CHAPTER-II
REVIEW OF LITERATURE

Review of literature is the process of analyzing previous studies to ascertain the level of research already conducted in the concerned area. It provides base to develop an idea about the research problem, research methodology applied and the conclusion drawn by previous researchers. It also helps in identification of potential areas of research, describing research objectives, defining research methodology and developing research report. This chapter attempts to review the work already done by other researchers in the field of mutual funds and has been arranged chronologically.

Treynor (1965) developed a methodology for performance evaluation of a mutual fund that is referred to as reward to volatility measure, which is defined as average excess return on the portfolio. This model has been used in detail later in the study to evaluate the performance.

Sharpe (1966) in his pioneering work on the performance evaluation of mutual funds developed a composite measure to consider risk and return. The study measured the performance of 34 open-ended mutual funds for the study period 1944-63. It was concluded that the average mutual fund performance was distinctly inferior to an investment in the Dow Jones Industrial Average (DJIA). Further, it was also revealed that good performance was associated with low expense ratio and low relationship between fund size and performance.

Treynor & Mazuy (1966) found that there is no statistical evidence that investment manager of 57 funds was not able to predict the market movements in advance. The study revealed that the better rate of return was due to the fund manager’s ability to identify underpriced shares in the market. It was suggested that return on mutual funds was totally dependent on fluctuations in the general market.

Jensen (1968) gave a comprehensive indicator of fund performance (alpha) by taking a sample of 115 US funds for the study period of 1945-64. It was concluded that the funds under study were, on an average, not able to predict security prices well enough to outperform buy-the-market-and hold policy. Further, there is very little evidence
that any individual fund was able to do significantly better than what was expected from mere random change.

Fama (1972) developed a methodology for evaluating investment performance of managed portfolios. The model was developed by combining the concepts from modern theories of portfolio selection and capital market equilibrium with those of traditional concepts of portfolio management. It was found that the observed return of a fund could be due to the ability of fund managers to pick up the best securities at a given level of risk (their selectivity ability). Some portion of this return could also increases due to the prediction of general market price movements (their timing ability). The study suggested that the overall performance of managed portfolios could be broken down into several components and specifically the return on a portfolio could be subdivided into two parts i.e. the return for security selection and return for bearing risk. Some subdivisions of selectivity and risk were also suggested.

Sarkar and Majumdar (1995) evaluated the financial performance of five close-ended growth funds from February 1991 to August 1993 and concluded that the performance was below average in terms of alpha values (all negative but statistically insignificant) and funds possessed high risk. However, no reference was provided about the timing parameters in the study.

Kaura and Jayadev (1995) evaluated five schemes of Indian Mutual Funds; two from UTI, One each from Can Bank, Indian Bank, and SBI by analyzing the data for the years 1993-94 and concluded that of the two schemes selected from UTI, one outperformed the market.

Jayadev (1996) in his study “Mutual Fund Performance: An Analysis of Monthly Returns” evaluated the performance of two growth oriented mutual funds (Master Gain and Magnum express) for a period of 21 months (June 1992 to March 1994). The Economic Times Ordinary Share Price Index' (ETOSHPI) was assumed as Benchmark. The study found that Master gain has performed better according to Jensen and Treynor measures but on the basis of Sharpe's Ratio its performance was not up to the benchmark. The performance of Magnum Express was found poor on the basis of all the three measures. Magnum express was well diversified and had reduced its unique risk where as Master Gain did not. Both the funds were found poor
in earning better returns either due to selecting underpriced securities or due to marketing. It was concluded that two growth oriented funds didn’t perform better in term of total risk and failed to offer the advantages of diversification and professionalism to the investors.

Jayadev (1996) analyzed the performance of two growth oriented mutual funds (Master Gain and Magnum Express) on the basis of monthly returns by comparing to benchmark returns. Risk adjusted performance measures suggested by Jensen, Treynor, and Sharpe were applied to measure the performance of the funds. It was found that Master gain has performed better according to Jensen and Treynor measures and its performance was not up to the benchmark as per Sharpe ratio. The performance of Magnum Express was poor and riskiest according to all these three measures. However, Magnum Express was well diversified and has reduced its unique risk whereas Master Gain did not. These two funds were found to be poor in earning better returns either adopting marketing or in selecting underpriced securities. It can be concluded that the two growth oriented funds have not performed better the total risk and the funds were not offering advantages of diversification and professionalism to the investors.

Chakrabarti and Rungta (2000) studied the risk-return characteristics of selected major equity-based private mutual fund companies. The inference of the study revealed that there was no one-to-one correspondence between the performance by return and performance by risk-adjusted returns.

Mishra (2001) evaluated the performance of 24 public sectors sponsored mutual funds (study period from April 1992 to December 1996) with the help of Treynor, Sharpe and Jensen's measures of performance. It was concluded that there was the dismal performance of PSU mutual funds in India, in general, during the study period.

Gupta (2003) evaluated 73 mutual fund schemes (for the period 1994-99) both from public and the private sector to test the market timing abilities of the Indian fund managers. It was concluded that out of the 73 schemes, 38 schemes earned higher returns in comparison to the market returns, while the remaining 35 schemes generated lower returns than the market return.
Roy and Deb (2003) in their study applied conditional performance evaluation technique advocated by Ferson and Schadt (96) to capture the time varying element of expected return. A sample of 89 Indian mutual fund schemes over a period of 1999-2000 to 2003-2007 was taken using S &P CNX 500 as the benchmark. The authors used the lagged information variable, T-bills yield, dividend yields, terms structure yield spread and a dummy for April effect. The performance was measured with both unconditional and conditional form of CAPM, Treynor-Mazuy Model, and Herriksson-Merton Model. They examined the effect of incorporating lagged information variables into the evaluation of mutual fund manager's performance in the Indian context and concluded that it improved the performance of the mutual fund schemes caused alpha to shift towards the right and reducing the number of negative timing coefficients. Tech rally of 1999-2001 (a major event in the history of Indian capital market) impact was also incorporated in the conditional model by introducing dummy variables and found that fund manager's performance as well as timing skill worsened with the inclusion of the dummy.

Sharath (2004) conducted a study (September 1998 to April 2002) on 58 mutual fund schemes during the bear period and found that the risk was low for 37 schemes, below average risk for 11 and average risk for 10 schemes. Risk-return analysis revealed that average mutual funds were found to be with low unsystematic and high total risk. The return was found positive in the case of 46 schemes with 30 schemes yielding above 5 percent. 32 schemes had positive Jensen measure due to the bearish market with low CAPM returns.

Elango (2004) stated that private funds have a high positive association between the past and current year NAV as compared to public sector. The private sector schemes outperformed public sector in terms of NAV range value, innovative products and in the deployment of funds. Public sector funds showed low volatility as against greater variability for private sector indicating low consistency. The‘t- test’ result indicated the existence of a highly significant difference between the mean NAV of private sector funds and public sector with a high statistical significance.

Sondhi and Jain (2005) examined 17 public and 19 private sector mutual fund equity schemes (1993-2002). The mean and median returns for the aggregate period were
lower than the returns on 364 days treasury bills and higher than the BSE 100 index. Alliance Equity fund was found the top performer and Can-bonus funds and LIC Dhanvikas (I) were the poorest performers. It was hypothesized that majority of the sample schemes earned returns better than the market. Private equity schemes had superior performance due to its popularity; fund management practices, well-researched stock selection, and timing skills. It was concluded that more than three-fourth of public sector schemes were unable to achieve better returns in spite of higher investor confidence associated with high safety and lack of consistency was found in performance.

**Sathy and Bishnupriya (2006)** examined the performance of 23 selected growth-oriented and open-ended mutual funds from 1996-1997 to 2004-2005. On the basis of returns, it was found that UTI mutual fund schemes and Franklin Templeton schemes performed exceedingly well in public and private domain respectively.

**Muthappan and Damodharan (2006)** evaluated 40 mutual fund schemes (April 1995 to March 2000) and identified that majority of the schemes earned returns higher than the market but lower than 91 days Treasury bill rate. The average risk of schemes was found higher than the market. 15 schemes had an above average monthly return, and growth schemes earned the average monthly return. The risk and return of the Saver 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. It was concluded that the Indian mutual funds were not properly diversified.

**Rao and Ravindran (2006)** carried out the performance evaluation of Indian mutual funds in a bear market through relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharp's measure, Jensen's measure, and Fama's measure. It was concluded that most of the mutual fund schemes in the sample (58) were able to satisfy investor's expectations by giving excess returns over expected returns based on both premia for systematic risk and total risk.
Pawar and Madhumati (2006) identified the differences in characteristics of public sector sponsored mutual funds and the extent of diversification in these funds. The study period was taken for 3 years from May 2002 to May 2005 with a sample size of 18 mutual fund schemes (6 public sector sponsored and 12 private sectors including 6 foreign sponsored MF) operating in India. The two market benchmark namely S&P CNX NIFTY and CRISIL. Balanced fund index were used along with Treasure bill (91 days) for risk-free rate of return. It was found that public sector sponsored funds don't differ significantly from private sector sponsored funds in terms of mean return percentage and a significant difference existed between these funds in terms of average standard deviation, average variance and the average coefficient of variation (Cov.). Further, there was a statistical difference between sponsorship classes in terms of e SDAR (excess standard deviation adjusted returns) and R.V. (residual variance used as a measure of mutual fund portfolio diversification). Residual Variance was not linearly related to investment performance in terms of Jensen's alpha and portfolio beta regardless of the benchmark index used.

Rao (2006) classified the open-ended equity mutual fund schemes into different investment style to ascertain whether the differences in their performance are statistically significant or not. The study was conducted during 1st April 2005–31st March 2006 by taking the sample of 21 open ended equity growth plans and 21 open-ended equity dividend plans. BSE 100 National Index Value was chosen as the proxy for market return & 364-day T-Bill as surrogate measures of risk-free return. The study indicated that most of the growth plans (80% approximate) were better than dividend plans in terms of superior returns and less risk as compared to dividend plans. It was also found that only 4 growth plans and one dividend plan were able to generate higher returns than that of the market which was contrary to general opinion prevailing in the Indian market and put a question mark on the stock selection and timing abilities of the Indian fund managers. When exposed to the bullish stock market, the Sharpe ratio indicated that growth plans are more likely to reward the investors for the extra risk they assume. Further, the study also found the significant difference in the performance of growth and dividend plans.

Khare (2007) opined that investors could purchase stocks or bonds with much lower trading costs through mutual funds and enjoy the advantages of diversification and
lower risk. The researcher identified that, with the higher savings rate of 23 percent, channeling savings into mutual funds sector has been growing rapidly as retail.

**Kavitha (2007)** analyzed the fund/scheme selection behavior of individual investors towards mutual fund in Mumbai city for the study period from July to December 2004 and found that there is a fair opportunity to mutual fund’s investment in Future.

**Sehgal and Jhanwar (2007)** examined whether there was any short terms persistence in mutual fund performance in the Indian context taking 59 open ended equity based scheme from Jan.2000 to Dec. 2004. NAV was used to estimate percentage on daily and monthly returns and information about entry load and management expenses. BSE 500 index was used as the surrogate for aggregate economic wealth. 91 days treasure bills were used as a risk-free proxy. The authors found no evidence that confirmed persistence using monthly data. Only the winner portfolios sorted on four-factor alphas provided an annual abnormal return of about 1% on post formation basis using daily data. Data frequency also affected the inferences about fund performance. Economic feasibility of zero investment trading strategies that involved buying past winners and selling past loser was however in doubt. This was owed to the fact that these strategies generated low gross returns and that the winner portfolio involved higher investment costs than loser portfolios, thus, destroyed a major portion of extra normal returns.

**Subha and Bharathi (2007)** determined the performance of selected 51 scheme of open ended mutual fund using the measure like Sharpe ratio, Treynor ratio and Jensen differential measure (1st October 2004 to 30th September 2005) and also analyzed risk return relationship. 91-days T-bills were used as a surrogate for risk force rate of return. S&P CNX Nifty index was used as the benchmark portfolio. The results revealed a mixed performance of sample schemes during the study period. The Sharpe ratio indicated good performance by the majority of the scheme, while in terms of Treynor ratio, only a few schemes showed good performance. The Jensen's measure alpha was positive for 98 per cent of the fund indicating thereby that the funds were generating good returns. The returns of the fund were found positive and hence it was concluded that the performance of mutual funds during the period was satisfactory.
Swaroop and Debasish (2009) studied the performance of selected schemes of mutual funds based on risk-return relationship models. A total of 23 schemes offered by six private sector mutual funds and three public sector mutual funds were studied (April 1996 to March 2009). The analysis has been made on the basis of mean return, beta risk, and coefficient of determination, Sharpe ratio, Treynor ratio and Jensen Alpha. The overall analysis concluded that Franklin Templeton and UTI were being the best performers and Birla Sun Life, HDFC and LIC mutual funds indicated below average performance.

Deb and Banerjee (2009) highlighted the importance of value at risk (VaR) as a measure of downside risk for Indian equity mutual funds, an aspect which was completely ignored for performance reporting in Indian mutual fund industry. The authors used three parametric models and one nonparametric model and weekly returns of a sample of equity mutual fund schemes in India, to predict their weekly VaR on a "rolling" basis and also tested the robustness and predictive ability of the models by employing two basis "back testing" approaches. Overall the analysis showed that the Indian equity mutual funds have exhibited considerable downside risk in terms of VaR measures. Back testing of the models suggested that the "random walk "and the moving average models suffered from a downward bias and error by underestimating the VaR frequently. The EWMA and historical simulation models are free from that bias, but these two models, particularly the later, show tendency of providing too conservative estimates of VaR.

Kundu (2009) evaluated the stock picking performance of the mutual fund managers using related time tested models of Jensen and Fama. A sample of total 31 open-ended, growth oriented equity schemes using convenience sampling technique. The period of study was from April 2005 to March 2008. The purpose to choose this period was to found out whether the funds even during the indomitable bull market phase succeeded in surpassing the market performance by the active stock selection of their fund managers. S&P CNX Nifty was taken as the benchmark for market performance and the bench mark for risk-free rate of return was taken 91 day Treasury bill (T-bills) issued by the Government of India. It was found that mutual fund schemes on an average have failed to outperform the market even after taking a risk higher than that of the market. In diversification score, the majority of the
schemes has performed moderately well but was highly volatile as their beta was very close to 1 or more than 1. It was concluded that there was no significant and conclusive evidence in support of superior stock selection activity of mutual fund managers in India.

Khurana and Panjwani (2010) evaluated the performance of selected balanced mutual fund growth scheme in comparison to their benchmark, the volatility, return per unit the fund and sensitivity to the market function in terms of beta. The study observed that HDFC Prudence Fund-Growth, Canara Robeco Balance-Growth, DSP Blackrock Balance Fund- Growth were the top three funds on the basis of CAGR for the last five years. These funds also outperformed the CRISIL Balance Fund Index. It was observed that Canara Robeco Balanced Growth Scheme was relatively more volatile with highest standard deviation, beta and Treynor ratio. The study concluded that Canara Robeco Balance Growth was the most aggressive hybrid mutual fund whereas Escort Balance Fund-Growth was relatively a least defensive fund.

Duggimpudi et al. (2010) analyzed the relationship between risk and return of Indian equity diversified mutual funds based on total risk and systematic risk. Two different overlapping data sets were used in the study (2000 to 2009), covering seventeen mutual funds. The evaluation relied on three techniques, namely, the Treynor, the Sharp and the Jensen techniques. Moreover, these techniques had been compared with the Indian market index to evaluate the performance of each individual mutual fund. The results indicated a positive relationship between risk and return of these mutual funds. Also, beta's values were found less than one in the selected sample. Furthermore, there was evidence of higher actual returns compared with expected returns over the selected study period. It was suggested that with the imminent liberalization of the financial market in developing countries, especially the Indian market, the findings could encourage investors to invest in international mutual funds. They could expand their financial operations in the Indian market, which could offer advantages of diversification and professionalism to the investors.

Chary and Masood (2011) observed that the performance of mutual fund industry has not been so significant over the last few years, including the current year. It was due to the dynamism of investors. Though many varieties of schemes came out with
the tag of innovations, the sector could not attract high volumes of business from the hands of investors. Not only that, even most of the funds in the market provided the returns equal to risk-free rate, so investors thought of avoiding the risk of putting money in mutual funds as they are getting the minimum return as equal to Treasury bill rate. However, the industry seems of walking over doldrums caused by fewer earnings, high competition, and global economic recession. It was suggested that fund managers and all other parties need to move from earth to heaven and pillar to post to persuade the industry to get hold of the take-off in the days to come.

Bawa and Brar (2011) revealed that private sector Equity Linked Saving Schemes were ahead in giving the investors higher returns that is why their AUM was much higher than the others. It was found that public sector equity Linked Saving Schemes were the most risk prone towards the market variations. All the private sector funds under study were giving returns more or less in close proximity to their average returns. It was concluded that public sectors ELSS have advantages over the private sector ELSS.

Kaur and Brar (2011) studied the performance of selected income schemes of mutual funds on the basis of their daily NAV recorded for 10 years (1st April 2000 to 31st March 2010) and compared the results of public sector sponsored schemes with private sector schemes. The result showed that private sector leads the race in terms of performance. It was concluded that public sector income scheme were more unpredictable in terms of returns assessment.

Bawa and Brar (2011) in their study evaluated the performance of selected growth mutual fund schemes of India on the basis of daily NAV recorded (1st April 2000 to 31st March 2010) and also compared the results of public sector sponsored schemes with that of private sector schemes. For study purpose 5 mutual funds were selected consisting of two schemes from the public sector and two from the private sector and one purely private sector scheme. The criterion for scrutiny of growth fund was AUM, NAV, Sharpe’s Ratio, Treynor’s Ratio, Risk adjusted CAGR. The result revealed that growth scheme showed progress in number of schemes floating in the market, percentage contribution towards total AUM and AUM of all growth schemes was inclusive. Open ended funds were found more popular than close ended scheme.
The private sector has performed better as compared to its counterpart in case of average annual NAV, Growth percentage, total return, beta, CAGR. Public sector performed better in case of SD, Sharpe ratio, expense ratio and Treynor's ratio.

**Bhuvaneswari and Selvam (2011)** evaluated the performance of 12 mutual fund companies in different categories for a period of 6 years (1st Jan. 2002 to 31st Dec. 2007). They attempted to study the risk and return relations of open-ended equity funds using daily NAV returns, daily market returns and linear regression. It was found that only two sample schemes namely, principal child benefit fund (Supersaver)- Dividend and ING Vysya select stock fund- dividend under dividend option were significantly related to their market risk and return. During the study period, the 6 alpha values indicated that the majority of the sample scheme's excess returns were not significantly different from their market return and more than 50% of the sample schemes under dividend option performed better than their respective benchmark.

**Lenin and Devi (2011)** evaluated the performance of different mutual funds schemes on the basis of risk return parameter and categorized different mutual funds into several groups based on different evaluation indices such as rates of return, Standard deviation, Sharpe, Treynor and Jensen Index. The study period was taken from 2003 to 2007 as in this period the mutual fund industry registered notable growth. Indian stock market performed exceptionally well and a large no. of mutual funds has been investigated during that period. The study was conducted on 340 mutual funds belonging to 19 investment styles. The result revealed that the average return for investment styles ranged from 3.88 per cent to 55.87 per cent, the highest being the equity Tax saving funds and lowest debt institutional funds. As far as the risk was concerned equity diversified investment style had the highest risk and their average returns were also high. The risk per unit return ratio was lowest for the money market institutional investment style.

**Ali and Zia (2011)** examined the performance of Equity Funds in Pakistan for the period of 1999 to 2009 using yearly returns of the different Mutual Funds. The equity mutual funds under study were ranked on the basis of their average returns, standard deviation, and coefficient of variation. The returns of most of the funds were greater than the benchmark return. During the study period only 2 or 3 funds performed less
than the KSE-100. The performance of most of the funds was better than the benchmark returns. Test of relationship showed the significant and positive relationship between market returns measured by Karachi Stock Exchange (KSE-100 Index) and Open-Ended Equity Funds.

Kumar (2011) examined the fund's sensitivity to the market fluctuations in terms of beta and appraised the performance of mutual funds with regard to risk return adjustment using Sharpe, Treynor and Jensen Models. BSE National index was used as a proxy for market index. The risk-free rate of return was taken as 6 per cent per annum and the study was conducted on 20 open ended schemes launched by selected five mutual funds for the time period of Jan 2000 to Dec. 2009. The analysis showed that out of 20 schemes, 5 schemes namely Reliance Growth fund, Reliance vision fund, ICICI prudential Tax Plan, HDFC Top 200 and Birla Sun Life Equity fund performed better as compared to benchmark and risk involved was less than the benchmarks.

Mansor and Bhatti (2011) in their study “Risk and Return Analysis on Performance of the Islamic mutual funds: Evidence from Malaysia” used monthly aggregate returns to evaluate the performance of the mutual funds for the Islamic and Conventional portfolios in Malaysia, from 1996 to 2009. The evidence from aggregate returns of the 128 Islamic mutual funds and 350 conventional mutual funds, consists of 160 observations denoted that both portfolios have performed better than the market portfolio within the period. However, the result had shown on average the Islamic Equity provides slightly fewer returns relative to the conventional counterparts. The result revealed a statistically significant difference between the standard deviation of the portfolios indicating thereby that the Islamic portfolio is riskier than the conventional portfolio. Further, it was also revealed that both Islamic and conventional portfolios were depended on the market portfolio of which the former portfolio was closely mirrored to the market movement were the latter portfolio.

Jain (2012) analyzed the performance of equity based mutual funds of 45 schemes offered by 2 private sector companies and 2 public sector companies (April 1997 to April 2012). The analysis has been made using the risk-return relationship and Capital
Asset Pricing Model (CAPM). The results indicated that over the period of last 15 years, private sector mutual fund companies (HDFC and ICICI) have outperformed the public sector ones (LIC and UTI). Beta (risk) analysis showed that while HDFC and ICICI mutual funds have been least risky, LIC was found the most risky. 8 out of 9 schemes (89%) of LIC had beta value greater than .80, one of the reasons behind the poor performance of LIC. The overall analysis found that the private sector mutual fund schemes had been less risky and more rewarding as compared to the public sector ones.

Singh and Priyanka (2012) studied the trends in the mobilization of funds by the UTI through Trend Analysis, fixed base index, link relative index, coefficient of determination and pattern of redemption/repurchase (1998-99 to 2009-10). The study signified the role of the UTI in mobilizing the funds with an appreciating growth rate of 53% per annum. For redemption which was a parameter of state of liquidity of the investment growth of 51.6% per annum during study period stated a good tempo of the mutual funds to sustain the interest and confidence of the investors. The year 2003-04 was noticed as an outstanding landmark from growth pattern point of view with respect to the previous year as the base (link relative index) except 2000 to 2001 and 2002-03. All years proved to be better over the previous year as the base. The growth of UTI suggested a good sign for the future financial system of India.

Santhi and Gurunathan (2012) evaluated the performance of all 32 growth oriented open ended equity linked saving schemes of tax saving mutual funds. S&P CNX Nifty was taken as market benchmark and risk adjusted performance measure of Sharpe, Treynor and Jenson were used (2006-07 to 2010-11). The risk-free rate of return proxy was the average yield on post office saving scheme. The results revealed that highest volatility was observed in 2008-09. Risk adjusted measures showed that certain schemes underperform the benchmark index and showed a strong negative risk-return relation and certain outperforming schemes showed positive risk-return relation. The study also highlighted that the past performance of funds does not reflect in the future. No fund performed well during the entire study period. The Same pattern was followed in the return by the schemes along with the stock market index S&P CNX Nifty. All funds yielded negative return during 2008-09 but higher than the
stock market index. Average return was higher and average risk was lower than the benchmark.

**Kaur & Gupta (2012)** examined the performance of open ended mutual funds, with a sample of 30 schemes, on the basis of weekly returns compared with benchmark returns. The study revealed that most of the schemes could not perform better as compared to the benchmark returns. The variability in return of schemes was found less than the market. Less than one beta value of the scheme indicated the defensive nature and less sensitivity to market forces. It was found that only 20 per cent schemes performed better, were well diversified; poor in earning or better returns may be due to marketing or the selection of underpriced securities.

**Goel et al. (2012)** studied the relationship between performance related characteristics and the performance of Indian Mutual fund industry using risk adjusted performance measures asset size and the expense ratio of mutual funds for a period of 5 years (April 2006 to March 2011) using Multiple Regression models. For the study, a sample of 160 schemes was selected through stratified random sampling. The result showed that the past performance record was very useful in predicting the future performance of the mutual fund. The performance of the mutual fund was negatively related with the expense ratio of the scheme. Mutual funds with lower expense ratio had performed better than funds with higher expenses ratio. The performance of the mutual fund scheme was positively related to their asset size.

**Rao and Ravindran (2012)** evaluated the performance of mutual fund schemes during bear market through relative performance index (RPI), risk- return analysis, Treynor ratio, Sharpe's ratio, Sharpe's measure, Jensen's measure and Fama's measure with a sample size of 269 open ended schemes, covering the period from September 1998 to April 2002. The RPI analysis showed that out of 269 schemes 49 were under performer, 102 were found par performers and 118 were out performer. Medium term debt funds were the best statistical risk returns analysis depicted that average mutual fund was found with low unsystematic and high total risk. Medium term debt fund was out performers. Treynor's ratio highlighted that 32 out of 58 schemes were found with positive Treynor's ratio, 30 out of 58 schemes were found with positive Sharpe's ratio. Sharpe's measure said that unsystematic and unique risk of the mutual fund was
very high due to low b value, poor correlation with the market and low value of \( r^2 \). Jensen measures provided that only 30 schemes provided excess returns over the risk-free rates. Fama measure found 46 schemes with positive Fama's net superior return. It was concluded that 58 of 269 open ended MF have provided the better return than the market during the study period.

**Bansal and Gupta (2012)** evaluated the performance of 12 mutual fund schemes for a time period of 4 years (May 2005 to April 2009) and compared their performance on the basis of BSE SENSEX benchmark index and risk less return benchmark of T-bill (average yield 50% during study period). The performance was evaluated with special reference to Sharpe Model. The results showed that 3 out of 12 selected MF schemes were having more standard deviation than market index namely Birla Sun Life Basic Industries Fund (Dividend), Reliance Growth Fund (Growth) and Morgan Stanley Growth Fund (G) meaning thereby these schemes, were more risky than market portfolio. The lowest deviation in return was indicated by L&T liquid fund and HDFC Liquid Fund (G). Only 3 mutual fund schemes i.e. HDFC liquid fund, L&T liquid fund and UTI Bond Fund out of 12 showed positive value of Sharpe index while other showed negative values means inferior performance. It was concluded that most of the selected schemes were underperforming during the study period.

**Burlakanti and Chiruvooori (2013)** analyzed risk and return of 10 funds on equity segment of various fund houses for performance (Dec. 2007 to Dec. 2012) using AGR, CAGR, SD, Beta, Sharpe, and Treynor model. The observations highlighted that there existed a correlation between annual return of individual funds and NIFTY return. AGR and CAGR of TATA dividend yield and ING dividend yield fund offered better returns. Sharpe and Treynor ratio of equity funds were far better than benchmark NIFTY. It was concluded that AGR, CAGR, Sharpe ratio and Treynor ratio of TATA dividend yield and ING dividend Yield fund were higher than their peer.

**Kumar and Ali (2013)** analyzed the performance of equity large-cap mutual fund schemes of selected companies for five years and compared their performance with the market return. A sample of 10 open ended equity large cap funds growth schemes launched by the public sector, private sector and foreign mutual fund player in Indian was taken by using deliberate sampling method. NSE Index was used as market index
and statistical techniques for analysis used included arithmetic mean, standard deviation, correlation, Beta, Treynor ratio, Sharpe ratio, Fama’s ratio. The results revealed that ICICI Prudential Discovery Fund –IP growth, Birla Life ICICI Prudential Discovery Fund-growth, Birla Sun Life Dividend yield plus-Growth were the top funds on the basis of CAGR for the study period and also outperformed the Nifty Index. ICICI Prudential Discovery Fund-IP-Growth scheme was comparatively more volatile with highest standard deviation and Beta, and identified as the most aggressive hybrid mutual fund.

Vasantha et al. (2013) analyzed the risk adjusted performance of the selective open ended equity diversified mutual fund using Jensen, Sharpe and Treynor ratio and found that all the funds were not performing well. The researcher also measured the risk-return relationship and market volatility of selected mutual funds and found that low variation existed between market index and fund performance of HDFC top 200 funds. It was also observed that risk of variation was low and funds were less volatile than the market.

Poornima and Sudhamathi (2013) analyzed the performance of 102 growth oriented equity diversified schemes (April 2006 to March 2011) by using Sortino’s Ratio, which measured the performance of the funds in terms of downside risk. It was found that out of 102 funds, 97 funds performed above the minimum acceptable return level and has performed below the minimum acceptable level. It was concluded that only after evaluating the risk and return using suitable measure the result would provide the investor a careful choice of funds with higher returns.

Narayanasamy and Rathnamani (2013) evaluated the growth scheme of selected mutual funds launched by different private sector mutual funds for the period from January 2010 to Dec. 2012. The study examined their return and tried to identify whether mutual funds were able to provide the reward to variability and volatility and compared their return with security market return. The result revealed that the selected funds had good correlation with its benchmark return and the overall funds had performed well in 3 years study period in the highly volatile market movement except for Reliance Vision.
Zaheerudin et al. (2013) in their study investigated the financial performance of the mutual funds using return, standard deviation, and beta and compared HDFC, Birla Sun Life and ICICI equity funds performance with the S&P CNX Nifty Index along with Ranking of the performance of selected mutual funds. The analysis concluded that ICICI equity fund indicated highest returns among the selected funds. As far as the risk was concerned the Birla Sun Life Mutual Fund had higher risk and ICICI scheme identified low risk. ICICI mutual fund was ranked first as per the performance ratio.

Revathy and Santhi (2013) evaluated the performance of equity mutual funds in selected banks and analyzed risk and return and compared the performance of the selected bank in equity mutual fund and identified the suitable equity MF. The study revealed that among selected equity MFs, HDFC was giving the high return and also according to Sharpe Index ratio HDFC equity returns were good. According to Treynor Index Ratio HDFC equity return over benchmark and systematic risk was good. Jenson ratio also indicated that HDFC equity fund risk-free outperformed the benchmark.

Vanaja and Karrupasam (2013) evaluated the performance of selected private sector balanced category mutual fund schemes on the basis of risk-return parameters, selecting 5 private sector mutual funds and 5 balanced category schemes under each fund (April 1st 2008, to March 31st 2013). The study found that only 2 out of the 5 MF have earned a return above the average return and 2 schemes have made the negative return. All the funds under study showed positives Sharpe Ratio (range of excess return over risk-free return per unit of total risk was wide) Positive Treynor's ratio (Range of excess return over risk-free return per unit of systematic risk is wide). Jensen Alpha showed superior performance of selected funds.

Rao and Rani (2013) studied risk adjusted performance evaluation of balanced mutual offered by various mutual funds (April 2010 to March 2013) and compared it with market return i.e. S&P CNX Nifty and the risk-free rate of return i.e. 91-days Treasury Bills. Various performance measures like Treynor, Sharpe and Jensen measure were used to analyze the performance of selected mutual fund schemes. The result depicted that many schemes failed to outperform the market due to low average
beta and disproportionate unsystematic risk in some of the schemes. Moreover, mismatch of risk and return relationship was also identified in some of the schemes under observation.

Jacob et al. (2013) compared various mutual fund schemes of State Bank of India and Unit Trust of India and evaluated their performance in terms of risk and return to identify the best mutual fund scheme out of the sample of 15 schemes. For measuring risk, beta and standard deviation were used and to know the mutual fund having the highest return at each unit of risk Sharpe’s ratio was used. The study concluded that SBI IT fund and UTI Transportation and logistics fund had the highest average return and SBI Magnum Gilt fund Short term plan and UTI floating Rate Fund showing lowest systematic risk and standard deviation. Sharpe ratio was highest for SBI FMCG fund, thus, generated the highest return for each unit of risk taken.

Lohana (2013) carried out a study to identify the scheme which was offering the advantages of diversification and analyzed the excess return per unit of risk offered by mutual fund of public sector and private sector. 10 growth schemes (5each from public and private sector) were randomly selected from 1st March 2011 to 29th Feb. 2012. BSE 100 was taken as market index and 91 day treasury bills return was taken as risk free rate of return. It was found that returns of all funds were more than market index return but not high. Reliance Banking Fund was found poor per former under all three measures. Kotak Gold fund and IDBI fixed maturity fund outperformed the market benchmark. Average monthly returns of public and private fund were equal in sample funds. It was concluded that the growth oriented mutual fund were earning higher returns than the benchmark returns.

Annapoorna and Gupta (2013) analyzed the return of mutual fund schemes ranked 1 by CRISIL and compared the average return of selected mutual fund schemes with SBI domestic term deposit rates and the various categories of selected MF Liquid fund (2008-2013) using statistical technique like average and rate of return. The analysis reflected that the mean return on equity mutual fund scheme was more than the other schemes and SBI domestic term deposit rates. The mean return on hybrid mutual fund schemes showed volatility during the study period. The mean return on debt mutual fund was less than SBI domestic term deposit rates for less than 1 year.
and more than the SBI domestic term deposit rates for more than 1 year. The mean return on money market MF scheme was consistently positive and close to SBI domestic term deposit rates. Further, it was revealed that in most of the cases the MF schemes failed even to provide the return of SBI domestic term deposits and equity mutual fund have the potential to provide the greater return in long term.

Sharma and Kumar (2013) analyzed the performance of equity based mutual funds choosing 15 schemes offered by 2 private sector companies and the public sector companies for a period of 15 years (April 1999 to April 2013). The analysis was based on risk-return relationship and CAPM. SENSEX was taken as Benchmark to calculate the risk. It was found that over the period of 15 years, the private sector mutual funds companies have outperformed than the public sector and were less risky. Reliance and Kotak mutual fund industries have been the best performer than the UTI and SBI mutual fund industries.

Kaur (2013) evaluated the performance of top 10 open ended growth funds for the period of 2008-2010 and also performed attribution analysis of managerial performance on the parameters of diversification, timing, and selectivity. The Treynor model was used to test the timing and Fama’s measure was used to test the selectivity skills of the fund manager. The finding showed that on average mutual funds track their benchmark and an investor was benefited by less risky investors. The results were having implications for investors as Mutual Fund outperformed the market and attribution analysis showed the presence of ‘managerial acumen’. The results, however, contradicted with the previous research in the developed market.

Babar et al. (2013) compared and evaluated Pakistani Mutual funds performance with each other, with Benchmark (NIT) and market (KSE 100 index), and also analyzed the outperforming funds during the period 2005 to 2011. Techniques used for analysis of mutual funds were Sharpe index, Treynor index, Jenson Alpha, Fama overall performance, Information ratio, Sortino ratio and Tactical Asset Allocation on total 84 observations for each mutual fund. Risk free rate benchmark was taken (6 month T-bill) and KIBOR rate. It was found that the mutual funds return was not in synchronization with benchmarks. The returns were not in direct co-relation to market as they have shown negative return and the market outperformed all the mutual funds.
It was also traced out that the mutual funds with higher risk did not validate higher return and concluded that overall economy and liquidity crisis existed in the market and the mutual fund industry was experiencing a declining trend in returns.

**Taneja and Bansal (2014)** compared the performance of large cap equity debt mutual fund schemes for the 3 years (2010-2013) using standard deviation, Sharpe's Ratio, Beta, Alpha, R-squared and Treynor Ratio. For computing volatility ratio monthly return for three years of equity funds and the weekly return of 1.5 years of debt fund was taken. It was found that out of all sample equity mutual fund schemes, UTI opportunities fund was the best having the lowest standard deviation, lowest beta, the highest value of alpha, highest Sharpe and Treynor ratio. In case of debt mutual fund scheme UTI short term income fund was not performing well because of highest beta and lowest Sharpe Ratio.

**Kaur (2014)** evaluated the performance of open-ended debt mutual funds with a sample of 23 schemes on the basis of weekly returns in comparison to benchmark return and found out that most of the schemes could not perform better as compared to benchmark and the variability of the schemes were less as compared to the market in case of returns. Schemes were found defensive in nature and were not well diversified.

**Choudhary and Sehgal (2014)** studied the performance of selected Diversified Equity Mutual Fund and found that in terms of average returns, 75% of the diversified fund schemes had shown higher and superior returns whereas 62% of the selected schemes were less risky in terms of standard deviation. The funds were less risky than the market portfolio and highly diversified. 7 out of 8 funds had superior performance under Sharpe and Treynor Ratio.

**Pal (2014)** studied 14 equity based mutual fund schemes covering study period from 3rd January 2011 to 1st October 2013. The analysis was based on average return, risk, beta, Sharpe Ratio, Treynor Ratio and Jensen Alpha. The overall results revealed that all selected mutual funds had positive return except Kotak Nifty ETF and ICICI prudential infrastructure fund. The funds were also found less volatile than the index.

**Anusuya and Lilly (2014)** studied the concept of tax saving ELSS in Indian stock market taking a sample of 49 open-ended tax saving ELSS schemes for the period...
from April 2008 to March 2013 and examined the relative performance by applying Sharpe's ratio, Treynor's ratio, Sortino's Ratio and Jensen's Alpha measures. It was found that LIC Nomura MF growth and dividend scheme was having the highest return and outperformed the market. These schemes were able to bear the risk as compared to other schemes in the study. The result highlighted the unique feature of this scheme which allowed investors to save tax, as they fall under section 80 C; such schemes carry high risk and have the potential to deliver the highest return.

**Sujatha and Felix (2014)** studied the performance of Reliance Equity Fund in comparison with HDFC and Sundaram mutual funds and the Volatility of Equity mutual fund schemes. The result derived that Reliance equity fund yield high returns as compared to HDFC and Sundaram equity fund in the year 2014 by using standard deviation, Regression Analysis, and Variance analysis highlighted that Reliance Equity Funds were highly volatile. It was suggested that there is need to work on the volatility of Reliance funds. The AMC has to introduce new schemes to cater to the need of low and moderate risk seeking investors and to choose safer investment options.

**Poongavanam (2014)** studied the market trends of mutual fund investment for the period from 2010-2013 and carried out the performance evaluation of Reliance Mutual fund and compared it with TATA, ICICI & HDFC. The study found that people invest more in open-ended scheme (93.75%) as compared to close ended scheme (6.25%). The MF Investors under observation invested in equity scheme (54.5%), (45.5%) in balanced schemes and nothing in debt scheme. HDFC Tax saving fund earned the highest return in the NAV. Most of the investors were showing interest to invest in equity shares based on their turnover and actively trading in MFs to get high returns having the membership period of 3-5 years. Due to economic crisis during the study period, the stock market was also affected negatively.

**Ashraf and Sharma (2014)** analyzed the performance of equity mutual fund industry against risk-free rate and benchmark returns (April 2007 to March 2012). The sample consisted of 10 growths oriented open ended equity mutual fund schemes belonging to 5 public and 2 private mutual fund companies. The result of risk return analysis stated that out of 10 schemes 3 had underperformed the market, Seven Schemes, had
the lower total risk as compared to market risk. The returns of all schemes were found to be over and above the market return. Treynor's ratio showed that all MFs outperformed benchmark market index and according to Sharpe's Ratio 3 mutual fund schemes underperformed the market index. The Regression analysis depicted that benchmark market return index has statistically significant impact on mutual fund return at 5% level of significance.

**Bhatt and Vyas (2014)** studied the performance of selected equity mutual fund in India and evaluated their performance with special reference to Sharpe's and Treynor's model. The study was based on a sample of 6 equity mutual fund schemes launched by different private sector mutual fund house (Jan 2010 to Dec. 2012). S&P CNX NIFTY, S&P CNX 500, BSE 200 and BSE SENSEX were taken as the benchmark. The study concluded that all funds performed well during the study period.

**Karan and Jacob (2014)** attempted to identify the best mutual fund scheme by comparing to various mutual fund schemes of Reliance and unit trust of India and evaluated their performance in terms of risk and return. The financial performance was measured by the statistical parameter such as (alpha, beta, standard derivation, r-squared, Sharpe ratio). For the purpose of this study 15 schemes were selected covering 5 years (2009-2013) period. It was found that Reliance equity opportunities fund and UTI transportation and logistics fund had the highest average return. Lowest beta and SD for Reliance liquid Cash fund and UTI floating rate fund ST (Reg.) showed lowest systematic as well as unsystematic risk. Sharpe Ratio was highest for Reliance Liquid cash fund and UTI floating rate Short Term - Retail Plan generated highest return for each unit of risk taken, thus, these two schemes were recorded as the best in the sample schemes where the investor could invest.

**Dhar (2014)** examined the market timing abilities of fund managers for a sample of eighty mutual fund schemes during May 2000 to March 2012 using monthly data frequency. Both unconditional and conditional TM and HM models were applied. The study used SENSEX as the market proxy and monthly yield on 91 days treasury bills of GOI as a proxy for risk-free return. For conditional model additional explanatory variable like Market dividend yield, the growth rate of the index of industrial production, yield from foreign exchange rate (rupee-dollar exchange ratio)
fluctuation, inflation rate were incorporated. The results revealed that majority of fund managers were unable to time the market correctly during the period under consideration and also noticed a little evidence of conditional market timing ability for the Indian market. The obtained result doesn't support the hypothesis that Indian mutual fund managers display distinct market timing ability even if we control the public information variables. It was concluded that biases of the traditional models were eliminated due to the conditioning of public information.

Qamruzzaman (2014) measured the growth oriented mutual funds returns and compared it with market portfolio and identified the schemes offering advantages of diversification. It also analyzed the excess return per unit of risk evidenced by mutual fund of the public sector and private sector for the period from January 2012 to June 2013 with 32 mutual funds traded in Bangladesh. Daily general index obtained from Dhaka stock exchange was taken as the proxy for the market return. The covariance, coefficient of correlation, beta coefficient, Sharpe index, Treynor index and Jensen alpha were used. 91 days T. bills were taken as the surrogate measure of risk-free return. It was found that the growth oriented mutual funds have not performed better with respect to volatility and funds were not highly diversified. Only a few funds were found highly diversified and so had less risk. Fund managers were found to be poor as the negative values of Jensen’s ratio highlights their inability of market timing and selectivity.

Yadav and Hemanth (2014) analyzed 15 equity growth mutual funds schemes across 10 AMCs, over a period of three years (1st June 2010 to 31st May 2013). The daily log normal returns of the scheme was used as the returns and the average returns were used to find out the ratios under different measures. S&P CNX Nifty was taken as the benchmark to compare the Beta value (systematic risk). The average return on the 364 day Treasury bill for three year period was 7%, 8.4% and 7.9% for 2010-11, 2011-12 and 2012-13 respectively and was taken as risk-free return rate to find out return and ratios under different measures. By using Sharpe's and Treynor's measures for analysis, it was found that many schemes failed to beat the benchmark return in the long run due to disproportionate risk and return relationship and the low average beta of the schemes. Birla Sun Life India Opportunities Fund –Plan B (Growth) scheme had failed miserably to generate positive returns due to the low beta that it had
assumed whereas UTI equity fund growth option scheme had generated maximum returns in spite of its below average beta. It was concluded that UTI equity fund growth option scheme had secured rank 1 under all the measures and rated as the best performer.

Gupta and Garg (2014) conducted an empirical study on performance evaluation of 20 selected ELSS for a period of 5 years (2008-2013) using NAV, Risk, Return, Reward to Variability (Sharpe), Alpha, etc. The results revealed that selected ELSS’s in general performed better than the diversified and sectoral funds except for DSP Black Rock Tax Saver, Franklin India Tax shield and ICICI Tax saving schemes. The performance of the sample schemes was found in the same direction as that of the market. Differences in Jensen alpha and Sharpe’s differential return indicated that the schemes were not well diversified. All the 3 risks adjusted performance measure showed good performance of the selected ELSS schemes and significantly different in their ranking. Out of 20 schemes under study, the Franklin India Tax shield topped the list. The market performance showed a positive influence on the performance of schemes. A positive and significant correlation existed between the present and past NAV and there was a high degree of positive correlation in weekly time lag and get reduced as the time lag increased for all selected schemes.

Nagesh (2014) analyzed the risk and return of mutual funds schemes pertaining to three sectors i.e. pharmaceutical, IT and Banking by taking three schemes from each sector (April 2010 to Feb. 2013). The schemes were ranked based on Shape’s, Treynor and Jenson Measurement tools. The risk-free rate of investment was taken as 8.2% (the interest rate on post office deposit). The study concluded that banking sector funds such as reliance banking fund and ICICI banking fund showed the best performance. UTI banking sector fund was having the highest risk followed by ICICI banking fund. The Reliance Banking Fund performance was best whereas, Birla Sun Life New Millennium fund was found the worst performer.

Pal and Chandani (2014) studied the performance of top 10 equity mutual fund schemes in various categories and the best mutual fund house in equity mutual fund category. The period of study was from Oct. 2007 to Oct. 2012 taking BSE 2000 as Benchmark. It was concluded that by comparing 3 year and 5 year CAGR of all
equity mutual funds, HDFC Mid Cap Opportunities (G), Birla Sun Life MNC Fund (G) and Quantum Long Term Equality (G) were the best schemes. But Birla Sun Life MNC fund was having the highest expense ratio whereas Quantum long term equity was having the least expense ratio. But the comparison of standard deviation denoted that HDFC Mid Cap opportunities (G) was having lesser risk. Beta and r-square was found same for both the scheme. Overall, HDFC Mid Cap opportunities (G) was considered the best mutual fund scheme.

Ahmad and Nomani (2015) examined the performance of safest investment instrument in the security market from investor's perspective by taking five mutual fund large cap schemes. The analysis was carried out by assessing various financial tests like Sharpe Ratio, Standard Deviation, Alpha, and Beta. Observation of the results derived on the basis of several calculations indicated that out of the five selected Large cap mutual fund schemes, in short-run ICICI Prudential Top 100 Fund -Inst –I managed to be at the top in terms of returns over the period of last one month and six months as well as in long run at number one position in terms of the returns of last five years. As far as the financial risk parameters were concerned Franklin India Blue-chip was found least risky in terms of the results of Beta (0.78) & Standard Deviation (16.39) and in terms of returns ICICI Prudential Top 100 Fund -Inst –I manage to earn the maximum returns per unit of risk, i.e., Sharpe ratio (0.48).

Zafar et al. (2015) evaluated the performance of equity diversified growth schemes of 13 funds for 2007-2008 and ranked the funds on the basis of Sharpe's, Treynor's and Jenson's ratios. The study revealed that the linear relationship between risk and return does not hold true as there are many funds having high $\sigma$ & $b$ but low returns and secondly the performance and rank of a fund was different under different indices of performance. It was concluded that none of the indices were conclusive and final criteria for the judgment of performance of the mutual funds.

Bashir et al. (2015) studied the performance of selected mutual fund schemes in Pakistan based on risk-return relationship and various measures. Five balanced schemes offered by various mutual funds in Pakistan are selected (2010 to 2013). The analysis had been made on the basis of mean return, beta risk, total risk, Sharpe ratio, Treynor ratio, Jensen Alpha and Fama's decomposition measure. The empirical results
revealed that average returns of the selected portfolio were below market returns, mix
trend of risk in selected schemes and overall defensive beta values. In short, results
indicated the underperformance of most of the schemes during the selected span of
the study.

**Kumar and Adhikary (2015)** examined the performance of tax saving schemes of
dfive Asset Management Companies for a period of ten years (2004-05 to 2013-14).
The Net Asset Value of ELSS funds was compared with the benchmark index.
Statistical tools like average return, standard deviation, beta, regression analysis and
the risk adjusted performance measures suggested by Treynor, Sharpe and Jensen's
measures were applied. The study revealed that private sector tax saving mutual fund
schemes had outperformed the market return and the performances of public sector
tax saving mutual fund schemes were not satisfactory. In the private sector, HDFC
Tax Saver has the higher return which was even more than the market return and in
terms of risk; it is more volatile compared to the market return. In term of relative
performance among tax saving mutual fund after applying Sharpe Index, Treynor
Index, and Jensen Index models, it was observed that the private sector had performed
well whereas public sector could not perform well in the market. It was concluded
that there is no linear relationship existed between fund return and market return.

**Sudheer (2015)** evaluated the performance of sectoral mutual funds using statistical
tool moving averages on respective returns of asset management companies'. It was
revealed that there was a magnificent opportunity for investors to make investments in
various categories of large cap (or) sector funds. In India, there are various companies
offering diversified schemes to investors for making viable investments with
stupendous returns in long run.

**Goyal (2015)** evaluated the performance of top 10 mutual funds as per CRISIL
September, 2014 ranking and also compared it with the benchmark index i.e. S&P
CNX Nifty. Sharpe measure, Treynor measure and Jensen Alpha were being used to
compare the performance. The study found that overall all the schemes provided
higher and better average return than the market. Franklin India Opportunities Fund
was found the best performer with the higher average return and the lower risk which
was good for investors who wanted to reap higher returns at a lower risk.
Prasad (2016) selected 10 top performing schemes of Reliance Mutual Funds to make a comparative study on the risk and return offered by these funds. Daily NAVs of these schemes were collected for the period of five years i.e., August 2009 to July 2014. For benchmarking and comparison purpose BSE-SENSEX and NSE-Nifty was used. To consider risk free return yield i.e. 8.52 per cent on 91-day Treasury bills was accepted. It was concluded that all the selected 10 reliance funds were performing above the selected benchmark return.

Ratnaraju and Madhav (2016) investigated the performance of 30 open-ended, diversified equity schemes for the period from April 2012 to March 2015. Daily closing NAV of different schemes had been used to calculate the returns from the fund schemes. S&P BSE-SENSEX had been used for market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor, and Jensen measure. Results of the study showed that 14 out of 30 sample mutual fund schemes had outperformed the benchmark return. All the schemes had represented positive returns. The results also showed that Reliance Regular Savings Fund Equity, SBI Contra Fund, HDFC Equity Fund of the schemes had underperformed and these schemes were facing the diversification problem. Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate of return.

Bhagyasree and Kishori (2016) investigated the performance of open-ended, growth-oriented equity schemes (April 2011 to March 2015). Daily closing NAV of different schemes had been used to calculate the returns from the fund schemes. BSE-SENSEX had been used for the market portfolio. The historical performance of the selected schemes was evaluated on the basis of Sharpe, Treynor, and Jensen's measure. The study revealed that 14 out of 30 mutual fund schemes had outperformed the benchmark return. The results also showed that some of the schemes had underperformed and facing the diversification problem. Sharpe and Treynor’s ratio was positive for all schemes which showed that funds were providing returns greater than the risk-free rate. Results of Jensen measure revealed that 19 out of 30 schemes showed positive alpha which indicated superior performance of the schemes.
From the above review of literature it is evident that comprehensive studies have been carried out covering different aspects of mutual funds. Most of the studies have covered the performance evaluation of different mutual fund schemes in India and other countries. However, only a limited number of studies have been conducted covering majority of the categories of mutual fund schemes and covering a substantial period to draw meaningful and rational conclusion. So, in the present study an attempt has been made to analyze the performance of a majority of mutual fund schemes covering a period of 13 years i.e. 2003-16 to draw meaningful conclusion and provide basis for decision making.