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Risk & Return Analysis Of Selected Mutual Funds In India

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Abstract: Sector funds are industry specific funds which invest money in a particular sector of economy such as banking, healthcare, real estate, technology, transportation, etc. These funds provide diversification within a particular sector. They provide stable returns than equity shares. Therefore, investing in sector fund is less risky than that in equity shares. But there returns ability is more volatile than diversified equity mutual funds. The present study is based on analyzing the performance of some selected Indian sector fund schemes in terms of risk and return. In this paper Compound Annualized return, Standard Deviation, Beta, Alpha and R-Squared are determined for last five-year period.

Keywords: Diversification, returns, Compound annualized return, standard deviation, Beta, alpha, performance and risk return relationship.

INTRODUCTION

Mutual funds have become attractive investment option over the last few years. It is common knowledge that investing in mutual funds is (or at least should be) better than simply letting your cash waste away in a savings account, but, for most people, that's where the understanding of funds ends. Originally mutual funds were meant to allow the common man to get a piece of the market considering that the common man would be less knowledgeable about financial markets and would have smaller investments to transact with. A mutual fund invites the prospective investors to join the fund by offering various schemes so as to suit to the requirements of categories of investors. The aim of growth funds is to provide capital appreciation over the medium to long term. Such schemes normally invest a majority of their corpus in equities. Growth schemes are ideal for investors who have a long-term outlook and are seeking growth over a period of time.

REVIEW OF LITERATURE

Tiwari and Vijh (2004) analyzed sector fund cash flow and find that volatility does not significantly impact sector fund performance in spite of the fact that these fund have higher cash flow volatility. Abhay Kaushik (2010) in his research found that Sector funds reveal positive timing ability during recessions and negative timing ability during expansions when using the S&P 500 as the benchmark, but this timing ability disappears when sector specific benchmarks are used. As a whole, sector funds exhibit significant negative timing ability across all stages of the business cycle. When using the more appropriate industry specific benchmarks, only the utility sector demonstrates significant timing ability over both stages of the business cycle. **Scala, N. (2010)** define portfolio performance attribution. In this study stock selection is broken down into two categories: sector allocation and security selection. In this study, asset allocation is at least 80% equity which makes asset allocation a very minor portion of the return. The excess return is then attributed to either sector allocation or security selection. Since the sector weights of the Fidelity simulated portfolios are identical to the weights of the multi-sector equity fund portfolios, this leaves security selection as the sole determinant of outperformance. Therefore, if the Fidelity simulated portfolios outperform the multi-sector equity fund portfolios, it is likely that sector fund managers have superior stock selection ability.

Dhanda et al (2012) studied the open ended mutual funds in India and evaluated the performance of selected open ended schemes in terms of risk and return relationship. For this, rate of return method. Beta, Standard Deviation, Sharpe ratio and Treynor ratio were used. BSE-30 had been used as a benchmark to study the performance of mutual funds in India. The study period was for two years starting from 1st April 2009 to 31st March 2011. It was reported that only three schemes had outperformed the benchmark. Sahil Jain (2012) evaluated 45 equity fund schemes offered by two private sector and two public sector companies over the period of 15 years from April 1997 to April 2012 using risk return relationship and Capital Asset Pricing Model. It was concluded that HDFC and ICICI were the best performers while UTI was average performer. LIC was the worst performer which gave below expected returns on risk return relationship. Nimalathasan and Gandhi (2012) focused on the financial performance analysis of mutual fund schemes (equity diversified schemes and equity mid-cap schemes) of selected banks (State Bank of India, Canara Bank-Public Bank, ICICI Bank, HDFC Bank-Private Bank) with the objectives of analyzing the financial performance of selected mutual fund schemes through the statistical parameters (Standard Deviation, Beta and Alpha) and ratio analysis i.e. Sharpe Ratio, Treynor Ratio, Jenson Ratio, Information Ratio. Shivani Inder and Shikha Vohra (2012), evaluated the long run performance of the selected index fund schemes and made comparative analysis of the performance of these funds on the basis of the risk-return for the period of 6 years (January, 2005 to December, 2011) using standard deviation. Beta, Alpha, R-Squared, Sharpe measure, Jensen measure, Treynor measure and Sharpe differential return measure. The results indicated that index funds were just the followers of market. They tried to capture market sentiments, good as well as bad and thus performed as the market performed. Out of the schemes considered in the study, the ICICI Prudential Index Fund, Tata Index Fund and Franklin India Index Fund were better performers in case of Growth option of Index Fund. While on the other hand, in case of Dividend option the Franklin India had shown better performance. Franklin India Mutual Fund was able to capture market very well in both growth as well as dividend options by showing the lowest tracking error.

Bahl, S., Rani, M. (2012) investigated the performance of 29 open-ended, growth-oriented equity schemes for the period from April 2005 to March 2011 (six years) of transition economy. Monthly NAV of different schemes had been used to calculate the returns from the fund schemes. 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's measure. The study revealed that 14 out of 29 (48.28 percent) sample mutual fund schemes had outperformed the benchmark return and remaining of the schemes had underperformed; these schemes were also facing the diversification problem. In the study, the Sharpe ratio was positive for all schemes which showed that funds were providing returns greater than risk free rate. Results of Jensen measure revealed that 19 out of 29 (65.52 per cent) schemes had positive alpha which indicated superior performance of the schemes. Poornima S. & R. K. Sudhamati (2013) evaluated 102 growths oriented equity diversified mutual fund schemes during a five-year period from April 2006 to March 2011 using Sortino Ratio. The analysis depicted that 97 funds were able to produce return more than minimum acceptable rate of return which was taken as post office deposit rate scheme. 5 funds failed to produce return equal to the minimum acceptable rate of return. M. S. Annapoorna and Pradeep K. Gupta (2015) evaluated the performance of mutual fund schemes ranked 1 by CRISIL for period of 5 years from 2008 to 2013 and the returns were compared with SBI domestic term deposit rate using simple statistical techniques like average returns and rate of returns. The study reflected that mean return of equity fund schemes was more than mean return on other mutual fund schemes as well as than SBI domestic term deposit rate but the mean return of debt funds was less than SBI domestic term deposit rate. Mailcontractor, R. (2016) evaluated 20 large cap and mid cap mutual funds' schemes on basis of monthly NAVs from January 1, 2011 to December 31, 2015 on basis of Sharpe and Treynor ratio. 91-Days T-Bills rate were used as proxy to risk free rate of returns. It was concluded that average annual risk of the funds was 5 tunes higher than the average annual returns. The study found that Sharpe and Treynor measures yielded similar results and there was very high degree of correlation between the results of Sharpe's ratio and Treynor's ratio.

Pandow, B. A. and Butt, K. A. (2017) looked into risk and return analysis of select 40 mutual funds in India on basis of daily NAVs of the fund. Sharpe and Treynor measures were used to analyze the funds' performance from 2007 to 2011. It was concluded that all the funds except Sahara Growth Fund yielded positive returns. 80 percent of the schemes were able to generate higher mean return than Benchmark S&P CNX Nifty's mean return and that too at lower standard deviation than the average market standard deviation during the period of the study. 31 funds were able to generate sufficiently better returns than risk free rate. Aisharya Ghosh and Subhamoy Das (2018) made a comparative study on the performance of selected equity mutual fund schemes in India using Standard Deviation, R-Squared, Beta, Sharpe Ratio, Treynor Ratio to measure the return earned by selected equity schemes of Mutual Funds and compared them against the benchmark returns to distinguish the performers from the non-performers and to evaluate the performance of selected mutual fund schemes in terms of risk and return. Dash et al. (2018) undertook study on equity mutual funds' schemes on basis of monthly NAVs from April 1, 2011 to May 31, 2016. The objective was to analyze the trend of returns and evaluation of performance of the funds by evaluating returns and risk on basis of Sharpe ratio, Treynor ratio, Beta and standard deviation. It was concluded that LIC MF Infrastructure fund had the highest average beta making it highly volatile viz-a-visa its benchmark and it had the highest average standard deviation. Sundaram Global advantage fund showed the highest average Sharpe ratio and Treynor ratio making it better investment than other selected funds.

Research Problem

All investments involve certain element of risk and their risk profile varies according to the changing degree of returns. The performance of fund of mutual funds has evoked a great deal of interest in the academic circle. The common belief in a segment of the academia is that fund of mutual funds cannot beat the market with their active fund management in contrast to the efficient market hypothesis. It is extremely critical for the investors to know whether fund of mutual funds manager is able to deliver better returns there by justifying the management fees they charge. This evaluation would explain performance of fund of mutual funds risk adjusted returns which is dividend-oriented.

Research Objectives

1. To measure the five years compounded annual growth return given by the selected funds.
2. To analyze risk associated with selected sector funds.
3. To measure the risk return relationship of selected sector fund schemes.
4. To determine the correlation between selected sector Funds', return and benchmarks' return.

Research Methodology

This study is based secondary data. The sources of secondary data are journals, books, magazines, broachers and websites of selected mutual funds. All the relevant data has collected from, valueresearchonline.com, mutualfundindia.com as on 29th December 2016. The present study analyses the performance of top five performing sector funds for last five years. (2016- 2020). Some mathematical and some statistical tools have been taken into consideration for analysis. In this study Compound Annualized Growth Rate of Return, arithmetic mean, percentage, standard deviation, Beta, Alpha, Sharpe ratio and R-Squared have been applied.

Data Analysis & Results

Table 1:Performance of 5 top performing sector funds in terms of last 5 years' return

Name of the sector fund and scheme	5 Years Return (Percentage)	Rank
Aditya Birla Sun Life Digital India Fund Growth	27.37	**1**
NIPPON INDIA PHARMA FUND - Direct Plan - Growth	18.9	3
Nippon India Pharma Fund	17.86	4
SBI Healthcare Opportunities Fund - Direct Plan - Growth	12.38	5
SBI Technology Opportunities Fund - Direct Plan - Growth	24.77	2

From table-1 it is clear that Aditya Birla Sun Life Digital India Fund Growth has yielded highest return (27.37%), SBI Technology Opportunities Fund - Direct Plan - Growth (24.77%), NIPPON INDIA PHARMA FUND - Direct Plan - Growth (18.9%), Nippon India Pharma Fund (17.86) and SBI Healthcare Opportunities Fund - Direct Plan - Growth (12.38%). It is clearly explained that all the sector fund schemes yield more than 11% return.

Risk Analysis of sector funds

Standard Deviation: Standard Deviation is the measure of total risk. It is used to measure the variation in returns from the expected returns. Higher value of standard deviation shows high volatility and high risk.

Beta coefficient: It is the measure of the volatility, or systematic risk, of a security or a portfolio in comparison to the market as a whole. Beta is used in the capital asset pricing model (CAPM), a model that calculates the expected return of an asset based on its beta and expected market returns.

Alpha: Size of Alpha shows stock's unsystematic risk and it is the average independence of market return. Positive value of alpha shows that fund manager produces return greater than expected for the risk taken.

Table 2:Standard deviation, beta and alpha of Top 5 performing sector funds

Name of the sector fund and scheme	SD	Beta	Alpha
Aditya Birla Sun Life Digital India Fund Growth	21.06	1.12	17.32
NIPPON INDIA PHARMA FUND - Direct Plan - Growth	15.11	0.87	12.89
Nippon India Pharma Fund	13.23	0.73	9.16
SBI Healthcare Opportunities Fund - Direct Plan - Growth	11.56	0.62	6.37
SBI Technology Opportunities Fund - Direct Plan - Growth	16.78	0.51	14.20

As it is depicted in table 2, Aditya Birla Sun Life Digital India Fund Growth (21.06) has highest value of standard deviation, which means that this fund is the riskiest. Although, SBI Technology Opportunities Fund - Direct Plan - Growth (16.78), NIPPON INDIA PHARMA FUND - Direct Plan - Growth (15.11), Nippon India Pharma Fund (13.23) are the funds with higher risk, and SBI Healthcare Opportunities Fund - Direct Plan - Growth (11.56).

It is clear from the third column of table 2 that Aditya Birla Sun Life Digital India Fund Growth has highest value of β (1.12), which means this fund co-varies the most with respect to the market return. Except Aditya Birla Sun Life Digital India Fund Growth all other sector funds in the table has β value less than one, which implies that these sector funds have low volatility with respect to market return.

It is also obvious from the fourth column of table 2 that Aditya Birla Sun Life Digital India Fund Growth has highest value of α (17.32). It implies that this sector fund provides highest excess return that the portfolio generates over its expected return. SBI Technology Opportunities Fund - Direct Plan - Growth (α = 14.20), NIPPON INDIA PHARMA FUND - Direct Plan - Growth (α = 12.89), Nippon India Pharma Fund (α = 9.16) and SBI Healthcare Opportunities Fund - Direct Plan - Growth best performing sector funds in terms of alpha (6.37) has positive value of alpha which shows that this sector funds actual return is greater than the expected return.

Risk & Return Analysis

Sharpe Ratio

Sharpe Ratio is the measure of risk premium of portfolio. It shows the risk & return of the portfolio in one measure. It is also known as reward to variability ratio. It means how much an investment would yield for the risk taken. This is the ratio of risk premium to systematic risk. An investment is assumed to be performing well if its Sharpe ratio is greater than one.

Table 3: Sharpe Ratio of Top 5 performing sector funds

Name of the sector fund and scheme	Sharpe Ratio	Rank
Aditya Birla Sun Life Digital India Fund Growth	1.85	**1**
NIPPON INDIA PHARMA FUND - Direct Plan - Growth	1.62	2
Nippon India Pharma Fund	1.36	4
SBI Healthcare Opportunities Fund - Direct Plan - Growth	1.04	5
SBI Technology Opportunities Fund - Direct Plan - Growth	1.38	3

It is clear from table 3 that all the sector mutual fund scheme has Sharpe ratio's greater than one. Which is a positive indicator of sector funds performance. According to this analysis shown in table 3, Aditya Birla Sun Life Digital India Fund Growth provides highest return per unit of risk as it has highest value of Sharpe ratio (1.85) and SBI Healthcare Opportunities Fund - Direct Plan - Growth provides the lowest return for the risk taken as it has lowest value of Sharpe ratio (1.04).

Correlation between selected sector Funds' return and benchmarks' return.

R-squared: It is a measure of the correlation of the portfolio's returns to the benchmark's returns. It is the coefficient of determination of the relationship between a portfolio and its benchmark. It can be considered as a percentage from 1 to 100. R-squared is not a measure of the performance of a portfolio. A great portfolio can have a very low R-squared.

- 70-100% = good correlation between the portfolio's returns and the benchmark's returns.
- 40-70% = average correlation between the portfolio's returns and benchmark's returns.
- 1-40% = low correlation between the portfolio's returns and the benchmark's returns.

Table 4: R-Squared of Top 5 performing sector funds

Name of the sector fund and scheme	R-Squared
Aditya Birla Sun Life Digital India Fund Growth	71
NIPPON INDIA PHARMA FUND - Direct Plan - Growth	64
Nippon India Pharma Fund	57
SBI Healthcare Opportunities Fund - Direct Plan - Growth	61
SBI Technology Opportunities Fund - Direct Plan - Growth	55

It is clear from table 4 that Aditya Birla Sun Life Digital India Fund Growth (71) has highest value of r-squared. It means that this sector fund has the strongest correlation between portfolio's return and benchmark return. Although, NIPPON INDIA PHARMA FUND - Direct Plan - Growth (64), Nippon India Pharma Fund (57), SBI Healthcare Opportunities Fund - Direct Plan - Growth (61), and SBI Technology Opportunities Fund - Direct Plan - Growth (61) have average correlation between funds' portfolio returns and benchmarks' portfolio returns.

Suggestions

- The fund manager has to select good scripts in the portfolio for good returns.
- The investor has to think their investment objectives and to take high risk for getting high returns.

CONCLUSION

Risk refers to the uncertainty that surrounds future events and outcomes. It is the expression of the likelihood and impact of an event with the potential to influence the achievement of organizations objectives. Risk is unavoidable and present in virtually every human situation. It is present in our daily lives, public and private sector organizations. Mutual fund industry nowadays is one of the most favored investment options all over the world. It plays a vital role in the economic expansion of a country. As far as last five year returns are concerned, Aditya Birla Sun Life Digital India Fund Growth (27.37%), SBI Technology Opportunities Fund - Direct Plan - Growth (24.77%), NIPPON INDIA PHARMA FUND - Direct Plan - Growth (18.9%) and Nippon India Pharma Fund (17.86%) are best performing funds. Whereas, keeping in view the risk associated with these sector funds, Aditya Birla Sun Life Digital India Fund Growth (SD = 21.06, $\beta = 1.12$ & $\alpha = 17.32$) is the riskiest sector fund and SBI Healthcare Opportunities Fund - Direct Plan - Growth (total risk, i.e. $\sigma = 11.56$) is the least risky fund among the top ten sector funds. By making a risk return analysis with the help of Sharpe index it can be said that Aditya Birla Sun Life Digital India Fund Growth (Sharpe = 1.85) is ranked 1, NIPPON INDIA PHARMA FUND - Direct Plan - Growth (Sharpe = 1.62) is ranked 2, SBI Technology Opportunities Fund - Direct Plan - Growth (Sharpe = 1.38) is ranked 3, Nippon India Pharma Fund (Sharpe = 1.36) is ranked 4, & SBI Healthcare Opportunities Fund - Direct Plan - Growth (1.04) is ranked 5. As per the Sharpe measure, all the top 5 performing sector funds have Sharpe ratio greater than one which means that all these sector fund schemes provide higher return for the risk taken. Keeping in view the R-Squared values of selected sector funds it can be stated that Aditya Birla Sun Life Digital India Fund Growth (71) has highest value of r-squared. It means that this sector fund has the strongest correlation between portfolio's return and benchmark return. Although, NIPPON INDIA PHARMA FUND - Direct Plan - Growth (64), SBI Healthcare Opportunities Fund - Direct Plan - Growth (61), SBI Technology Opportunities Fund - Direct Plan - Growth (57) and Nippon India Pharma Fund (55) have average correlation between funds' portfolio returns and benchmarks' portfolio returns.

REFERENCES

1. Dhanda, S. K., Batra, G. S., & Anjum, B. (2012). Performance Evaluation of Selected Open Ended Mutual Funds in India. International Journal of Marketing, Financial Services & Management Research, 1(1), 29-38.
2. Jain, S. (2012). Analysis of Equity Based Mutual Funds in India. IOSR Journal of Business and Management, 2(1), 1-4.
3. Nimalathasan, B., & Gandhi, R. K. (2012). Mutual Fund Financial Performance Analysis - A Comparative Study on Equity Diversified Schemes and Equity Mid-Cap Schemes. Excel International Journal of Multidisciplinary Management Studies, 2(3), 91- 106.
4. Inder, S., & Vohra, S. (2012). Mutual Fund Performance: An Analysis of Index Funds. International Journal of Research in Commerce & Management, 3(9), 143-146.
5. Bahl, S., & Rani, M. (2012). A Comparative Analysis of Mutual Fund Schemes. International Journal of Marketing, Financial Services & Management Research, 1(7), 67-79.
6. Poornima, S., & Sudhamathi, R. K. (2013). Performance Analysis of Growth Oriented Equity Diversified Mutual Fund Schemes Using Sortino Ratio. Asia Pacific Journal of Research, 1(8), 27-35.
7. Annapoorna, M. S., & Gupta, P. K. (2013). A Comparative Analysis of Returns of Mutual Fund Schemes Ranked 1 by CRISIL. Tactful Management Research Journal, 2(1), 1-6.
8. Mailcontractor, R. (2016). Performance Evaluation of Selected Equity Mutual Fund Schemes in India using Sharpe's Ratio and Treynor's ratio. Indian Journal of Research in Commerce, Management, Engineering and Applied Science, Vol. 5.
9. Pandow, B. A., & Butt, K. A. (2017). Risk and Return Analysis of Mutual Fund Industry in India. Journal of Banking and Financial Dynamics, 1(I), 54-65.
10. Ghosh, A., & Das, S. (2018). Performance Evaluation of Selected Equity Mutual Fund Schemes in India. Journal of Emerging Technologies and Innovative Research, 5(2), 634-636.
11. Dash, M. K., & Lall, G. S., (2018). Performance Evaluation of Equity Based Mutual Funds in India. International Journal of Engineering Sciences & Research Technology, 7(5), 528-539.
12. Tiwari, A., & Vijh, A. (2004). Sector fund performance: analysis of cash flow volatility and returns. Unpublished Working Paper. University of Iowa.
13. Kaushik, A. (2010). Managerial Tenure and Other Determinants of Mutual Fund Performance: Correlations and Implications. Proceedings of the Northeast Business & Economics Association.
14. Scala, N. (2010). Performance Attribution: Are Sector Fund Managers Superior Stock Selectors?