beta of i^{th} Index for Crisis Period

$\beta_0 + \beta_2$ = Slope or Beta of i^{th} Index for Post-Crisis Period

i covers all the four proxies of socially responsible stocks portfolios, as well as general stocks portfolios.

Several studies have employed single factor CAPM model to measure the performance of different portfolios. The intercept of the model (Jensen's Alpha) provides an indication of whether socially responsible portfolios outperform or underperform other portfolios and how much. It is a general trend that market risk alone represents two-third of the total systematic risk of the portfolio/security. To control the factors such as size premium and value premium, which can potentially affect the cross section variation in stock returns, we also estimate the following three factor Fama-French model for the whole period (18 years).

$$R_P - R_F = \alpha + \beta_1 (R_M - R_F) + \beta_2 (SMB) + \beta_3 (HML) \quad (2)$$

Where, β_1 , β_2 and β_3 are the slopes in time series regressions. SMB is equally weighted average returns of firms with the lowest 30% market capitalization minus the equally weighted average returns of firms with the highest 30% market capitalization. HML is equally weighted average returns of firms with the highest 30% book-to-market ratios minus the equally weighted average returns of firms with the lowest 30% book-to-market ratios.

In order to check how these three factors viz. market risk premium, size premium and value premium behave during different identified break periods, we have incorporated two dummy variables

(D_1 and D_2) to segregate pre-crisis, crisis and post-crisis in equation (2). Thus, to analyze the impact of break periods on these three factors, we estimate the following regression equation:

$$R_P - R_F = \alpha_0 + \alpha_1 D_1 + \alpha_2 D_2 + \beta_0 (R_M - R_F) + \beta_1 D_1 (R_M - R_F) + \beta_2 D_2 (R_M - R_F) + \beta_3 SMB + \beta_4 D_1 SMB + \beta_5 D_2 SMB + \beta_6 HML + \beta_7 D_1 HML + \beta_8 D_2 HML \quad (3)$$

where,

α_0 = Excess Return for Pre-Crisis Period in respect of i^{th} Index

$\alpha_0 + \alpha_1$ = Excess Return for Crisis Period in respect of i^{th} Index

$\alpha_0 + \alpha_2$ = Excess Return for Post-Crisis Period in respect of i^{th} Index

β_0 = Slope of Market Risk in respect of i^{th} Index for Pre-Crisis Period

$\beta_0 + \beta_1$ = Slope of Market Risk in respect of i^{th} Index for Crisis Period

$\beta_0 + \beta_2$ = Slope of Market Risk in respect of i^{th} Index for Post-Crisis Period

β_3 = Slope of Size Effect in respect of i^{th} Index for Pre-Crisis Period

$\beta_3 + \beta_4$ = Slope of Size Effect in respect of i^{th} Index for Crisis Period

$\beta_3 + \beta_5$ = Slope of Size Effect in respect of i^{th} Index for Post-Crisis Period

β_6 = Slope of Value Effect in respect of i^{th} Index for Pre-Crisis Period

$\beta_6 + \beta_7$ = Slope of Value Effect in respect of i^{th} Index for Crisis Period

$\beta_6 + \beta_8$ = Slope of Value Effect in respect of i^{th} Index for Post-Crisis Period

i covers all the four proxies of socially responsible stocks portfolios as well as general stocks portfolios.

Results and discussion

Table no. 1. Correlation of Different Portfolios

<i>Portfolios</i>	<i>NIFTY</i>	<i>SENSEX</i>	<i>ESG</i>	<i>GREENEX</i>	<i>MIMICKING</i>	<i>BCNSR</i>	<i>SRBC</i>	<i>SRNBC</i>
<i>CNX 500</i>	0.984	0.977	0.967	0.962	0.932	0.974	0.969	0.912
<i>NIFTY</i>		0.991	0.932	0.964	0.878	0.962	0.972	0.853
<i>SENSEX</i>			0.932	0.965	0.868	0.954	0.975	0.852
<i>ESG</i>				0.942	0.963	0.949	0.956	0.978
<i>GREENEX</i>					0.881	0.955	0.973	0.872
<i>MIMICKING</i>						0.916	0.89	0.965
<i>BCNSR</i>							0.946	0.9
<i>SRBC</i>								0.878

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

Table no.1 shows the Karl Pearson's coefficient of correlation between different portfolios. SRNBC Stocks Portfolio has lowest degree of correlation with all other portfolios, especially with NIFTY and SENSEX. As per modern portfolio theory, the inclusion of SRNBC stocks portfolio can provide diversification benefits to the investors and help to reduce their portfolio risk.

Table no. 2. Return, Risk and Risk Adjusted Measures of Different Portfolios during Identified Break Periods

<i>PORTFOLIOS</i>	<i>Overall Period</i>	<i>Pre-Crisis Period</i>	<i>During Crisis Period</i>	<i>Post-Crisis Period</i>
	Jan. 05 – Dec. 13	Jan. 05 – Sep. 08	Oct. 08 – Dec. 09	Jan. 10 – Dec. 13
<i>Average (%)</i>				
CNX 500	1.289	1.544	3.180	0.395
NIFTY	1.291	1.581	2.604	0.536
SENSEX	1.344	1.665	2.735	0.528
ESG	1.602	1.683	4.833	0.497
GREENEX	1.971	2.192	4.483	0.923
MIMICKING	1.464	1.849	5.226	-0.168
BCNSR	1.331	1.695	3.878	0.102
SRBC	1.626	1.693	4.272	0.719
SRNBC	1.529	1.706	5.270	0.152

<i>Std. Deviation (%)</i>				
CNX 500	7.884	7.922	13.433	5.177
NIFTY	4.427	7.479	12.142	5.278
SENSEX	7.285	7.314	12.036	5.106
ESG	8.543	7.881	14.981	6.274
GREENEX	7.345	7.135	12.150	5.363
MIMICKING	10.247	9.696	17.281	7.580
BCNSR	8.798	8.125	16.420	5.768
SRBC	7.391	7.145	12.091	5.556
SRNBC	10.124	9.130	17.678	7.788
<i>Coefficient of Variation</i>				
CNX 500	6.118	5.132	4.224	13.108
N-IFTY	5.752	4.730	4.662	9.843
SENSEX	5.419	4.391	4.400	9.667
ESG	5.331	4.682	3.099	12.616
GREENEX	3.727	3.255	2.710	5.812
MIMICKING	6.996	5.243	3.307	-45.226
BCNSR	6.612	4.793	4.234	56.481
SRBC	4.546	4.221	2.830	7.723
SRNBC	6.617	5.351	3.355	51.335
<i>Beta</i>				
CNX 500	1	1	1	1
NIFTY	0.927	0.925	0.898	1
SENSEX	0.903	0.899	0.885	0.957
ESG	1.047	0.946	1.104	1.183
GREENEX	0.896	0.862	0.882	0.994
MIMICKING	1.211	1.099	1.269	1.354
BCNSR	1.087	0.996	1.213	1.072
SRBC	0.908	0.877	0.868	1.055
SRNBC	1.171	0.997	1.283	1.388
<i>Systematic Risk (%)</i>				
CNX 500	7.883	7.922	13.433	5.177
NIFTY	7.308	7.328	12.063	5.177
SENSEX	7.119	7.122	11.888	4.955
ESG	8.254	7.494	14.830	6.125
GREENEX	7.064	6.829	11.848	5.146
MIMICKING	9.547	8.707	17.047	7.010
BCNSR	8.569	7.891	16.295	5.550
SRBC	7.158	6.948	11.660	5.462
SRNBC	9.232	7.898	17.235	7.186
<i>Unsystematic Risk (%)</i>				
CNX 500	0	0	0	0
NIFTY	1.323	1.497	1.386	1.029
SENSEX	1.548	1.664	1.881	1.236
ESG	2.202	2.437	2.116	1.361
GREENEX	2.012	2.067	2.690	1.511

MIMICKING	3.721	4.268	2.837	2.883
BCNSR	1.993	1.938	2.022	1.570
SRBC	1.840	1.667	3.199	1.019
SRNBC	4.154	4.579	3.931	3.002
Sharpe Ratio				
CNX 500	0.0939	0.1290	0.2104	-0.0475
NIFTY	0.0999	0.1416	0.1853	-0.0199
SENSEX	0.1092	0.1564	0.1979	-0.0221
ESG	0.1234	0.1473	0.2990	-0.0229
GREENEX	0.1936	0.2341	0.3399	0.0525
MIMICKING	0.0894	0.1369	0.2819	-0.1067
BCNSR	0.0889	0.1444	0.2146	-0.0934
SRBC	0.1458	0.1639	0.3241	0.0141
SRNBC	0.0969	0.1297	0.2781	-0.0628
Modified Sharpe Ratio				
CNX 500	0.0939	0.1290	0.2104	-0.00013
NIFTY	0.0999	0.1416	0.1853	-0.00006
SENSEX	0.1092	0.1564	0.1979	-0.00006
ESG	0.1234	0.1473	0.2990	-0.00009
GREENEX	0.1936	0.2341	0.3399	0.05252
MIMICKING	0.0894	0.1369	0.2819	-0.00061
BCNSR	0.0889	0.1444	0.2146	-0.00031
SRBC	0.1458	0.1639	0.3241	0.01409
SRNBC	0.0969	0.1297	0.2781	-0.00038
Double Sharpe Ratio				
CNX 500	0.0935	0.1288	0.2092	-0.0474
NIFTY	0.0996	0.1415	0.1842	-0.0198
SENSEX	0.1087	0.1561	0.1966	-0.0221
ESG	0.0799	0.1251	0.3110	-0.0633
GREENEX	0.1489	0.1725	0.3819	0.0318
MIMICKING	-0.0359	-0.0189	0.2476	-0.1874
BCNSR	0.0554	0.1130	0.2282	-0.0964
SRBC	0.1277	0.1654	0.3737	-0.0086
SRNBC	0.0225	0.0664	0.2836	-0.1223
Treynor Ratio				
CNX 500	0.0074	0.0102	0.0283	-0.0025
NIFTY	0.0080	0.0115	0.0251	-0.0010
SENSEX	0.0088	0.0127	0.0269	-0.0012
ESG	0.0101	0.0123	0.0406	-0.0012
GREENEX	0.0159	0.0194	0.0468	0.0028
MIMICKING	0.0076	0.0121	0.0384	-0.0060
BCNSR	0.0072	0.0118	0.0291	-0.0050
SRBC	0.0119	0.0134	0.0451	0.0007
SRNBC	0.0084	0.0119	0.0383	-0.0035
M² Measure				

CNX 500
NIFTY	0.0481	0.1004	-0.3363	0.1433
SENSEX	0.1210	0.2170	-0.1680	0.1317
ESG	0.2325	0.1455	1.1907	0.1275
GREENEX	0.7865	0.8330	1.7397	0.5180
MIMICKING	-0.0353	0.0629	0.9613	-0.3062
BCNSR	-0.0393	0.1222	0.0570	-0.2377
SRBC	0.4091	0.2767	1.5276	0.3191
SRNBC	0.0241	0.0060	0.9095	-0.0792
<i>Single Factor Jensen's Alpha (%)</i>				
CNX 500	0	0	0	0
NIFTY	0.0568	0.1143	-0.2881	0.1415
SENSEX	0.1270	0.2247	-0.1217	0.1226
ESG	0.2783*	0.1938	1.3590**	0.1471
GREENEX	0.7582***	0.7896***	1.6331**	0.5262**
MIMICKING	0.0194	0.2047	1.2876	-0.4753
BCNSR	-0.0227	0.1560	0.1008	-0.2751
SRBC	0.4046**	0.2749	1.4626*	0.3375**
SRNBC	0.1145	0.1658	1.2944	-0.1481
<i>Multi Factor Jensen's Alpha (%)</i>				
CNX 500	0	0	0	0
NIFTY	0.1211	0.2011	-0.2035	0.0516
SENSEX	0.1811	0.3188	-0.1167	-0.0334
ESG	0.3128*	0.0333	1.2468**	0.5184***
GREENEX	0.8461***	0.8838***	1.9331***	0.4470*
MIMICKING	-0.0776	-0.1398	1.0472	-0.0411
BCNSR	0.0791	0.2815	0.0569	-0.2960
SRBC	0.5890***	0.4083*	1.5690*	0.4343***
SRNBC	0.0536	-0.2642	0.9339	0.5474
<i>Information Ratio</i>				
CNX 500
NIFTY	0.0427	0.0763	-0.2073	0.1373
SENSEX	0.0823	0.1353	-0.0635	0.0992
ESG	0.1267	0.0799	0.6423	0.1083
GREENEX	0.3773	0.3821	0.6086	0.3483
MIMICKING	0.0053	0.0479	0.4533	-0.1649
BCNSR	-0.0112	0.0803	0.0474	-0.1752
SRBC	0.2202	0.1649	0.4582	0.3318
SRNBC	0.0276	0.0362	0.3282	-0.0492

***significant at 1% **significant at 5% *significant at 10%

Table no. 2 shows that socially responsible portfolios generated higher return than that of general stocks portfolio and market portfolio during the overall period and identified break periods (especially during

crisis). GREENEX generated the highest monthly average return of 1.97%, 2.19% and 0.92% during 9 year period, pre-crisis and post-crisis period respectively. However, during crisis period SRNBC stocks portfolio generated the highest return of 5.27% per month followed by ESG Index. If we consider standard deviation, systematic risk and unsystematic risk, we find that socially responsible portfolios are the most risky portfolios among all other available portfolios. Systematic risk cannot be eliminated with diversification since it is attributable to broad macro factors, but unsystematic risk can be reduced to its minimum with the level of diversification. When we look at the coefficient of variation (a relative measure of risk), we find that GREENEX had the least coefficient which demonstrates that it is the most defensive portfolio among all other portfolios. Higher beta for ESG Index and SRNBC stocks portfolio exhibits that these two portfolios are more sensitive to market conditions than NIFTY, SENSEX and other portfolios.

During the entire study period of 9 years and different identified break periods, socially responsible stocks portfolios outperformed general stocks portfolios and market portfolio in terms of different risk-adjusted measures used. Higher risk in socially responsible stocks portfolios generated higher returns and as a result higher Sharpe ratio, which indicates highest return per unit of total risk. In all the periods, GREENEX produced the highest coefficients of Sharpe ratios as compared to other portfolios/indices. Because of the negative excess return limitation of Sharpe ratio, results of Modified Sharpe ratio were also in favor of socially responsible stocks portfolios. Their values give no useful insight and should only be used as a ranking criterion (Israelsen, 2005). Moreover, the results of Double Sharpe ratio were also in favor of socially responsible portfolios and indicate that these portfolios could be safer for the investors during all the identified break periods, especially in crisis. Similarly, high Treynor ratio of socially responsible portfolios demonstrates the highest return per unit of total systematic risk. M^2 measure concludes that on creating portfolios with the same level of risk equivalent to market portfolio (CNX 500), all the proxies of socially responsible portfolios (especially GREENEX) generated positive values which further describes that these proxies produced returns higher than that of market index and their general counterparts. Positive and significant high single factor and multi-factor Jensen's alpha signifies that socially responsible portfolios are

generating highest abnormal returns. Once again it is the GREENEX that produced highest single and multi-factor alpha of 1.63% and 1.93% per month, respectively during crisis period. It is interesting to note here that only proxies of socially responsible portfolios are generating significantly higher Jensen's alpha. It infers that apart from market risk premium, size premium and value premium, there could be other factors which may affect the returns of socially responsible companies. Similarly, a high information ratio shows that an investor can reap the benefit of higher returns more efficiently by taking on additional risk. Thus, we can say that socially responsible companies are well rewarding during various identified break periods mainly in crisis.

Table no. 3. Fama's Decomposition Results during Identified Breaks

<i>Portfolios</i>	<i>Risk Premium (%)</i>	<i>Risk Premium due to (%)</i>				<i>Ranking on the basis of Net Selectivity</i>
		<i>Systematic Risk</i>	<i>Selectivity</i>	<i>Unsystematic Risk</i>	<i>Net Selectivity</i>	
<i>Overall Period (Jan. 05 – Dec. 13)</i>						
NIFTY	0.743	0.686	0.057	0.011	0.045	5
SENSEX	0.796	0.668	0.127	0.016	0.112	4
ESG	1.054	0.775	0.279	0.027	0.252	3
GREENEX	1.422	0.663	0.759	0.026	0.733	1
MIMICKING	0.916	0.896	0.020	0.066	-0.046	8
BCNSR	0.782	0.805	-0.022	0.021	-0.044	7
SRBC	1.077	0.672	0.405	0.022	0.384	2
SRNBC	0.981	0.867	0.115	0.084	0.031	6
<i>Pre-Crisis Period (Jan. 05 – Sep. 08)</i>						
NIFTY	1.059	0.945	0.114	0.020	0.095	6
SENSEX	1.144	0.919	0.225	0.025	0.200	3
ESG	1.161	0.967	0.195	0.050	0.145	4
GREENEX	1.670	0.881	0.790	0.039	0.750	1
MIMICKING	1.328	1.123	0.205	0.128	0.077	7
BCNSR	1.173	1.018	0.156	0.030	0.125	5
SRBC	1.171	0.896	0.275	0.025	0.250	2
SRNBC	1.184	1.019	0.166	0.159	0.007	8
<i>During Crisis Period (Oct. 08 – Dec. 09)</i>						
NIFTY	2.250	2.538	-0.287	0.017	-0.304	8
SENSEX	2.382	2.501	-0.119	0.031	-0.151	7

ESG	4.479	3.120	1.359	0.032	1.328	3
GREENEX	4.129	2.492	1.637	0.063	1.573	1
MIMICKING	4.872	3.586	1.286	0.049	1.237	4
BCNSR	3.524	3.428	0.096	0.026	0.070	6
SRBC	3.919	2.453	1.466	0.091	1.375	2
SRNBC	4.916	3.626	1.290	0.093	1.197	5
<i>Post-Crisis Period (Jan. 10 – Dec. 13)</i>						
NIFTY	-0.105	-0.246	0.141	-0.005	0.146	4
SENSEX	-0.113	-0.236	0.123	-0.007	0.130	5
ESG	-0.144	-0.291	0.147	-0.007	0.154	3
GREENEX	0.282	-0.245	0.526	-0.010	0.537	1
MIMICKING	-0.809	-0.333	-0.475	-0.027	-0.448	8
BCNSR	-0.539	-0.264	-0.275	-0.010	-0.265	7
SRBC	0.078	-0.260	0.338	-0.004	0.342	2
SRNBC	-0.489	-0.342	-0.148	-0.029	-0.119	6

Table no. 3 shows the results of Fama's Decomposition Measure. Socially responsible stocks portfolios generated the highest risk premiums among all other portfolios. It shows that return of socially responsible companies are higher than the return of general companies and as a result shows higher risk premiums for them. It is to be noted here that socially responsible portfolios provided much higher compensation for non-diversification to the investors as compared to other portfolios, because of the fact that these portfolios are less diversified as compared to general portfolios. They are less diversified because the majority of socially responsible companies are from IT and banking. During the overall period, SRNBC portfolio provided 0.08% per month as compensation for unsystematic risk as against 0.01% and 0.02% for NIFTY and SENSEX. However, the more interesting point to note here is that all the socially responsible portfolios provided positive net selectivity returns in the whole period as well as in all the identified break periods. This indicates that compromise made by investors with respect to less diversification benefits by investing in socially responsible companies was well rewarded in terms of higher returns. Thus, socially responsible portfolios are given the first ranking when we rank all available portfolios on the basis of net selectivity. Therefore, it proves that socially responsible companies can be used to build up protective and better performing portfolios (specifically in crisis) by socially responsible investors in India.

Table no. 4. Comparative Performance: Results of t-test during Identified Break Periods

<i>Pairs</i>	<i>Differential Return (%)</i>			
	<i>Overall Period</i>	<i>Pre-Crisis Period</i>	<i>Crisis Period</i>	<i>Post-Crisis Period</i>
ESG – CNX 500	0.314 (0.125)	0.139 (0.671)	1.653** (0.023)	0.102 (0.671)
ESG – NIFTY	0.311 (0.281)	0.102 (0.821)	2.229* (0.057)	-0.039 (0.904)
ESG – SENSEX	0.258 (0.373)	0.017 (0.969)	2.098* (0.054)	-0.031 (0.932)
ESG – MIMICKING	0.138 (0.623)	-0.166 (0.725)	-0.393 (0.615)	0.665* (0.058)
ESG - BCNSR	0.272 (0.288)	-0.012 (0.978)	0.955 (0.249)	0.395 (0.191)
GREENEX – CNX 500	0.682*** (0.001)	0.649** (0.041)	1.303 (0.127)	0.528** (0.019)
GREENEX - NIFTY	0.680*** (0.000)	0.611** (0.030)	1.879** (0.015)	0.386* (0.075)
GREENEX - SENSEX	0.626*** (0.001)	0.527** (0.041)	1.748** (0.022)	0.394* (0.098)
GREENEX - MIMICKING	0.506 (0.282)	0.343 (0.641)	-0.743 (0.683)	1.090* (0.060)
GREENEX - BCNSR	0.640** (0.014)	0.497 (0.139)	0.605 (0.681)	0.821*** (0.003)
SRBC – CNX 500	0.337* (0.063)	0.149 (0.564)	1.092 (0.266)	0.324** (0.040)
SRBC – NIFTY	0.335** (0.038)	0.112 (0.628)	1.668** (0.040)	0.183 (0.233)
SRBC – SENSEX	0.282* (0.064)	0.027 (0.902)	1.537** (0.012)	0.191 (0.312)
SRBC – MIMICKING	0.161 (0.723)	-0.156 (0.825)	-0.954 (0.619)	0.887* (0.086)
SRBC – BCNSR	0.295 (0.284)	-0.002 (0.995)	0.395 (0.813)	0.617** (0.024)
SRNBC – CNX 500	0.241 (0.547)	0.163 (0.790)	2.089 (0.162)	-0.243 (0.643)
SRNBC – NIFTY	0.239 (0.630)	0.125 (0.868)	2.665 (0.182)	-0.384 (0.534)
SRNBC - SENSEX	0.185 (0.710)	0.041 (0.956)	2.534 (0.195)	-0.376 (0.567)
SRNBC – MIMICING	0.065 (0.792)	-0.143 (0.749)	0.043 (0.918)	0.319 (0.281)
SRNBC - BCNSR	0.199 (0.623)	0.011 (0.987)	1.392 (0.196)	0.049 (0.923)

***significant at 1% **significant at 5% *significant at 10%

Note: Figures in parentheses shows p-value.

In Table no. 4 we have compared the returns of socially responsible portfolios with general portfolios and market portfolio. Over the total studied period, all the portfolios of socially responsible companies generated higher return than those of general companies' portfolio and market portfolio, but only GREENEX and SRBC stocks portfolio generated significant differential returns.

Even in the various identified break periods, socially responsible companies produced higher returns than other portfolios, but difference was not statistically significant for all of them. During the pre-crisis period, the return of GREENEX was significantly higher by 0.61% per month or 7.32% annually (p-value < 0.05) than the return of NIFTY. During the crisis period, the results were promising because all portfolios of socially responsible companies generated significantly higher returns than the portfolio of general companies and market portfolio (except SRNBC stocks portfolio). ESG provided return higher by 2.23% per month or 26.76% annually (p-value < 0.10) than the return of NIFTY. It is to be noted here that out of three significant portfolios of socially responsible companies, ESG produced significantly higher returns than other portfolios during the crisis period followed by GREENEX. During the post-crisis period as well, GREENEX again outperformed the portfolio of general companies and market portfolio and the difference was statistically significant. This shows greater commitment of investors towards investing ethically and protecting environment in India. Thus, investors are well rewarded for being socially responsible (in terms of higher returns) in the Indian stock market.

Table no. 5. Alpha and Slope using Market Model in different Identified Break Periods

Portfolios	Pre-Crisis Period		Crisis Period		Post-Crisis Period	
	Alpha (α_0)	Slope (β_0)	Alpha ($\alpha_0 + \alpha_1$)	Slope ($\beta_0 + \beta_1$)	Alpha ($\alpha_0 + \alpha_2$)	Slope ($\beta_0 + \beta_2$)
NIFTY	0.00114	0.925***	-0.00288	0.898	0.00141	1.001*
SENSEX	0.00225	0.899***	-0.00122	0.885	0.00123	0.956
ESG	0.00194	0.947***	0.01359**	1.104***	0.00147	1.182***
GREENEX	0.00789***	0.862***	0.01633*	0.883	0.00526	0.993**
MIMICKING	0.00205	1.099***	0.01288	1.268*	-0.00475	1.354**
BCNSR	0.00156	0.996***	0.00101	1.212***	-0.00275	1.072
SRBC	0.00275	0.877***	0.01462**	0.869	0.00337	1.053***
SRNBC	0.00166	0.997***	0.01294*	1.281***	-0.00148	1.387***

***significant at 1% **significant at 5% *significant at 10%

Table no. 5 shows the results of dummy variable regression model to check the impact of break periods on the parameters of market model. During the pre-crisis period, alpha values of all the portfolios were positive but significantly highest for GREENEX only. However, during the crisis period all the proxies of socially responsible portfolios are showing positive and significant alphas. GREENEX is generating the highest excess return of 1.63% per month or 19.56% annually. Alpha values for NIFTY and SENSEX were negative and insignificant during this period. None of the portfolio is generating significant alpha value in the post-crisis period. This signifies that apart from market risk premium, there could be some other factors in determining the portfolio return in case of socially responsible companies during the crisis period (especially GREENEX). It is interesting to mention here that all the socially responsible portfolios are producing significant positive excess returns during the crisis period, only which denotes that there is a heavy demand for stocks of socially responsible companies during the crisis period thus, pushing their prices up and hence providing higher and significant returns accordingly. Alpha value of general companies (NIFTY and SENSEX) was negative during the crisis period because the security prices of general companies had fallen severely at that time and thus giving negative excess returns.

In the pre-crisis period, as per modern portfolio theory, the slope is significant for all the eight portfolios. Further, in the crisis period, differential slope is significant for four portfolios (ESG, Mimicking, BCNSR and SRNBC) only. This implies that during the crisis period, there has been a significant shift in slope of these portfolios. It is clearly evidenced from the above mentioned table that in the post-crisis period, differential slope is significant for all socially responsible portfolios. It is the SRNBC stocks portfolio that generated highest significant slope during the crisis (1.281) and post-crisis periods (1.387). Thus, we can say that during adversity i.e. crisis, investors put more faith on socially responsible companies and as a result, impact of crisis has been highly positive in the case of socially responsible companies (in terms of alpha and slope).

Table no. 6. Results of Fama-French Three Factor Model for 9 Year Period

Portfolios/Indices (Equation 2)	Multi Factor Alpha (α)	Market Risk Premium (β_1)	Size Effect (β_2)	Value Effect (β_3)
NIFTY	0.00121	0.966***	-0.093***	-0.062**
SENSEX	0.00181	0.943***	-0.084**	-0.067*
ESG	0.00313*	0.967***	0.045	0.202***
GREENEX	0.00846***	0.932***	-0.110**	-0.041
MIMICKING	-0.00078	1.041***	0.245***	0.352***
BCNSR	0.00079	1.091***	-0.093*	0.036
SRBC	0.00589***	0.917***	-0.170***	0.062
SRNBC	0.00054	0.993***	0.220***	0.384***

***significant at 1% **significant at 5% *significant at 10%

Table no. 6 discusses the result of Fama-French three factor model. In table no. 2 we reported that Single Factor Jensen's alpha of all the socially responsible portfolios were statistically significant. It suggests that apart from market risk (single factor in market model) there could be other factors as well which may affect the excess return of socially responsible portfolios. The results of Fama-French three factor model shows that after controlling the market risk, size premium and value premium as well, alphas of all the socially responsible portfolios (except SRNBC) is coming out to be positive and statistically significant. GREENEX is showing the highest significant abnormal return of 0.85% per month (10.2% p.a.). It is interesting to note here that although all the portfolios of general stocks are also showing positive alphas, but none of them were statistically significant. The beta values for size premium of different portfolios were significant (except of ESG) which shows that small size firms are more able to determine the excess return of the portfolios than large size firms. Significant positive result for value premium in case of socially responsible companies shows that the high growth firms or firms having high book-to-market ratios are more able to determine the excess return of the portfolios than the low growth firms. However, the results were opposite in the case of general companies (NIFTY and SENSEX) i.e. firms having low book-to-market ratios are able to determine the excess return of the portfolios.

Table no. 7. Impact of Break Periods on Fama-French Three Factor Model

Portfolios/ Indices (Equation 3)	Pre-Crisis Period				Crisis Period				Post-Crisis Period			
	Multi Factor Alpha (%)	Market Risk Premium	Size Effect	Value Effect	Multi Factor Alpha (%)	Market Risk Premium	Size Effect	Value Effect	Multi Factor Alpha (%)	Market Risk Premium	Size Effect	Value Effect
NIFTY	0.201	0.950***	-0.091**	-0.078*	-0.203	0.931	-0.114	0.002	0.052	1.090***	-0.048	-0.139
SENSEX	0.319	0.926***	-0.099**	-0.084	-0.117	0.888	-0.096	0.057	-0.033	1.073**	-0.024	-0.191
ESG	0.033	0.910***	0.161***	0.101	1.247**	1.061***	0.091	0.035	0.518	1.037*	-0.150***	0.280*
GREENEX	0.884***	0.888***	-0.098*	-0.08	1.933*	0.998*	0.015	-0.263	0.447	1.038**	0.012	-0.077
MIMICKING	-0.139	1.008***	0.356***	0.278**	1.047	1.175**	0.356	-0.025	-0.041	1.014	0.091	0.553*
BCNSR	0.281	1.021***	-0.123**	-0.065	0.057	1.195***	-0.04	0.063	-0.296	1.062	0.037	0.008
SRBC	0.408*	0.892***	-0.121**	-0.008	1.569**	0.911	-0.202	0.039	0.434	1.059**	-0.107	0.015
SRNBC	-0.264	0.914***	0.419***	0.199*	0.934	1.143**	0.361	0.073	0.547	1.051	-0.181***	0.608**

***significant at 1% **significant at 5% *significant at 10%

Table no. 7 demonstrates that even with the use of three factor asset pricing model, socially responsible stocks portfolios are able to generate positive excess returns (or alphas) in all the three identified break periods, whereas portfolios of general companies did not. During crisis period, GREENEX and SRBC stocks portfolio generated the highest statistically significant abnormal return of 1.93% and 1.57% per month respectively. A closer look at the results also reveals that market is a significant factor in explaining cross sectional variations in stock returns in all the periods. On the other hand, size effect is a significant factor only in the pre-crisis period. Value effect is not a significant factor in explaining variation in stock returns. Thus, our results are in conformity with the existing literature which evidenced the supremacy of market factor in explaining cross sectional variations in returns.

Conclusions

This paper addresses an interesting notion as to whether the investor who considers ESG and ethical issues in their investment decisions has to sacrifice financial return or not. It examined the performance of four socially responsible stocks portfolios (viz. ESG, GREENEX, SRBC and SRNBC)

vis-à-vis general stocks portfolios (NIFTY, SENSEX, BCNSR and Mimicking), as well as market portfolio (CNX 500 Equity Index) using market model, Fama-French three factor model and various risk-adjusted measures during different identified break periods. In line with Kempf & Osthoff (2007), Hume & Larkin (2008), Tripathi & Bhandari (2012, 2015), it is found that crisis has a significant and positive impact on socially responsible companies. Proxies of socially responsible portfolios generated significantly higher return and outperformed general and market portfolio in terms of all risk-adjusted measures during crisis period. The result of Fama's decomposition measure demonstrates that socially responsible portfolios outpaced other portfolios even on the basis of net selectivity return during identified break periods. It means that even with less diversification benefits, socially responsible portfolios are managed to produce sufficient higher returns. Using market model and Fama-French three factor model, the impact of crisis was significant enough for socially responsible portfolios which are producing significant positive and higher alphas than other portfolios. Thus, besides augmenting existing literature, our results clearly corroborate the fact that investors can derive benefits by investing in socially responsible companies (especially in crisis period). Our results are more promising than the results of Hamilton et al. (1993), Gregory et al. (1997) and Statman (2000).

Our findings support the view that SRI in anyway is not a penalty for investors in India. These findings have important implications for companies, investors, regulators, policy makers and mutual funds. General companies should change their attitude and agenda towards social responsibility. Due to significant higher returns in the crisis period, socially responsible stocks portfolio can be used to build up defensive and better performing portfolios by socially responsible investors in India. Thus, investors should put more faith on socially responsible companies and start investing in these companies. We suggest that regulators, policy makers and mutual funds should construct and make available various socially responsible investment products to initiate the movement of SRI in India. The policy makers can also push financial sector reforms in the direction of SRI for better and effective implementation of CSR law.

However, the study is not free from certain limitations. Due to non-existence of the ESG Index prior to 2007 and GREENEX Index prior to 2012 consistency of the results may get affected. As a result, the previous data before 2007 onwards is based on the companies in the indices which may not provide a true picture. Second, this study is entirely based on the

Indian market with no consideration of socially responsible or ethical funds in the international markets.

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