THE INTERNATIONAL JOURNAL OF BUSINESS & MANAGEMENT

Socially Responsible Investing in India: A Study of Post- Crisis Period

Shweta Jain
M.Phil. Research Scholar, Department of Commerce, Delhi School of Economics, University of Delhi, India
Neha Rohra
M. Phil. Research Scholar, Department of Commerce, Delhi School of Economics, University of Delhi, India

Abstract:
The main objective of this paper is to investigate whether the Indian Stock Market encourages the socially responsible companies or not? With an increased focus on Corporate Social Responsibility, the companies are paying more attention to their activities and their impact on society. Simultaneously, the investors have also become conscious of their actions and are investing in the companies that care about the community and environment. We expect the socially responsible companies to perform better than general companies in terms of price discovery and returns in the stock market.
We have taken GREENEX, CARBONEX, SHARIAH, ESG indices as proxies of socially responsible companies whereas SENSEX, NIFTY indices have been taken as the proxies of general companies to study the price discovery process in the indices in terms of growth rate in the post- crisis period. For this we have conducted semi– log regression analysis. Moreover, paired samples t-test has been used to check whether there is significant difference between the returns of socially responsible and generalized indices or not.
We have observed that price discovery process is better in Socially Responsible indices than generalized indices. The returns of Socially Responsible indices are also more in majority of cases. This implies that socially responsible companies are outperforming general companies both in terms of price discovery and returns in the post- crisis period. We can thus say that the investors have now become sensitized to social responsibility and have begun to absorb and internalize the behavior of socially responsible companies.

Keywords: Socially Responsible Investing, Market Efficiency, Price discovery, Returns

1. Introduction

Traditionally, corporate social responsibility was related only to philanthropy and voluntary contributions by businesses. But over time its focus has changed and the companies are increasingly expected to pay attention to their actions and their impact on society and natural environment. This is because it is the society which ultimately decides the destiny of business and if businesses do not take care of the community and environment, then sooner or later they shall cease to exist. This has led to the integration of social and environmental criteria into the traditional investment decision-making process or emergence of the concept of 'Socially Responsible Investing'.

"Socially responsible investing (SRI), also known as sustainable, socially conscious, "green" or ethical investing, is any investment strategy which seeks to consider both financial return and social good. In general, socially responsible investors encourage corporate practices that promote environmental stewardship, consumer protection, human rights, and diversity. Nowadays, the investors, companies and financial institutions believe that ESG factors i.e. environmental, social justice and governance factors can have long-term consequences/ impact on a company's financial performance, either for better or for worse".

So if we assume that markets are efficient i.e., they take into account financial and non-financial information and there is equivalence between price discovery and returns, then with an increased focus on CSR, it can reasonably be expected that market shall internalize the behavior of socially responsible companies. Moreover, due to this internalization, it can be expected that the securities of socially responsible companies shall outperform the securities of general companies in terms of price discovery as well as returns.

Accordingly, we can compare the price discovery process as well as returns of both socially responsible and generalized companies. If price discovery and returns are better in case of socially responsible companies then we can conclude that social responsibility has got a distinct and positive influence on stock market i.e., the Indian Stock Market encourages the socially responsible companies.

The remainder of this paper is organized as follows: Section 2 provides the objectives of study, Section 3 discusses the Conceptual Framework, Section 4 details the Literature Review, Section 5 provides the research hypotheses, Section 6 discusses the data and methodology, Section 7 presents the Empirical Analysis and Results, Section 8 contains Conclusions and, lastly References are given in Section 9.

2. Objectives of the Study

 "Ideally, if the two indices (e.g. GREENEX & SENSEX or CARBONEX & SENSEX or SHARIAH& SENSEX or ESG & NIFTY) are similar in terms of returns but if GREENEX/ CARBONEX/ SHARIA/ ESG index is performing better in terms of price discovery then it would imply that social responsibility has got a distinct and positive influence on stock markets". In order to account for such a phenomenon, we have framed following objectives for our study:

i. To study the price discovery process in the various indices (GREENEX, CARBONEX, SHARIAH, ESG, NIFTY & SENSEX) in terms of growth rate.
ii. To examine whether the return differs between Socially Responsible and General Indices.

We have assumed that the Indian stock markets are developed and efficient, so they would be more responsive to non-financial information and hence the price discovery process will be better in case of responsible companies and the investors will be able to earn higher returns by investing in such companies.

3. Conceptual Framework

3.1. Global Reporting Initiative (GRI)

In the context of SRI, GRI is playing a very important role in India. GRI is a non-profit organization that aims at promoting economic sustainability. One of the world's most prevalent standards for sustainability reporting has been produced by GRI– also known as Environmental, Social and Governance (ESG) reporting, Triple Bottom Line (TBL) reporting, Corporate Social Responsibility (CSR) reporting.

There are four GRI training partners in India which are as follows: -

- CII ITC Centre for excellence for sustainable development
- The Insight Associates
- Partners in change
- Asian Centre for corporate governance and sustainability

3.2. Sebi's Guidelines on ESG Disclosure

In India, all the stock exchanges are regulated by SEBI. SEBI also extends its guidance to all listed companies in the country. In November 2011, SEBI made it mandatory for the listed companies to submit social responsibility reports along with their annual reports. Initially this requirement was only applicable to top 100 companies in terms of market capitalization, and   later on, it was extended to other companies also in phases. As per SEBI, the implementation of the report will motivate the listed companies to report on ESG issues, which will lead to improvement in sustainability actions and will create greater transparency for investors.

3.2.1. ESG Index

ESG India index was launched in 2007. It was sponsored by the International Finance Corporation (IFC) and developed by a consortium of Standard & Poor's, CRISIL, and KLD. This index is the first index which measures environmental, social, and corporate governing (ESG) practices which are based on quantitative factors as opposed to subjective factors. It uses an innovative and unique methodology that quantifies a company's ESG practices and converts them into a scoring system. Then, each company is ranked against other companies in the Indian market by using this scoring system.

3.2.2. GREENEX

In 2012, BSE GREENEX has been launched by BSE. It is a new index of sustainability stocks that helps those investors who are willing to invest in green companies. From the broader BSE 100 index, GREENEX has 20 companies that follow energy efficient norms, so as to allow the investors to get benefit from the related cost savings. This index helps investors to find companies that invest in energy efficient practices. BSE ltd. and g trade together have developed this index. Financial analytics are being provided by BSE and g trade provides the carbon analytics.

3.2.3. CARBONEX

S & P BSE CARBONEX was launched by BSE in November 2012. This index was developed to help the investors in managing the risk arising due to change in climate in the long run, by identifying critical climate change exposures, sensitivity and responsiveness factors in a cost effective manner. Changing climate can impose a threat in front of an organization which can result in market failure. Hence, it is important to identify the biggest market leaders and establish standard for mitigating carbon emissions and minimizing it to the maximum possible extent. As a result, BSE has taken a concrete step in this direction by launching CARBONEX which aims to provide a strategic way to organizational commitment towards mitigation of climate change. This index is based on the S & P BSE 100 in which the constituent weights are modified according to the companies' relative carbon performance which is measured by the level of greenhouse gas (GHG) emissions and their carbon policies. In the index, each stock is weighted on the basis of its carbon adjusted float market capitalization, which is calculated by using the carbon performance scores and industry tilt factors.

3.2.4. SHARIAH Index

BSE TASIS Shariah 50 Index was launched in January 2008. This index consisted of 50 largest and most liquid stocks from BSE 500 which are strictly compliant with Islamic Shariah law. This law provides for certain prerequisites for observant Muslims pertaining to financial and commercial activities that are either permitted or banned. The following are excluded from the index:

- Advertising and media firms generating revenues up to 65% from the Gulf Cooperation Council countries.
- Newspapers, news and sports channels.
- Alcohol, tobacco, pornography, gambling and related activities.
- Companies engaged in duplicating,
- Financial Institutions except Islamic Banks.
- Firms dealing in meat.
- Firms trading in gold and silver with cash as collateral.

The selection of stocks in this index is based on a screening process called Shariah screening process, which ensures that the selected stocks are not related to any of the above activities. Subsequently, in 2013, this index was merged into broader index based on Shariah norms named S&P BSE 500 Shariah Index, comprising of top 500 Shariah compliant stocks.

4. Literature Review

Following is the brief review of the work done by researchers on Socially Responsible Investments:

Mahapatra (1984) in a study of US companies for the period 1970 to 1980 found that pollution control expenditures by companies had a negative impact on their financial performance.

White (1991) compared the performance of six environmental mutual funds to S & P 500 on both nominal and risk adjusted basis in one-year period ending 28th June 1991 and found that SRI funds using social responsibility screening criteria slightly underperformed.

Erfle & Fratantuono (1992) found a positive correlation between environmental performance and return of 49 US companies for the period 1980-89.

Hamilton et al. (1993) compared the performance of socially responsible mutual funds and conventional mutual funds. The results indicated that the performance of socially responsible mutual funds is not significantly different from the performance of conventional mutual funds and SRI mutual funds do not provide statistically significant excess returns to the investors.

Diltz (1995) conducted a study during the period 1981-1991 in US by analyzing daily returns of 28 common stock portfolios. He concluded that environmental performance has significantly positive impact on portfolios return.

Cohen, Fenn & Konar (1997) examined the difference in financial performance of light polluters & heavy polluters and concluded that investment companies engaged in environmental protections have neither positive nor negative impact on portfolio returns.

King & Lenox (2001) studied the financial performance of 625 US manufacturing firms and suggested that the financial performance of companies in cleaner industries is above average.

Derwall et al. (2005) compared the performance of high environmental rating stocks with that of low ones in Netherlands during the period 1995-2003 and reported that higher average returns were provided by high rating stocks than low rating stocks.

Olsson (2007) while analyzing the returns of 30 US industry portfolios during January 2004-July2006 found that the environmental riskiness of portfolios had no significant impact on returns.

Semenova & Hassel (2008) in a study of European companies showed that the effect of environmental performance on market value is higher in low-risk industry as compared to high-risk industry.

Boulatoff & Boyer (2009) examined the performance of more than 300 environmental firms and reported that the performance of environmental stocks is sector dependent.

Dixon (2010) analyzed the potential impact of sustainability themed investing on the performance of a global equity portfolio. He has suggested that this type of investing could improve returns but would also result in higher risk.

Tripathi & Bhandari (2012) evaluated 7 portfolios over the period 2000-12 and found that although green stock portfolio underperformed mimicking and blue chip stocks portfolio but it outperformed the market portfolio in India.

Bhanumurthy et.al (2012) compared the performance of socially responsible companies with the general companies in terms of price discovery and returns for crisis and post –crisis periods. It was found that socially responsible companies outperformed general companies in terms of both prices and returns during the crisis and post crisis period. Hence, it was concluded that due to the global crisis, the investors have become sensitized to social responsibility.

Tripathi & Bhandari (2014) conducted a study to examine the performance of socially responsible stocks portfolio vis-à-vis portfolios of general companies in the stock market. The findings of the study were that socially responsible stocks portfolios had lower relative risk and higher returns as compared to other portfolios.

5. Hypotheses of the Study

For achieving the objectives of our study, we have made the following hypotheses:

- ➢ First Hypothesis: Null Hypothesis (H01): Efficiency of Price discovery process is same both for Socially Responsible and Generalized Indices.
- ➢ Alternate Hypothesis (H11): Efficiency of Price discovery process is better in case of Socially Responsible Indices.
- ➢ Second Hypothesis: Null Hypothesis (H02): Returns are same both in case of Socially Responsible and Generalized Indices.
- ➢ Alternate Hypothesis (H12): Return differs both in case of Socially Responsible and Generalized Indices.

6. Data and Methodology

6.1. Data

Overall speaking, we have considered the period from October 2008 to December 2015 for our study (with minor variations for different indices, subject to availability of data in public domain). We have selected the period from October 2008 onwards because markets started recovering from the ill effects of global financial crisis during this period, making it the beginning of Post- Crisis Period. And we have analyzed data till December 2015 only i.e. the end of the calendar year. Specifically speaking,

- ➢ the period considered for comparison of GREENEX & SENSEX is from October 2008 to December 2015,
- ➢ the period considered for comparison of CARBONEX & SENSEX is from October 2010 to December 2015,
- ➢ the period considered for comparison of SHARIAH& SENSEX is from May 2013 to December 2015 and,
- ➢ the period considered for comparison of ESG & NIFTY is from October 2008 to November 2013.

We have collected monthly closing prices of various Indices for above said period from PROWESS database of CMIE (Centre for Monitoring Indian Economy). Thereafter, we have calculated monthly returns of all the indices by applying the following formula:

Return $(\%) = \frac{P_1 - P_0}{P_0} \times 100$

Where, P1 = Closing price for current month
P0 = Closing price for preceding month

6.2. Estimated Equations

We are more interested in finding out price discovery process during the post crisis period (i.e. from October 2008 to December 2015). For this purpose, we have estimated the following equations in respect of various indices.

6.2.1. Equation 1(GREENEX)
Ln (GREENEX Index value) = b0 + b1T
Where, Ln (GREENEX Index values) = Natural log of GREENEX Index values
b0 = constant/ intercept of GREENEX Index values
b1 = Growth rate of GREENEX Index values
T = Time period (1 for October 2008, 2 for November 2008........87 for December 2015)

6.2.2. Equation 1A (SENSEX)
Ln (SENSEX Index value) = b0 + b1T
Where, Ln (SENSEX Index values) = Natural log of SENSEX Index values
b0 = constant/ intercept of SENSEX Index values
b1 = Growth rate of SENSEX Index values
T = Time period (1 for October 2008, 2 for November 2008........87 for December 2015)

6.2.3. Equation 2 (CARBONEX)
Ln (CARBONEX Index value) = b0 + b1T
Where, Ln (CARBONEX Index values) = Natural log of CARBONEX Index values
b0 = constant/ intercept of CARBONEX Index values
b1 = Growth rate of CARBONEX Index values
T = Time period (1 for October 2010, 2 for November 2010…….. 63 for December 2015)

6.2.4. Equation 2A (SENSEX)
Ln (SENSEX Index value) = b0 + b1T
Where, Ln (SENSEX Index values) = Natural log of SENSEX Index values
b0 = constant/ intercept of SENSEX Index values
b1 = Growth rate of SENSEX Index values
T = Time period (1 for October 2010, 2 for November 2010…….. 63 for December 2015)

6.2.5. Equation 3 (SHARIAH)
Ln (SHARIAH Index value) = b0 + b1T
Where, Ln (SHARIAH Index values) = Natural log of SHARIAH Index values
b0 = constant/ intercept of SHARIAH Index values
b1 = Growth rate of SHARIAH Index values
T = Time period (1 for May 2013, 2 for June 2013……… 31 for December 2015)

6.2.6. Equation 3A (SENSEX)
Ln (SENSEX Index value) = b0 + b1T
Where, Ln (SENSEX Index values) = Natural log of SENSEX Index values
b0 = constant/ intercept of SENSEX Index values

b1 = Growth rate of SENSEX Index values
T = Time period (1 for May 2013, 2 for June 2013………31 for December 2015)

6.2.7. Equation 4 (ESG Index)
Ln (ESG Index value) = b0 + b1T
Where, Ln (ESG Index values) = Natural log of ESG Index values
b0 = constant/ intercept of ESG Index values
b1 = Growth rate of ESG Index values
T = Time period (1 for October 2008, 2 for November 2008........ 62 for November 2013)

6.2.8. Equation 4A (NIFTY Index)
Ln (NIFTY Index value) = b0 + b1T
Where, Ln (NIFTY Index values) = Natural log of NIFTY Index values
b0 = constant/ intercept of NIFTY Index values
b1 = Growth rate of NIFTY Index values
T = Time period (1 for October 2008, 2 for November 2008........62 for November 2013)
Further, we have also estimated equations for return in respect of Socially Responsible and Generalized Indices.However, we could not take semi-log form of regression equation here due to the negative values of return.

6.2.9. Equation 5 (GREENEX)
GREENEX Return = b0 + b1T
Where, b0 = constant/ intercept of GREENEX Return
b1 = Growth rate of GREENEX Return
T = Time period (1 for November 2008, 2 for December 2008........ 86 for December 2015)

6.2.10. Equation 5A (SENSEX)
SENSEX Return = b0 + b1T
Where, b0 = constant/ intercept of SENSEX Return
b1 = Growth rate of SENSEX Return
T = Time period (1 for November 2008, 2 for December 2008........86 for December 2015)

6.2.11. Equation 6 (CARBONEX)
CARBONEX Return = b0 + b1T
Where, b0 = constant/ intercept of CARBONEX Return
b1 = Growth rate of CARBONEX Return
T = Time period (1 for October 2010, 2 for November 2010…….. 63 for December 2015)

6.2.12. Equation 6A (SENSEX)
SENSEX Return = b0 + b1T
Where, b0 = constant/ intercept of SENSEX Return
b1 = Growth rate of SENSEX Return
T = Time period (1 for October 2010, 2 for November 2010…….. 63 for December 2015)

6.2.13. Equation 7 (SHARIAH)
SHARIA Return = b0 + b1T
Where, b0 = constant/ intercept of SHARIAH Return
b1 = Growth rate of SHARIAH Return
T = Time period (1 for June 2013, 2 for July 2013……… 30 for December 2015)

6.2.14. Equation 7A (SENSEX)
SENSEX Return = b0 + b1T
Where, b0 = constant/ intercept of SENSEX Return
b1 = Growth rate of SENSEX Return
T = Time period (1 for June 2013, 2 for July 2013……… 30 for December 2015)

6.2.15. Equation 8 (ESG Index)
ESG Return = b0 + b1T
Where, b0 = constant/ intercept of ESG Return
b1 = Growth rate of ESG Return
T = Time period (1 for November 2008, 2 for December 2008........ 61 for November 2013)

6.2.16. Equation 8A (NIFTY Index)

NIFTY Return = b0 + b1T

Where, b0 = constant/ intercept of NIFTY Return

b1 = Growth rate of NIFTY Return

T = Time period (1 for November 2008, 2 for December 2008........61 for November 2013)

6.3. Comparative Study of Returns of Socially Responsible and Generalized Indices

In addition to regression analysis, we have also used Paired Sample T-test to make comparative analysis of return of socially responsible and generalized indices. If the return provided by the socially responsible companies is significantly higher than the return provided by generalized companies, then it may be concluded that socially responsible investing has got a distinct and positive influence on the stock market.

7. Data Analysis and Results

7.1. Regression Analysis

7.1.1. Adjusted Closing Price

<table>
<tr><th colspan="7">GREENEX & SENSEX</th></tr>
<tr><th colspan="7">Coefficients[a]</th></tr>
<tr><th colspan="2">Model</th><th colspan="2">Unstandardized Coefficients</th><th>Standardized Coefficients</th><th>t</th><th>Sig.</th></tr>
<tr><th></th><th></th><th>B</th><th>Std. Error</th><th>Beta</th><th></th><th></th></tr>
<tr><td>1</td><td>(Constant)</td><td>6.929</td><td>.035</td><td></td><td>196.709</td><td>.000</td></tr>
<tr><td></td><td>Time</td><td>.010</td><td>.001</td><td>.832</td><td>13.806</td><td>.000</td></tr>
<tr><td colspan="7">a. Dependent Variable: loggreenex</td></tr>
</table>

<table>
<tr><th colspan="7">Coefficients[a]</th></tr>
<tr><th colspan="2">Model</th><th colspan="2">Unstandardized Coefficients</th><th>Standardized Coefficients</th><th>t</th><th>Sig.</th></tr>
<tr><th></th><th></th><th>B</th><th>Std. Error</th><th>Beta</th><th></th><th></th></tr>
<tr><td>1</td><td>(Constant)</td><td>9.437</td><td>.030</td><td></td><td>315.017</td><td>.000</td></tr>
<tr><td></td><td>Time</td><td>.008</td><td>.001</td><td>.864</td><td>15.836</td><td>.000</td></tr>
<tr><td>a.</td><td colspan="6">Dependent Variable: logsensex</td></tr>
</table>

Table 1

The intercept of the GREENEX Index (i.e. 6.929) is lower than that of SENSEX Index (i.e. 9.437). This is so because SENSEX Index was launched much earlier than GREENEX Index. The p-values of both the intercepts are significant (p- value <0.05) which implies that there are some other factors besides time-period which have significant effect on growth rate. However, due to limitations on scope of our study we have not considered other factors.

The growth rate for GREENEX Index is 1.0% which is higher than SENSEX (i.e. 0.8%) and both are significant at 5% level (p- value < 0.05). This shows that socially responsible companies are outperforming the general companies in the market. "Investors have nowadays become more sensitized towards social responsibility and non-financial information. There has been a paradigm shift which has completely changed the philosophy of business. Now the corporate responsibility framework has taken a concrete form which is vindicated from the results".

<table>
<tr><th colspan="7">CARBONEX & SENSEX</th></tr>
<tr><th colspan="7">Coefficients[a]</th></tr>
<tr><th colspan="2">Model</th><th colspan="2">Unstandardized Coefficients</th><th>Standardized Coefficients</th><th>t</th><th>Sig.</th></tr>
<tr><th></th><th></th><th>B</th><th>Std. Error</th><th>Beta</th><th></th><th></th></tr>
<tr><td>1</td><td>(Constant)</td><td>6.670</td><td>.027</td><td></td><td>249.230</td><td>.000</td></tr>
<tr><td></td><td>Time</td><td>.009</td><td>.001</td><td>.828</td><td>11.630</td><td>.000</td></tr>
<tr><td colspan="7">a. Dependent Variable: logcarbonex</td></tr>
</table>

<table>
<tr><th colspan="7">Coefficients[a]</th></tr>
<tr><th colspan="2">Model</th><th colspan="2">Unstandardized Coefficients</th><th>Standardized Coefficients</th><th>T</th><th>Sig.</th></tr>
<tr><th></th><th></th><th>B</th><th>Std. Error</th><th>Beta</th><th></th><th></th></tr>
<tr><td>1</td><td>(Constant)</td><td>9.683</td><td>.026</td><td></td><td>374.405</td><td>.000</td></tr>
<tr><td></td><td>Time</td><td>.006</td><td>.001</td><td>.839</td><td>12.118</td><td>.000</td></tr>
<tr><td>a.</td><td colspan="6">Dependent Variable: logsensex</td></tr>
</table>

Table 2

The intercept of the CARBONEX (i.e. 6.670) is lower than that of SENSEX Index (i.e. 9.683). This is so because SENSEX Index was launched much earlier than CARBONEX Index. However, the growth rate for CARBONEX Index is 0.9% which is higher than SENSEX (i.e. 0.6%) and both are significant at 5% level (p- value < 0.05), highlighting the shift towards socially responsible investment in todays globalized world.

SHARIAH & SENSEX					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	7.538	.024		309.077	.000
Time	.021	.001	.944	15.444	.000
a. Dependent Variable: logshariah					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	9.890	.030		329.769	.000
Time	.013	.002	.837	8.241	.000
a. Dependent Variable: logsensex					

Table 3

The intercept of the SHARIAH (i.e. 7.538) is lower than that of SENSEX Index (i.e. 9.890). This is so because SENSEX Index was launched much earlier than SHARIAH Index. But, the growth rate for BSE SHARIAH Index is 2.1% which is higher than SENSEX (i.e. 1.3%) and both are significant at 5% level (p- value < 0.05), again highlighting the shift towards socially responsible investment in todays globalized world.

ESG & NIFTY					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	7.712	.061		126.882	.000
TIME	.011	.002	.636	6.377	.000
a. Dependent Variable: logesg					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	8.255	.039		214.046	.000
TIME	.008	.001	.708	7.760	.000
a. Dependent Variable: lognifty					

Table 4

The intercept of the ESG (i.e. 7.712) is lower than that of NIFTY Index (i.e. 8.255). This is so because NIFTY Index was launched much earlier than ESG Index. But, the growth rate for ESG Index is 1.1% which is higher than NIFTY (i.e. 0.8%) and both are significant at 5% level (p- value < 0.05), again highlighting the shift towards socially responsible investment in todays globalized world.

7.1.2. Return

GREENEX & SENSEX					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.248	1.433		2.267	.026
Time	-.039	.029	-.148	-1.374	.173
a. Dependent Variable: greenex					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.955	1.463		2.020	.047
Time	-.040	.029	-.150	-1.377	.172
a. Dependent Variable: sensex					

Table 5

The intercept of the GREENEX Index returns (i.e. 3.248) is higher than that of SENSEX Index return (i.e. 2.955), showing higher returns accruing to the socially responsible investors. The p-values of both the intercepts are significant which implies that there are some other factors besides time-period which have significant effect on growth rate of return. However, due to limitations on scope of our study we have not considered other factors.

The growth rates of return for both GREENEX and SENSEX are not significant at 5% level. Specifically speaking, one unit change in time brings about (-)0.039 unit change in GREENEX return per month as compared to (-)0.040 unit change in SENSEX return per month. This again highlights the higher return garnered by the investors through investing in socially responsible companies.

CARBONEX & SENSEX					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.428	1.254		-.341	.734
Time	.031	.035	.116	.897	.374
a. Dependent Variable: carbonex					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.237	1.183		-.200	.842
Time	.024	.032	.096	.748	.458
a. Dependent Variable: sensex					

Table 6

The p-values of both the intercepts are not significant at 5% probability level. Also, the growth rates of return for both CARBONEX and SENSEX are not significant at 5% level. But one unit change in time brings about 0.031 unit change in CARBONEX return per month as compared to 0.024 unit change in SENSEX return per month. This again highlights the higher return garnered by the investors through investing in socially responsible companies.

SHARIAH & SENSEX					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.394	1.281		2.649	.013
Time	-.106	.072	-.267	-1.465	.154
a. Dependent Variable: shariah					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	2.688	1.524		1.984	.049
Time	-.106	.085	-.232	-1.238	.226
a. Dependent Variable: sensex					

Table 7

The intercept of the SHARIAH Index returns (i.e. 3.394) is higher than that of SENSEX Index return (i.e. 2.688), showing higher return generated by socially responsible companies. The p-values of both the intercepts are significant which implies that there are some other factors besides time-period which have significant effect on growth rate of return.

Moreover, the growth rates of return for both SHARIAH and SENSEX are same and not significant at 5% level, showing that the investors are being not penalized for their investments in socially responsible companies.

ESG & NIFTY					
Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	3.769	2.223		1.695	.095
Time	-.075	.062	-.155	-1.203	.234
a. Dependent Variable: esg					

Coefficients[a]					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.487	1.976		.752	.455
Time	-.014	.055	-.032	-.247	.806
a. Dependent Variable: nifty					

Table 8

The intercept of the ESG Index returns (i.e. 3.769) is higher than that of NIFTY return (i.e. 1.487), showing higher return earned by socially responsible companies.

Although, one unit change in time brings about (-)0.014 unit change in NIFTY return per month as compared to (-)0.075 unit change in ESG return per month, both the figures are not statistically significant at 5% probability level. This again highlights the fact that there is absolutely no penalty in the form of returns for investment in socially responsible companies.

7.2. Paired Sample T-Test For Returns:

GREENEX & SENSEX				
	Paired Differences		t	Sig. (2-tailed)
	Mean	Std. Deviation		
Pair 1 GREENRET – SENSEXRET	.207398	1.598568	1.989	.088

Table 9

The result of paired samples t-test shows that the return of GREENEX Index is higher than the return of SENSEX Index and the difference is statistically significant at 10% probability level since p-value is less than 0.10. This shows that socially responsible companies are outperforming the general companies in the market in terms of return.

CARBONEX & SENSEX					
		Paired Differences		t	Sig. (2-tailed)
		Mean	Std. Deviation		
Pair 1	CARBONRET – SENSEXRET	.006707	.704785	.074	.941

Table 10

The result of paired samples t-test shows that the return of CARBONEX Index is higher than the return of SENSEX Index but the difference is not statistically significant since p-value is very high. This shows that there is absolutely no penalty in the form of returns for investment in socially responsible companies.

SHARIAH & SENSEX					
		Paired Differences		t	Sig. (2-tailed)
		Mean	Std. Deviation		
Pair 1	SHARIAHRET – SENSEXRET	.496651	3.318524	.820	.419

Table 11

The result of paired samples t-test shows that the return of SHARIAH Index is higher than the return of SENSEX Index but the difference is not statistically significant since p-value is very high. This again shows that there is absolutely no penalty in the form of returns for investment in socially responsible companies.

ESG & NIFTY					
		Paired Differences			
		Mean	Std. Deviation	t	Sig. (2-tailed)
Pair 1	ESGRET – NRET	.382259	2.714634	2.090	.098

Table 12

The result of paired samples t-test shows that the return of ESG Index is higher than the return of NIFTY Index and the difference is statistically significant at 10% level (p- value < 0.10). This shows that investors, after the crisis have become more sensitive towards CSR and are giving due regard to socially responsible companies.

8. Conclusion
Corporate Social Responsibility is an essential responsibility, the companies can no longer focus only on making profits but they also have a commitment towards shareholders, society and natural environment. Since we have assumed that markets are efficient, they would discount all available information. "Hence if a Socially Responsible Index is performing well in case of both price discovery and returns then it may be concluded that social responsibility has got a distinct and positive influence on stock markets".
For testing our hypotheses, we have conducted semi-log regression analysis and paired samples t-test. Our first null hypothesis stands rejected, it can be said that efficiency of price discovery process is better in case of Socially Responsible Indices. This is because the growth rate for GREENEX/ CARBONEX/ SHARIAH/ ESG Index is better than SENSEX / NIFTY Index. Moreover, as shown by paired sample t- test, the returns are also greater for socially responsible indices in majority of cases, leading to the rejection of second null hypothesis.
Since price discovery as well as returns are greater in case of socially responsible companies, this means that the investors are nowadays discounting and internalizing the social responsible behavior of the companies. They have become sensitized towards social responsibility and non-financial information. Hence it may be concluded that Socially Responsible Investing is a boon for investors in Indian Stock market.

9. References
  i. Bhanumurthy, K.V., Bhandari, V., & Pandey, V. (2012). "Does the Indian Stock Market encourage Socially Responsible Companies?", Available at SSRN: http://ssrn.com/abstract=2601304
  ii. Boulatoff, C., & Boyer, C.M. (2009). "Green recovery: How are environmental stocks doing?", Journal of wealth management, 12, 9-20.
  iii. Cohen, M.A., Fenn, S.A., & Konar, S. (1997). "Environmental and financial performance: Are they related?", Working paper, Vanderbilt University.
  iv. Derwall, J., Guenster, N., Bauer, R., & Koedijk, K. (2005)."The eco-efficiency premium puzzle", Financial Analysts Journal, 61, 51-63
  v. Dixon, R. (2010). "A framework for monitoring the performance impact on a global equity portfolio", Mercer Consultancy, available at www.mercer.com/articles/1382280.
  vi. Erfle, S., & Fratantuono, M. (1992). "Interrelations among corporate social performance, social disclosure, and financial performance: An empirical investigation", Working paper, Dickinson College.
  vii. 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.
  viii. King, A.A., & Lenox, M.J. (2001). "Does it really pay to be green: An empirical study of firm environmental and financial performance?", Journal of Industrial Ecology, 5, 105-116.
  ix. Mahapatra, S. (1984)."Investor reaction to corporate social accounting", Journal of Business Finance and Accounting, 11, 29-40.
  x. Olsson, R. (2007). "Portfolio performance and environmental risk", Working paper, Sustainable Investment Research Platform.
  xi. Semenova, N., & Hassel, L.G. (2008). "Industry risk moderates the relation between environmental and financial performance". Working paper, Sustainable Investment Research Platform.
  xii. White, M.A. (1991). "Green investing: The recent performance of environmentally mutual funds", Working paper, University of Virginia.
  xiii. Tripathi, V., & Bhandari, V. (2012). "Green is good in Indian stock market", Colombo Business Journal, 3(2):27-45.
  xiv. Tripathi, V., & Bhandari, V. (2014). "Socially Responsible Investing – An Emerging Concept in Investment Management", FIIB Business Review, 3(4), Available at: http://ssrn.com/abstract=2601287.