

Research Paper

Management



Performance Appraisal of Equity Diversified Mutual Funds Operating in India

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ABSTRACT

Mutual fund industry is witnessing mushroom growth by offering wide variety of schemes suitable to varied needs of the investors. Especially equity diversified schemes are considered as proxy for direct stock market investment. Hence it is high time to understand about the performance appraisal system of these funds to identify the suitable fund for investment. Viewed in this perspective an attempt is made in this article to analyze about the performance of the various types of equity funds.

Keywords : Equity diversified mutual fund, Beta, Return, Sharpe ratio, Sortino ratio

INTRODUCTION

Mutual fund is one of the most preferred financial products by Indian retail investors. The industry as such has mobilized about Rs. 7,12,742 crores under its various schemes. There are now 42 asset management companies which manage mutual funds. Among the various schemes offered by mutual funds equity diversified mutual fund is considered as proxy for direct stock market investment. The equity diversified funds can be broadly classified into: 1. Equity Diversified schemes 2. Equity index schemes 3. Equity tax planning schemes and 4. Equity sector schemes. In this article an attempt is done to analyze about the performance of all the categories of equity diversified mutual funds.

OBJECTIVES OF THE STUDY

The objective of the study is to appraise the performance of the equity diversified mutual fund schemes based on return and risk associated with the fund.

METHODOLOGY OF THE STUDY

Funds selected for the study

The open-ended equity diversified funds which is in existence for at least last 3 years and the top 5 performing funds among them based on 3 years compounded annualized return is selected for analysis and discussion.

Source of data:

The study is based on secondary sources of data collected from the amfi web sites and respective asset management company websites

Period of study:

The study is based on the daily NAV of the selected mutual fund for the period from January 2009 to December 2011.

PARAMETERS USED FOR PERFORMANCE APPRAISAL

Compounded annualized return: It is a compounded annual percentage growth over the period.

Beta: It is a measure of volatility, or systematic risk of portfolio or security in comparison to the market as a whole. A beta of 1

indicates that the securities price will move with the market. A beta of less than 1 means that the security will be less volatile than the market. A beta of greater than 1 indicates that the security price will be more volatile than the market.

Correlation: Co-efficient of correlation allows in interpreting the extent of association of fund return with the market return.

Standard Deviation: It is a statistic measure that measures the variation in individual return from the average return over a certain period of time.

Sharpe ratio: It is a risk-adjusted performance measure, which measures the ratio of returns generated by the fund over and above risk free rate of return and the total risk associated with it. The Sharpe ratio for the fund can be calculated by using the formula

$$\text{Sharpe ratio (Sp)} = (R_p - R_f) / \sigma_p$$

Where

S_p = Sharpe ratio for the fund

R_p = Average return on fund

σ_p = standard deviation of return on fund

R_f = Return on risk free asset.

Sortino ratio: The Sortino ratio, is modification of the Sharpe ratio but penalizes only those returns falling below a required rate of return. The required rate of return is often taken to be the risk free rate of return. The sortino ratio is measured according to the formula

$$\text{Sortino Ratio (SR)} = (R - R_f) / \text{SD}_d$$

where R is the Mean annual return, R_f is risk-free return (or Minimum Acceptable Return: MAR) and SD_d is the downside risk: $\text{SD}_d^2 = (1/n) \sum (r - R_f)^2$ where the sum (or average) includes only returns for which $r < R_f$.

FUNDS SELECTED FOR THE STUDY

On the basis of scheme selection methodology mentioned under methodology of study, 20 schemes were selected for the study, glimpse view of the same is shown in the Table-1.

Table-1

Equity Diversified Funds Selected for the Study

S. No.	Name of the fund	Launch date	Fund size as on 31.12.2011 Rs. in Crores	Benchmark Index
Equity Diversified funds				
1.	SBI Magnum sector funds Umbrella- Emerging business fund- Growth	17.9.2004	455.79	BSE 500
2.	ICICI Prudential Discovery fund- IP- Growth	10.3.2006	1,664.73	CNX Mid cap

3.	ICICI Prudential Discovery fund- Growth	16.8.2004	1,664.73	Mid CNX cap
4.	Canara Robeco Emerging equities- Growth	11.3.2005	37.72	CNX Mid cap
5.	Religare mid N small cap fund- Growth	17.3.2008		CNX Mid cap
Equity Index funds				
1	HDFC Index fund- Sensex plus plan	17.7.2002	75.71	BSE sensex
2	ICICI Prudential index fund	26.2.2002	93.64	S&P Nifty
3	UTI Master Index fund- Growth	1.6.1998	60.08	BSE sensex
4	Franklin India Index fund- BSE sensex plan- Growth	26.3.2004	51.4	BSE sensex
5	Franklin India Index fund- NSE Nifty plan- Growth	26.3.2004	147.95	S&P Nifty
Equity Tax planning funds				
1	ICICI prudential tax plan-Growth	19.8.1999	1,197.24	S&P Nifty
2	Canara Robeco Equity Tax saver- Growth	2.3.1993	307.47	BSE 100
3	HDFC Tax saver-Growth	13.6.1996	2,880.17	CNX 500
4	HDFC long-term advantage fund- Growth	2.1.2001	819.52	BSE sensex
5	ING Tax Saving fund- Growth	28.3.2004	30.17	BSE 100
Equity Sector funds				
1	Reliance Pharma fund -Growth	5.6.2004	573.43	BSE-HC
2	ICICI Prudential Technology fund- Growth	3.3.2000	101.02	BSE- teck
3	Sahara Banking & Financial services fund- Growth	16.9.2008	20.81	CNX Bank
4	Franklin Info Tech Fund- Growth	22.8.1998	119.25	BSE- IT
5	Birla sun life MNC fund- Growth	22.4.1994	240.5	CNX MNC

Source: www.valueresearch.com

DATA ANALYSIS AND INTERPRETATION

Table-2

Equity Diversified Fund with Parameters Used for Performance Appraisal

Parameters Scheme Name	3 years compounded annualized return	Bench-mark Index & Return	Beta	Correlation	Standard Deviation	Sharpe Ratio	Sortino Ratio
SBI Magnum sector funds Umbrella- Emerging business fund- Growth	46.28%	BSE 500 25.50%	1.02	0.98	4.66	0.09	0.14
ICICI Prudential Discovery fund- IP- Growth	43.85%	CNX Mid cap 29.79%	0.86	0.85	3.80	0.11	0.17
ICICI Prudential Discovery fund- Growth	42.30%	CNX Mid cap 29.79%	0.87	0.85	3.80	0.11	0.18
Canara Robeco Emerging equities- Growth	40.79%	CNX Mid cap 29.79%	0.89	0.88	3.92	0.09	0.14
Religare mid N small cap fund- Growth	40.09%	CNX Mid cap 29.79%	0.80	0.78	3.47	0.10	0.15

Source: Computed from monthly NAV of respective funds

From table-2 we could understand that the return of equity diversified mutual fund ranges from 46.28% to 40.09%. Comparison of the funds return with the benchmark return shows that all the funds have produced return above its respective benchmark. SBI Magnum sector funds Umbrella- Emerging business fund- Growth have recorded a highest return of 46.28%.

Risk analysis of the equity diversified fund based on beta shows that except for SBI Magnum sector funds Umbrella-

Emerging business fund- Growth ($\beta=1.02$), other funds are less volatile than the market. Correlation value of all the equity diversified funds show a strong positive correlation with the market ranging from 0.98 to 0.78. Standard deviation value of the selected funds ranges from 3.47 to 4.66.

Risk-adjusted performance measure based on Sharpe ratio depicts that ICICI Prudential Discovery fund- IP- Growth and ICICI Prudential Discovery fund- Growth performs well when compared to other funds. Sortino ratio also depicts that ICICI Prudential Discovery fund- Growth performs best, when compared to other top 5 performing funds.

Table-3

Equity Index Fund with Parameters Used for Performance Appraisal

Parameters Scheme Name	3 years compounded annualized return	Bench-mark Index & Return	Beta	Correlation	Standard Deviation	Sharpe Ratio	Sortino Ratio
HDFC Index fund- Sensex plus plan	25.30	BSE sensex 22.53	0.83	0.82	3.50	0.06	0.09
ICICI Prudential index fund	22.95	S&P Nifty 22.40	1.01	0.98	4.11	0.04	0.06
UTI Master Index fund- Growth	22.76	BSE sensex 22.53	1.00	0.97	4.10	0.03	0.05
Franklin India Index fund- BSE sensex plan- Growth	22.49	BSE sensex 22.53	0.99	0.97	4.08	0.04	0.06
Franklin India Index fund- NSE Nifty plan- Growth	22.36	S&P Nifty 22.40	0.99	0.97	4.05	0.03	0.05

Source: Computed from monthly NAV of respective funds

Table-3 depicts that equity index funds return ranges from 25.30% to 22.36%. All the equity index funds have produced the return nearing to its benchmark. Beta value analysis shows that risk level involved in the equity index funds is very close to the market. HDFC Index fund ($\beta=0.83$) have slightly lower side risk when compared to the market. Correlation

value also depicts that all the equity funds are positively correlated with the market.

Risk adjusted performance measure based on Sharpe ratio and Sortino ratio reveals that HDFC Index fund- Sensex plus ($S_p=0.06$, $S_R=0.09$) gives superior risk adjusted return when compared to other funds.

Table-4**Equity Tax planning Fund with Parameters Used for Performance Appraisal**

Parameters Scheme Name	3 years compounded annualized return	Bench-mark Index & Return	Beta	Correlation	Standard Deviation	Sharpe Ratio	Sortino Ratio
ICICI prudential tax plan-Growth	35.38	S&P Nifty 22.40	0.83	0.81	3.64	0.08	0.11
Canara Robeco Equity Tax saver-Growth	33.14	BSE 100 23.92	0.81	0.66	3.03	0.18	0.37
HDFC Tax saver-Growth	32.07	CNX 500 23.72	0.83	0.82	3.46	0.08	0.11
HDFC long-term advantage fund-Growth	30.59	BSE sensex 22.53	0.80	0.80	3.47	0.07	0.10
ING Tax Saving fund- Growth	30.49	BSE 100 23.92	0.93	0.91	4.11	0.06	0.08

Source: Computed from monthly NAV of respective funds

Table-4 depicts that equity tax planning funds 3 years annualized return ranges from 35.35% to 30.49%. And also all the funds have produced the return above its benchmark. Beta value reveals that all the funds have risk less than the market. Correlation value reveals that all the tax planning funds are positively correlated to the market. Among the top 5 per-

forming index funds correlation of fund with market is less in case of Canara Robeco Equity Tax saver- Growth ($\gamma=0.66$). Standard deviation of the tax planning funds ranges from 4.11 to 3.64.

Risk adjusted performance measure based on Sharpe ratio and Sortino ratio reveals that Canara Robeco Equity Tax saver- Growth ($Sp=0.18$, $SR= 0.37$) performs the best.

Table-5**Equity Sector Fund with Parameters Used for Performance Appraisal**

Parameters Scheme Name	3 years compounded annualized return	Bench-mark Index & Return	Beta	Correlation	Standard Deviation	Sharpe Ratio	Sortino Ratio
Reliance Pharma fund -Growth	44.71	BSE-HC 32.05	0.91	0.88	3.13	0.18	0.29
ICICI Prudential Technology fund-Growth	42.47	BSE- teck 24.70	0.88	0.86	3.62	0.08	0.12
Sahara Banking & Financial services fund- Growth	40.98	CNX Bank 32.24	0.62	0.60	3.95	0.13	0.25
Franklin Info Tech Fund- Growth	40.04	BSE- IT 39.26	0.89	0.88	3.67	0.09	0.13
Birla sun life MNC fund- Growth	38.11	CNX MNC 27.89	0.74	0.72	2.79	0.15	0.21

Source: Computed from monthly NAV of respective funds

Table-5 depicts that the return of equity sector fund ranges from 44.71% to 38.11% and all the funds have performed above the benchmark. Beta value reveals that all the equity sector funds risk level is below the market. Among the top 5 performing sector fund Sahara Banking & Financial services fund- Growth ($\beta= 0.60$) and Birla sun life MNC fund- Growth ($\beta= 0.72$) possess less risk than the market. Correlation value of equity sector fund depicts that all the funds are positively correlated with the market. But again Sahara Banking & Financial services fund- Growth ($\gamma= 0.60$) and Birla sun life MNC fund- Growth ($\gamma = 0.72$) are less correlated with the market.

Risk adjusted performance based on Sharpe and Sortino ratio reveals that the Reliance Pharma fund –Growth ($Sp=0.18$, $SR= 0.29$) gives superior performance when compared to other funds.

Conclusion:

The article spot lights that the fact that the different equity diversified schemes provides with the different levels of return. Based on 3 years compounded annualized return SBI Magnum sector funds Umbrella- Emerging business fund- Growth (46.28%) has performed best in case of equity diversified fund. Among index funds HDFC Index fund- Sensex plus plan (25.30%) has performed best. Equity tax planning and equity sector fund reveals the fact that the ICICI prudential tax plan-Growth (35.38%) and Reliance Pharma fund -Growth (44.71%) have performed the best. Hence based on the risk appetite the investors should choose the funds. Investors should also be aware of the fact that to appraise the funds performance, the fund return should be compared with its benchmark return. Knowing about risk adjusted performance measure will also help the investor to identify the best performing fund.

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