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- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

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- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–22 June.

UNPUBLISHED DISSERTATIONS AND THESES

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

ONLINE RESOURCES

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WEBSITES

- Garg, Bhavet (2011): Towards a New Natural Gas Policy, Political Weekly, Viewed on January 01, 2012 http://epw.in/user/viewabstract.jsp

PORTFOLIO EVALUATION OF MUTUAL FUNDS IN INDIA - AN EMPIRICAL STUDY OF EQUITY GROWTH SCHEMES OF SELECT FUNDS

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ABSTRACT

This paper attempts to study the portfolio evaluation of selected equity growth schemes using volatility measures such as Standard Deviation, Beta and R squared and the risk adjusted evaluation methods such as Sharpe, Treynor, Jensen's Alpha and Sortino measures .Researchers only emphasized on secondary data sources and selected 12 Mutual Fund schemes of 6 mutual fund institutions and the period of study is kept limited for 5 years i.e. from 2007-08 to2011-2012. To test the significance; Independent t-test and one way ANOVA is used.

KEYWORDS

Portfolio evaluation, Standard Deviation, Beta, R-Squared, Sharpe, Treynor, Jensen's Alpha and Sortino.

INTRODUCTION

Portfolios contain groups of securities that are selected to achieve the highest return for a given level of risk. How well this is achieved depends on how well the portfolio manager or investor is able to forecast economic conditions and the future prospects of the companies, and to accurately assess the risk of each security under consideration. The portfolio performance evaluation primarily refers to the determination of how a particular investment portfolio has performed relative to some comparison benchmarks. The evaluation can indicate the extent to which the portfolio has outperformed or underperformed or it has performed at par with the benchmark. The evaluation of portfolio performance is important because, the investors and the fund managers whose funds have been invested/ managed need to know the relative performance of the portfolio. The performance review will generate and provide information that will help the investor/ fund manager to assess any need for rebalancing of the investments.

REVIEW OF LITERATURE

"Mutual funds are associations of trusts of public members who wish to make investments in the financial instruments or assets of the corporate sector for the mutual benefit of its members." According to **Securities Exchange commission** (SEC), "A mutual fund is a company that brings together money from many people and invests it in stocks, bonds or other assets. The combined holdings of stocks, bonds or other assets the fund owns are known as its *portfolio*. Each investor in the fund owns shares, which represent a part of these holdings". The SEBI (Mutual Funds) Regulations, 1993 defines a mutual fund as "a fund established in the form of a trust by a sponsor, to raise monies by the trustees through the sale of units to the public, under one or more schemes, for investing in securities in accordance with these regulations." According to SEBI(Mutual Funds)Regulation 1996, "Mutual Funds" means a fund established in the form of a trust to raise money through the sale of units to the public or a section of the public under one or more schemes for investing in securities including money market instruments or gold or gold related instruments or real estate assets. Mutual Fund is an investment vehicle that is made up of a pool of funds collected from many investors for the purpose of investing in securities such as stocks, bonds, money market instruments and similar assets. Mutual funds are operated by money managers, who invest the fund's capital and attempt to produce capital gains and income for the fund's investors. A mutual fund's portfolio is structured and maintained to match the investment objectives stated in its prospectus.

Performance evaluation of mutual funds has been extensively used by Sharpe (1966), Treynor (1965), Jensen (1968), Barua et al (1991) evaluated the performance of master share using CAPM approach from the view point of large investors and fund managers. The study concluded that the fund performed better than the market for small investors and fund management but the fund did not do well when compared to CML. Ravinderan (2003) made the performance analysis of 269 open ended funds in the bear market. Used Sharpe, Treynor, Jensen and Fama measures for the period of 4 years and found out that the funds are not managed optimally. Sodhi and Jain (2004) evaluated 26 equity schemes drawn from 26 AMCs belonging to public and private sector. They concluded that the equity mutual funds have overall inferior performance in comparison of risk and Return. Gupta and Amitabh (2004) evaluated the performance of 57 growth schemes and concluded that there is no conclusive evidence which suggests that, performance of sample schemes is superior to the market. Bodla (2005) appraised 24 growth schemes of mutual funds and evaluated by applying risk adjusted performance measures as suggested by Sharpe, treynor and Jensen and founded out that the difference between market return and fund return is insignificant and systematic risk is not much risky. Phaniswara Raju B. (2008) evaluated performance of 60 mutual fund schemes of 29 mutual fund companies operating during that time and analyzed using risk adjusted performance measures and founded out that many selected schemes failed to outperform the market and there is mis match of the risk return relationship in some schemes. Sukhwinder Kaur et al (2012) studied 10 equity schemes for the period of two years and identified that all sample schemes failed to give reward to variability and only 4 schemes are able to give more reward to volatility than benchmark.

Many research works followed the risk adjusted performance developed by Sharpe, Treynor and Jensen. This study also made an attempt to evaluate the sample schemes based on the reviewed literature.

OBJECTIVES OF THE STUDY

The general objective of this study is to evaluate the portfolio performance of the selected Mutual fund schemes. An attainment of this objective is fulfilled by the following specific objectives.

1) To find out is there any significant difference between scheme returns and bench mark returns of sample Mutual Fund schemes.
2) To find out is there any significant difference between different volatility measures of sample mutual fund schemes
3) To find out is there any significant difference between different risk adjusted portfolio evaluation measures of sample mutual funds schemes.

HYPOTHESES OF THE STUDY

1. H_0: There is no significant difference between scheme returns and Benchmark returns of sample schemes of selected mutual funds.
   H_1: There is significant difference between scheme returns and Benchmark Returns
2. H_0: There is no significant difference between different volatility measures of selected equity schemes.
   H_1: There is significant difference between different volatility measures of selected equity schemes
3. H_0: There is no significant difference between different risk adjusted portfolio evaluation measures of Sample schemes
   H_1: There is significant difference between different risk adjusted portfolio evaluation measures of Sample schemes

METHODOLOGY

To conduct the study, the researcher selected 6 mutual Fund AMCs and 12 Mutual fund open ended schemes; 6 from the category of Equity Large Cap and 6 From Equity Small and Mid Cap. All schemes are growth option schemes and selected using convenient sampling, Researchers emphasized only on secondary Data. The major source of data is CRISIL, the India's first Credit Rating Agency and the others include Text books, Journals, Websites and Newspapers. Period of study is kept limited for 5 years i.e. 2007-08 to 2011-2012 financial years. Ranks and Averages are calculated in order to know the category performance and overall performance of equity sample schemes. The formulated hypotheses were tested at 5% level of significance using SPSS.

TOOLS USED FOR ANALYSIS

PORTFOLIO RETURN

$$Rp = \frac{(NAV_t - NAV_{t-1})\ D_t + C_t}{NAV_{t-1}}$$

R_p = Portfolio return, NAV_t = Net asset value on time period t, NAV_{t-1} = Net asset value on time period t-1, D_t = Dividend in the form of the bonus that are distributed during the period t,
C_t = Cash dividend distributed during the time period t

STANDARD DEVIATION

$$\sigma_R = \sqrt{\frac{\sum (R_p - R_p)^2}{N}}$$

σ_R = Standard deviation of the overall return, R_p = Return of the portfolio, R_p = Average of the annual returns, N = Number of the observations.

BETA

β = Cov (R_p, R_M) / σ^2 (R_M), Cov (R_p, R_M) = Covariance of the portfolio and the returns of the market, $\sigma 2$ (R_M) = Variance of the returns of the market

R-SQUARED

First r (correlation coefficient must be calculated. $r = \Sigma xy / \sqrt{\Sigma x^2 \times \Sigma y^2}$; $x = (X - \overline{X})$, $y = (Y - \overline{Y})$,
r^2 = Square of the r.

SHARPE RATIO

Sharpe $= R_p - R_f / \sigma_P$, Where, R_p =Portfolio Return, R_f = Risk free rate of return, σ_P = Total risk of the Portfolio

TREYNOR RATIO

Treynor = $R_p - R_f / \beta_p$, where R_p =Portfolio Return, R_f = Risk free rate of return, β = Beta of Portfolio (Systematic Risk of the Portfolio)

JENSEN'S ALPHA

Jenson's Alpha = $R_P - [R_f + \beta_P(R_m - R_f)]$, where , R_p =Portfolio Return, R_f = Risk free rate of return, β_p= Beta, R_m= Market Return.

SORTINO RATIO

Sortino Ratio = $R_p - R_{mar} / \sigma_d$, where; R_p =Portfolio Return, R_{mar} = Minimum acceptable return or Risk free rate of return, σ_d = Total Risk of Portfolio(Downside deviations of the Portfolio)

Averages are calculated using the following Excel formula:
=AVERAGE (number1,[number2],....)
Ranks are calculated using the following Excel formula:
=RANK (number, ref, [order])
The inferential statistics (Independent t-test and One way ANOVA) was used for the data analysis and interpretation with the help of Statistical Package for Social Sciences (SPSS) 16.0 version.

RESULTS AND DISCUSSION

- **PERFORMANCE EVALUATION USING ANNUALIZED RETURNS, BENCHMARK RETURNS AND RISK FREE RATE OF RETURN**

The return of the portfolio is commensurate with the returns of its individual assets. The return of the portfolio is the weighted average of the returns of its component assets. In this study the returns are measured by comparing the returns of the sample schemes with one another, sample schemes returns with benchmark returns and risk free rate of return. To this end, by observing Table (1) reveals some inferences; when we compare the scheme returns of the sample schemes, Franklin India Blue chip Fund with the return of 11.5684% ranked top and Reliance Top 200 Fund (8.5428%) ranked the least in the category of equity large cap. ICICI Prudential Discovery Fund-Institutional Option I generated the return of 16.6758% and Kotak Mid Cap having the return of 7.9596% stood last.58.33% of sample schemes generated higher return than average of all schemes return (11.8516%), and 66.66% of sample schemes generated higher returns than the market proxy (10.2396%).when average returns of equity large cap and equity small and mid cap are compared, equity small and midcap average is higher than equity large cap.

When the sample schemes are compared with their benchmark returns; except Kotak Mid Cap (7.9596%), Reliance Top 200 Fund (8.5428%), Franklin India Smaller Companies Fund (8.7557%) and SBI Magnum Index Fund (9.6176%) all other schemes earned more return than their concerned benchmark returns. All sample schemes earned the risk premium which is excess of return over risk free rate of return ranging from 9.6758% to 0.9596%.

Generally, higher risk investments potentially yield a higher return. If we compare the return and risk of the sample schemes, surprisingly ICICI Prudential Discovery Fund-Institutional Option I and UTI Master Value Fund having highest return is having low risk and some other funds which are having the low return are having highest risk such as Reliance Top 200 Fund and SBI Magnum Index Fund.

To test the hypothesis 1, Independent t-test was used and the t- value was found greater than the P value, hence the null hypothesis is rejected. By this researchers conclude that "there is significant difference between the scheme returns and benchmark returns". (Table: 2)

- **PERFORMANCE MEASUREMENT USING VOLATILITY MEASURES**

The relative rate at which the price of a security moves up or down is called volatility. Volatility is found by calculating the annualized standard deviation of daily change in price.

At the time of evaluation of the mutual funds and while comparing the funds with that of the other funds of the similar category, the risks should be taken into account. During the measurement of the risk of each of the schemes, the past volatility will be considered as the measure of the risk and as an indicator or pointer for the future risk. According to capital asset pricing model (CAPM) total risk is having two components; Systematic risk (Market risk) and unsystematic risk(unique risk).Standard deviation is the measure of total risk i.e. market risk plus unique risk and beta is the measure of systematic risk.

The following inferences can be drawn on σ, β and r^2 of the sample schemes from table 3.

Portfolio risk can be calculated like calculating the risk of single investment, by taking the standard deviations of the variance of actual returns of the portfolio overtime. This variability of returns commensurate with the portfolio risk and this risk can be quantified by calculating the standard deviation of the variability. It

is a tool investment managers use to help quantify risk or deviation from the expected returns. As standard deviation is a performance measure for total risk, the lower the standard deviation, better is the scheme performance.

When the comparison is made using σ, in the category of equity large Cap schemes; SBI Magnum Index Fund (28.9529%) is having highest and UTI Master Share Unit Scheme (24.09%) is having the lowest standard deviation i.e. total risk. In the category of equity small and mid cap; SBI Magnum Sector Umbrella-Emerging Business Fund (26.5337%) and ICICI Prudential Discovery Fund-Institutional Option I (23.1259%) are having the highest and lowest value of standard deviation. When all schemes are ranked, ICICI Prudential Discovery Fund-Institutional Option I (23.1259%) and UTI Master Value fund (23.5337%) are having low risk. When the averages of both the categories are compared; the average risk of equity large cap schemes are higher than equity small cap schemes. All sample schemes Standard Deviation is lesser than the BSE SENSEX total risk (29.7880%).

Beta is also very important tool in measuring of the risk. **Beta** measures the risk of a fund by measuring the volatility of its past returns in relation to the returns of benchmark. Stocks have positive beta, when stocks move in same direction as the general market. Some stocks have negative beta, they move in opposite direction to the general market. A beta of less than 1 is generally less risky than general market. By definition the market index beta is considered to be 1. A beta of 1.0 indicates that the investment's price will move in lock-step with the market. A beta of less than 1.0 indicates that the investment will be less volatile than the market, and, correspondingly, a beta of more than 1.0 indicates that the investment's price will be more volatile than the market.

The performances of the sample schemes are compared using beta, the β of the selected schemes are falling in the range of 0.9613 to 0.6616 and hence one can infer that all sample schemes are less volatile than the market. The average beta of equity large cap schemes is higher than equity small cap schemes.

R-Squared is the value of coefficient of determination (r^2), indicates the degree of diversification. Diversification reduces the unique risk of the portfolio. As discussed above, beta is dependent on correlation of a mutual fund scheme to its benchmark index. So, while considering the beta of any fund, an investor also needs to consider another statistic concept called 'R-squared' that measures the correlation between beta and its benchmark index. The beta of a fund has to be seen in conjunction with the R-squared for better understanding the risk of the fund.r^2 value ranges from 0-1. According to Morningstar, a mutual fund with R squared value of 0.85 to 1.00 has a performance record that is closely related to the index and a fund rated 0.70 or less would not perform like the index. Considering $r^{2,}$ the value of R Squared of sample schemes is ranging from 0.9676-0.6754 and hence concluded that the funds are not diversified totally and there is scope of further diversification in sample schemes, especially in case of UTI Master Value Fund where the r squared value is just (0.6754) and Reliance Growth Fund (0.7621).The average value of R squared of equity large cap schemes are little higher than equity small and Mid cap schemes.

To test hypothesis 2, one way ANOVA is used, Z value is greater than P Value, Hence, Null hypothesis is rejected and concluded that "there is significant difference between different volatility measures of the sample schemes".(Table:4.b)

- **PERFORMANCE EVALUATION USING RISK ADJUSTED PERFORMANCE MEASURES:**

One can draw the following conclusions by observing table 5.a and 5.b.

William F. Sharpe (1966) developed a method of measuring return per unit of risk also called as reward to variability. The Sharpe Ratio uses standard deviation which is 'non directional' meaning it does not differentiate between upside volatility or downside volatility. It is risk premium for the unit of risk, which is quantified by the standard deviation of portfolio. It examines whether the return that has been generated was sufficient to reward the persons who invested in the scheme for the degree of the assumed risk. Hence, the Sharpe ratio is a measure of performance of the portfolio compared to the risk taken - the higher the Sharpe ratio, the better the performance and greater the profits for taking additional risk.

When the Sharpe Ratio is compared, in the equity large cap category; Franklin India Blue chip Fund (0.2810) and Reliance Top 200 Fund (0.0556) got the highest and lowest ranks respectively. In the equity small and mid cap category; ICICI Prudential Discovery Fund-Institutional Option I (0.4184) and Kotak Mid Cap (0.0385) stood first and last respectively. The average reward to variability of equity large cap is 0.1772 and equity small and mid cap is 0.2131 which is higher than the previous category. Overall average of the schemes stood at 0.1951 which is more than BSE SENSEX Sharpe Ratio (0.1088). Only Reliance top 200, Kotak Mid cap and Franklin India Smaller Companies have less value than BSE SENSEX.

Hence those funds are not performing better and attaining very small amount of reward to variability.

Jack L. Treynor (1965) developed a method which is helpful measure the fund's excess return from each unit of systematic risk. It compares the portfolio risk premium (fund's rate of return minus the risk free rate of return) to the diversifiable risk (Beta).The beta of general market is defined as 1.The higher the Treynor ratio the better is the performance of the scheme. The negative Treynor index ascertains that the scheme did not outshine the market.

Treynor index value is high for Franklin India Blue chip fund (0.0925) and low for Reliance TOP 200 fund (0.0172) in equity large cap Category. ICICI Prudential Discovery Fund-Institutional Option I (0.1274) ranked first and Kotak Midcap (0.0114) ranked last in equity small and Midcap category. The average of all schemes is 0.0693.When we observe the ranks of Reward to variability and reward to volatility the ranks are identical which means the total risk and systematic risk is same. Hence, it is concluded that the unique risk of the sample schemes are very negligible.

Michael C. Jensen (1968) developed a measure to evaluate portfolio known as Jensen's Alpha. Alpha is a coefficient that is proportional to the excess return of a portfolio over its required return, or its expected return, for its expected risk as measured by its beta. Hence, Alpha is determined by the fundamental values of the company in contrast to beta, which measures the return due to volatility. Jensen's Alpha can be positive, negative or 0.Jensen's Index of the market is ZERO. If the Alpha is positive, indicates outperformance of portfolio compared to market vice versa.

By observing Jensen's Alpha values, under equity large cap category, Franklin India Blue chip fund (4.5904) outperformed and Reliance Top 200 fund underperformed(-1.8394).In equity Small and Mid cap; ICICI Prudential Discovery Fund-Institutional Option I with Treynor value of (5.3947) outperformed and Franklin India Smaller companies fund (-2.8777) underperformed. **Sortino Frank** (2001) developed a variation of the Sharpe ratio which differentiates **harmful** volatility from volatility in general by replacing standard deviation with downside deviation in the denominator. Thus the Sortino ratio is calculated by subtracting the minimum acceptable return or Risk free rate of return from the return of the portfolio and then dividing by the downside deviation. The Sortino ratio measures the return to "bad" volatility. A large Sortino ratio indicates a low risk of large losses occurring and vice versa. The reason for using a "Downside risk", calculation in the denominator is that, the purpose of investing is to make money and this requires volatility to the upside. It makes no sense to downgrade the money manager for gaining upside advantage.

From the Sortino ratio, it is predicted that when the values are observed, the highest value under equity large cap is assigned to Reliance Top 200 fund(0.1673) and the least rank goes to SBI Magnum Index Fund (-0.112). In equity Small and mid cap category the schemes ICICI Prudential Discovery Fund-Institutional Option I (0.2564) ranked the top and Kotak Mid Cap (-0.2035) ranked the least. As Sortino ratio only considers the bad volatility; Kotak 50, SBI Magnum Index Fund, kotak midcap and Franklin India Smaller Companies Fund having negative values indicates high risk for large losses.

To test hypothesis 3, one way ANOVA is used, Z value is greater than P Value, Hence, Null hypothesis was rejected and concluded that "there is significant difference between different risk adjusted performance measures of the sample schemes".(Table:6.b)

FINDINGS

The sample scheme returns are higher than their concerned benchmarks and BSE SENSEX except 4 (33.33%) schemes. All the schemes earned risk premium ranging from 9.6758% to 0.9596%. Phaniswara Raju B. (2008) evaluated performance of 60 mutual fund schemes of 29 mutual fund companies operating during that time and analyzed using risk adjusted performance measures and founded out that many selected schemes failed to outperform the market and there is mis match of the risk return relationship in some schemes. It is also supporting to the current research finding that there is mis match of risk return relationship of some of the sample schemes. ICICI Prudential Discovery Fund-Institutional Option I of Equity Small and Midcap and Franklin India Blue chip Fund of Equity large cap outshined BSE SENSEX from all angles of performance evaluation. Kotak Mid Cap, Franklin India Smaller companies fund, Reliance Top 200 fund and SBI Magnum Index Fund are the underperformers among the sample schemes from many views of evaluation, except these schemes all other schemes earned reward to variability above BSE SENSEX. The ranks of Sharpe and Treynor are identical to all the sample schemes, it indicates low unique risk. The overall performance of equity small and mid cap schemes are satisfactory than equity Large cap schemes. The H_0 is rejected in all 3 hypotheses and the difference is proved significant.

CONCLUSION

This study analyzed the performance of the selected mutual fund schemes by using the volatility measures, leading performance measures and identified that except two sample schemes, some are performing moderately and some stood as low performers. Hence the portfolio managers who are managing the underperformed funds should depend on extensive research than their intuition to improve their predictive abilities. They have to use active portfolio strategies than passive strategies. Although the mutual fund return is dependent on many factors, being professionally managed funds, fund managers should safeguard the investor's funds by proper diversification.

TABLE 1: ANNUALIZED SCHEME RETURNS, BENCHMARK RETURNS AND RISK FREE RATE OF RETURN OF SAMPLE SCHEMES BASED ON DATA OBTAINED FROM MARCH 1 2008-MARCH 31 2012

S.No	Name of the Scheme	Average Annualized Scheme Returns %	Rank(Category wise)	Rank (All Schemes)	Average Annualized Schemes Benchmark returns %	Standard Deviation %	Rank (All Schemes)
	Equity Large Cap						
1	*SBI Magnum Index Fund(G)	9.6176	5	9	11.1716	28.9529	1
2	UTI Master Share Unit Scheme(G)	12.0395	3	7	11.0146	24.09	10
3	Kotak 50 (G)	11.3376	4	8	11.1716	25.3489	5
4	Reliance Top 200 Fund (G)	*8.5428*	6	11	10.7648	27.7542	2
5	ICICI Prudential Top 100 Fund-Institutional Option-I (G)	13.8072	2	4	11.1716	26.6079	3
6	Franklin India Blue chip Fund (G)	*14.0658*	1	3	10.2396	25.1411	6
	Average	**11.5684**	-	-	**10.9223**	**26.3158**	-
	Equity Small & Mid Cap						
7	SBI Magnum Sector Umbrella-Emerging Business Fund (G)	12.3982	4	6	10.2065	26.5337	10
8	**UTI Master Value Fund (G)	14.0697	2	2	10.7648	23.3807	12
9	Kotak Mid Cap (G)	*7.9596*	6	12	12.6367	24.9278	5
10	Reliance Growth Fund (G)	12.9498	3	5	11.0146	24.2852	11
11	ICICI Prudential Discovery Fund-Institutional Option I (G)	*16.6758*	1	1	12.6367	23.1259	9
12	Franklin India Smaller Companies Fund (G)	8.7557	5	10	12.6367	24.746	8
	Average	**12.1348**	-	-	**11.6493**	**24.4999**	-
	Average of All Schemes	**11.8516**	-	-	-	**25.4079**	-
	BSE SENSEX	**10.2396**	-	-	-	**29.7880**	-

Source: CRISIL *State Bank of India, **Unit Trust of India

TABLE 2: INDEPENDENT T-TEST USED TO TEST THE SIGNIFICANCE BETWEEN SCHEME RETURNS AND BENCHMARK RETURNS OF SAMPLE MUTUAL FUND SCHEMES

Annualized Returns	N	Mean	Standard Deviation	Std. Error Mean	t Value	P value (2-tailed)
Scheme Returns	12	1.1851	2.6866	0.7756	0.694	0.495
Benchmark Returns	12	1.1285	0.8771	0.2532	0.694	0.500

***The mean difference is significant at the 0.05 level.**

TABLE 3: SHOWING THE VALUES OF STANDARD DEVIATION, BETA AND R- SQUARED AND THEIR ASSIGNED RANKS

S.No	Name of the Scheme	Average Standard Deviation %	Rank(Category wise)	Rank(All Schemes)	Average Beta	Rank(Category Wise)	Rank(All Schemes)	Average R-Squared	Rank(Category wise)	Rank(All Schemes)
Equity Large Cap										
1	SBI Magnum Index Fund(G)	28.9529	1	1	0.9613	1	1	0.9676	1	1
2	UTI Master Share Unit Scheme(G)	24.09	6	10	0.7476	6	10	0.8407	3	3
3	Kotak 50 (G)	25.3489	4	5	0.7737	4	7	0.8177	6	7
4	Reliance Top 200 Fund (G)	27.7542	2	2	0.8984	2	2	0.846	2	2
5	ICICI Prudential Top 100 Fund-Institutional Option-I (G)	26.6079	3	3	0.8229	3	4	0.8396	4	4
6	Franklin India Blue chip Fund (G)	25.1411	5	6	0.7641	5	8	0.8205	5	6
	Average	**26.3158**	-	-	**0.8280**	-	-	**0.8432**	-	-
Equity Small & Mid Cap										
7	SBI Magnum Sector Umbrella-Emerging Business Fund (G)	26.5337	1	4	0.8189	3	6	0.7706	4	10
8	UTI Master Value Fund (G)	23.3807	5	11	0.6616	6	12	0.6754	6	12
9	Kotak Mid Cap (G)	24.9278	2	7	0.8445	1	3	0.8321	1	5
10	Reliance Growth Fund (G)	24.2852	4	9	0.7175	5	11	0.7621	5	11
11	ICICI Prudential Discovery Fund-Institutional Option I (G)	23.1259	6	12	0.7595	4	9	0.782	3	9
12	Franklin India Smaller Companies Fund (G)	24.746	3	8	0.822	2	5	0.8	2	8
	Average	**24.4999**	-	-	**0.7707**	-	-	**0.7703**	-	-
	Average of All Schemes	**25.4079**	-	-	**0.7933**	-	-	**0.8129**	-	-
	BSE SENSEX	**29.7880**	-	-	-	-	-	-	-	-

Source: CRISIL

Table 4.a-4.b: One way ANOVA used to test, is there any difference between volatility measures of sample schemes.

TABLE 4. a: ONE WAY ANOVA, DESCRIPTIVE STATISTICS

Volatility Measures	N	Mean	Standard Deviation	F-value	P-Value
Standard Deviation	12	2.5407	1.7539	2.353	0.000
Beta	12	0.7993	0.0855		
R-Squared	12	0.8129	0.6833		

TABLE 4. b: ANOVA TABLE

	Sum of Squares	df	Mean Square	F	Sig (P Value)
Between Groups	4841.975	2	2420.987	2.353	0.000
Within Groups	33.960	33	1.029		
Total	4875.935	35	-		

***The mean difference is significant at the 0.05 level.**

TABLE 5.A: SHARPE'S, TREYNOR'S, JENSEN'S AND SORTINO'S RATIOS BASED ON THE DATA COMPILED FROM APRIL 1 2007-31 MARCH- 2012 (RANKS ARE ASSIGNED CATEGORY WISE)

S.No	Name of the Scheme	Sharpe 's Ratio	Rank	Treynor's Ratio	Rank	Jensen's Alpha	Rank	Sortino Ratio	Rank
	Equity Large Cap Schemes								
1	SBI Magnum Index Fund(G)	0.0904	5	0.0272	5	*-1.3922*	5	*-0.112*	6
2	UTI Master Share Unit Scheme(G)	0.2092	3	0.0674	3	2.0382	3	0.0022	4
3	Kotak 50 (G)	0.1711	4	0.0561	4	1.1101	4	-0.0349	5
4	Reliance Top 200 Fund (G)	0.0556	6	0.0172	6	*-1.8394*	6	0.1673	1
5	ICICI Prudential Top 100 Fund-Institutional Option-I (G)	0.2558	2	0.0827	2	3.3744	2	0.0926	3
6	Franklin India Blue chip Fund (G)	0.2810	1	0.0925	1	4.5904	1	0.1116	2
	Average	**0.1772**	-	**0.0572**	-	**1.3135**	-	**0.0378**	-
Equity Small And Mid Cap Schemes									
7	SBI Magnum Sector Umbrella-Emerging Business Fund (G)	0.2034	4	0.0659	4	2.7726	4	0.0192	4
8	UTI Master Value Fund (G)	0.3024	2	0.1068	2	4.5787	2	0.1111	2
9	Kotak Mid Cap (G)	0.0385	6	0.0114	6	*-3.8006*	6	-0.2035	6
10	Reliance Growth Fund (G)	0.245	3	0.0829	3	3.0692	3	0.0506	3
11	ICICI Prudential Discovery Fund-Institutional Option I (G)	0.4184	1	0.1274	1	5.3947	1	0.2564	1
12	Franklin India Smaller Companies Fund (G)	0.0709	5	0.0214	5	-2.8777	5	-0.1662	5
	Average	**0.2131**	-	**0.0693**	-	**1.5228**	-	**0.0113**	-

Source: CRISIL

TABLE 5.B: SHARPE'S, TREYNOR'S, JENSEN'S AND SORTINO'S RATIOS CALCULATED BASED ON THE DATA COMPILED FROM APRIL 1 2007-31 MARCH- 2012 (RANKS ARE ASSIGNED TO ALL SCHEMES)

S.No	Name of the Scheme	Sharpe 's Ratio	Rank	Treynor's Ratio	Rank	Jensen's Alpha	Rank	Sortino 's Ratio	Rank
1	SBI Magnum Index Fund(G)	0.0904	9	0.0272	9	-1.3922	9	-0.112	10
2	UTI Master Share Unit Scheme(G)	0.2092	6	0.0674	6	2.0382	7	0.0022	8
3	Kotak 50 (G)	0.1711	8	0.0561	8	1.1101	8	-0.0349	9
4	Reliance Top 200 Fund (G)	0.0556	11	0.0172	11	-1.8394	10	0.1673	2
5	ICICI Prudential Top 100 Fund-Institutional Option-I (G)	0.2558	4	0.0827	5	3.3744	4	0.0926	5
6	Franklin India Blue chip Fund (G)	0.2810	3	0.0925	3	4.5904	2	0.1116	3
7	SBI Magnum Sector Umbrella-Emerging Business Fund (G)	0.2034	7	0.0659	7	2.7726	6	0.0192	7
8	UTI Master Value Fund (G)	0.3024	2	0.1068	2	4.5787	3	0.1111	4
9	Kotak Mid Cap (G)	0.0385	12	0.0114	12	-3.8006	12	-0.2035	12
10	Reliance Growth Fund (G)	0.245	5	0.0829	4	3.0692	5	0.0506	6
11	ICICI Prudential Discovery Fund-Institutional Option I (G)	0.4184	1	0.1274	1	5.3947	1	0.2564	1
12	Franklin India Smaller Companies Fund (G)	0.0709	10	0.0214	10	-2.8777	11	-0.1662	11
	Average	**0.1951**	-	**0.0632**	-	**1.4182**	-	**0.0245**	-
	BSE SENSEX	**0.1088**	-	**NA**	-	**0**	-	-	-

Source: CRISIL

Tables' showing descriptive statistics, ANOVA and Post Hoc used to test is there any difference between various risk adjusted performance measures of sample schemes.

TABLE 6.a: DESCRIPTIVE STATISTICS OF ONE WAY ANOVA

Risk Adjusted Performance Measures	N	Mean	Standard Deviation	F-Value	P-Value
Sharpe Ratio	12	0.1951	0.1152	2.142	0.108
Treynor Ratio	12	0.0632	0.0376		
Jensen's Ratio	12	1.4182	3.1469		
Sortino Ratio	12	0.0245	0.1367		
Total	48	0.4253	1.6325		

TABLE 6.b: ANOVA TABLE

	Sum of Squares	df	Mean Square	F	Sig(P Value)
Between Groups	15.966	3	5.322	2.142	0.108
Within Groups	109.299	44	2.484		
Total	125.265	47	-		

***The mean difference is significant at the 0.05 level.**

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