CHAPTER I
INTRODUCTION

The present economic scenario is exciting and witnessing a process of ever-increasing globalization and innovation in the financial markets. The financial markets and institutions have undergone significant changes keeping pace with the changing needs of market participants. Along with the rise of private finance, the financial markets are witnessing an enhanced role of National Governments through sovereign wealth funds, venture capital funds and hedge funds, thus adding new dimension to the market dynamics.

India has not remained untouched by these developments worldwide. With its growing and increasingly complex market oriented economy and increasing integration with global trade and finance, India’s financial system has also been innovated\(^1\).

In the security market, organizational innovation has been witnessed with corporatization and demutualization of all the stock exchanges. Institutional innovations have appeared in the form of emergence of regulators, self regulatory organizations and clearing corporations. More recently, market innovations have been effected through short selling, securities lending and borrowing schemes, direct market access, addressing the legal, regulatory, tax and market design issues in the development of the corporate bond market in the country, provision of a legal framework for trading securitized debt, quicker procedure for registration and operation by Foreign Institutional Investors, making Permanent Account Number as the identification number for all transactions in the securities market and new derivative products such as currency futures\(^2\).

\(^1\) www.nseindia.com
\(^2\) Ibid
Security market development is expressing the economic development of the country. Trading in money and monetary assets constitute the activity in the security market and are referred to as the capital market activities. These are based on the investors’ confidence, their return on investment, marketability and anticipation of the capital appreciation from their investment. An investor has three objectives while investing his money, namely, safety of invested money, liquidity position of invested money and return on investment. Among all investment options available, securities are considered the most challenging as well as rewarding.

Different securities carry different risk-return profile. Generally, higher risks carry higher return and vice versa. The risks may take the form of credit risk, return risk, liquidity risk, etc. After understanding the concept of investment, the investors would like to know how to go about the tasks of investment, how much to invest at any moment and when to buy or sell the securities. Every investor tries to derive maximum economic advantage from his investment activity. It is necessary to ensure that securities market operations are more efficient, transparent and safe.

However, the present market scenario seems to be quite disparaging. Portfolio managers fill their baskets on the basis of subjective evaluation of scrips. Foreign Institutional Investors are busy in pocketing profits by investing only in profitable companies. On the other hand, it is quite disheartening to find that the small investor, on whose very solid foundation the edifice of the capital market is built, is apparently relegated to the background. He is neither taken into confidence, nor accorded his due share. It must therefore be emphasized time and again that an investor very much needs an impressive return because he is the principal source of providing capital, bearing every possible risk.

---

1. 1  Risk- Return Relationship

The objective of financial investing is to earn the largest possible profit or return on investment. Investing always involves a certain amount of risk, ie, there is a chance that an investment will yield not only profit but also loss. Thus investing aims at profit maximization and risk minimization.

The return (the reward) from the investment includes both current income and capital gains (or losses) brought about by the appreciation (or depreciation) of the prices of the security. The risk is the ‘chance of loss’ or it relates to the variability of return, ie, the degree to which the return on an investment varies unpredictably. An investment, whose holding period return varies widely from period to period, is riskier than an investment whose holding period return does not change much.

There appears to be a direct correlation between return and risk, that is, the higher the return, the higher the risk. Therefore, the investor should attempt to keep the risk associated with the return proportional. Expecting excessive risk doesn’t ensure excessive return. Not all securities with a given level of return have the same degree of risk. The reason is that investors are risk-averse; they dislike risk and try to avoid it. As a result, high risk assets offer investors high returns to induce them to invest in riskier investment. The risk-return relationship indicates how much an asset’s expected return should be given its relevant risk, it also tells how an asset should be priced.\(^5\) The securities are said to be efficiently priced if the expected return on such investments are in proportion to the risk to be borne by the investors. The general idea behind it is that investors need to be compensated in two ways: time value of money and the risk.

1.2 Indian Financial System

An efficient, articulate and developed financial system is indispensable for the rapid economic growth of any country or economy. The process of economic development is invariably accompanied by a corresponding and parallel growth of financial organization. The organization of the Indian financial system, since the mid 80’s in general and the launching of the new economic policy in 1991 in particular, has been characterized by profound transformation. The fundamental philosophy of the development process in India has shifted to free market economies and the consequent liberalization, deregulation and globalization of the economy. Major economic policy changes such as macro-economic stabilization, de-licencing of industries, trade liberalization, currency reform, reduction in subsidies, financial sector reforms, privatization, disinvestment in public sector units, tax reforms and company law reforms have had far reaching impact on the structure of the corporate industrial sector in India. The evolution, reform and management of financial system is a process rather than an event. A significant component of the Indian financial system is the financial markets. They function as facilitating organization in the savings-investment processes.⁶

It is well recognized that long-term funding is the life line of the overall economic development of a country, and the capital market plays a crucial and vital role in providing this funding. With the passage of time, promise turns into prowess, enthusiasm turns into enterprise and confidence turns into a vision. From a social insular economy to a conscious capitalistic one, from an apologetic diffidence to global confidence, from choiceless conservative consumers to an insatiable middle class, from the xenophobic swadeshi to a globally acquisitive Indian Industries, India at 2010 is a Most Preferred Global Investment Destination.⁷

---

As global economy moves towards imminent recovery, India has shown extraordinary strength to bounce back with greater stability and sustainability. The road ahead has raised need for capital to foster growth. Raising capital is a strategic priority across India and the role of capital markets has assumed far greater importance and urgency.

1.3 Capital Market in India

Capital markets in India have been growing exponentially since 1992 when SEBI was established as a statutory body with the objectives to protect the interests of investors in securities and to develop and regulate security markets in India. Transparency, accessibility to information and market, level playing field for stakeholders, building and maintaining confidence in the market place and above all setting up an economic atmosphere in accessing the market for fund mobilization and allocation have been the main guiding principles for SEBI while developing the securities market in India. These principles have been implemented in practice by making participants abide by a set of prescribed rules and regulations, by transiting from merit based to disclosure based regulations, by prompting wider market participation by both investors and a variety of specialized intermediaries, through extensive use of technology and by fostering innovations of new products and processes in the market. The important outcome of these attempts are showcased in on-line trading, dematerialization, permission to FIIs and private sector mutual funds to participate in the market, robust risk management and introductions of derivative products for trading. In the process the size of the market has increased multifold, in terms of resources mobilized from primary market and mutual funds, market capitalization in both the major exchanges, turnover and FIIs investments, over the years as shown in, Table. 1.1

---

### Table 1.1

**INDIAN CAPITAL MARKET AT A GLANCE**

**FROM 1995-96 To 2009-10**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource mobilized from primary market*#</td>
<td>20804</td>
<td>6108</td>
<td>28256</td>
<td>59494</td>
<td>16220</td>
<td>57555</td>
</tr>
<tr>
<td>Resource mobilized by Mutual Funds#</td>
<td>6508</td>
<td>92957</td>
<td>839708</td>
<td>4464377</td>
<td>5426353</td>
<td>10019023</td>
</tr>
<tr>
<td>No. of listed Companies at NSE</td>
<td>422</td>
<td>785</td>
<td>970</td>
<td>1381</td>
<td>1432</td>
<td>1470</td>
</tr>
<tr>
<td>No. of listed Companies at BSE</td>
<td>5603</td>
<td>5951</td>
<td>4730</td>
<td>4887</td>
<td>4929</td>
<td>4978</td>
</tr>
<tr>
<td>Market Capitalization (BSE)#</td>
<td>572257</td>
<td>571553</td>
<td>1698428</td>
<td>5149701</td>
<td>3086075</td>
<td>6165619</td>
</tr>
<tr>
<td>Market Capitalization (NSE)#</td>
<td>401459</td>
<td>657847</td>
<td>1585585</td>
<td>4858122</td>
<td>2896194</td>
<td>6009173</td>
</tr>
<tr>
<td>Turnover#</td>
<td>227368</td>
<td>2880990</td>
<td>1666896</td>
<td>5130816</td>
<td>3852579</td>
<td>5508023</td>
</tr>
<tr>
<td>Turnover at Derivatives Segments#</td>
<td>--</td>
<td>--</td>
<td>2347053</td>
<td>3090478</td>
<td>13020482</td>
<td>17663665</td>
</tr>
<tr>
<td>Cumulative FII Investments (USD Million)</td>
<td>45433</td>
<td>13396</td>
<td>35588</td>
<td>68919</td>
<td>59081</td>
<td>89333</td>
</tr>
</tbody>
</table>

Source: Compiled from SEBI Bulletin various issues & Vol.8 (3), March 2010.

*Includes IPO and right issues only.

# Figures in Rs. Crores during the financial year, all other data is at the end of financial year.

#### 1.4 Indian Equity Market

The Indian equity market is more popularly known as the Indian stock market. It has become the third biggest after China and Hong Kong in the Asian region. The Indian stock market today is actually comprised of two key entities and over 20 other exchanges. These two primary entities are the Bombay Stock Exchange Limited and the NSE or the National Stock Exchange of India Limited.
In 1990 the BSE crossed the 1000 mark for the first time. It crossed 2000, 3000 and 4000 figures in 1992. The reason for such huge surge in the stock market was the liberal financial policies announced by the government. Sensex crossed the 5000 mark in 1999 and the 6000 mark in 2000, 8000 mark in 2005 and 20000 in 2007. The unpredictable behavior of the market gave it a tag – ‘a volatile market.’

Indian equity markets have been on a roller coaster ride since 2008. Having seen one of the sharpest and swiftest falls in their history, they gained much of the lost ground in 2010. Markets bounced back in 2010 from a very bad 2008 with recovery in macro-economic fundamentals, increased corporate activity, record foreign fund flows and increased volumes. The Indian equity markets finished 2009 with one of the best calendar year performances in 18 years and as one of the top 4 performing markets in the world. Trading activity was marked by strong volumes in both the cash and derivatives markets, improving breadth and falling volatility. It was a year of recovery for economic indicators. While industrial growth improved smartly, credit growth remained close to a 15 year low. After an excellent bull run from 2004-07, the markets witnessed a sudden and devastating collapse in 2008. Probably, 2009 will be known in the capital market history as a year of a remarkable v-shaped recovery. Last year, BSE Sensex yielded a return of around 76% Year-To-Date. Indian markets showed lots of resilience in times of unprecedented global recession and domestic slowdown.

The yearly and decadal performance of Indian equity compared with the major global equity indices are presented in Table.1.2. The change in index value during the year and the price-earning ratio of the equity markets show the volatility and return from the market. The global indices remained range-bound for the major part of December 2009 with most indices trading sideways. In India, the indices are currently trading at a one-year forward P/E of 20 times.

---

9 www.articlesmatch.com/Article/The-Stock-Broking-In-India/1526076.
Table 1.2
Performance of Indian Equity with the Global Equity

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>DOW JONES(USA)</td>
<td>11,497</td>
<td>10,428</td>
<td>9,035</td>
<td>(-)9%</td>
<td>15.42</td>
<td>16</td>
</tr>
<tr>
<td>NIKKEI 225(Japan)</td>
<td>18,934</td>
<td>10,546</td>
<td>9,043</td>
<td>(-)44%</td>
<td>16.62</td>
<td>NA</td>
</tr>
<tr>
<td>FTSE 100(UK)</td>
<td>6,930</td>
<td>5,413</td>
<td>4,562</td>
<td>(-)22%</td>
<td>18.65</td>
<td>60</td>
</tr>
<tr>
<td>DAX(Germany)</td>
<td>6,958</td>
<td>5,957</td>
<td>4,973</td>
<td>(-)14%</td>
<td>19.79</td>
<td>60</td>
</tr>
<tr>
<td>NASDAQ(USA)</td>
<td>4069</td>
<td>2,269</td>
<td>1,632</td>
<td>(-)44%</td>
<td>39.03</td>
<td>44</td>
</tr>
<tr>
<td>HANG SENG(HK)</td>
<td>16,962</td>
<td>21,873</td>
<td>15,043</td>
<td>(+)29%</td>
<td>45.40</td>
<td>23</td>
</tr>
<tr>
<td>KOSPI(Korea)</td>
<td>1028</td>
<td>1,683</td>
<td>1,157</td>
<td>(+)64%</td>
<td>45.46</td>
<td>23</td>
</tr>
<tr>
<td>BOVESPA(Brazil)</td>
<td>17,091</td>
<td>68,588</td>
<td>40,244</td>
<td>(+)301%</td>
<td>70.43</td>
<td>20</td>
</tr>
<tr>
<td>JAKARTA(Indonesia)</td>
<td>636</td>
<td>2,534</td>
<td>1,437</td>
<td>(+)298%</td>
<td>76.34</td>
<td>30</td>
</tr>
<tr>
<td>BSE SENSEX(India)</td>
<td>5,006</td>
<td>17,465</td>
<td>9,903</td>
<td>(+)249%</td>
<td>76.36</td>
<td>22</td>
</tr>
<tr>
<td>SHANGHAI(China)</td>
<td>1,368</td>
<td>3,282</td>
<td>1,881</td>
<td>(+)137%</td>
<td>79.48</td>
<td>33</td>
</tr>
<tr>
<td>COLOMBO (S.Lanka)</td>
<td>555</td>
<td>3,386</td>
<td>1,578</td>
<td>(+)510%</td>
<td>114.58</td>
<td>27</td>
</tr>
<tr>
<td>MICEX(Russia)</td>
<td>152</td>
<td>1,370</td>
<td>620</td>
<td>(+)801%</td>
<td>120.96</td>
<td>22</td>
</tr>
</tbody>
</table>


The performance of the Indian equity compared with the major Global equity indices during the last ten year period discloses that Russia gained 801%, followed by Brazil, India and China. But a reverse trend can be seen in major indices in Japan, UK and Germany.

1.5 Trading Trends in Secondary Market- BSE and NSE

Liquidity in stock markets can be measured by comparing the trading frequency of listed stocks at BSE and NSE. Table 1.3 discloses that the number of shares listed at BSE and NSE during 2009-10 were 4955 and 1453 respectively. The trading days were the same in both the exchanges. As regards the number of shares traded in BSE, it was 2548 in 2005-06, and 2999 in 2009-10. In NSE it was 928 in 2005-06, and 1320 in 2009-10. The number of trades during the period
in both the exchanges increased twice from 2005-06 to 2009-10. The annual turnover in both the exchanges also doubled in five years from 2005-06 to 2009-10.

### Table 1.3
**Trading Trends in BSE and NSE**

<table>
<thead>
<tr>
<th>Year</th>
<th>Company's Listed</th>
<th>Trading Days</th>
<th>Shares Traded</th>
<th>Trades (Lacs)</th>
<th>Turnover (Cr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>BSE</td>
<td>4781</td>
<td>251</td>
<td>2548</td>
<td>2,640</td>
</tr>
<tr>
<td></td>
<td>NSE</td>
<td>1069</td>
<td>251</td>
<td>928</td>
<td>6,089</td>
</tr>
<tr>
<td>2006-07</td>
<td>BSE</td>
<td>4821</td>
<td>249</td>
<td>2641</td>
<td>3,462</td>
</tr>
<tr>
<td></td>
<td>NSE</td>
<td>1228</td>
<td>249</td>
<td>1114</td>
<td>7,847</td>
</tr>
<tr>
<td>2007-08</td>
<td>BSE</td>
<td>4887</td>
<td>251</td>
<td>2709</td>
<td>5,303</td>
</tr>
<tr>
<td></td>
<td>NSE</td>
<td>1381</td>
<td>251</td>
<td>1244</td>
<td>11,727</td>
</tr>
<tr>
<td>2008-09</td>
<td>BSE</td>
<td>4929</td>
<td>243</td>
<td>2559</td>
<td>5,408</td>
</tr>
<tr>
<td></td>
<td>NSE</td>
<td>1432</td>
<td>243</td>
<td>1277</td>
<td>13,650</td>
</tr>
<tr>
<td>2009-10*</td>
<td>BSE</td>
<td>4955</td>
<td>184</td>
<td>2999</td>
<td>4,694</td>
</tr>
<tr>
<td></td>
<td>NSE</td>
<td>1453</td>
<td>184</td>
<td>1320</td>
<td>13,046</td>
</tr>
</tbody>
</table>


* From April to December

1. 6 **Impact of Global Recession on Indian Stock Market**

The recession in the US market and the global meltdown termed as global recession have engulfed complete world economy with a varying degree of recessional impact. It is diversified world over and can be observed from the very fact of falling stock market. In the globalized market scenario, the impact of recession at one place or industry or sector peculates down to all the linked industry and this can be truly interpreted from the current global market situation which is still not in control in spite of various measures taken to fight back the recession in the market. The badly hit sector is the financial sector, and the major issue being the ‘liquidity crises’ in the market.
Various steps have been taken by RBI to curb the present recession in the economy and counteract the prevailing situation. The sudden drying-up of capital inflows from the FDI which was invested in Indian stock markets for greater returns visualizing the potential higher returns flying back, is continuing to challenge liquidity management. At the heart of the current liquidity tightening is the balance of payment deficit, and an attempt to mobilise NRI deposit would help in some small way to tide over the precarious situation. To curb the liquidity crises, the RBI continues to initiate liquidity measures as long as the current unusually tight domestic liquidity environment prevails. The immediate step to curb this lies in lowering the interest rates and reduction of PLR. However, the big-picture story remains unchanged – all countries in the world with current account deficits and strong credit cycles find it difficult to bring down cost of capital in the current environment. India is not an exception\textsuperscript{11}.

During the period 2008-09, the Indian securities market also witnessed a slowdown, in line with global scenario. The resource mobilization through primary market was Rs.6,588,920 million (US $ 129,320 million) crore down by 13.80% in 2008-09 from Rs.5,789,720 (US $ 144,852) million in 2007-08. In all 21 IPOs came to the market compared with 85 in 2007-08. Due to slack in liquidity conditions, the resources raised by India Inc. through euro issues also saw a sharp fall. In the secondary market, all stocks saw major correction in their prices. Even redemptions by mutual funds increased on a large scale and foreign institutional investors pulled out money from the Indian markets. In total, the recession turned down the growth process and set the minds of economists and others for finding out the real solution to sustain the economic growth and stability.

1. 7 Volatility of Indian Indices

In a security market, prices or returns show fluctuations due to changes in fundamental factors of firm, investor endowments, tastes or attitudes towards risk.

etc. The volatility of the major stock market indices, Sensex and Nifty, during the last years, is presented in Table 1.4.

**Table 1.4**

Volatility of BSE and NSE Indices

<table>
<thead>
<tr>
<th>Month / Year</th>
<th>BSE Sensex</th>
<th>BSE 100</th>
<th>Dollex-200</th>
<th>S&amp;PCNX Nifty</th>
<th>CNX Nifty Junior</th>
<th>S&amp;P CNXDefty</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-06</td>
<td>1.03</td>
<td>0.98</td>
<td>0.99</td>
<td>1.04</td>
<td>1.13</td>
<td>1.44</td>
</tr>
<tr>
<td>2006-07</td>
<td>1.75</td>
<td>1.76</td>
<td>1.86</td>
<td>1.77</td>
<td>2.05</td>
<td>1.89</td>
</tr>
<tr>
<td>2007-08</td>
<td>1.93</td>
<td>2.04</td>
<td>2.2</td>
<td>2.02</td>
<td>2.14</td>
<td>2.2</td>
</tr>
<tr>
<td>2008-09</td>
<td>2.8</td>
<td>2.71</td>
<td>2.97</td>
<td>2.66</td>
<td>2.8</td>
<td>3.01</td>
</tr>
<tr>
<td>2009-10</td>
<td>2.07</td>
<td>2.04</td>
<td>2.32</td>
<td>2.09</td>
<td>2.17</td>
<td>2.46</td>
</tr>
<tr>
<td>2010-11 *</td>
<td>1.0</td>
<td>1.0</td>
<td>1.2</td>
<td>1.0</td>
<td>1.1</td>
<td>1.4</td>
</tr>
<tr>
<td>Apr-10</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
</tr>
<tr>
<td>May-10</td>
<td>1.5</td>
<td>1.5</td>
<td>2.0</td>
<td>1.6</td>
<td>1.6</td>
<td>2.3</td>
</tr>
<tr>
<td>Jun-10</td>
<td>1.1</td>
<td>1.2</td>
<td>1.3</td>
<td>1.2</td>
<td>0.9</td>
<td>1.7</td>
</tr>
<tr>
<td>Jul-10</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
<td>0.4</td>
<td>0.4</td>
</tr>
<tr>
<td>Aug-10</td>
<td>0.7</td>
<td>0.6</td>
<td>0.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.9</td>
</tr>
<tr>
<td>Sep-10</td>
<td>0.8</td>
<td>0.7</td>
<td>0.8</td>
<td>0.8</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>Oct-10</td>
<td>1.1</td>
<td>1.1</td>
<td>1.2</td>
<td>1.1</td>
<td>0.9</td>
<td>1.3</td>
</tr>
<tr>
<td>Nov-10</td>
<td>1.3</td>
<td>1.3</td>
<td>1.5</td>
<td>1.3</td>
<td>1.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Dec-10</td>
<td>0.9</td>
<td>1.0</td>
<td>1.4</td>
<td>0.9</td>
<td>1.4</td>
<td>1.3</td>
</tr>
</tbody>
</table>


* As on December 31, 2010.

Note: Volatility is calculated as the standard deviation of the returns in indices for the respective period.

1.8 The Research Problem

For the smooth and frictionless development of the economy, a healthy and active stock market, free from extraordinary volatility and irrational behavior of the players, is required. Though Indian capital market is tremendously growing, it often goes beyond a healthy level showing the symptom of a gambling market. The volatility in the stock market seems to be not proportionate when compared to those in other countries. Despite the measures of control over hyper volatility
exercised by the stock market authorities as a part of the self surveillance measure and by the SEBI, market volatility goes beyond a reasonable level. This is because of irrational activities of the operations in the capital market.

Estimating the required return on investment to be made in the stock market is a challenging job before an ordinary investor. Different market models and techniques are being used for taking suitable investment decisions. The past behavior of the price of a security and the share price index play a very important role in security analysis.

The capital market in India over the years has gone through various structural changes. All these changes are strictly introduced and implemented by the SEBI, Government etc. These structural modifications are aiming at one side to promote the inflow of funds in a transparent way and at the other to protect the interest of the genuine investors. Naturally, investors compare the return of their investment with other types of investment. Sometimes their investment here may yield a higher return than that from others and sometimes not. If there is variability in return over the years, it is termed as risk. Capital Market Theory suggests that only non-diversifiable risk would be rewarded as return. So, there exists a line off between risk and return.

In the recent past a number of studies relating to the efficacy of the stock market have been conducted by the researchers. An insight into various facets of risk-return relationship has been an unexplored area. Therefore, an attempt has been made to carefully gauge the important risk variables, having influence on risk-return framework much needed for the setting of equilibrium of prices in capital asset markets. In this regard, the present study tries to establish the possible risk-return relation in the Indian capital market by analyzing the influence of risk variables on security return and also the tendency of beta as a measure of estimating return.
1.9 Scope of the Study

The present study intends to judge the relationship between risk and return in the Indian equity market. The scope of the present study is limited to the constituents of BSE500. The testing of the relationship between the risk and return is taken into consideration. The distributional risk variables that have direct relation with the probability distribution of returns, namely, variance of the return, the skweness of the return and kurtosis of the return distribution and the security-market return correlation with average rate of return have been taken into account on the one hand. The financial risk variables, namely, liquidity ratio, leverage ratio, dividend payout ratio, growth in assets, sales, earnings, size and earnings per share have been examined on the other. The yearly beta values are considered to measure the importance of risk by testing the stationarity of beta coefficients in the market. The informational efficiency of the Indian stock market is tested in weak form only.

1.10 Rationale of the Study

Stock market research is essential to good financial and investment decision making. By doing research, it will be able to determine the market price and trading volume for the stock, the strengths and weaknesses of the underlying company, the high and low prices for the stock over both short and extended time frames, the profits and earnings for the company, and much more.

To determine what stocks and portfolios are right, an investor must know the level of risk that the stock carries. He must gather right information on the current financial position of the company, performance of the stock on the market, market condition that would affect the value of the stock either positively or negatively. The point of investing in the stock market is to maximize potential returns, but risk management should also play an important role in any investment strategy. Stock market research will allow the investors to weigh the possible risks of a stock against the possible rewards the stock may offer.
In the context of efficient capital markets, there is no overvalued or undervalued asset. The expected return on a security bears a linear relationship to the differential between expected return on market portfolio and risk free rate times the beta, the systematic risk. In an efficient market, therefore, no security would offer a return on sustained basis in excess of that warranted by its inherent risk factors. The expected return on a security is, in fact, in proportion to its risk content as perceived by the market.

The efficiency aspect of the stock market research has drawn the attention of investors, academics, portfolio managers, portfolio analysts, governments and regulators as well. The present study in this context is relevant in explaining the parity between risk and return in the Indian equity market. It will definitely help the stakeholders to take appropriate decision regarding the time of investment, horizon of investment, quantum of investment and even portfolio selection.

1.11 Objectives

The objectives of the study are stated as follows:

(1) To examine whether distributional risk variables, namely, the variance of the return, the skewness of the return, the kurtosis of the return distribution have any significant relationship with average rate of return on equity shares;

(2) To examine whether security-market return has any significant relation with average rate of return on equities;

(3) To test whether financial risk variables, namely, liquidity, leverage, dividend pay-out, growth related variables like, assets, sales, earnings, size and earnings per share have any significant role in determining the average rates of return on equities;

(4) To identify whether market related risk, Beta, is an appropriate measure of risk or it is proxying for CAPM by testing its stationarity over the period; and

(5) To ascertain the informational efficiency of the Indian stock market in explaining the return behavior in weak form.
1.12 Hypotheses

Based on the above objectives, the study has formulated the following hypotheses- 

**H1:** There is an association between distributional risk variables and average rate of return on equities.  

**H2:** There is a positive relation between security-market return and average rate of return on equities.  

**H3:** The financial risk variables have significant relation with average rate of return on equities.  

**H4:** The market risk, beta, exhibits stationarity over time in Indian stock market.  

**H5:** There is a positive relation between systematic risk and average rate of return in the Indian stock market.  

**H6:** There is randomness in the market returns in the Indian stock market.  

**H7:** There is randomness in the security returns in the Indian stock market.  

**H8:** The Indian stock market is efficient in weak form.  

1.13 Period of Study

In order to conduct the study for finding answers to the objectives set, a 14 year period from January 1996 to December 2009 was selected.

1.14 Methodology

Since the study is principally intended to examine the explanatory power of different risk variables on average security returns, the constituents of BSE500 Index has been considered. This index covers a wide spectrum of industries and gives representation to companies of varying levels of size and trading activity. The BSE 500 index represents 90 percent of BSE’s total market capitalization and 70 per cent of BSE’s total turnover. Based on the availability of monthly share prices for a continuous period of 14 years without interruption, the financial statements for a continuous period of 16 years, a screening has been done on these to avoid the companies whose continuous data is not made available. The
remaining 120 companies have been listed in serial order and out of which 60 companies (Appendix.1) selected by simple random sampling (Random number table-remainder approach) for the study.

1.14.1 Data Base

Since the very objective of the present study is testing the relationship between risk and return in the Indian equity market, the required data has been collected from ‘PROWESS’, a leading financial software of CMIE. The month-end adjusted share prices data for a 14 year period from January 1996 to December 2009 has been collected. These are adjusted for capitalization changes such as bonus, rights and stock splits. The data obtained has been used to construct monthly return series. Only capital gain component has however been used in estimating returns, as the dividend information for the selected companies are ignored because it should not pose a serious estimation bias in the light of the fact that Indian companies declare dividend at the end of the year.

The accounting information of the selected companies for the risk-return analysis has been obtained from the company final statements.

The BSE100 index has been used as a surrogate for market proxy, aggregate economic wealth. It is a broad based and value weighted stock market proxy, following globally accepted free-float methodology, constructed on the lines of S&P, USA.

1.14.2 Data Analysis and Tools Used

The data collected for the study has been tabulated, analyzed and presented with the help of appropriate tools of analysis. Mathematical and statistical tools such as percentages, ratios, averages, correlations, regressions, K-S tests, run tests, auto correlation and auto regression tests have been used. The risk-return relationship on equity shares in India is examined by analyzing the relationship between average rate of return and distributional and financial risk variables,
security-market return correlation and average rate of return and the predictive ability of beta. Moreover, the study analyses the market efficiency also.

For the above mentioned purpose, the data is mainly analyzed in four stages. In the first stage, the relationship between average rate of return and distributional risk variables are studied by using Multiple Regression analysis with step-wise variable selection method, where average rate of return on equity as the dependent variable and distributional risk variables as the independent. To test the relation between average rate of return and security-market return correlation, both linear and quadratic regression equations are used.

In the second stage, the relationship between average rate of return and financial risk variables are tested by applying Multiple Regression analysis with step-wise variable selection method, where average rate of return on equity as the dependent variable and financial risk variables as independent.

In the third stage, the predictive ability of the market risk, beta, is tested with its stationarity by using Regression equations where ‘time’ and ‘dummy’ variables are introduced. It is done for the whole period of study and also for different sub-periods of five and four years respectively.

Lastly, in order to test the market efficiency, the normality and randomness of the return series, both monthly market return and monthly security returns, are considered. First, monthly market return during the whole period of study and at different sub-periods of five and four years respectively is analyzed. Secondly, monthly security return of the sample firms during the entire period is also analyzed. Parametric Tests like Auto Correlation tests, Auto Regression tests, Non-Parametric Tests like Kolmogorov-Smirnov Goodness of fit test and Run test are applied. The Ljung-Box statistics are used to test for linear independence in the returns. The study uses SPSS Ver.13.0 package for the entire statistical analysis.
1.15 **Variables used in the Study**

The variables considered for the present study are:

1. Distributional risk variables including variance of the return, skewness of the return and kurtosis of the return distribution.
2. The correlation between security return and market return.
3. Financial risk variables including liquidity ratio, leverage ratio, dividend payout ratio and growth variables like, growth in assets, sales, earnings, size and earnings per share.
4. Beta values.
5. Individual security return.
6. Average security return.
7. Monthly market return.

1.16 **Conceptual Definition of Variables Used**

Some of the important concepts used in the study are briefly explained to avoid the ambiguity in understanding them:

1.16.1 **Distributional Risk Variables**

Those that are directly associated with the probability distributions of return of a firm’s equity shares such as the Variance of returns, the Skewness of returns and the Kurtosis of returns distribution are looked into.

- The Variance of the return distribution, is defined as follows:

\[
\mu_2 = \frac{1}{n} \sum_{i=1}^{n} (R_i - \bar{R})^2
\]

- The Skewness of the return distribution can be defined as follows:

\[
\beta_1 = \frac{\mu_3}{\mu_2^{3/2}}
\]
where,

$$\mu_3 = \frac{1}{n} \sum_{i=1}^{n} (R_i - \bar{R}_i)^3$$

- The Kurtosis of the return distribution can be defined as follows:

$$\beta_2 = \frac{\mu_4}{\mu_2^2}$$

where,

$$\mu_4 = \frac{1}{n} \sum_{i=1}^{n} (R_i - \bar{R}_i)^4$$

1.16.2 Security-Market Return Correlation

It is the relation between each security’s return with the market return. It is an indication of market risk, which can be measured as:

$$r_{ms} = \frac{\sum_{i=1}^{14} (R_i - \bar{R}_i)(R_{m} - \bar{R}_m)}{\sigma_s \sigma_m}$$

where, $\sigma_s$ = SD of security return  
$\sigma_m$ = SD of market return  
$R_i$ = Annual rate of return to the firm’s shareholder  
$R_m$ = Average annual return of all firms in the sample.

1.16.3 Financial Risk Variables

Those variables which are related to the firm’s financial policies, namely, the Liquidity Ratio, Leverage Ratio, Dividend Payout Ratio, Growth of the firm in Assets, Sales, Earnings, Size and Earnings per Share are also considered.
• Liquidity of an organization is generally measured in terms of cash flow situation. It is ascertained through working out a ratio between total current assets(CA) and total current liabilities(CL).

\[
\text{Liquidity Ratio} = \left( \frac{CA}{CL} \right)_t
\]

• The Leverage ratio (Debt-Equity) indicates the proportionate size of debt component in the capital structure. It is expressed as ratio between total debt mobilized by the enterprise and the total equity which includes the undistributed reserves and surplus.

\[
\text{Leverage Ratio} = \left( \frac{DEBT}{EQUITY} \right)_t
\]

• The Dividend Payout Ratio would be the proportion of the amount paid as dividend out of earnings made per share annually. It is generally expressed as a ratio of dividend per share (DPS) to earning per share(EPS).

\[
\text{Dividend Payout Ratio} = \left( \frac{DPS}{EPS} \right)_t
\]

• Growth in Assets is measured in terms of the linear increase in net assets over a period of three years.

\[
GA_t = \frac{(NA_t + NA_{t+1} + NA_{t+2})}{3}
\]

• Growth in Sales is measured as the linear increase in annual turnover over a period of three years.

\[
GS_t = \frac{(AS_t + AS_{t+1} + AS_{t+2})}{3}
\]
• Growth in Earnings is measured as linear increase in net profit over last three years.

\[ GE_t = \frac{(NP_t + NP_{t+1} + NP_{t+2})}{3} \]

• Growth in Size of an organization could be measured through the total capital employed in various fixed assets and other assets. Therefore, the total asset balances are considered as the size.

\[ SIZE = \text{Total Assets of the firm during the year} \]

• Growth in Earnings Per Share of the company is considered as the portion of profit allocated to each outstanding share of common stock. It is an indicator of a company’s profitability.

\[ \text{EPS} = \frac{\text{Net Income – Dividends on Preference Stock}}{\text{Average Outstanding Shares}} \]

1.16.4 Beta Value

A stock beta (\( \beta \)) is used to describe the relationship between the individual stock versus the market. Stock beta is used to measure the risk of a security versus the market by investors. The regression equation used to compute beta values (yearly) for each of the 60 scrips for the period is:

\[ R_{it} = \alpha + \beta R_{mt} + \nu_{it} \]

where,

- \( R_{it} \) Individual security return at time period ‘t’
- \( \alpha \) Constant term
- \( \beta \) Beta value of the security
- \( R_{mt} \) Market return at time period ‘t’
- \( \nu_{it} \) Error term.
1.16.5 Returns

The variable ‘returns’ includes monthly individual security return, average annual rate of return and monthly market return.

• Individual Security Return

The monthly rate of return of the security is calculated as:

\[ r_{it} = \frac{P_{it} - P_{it-1}}{P_{it-1}} \]

where, \( r_{it} \) is the rate of return of ‘i’th security at time ‘t’

\( P_{it} \) is the closing price of the ‘i’th security at time ‘t’

\( P_{it-1} \) is the beginning price ‘i’th security at time ‘t’

\( P_{it}-P_{it-1} \) is the amount of capital gain of ‘i’th security at time ‘t’

• Average Rate of Return

The annual average rate of return of the securities under study is calculated as:

\[ \bar{r} = \frac{1}{12} \sum_{t=1}^{12} r_{it} \]

• Market Return

The monthly return of the entire market is calculated as:

\[ r_{mt} = \frac{B_t - B_{t-1}}{B_{t-1}} \]

where \( r_{mt} \) is the market return

\( B_t \) is the closing index value

\( B_{t-1} \) is the beginning index value

1.17 Limitations of the Study

The present study is also not free from limitations. The stock market is highly volatile. Even a minute shake may create very large impact in the style of trading.
and lead to deep fall in the volume. Keeping it in mind, the attempt may have the following drawbacks.

1. The study is limited to distributional and financial risk variables to test the risk-return relationship on equity shares in India.
2. The analysis considered monthly security returns only.
3. In CAPM, a perfect efficiency of stock market is required, but the present study concentrates only on weak form market efficiency.
4. No attempt is made for pricing of securities.
5. The yearly beta is computed for testing the stationarity of beta.

1. 18  Presentation of the Study

The presentation arrangement of the present study consists of eight chapters. Chapter One gives an introduction to Indian capital market, risk-return relationship, Indian financial system, capital market in India, Indian equity market, impact of global recession on Indian market, trading trends in secondary market-BSE and NSE, volatility of indices, the research problem, scope of the study, rationale of the study, objectives, hypotheses, period of study, methodology, data base, data analysis and tools used, variables used in the study, conceptual definition of variables used and limitations of the study. Chapter Two deals with theoretical background of risk-return relationship. Chapter Three explains a review of earlier studies relating to risk-return relationship, CAPM, Beta stationarity and Market efficiency. Chapter Four made up with analysis and interpretation of risk-return relationship, average rate of return and distributional risk variables, and also security-market return with average rate of return. Chapter Five deals with analysis and interpretation of risk-return relationship, average rate of return and financial risk variables. Chapter Six presents the results of beta stationarity tests over the study period. Chapter Seven explains the tests of efficiency of the Indian stock market in weak form and Chapter Eight narrates the summary of findings, conclusions and recommendations of the study.