"Risk, return & performance evaluation of selected mutual fund schemes – a study on large & mid cap funds"

Assistant Professor Krunal K Bhuva[a] and Assistant Professor Ashok R. Bantwa[b]

Assistant Professor at Shri Jaysukhlal Vadhar Institute of Management Studies [a&b]

"Shri Vallabh Nikunj", Nilkanth Nagar, Gate No.2, B/h Bombay Dying, Jamnagar -361005, GUJARAT.

ABSTRACT: This paper studies the persistence of mutual fund performance. Academic research often focuses on fund returns. This study intends to examine the performance of selected Large cap and Mid cap mutual fund schemes of Indian Mutual fund industry during the study period 2007 to 2011. The performance of selected schemes is evaluated in terms of average returns, systematic risk, and unsystematic risk and by using different measures like: Sharpe, Jenson, Treynor and FAMA. After detailed analysis it is found that except two all the sampled schemes have performed better than market. Supporting the established relationship of high risk - high return, better performing schemes are exposed to higher risk. The findings also revealed that majority of the schemes were adequately diversified and about 60% of the schemes were able to beat the market with help of better stock selection skill of fund managers. Finding from the t-test calculations shows that there is no difference between returns from large cap mid cap mutual funds in long run. From the return comparison of mutual funds and market, in 2008 & 2011 large cap are underperforming than market and in 2011 only mid cap mutual funds are showing less return than market returns.

Keywords: Mutual Funds, Performance Evaluation, Systematic Risk, Unsystematic Risk, Portfolio Return

1. INTRODUCTION

Should investors choose mutual funds based on the different characteristics? That is large cap mutual funds and mid cap mutual funds. This study shows that what difference mutual funds created based on their capitalization. The academic research on mutual fund performance generally investigates the dynamics of their returns. Many studies agree that mutual funds underperform passive benchmarks by a statistically and economically significant margin. Results on the persistence of performance are more diverse. For a long time, most academic studies concluded that the performance of a mutual fund is persistent over a time horizon of three years. The academic research on mutual fund performance generally investigates the dynamics of their returns. Large cap funds are those mutual funds, which look for capital appreciation by investing primarily in stocks of large blue chip companies that have more potential of earning growth and higher profit. Mid cap funds are type of stock fund that invests in mid-sized companies. A company's size is determined by its market capitalization, with mid-sized firms generally ranging from $2 billion to $10 billion in market cap.

2. LITERATURE REVIEWS

This section covers review of literature from some of the important research papers, studies and articles as published by different authors. A large number of studies on the growth and financial performance of mutual funds have been carried out during the past, in the developed and developing countries. Brief reviews of the following research works reveal the wealth of contributions towards the performance evaluation of mutual fund, market timing and stock selection abilities of fund managers. The pioneering work on the mutual funds

in U.S.A. was done by Friend, et al., (1962) in Wharton School of Finance and Commerce for the period 1953 to 1958. In the Indian Context, one of the early work in the area was by Barua and Verma (1991). They evaluated the performance of „Mastershare‟ the first close ended fund in India during 1987-1991 and concluded with the satisfactory performance of the fund using Jensen and other measures.

Friend, et al., (1962) made an extensive and systematic study of 152 mutual funds found that mutual fund schemes earned an average annual return of 12.4 percent, while their composite benchmark earned a return of 12.6 percent. Their alpha was negative with 20 basis points. Overall results did not suggest widespread inefficiency in the industry. Comparison of fund returns with turnover and expense categories did not reveal a strong relationship. Friend et. al, "A Study of Mutual Funds" U.S. Securities and Exchange Commission, USA, (1962).

Irwin, Brown, FE (1965) analyzed issues relating to investment policy, portfolio turnover rate, performance of mutual funds and its impact on the stock markets. The schoolwork identified that mutual funds had a significant impact on the price movement in the stock market. The cram concludes that, on an average, funds did not perform better than the composite markets and there was no persistent relationship between portfolio turnover and fund performance.

Treynor (1965) used „characteristic line‟ for relating expected rate of return of a fund to the rate of return of a suitable market average. He coined a fund performance measure taking investment risk into account. Further, to deal with a portfolio, „portfolio-possibility line‟ was used to relate expected return to the portfolio owner‟s risk preference.

The most prominent study by Sharpe, William F (1966) developed a composite measure of return and risk. He evaluated 34 open-end mutual funds for the period 1944-63. Reward to variability ratio for each scheme was significantly less than DJIA and ranged from 0.43 to 0.78. Expense ratio was inversely related with the fund performance, as correlation coefficient was 0.0505. The results depicted that good performance was associated with low expense ratio and not with the size. Sample schemes showed consistency in risk measure.

Treynor and Mazuy (1966) evaluated the performance of 57 fund managers in terms of their market timing abilities and found that, fund managers had not successfully outguessed the market. The results suggested that, investors were completely dependent on fluctuations in the market. Improvement in the rates of return was due to the fund managers‟ ability to identify under-priced industries and companies. The study adopted Treynor‟s (1965) methodology for reviewing the performance of mutual funds.

Jensen (1968) developed a composite portfolio evaluation technique concerning risk-adjusted returns. He evaluated the ability of 115 fund managers in selecting securities during the period 1945-66. Analysis of net returns indicated that, 39 funds had above average returns, while 76 funds yielded abnormally poor returns. Using gross returns, 48 funds showed above average results and 67 funds below average results. Jensen concluded that, there was very little evidence that funds were able to perform significantly better than expected as fund managers were not able to forecast securities price movements.

Fama (1972) developed methods to distinguish observed return due to the ability to pick up the best securities at a given level of risk from that of predictions of price movements in the market. He introduced a multi-period model allowing evaluation on a period-by-period and on a cumulative basis. He branded that, return on a portfolio constitutes of return for security selection and return for bearing risk. His contributions combined the concepts from modern theories of portfolio selection and capital market equilibrium with more traditional concepts of good portfolio management.

Smith and Tito (1969) examined the inter-relationships between the three widely used composite measures of investment performance and suggested a fourth alternative, identifying some aspects of differentiation in the process. While ranking the funds on the basis of ex-post performance, alternative measures produced little

differences. However, conclusions differed widely when performance were compared with the market. In view of this, they suggested modified Jensen"s measure based on estimating equation and slope coefficient.

Gupta Ramesh (1989) evaluated fund performance in India comparing the returns earned by schemes of similar risk and similar constraints. An explicit risk-return relationship was developed to make comparison across funds with different risk levels. His study decomposed total return into return from investors risk, return from managers" risk and target risk. Mutual fund return due to selectivity was decomposed into return due to selection of securities and timing of investment in a particular class of securities.

Shukla and Singh (1994) attempted to identify whether portfolio manager"s professional education brought out superior performance. They found that equity mutual funds managed by professionally qualified managers were riskier but better diversified than the others. Though the performance differences were not statistically significant, the three professionally qualified fund managers reviewed outperformed others.

The study by Shome (1994) based on growth schemes examined the performance of the mutual fund industry between April 1993 to March 1994 with BSE SENSEX as market surrogate. The study revealed that, in the case of 10 schemes, the average rate of return on mutual funds were marginally lower than the market return while the standard deviation was higher than the market. The analysis also provided that, performance of a fund was not closely associated with its size.

Yadav R A and Mishra, Biswadeep (1996) evaluated 14 close end schemes over the period of April 1992 to March 1995 with BSE National Index as benchmark. Their analysis indicated that, 57 percent of sample schemes had a mean return higher than that of the market, higher Sharpe Index and lower Treynor index. Schemes performed well in terms of diversification and total variability of returns but failed to provide adequate risk-premium per unit of systematic risk. 57 percent had positive alpha signifying superior performance in terms of timing ability of fund managers. Fund managers of growth schemes adopted a conservative investment policy and maintained a low portfolio beta to restrict losses in a rapidly falling stock market.

Gupta and Sehgal (1998) evaluated performance of 80 mutual fund schemes over four years (1992-96). The study tested the proposition relating to fund diversification, consistency of performance, parameter of performance and risk-return relationship. The study noticed the existence of inadequate portfolio diversification and consistency in performance among the sample schemes.

Ramesh Chander (2000) examined 34 mutual fund schemes with reference to the three fund characteristics with 91-days treasury bills rated as risk-free investment from January 1994 to December 1997. Returns based on NAV of many sample schemes were superior and highly volatile compared to BSE SENSEX. Open-end schemes outperformed close-end schemes in term of return. Income funds outsmarted growth and balanced funds. Banks and UTI sponsored schemes performed fairly well in relation to sponsorship. Average annual return of sample schemes was 7.34 percent due to diversification and 4.1 percent due to stock selectivity. The study revealed the poor market timing ability of mutual fund investment. The researcher also identified that, 12 factors explained majority of total variance in portfolio management practices.

Shah Ajay and Thomas Susan (1994) studied the performance of 11 mutual fund schemes on the basis of market prices. Weekly returns computed for these schemes since their launch of the scheme to April 1994 were evaluated using Jensen and Sharpe measures. They concluded that, except UTI UGS 2000, none of the sample schemes earned superior returns than the market due to very high risk and inadequate diversification.

Jaydev (1996) studied the performance of UTI Mastergain 1991 and SBI Magnum Express from 1992-94 with 13 percent return offered by Post Office Monthly Income Deposits as risk-free return. Mastergain earned an average return of 2.89 percent as against market earnings of 2.84 percent. Volatility of Magnum Express was high compared to Mastergain. Master gain had a superior performance over its benchmark (Economic Times Ordinary Share Price Index) by taking greater risk than the market. Mastergain indicated lesser degree of diversification of the portfolio with lower R2 value and very high unique risk. Magnum Express portfolio was

well diversified with higher R2 value along with lower unique risk and total risk. Both the funds did not earn superior returns because of lack of selectivity on the part of the fund managers indicating that, the funds did not offer the advantages of professionalism to the investors.

Gupta (1974) evaluated the performance of mutual fund industry for the period 1962-71 using Sharpe, Treynor, and Jensen models. All the funds covered under the study outperformed the market irrespective of the choice of market index. The results indicated that all the three models provided identical results. All the mutual fund subgroups outperformed the market using DJIA while income and balanced groups underperformed S&P 500. Return per unit of risk varied with the level of volatility assumed and he concluded that, funds with higher volatility exhibited superior performance.

Gupta Amitabh (2001) evaluated the performance of 73 selected schemes with different investment objectives, both from the public and private sector using Market Index and Fundex. NAV of both close-end and open-end schemes from April 1994 to March 1999 were tested. The sample schemes were not adequately diversified, risk and return of schemes were not in conformity with their objectives, and there was no evidence of market timing abilities of mutual fund industry in India.

Batra and Bhatia (1992) appreciated the performance of various funds in terms of return and funds mobilized. UTI, LIC and SBI Mutual Fund are in the capital market for many years declaring dividends ranging from 11 percent to 16 percent. The performance of Canbank Mutual Fund, Indian Bank Mutual Fund and PNB Mutual Fund were highly commendable. The performance of many schemes was equally good compared to industrial securities.

Tripathy, Nalini Prava (1996) identified that the Indian capital market expanded tremendously as a result of economic reforms, globalization and privatization. Household sector accounted for about 80 percent of country"s savings and only about one-third of such savings were available for the corporate sector. The study suggested that, mutual funds should build investors confidence through schemes meeting the diversified needs of investors, speedy disposal of information, improved transparency in operation, better customer service and assured benefits of professionalism.

Singh, Jaspal and Subhash Chander (2003) identified that past record and growth prospects influenced the choice of scheme. Investors in mutual funds expected repurchase facility, prompt service and adequate information. Return, portfolio selection and NAV were important criteria"s for mutual fund appraisal. The ANOVA results indicated that, occupational status; age had insignificant influence on the choice of scheme. Salaried and retired categories had priority for past record and safety in their mutual fund investment decisions.

Muthappan P K and Damodharan E (2006) evaluated 40 schemes for the period April 1995 to March 2000. The study identified that majority of the schemes earned returns higher than the market but lower than 91 days Treasury bill rate. The average risk of the schemes was higher than the market. 15 schemes had an above average monthly return. Growth schemes earned average monthly return. The risk and return of the schemes were not always in conformity with their stated investment objectives. The sample schemes were not adequately diversified, as the average unique risk was 7.45 percent with an average diversification of 35.01 percent. 23 schemes outperformed both in terms of total risk and systematic risk. 19 schemes with positive alpha values indicated superior performance. The study concludes that, the Indian Mutual Funds were not properly diversified.

R. Shanmugham and Zabiulla (2009) examined the stock selectivity strategies of selected equity mutual fund managers using conditional and unconditional measures over the period April 2006 to December 2009. The average daily returns were positive for all the schemes under consideration. Using traditional Jensen measure, out of 35 schemes alpha values of 22 schemes were positive, thereby showing superior performance. Only two

schemes have positive and statistically significant alphas. It supports that the fund manager of these schemes were able to forecast stock price movements and were successful in identifying undervalued stocks in their portfolio. The stock selectivity abilities of equity fund managers have improved from two schemes to nine schemes after incorporating two market information variables. It can be inferred that these fund managers have been able to forecast the price movements and were successful in identifying individual stocks in their portfolio holdings that seem to promise superior returns.

3. METHODOLOGY

Usually, it was a propensity to neglect the risk involved in equity diversified mutual funds and sector specific mutual funds that is one of the important elements in the measurement of the performance of mutual fund schemes. In financial terms risk is defined as variability in expected return from investment. Following tools and techniques have been used to measure the performance of various equity diversified mutual funds.

3.1 The Sharpe Ratio

In 1966, *William Forsyth Sharpe* developed what is now known as the Sharpe ratio. Sharpe originally called it the "reward-to-variability" ratio before it began being called the Sharpe ratio by later academics and financial operators. The Sharpe ratio is used to characterize how well the return of an asset compensates the investor for the risk taken. Mathematically, the Sharpe ratio is the returns generated over the risk-free rate, per unit of risk. It is calculated by subtracting the risk-free rate of return from the rate of return for an investment and dividing the result by the investment's standard deviation of its return. The Sharpe ratio is a single number which represents both the risk, and return inherent in a fund. Therefore the ratio looks at both, return and risk and delivers a single measure that is proportional to the risk adjusted return. Higher Sharpe ratio indicates better risk adjusted performance of the fund. If the Sharpe ratio is negative, it indicates that the risk free asset would be a better option than the analyzed fund scheme. Symbolically;

$$S_p = \frac{R_p - R_f}{\sigma_p}$$

Where S_p is the Sharpe ratio for the portfolio; R_p is average return on portfolio; R_f represent the average return on risk free assets; σ_p is the standard deviation of the returns of the portfolio, that measures the total risk of investment.

Similarly, such measures can be calculated for the benchmark market returns in the following manner;

$$S_p = \frac{R_m - R_f}{\sigma_m}$$

Where, R_m measures average market return and σ_m is the standard deviation of benchmark market return.

3.2 The Treynor Measure

Developed by Jack Treynor, this performance measure evaluates funds on the basis of Treynor's Index. This Index is a ratio of return generated by the fund over and above risk free rate of return (generally taken to be the return on securities backed by the government, as there is no credit risk associated), during a given period and systematic risk associated with it (beta). While a high and positive Treynor's Index shows a superior risk-adjusted performance of a fund, a low and negative Treynor's Index is an indication of unfavorable performance. It is similar to Sharpe ratio with the difference being that the Treynor ratio (T_p) uses beta (β) as a measure of volatility. So Treynor"s measures takes into consideration the systematic risk of the portfolio. Symbolically;

$$T_p = \frac{R_p - R_f}{\beta_p}$$

3.3 Jensen's Alpha Measure

This measure was developed by Michael Jensen in 1968 an is referred to as the differential return method. This measure involves evaluation of the returns that the fund has generated vs. the returns actually expected out of the fund given the level of its systematic risk. The surplus between the two returns is called Alpha, which measures the performance of a fund compared with the actual returns over the period. Hence alpha is used to determine whether fund manager through his stock selection ability has been able to beat the market. A positive value of Jensen"s Alpha implies a fund manager has the ability to beat the market with his stock picking skills. The higher the value for the fund means better the performance of it. For a retail investor the alpha value is important because it measures the excess returns a fund generates in relation to the returns generated by its benchmark. Symbolically;

$$\alpha_p = R_p - \left[R_f + \beta_p(R_m - R_f) \right]$$

Where αp is Jensen"s Alpha; Rp is average return of the portfolio; Rf is the average return of the risk free proxy; Rm is the average return of the benchmark proxy; and βp is the beta of the portfolio. Limitation of this model is that it considers only systematic risk associated with the fund.

3.4 Fama's Selectivity Model

Eugene Fama in 1972 proposed an extension of Jensen model. This model compares the performance, measured in terms of return of a fund with the required return commensurate with the total risk associated with it. The difference between two is taken as a measure of performance of fund and is called selectivity.

The net selectivity represents the stock selection skill of the fund manager as it is the excess return over and above the return required to compensate for the total risk taken by the fund manager. Higher value of which indicates that fund manager has earned returns well above the return commensurate with the level of risk taken by him. S

$$\text{Net Selectivity} = (R_p - R_f) - \frac{\sigma_p}{\sigma_m (R_m - R_f)}$$

A positive high value indicates that the fund has achieved superior return and investors are benefited out of the selectivity exercised by the fund manager.

3.5 Diversification

One of the important advantages of mutual fund is that a small investor can enjoy the benefits of diversification of portfolio. Further, well diversified portfolio reduces the risk of the portfolio. Diversification can be measured with the help of coefficient of determination (R^2). This can be obtained by regressing the portfolio"s additional return ($R_p - R_f$) on market"s additional return ($R_m - R_f$). A high value indicates greater diversification of funds and vice versa.

3.6 Systematic Risk (Beta)

Beta, also known as the "beta coefficient," is a measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. 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 CAPM describes the relationship between risk and expected return that is used in pricing of risky securities.

$$R_p = R_f + \beta(R_m - R_f) + E_{pt}$$

Where β is the measure of systematic risk of the portfolio.

The general idea behind CAPM is that investors need to be compensated in two ways: time value of money and risk. Time value of money is represented by risk free rate (R_f) in the formula and compensates the investors for placing money in an investment over a period of time. The other half of the formula represent the risk and calculates the amount of compensation the investors needs for taking on additional risk. This is calculated by taking a risk measure (Beta) that compensate the return of the asset to the market over a period of time and to the market premium($R_m - R_f$).

3.7 Unique Risk

This risk is the risk of portfolio in particular. It is measured with the help of standard deviation of error term. Such risk can be reduced by better portfolio management. Symbolically;

Where SDEPt is the unique ri $SDEP_t = \left[\sum \frac{(E_{pt} - E_p)}{n-1} \right]^{\frac{1}{2}}$ terms of the portfolio for period t and Ep is the average error term.

3.8 Definitions of some used concepts

3.8.1 Portfolio return

Fundamentally return on a portfolio is:

Where R_p is the return on portf $R_p = \frac{NAV_t - NAV_{t-1}}{NAV_{t-1}} \times 100$ f fund and *t* is the time period.

3.8.2 Market Return

Similarly the return on market index is calculated as under;

3.8.3 Risk $R_m = \frac{Market\,i\,Index_t - Market\,i\,Index_{t-1}}{Market\,i\,Index_{t-1}} \times 100$

The risk is calcul

$\sigma_p = \sqrt{\frac{\sum(R_p - R_p)^2}{n-1}}$

3.8.4 Risk free return

This is the return which investors expect without any risk.

3.9 T-test

In this research paper to test the hypotheses t-test has been used. The t-test assesses whether the means of two groups are statistically different from each other. This analysis is appropriate whenever you want to compare the means of two groups Formula for t- test statistic is:

$$t = \frac{(\overline{X}_1 - \overline{X}_2) - \mu}{\sqrt{\frac{S_{x1}^2}{n} + \frac{S_{x2}^2}{m}}}$$

4. DATABASE

This paper covers performance und schemes of various fund houses consisting 5 large cap & 5 mid cap mutual funds. These mutual fund schemes are of the varied size and are based on different standards. This study is based on the data for the period of five years, from Jan 2007 to Dec 2011.This period covers both the boom and recession periods. Hence it provides more opportunities to the fund managers to prove their prowess. As this study is based on monthly NAV data, the study period is long enough to draw meaningful inferences on the performance and its determinants. Monthly NAV data has been compiled from the website www.moneycontrol.com and www.mutualfundsindia.com. This study has used the

monthly yield rate on three months fixed deposit of state bank of India as a surrogate to the risk-yield rate of return and the data have been downloaded from the website of State Bank of India.

Table 1: Sample Mutual fund Schemes, Their Benchmarks

Name of Fund Scheme	Benchmark
LARGE CAP EQUITY FUNDS	
Fidelity Equity Fund (G)	BSE-200
Franklin India Blue-chip Fund (G)	BSE-30
HDFC top 200	BSE-200
UTI Opportunities Funds (g)	BSE 30
Kotak 50(G)	S&P CNX NIFTY
MID CAP EQUITY FUNDS	
Birla Sun Life MNC Fund (G)	BSE-30
IDFC Premier Equity Fund - Plan A (G)	S&P CNX NIFTY
Sundaram selected mid – cap	BSE MID CAP
Relaince Equity Fund - Retail Plan (G)	BSE 30
SBI Magnum Emerging Businesses Fund	BSE-500

(Source: www.moneycontrol.com)

5. EMPIRICAL FINDINGS AND DISCUSSION

5.1 Risk Adjusted Performance of Mutual Funds

Because of high risk involved in direct investment in equity stocks, investing through mutual funds is becoming popular among Indian investors. Investors are always concerned about getting higher return by taking limited risk, which can be made possible by leveraging the expertise and competence of fund managers. Fund managers are expected to generate higher return compared to benchmark return through their deep understanding of markets and better stock picking ability.

Table 2 highlights the average yearly return of 10 sampled schemes, standard deviation of their return, their beta and average yearly return of their benchmarks. During the selected period of Jan 2007 to Dec 2011, all the 5 sampled large cap equity schemes have recorded positive average return & 3 mid cap equity schemes have recorded positive average return.

Now the question arises whether these returns are commensurate with the level of risk involved in each fund. The standard deviation of yearly returns represents the total risk involved in the investment in the fund concerned. The established theory states that higher risk is associated with higher return. Is this applicable for sampled equity diversified schemes?

Table 2: Return and Risk in Sampled Equity Diversified Mutual Funds

Name of Fund Scheme	Average Yearly Return	Standard Deviation of Yearly Return	Beta	Average Yearly Return of Market
Fidelity Equity Fund (G)	0.7276	6.4318	0.794	0.305
Franklin India Blue-chip Fund (G)	0.7306	6.4308	0.792	0.252
HDFC top 200	0.807	6.9688	0.854	0.305
UTI Opportunities Funds (g)	1.037	6.618	0.764	0.252
Kotak 50(G)	0.560	6.587	0.801	0.455
Birla Sun Life MNC Fund (G)	0.7708	5.7712	0.644	0.252
IDFC Premier Equity Fund - Plan A (G)	1.2878	7.035	0.688	0.455
Sundaram selected mid – cap	1.041	8.181	0.755	0.193
Relaince Equity Fund - Retail Plan (G)	-0.1902	6.4702	0.322	0.252
SBI Magnum Emerging Businesses Fund	0.1682	8.7016	0.967	0.299
Correlation Coefficient between Return (≥0.69%) and Total Risk			0.5313	
Correlation Coefficient between Return (≤0.69%) and Total Risk			0.0208	
Correlation Coefficient between Return (≥0.69%) and Systematic Risk			-0.365	
Correlation Coefficient between Return (≤0.69%) and Systematic Risk			0.6969	

Systematic risk as measured by beta is the market risk and generally calculated with the help of CAPM model. Higher value of beta shows higher responsiveness of the portfolio return to the market risk. Out of total 10 schemes 1 scheme have beta value of more than 0.95, which show little high volatility of this schemes. The average beta value of all the schemes is 0.7381. The correlation coefficient between the returns of better performing schemes and beta value is -0.365 whereas correlation coefficient between the returns of less performing schemes and beta value is 0.6969. This show that performance of both better performing and less performing schemes are equally associated with market risk as measured by beta.

Table 3: Risk and Return in Major Benchmark Markets

Benchmark Market	Average Yearly Returns	Standard Deviation of Yearly Return
1. BSE-30	0.252	7.597
2. S&P CNX NIFTY	0.455	7.803
3. BSE MID CAP	0.193	8.927
4. BSE-200	0.305	7.830
5. BSE 500	0.299	7.899
Correlation Coefficient Between Return and Total Risk		-0.54

So far as the performance of that benchmark markets in terms of returns is concerned, there is inverse correlation between risk and return. The Correlation Coefficient between average yearly return and risk as measured by standard deviation is -0.54.

Table 4: Risk Adjusted Performance Measure of Equity Diversified Fund Schemes

Name of Fund Scheme	Average Sharpe Ratio of Fund	Average Sharpe Ratio of Benchmark	Average Treynor Ratio of Fund
Fidelity Equity Fund (G)	0.59177	-0.03059	0.259825
Franklin India Blue-chip Fund (G)	0.028549	-0.041995808	0.147079
HDFC top 200	0.021927	-0.030598638	0.043202
UTI Opportunities Funds (g)	0.01168	-0.041995808	-0.34703
Kotak 50(G)	0.335203	-0.014660588	-0.26268
Birla Sun Life MNC Fund (G)	0.083961	-0.041995808	0.744308
IDFC Premier Equity Fund - Plan A (G)	0.100802	-0.014660588	1.050874
Sundaram selected mid – cap	-0.024989	-0.032111297	-7.218545
Relaince Equity Fund - Retail Plan (G)	-0.241575	-0.041995808	-2.287559
SBI Magnum Emerging Businesses Fund	0.206448	-0.028997424	2.312869
Correlation of coefficient between Sharpe and Treynor			0.39

The Sharpe ratio is used to characterize how well the return of an asset compensates the investor for the risk taken. It measures the performance of fund in terms of risk adjusted return. To adjust the risk Sharpe ratio uses total risk. Moreover this ratio does not depend on the benchmark market. Results in Table 4 shows that so far the performance of fund in terms of Sharpe ratio is concerned, out of 20 equity diversified schemes, 2 have recorded negative excess returns. Except these two schemes all other funds have performed better than the risk free fixed returns and the top three large cap mutual fund performers in terms of Sharpe ratio are: FIDILITY EQUITY FUND, KOTAK 50(G), FRANKLIN INDIA BLUE CHIP FUND(G), top three mid cap performer in terms of Sharpe ratio are: SBI EMERGING BUSIENSS FUND, IDFC PREMIER EQUITY FUND, BIRLA SUNLIFE MNC FUND. On other hand, the Treynor ratio measures the risk adjusted performance of mutual fund by using systematic risk (beta value). The top three large cap mutual fund performers in terms of Treynor ratio are: FIDILITY EQUITY FUND, , FRANKLIN INDIA BLUE CHIP FUND(G), HDFC TOP

200,). The top three mid cap mutual fund performers in terms of Treynor ratio are: SBI EMERGING BUSIENSS FUND, IDFC PREMIER EQUITY FUND, BIRLA SUNLIFE MNC FUND. Excluding minor changes in the rank of performance of the funds, the overall situation did not change much so far the risk adjusted measure of fund performance is concerned. It is observed that performance of fund is more or less same so far as the Sharpe ratio and Treynor ratio are concerned. The correlation of coefficient between Sharpe ratio and Treynor ratio is 0.39. So far the performance of funds in terms of benchmark is concerned out of 10 sampled schemes, 9 schemes have higher Sharpe ratio than the Sharpe ratio of benchmark markets.

5.2 Diversification

The basic idea behind equity diversified mutual funds is to lessen the unique risk specific to the portfolio through diversification. Higher the diversification, lesser the unique risk. Fund manager can enhance the performance of fund by reducing unique risk through efficient diversification. Table 5 shows combination of such risks and diversification. Systematic risk includes all types of factors which influence all the securities available in the market. Unique risk is the risk of portfolio in particular. It is measured with the help of standard deviation of error term. Unique risk can be altered by better diversification. The explanatory power (R^2) of the CAPM measures the level of diversification in the fund portfolio. Result in Table 5 shows that for the funds with high R^2 the level of unique risk is low and for the funds with low R^2 ratio the level unique risk

is high. The correlation coefficient between R^2 and unique risk is -0.62161. So the overall results substantiate the fact that higher the level of diversification lower the level of unique risk and expectedly higher the return. The fund managers who have diversified their portfolio very successfully are Fidelity Equity Fund (G), Franklin India Blue-chip Fund (G), HDFC top 200, SBI Magnum Emerging Businesses Fund. The average R^2 ratio for all the sampled schemes is 0.97 which shows that schemes adequately diversified.

Table 5 : Risk and Diversification in Equity Diversified Mutual Fund Schemes

Name of Fund Scheme	Total Risk (σ_p)	Systematic Risk (β)	Unsystematic Risk (σ_{et})	Diversification (R^2)
Fidelity Equity Fund (G)	6.432	0.794	0.411	0.999632
Franklin India Blue-chip Fund (G)	6.4308	0.792	0.411	0.996205
HDFC top 200	6.9688	0.854	0.483	0.988397
UTI Opportunities Funds (g)	6.4182	0.764	0.410	0.967429
Kotak 50(G)	5.5892	0.801	0.310	0.971867
Birla Sun Life MNC Fund (G)	5.7712	0.644	0.331	0.968842
IDFC Premier Equity Fund - Plan A (G)	7.035	0.688	0.494	0.967819
Sundaram selected mid – cap	8.181	0.755	0.667	0.954716
Reliance Equity Fund - Retail Plan (G)	11.3856	0.322	1.296	0.938555
SBI Magnum Emerging Businesses Fund	8.7016	0.967	0.752	0.984951
Correlation Coefficient Between R^2 and Unsystematic Risk				-0.62161

Table 6 : Stock Selection Skill of Fund Manager

Name of Fund Scheme	Average Yearly Return	Jensen's Measure	Fama's Measure
Fidelity Equity Fund (G)	0.7276	0.5588	1.270608
Franklin India Blue-chip Fund (G)	0.7306	0.5528	1.314917
HDFC top 200	0.807	0.4142	1.496748
UTI Opportunities Funds (g)	1.037	0.2504	1.766073
Kotak 50(G)	0.560	0.0632	0.876252
Birla Sun Life MNC Fund (G)	0.7708	0.7988	1.23198
IDFC Premier Equity Fund - Plan A (G)	1.2878	0.9124	2.273727
Sundaram selected mid – cap	1.041	-1.0904	1.899198
Relaince Equity Fund - Retail Plan (G)	-0.1902	0.6064	0.891945
SBI Magnum Emerging Businesses Fund	0.1682	-0.1746	0.891757
Correlation Coefficients Between Return and Fama"s Measure			**0.868366**

5.3 Stock Selection Skills

The performance of mutual fund depends upon number of factors. One such factor is the stock selection ability of fund manager, i.e. fund manager should be able to pick the undervalued stocks in the portfolio, in addition to correctly timing the market.

The stock selection skill of fund managers can be evaluated with the help of two measures, namely, Jensen"s and Fama"s measures. So far the performance of managers in terms of Jensen"s measure is concerned out of 10 sampled schemes two schemes have recorded negative value of alpha.(Sundaram selected mid – cap, SBI Magnum Emerging Businesses Fund). This indicates that fund managers of these schemes were able to beat the market by using their skill in selection of portfolio. Top two performers in large cap funds in terms of Jensen"s alpha measure are: Fidelity Equity Fund (G), Fidelity Equity Fund (G), and Top two performers in mid cap funds in terms of Jensen"s alpha are: IDFC Premier Equity Fund - Plan A (G), Birla Sun Life MNC Fund (G). The funds which have recorded negative Jensen"s alpha measure not recommend as they are performing below the market return. To further justify the selectivity through Jensen"s alpha, Fama"s selectivity measure has been calculated and the results are presented in Table 6. Positive high value of Fama"s measure indicates that the fund has achieved superior returns and the investors are benefited from them. Results in Table 6 shows that, all 10 sampled schemes have reported positive value for Fama"s measure. Hence overall the selected top four funds seem to be more reliable so far the professional stock selection skill of managers is concerned during the study period. The top performers in terms of Fama"s measure are**;** IDFC Premier Equity Fund - Plan A (G), Sundaram selected mid – cap, UTI Opportunities Funds (g), HDFC top 200.which are more or less same with the top performers in terms of Jensen"s measure. The correlation coefficient between Fama"s measure and portfolio return is 0.868366. High positive correlation coefficient between Jensen"s measure and portfolio return and Fama"s measure and portfolio return validate the fact that, better stock selection skill of fund managers has resulted in higher portfolio return.

5.4 Testing of Hypothesis

5.4.1   Testing of returns of large cap and mid cap mutual funds

H_0: There is no significance difference between returns of large cap and midcap mutual funds in long-term (5 year)

H_1: Large cap mutual funds are offering higher returns than mid cap mutual funds in long term.

5.4.1.1 For Long-term return

Table 7- Long term returns of Large and mid cap mutual funds

t-Test: Two-Sample Assuming Unequal Variances		
	Variable 1	*Variable 2*
Mean	3.8622	3.0776
Variance	0.751683	9.414909
Observations	5	5
Hypothesized Mean Difference	0	
Df	5	
t Stat	0.550232	
P(T<=t) two-tail	0.605837	
t Critical one-tail	2.015048	

Here t-calculated value (0.550232) is less than t-tabulated value (2.015048), so we failed to accept the alternative hypothesis. That is large cap mutual funds are not offering higher returns than mid cap mutual funds in long term.

5.4.1.2 For Short-term return

H_0: There is no significance difference between returns of large cap and midcap mutual funds in short-term (One year)

H_1: There is significance difference between returns of large cap and midcap mutual funds in short-term (One year)

Table 8- Short term returns of Large and mid cap mutual funds

Year	t-calculated value	t-tabulated value	Result
2007	0.16395	2.57058	Null Accepted
2008	0.65042	2.7764	Null Accepted
2009	-0.4493	2.4469	Null Accepted
2010	-0.0028	2.5706	Null Accepted
2011	1.2569	2.3646	Null Accepted

From the t-test calculations it can be interpreted that for short term there is no significance difference between the return of large cap and mid cap mutual funds.

5.4.2   Testing of returns of Large cap and Mid cap mutual funds as compare to market returns

H_0: There is no significance difference between returns of large cap and mid cap mutual funds as compare to market returns.

H_1: Large cap and Mid cap mutual funds are not offering greater returns as compare to market returns

Table 9- Return comparison of market with large and mid cap mutual funds

Year	Large cap		Mid cap	
	t-calculated value	t-tabulated value	t-calculated value	t-tabulated value
2007	1.327454992	1.859548033	0.201507267	2.015048372
2008	**6.291048242**	**1.943180274**	1.270654978	1.943180274
2009	-0.585833841	2.015048372	-0.226601566	1.943180274
2010	-1.292860123	2.015048372	-0.482096754	2.131846782
2011	**5.612807117**	**2.131846782**	**2.223342956**	**2.015048372**

The basic aim behind the hypothesis testing is to know whether Large cap and mid cap equity mutual funds are performing better as compare to market returns or not. In the year 2008 and 2011 Large cap mutual funds are showing performance below market returns and Mid cap mutual funds are performing above market returns in all years except year 2011. So we failed to accept alternative hypothesis.

5.4.3   Testing of risks of Large cap and Mid cap mutual funds as compare to market risks

H_0: There is no significance difference between risk of large cap and mid cap mutual funds as compare to market risk

H_1: Large cap and mid cap mutual funds risks are higher as compare to market risks.

Table 10- Risk comparison of market with large and mid cap mutual funds

	Large cap		Mid cap	
Year	t-calculated value	t-tabulated value	t-calculated value	t-tabulated value
2007	-1.632683776	2.131846782	-1.875667131	2.131846782
2008	-2.801548197	1.859548033	-0.615017553	1.894578604
2009	-7.116034682	1.894578604	-0.213360687	2.015048372
2010	-3.493653468	1.894578604	-3.621983003	1.894578604
2011	-0.943302025	2.131846782	-5.632205906	1.943180274

Here in all the years calculated value is less than tabulated value, so we failed to accept alternative hypothesis. That is large cap and mid cap mutual funds risks are not more than market risks.

6. CONCLUSION

This study has been carried out to evaluate the performance of selected 10 mutual fund schemes of various fund houses consisting 5 large cap & 5 mid cap mutual funds during the study period of Jan 2007 to Dec 2011. An attempt has been made to evaluate the fund‟s performance, level of diversification and manager‟s ability to pick the undervalued stocks. The study revealed that except two all the sampled schemes have performed better than market. Supporting the established relationship of high risk - high return, better performing schemes are exposed to higher risk. Better performing schemes were less afflicted by systematic risk and highly afflicted by total risk in terms of standard deviation of portfolio return. Out of total, all of the schemes have reported lower risk than the risk of benchmark markets. The hypothesis of risk return relationship was also justified by the benchmark markets also.

The findings also revealed that majority of the schemes were adequately diversified. Negative correlation between level of diversification, measured by R^2 and unique risk proved that, fund managers remained successful in reducing unique risk through better diversification. The study also revealed that about 60% of the schemes were able to beat the market with help of better stock selection skill of fund managers.

Overall**,** ING Dividend Yield Fund, Tata Dividend Yield Fund, UTI MNC Fund, Quantum Long-Term Equity Fund, Canara Robeco Equity Diversified, HDFC Growth Fund, Franklin India Prima Plus Fund and Tata Pure Equity Fund are among the best performing funds among the sampled schemes, in terms of all the different performance evaluation measures.

Finding from the t-test calculations shows that there is no difference between returns from large cap mid cap mutual funds in long run. From the return comparison of mutual funds and market, in 2008 & 2011 large cap are underperforming than market and in 2011 only mid cap mutual funds are showing less return than market returns. Otherwise in all years mutual funds are performing better than the market. It is also proved that in risk comparison also in all years mutual funds risks are less than the market risks.

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