BENCHMARKING THE MARKET VOLATILITY FOR ANALYSIS OF THEIR PERFORMANCE

Dr.(Smt.) VEDA D. MALAGATTI, MBA, ICWAI-INTER, PhD in MBA,
Assistant Professor,
Chetan Business School of Management & Research, Srinagar,
Unkal,Hubballi – 580031
Karnataka State, India.
veedadmalagatti@gmail.com

Abstract

In a few years Mutual Fund has emerged as an effective tool ensuring one's returns for their invaluable financial portfolio. Mutual Funds have not only contributed to the India's growth story but have also helped families tap into the success of Indian Industry in the form of collective investment that pools money from many investors and invests the money in stocks, bonds, short-term money market instruments, and/or other securities. In order to help the small investors, Mutual funds provide an easy way for small investors to make long-term, diversified, professionally managed investments at a reasonable cost.

The study is focused on the main purpose and objective basically to explain in layman's language about the history, growth and pros and cons of investing in mutual funds. It summarizes the main findings and conclusions about measuring the performance of SBI's Blue Chip and ICICI's Blue Chip fund by using regression and correlation with their respective Market Returns which is a Benchmarking for them. Market volatility which is one of Market risk is uncontrollable and the onus is to estimate it performance by Benchmarking to tailor-off the higher rate of risk. The appropriate and prospective forecasting for better risk adjustment decisions are proved by using Pearson Test. Chi-Test provides us the clear picture indicating that volability is higher for SBI Blue Ship and hence investment in ICICI Blue Chip is recommendable from comparative predictions.

Keywords: Benchmarking, regression, correlation, returns, risk.

I. INTRODUCTION

In simple words of Diva Singh Rajput, Mutual fund is a systematic investment mechanism for pooling the resources with an objective allocated to investor regarding the advantage of investment opportunities. She emphasises on cross-sectional Investment in wider range of industries and sectors to control risk of securities. Akshay Yagiakki sources out the way of Diversification to reduce the risk because all stocks are not risky in same proportion and similarly do not earn same rate of interest at a time.may not move in the same direction in the same proportion at the same time. Mutual fund which is a diversified and professionally managed basket of securities offer an opportunity to common man for suitable returns as these investments are provided at relatively reasonable price. Thus, a Mutual fund works on the principle of "A small

drop of water makes a big ocean".

Nitesh Tandon too specifies that one of the objective sought is to provide an opportunity to invest without much economical distress. Mutual fund cater to the needs of the investor by earning a regular income and consistent growth with least variance for them.

In India wide variety of Mutual Fund Schemes exists to cater to the needs such as financial position, risk tolerance and return expectations, etc. Thus mutual funds has variety of flavors, being a collection of many stocks for an investor to choice for better Investment decision making.

Investment Strategies Under Mutual Fund:

01. Systematic Investment Plan:

Under this, a fixed sum is invested by an investor each month on a fixed date of a month. The payment is made through post dated cheques or direct debit facilities. The investor later gets fewer units when the NAV is high and more units when the NAV is low. This is called as the benefit of *Rupee Cost Averaging* (RCA).

02. Systematic Transfer Plan:

Under this, an investor invest in debt oriented fund and give instructions to transfer a fixed sum, at a fixed interval, to an equity scheme of the same mutual fund.

03. Systematic Withdrawal Plan:

Under this, if investor wishes to withdraw from a mutual fund then he can withdraw a fixed amount each month.

Risk Associated With Mutual Funds:

Mutual Funds do not provide assured returns. Their returns are linked to their performance and all these investments involve an element of risk. The basic principle at the cornerstone of investing is that "the greater the risk one averse, the greater the potential reward they gains". So, higher returns will be associated with willingness of the investor to accept more volatility. Volatile(Var) is the risks that occurs constantly overtime that are in different forms due to up and down activities in the market. Many number of factors like inflation, fluctuation in interest rate, currency exchange rate, changes in Government policies or economic conditions etc. It is this variability, uncertainty and potential loss that would cause investors to study deeply about the behaviour of Fund Scheme.

Risk has two sides: it causes the value of investments to fluctuate, but it is precisely the reason one can expect to earn higher returns. The following are certain types of risks which are closely associated with all kinds of investments including investments in mutual funds:

- Market Risk (systematic risk)
- Inflation Risk
- Credit Risk
- Interest Rate Risks
- Exchange risk
- Investment Risks
- Changes in the Government Policy

- Other Risks: Effect of loss of key professionals and inability to adapt business to the rapid technological change are also considered as risks associated with investments.

II. LITERATURE REVIEW

- Mishra el al. (2002) measured the mutual fund performance using only those states in which return is below a pre-specified "target rate" like risk-free rate. Fernandez (2003) evaluated index fund implementation in India where tracking error of index funds in India was measured.

- **Sowmya Guha, Deb & Ashok Banerjee (2009)** in their article, three parametric models random walk, moving average, exponentially weighted moving average, and one non-parametric model were employed to predict the VaR of a sample of equity MFs in India. The statistical tests of the models based on the framework indicated that random walk model & moving average model suffered from a downward bias and errs by underestimating the VaR frequently.

- **Soumya Guha Deb, Ashok Banerjee and B.B. Chakrabarti (2009)** studies evaluated equity mutual fund in India using quadratic optimization of an asset class factor model proposed by William Sharpe and analysis of the relative performance of the funds with respect to their style benchmarks.

- **Dr. Kavita Chavali (2009)** has done an empirical study by selecting 5 sectors and diversified portfolio composition of ELSS. It proved that ELSS can be considered for investment because of dual advantage of tax savings and high returns but the right choice has to be made by the investor who matches the risk appetite.

- **Dr. Hitesh S. Viramgami (2009)** made an attempt to analyze total resource mobilization by the mutual funds industry for eight year (2001-2007). The study shows that 70% of the resources mobilized are from liquid / MM Schemes, growth Schemes, ELSS and income funds offered by private sector mutual funds share of public sector has decreased to 8.81% over the study period.

- **Suppa-Aim and Teerapan (2010)** specifically investigates unique characteristics of mutual funds in Thailand where authors scrutinized and explored the impact of liquidity on performance measures. Net cash flows, in general, have no impact on fund performance. The study found that the tax-benefit funds perform significant better than general funds. The tax-benefit fund managers are more passive, more sensitive to cash flows and contain slightly more illiquid stocks in their underlying assets.

- **Dr. Susheel Kumar Mehta (2010)** had taken 10 UTI and 10 SBI mutual funds and analyzed their performance. Consistency is observed for risk. UTI money market mutual funds dividend & SBI magnum income plus fund-saving plan growth are found to be least risky among selected schemes of UTI & SBI. As superior stock selection is concerned none of the portfolio Manager selected UTI & SBI during 2006-07.

- **Dr. V. Rama Devi and Nooney Serien Kumar (2010)** evaluated the performance of Indian & Foreign equity Mutual funds on risk adjusted measures suggested by Sharpe, Treynor & Jensen.

- **Lakshmi N (2010)** analysis of performance of newline seven schemes showed that, all the sample schemes outperformed the newline market in terms of absolute returns to over total newline risk.

- **Ms. Nidhi Walia, Dr. (Ms) Ravi Kiran** in the paper studied that ever improved technologies and deregulation have significantly contributed towards improving the operational efficiency of mutual fund managers yet the investors risk perception gap is widening. In spite of the phenomenal growth in the security market, the individual investors prefer investments according to their risk preference; they consider seeking multiple factors and diversified information before executing some kind of investment transaction.

- **Sanjay Kumar Mishra and Manoj Kumar (2011)** proved that the impact of subjective knowledge on actual investment behavior is not significantly different from that of objective knowledge.

- **Sathya Swaroop Debasish** attempted to study the performance of selected schemes of mutual funds based on risk-return relationship models and measures. For this purpose, he studied a total of 23 schemes offered by six private sector mutual funds and three public sector mutual funds over the time period of 13 years. The overall analysis finds Franklin Templeton ratio and UTI being the best performers and BSL, HDFC and LIC mutual funds showing poor below-average performance.

- **Deepak Agarwal (2011)** in the study revealed that the performance is affected by the investment habits of the people and the confidence and loyalty on the other side that impacts the performance of the Mutual Fund industry in India.

- **Zhi Da, Pengjie Gao, and Ravi Jagsnnathan (2011)** the study proved that past performance predicts future performance better among funds trading in stocks.

III. RESEARCH OBJECTIVES
- To study the performance of SBI's Blue Chip and ICICI's Blue Chip mutual funds compared to its benchmark (Market returns) to interpret the height of its tide waves of volatility.
- To compare SBI's Blue Chip and ICICI's Blue Chip mutual funds available and find out which fund preferable to invest.

IV. METHODOLOGY
The study is description research of existing facts which is an attempt that has been made to analyze   the performance of the funds and level of risk associated with the sources of data.
a. Primary Data
The basic data for the study has been collected from the interaction with the company's Director and other officials of Way to Gain Consultancy Investment Pvt. Ltd., Dharwad.

b. Secondary Data

The secondary data needed for the purpose of making of the report has been collected through SBI mutual Fund and ICICI Prudential Mutual Funds Monthly factsheets, magazines and the websites. The figures of returns has been collected from BSE Index and Nifty to enable the comparisons of two types of fund.

For Analysis: Regression and Correlation coefficient and Coefficient of Determinant analysis of SBI Blue Chip Fund and ICICI Blue Chip Fund with their respective Benchmarking to illustrate their behaviour of risk averse towards market volatility.

Pearson Test and Chi-square Test is used for testing hypothesis to study rate of volatility of the Returns of fund in context to its benchmark and to conclude the better option for investment decision making.

V. PRELUDE TO THE STUDY

SBI Blue Chip Equity Fund (Growth)
Investment Objective:

To provide investors with an opportunities for long-term growth in capital through an active management of investments in a diversified basket of equity stocks of companies whose market capitalization is at least equal to or more than the least market capitalized stock of BSE 100 Index.

ICICI Prudential Focused Blue chip Equity Fund (Growth)
Investment Objective

ICICI Prudential Focused Equity Fund is an open-ended equity scheme that seeks to generate long-term capital appreciation and income distribution to unit holders. From a portfolio, most of fund are invested in equity and equity related securities of about 20 companies belonging to the large cap domain and the balance in debt securities and money market instruments.

- **Sectoral wise investment** made by both companies and the allocation in high and low level is shown below: It is found that SBI investment is high in Money Market sector and low invest in Consumer non-durable. It is found that ICICI investment is high in Information technology sector and low invest in Debt.
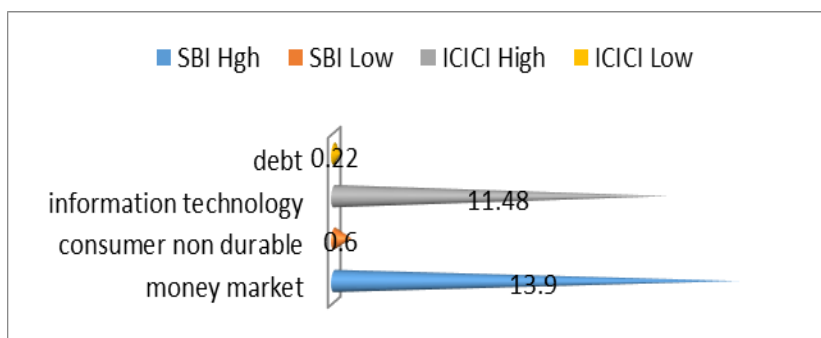

Figure 1: CHART SHOWING INVESTMENT IN VARIOUS SECTORS AT HIGH AND LOW RANKED SBI BLUECHIP FUND (G) AND ICICI BLUECHIP EQUITY (G)

- Assets allocation of both SBI Mutual Fund and ICICI Prudential Mutual Fund is shown below in Fig.2.
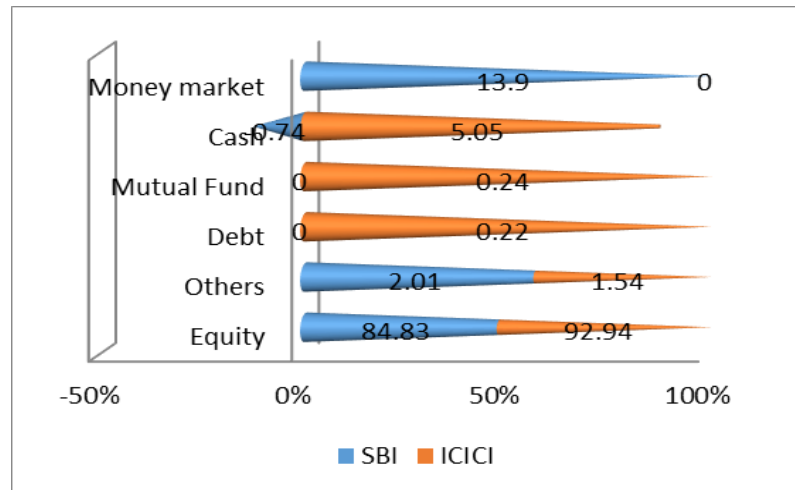

Figure 2: CHART SHOWING ASSETS ALLOCATION MADE BY BOTH SBI BLUECHIP FUND(G) AND ICICI BLUECHIP EQUITY(G)

- The Asset allocation for SBI is high in Money market, Equity, Cash and Others whereas for ICICI the allocation is for Mutual fund, Debt, Equity, Cash and Others.

VI. DATA ANALYSIS

1) **EQUATION 1: FOR ANALYSIS OF REGRESSION:**

$$byx = \frac{\sum(x-\bar{x})(y-\bar{y})}{\sum(x-\bar{x})^2}$$

$$Intercept = \frac{\sum y - b(\sum x)}{N}$$

Y = a+bx (slope)

The study is the analysis of Regression between Returns of Fund and its Returns from the Benchmarking Market returns.

TABLE 1: CALCULATION OF REGRESSION FOR SBI BLUECHIP FUND:

TABLE 1: CALCULATION OF REGRESSION FOR SBI BLUECHIP FUND							
Years	Fund Returns(X)	Benchmark Returns(Y)	$x-\bar{x}$	$y-\bar{y}$	$(x-\bar{x})(y-\bar{y})$	$(x-\bar{x})^2$	$(y-\bar{y})^2$
1 month	3	2.1	-2.13	-8.57	103.96	147.10	73.47
3 month	9.2	10.9	-5.93	0.23	-1.36	35.15	0.05
6 month	22.3	24.3	7.17	13.63	97.74	51.43	185.74
1 year	7.7	2.8	-7.43	-7.87	58.47	55.18	61.96
2 year	16.4	5.6	1.27	-5.07	-6.45	1.62	25.72

3 year	28.2	17.3	13.07	6.63	86.64	170.86	43.94
5 year	19.1	11.7	3.97	1.03	4.08	15.77	1.06
Total	$\sum X$=105.90	$\sum Y$=74.70	$\sum(x-\bar{x})$ =	$\sum(y-\bar{y})$ =	$\sum(x-\bar{x})(y-\bar{y})$ =343.10	$\sum(x-\bar{x})^2$ =477.11	$\sum(y-\bar{y})^2$ =391.93

According to Equation 1:
byx = 0.719
Intercept = a = -0.20
Y = = 75.94 _____

TABLE 2: CALCULATION Of Regression for ICICI Blue chip Equity Fund(G):

TABLE 2: CALCULATION OF REGRESSION FOR ICICI BLUE CHIP Equity Fund(G)							
Years	Fund Returns(X)	Benchmark Returns(Y)	$x-\bar{x}$	$y-\bar{y}$	$(x-\bar{x})(y-\bar{y})$	$(x-\bar{x})^2$	$(y-\bar{y})^2$
1 month	1.5	1.6	-11.5	-8.17	93.97	132.25	66.77
3 month	11.5	9.9	-1.5	0.13	-0.19	2.25	0.02
6 month	24.9	22.6	11.9	12.83	152.66	141.61	164.6
1 year	5.0	1.9	-8	-7.87	62.97	64	61.96
2 year	10.3	4.8	-2.7	-4.97	13.42	7.29	24.72
3 year	22.2	16.2	9.2	6.43	59.14	84.64	41.33
5 year	15.6	11.4	2.6	1.63	4.23	6.70	2.65
Total	$\sum X$= 91	$\sum Y$= 68.4	$\sum(x-\bar{x})$ =	$\sum(y-\bar{y})$ =	$\sum(x-\bar{x})(y-\bar{y})$ =386.21	$\sum(x-\bar{x})^2$ =438.8	$\sum(x-\bar{x})^2$ =362.05

According to Equation 1:
byx = 0.880
Intercept = a = -1.66
Y = 78.42 _____

2) **EQUATION 2: FOR ANALYSIS OF CORRELATION COEFFICIENT:**

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n(\sum x^2) - (\sum x)^2][n(\sum y^2) - (\sum y)^2]}}$$

Where,

N = number of observation
$\sum XY$ = sum of the fund returns and benchmark returns multiplication
$\sum y^2$= sum of the Y square
$\sum x^2$= sum of the X square
$\sum Y$= total of benchmark returns
$\sum X$= total of fund returns

TABLE 3: CALCULATION OF CORRELATION COEFFICIENT BETWEEN FUND RETURNS AND BENCHMARK RETURNS OF SBI BLUE CHIP FUND(G):

TABLE 3: CALCULATION OF CORRELATION COEFFICIENT BETWEEN FUND RETURNS AND BENCHMARK RETURNS OF SBI BLUE CHIP FUND(G)					
Years	Fund Returns(X)	Benchmark Returns(Y)	x2	y2	XY
1 month	3	2.1	9	4.41	6.3
3 month	9.2	10.9	84.64	118.81	100.28
6 month	22.3	24.3	497.29	590.49	541.89
1 year	7.7	2.8	59.29	7.84	21.56
2 year	16.4	5.6	268.96	31.36	91.84
3 year	28.2	17.3	795.24	299.29	487.86
5 year	19.1	11.7	364.81	136.89	223.47
Total	$\sum X$= 105.9	$\sum Y$= 74.7	$\sum x^2$=2079.23	$\sum y^2$= 1189.09	$\sum XY$= 1473.2

As per Equation 2: CORRELATION COEFFICIENT r = 0.79

TABLE 4: CALCULATION OF CORRELATION COEFFICIENT BETWEEN FUND RETURNS AND BENCHMARK RETURNS OF ICICI BLUE CHIP EQUITY FUND(G):

TABLE 4: CALCULATION OF CORRELATION COEFFICIENT BETWEEN FUND RETURNS AND BENCHMARK RETURNS OF ICICI BLUE CHIP EQUITY FUND(G)					
Years	Fund Returns(X)	Benchmark Returns(Y)	x^2	y^2	XY
1 month	1.5	1.6	2.25	2.56	2.4
3 month	11.5	9.9	132.25	98.01	113.85
6 month	24.9	22.6	620.01	510.76	562.74
1 year	5.0	1.9	25	3.61	9.5
2 year	10.3	4.8	106.09	23.04	49.44
3 year	22.2	16.2	492.84	262.44	359.64
5 year	15.6	11.4	243.36	129.96	177.84
Total	$\sum X$= 91	$\sum Y$= 68.4	$\sum x^2$= 1621.80	$\sum y^2$= 1030.38	$\sum XY$= 1275.41

As per Equation 2: CORRELATION COEFFICIENT r = 0.96

3) EQUATION 3: FOR ANALYSIS OF COEFFICIENT OF DETERMINANT: r^2
SBI Blue Chip = r =0.79   **ICICI Blue Chip = r = 0.96**
                r^2= 0.62   **r^2= 0.62**

VII.   FINDINGS AND INTERPRETATIONS

- This study of regression in SBI Blue chip is not in linear and hence we can conclude that it is more aggressive. SBI Mutual Fund which is a government sector based mutual fund varies @ 10% negative from its competitor ICICI Blue chip Mutual Fund company which is a private sector company, and its slope would skew in different direction after years of investment as shown in below graph.
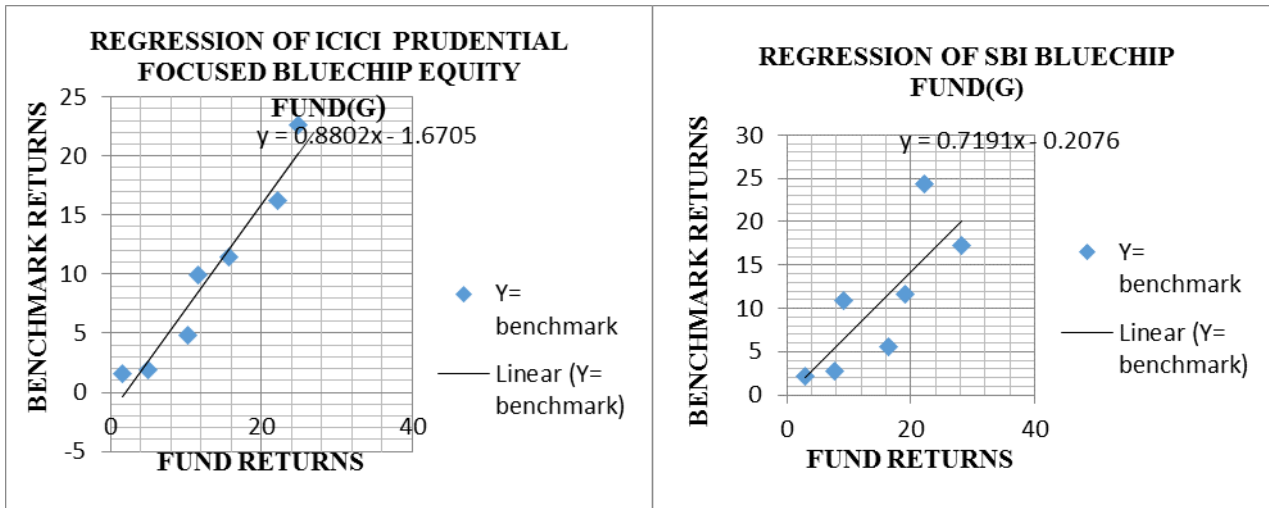
FIGURE 3: TWO GRAPHS SHOWING THE REGRESSION OF SBI BLUE CHIP & ICICI BLUE CHIP

- Findings of correlation and regression of both SBI Bluechip Fund (G) and ICICI Bluechip Equity Fund (G) is analysed as below:
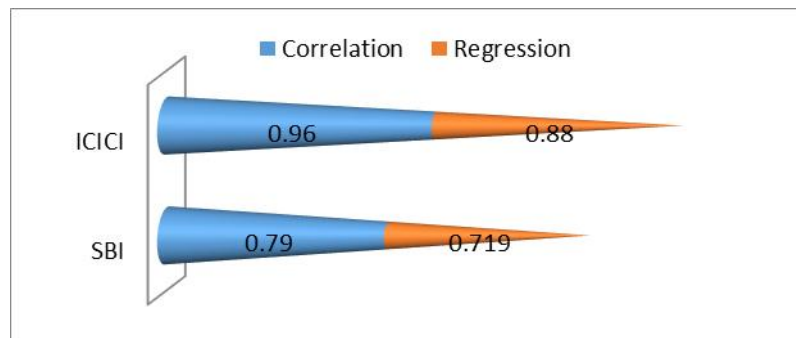

FIGURE 4: CHART SHOWING CORRELATION AND REGRESSION OF BOTH SBI BLUECHIP AND ICICI BLUE CHIP

- SBI Bluechip Fund (Growth) fund returns and benchmark correlation coefficient is 0.79 and regression is 0.719. The Desired returns for SBI Bluechip Fund is 75.94 as per regression line.

- ICICI Bluechip Fund (Growth) Fund returns and benchmark correlation coefficient and regression is 0.96 and 0.880 respectively. The Desired returns for ICICI Prudential Focused Bluechip Equity Fund 78.42 as per regression line.
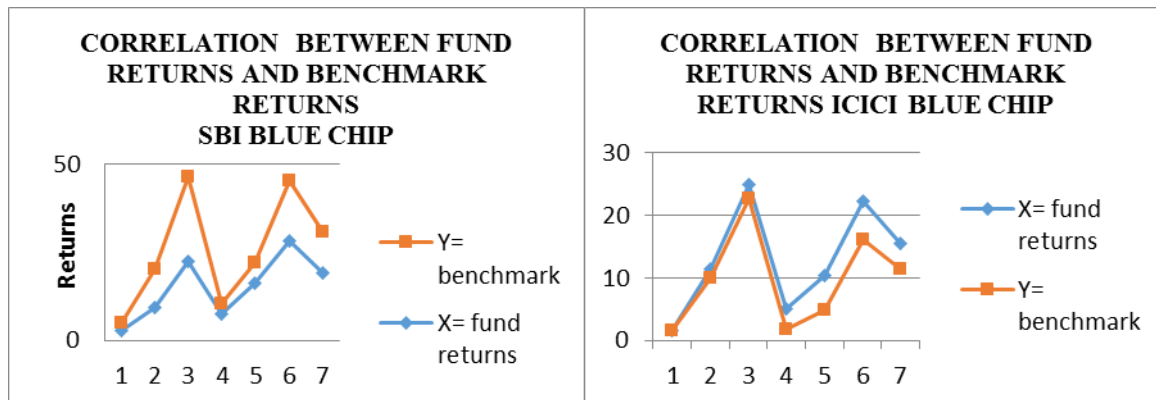
FIGURE 5: GRAPH SHOWING CORRELATION BETWEEN FUND RETURNS & BENCHMARKS RETURNS OF SBI BLUE CHIP AND ICICI BLUE CHIP

- SBI Bluechip Fund fund returns and benchmark correlation coefficient is 0.79 and for ICICI Blue Chip is 0.92. SBI's correlation coefficient is less by 22% than ICICI Blue Chip.

- Coefficient of Determinant of SBI Blue Chip is 62 % that means 38% volatility its Benchmark. Similarly Coefficient of Determinant of ICICI Blue Chip is @ 92%, that means only 8% volatility from its Benchmark.

We can conclude ICICI Blue Chip is not volatile in nature and earns consistence returns from the Market.

VIII.   HYPOTHESIS TESTING

1) H_0: The Correlation coefficient for SBI Blue Chip Fund is not greater than ICICI Blue Chip Fund.
H_1: The Correlation coefficient for SBI Blue Chip Fund is not greater than ICICI Blue Chip Fund.
Correlation between Returns of SBI Blue Chip Fund and its Market Returns = 0.79
Correlation between Returns of ICICI Blue Chip Fund and its Market Returns = 0.96
Pearson Test for Correlation coefficient for SBI Blue chip fund & ICICI Blue Chip fund is 0.185 & 0.845 respectively. Pearson Test is greater for ICICI proving its rigidity of returns towards the market returns. ICICI Blue Chip Fund has more chances of higher returns. Hence we accept the Null hypothesis.

2) H_0: The Rate of Market Risk (Violability) is not greater for ICICI Blue Chip Fund.
H_1: The Rate of Market Risk (Violability) is greater for ICICI Blue Chip Fund.
The Chi-square Test between the Returns and Benchmark(Market Value) which is Expected Value too in this case are considered as the attributes and the critical value at the degree of freedom is 6 @95% confidence level is 1.635. As there was requisition of comparison between two different portfolio, Chi-square is being used for testing.
Chi-square Test for SBI Blue Chip Fund = 2.044

Chi-square Test for ICICI Blue Chip Fund = 0.0158
The Chi-square Test for SBI Blue Chip Fund is not acceptable as it is above the critical value indicating the higher volatility between the Fund's Return and the Benchmark(Market Value). Hence we accept the Null Hypothesis.

IX.   SUGGESTIONS

- SBI Bluechip Fund (G) is independent because it is government sector fund and the risk is less. From investor's view point who are not risk takers, it is safe to invest in SBI Bluechip Fund (G) as it is not dependent on Market conditions/ benchmark as its decisions is only as per RBI's directions.

- ICICI Prudential Focused Bluechip Equity Fund (G) it is dependent on benchmark returns. As ICICI Prudential Focused Bluechip Equity Fund (G) is a Growth fund so there is guarantee of growth in returns. The fund is highly correlated to the Market policies, hence it ensures high returns in future. The investors who want high returns for high risk can opt for this fund.

X.   CONCLUSIONS

- This study is about two different mutual funds company; one is SBI mutual fund which is Government sector company another one is ICICI Prudential mutual fund which is private company. In this companies have many schemes. This study involves calculation of correlation and regression between fund returns and benchmark returns for both schemes SBI Bluechip Fund(G) and ICICI Prudential Focused Bluechip Equity Fund(G).

- After calculation of the correlation and regression between fund returns and benchmark returns SBI bluechip Fund(G), it is being found to be perfoming very efficiently in the market. Further we could analyse that the regression and correlation is very aggressive for ICICI Prudential Fund as it is highy dependent on the variable of Benchmark returns whereas it is vice-versa for SBI Mutual fund.

- We can conclude that ICICI Prudentials are not highly risky as the volatility (Var) is only 8% for ensuring the high returns for the mentioned portfolio. SBI is predicted risky in longer duration in terms of Benchmarking as it donot earn more stable returns. It depends on Investor's tendency whether he desires high returns accepting high risk or safe returns accepting low risk.

REFERENCES

[1] Prasanna Chandra,"Investment Analysis and Portfolio Management"2nd Ed.,2009,Tata Mc Graw Hill Publishing Company Limited, New Delhi.
[2] Donald E Ficher, Ronald J Jordon,"Security Analysis and Portfolio Management"6th Ed., 1995, Prentice Hall of India Pvt. Ltd.

[3] Mohammed Arif Pasha,"Financial Markets and Intermediaries", 2009 ED., Kalyani Publishers.

[4] www.amfiindia.com

[5] www.iciciprum.com

[6] www.moneycontrol.com

[7] www.mutualfundsindia.com

[8] www.sbimf.com

[9] http://Faculty.london.edu/hservaes/fundsaroundworld.pdf

[10] www.afternoondc.in/business/mutual-funds-average-aums-on-the-rise/article 73074

[11] www.freepatentsonline.com/article/Paradigm/297309480.html

[12] www.scribd.com/doc/24402747/Literature-Review-on-Mutual-Funds

[13] www.amfiindia.com/showhtml.aspx?page=mfindustry

[14] www.sbimf.com/Index.aspx

[15]www.hdfcfund.com/NavCorner/NAVHistory.aspx?ReportId=E3IEBD9F-E113-409A-80F0-1974E07DAFCE

[16]   http://articles.economictimes.indiatimes.com/2013-01-28/news/36596355_1_sbi-mutual-fund-daiwa-mf-assets