WHAT DETERMINES THE INVESTING IN GREEN COMPANIES IN INDIA? AN EMPIRICAL ANALYSIS

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To achieve sustainable development in an organization CSR has been considered a very crucial way. The Companies Bill, 2012 has also made Indian Corporate to also work towards the objective. One of the important steps towards attaining the goal of sustainable development is the development of BSE GREENEX index in India. BSE-GREENEX is 25th dynamic index launched on the Bombay Stock Exchange. It is the first type of the benchmark index, which assess the 'carbon performance' of stocks based on purely quantitative performance based criteria. In this paper we have basically focused on the determinants of the investment in Green Companies in India from the investor's point of view. Firm level determinants i.e Profitability, Liquidity, Financial Risk, Market Risk, volatility and size have been considered. Data have been collected from BSE India and CMIE Prowess Database. The period under the study covers 5 years from 2009 to 2013.Binary Logistic regression analysis have been done using the statistical tool like SPSS and Excel. We have also done the Trend Analysis of the GREENEX Companies India to compare their performance with the Sensex as well as BSE 100.

Key Words: CSR, Greenex, Indian Stock Market, Green Investing.

Introduction

In the past few years there has been increasing awareness about the environment, social and the governance factors for determining the sustainability of the companies. In Today's time the countries all across the globe are facing sustainability challenges distressed with environmental crisis, social crisis, governance crisis & financial crisis. Hence there has been an increased emphasis on the need for making the sustainability development goals a universal objective. Companies have also started realizing the importance of moving from profit maximization goals towards long term sustainable goals which include Environment, Social and Governance factors. Accordingly, companies have started incorporating the sustainability goals into their corporate strategy disclosing their sustainability activities in order to assure their legitimacy.

In the developed economies the concept of corporate social responsibility and sustainable development has been extensively studied but in case of the developing economies this issue has not been examined much.CSR and sustainable development in the present time is the most concerned phenomenon. "India is faced with the challenge of sustaining its rapid economic growth while dealing with the global threat of climate change". Companies has started acknowledge the phenomenon. Business houses are concerned mainly about the climate change, and association of systemic as well as sector-specific risks with it. Due to the high levels of risk faced by developing countries like India, there is an immediate need to shift to a low carbon path for a rapid growth .Low carbon strategies can be implemented only if the emissions landscape across corporate and business and the impact of it on sustainable growth is defined and understood properly. One of the industry steps towards this is BSE-GREENEX Index. BSE-GREENEX is 25th dynamic index launched on the Bombay Stock Exchange. It is the first type of the benchmark index, which measures the 'carbon performance' of stocks that is based on quantitative performance criteria.

The BSE-GREENEX is a prominent step in the creation of an inclusive market which is based on mechanism for the promotion of the energy efficient practices amongst larger corporate entities in India. For the purpose of promoting the investment in Green companies in India BSE has launched BSE GREENEX on 1st October 2008.

BSE-GREENEX is the first type of an environmental friendly equity index which is publicly working on a real-time basis, thereby providing a new tool to Indian "green" retail and institutional investors enabling them to track the performance of largest and the most liquid energy efficient stocks. The index can be used for the development of green financial products such as mutual funds, ETFs and structured products.

The main objective for the presence of the separate index is to to create viable market based solutions for industries ,investors and governments, to promote energy efficient practices and encourage impact investing in economically and environmentally sustainable businesses.

The main Objective of this paper is to study the determinants of the investment in Green companies in India and to also measure performance of Green stocks portfolios vis-à-vis the market portfolios in the Indian stock Market using the monthly data of the Greenex stocks and the Market stocks from the period 2009-2013.The study finds that the among the six

Firm level determinants i.e Profitability, Liquidity, Financial Risk, Market Risk, volatility and size is used to examine the investment in green companies. Liquidity and size is found to be significant. The results of the study shows that the Green stocks portfolios outperformed the Market portfolio during the study period from the year 2009-2013.

The rest of this study is organized in the following way. Section 2 brief about the background and literature review Section 3 describes details about the data collection and methodology of the study Section 4 discusses about the empirical results, while Section 5 provides the conclusion.

II: Background and Review of Literature

With steadily increasing global awareness of sustainability, businesses of all fields have reacted by reporting their impacts on the global economy, the environment, the society, and the organization itself.

With the rising importance of environmental protection, there have been growing pressure from the government and the corporations to make responsibility for the environment an integral part of investment decision making.

There are number of studies that have examined the performance of green stocks but most of the studies related to the concept is pertained to the developed markets. In India the concept of Green Investing is not much developed but slowly and gradually it is gaining momentum. The studies that have examined the importance of environment and sustainable development is briefly discussed as follows.

Singh Ruhee (2013) have examined that since 2009 onwards in order to gain the confidence of investors companies have started working not only on their governance front but also on the environmental and social front.

Eyraud & Clements (2012) have examined the trends and macroeconomic determinants over the past decade in advanced and emerging economies. They concluded that policymakers are seeking to move toward a more green economy.

Marie (2004) in his study explicates the ethical implications of a personal natural care discourse for eco-marketing strategies, and the significance of a green consumer aesthetic for environmental consciousness in general.

Shellyana (2012) in his study concludes that consumers feel sure that the condition of the present environment is facing serious problems that affect mankind all over the world. This drives consumers to pay higher prices for eco-friendly products that they identify as high quality products.

Shan, Shyh, Tung (2006) in their study examined using primary survey that whether the performance of the green innovation brought positive effect to the competitive advantage among SME in Taiwan. This study found that the performances of the green product innovation and green process innovation were positively correlated to the corporate competitive advantage.

Derwall et al. (2005) in his study found that portfolios consisting of stocks with high environmental ratings provide substantially higher average returns than those of stocks with low ratings.

Diltz (1995) finds that environmental performance improves the portfolio performance significantly whereas social screening did not.

From the above literature review it can be concluded that most of studies found the positive impact of being environment, socially responsible on the firm performance. Since, because of limited research in this area in the emerging market, this paper will be of use to various regulators, policy makers and the investors.

III: Data & Methodology

The paper study six major firm level factors i.e Profitability, Liquidity, Size, Growth, Volatility, Financial Risk and the Market Risk for examining the major determinants for the green companies in India. The period of study is from 2099 to 2013.The data for the various firm level determinants have been collected from CMIE-Prowess data .The operational definitions of the variables used in the study is as follows.

Table 1: Operational Definition

Variables Name	Definition	Symbol	Units of Measurement
Profitability	It is defined as the percentage of profit after tax by total assets of the firm.	ROA	Percentage
Liquidity	It is defined as the ratio of current assets upon current liabilities.	CR	Ratio
Financial Risk	It is defined as the ratio of total debt upon total equity	DE	Times
Market Risk	It is a measure of systematic risk of a security or a portfolio in relation to the market as a whole	BETA	Number
Volatility	It is defined as the rate of change in the price of the security over given time period. Standard deviation of the daily stock prices has been taken as a measure of volatility of the current year.	VOL	Rupees
Size	It is defined as the total value of assets held by the firm at the end of the year.	TA	Log(Rs.Million)

For examining the determinants of Green Investment we have used Binary Logistic regression.

GREEN FIRMS=â1+â2*PROF+â3*LIQUIDITY+â4*FINANCIAL RIS+â4*MARKET RISK+â5*VOLATILTIY+â6*SIZE

In this paper an attempt has also been made to study the performance of green stocks portfolio vis-a-via market portfolio over the period of time from 1st April 2009 to 31st March 2013.The data of the monthly stock prices have been collected from CMIE prowess and also from the NSE website. (www.nseindia.com). The stock prices are converted into simple percentage returns as $(\mathbf{P_t - P_{t-1}})/\mathbf{P_{t-1}}$ and then the equally weighted portfolio of returns are derived. The proxy for risk free rate is monthly implicit yield on 91 days T-bills over the study period.

Next the descriptive statistics and portfolio beta and the following risk adjusted measures for performance evaluation.

a. Sharpe ratio: Sharpe ratio is measured as the excess return per unit of total portfolio risk. Standard deviation as a measure. It is also termed as Reward to Variability ratio. If AR_p is the average monthly portfolio return, R_F the monthly risk free return and σ_P portfolio total risk then Sharpe ratio can be calculated as-

$$\textbf{Sharpe ratio} = (AR_P - R_F)/_P \quad (1)$$

b. Treynor ratio: Treynor ratio is measured as the excess return per unit of portfolio systematic risk, which is indicated by portfolio beta ($\hat{a}_{P)}$.It assumes that the portfolio is well diversified.

$$\textbf{Treynor ratio} = (AR_P - R_F)/\hat{a}_P \quad (2)$$

c. Jensen's Alpha: Jensen Alpha is used to determine the abnormal return of a security or portfolio of securities over the expected return. The expected return is predicted by a market model, most commonly is capital assets pricing model (CAPM).. It can be calculated as-

IV: Empirical Results

The result of the study are shown in Table 2 and Table 3.In the table 2 which shows the determinants of dividends only liquidity and size is found to be significant and rest of the variables are found to be insignificant.

Table 2: Firm Level Determinants

Variables	B	Sig	Exp(B)
Profitability	.048	.226	1.049
Liquidity	-.584	.045	.558
Financial Risk	-.359	.166	.698
Market Risk	-.602	.480	.548
Volatility	.001	.664	1.001
Size	1.163	.025	3.200

The result of the portfolio performance in the following table shows that the green stocks portfolio is performing better than the market portfolio. The Average return of the greenex stocks is 2.731 as compare to BSE 100 index portfolio proxy of market stocks portfolio which is 1.341.Aslo the coefficient of variation of green stock is lower as compare to market stocks portfolio. In terms of shapre ratio and treynor ratio the Greenex stocks portfolio is providing better returns 0.258 and 1.995 as compare to Market stocks Portfolio 0.1134 and 0.793 respectively.

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

	Greenex	BSE 100 Index
Average	2.731	1.341
STD	8.474	6.991
CV	3.1023	5.213
Beta	1.094	1
Sharpe Ratio	0.2576	0.1134
Treynor Ratio	1.9953	0.793
Jensen Alpha	1.3157	0

V: Conclusions and Implications of the Study

To achieve sustainable development in an organization CSR has been considered a very crucial way. One of the important steps towards attaining the goal of sustainable development is the development of BSE GREENEX index in India. BSE-GREENEX is the 25th dynamic index launched on the Bombay Stock Exchange. It is a first type of the benchmark index, which measures the 'carbon performance' of stocks which is based on purely quantitative performance. In this paper which is an attempt to gauge the determinants of firm level variable for the the investment in green companies in India. Liquidity and size is found to be note worthy determinants. Also when measured the performance of green stocks portfolio vis –a –vis market portfolio it is found that the green stocks portfolio has better average returns , sharpe ratio and Treynor ratio as compare to the market stocks portfolio. Also the Coefficient of variation of Green stocks portfolio is lower .The result of the study have an important implication for the policy makers and investors as they can start investing in this stocks and can get better returns.

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