Project Dissertation Report on

An Empirical Study on Socially Responsible Investing (SRI) in the Indian Stock Market

Submitted By :
Akanksha Babbar
2K18/MBA/087

Under the Guidance of :
Mr. Mohit Beniwal
Assistant Professor, Delhi School of Management

DELHI SCHOOL OF MANAGEMENT
Delhi Technological University
Bawana Road, New Delhi 110042

Certificate

This is to certify that **Ms. Akanksha Babbar**, roll no. **2K18/MBA/087**, a student of Delhi School of Management has worked on a project dissertation titled "An Empirical Study on Socially Responsible Investing (SRI) in the Indian Stock Market" for submission at Delhi School of Management, Delhi Technological University, Bawana Road, New Delhi-110042 in partial fulfilment of Master of Business Administration (MBA) program for the academic year 2018-20.

Mr. Mohit Beniwal
(Project Guide)

Dr. Rajan Yadav
(Head of Department)

Declaration

I, hereby declare that I have worked on a project titled "An Empirical Study on Socially Responsible Investing (SRI) in the Indian Stock Market", in partial fulfilment of the Master of Business Administration Program and the report submitted is a record of original dissertation work done by me, under the guidance of Mr. Mohit Beniwal, Professor, Delhi School of Management, DTU.

The information and data given in the report is authentic to the best of my knowledge. This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship.

Name: Akanksha Babbar

Roll no.: 2K18/MBA/087

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Name: Akanksha Babbar

Roll no.: 2K18/MBA/087

Executive Summary

Ethical Investing, also known as Green Investing has been an upcoming avenue for socially responsible investors in the last few years. Greater attention is being paid to the overall environmental performance of the underlying operations. This has led to mushrooming of several mutual funds, portfolios, indices that accommodate environment-friendly considerations while selecting stocks.

This paper seeks to examine the relative performance of green stocks portfolio and non-green stocks. The study period spans from 1st April 2001 to 31st march 2019 and is further divided into three sub periods – before financial crisis (2003 – 2007), during financial crisis (2007 – 2009), and after financial crisis (2009 – 2019).

Green stocks portfolio provided an average monthly return of 0.36% as compared to -0.91% on market portfolio during the recent financial crisis. A series of statistical tests have confirmed that green stocks portfolio performs better on several measures of risk and return. This trend is particularly relevant during times of crisis. This lends support to the case of green investing in Indian stock market. These findings have important inferences for companies, regulators, policy makers and investors community It corroborates prevailing evidence that green stocks can be used to build up defensive and better performing portfolios by socially responsible investors in India.

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Introduction

There has been an increase in the awareness of the environmental policies of the corporate world. Increasing awareness around the environmental, social and governance factors, commonly known as ESG has been used to measure the sustainability of any company.

1. E = Environment :The environmental parameters pertain to climate change and related risks, measures adopted by companies to reduce toxic releases and wastes etc.

2. S= Social parameters include behavior of a company towards stakeholders, workplace health and safety norms.

3. G= Governance parameters include board structure and accountability etc.

"Though this concept of sustainable investing is already prevalent in developed countries; it is now gathering momentum towards emerging markets." (EDHEC-Risk Institute, 2012). The investorsare presently considering their investments not just from the monetary point of view as far as how much return they will yield, but also what sort of effect their ventures have on society.

Policies and regulations, such as the introduction of United Nations principles for responsible investments (UNPRI), Kyoto Protocol, Anti-pollution legislations, Global reporting initiative (GRI) National action plan for climate change (NAPCC) reflect a growing interest in the theme. Apart from viewing these policies as the brakes on business operations; but they also create opportunities for new business.

Further there is a need to distinguish between "business philosophy and philosophy of business." While philosophy of business is an old concept and is concerned with ethical foundations, business philosophy may or may not include ethical dimensions.There is change in outlook in the philosophy of the business and this move prompts a system wherein another point of new perspective on business ethics and social responsibility develops .

It is coined as

Corporate Responsibility and it consists of

(a) Good corporate governance,

(b) corporate social responsibility

(c) environmental accountability.

Approaches to undertake Green Investing:

1. **Thematic:** This involves investments in certain pre-defined industries and sectors of the economy. For example: investing in clean energy, recycling and wastewater management firms.

2. **Screening:** It includes both positive and negative screening which implies including and excluding companies based on set benchmarks of environmental performance.

3. **Engagement:** This focuses on a larger and broad-based relationship with the company with a view to encourage dialogue on key environmental concerns.

The above approaches are not mutually exclusive and often a combination of them decides the way forward.

Environment accountability is the bedrock of green investing as there exists a risk- reward relationship between firms that prioritize environment performance in return for greater investments, market growth and finances.

"The million dollar question remains: Does ethical investing hurt financial return? Answering this question could potentially be vital for the longer term of ethical investing. If the solution to the present question is yes, ethical investing will appeal only to investors who are prepared to sacrifice financial wealth so as to stay their conscience clean. If on the opposite hand ethical investing deliver superior return, this investment strategy will move further into the spotlight and ethical considerations will stand out as something everyone should undertake while investing. This might evidently cause a company world where business ethics and financial results are equally important. Lastly, if there's no significant difference between the returns achieved by applying ethical screens in your investment decision-making process or not, ethical investing will a minimum of appear as a legitimate alternative to think about for investors." Investors can "do well while doing good".

Origin of Sustainable Investing

"The notion of sustainable investing traces its roots to the Quaker community and the Methodist church in the mid-eighteenth century in US where such investments were sought (Schueth 2003). The Quakers, for example, excluded such investments as those that were linked to war or slavery. Even today, extra-financial implications play a huge role in deciding investment."

During the 1980s, the Brundtland Report, which set out the guideline of natural supportability (Kreander 2001), and catastrophes, for example, the Chernobyl emergency, raised ecological mindfulnessand allowed a certain environmental dogma to dictate investor preferences.
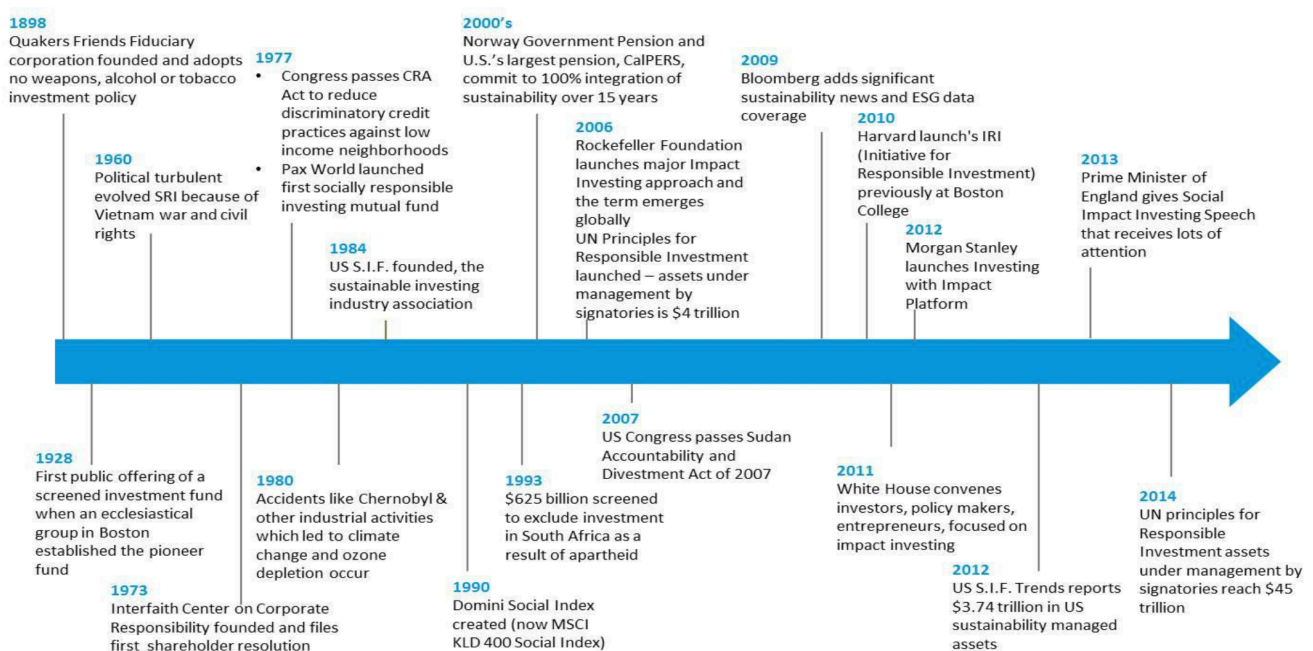
Sources: Thomson Reuters, "History of socially responsible investing in the U.S.", August 2013, and Envestnet research.

Figure 1 : History of Socially Responsible Investing

Grounded in a history going back 3500 years, and driven at first by doing well by doing good, the extent of SRI has widened to envelop global change and produce serious economic returns. As opposed to simply taking out investments from items that contention with social, moral, or ethical qualities (e.g., liquor, weapons, betting, tobacco), SRI has advanced to proactively make interests in organizations that are making a positive impact. For instance, ESG investments focus on organizations that show great stewardship of the environment, maintain responsible relations with customers, employees, suppliers, and communities, and display upright initiative in regards to executive pay, internal controls, and shareholder rights. General probe shows that organizations that care about the environment, advance fairness among employees, and authorize legitimate money related rules will in general accrue benefits to investors.

Investors and Ethical Investing

OPTIMAL SPACE FOR SUSTAINABLE INVESTORS
Companies considered for investment

STRONG INVESTMENT POTENTIAL

HIGH ESG SUSTAINABILITY SCORES

Environmental

Social

Governance
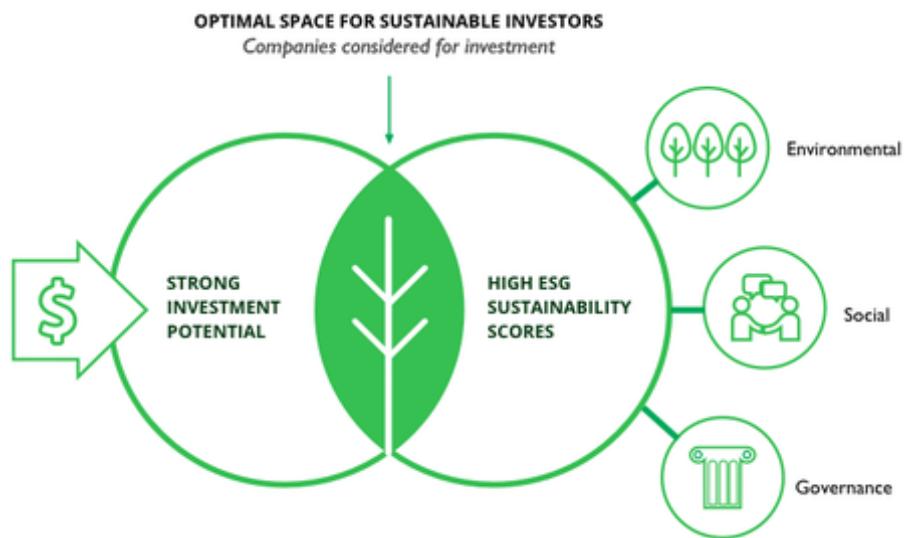
Figure 2: Intersection of Strong Investment Potential and High ESG Scores

The movement of investors who makes a choice of investing with their values and try to seek financial return alongside without contributing to the issues discussed before is called socially responsible investments (SRI) or ethical investments. There are a few different ways for a particular investor to impact the morals of the business world through his investments. One can cease from putting resources into specific organizations or parts or sectors, which are known for not following certain standards, or all in all not adding to a more ethical business environment. Different choices are seeking for a positive influence in the companies or the sectors where he contributes by having his voice heard on general assemblies, however this for the most part requires an enormous investment so as to have an impact on the business activity. The most prevailing path for financial investors to contribute with their values is to confine their ventures to organizations that are predominantly superior in upholding some ethical standard.

Critics of the moral and SRI pattern have contended that incorporation of social and ecological contemplations in the investments procedure is hampering returns, and that speculators in this sense are giving up financial returns in the form of lower rate of return to make up for a progressively moral profile of their investments. They argue that "by limiting your investment universe by applying ethical screens, you will achieve less diversification, and thereby achieve lower risk-adjusted returns."

Supporters of socially responsible investing counter with the contention that putting resources into organizations that have a more extensive, and more long-term perspective on their business, will have a superior fundament for conveying solid financial returns in terms of better return on investment in years to come, and that socially responsible investors consequently will out perform investors who don't consider the moral measures while making investment decisions. They likewise contend that organizations with a thorough approach to their business ethics will keep away from specific dangers in the later future, for example, lawsuits and scandals. .

S&P BSE GREENEX

For promoting green investing in India, Bombay Stock Exchange (BSE) had launched "BSE-GREENEX" on 22nd February, 2012. It is the 25th dynamic index hosted on the Bombay Stock Exchange.

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

A separate index allows a clear and verifiable measurement of the performance of the listed companies and encourages investors to make a conscious and informed choice. It strengthens the information symmetry and could also help the government to understand investors" acceptance and opinion towards such initiatives. Asset fund mangers shall be incentivized to create various products to improve green investments in India.

S&P BSE 100 ESG Index
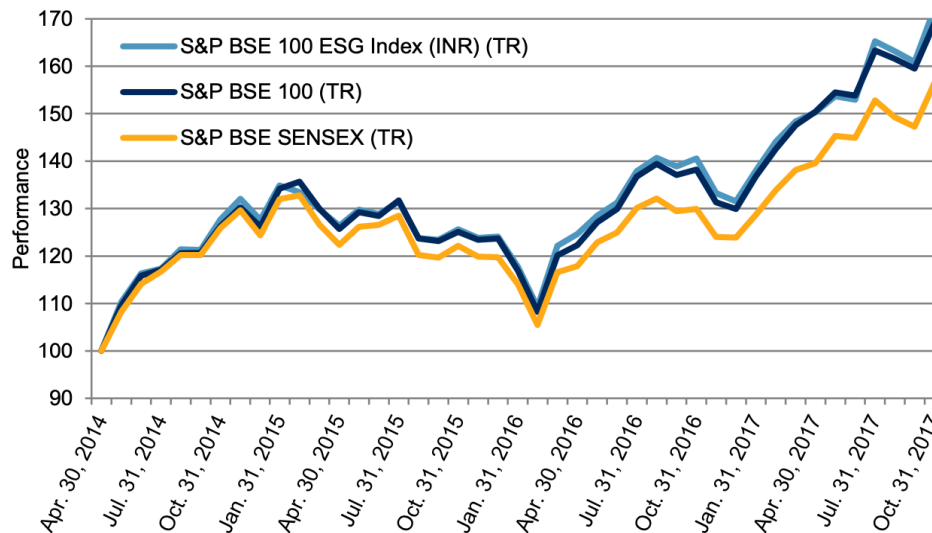
Source: S&P Dow Jones Indices LLC. Data from April 30, 2014, to Oct. 31, 2017. Index performance based on total return in INR. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Figure 3: Performance of S&P BSE Indices

"S&P BSE Indices launched the S&P BSE 100 ESG Index on Oct. 26, 2017." The index considers ESG factors when selecting its constituents. The salient features of the index are as follows.

- **Objective:** The S&P BSE 100 ESG Index is designed to measure exposure to securities that meet sustainability investing criteria while maintaining a risk and performance profile similar to the S&P BSE 100.

- **Universe:** Companies must be part of the S&P BSE 100.

- **Screening for Exclusion From Index:** The following screens are considered in the exclusion of companies.

  a) **Tobacco.** All tobacco-producing companies as well as companies with tobacco sales or related products and services greater than 10% are excluded.

  b) **Controversial Weapons.** All companies producing cluster bomb systems and key parts, landmines, or nuclear weapons are excluded.

  c) **U.N. Global Compact Score.** All companies at or below the bottom 5% of the S-RAYTM universe are excluded from the index.

- **Constituent Selection:** The selection of index constituents is as follows.

a) The companies in the eligible universe are sorted by GICS sector, and then ranked by ESG score in decreasing order.

b) For each GICS sector, companies are selected in decreasing order of ESG score until 65% of the six-month, float-adjusted market capitalization (FMC) is reached.

c) Existing constituents that are ranked between 65% and 85% are selected until the target 75% six-month FMC coverage is reached.

d) If the 75% target six-month FMC coverage has not been reached, companies in the eligible universe are selected in decreasing order of ESG score until the 75% target is reached.

- **Rebalancing**: The index will be rebalanced annually in June.

- **Weighting:** The index is weighted by FMC.

- **Base Date:** The base date of the index is April 30, 2014.

- **Base Value:** The base value of index is 100.

- **Currency:** The index is published in Indian rupees and U.S. dollars.

- **Return Versions:** The index will be available in price return and total return versions.
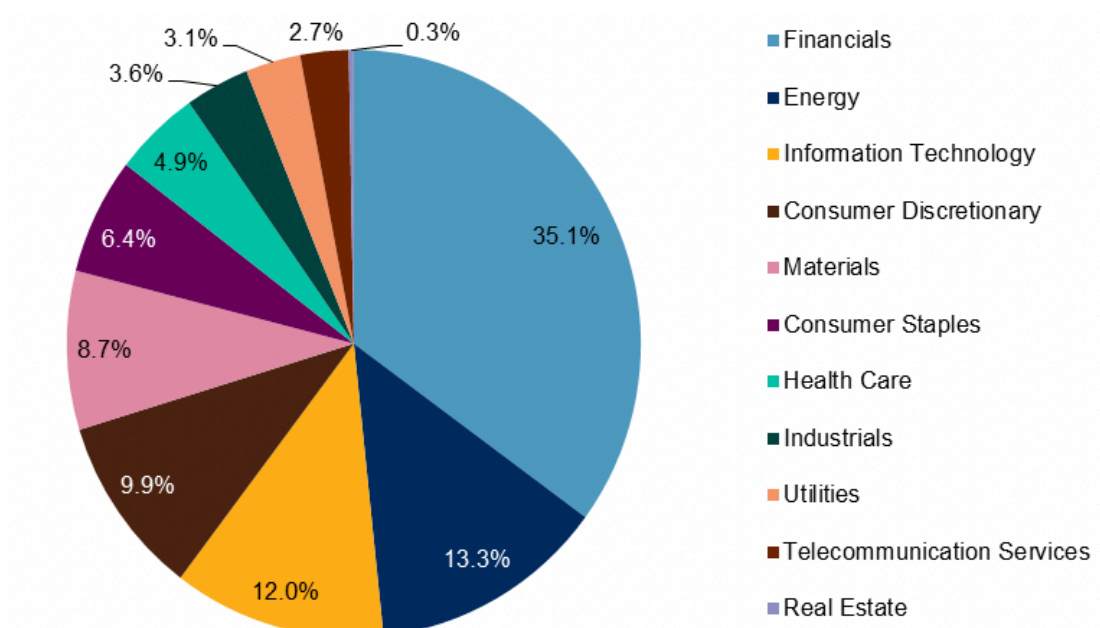
Figure 4: Sector Breakdown of the S&P BSE 100 ESG Index (INR)

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Purpose and Significance of Study

With the increasing specialization in environmental protection, there are growing calls, whether from the media, government, or corporations (Boulatoff & Boyer, 2009), so that the responsibility for the environment becomes an integral a part of investment decision making.

The primary purpose of the research paper is to examine the relative performance of a green stocks portfolio vis-à-vis non-green and market portfolios. The study aims to explore the investment opportunities in the Indian stock market for socially responsible investing, using the GREENEX as the testing index.

The study is significant for the following reasons:

PROJECT 1

1. It explores the possibility of a link between environment performance and market performance of a company.

2. It will be useful for any investor (individual or institutional) as it analyzes a hitherto under-explored subject in the Indian context.

3. It also attempts to verify whether green stocks are more resilient during periods of economic downturn, taking the recent recession period (2007-2009) under the span of the study.

4. The study will be an aid for the regulators, companies, government and the fund mangers in understanding the overall relationship that exists between socially responsible investing and the accrued returns.

PROJECT 2

1. The study aims to understand the psyche of Indian investors towards Socially Responsible Investing (SRI). This is done by studying general attitude of the investors and how the age and gender of the investors affect their behaviour towards investment in green stocks.

Literature Review

Several research studies have focused on various aspects of green investing viz. motivation, financial perspectives, risk analysis and sectoral differences and performance of green stocks.

The reasons for investing green can be categorized in four groups.

1. First, ethical considerations may drive investors.

2. Second, they may only be interested in a better return profile.

3. Third, regulatory and legal constraints may make it mandatory for them to go green.

4. Finally, investors may be looking to improve their reputation by making their concern for environment public.

Ethical considerations could be the one of the most basic forces behind these types of investments. Lewis and Mackenzie (2000) and Lewis (2001) argue that, "investors are willing to sacrifice financial returns for stock behaviour consistent with their own considerations and beliefs…" Sheath (2003) notes that, "although they are looking to generate returns, some investors may also want their investments to do well."

Sometimes, an advantageous profile and green considerations complement each other. Dunn (2009) points out that "decreased costs through elimination of environmental ineptitudes may lead to augmented firms earnings and higher returns."

For example:

Screening BP in 2010 would've helped investors cut their losses due to the oil spill crisis. Subsequently, giving more consideration to nature could prompt higher benefit. Through better administration of future condition dangers, green speculations might be liable to bring down hazard generally speaking (Konar and Cohen, 2001; Dunn, 2009). Green speculations may go about as flawless supporting properties. Specifically, putting resources into asset sparing should fill in as a support against asset value spikes. Interests in organizations that abuse elective vitality sources or that permit vitality reserve funds, for instance, advantage when vitality costs rise (Greenstein, 2008; Preston and Martel, 2008). Various examination contemplates have likewise endeavored execution assessment of green stocks portfolios particularly in created markets.

Table 1 summarizes the results of a few of such studies. It can be noted that most of these studies are from U.S. market.

"Mahapatra, 1984 finds that pollution control expenditures had a negative impact on the financial performance people companies within the 1970s. in contrast, Erfle & Fratantuano, 1992 conclude that there's a major positive relationship between firm's environmental performance and financial performance. White, 1991 finds that the mutual funds that use social responsibility screening criteria slightly underperformed the S&P 500 Index on both a nominal and risk-adjusted basis. Derwall et al., 2005 compared the financial performance of high environmental rating stocks thereto of low ones and find that portfolios consisting of stocks with high environmental ratings provided substantially higher average returns than those of stocks with low ratings. Olsson, 2007, however analyzed the returns of thirty US industry portfolios and find that environmental score of portfolios had no statistically significant impact on returns."

There are also studies that report neutral results. Boulatoff & Boyer, 2009 studied the performance of more than three hundred environmental firms and found that the performance of environmental stocks is sector dependent. King & Lenox, 2001 examined more than six hundred US manufacturing firms and concluded that the financial performance of companies in cleaner industries is good. Dixon, 2010 discussed the potential impact of sustainability-themed investing on the performance of a global equity portfolio. The study argues that sustainability-themed investing could improve returns but would also mean higher risk.Investors worldwide have become more conscious of the environmental considerations and have settled for some rules and procedures. For example more than eight hundred institutions worldwide with more than $22 trillion of assets under management have endorsed the "Principles for Responsible Investments" drafted by UN Environment Programme Finance Initiative (Rohrbein 2010). Focusing a more specific issue, global warming, institutional investors have formed important action groups to develop common initiatives such as the Institutional Investors' Group on Climate Change (IIGCC) which currently has more than fifty members representing assets of Euro 5 trillion (IIGCC, 2009).

The study directed by Anders, Johan, Rustestuen and Traaseth (2018) considers the risk and return qualities of ethical investments in both the US and the UK, giving a thought regarding how the how the investors worldwide behave. By considering the performance on stock level, it features so as to control for portfolio chief abilities and the nature, mostly subjective, of the ethical criteria put forth by the distinctive ethical stocks. Since each ethical stock has its own ethical standards, and in spite of the fact that the funds/stocks to an enormous degree report their criteria and their position on various moral issues, it is hard to survey how effective each fund/stock is at incorporating sufficient ethical criteria and thus it considers the ESG ratings b y an independent agency, Asset 4.

Table 1: Research Papers on Social Responsible Investing/ Ethical Investing

Form	Author	Method	Time-Period	Country	Results
Negative results	Mahapatra (1984)	Compared pollution control expenditures across six industries to the average market returns in those industries	1967-1978	U.S.	Pollution control expenditure limits the financial performance of company
	White (1991)	Compared the performance of six environmental mutual funds to S&P 500 on both a nominal and risk adjusted basis	One year period ending 28th June 1991	U.S.	SRI funds underperformed
	Olsson (2007)	Returns of 30 US industry portfolios are analyzed	Jan.2004-July2006	U.S.	The environmentally "riskiness" of portfolios has no significant impact on returns
Neutral results	Cohen, Fenn and Konar (1997)	Two portfolios with heavy and light polluters were constructed and their performances were compared	1987-1989, 1990 and 1991	U.S.	No penalty or positive return given to green investor's convictions
	King and Lenox (2001)	652 US manufacturing firms were analyzed	1987-1996	U.S.	Association of pollution reduction and financial gain, but no direction of causality
	Boulatoff and Boyer (2009)	Analyzed 310 global green investing socks	2003-2007	U.S.	The performance of the environmental stocks is sector dependent
	Dixon (2010)	Analyzed the performance of sustainability-themed investing	Before 31st May 2010	U.S.	Sustainability-themed investing could improve returns but with increased risk also

Form	Author	Method	Time-Period	Country	Results
Positive results	Erfle and Fratantuono (1992)	Analyzed 49 companies in environmental performance	Before 1989	U.S.	Positive correlation between environmental performance and return
	Diltz (1995)	Analyzed daily returns of 28 common stock portfolios	1981-1991	U.S.	Environmental performance has significantly positive impact on portfolio returns
	Derwall et al.(2005)	Compared the performance of high environmental rating stocks to that of low ones	1995-2003	Netherlands	High rating stocks provided higher average returns than low rating stocks
	Semenova and Hassel (2008)	Compared the industries on the basis of low and high risk	2003-2006	Europe	Market value of low risk industries is greater than high risk industries

Source: EDHEC-Risk Institute 2010

Thus in general it can be said that the consequences of the past researches are are mixed especially for business markets. For developed markets, particularly U.S market, the investigations show that green stocks out perform non green stocks but at the same time they might have higher risks associated with them too.

Problems with assessing extra-financial information have tormented the development of this field. Albeit such information data vendors such as Bloomberg have given platforms to the financial investors to get to the basic environmental information of the organizations (Peeva and Noetzel 2009), however these platforms don't cover every single applicable organization. Quigley (2009) has investigated the attributes of these platforms and the data present and concludes that it is normally low frequency (for the most part yearly) and has a shorter history than financial data. Finally, there isn't yet a standard for divulgence of environmental performance. Regional differences in policy focus, disparities in the definitions among examiners/analysts, and diverse portfolios across organizations are challenging the integration process (Amaeshi and Grayson 2009).The review of studies done into socially responsible investing shows an area that is a very much emerging concept and profoundly heterogeneous, and empirical evidence of the corresponding investment strategies that can't seem to prompt any reasonable agreement among the analysts and which have no clear consensus.

Data and Methodology

PROJECT 1

The study evaluates seven portfolios (viz. green stocks portfolios, green blue chip stocks portfolio, green non blue chip stocks portfolio, non – green mimicking stocks portfolio, blue- chip stocks portfolio, blue-chip- non green stock portfolio and market portfolio) over the period 2001-2016.

Portfolio selection

- Green stocks portfolio comprises all the companies forming part of GREENEX (there are 25 companies in GREENEX), the green companies' index on BSE (Bombay Stock Exchange).

- Non- green mimicking stocks portfolio is constructed by using the same sectoral composition as that of GREENEX but selecting 20 non green companies at random.

- The blue-chip stocks portfolio comprises all 30 companies forming part of SENSEX

- Blue-chip non green portfolio comprises all those 10 stocks which are in SENSEX but not in GREENEX.
  Green Blue Chip comprises the 20 stocks common in GREENEX and SENSEX.

- Green non blue chip stocks portfolio includes five stocks which are in GREENEX but not in SENESX.

- A more comprehensive and broad based BSE 100 INDEX is used as the proxy for market portfolio. The composition of all these portfolios is given in Annexure 1.

Monthly closing adjusted share prices of the companies in respective portfolios during the period 1st April 2001 to 31st March 2019 are collected. The stock prices are then converted into simple percentage returns as (Pt – Pt-1)/Pt-1 and equally weighted portfolio returns are calculated. The proxy for risk free rate is monthly implicit yield on 91 days T-bills over the study period. Next we calculated Karl Pearson"s coefficient of correlation among these portfolios, descriptive statistics, portfolio beta and the following risk adjusted measures for performance evaluation.

PROJECT 2

Objectives of the Research

1. To understand the behaviour of the investors towards the green stocks investing in India based on their age.

2. To understand the behaviour of the investors towards the green stocks investing in India based on their gender.

3. To understand which among the environmental, social and governance factors affect the behaviour of the investors towards the green stocks investing in India

Research Design

The Descriptive Research has been used to study the objectives of the project. It is research method that describes the characteristics of the population or phenomenon that is being studied. This methodology focuses more on the "what" of the research subject rather than the "why" of the research subject.

Data Collection Method

Primary Research: A survey was done and pprimary data was collected by structured questionnaire. The questionnaire was circulated through online platform by E-mail.

Secondary Research : Latest information available on the internet about the socially responsible investing, the current stocks in the BSE Greenex, the different ESG practices followed by companies, and the investing patterns of investors were studied in green and non green stocks.

Sampling Procedure

Sampling is a very important aspect of data collection. The small representative selected out of a large population at random is called a sample. Well-selected sample may reflect fairly, accurately the characteristics of the population.
The chief aim of sampling is to make an inference about unknown parameters from a measurable sample statistic.

- Sampling Size: 100

- Sampling Method: Convenience Sampling

Measurement Techniques

Appropriate statistical tools and graphical representation have been used to derive at and explain the results.

Assumptions of the Study

The research is based on the following assumptions:

1. The methodology used for this purpose is survey and questionnaire method. It is assumed that this method is more suitable for collection of data.

2. It is assumed that the respondents have sufficient knowledge.

3. It is assumed that the respondents have chosen the correct option according to their opinion.

Limitations of the Study

1. The sample size chosen for the study is 100 units, which is small enough to be representative of the entire population and its perceptions.

2. Time is a major constraint for the study in question.

3. Lack of knowledge of green stocks can hamper the result of the study.

Theory

Holding Period Return

The return on a security is the sum of the change in price of the security between two different dates, and the income received by the holder of the security in that time period. Such return is known as the Holding Period Return (HPR), as it reflects the return the security has made in the period of holding, regardless of the length of that period.

$$R_t = \frac{P_t + D_t}{P_{t-1}} - 1$$

Where:
R_t is the HPR
P_t and P_{t-1} is the price of the security at time t and t-1 respectively
D_t is the dividend received at time t

Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model is a single factor equilibrium model for expected return. The model assumes that the expected return that investors require on their investments should be linearly related to the assets covariance with the market portfolio. The model was first introduced by Sharpe (1964) and Lintner (1965b), who built further on the groundwork on portfolio optimization by Markowitz (1959).

$$E[R_i] = R_f + \beta_{im}\big(E[R_m] - R_f\big)$$

Where:
R_i is the return of asset i
R_f is the return of the risk free asset
β_{im} is the beta of asset i with the market m
R_m is the return of the market portfolio

where,

$$\beta_{im} = \frac{Cov(R_i, R_m)}{Var(R_m)}$$

Assumptions

- Face no transaction costs – no cost of buying or selling an asset.

- Can trade any fraction of an asset – Assets are infinitely divisible.

- Face no personal income tax – the investors do not care how the returns are obtained, dividends vs. capital gains.

- Are price takers - individuals cannot affect prices by trading.

- Can short sell an unlimited amount of shares.

- Can borrow and lend an unlimited amount at the same risk free interest rate.

- Are faced with the same inputs to analyze the relationship between risk and return – same expected return, standard deviations and covariance matrix. They therefore have homogenous expectations of the market.

- Can trade all assets in the universe – this means that all assets, including human capital, can be bought or sold in a market place.

- Maximize their economic utility – investors solely take the relationship between the return and standard deviation into consideration when investing.

It is clear that many of these assumptions are unrealistic, and do not hold in the real world market. The model is though still attractable, and widely used in the performance measuring of stocks and mutual funds.
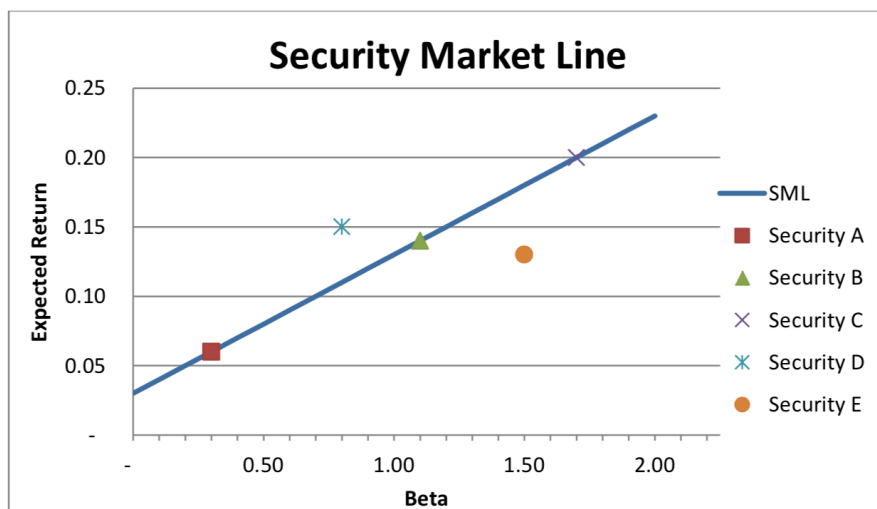

Figure 5 : Plot of Security Market Line

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The expected return is linearly related to the beta of the asset. In a perfect equilibrium market, all assets should plot exactly on the line like security A, B and C, and the only thing that should make them differ in the expected return is the differences in beta. If a stock plots above the SML, like security D, this means that the stock is underpriced – in equilibrium the efficient portfolio will then shift and investors will increase their share in that stock, lowering its expected return and bringing it back on the line. On the other side, if a security plots below the security market line, like security E; this means that this asset is overpriced. In equilibrium investors will therefore shift their portfolios to contain less of this security, which will decrease its price, and increase its expected return, bringing it back onto the line.

Arbitrage Pricing Model

The Arbitrage Pricing Theory (APT) was primarily developed by Stephen Ross in 1976. Like the CAPM, APT derives a relationship between risk and return, but there are some differences. APT relies on three propositions (Bodie, Kane, & Marcus, 2014):

- Security returns can be described by a factor model

    A factor model is a model that describes the uncertainty in returns of a security as a function with two groups of components; one or more macroeconomic components and one or more firm-specific components.

$$R_i = E(R_i) + \beta_i F + e_i$$

Where:
R_i is the excess return of asset i
F is the deviation of the common factor from its expected value
β_i is the sensitivity of firm i to that factor
e_i is the firm-specific disturbance

- There are sufficient securities to diversify away idiosyncratic risk

    Ross states that a sufficient number of securities has to exist, such that idiosyncratic, or firm-specific, -risk is diversifiable. The theory is that a portfolio comprising several securities which are less than perfectly correlated, that is they have a correlation coefficient less than 1, will enable you to eliminate the firm-specific risk of each security.

- Well-functioning security markets do not allow for the persistence of arbitrage opportunities

The concept of arbitrage is when an investor can earn a risk-less profit with no wealth invested. In other words, when a profit can be made by going short one security and the proceeds of the short trade is used to fund a long trade in another security. Such trades are usually made to exploit an apparent mispricing.

Performance Measures

Sharpe Ratio

It is calculated as the excess return per unit of total portfolio risk. Since Sharpe ratio uses standard deviation as a measure of risk, it does not assume the portfolio is well diversified. In effect, the index standardizes the returns in excess of the risk free rate by the variability of the return. It is also termed as Reward to Variability ratio.

$$SR_i = \left[\frac{R_i - R_f}{\sigma_i}\right]$$

Where:
SR_i is the Sharpe ratio of asset i
R_i is the return of asset i
R_f is the return of the risk free asset
σ_i is the standard deviation of asset i

Treynor Ratio

It is calculated as the excess return per unit of portfolio systematic risk, indicated by portfolio beta (β). It has to be noted here that Treynor index uses the portfolio's beta, which assumes the portfolio is well diversified. In effect, it standardizes the return in excess of the risk-free rate by the volatility of the return.

$$TR_i = \left[\frac{R_i - R_f}{\beta_i}\right]$$

Where:
TR_i is the Treynor ratio of asset i
R_i is the return of asset i
R_f is the return of the risk free asset
β_i is the beta of asset i

Jensen's Alpha

It is used to determine the abnormal return of a security or portfolio of securities over the theoretical expected return. The theoretical return is predicted by a market model, most commonly the capital assets pricing model (CAPM). A portfolio with a consistently positive excess return (adjusted for risk) will have a positive alpha and vice-versa. It can be calculated as

$$\alpha_i = r_{it} - r_{ft} + \beta_i[r_{mt} - r_{ft}] + e_{it}$$

Where:
r_{it} is the return on security i, in period t
r_{ft} is the risk-free rate in period t
β_i is security i's sensitivity to the market
r_{mt} is the return on the market portfolio in period t
e_{it} is the error-term, which captures the firm-specific risk

Since the measures of risk used in the Sharpe and Treynor indices differ, it is possible for the two indices to rank performance differently. If a portfolio is perfectly diversified, the two measures will give similar rankings because total risk is then equivalent to systematic risk. However, if the portfolio is poorly diversified, it is possible for it to show a high ranking on the Treynor index, but a lower ranking on the Sharpe index. The difference is due to the low level of portfolio diversification.

Empirical Analysis

PROJECT 1

Table 2 shows Karl Pearson's coefficient of correlation between different portfolios. Green non-blue chip stocks portfolio has the lowest degree of correlation. By including such stocks in the portfolio, risk can be reduced as diversification increases and benefits the investor.

Table 2: Cross Correlation Matrix of Different Portfolio Returns

	Green Stocks	Green blue chip	Green non-blue chip	Mimicking	Blue chip
Green Stocks	1				
Green blue chip	0.942805685	1			
Green non-blue chip	0.638300205	0.345956883	1		
Mimicking	0.860008123	0.852853003	0.444796761	1	
Blue chip	0.938852728	0.991255025	0.353444721	0.870462195	1
Blue chip non-green	0.873754408	0.912858355	0.347834211	0.856962078	0.95873112

Table 3 shows portfolio return, total risk, coefficient of determination, Sharpe ratio, Treynor ratio and Jensen's alpha of all seven portfolios. It shows that the green stocks portfolio has provided significantly higher return and only a marginally lower average return than that of non- green mimicking portfolio. Monthly average return on green stocks portfolio was 2.65% as compared to 2.28% of blue chip stocks portfolio and 1.89% of market portfolio. The mimicking portfolio provided highest monthly average return at 2.67%

However at the same time standard deviation or risk of blue chip non green portfolio was lowest (7.5%). The green non blue chip stocks portfolio has the lowest systematic risk which is denoted by beta (given in covariance of the considered portfolio with the market portfolio divided by the market portfolio) is lowest (0.84) which makes it the most defensive portfolio when all seven portfolios are considered. During the entire study period (2001-2019) green stocks portfolio outperformed the market portfolio but underperformed blue chip portfolio in terms of Sharpe ratio but green stocks portfolio outperformed all the portfolios in terms of Jensen's alpha and Treynor's ratio.

When we divided the data into two sub periods of six years each we found that green stocks portfolio performed well in the second sub period and outperformed both the market portfolio and non-green stocks portfolio in terms of Sharpe ratio. The five year sub period results shows that the portfolio which comprised of the green stocks outperformed non-green stocks portfolio in the period of consideration 2006-10. During three year period (2011-14) green stocks portfolio has lower return than non-green portfolio as well as blue chip portfolio but at the same time green stocks portfolio also has lesser risk in comparison with non-green and blue chip portfolio.

Table 3: Return, Risk, Sharpe Ratios and Treynor Ratios of Portfolios

Portfolios	1 Period	2 Period		4 Period			
	2001-2019	2001-2010	2011-2019	2001-2005	2006-2010	2011-2014	2014-2019
Average (%)							
Greenex	2.65	3.79	1.47	4.68	3.02	0.46	2.59
Green Bluechip	2.33	3.24	1.39	3.50	2.99	0.33	4.42
Green Non Bluechip	2.39	6.48	1.38	3.56	3.26	1.09	2.88
Mimicking	2.67	4.06	1.37	4.70	3.02	0.29	2.40
Bluechip	2.28	3.12	1.45	3.39	2.90	0.46	2.98
Bluechip Non Green	2.16	2.86	1.48	2.97	2.67	0.73	2.17
Market	1.89	1.88	1.40	1.89	2.46	0.26	1.40
Std. Deviation (%)							
Greenex	7.97	7.44	8.41	7.96	6.9	5.7	8.35
Green Bluechip	7.73	7.5	7.9	8.09	7.17	5.41	9.66
Green Non Bluechip	7.56	22.14	7.9	8.09	8.57	7.72	14.06
Mimicking	10.2	9.07	11.39	9.98	6.99	6.87	14.6
Bluechip	8.28	8.02	8.54	7.85	7.48	7.98	9.06
Bluechip Non Green	7.5	7.14	7.9	7.58	6.87	5.35	9.98
Market	7.80	6.9	8.63	7.34	6.64	5.51	11.06
Coeff. of Variation							
Greenex	3.02	1.95	5.72	1.69	2.31	12.2	3.99
Green Bluechip	3.31	2.3	5.6	2.27	2.39	6.3	3.81
Green Non Blue Chip	3.01	3.22	5.69	2.27	2.62	7.64	4.87
Mimicking	3.85	2.25	8.29	2.11	2.31	5.9	24.2
Bluechip	3.765	2.805	5.547	20.9744	1.4	3.12	17.27
Bluechip	3.31	2.28	5.45	2.23	2.36	11.52	4.18

Non Green							
Market	4.1	3.6	6.16	3.88	2.68	20.48	7.89
Portfolios	1 Period	2 Period		4 Period			
	2001-2019	2001-2010	2011-2019	2001-2005	2006-2010	2011-2014	2014-2019
Sharpe Ratio							
Greenex	0.33	0.51	0.17	0.52	0.3	-0.02	0.2
Green Bluechip	0.3	0.42	0.1	0.381	0.347	-0.053	0.208
Green Non Bluechip	0.21	0.4	0.19	0.43	0.38	-0.13	0.2
Mimicking	0.255	0.39	0.07	0.47	0.43	-0.04	0.16
Bluechip	0.39	0.43	0.182	0.44	0.42	-0.085	0.23
Bluechip Non Green	0.28	0.443	0.177	0.42	0.39	-0.13	0.2
Market	0.241	0.272	0.161	0.25	0.37	-0.121	0.47
Beta							
Greenex	0.929	0.88	0.92	0.77	1.026	0.99	0.916
Green Bluechip	0.93	1.007	0.97	0.987	1.02	0.946	0.835
Green Non Bluechip	0.84	0.72	0.64	0.98	0.7	1.2	1.17
Mimicking	1.17	1.01	1.24	0.983	1.24	1.13	1.24
Bluechip	0.91	0.98	0.888	0.95	0.98	0.979	0.85
Bluechip Non Green	0.93	0.92	0.923	0.86	0.95	0.89	0.91
Market	1	1	1	1	1	1	1
Treynor Ratio							
Greenex	2.85	4.3	1.57	5.36	2.47	-0.15	2.1
Green Bluechip	2.48	3.21	0.84	3.132	2.44	0.9	2.41
Green Non Bluechip	2.5	3.08	0.86	3.6	4.67	0.83	2.44
Mimicking	2.28	3.44	0.67	4.8	2.43	0.24	1.96
Bluechip	2.49	3.17	1.62	3.55	2.93	0.492	2.76
Bluechip Non Green	2.31	3.093	1.594	3.45	2.81	0.81	2.37
Market	1.88	2.88	1.39	1.89	2.46	0.26	1.4
Alpha							
Greenex	1.1	1.8	0.58	3.04	0.62	0.19	1.27
Green Bluechip	0.86	1.06	0.48	1.7	1.48	0.3	1.25
Green Non Bluechip	0.48	0.89	0.68	1.6	1.38	0.8	1.33
Mimicking	0.95	1.71	0.39	2.8	2.5	0.28	0.4
Bluechip	0.83	0.97	0.58	1.573	1.518	0.17	1.112
Bluechip Non Green	0.69	0.76	0.58	1.28	0.308	0.4303	0.849
Market	0	0	0	0	0	0	0

Table 4 shows that, during crisis as well as after crisis green stocks portfolio provided higher return than the market portfolio and had much lower risk. However green stocks portfolio did not outperform blue-chip stocks, mimicking stocks or blue chip non green stocks portfolios.

The risk (standard deviation as well as beta) of green non-blue chip portfolio was lowest among all other portfolios during crisis and after crisis. In terms of the ratios, it's a close call between the blue chip stocks and the green stocks, no clear winner between them.

Table 4: Performance of Different Portfolios in Pre Crisis, During Crisis & Post Crisis Periods

Portfolios	Before Crisis	During Crisis	After Crisis
	1/04/03-31/03/07	1/04/07-31/03/09	1/04/09-31/03/19
Average (%)			
Greenex	4.54	0.36	2.11
Green Bluechip	4.42	0.35	1.97
Green Non Bluechip	5.2	0.5	2.67
Mimicking	4.3	-1.24	2.68
Bluechip	4.73	0.03	2.91
Bluechip Non Green	3.8	-0.48	2.33
Market	3.474	-0.91	1.341
Std. Deviation (%)			
Greenex	7.46	9.91	6.66
Green Bluechip	7.5	9.24	7.11
Green Non Bluechip	9.8	8.5	5.7
Mimicking	8.8	13.08	10.34
Bluechip	7.13	9.6	7.03
Bluechip Non Green	6.9	10.35	7.13
Market	6.54	10.89	6.99
Coeff. of Variation			
Greenex	1.64	27	3.56
Green Bluechip	1.69	26.01	3.6
Green Non Bluechip	1.8	27	3.78
Mimicking	2	-10.5	3.8
Bluechip	1.68	32.88	3.36
Bluechip Non Green	1.82	-21.04	3.044
Market	2.664	-11.84	5.21

Portfolios	Before Crisis	During Crisis	After Crisis
	1/04/03-31/03/07	1/04/07-31/03/09	1/04/09-31/03/19
Sharpe Ratio			
Greenex	0.607	-0.02	0.206
Green Bluechip	0.58	-0.037	0.27
Green Non Bluechip	0.53	-0.03	0.26
Mimicking	0.48	-0.09	0.25
Bluechip	0.59	-0.04	0.29
Bluechip Non Green	0.55	-0.04	0.32
Market	0.43	-0.08	0.11
Beta			
Greenex	1/003	0.41	1.55
Green Bluechip	1.008	0.8	0.935
Green Non Bluechip	0.98	1.12	1.29
Mimicking	1.08	1.11	1.33
Bluechip	0.98	0.82	0.92
Bluechip Non Green	0.937	0.88	0.93
Market	1	1	1
Treynor Ratio			
Greenex	4.52	-0.41	1.53
Green Bluechip	4.3	-0.43	2.1
Green Non Bluechip	5.37	-0.03	2.05
Mimicking	3.9	-1.1	2.01
Bluechip	4.3	-0.04	2.25
Bluechip Non Green	4.1	-0.54	2.51
Market	3	-0.93	0.78
Jensen's Alpha			
Greenex	1.07	1.16	0.77
Green Bluechip	0.95	0.93	0.68
Green Non Bluechip	1.08	0.5912	1.1
Mimicking	0.65	-0.57	0.454
Bluechip	0.82	0.624	0.81
Bluechip Non Green	0.634	0.248	1.0446
Market	0	0	0

PROJECT 2

- **Percentage of investors considering investing in green stocks/ practising socially responsible investing**
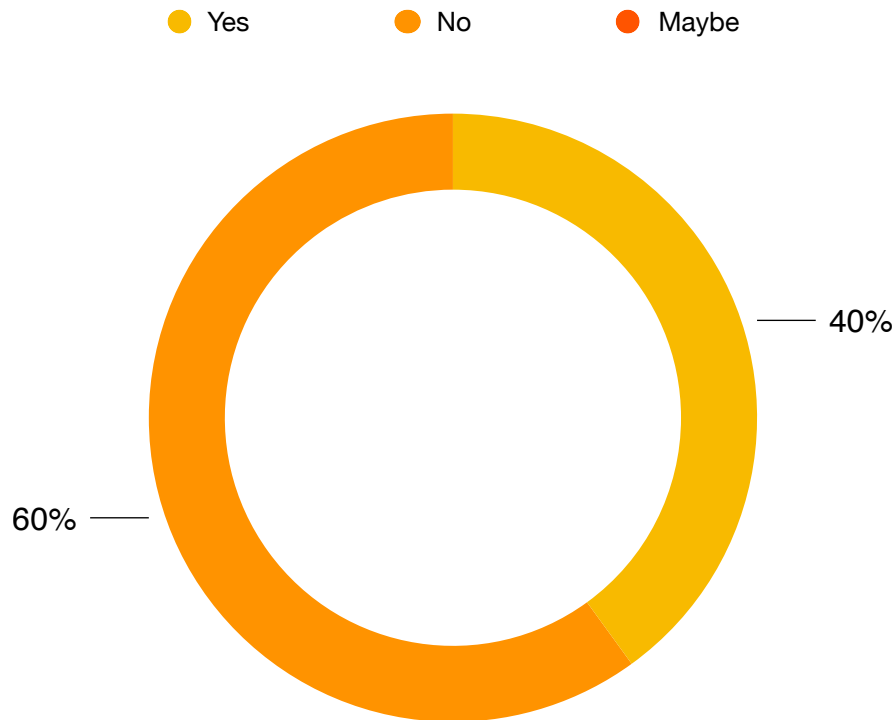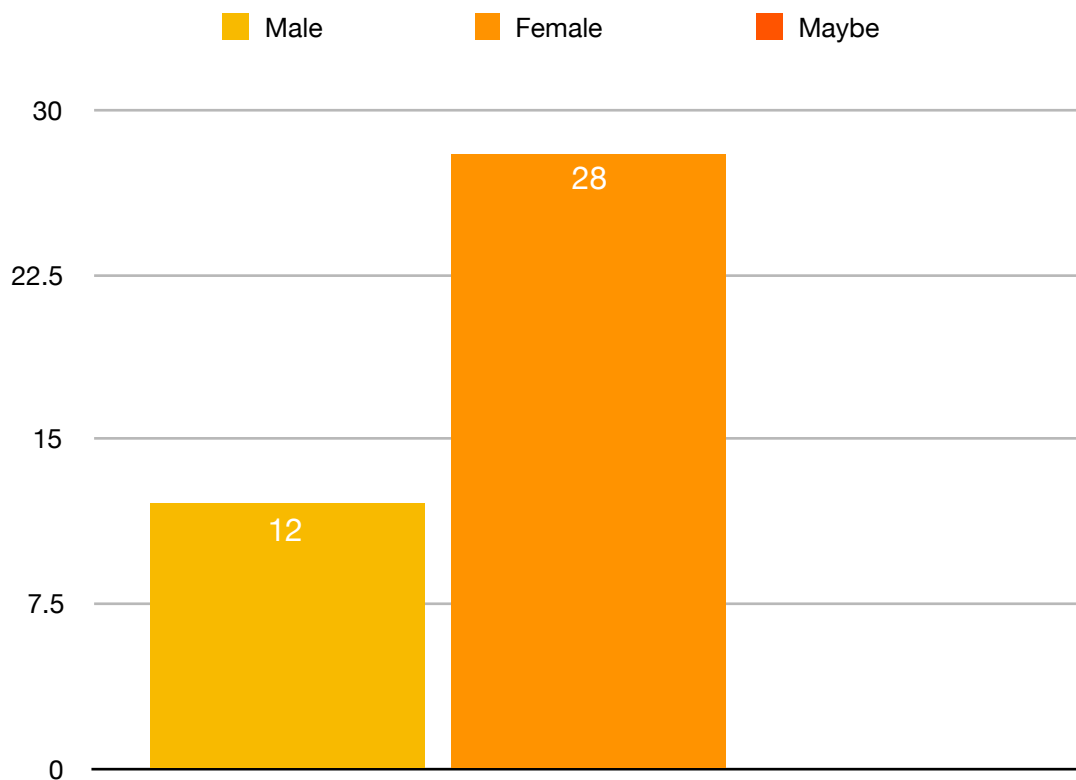

Figure 6 : Plot of Percentage of investors considering investing in green stocks/ practising socially responsible investing

Interpretation: Almost two out of every five (40%) respondents, consider investing in green stocks/ practising socially responsible investing (SRIs)

While 60% respondents were not fully convinced by the idea of investing in green stocks/ practising socially responsible investing (SRIs)

- **Gender of the Respondents who consider making socially responsible investment (SRI) decisions**

Figure 7 : Plot of gender of the respondents who consider making socially responsible investment (SRI) decisions

Interpretation: 28 out of 40 (70%) respondents who consider making SRI investment decisions are female. This implies that women are more likely than men to consider investing in green stocks.

- **Generation of the Respondents considering investing in green stocks/ practising socially responsible investing (SRI)**
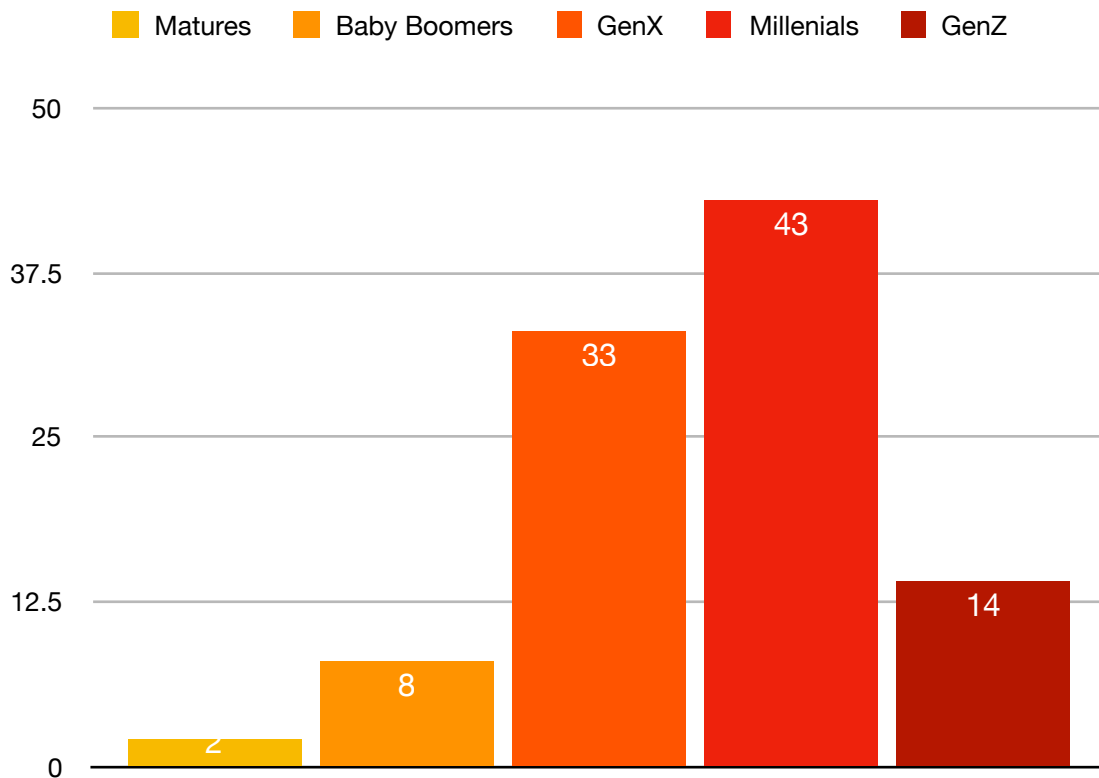
Figure 8: Plot of percentage of generation of the respondents considering investing in green stocks/ practising socially responsible investing (SRI)

Interpretation : 2% respondents born before 1943, that is belonging to Matures consider practising ethical investing.

8% respondents born between the year 1944-1964, that is belonging to Baby Boomers consider practising ethical investing.

One out of three respondents (33%) born between the year 1965-1979, that is belonging to GenX consider practising ethical investing.

43% respondents born between the year 1980-1994, that is belonging to Millennials consider practising ethical investing.

14% respondents born after the year 1995, that is belonging to GenZ consider practising ethical investing.

- **Percentage of investors who consider practising socially responsible investing as importance**
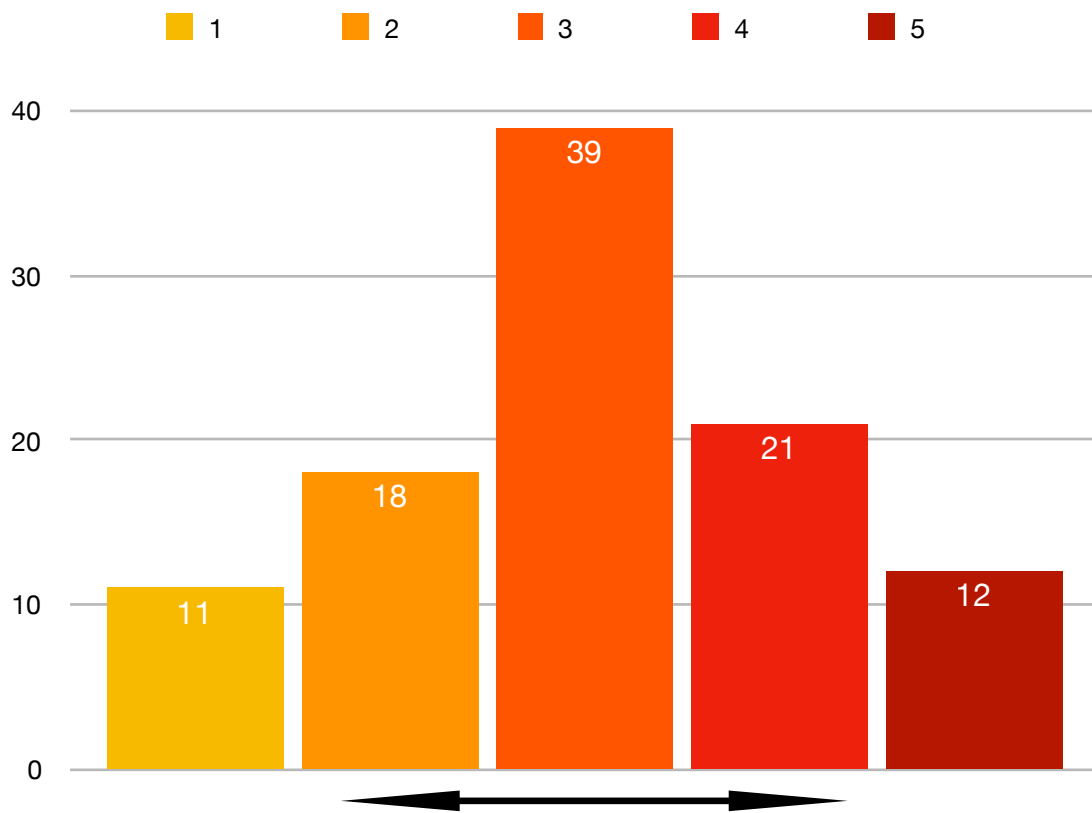

Figure 9: Plot of percentage of investors who consider practising socially responsible investing as importance

Interpretation : 33% investors consider SRI investments as important (scale points 4 and 5). While 39% investors have a neutral opinion (scale point 3) about socially responsible investments and 29% investors consider SRI investments as unimportant (scale points 1 and 2).

12% of the investors consider SRI as very important (scale point 4) and 11% as very important (scale point 5).

- **Generation-wise rating of importance of the practise of Socially Responsible Investing (SRI) by the respondents**
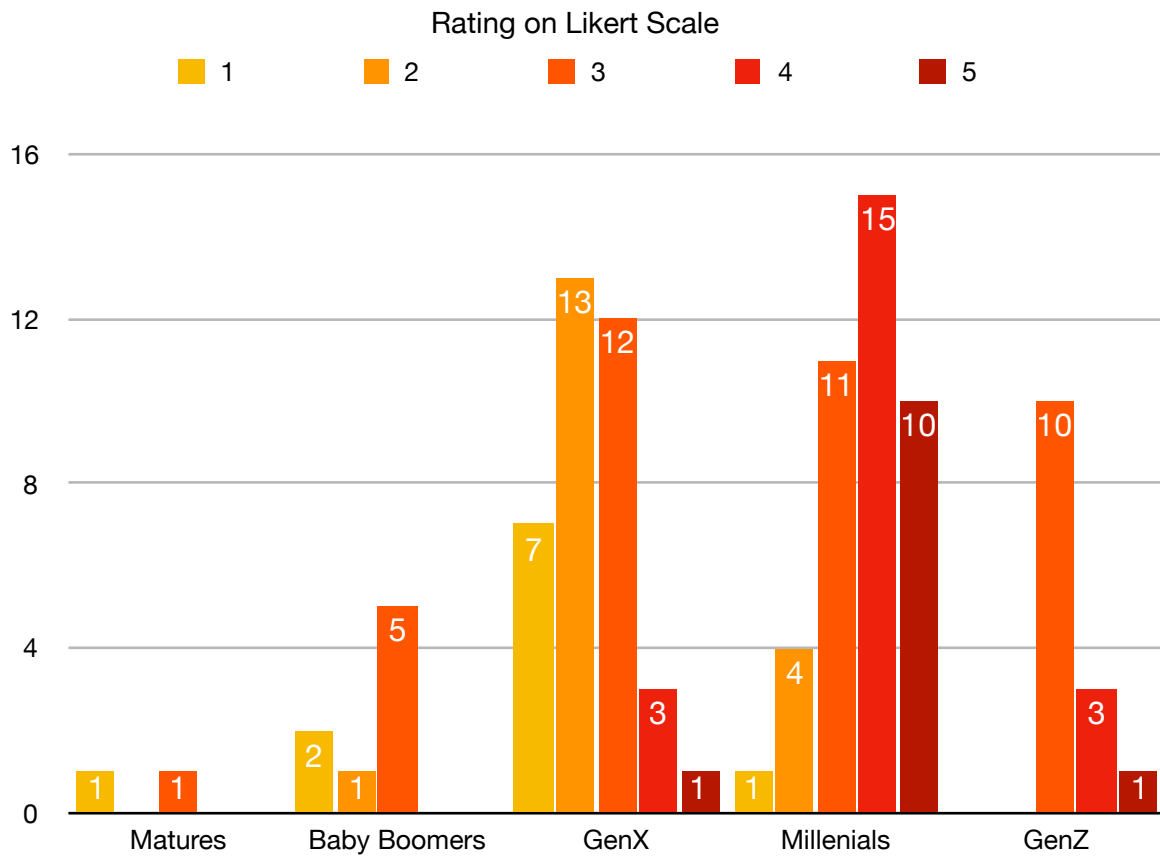

Figure 10: Plot of generation-wise rating of importance of the practise of Socially Responsible Investing (SRI) by the respondents

Interpretation : Almost 60% of Millennials view investing in SRI as an important practise while investing in stocks as they rated SRI to be 4 and 5 on the given Likert scale.

Approximately 12% respondents belonging to GenZ believe that SRI as an important practise while investing in stocks.

- **Percentage of respondent's investment portfolio dedicated to socially responsible investments**
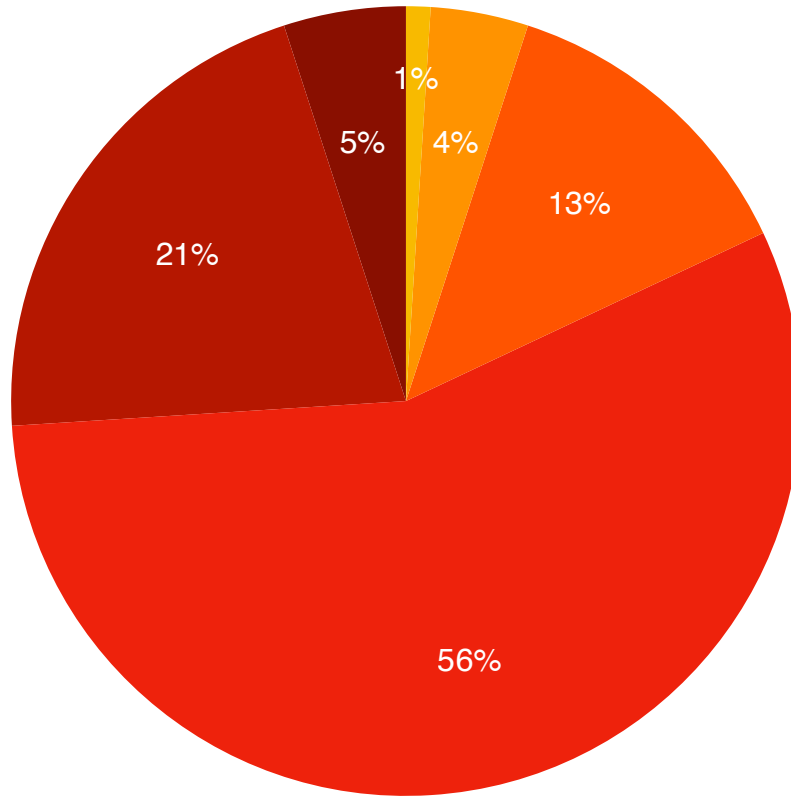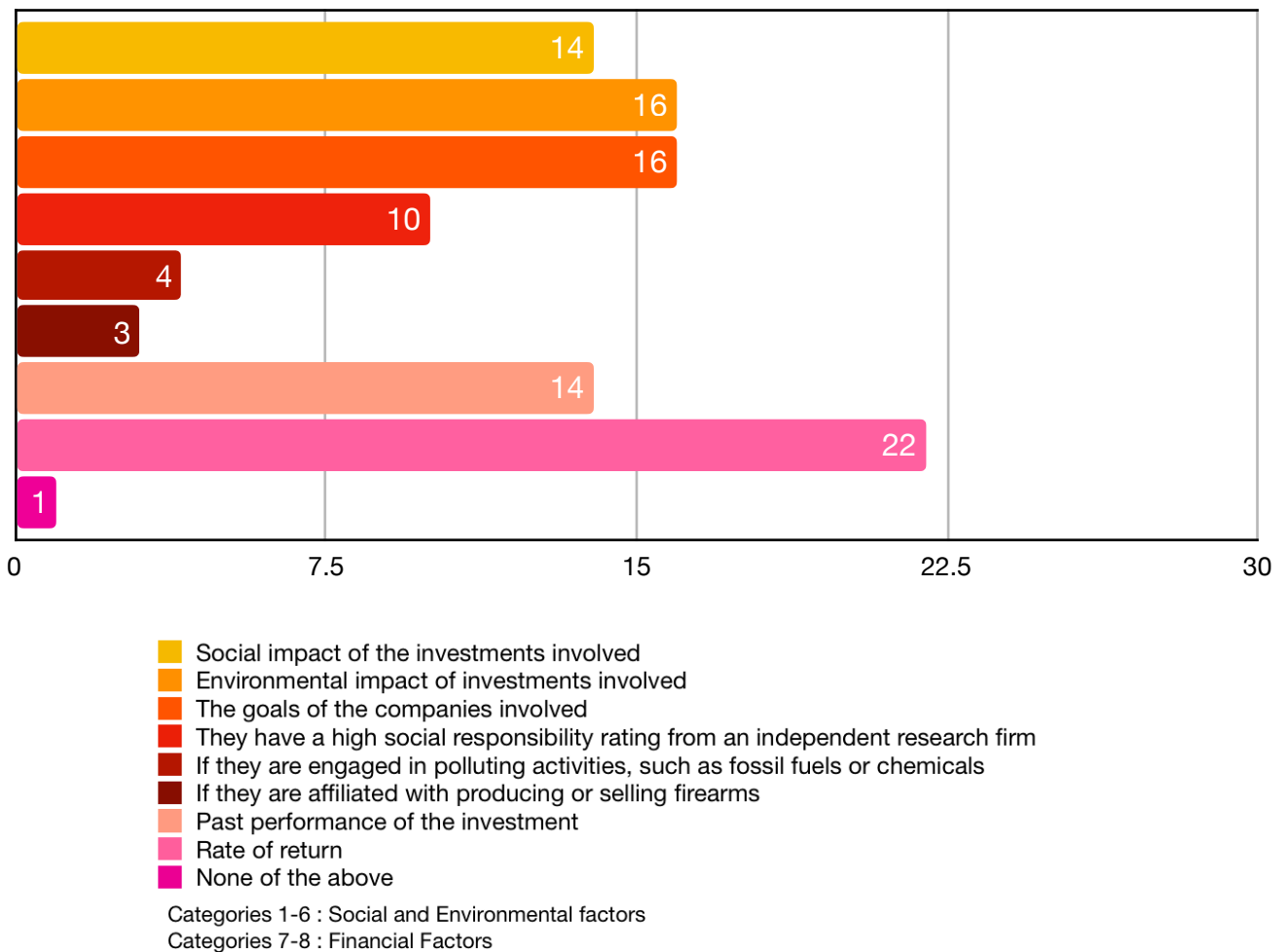

Figure 11: Plot of percentage of respondent's investment portfolio dedicated to socially responsible investments

Interpretation : More than half of the respondents (56%) surveyed by the means of the questionnaire, have around 25-49% of their investment portfolios dedicated to socially responsible investments.

While 1 percent of respondents have a portfolio of investments fully dedicated to green stocks, 5% of the respondents have their portfolio with none containing green stocks in them.

- **Factors that the respondents weigh in the most while making Socially Responsible Investments (SRI)**

Figure 12: Plot of percentage of respondents based on the factors that they weigh in the most while making Socially Responsible Investments (SRI)

Interpretation : Of all the investors surveyed, 63% favour social, environmental factors over financials (36%).

It was surprising to note that the that the financial factor that is the rate of return was prioritised by only 22% (almost one-fifth) of investors who considered ethical investments important for their investment portfolios.

- **Generation-wise consideration of factors by the respondents considering Socially Responsible Investing (SRI)**
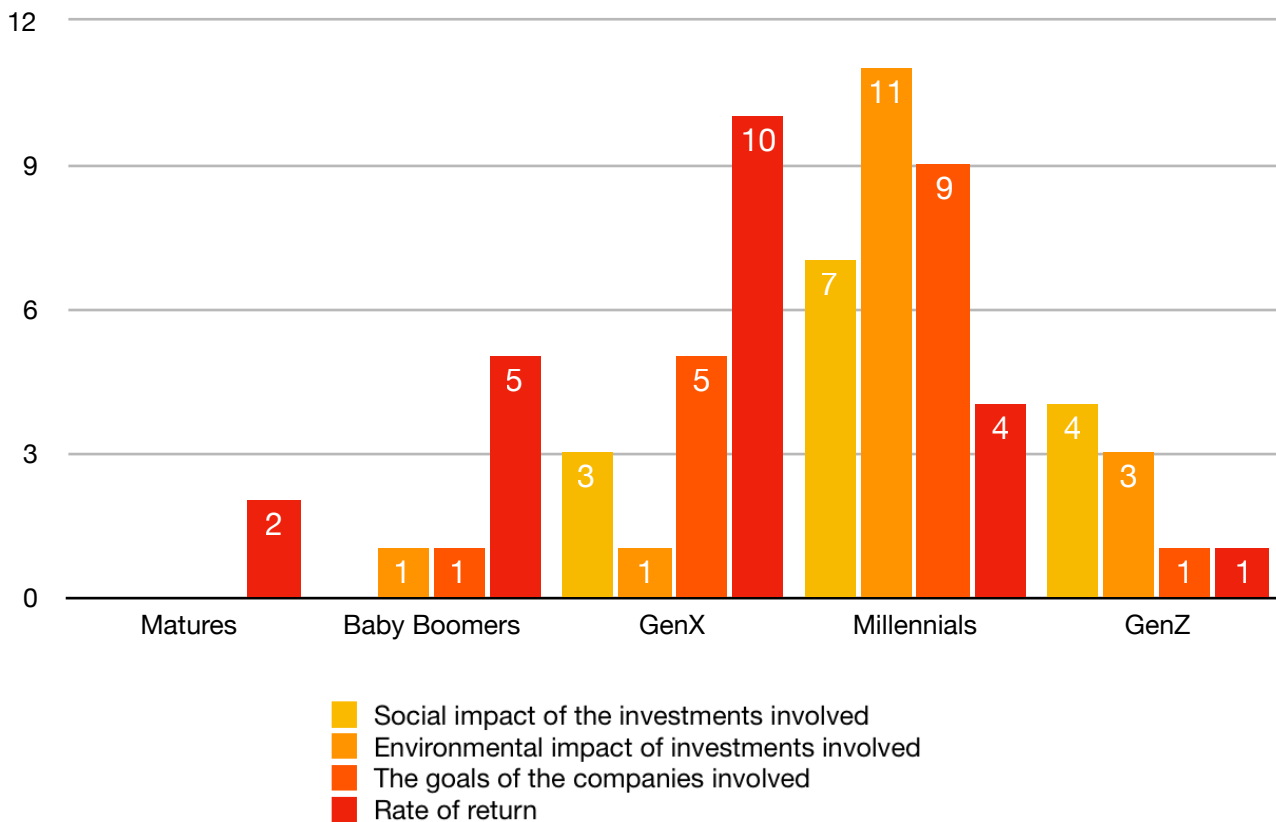

Figure 13: Plot of generation-wise consideration of factors by the respondents considering Socially Responsible Investing (SRI)

Interpretation : GenX cares the most about the rate of return when comparing two stocks. With 10 out of 33 respondents (30%) opting for the rate of return as the factor considered most by investors in that generation to make the investment decision. The one green stock which gives a better return will be chosen irrespective of their level of ESG activities.

Millennials care most about the social and environment factors over financial factors like the rate of the return of their investment. With almost 40% choosing to consider the social and environmental impact of the investments involved.

- **Values considered by respondents out of the mentioned while making Socially Responsible Investments (SRI)**
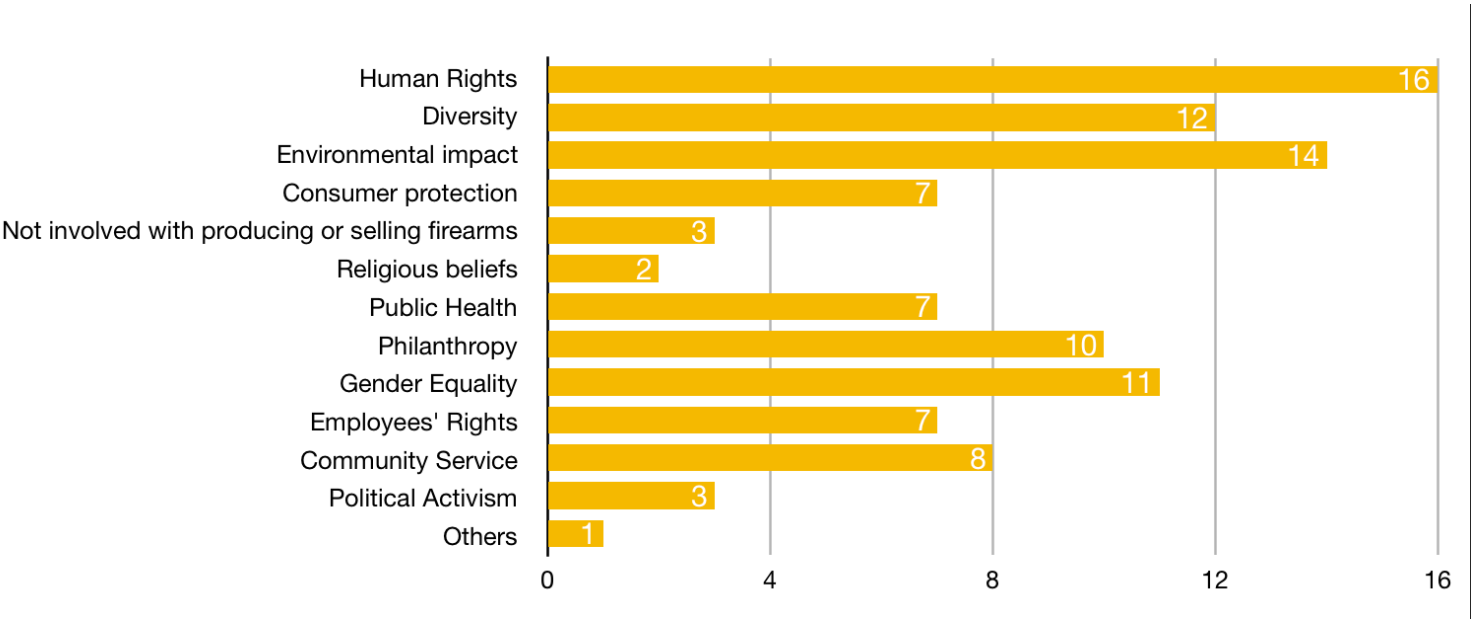
Figure 14: Plot of Values considered by respondents out of the mentioned while making Socially Responsible Investments (SRI) in terms of percentage

Interpretation: Human rights (16%) is the most important value for investors when considering to practise social responsible investments (SRI) , this is closely followed by environmental impact (14%), and diversity (12%). Political activism (3%), involvement with fire arms (3%) and religious beliefs (2%) seem to be the least considered values when opting to make SRIs.

- **Gender-wise consideration of values by the respondents considering Socially Responsible Investing (SRI)**

Figure 15 : Plot of gender-wise consideration of values by the respondents considering Socially Responsible Investing (SRI)

Interpretation : Women respondents considering the practise of SRI focus more on gender equality and human rights as values while men favour diversity.

- **Movement of respondent's investment to a different firm's stocks to gain broader access to socially responsible investment offerings despite lower return**
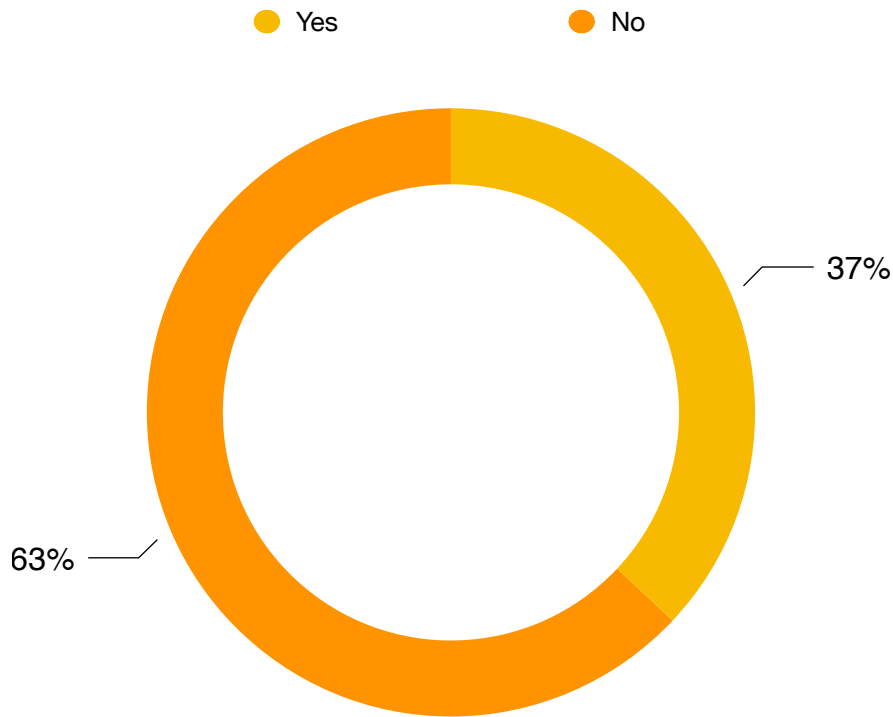
Figure 16 : Plot of Movement of respondent's investment to a different firm's stocks to gain broader access to socially responsible investment offerings despite lower return in terms of percentage

Interpretation : 37% of the respondents would willingly shift their investments to gain broader access to socially responsible investment offerings despite lower return while 63% will choose not to do so.

- **The factor that would most help in making socially responsible investing more accessible in the future according to the respondents**
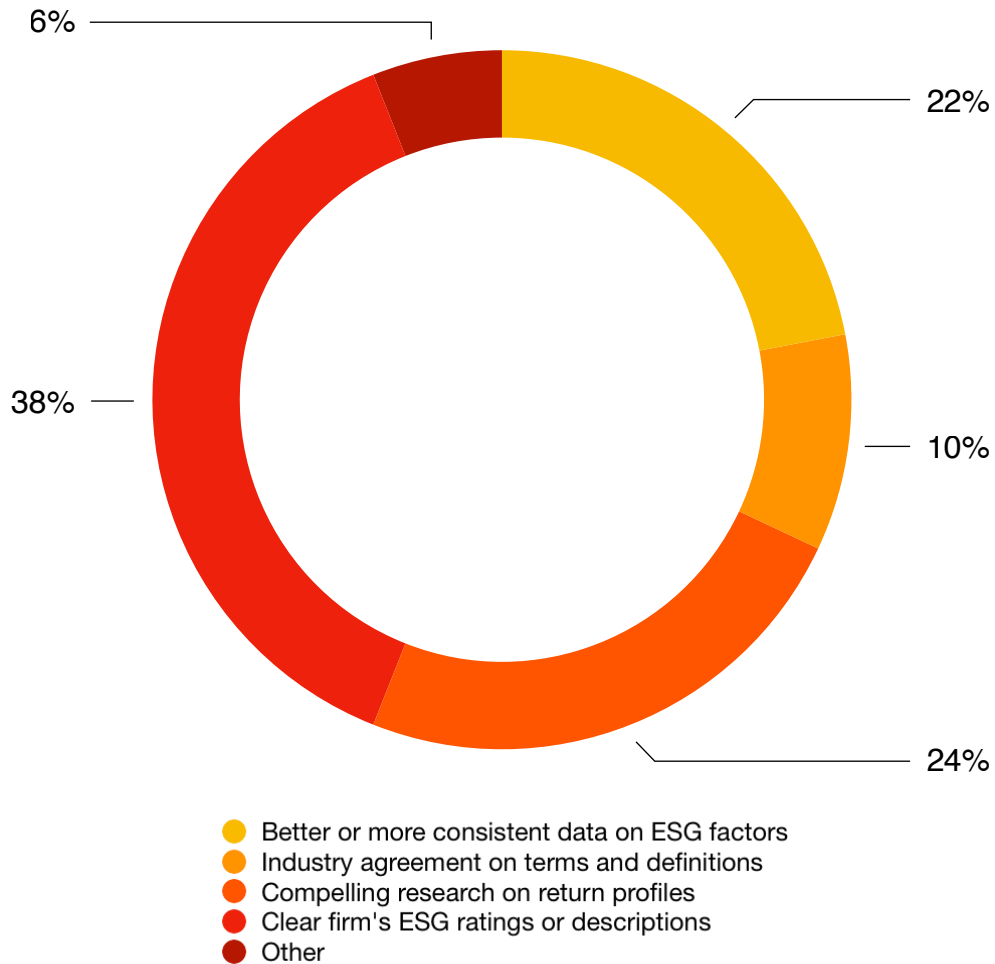
Figure 17 : Plot of the factor that would most help in making socially responsible investing more accessible in the future according to the respondents in terms of percentage

Interpretation : Most investors believe that better clarity on firm's ESG ratings or descriptions (38%) will helping making the socially responsible investing more accessible in future, followed by the belief that compelling researches on return profiles of stocks of different firms (24%) should be offered.

Conclusions and Implications of the Study

The idea of green investing has gotten extensive consideration and has prompted the arrangement of various types of green investment avenues / portfolios, mutual funds, index and so on. The most well known green subject is climate change and institutional investors have started to facilitate endeavors with prominent action groups on different ecological issues. United Nations has also specified some principles of responsible investing (UNPRI, 2006).

PROJECT 1

In this context, this project examined whether green stocks portfolios outperforms non-green stocks portfolios in Indian stock market. Using absolute rate of return we find that although green stocks portfolio generated significantly higher return than market portfolio, it did not outperform mimicking stocks portfolio. Using risk adjusted measures – Sharpe ratio, Treynor ratio and Jensen"s alpha, the results were more promising. We find that during the total study period although green stocks portfolio underperformed mimicking and blue chip stocks portfolio but it outperformed the market portfolio.

Mahapatra (1984), White (1991) and Olsson (2007) have additionally detailed comparative studies in US. Green stocks portfolio has lower systematic risk when contrasted with other non-green stocks portfolios. Further, green blue chip stocks portfolio beat non-green just as market portfolios during financial crisis and especially post financial crisis of 2008-09. It shows that green stocks portfolio can be a more secure wager for risk averse investor during times of economic and financial crisis. There is limited empirical evidence on the performance evaluation of green stocks portfolios especially in case of emerging markets. Henceforth this study adds to the related researches in the field by examining the performance of green stocks in Indian securities exchanges which is one of the most progressed developing markets.

The findings have important implications for investment decisions as investors may start investing in green firms (preferably non blue chip companies) to reap higher returns than the market and other non green stocks at considerably lower risk. Based on the study, we can also expect that for green investment promotion, more and more socially responsible mutual funds or green mutual funds would be launched in India in the near future.

PROJECT 2

This project used descriptive research method to examine the psyche of the Indian investors towards the practise of Socially Responsible Investing/ Ethical Investing/ Green Investing. The   the use of the survey method in the form of a questionnaire was done and the responses were collected and the following points were noted :

• Almost 2 in every 5 people consider making socially responsible investment (SRI) decisions.

• Looking at the gender of the respondents, women have the tendency of considering socially responsible investment decisions more than men.

• Looking at the generation wise investments in green stock, Millennials, born between the year 1980-1994, believe the most in practising in ethical investing followed by GenX, born between the year 1965-1979. With people belonging to the Matures and Baby Boomers generation having not a lot of belief in the idea of ethical investing

• Talking about the idea of socially responsible investments (SRI) still a majority of Indian investors are unclear about the idea of the importance of SRI. But almost 1 in every 3 people believe in that SRIs are an important part of investing. With more than half of Millennials believing in the idea of SRI.

• 1 out of every 2 people have around 25-49% of their investment portfolios dedicated to socially responsible investments (SRI). While an inadequate number of people (1 out of every 20) have their portfolios with none containing green stocks in them.

• By trying to list down several social, environmental and financial factors, it was observed that the majority of the investors consider social and environmental factors over financial factors, that is, the return on stocks and its past performance when considering the decision to invest.

• While GenX cares the most about the rate of return when comparing two stocks. The one which gives a better return will be chosen irrespective whether it is a green stock or not.Millennials care most about the social and environment factors over financial factors like the rate of the return of their investment.

• Looking at the gender, women respondents considering the practise of SRI focus more on gender equality and human rights as values while men favour diversity.

- It was observed that the majority of investors, that is 67% will not want to move their investment to a different firm's stocks to gain broader access to socially responsible investment offerings despite lower return.

- Looking at the factors that would help making SRI most accessible to investors in the future, it was found that most investors believe that better clarity on firm's ESG ratings or descriptions will helping making the socially responsible investing more accessible in future, followed by the belief that compelling researches on return profiles of stocks of different firms should be offered. While the factor Industry agreement on terms and definitions was seemed to have the least importance out of all the listed factors as per the knowledge.

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Annexure

1. **Green Stocks Portfolio**

   Reliance Infra ,DLF ,Cipla ,Titan Industries ,Tata Steel ,Lupin Pharmaceuticals ,Ultratech Cement ,Sesa Sterlite ,Hero Motocorp HUL,ICICI Bank ,ITC Ltd ,Infosys ,HDFC ,Tata Power ,Maruti Suzuki ,Dr Reddy"s Laboratories ,Larsen & Toubro ,Mahindra & Mahindra Bajaj Auto, Tata Motors, GAIL, Bhari Airtel, NTPC and BHEL

2. **Blue chip stocks**

   Cipla, HDFC, HDFC Bank, Hero Motocorp, HUL, Hindalco. ITC, Larsen & Toubro, Mahindra and Mahindra, RIL, Sesa Sterlite, Tata Power, Tata Motors, Tata Steel, Wipro, Dr. Reddy"s Laboratories, State Bank of India, BHEL, Infosys, Sun Pharma, ICICI Bank, Tata Consultancy Services, Axis Bank, Maruti Suzuki, ONGC, NTPC, Coal India Ltd, Bajaj Auto, Bharti Airtel, GAIL

3. **Mimicking portfolio**

   LML, Idea Cellular, Havell, Ranbaxy, Parsvnath, Orchid Chemical, IOC, TVS, Bajaj Finance, Nestle, Yes Bank, TCS,Godfrey Philips, BEML, Fortis Health, HMT, Hindustan Motors,Crompton Greave, GMR Infra, Hindalco, Eicher Motors, Suzlon Energy,Jindal Steel, Gitanjali and JK Cements

4. **Green Blue Chip stocks**

   Cipla ,Tata Steel , Sesa Sterlite ,Hero Motocorp HUL,ICICI Bank ,ITC

   Ltd ,Infosys ,HDFC ,Tata Power ,Maruti Suzuki ,Dr Reddy"s Laboratories ,Larsen & Toubro ,Mahindra & Mahindra Bajaj Auto, Tata Motors, GAIL, Bhari Airtel, NTPC and BHEL

5. **Green Non Blue Chip stocks**

   Lupin, DLF, Reliance Infra, UltraTech and Titan Industries

6. **Blue Chip Non Green stocks**

   Axis Bank, Coal India, Hindalco, HDFC Bank, ONGC, RIL. SBI, Sun Pharma. TCS and Wipro

Annexure 2

Questionnaire used for the purpose of the project

Psyche of Indian Investors Towards Socially Responsible Investing (SRI)

Socially responsible investing, or social investment, also known as sustainable, socially conscious, "green" or ethical investing, is any investment strategy which seeks to consider both financial return and social/environmental good to bring about social change regarded as positive by proponents.

* Required

Name *

Your answer

Email Address *

Your answer

Do you consider practising Socially Responsible Investment/ Ethical Investment/ Green Investment? *

○ Yes

○ No

○ Maybe

Gender *

○ Male

○ Female

○ Prefer not to say

Year of Birth *

○ Matures (Pre 1943)

○ Baby Boomers (1944-1964)

○ GenX (1965-1979)

○ Millennials (1980-1994)

○ GenZ (Post 1995)

On a scale of 1-5 how important do you think is socially responsible investing? *

	1	2	3	4	5	
Very Unimportant	○	○	○	○	○	Very Important

What is your percentage of portfolio dedicated to responsible investments ? *

○ 100% — I integrate ESG/SRI across my entire portfolio

○ 75%-99%

○ 50%-74%

○ 25%-49%

○ 1%-24%

○ I have no proactive responsible investments in my portfolio

Which the factors do you weigh in the most when you consider making Socially Responsible Investments? *

○ Social impact of the investments involved

○ Environmental impact of investments involved

○ The goals of the companies involved

○ They have a high social responsibility rating from an independent research firm

○ If they are engaged in polluting activities, such as fossil fuels or chemicals

○ If they are affiliated with producing or selling firearms

○ Past performance of the investment

○ Rate of return

○ None of the above

Which value out of those mentioned below plays the most important role while considering to make socially responsible investing in a firm's stocks? *

○ Human Rights

○ Diversity

○ Environmental impact

○ Consumer protection

○ Not involved with producing or selling firearms

○ Religious beliefs

○ Public Health

○ Philanthropy

○ Gender Equality

○ Employees' rights

○ Community Service

○ Political Activism

○ Others

Would you like to move your investment to a different firm's stocks to gain broader access to socially responsible investment offerings despite lower return? *

○ Yes

○ No

What would make socially responsible investing more accessible in the future? *

○ Better or more consistent data on ESG factors

○ Industry agreement on terms and definitions

○ Compelling research on return profiles

○ Clear firm's ESG ratings or descriptions

○ Other

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