

AN EMPIRICAL STUDY ON COMPARATIVE ANALYSIS OF EQUITY MUTUAL FUND SCHEMES

Mr. Mayur Patel
Arihant Institute of Management (BBA COACHING)
Agarsen point, City light road, Surat, Gujarat.

Ms. Nairuti S. Chokkas
Asst.Prof ,
D.R. PATEL & R.B. PATEL COMMERCE COLLEGE AND
BHANIBEN CHHIMKABHAI PATEL BBA COLLEGE
Veer Narmad South Gujarat University
Surat, Gujarat, India

ABSTRACT:

With passing time Indian mutual fund industry experiencing remarkable growth which was / is cooked by infrastructure development in India and supported by high saving and increasing foreign participation. During the period increasing income and awareness boosted risk taking ability of common investors and mutual fund became the most preferred and safest investment instrument among all class. After liberalization and globalization of Indian economy, market witness huge crowd towards the option of investing in mutual funds but investment in a particular funds needs a lot of specification like- investor's objectives, cost, availability of funds, risk & return factors etc. and thus invite fundamental study for better future and growth. This paper aims to know how the performance of mutual funds is assessed and ranked after analyzing the NAV and their respective returns so as to measure investment avenues. For the purpose most preferred private sector equity diversified growth schemes over a period of three year viz.2015-17 have been taken through judgment sampling and Yield on 10 yr. govt. bond has been taken as the surrogate for the risk free rate of return viz.7.51% p.a. First part of paper provides a necessary insight about the mutual fund. The second part consists of data (collected from websites & Economic times) and their analysis. It's an empirical study stating the ranking & evaluation of funds based on two ratios namely, Treynor's & Sharpe's. The study produced sufficient information of risk and return associated with fund and their rank depending on their performance which will ultimately help investors to choose the best mutual fund generating maximum return with minimum risk. In last concluding remarks has been given.

Keywords: Index, Rank, Performance evaluation, Mutual Funds, Risk-Return, Beta, NAV, , Treynor, Sharpe's ratio.

INTRODUCTION:

A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money collected & invested by the fund manager in different types of securities depending upon the objective of the scheme. These could range from shares to debentures to money market instruments. The income earned through these investments and its unit holders in proportion to the number of units owned by them (pro rata) shares the capital appreciation realized by the scheme. Thus, a Mutual Fund is the most suitable investment for the common person as it offers an opportunity to invest in a diversified, professionally managed portfolio at a relatively low cost. Anybody with an investible surplus of as little as a few thousand rupees can invest in Mutual Funds. Each Mutual Fund scheme has a defined investment objective and strategy.

Performance of mutual fund:

The year was 1963, Unit Trust of India invited investors or rather to those who believed in savings, to park their money in UTI Mutual Fund. For 30 years it goaled without a single second player. Though the 1988 year saw some new mutual fund companies, but UTI remained in a monopoly position.

The performance of mutual funds in India in the initial phase was not even closer to satisfactory level. People rarely understood, and of course investing was out of question. But yes, some 24 million shareholders were accustomed with guaranteed high returns by the beginning of liberalization of the industry in 1992. This good record of UTI became marketing tool for new entrants. The expectations of investors touched the sky in profitability factor. However, people were miles away from the preparedness of risks factor after the liberalization.

The Assets under Management of UTI was Rs. 67bn. by the end of 1987. Let me concentrate about the performance of mutual funds in India through figures. From Rs. 67bn. the Assets under Management rose to Rs. 470 bn. in March 1993 and the figure had a three times higher performance by April 2004. It rose as high as Rs. 1,540bn. The net asset value (NAV) of mutual funds in India declined when stock prices started falling in the year 1992. Those days, the market regulations did not allow portfolio shifts into alternative investments. There was rather no choice apart from holding the cash or to further continue investing in shares. One more thing to be noted, since only closed-end funds were floated in the market, the investors disinvested by selling at a loss in the secondary market.

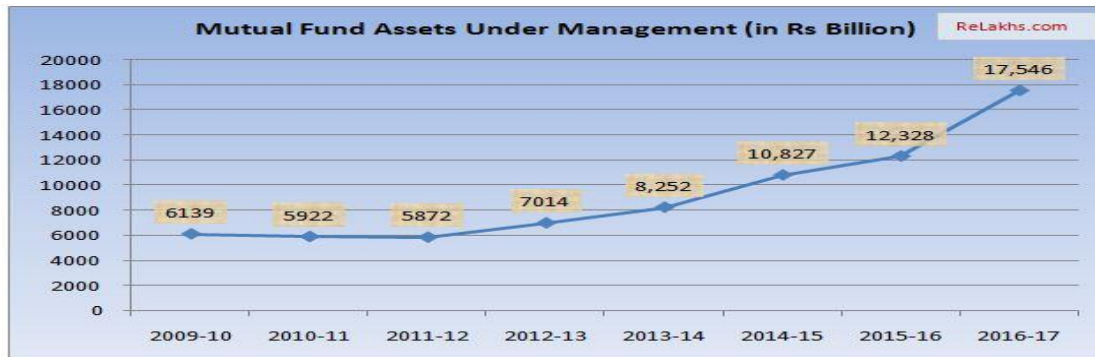
The performance of mutual funds in India suffered qualitatively. The 1992 stock market scandal, the losses by disinvestments and of course the lack of transparent rules in the whereabouts rocked confidence among the investors. Partly owing to a relatively weak stock market performance, mutual funds have not yet recovered, with funds trading at an average discount of 1020 percent of their net asset value.

The supervisory authority adopted a set of measures to create a transparent and competitive environment in mutual funds. Some of them were like relaxing investment restrictions into the market,

introduction of open-ended funds, and paving the gateway for mutual funds to launch pension schemes.

The measure was taken to make mutual funds the key instrument for long-term saving. The more the variety offered, the quantitative will be investors.

At last to mention, as long as mutual fund companies are performing with lower risks and higher profitability within a short span of time, more and more people will be inclined to invest until and unless they are fully educated with the dos and don'ts of mutual funds. There are more than 33 mutual fund companies (AMC) in India.



LITERATURE REVIEW:

Dr. Sandeep Bansal, Deepak Garg and Sanjeev K Saini (2012), have studied Impact of Sharpe Ratio & Treynor's Ratio on Selected Mutual Fund Schemes. This paper examines the performance of selected mutual fund schemes, that the risk profile of the aggregate mutual fund universe can be accurately compared by a simple market index that offers comparative monthly liquidity, returns, systematic & unsystematic risk and complete fund analysis by using the special reference of Sharpe ratio and T reynor's ratio.

Dr. K. Veeraiah and Dr. A. Kishore Kumar (Jan 2014), conducted a research on Comparative Performance Analysis of Select Indian Mutual Fund Schemes. This study analyzes the performance of Indian owned mutual funds and compares their performance. The performance of these funds was analyzed using a five year NAVs and portfolio allocation. Findings of the study reveals that, mutual funds out perform naïve investment. Mutual funds as a medium – to - long term investment option are preferred as a suitable investment option by investors.

Dr. Yogesh Kumar Mehta (Feb 2012), has studied Emerging Scenario of Mutual Funds in India: An Analytical Study of Tax Funds. The present study is based on selected equity funds of public sector and private sector mutual fund. Corporate and Institutions who form only 1.16% of the total number of investors accounts in the MFs industry, contribute a sizeable amount of Rs. 2,87,108.01 crore which is 56.55% of the total net assets in the MF industry. It is also found that MFs did not prefer debt segment.

Dr Surender Kumar Gupta and Dr. Sandeep Bansal (Jul 2012), have done a Comparative Study on Debt Scheme of Mutual Fund of Reliance and Birla Sunlife. This study provides an overview of the performance of debt scheme of mutual fund of Reliance, and Birla Sunlife with the help of Sharpe Index after calculating Net Asset Values and Standard Deviation. This study reveals that returns on Debt Schemes are close to

Benchmark return (Crisil Composite Debt Fund Index: 4.34%) and Risk Free Return: 6% (average adjusted for last five year).

Prof. V. Vanaja and Dr. R. Karrupasamy (2013), have done a Study on the Performance of select Private Sector Balanced Category Mutual Fund Schemes in India. This study of performance evaluation would help the investors to choose the best schemes available and will also help the AUM's in better portfolio construction and can rectify the problems of underperforming schemes. The objective of the study is to evaluate the performance of select Private sector balanced schemes on the basis of returns and comparison with their bench marks and also to appraise the performance of different category of funds using risk adjusted measures as suggested by Sharpe, Treynor and Jensen.

RESEARCH METHODOLOGY

Objectives of the Study:

- To help investor to take profitable decision regarding mutual fund investment in selected schemes.
- To evaluate the performance of select Private sector schemes on the basis of returns and comparison with their bench marks

Research Design:

This is a descriptive research because according to Hair et al (2002, p.41), the descriptive research is applicable when a researcher look to answers to the how, what, who, when and where.

Sources of Data:

Research is based on secondary data. The Secondary sources which will be used are: Reference books, Fund fact sheet, Reports of companies, Magazines, Web sites, etc

Sample Size:

Here two Companies for equity type mutual fund are selected i.e. HDFC mutual fund and Reliance mutual fund.

Analysis of data:

The criteria for evaluation are NAV value of fund and value of their respected benchmark. For the purpose of analyzing various statistical and accounting tools will be used like Average, Standard deviation, Beta, Sharpe Ratio, Treynor Ratio

DATA ANALYSIS METHOD:

Standard Deviation:

Standard deviation is defined as the square root of the mean of the squares of the deviation of individual returns taken from the average return. It measures the dispersion of each actual/realized portfolio return from the average of such returns and is expressed as:

$$\sqrt{\frac{\sum (y - \bar{y})^2}{N}}$$

A high Standard Deviation may be a measure of volatility, but it does not necessarily mean that such a fund is worse than one with a low Standard Deviation. If the first fund is a much higher performer than the second one, the deviation will not matter much.

Systematic Risk (β):

Systematic risk is that component of total portfolio risk which is not controlled through the process of diversification. It is defined as that part of total variability, which is correlated with the variability of overall stock market. It indicates the manner in which returns change systematically with the changes in market return. It indicates the relationship between portfolio return and market return. Beta is a measure of volatility of a portfolio return over time in relation to the market return.

Sharpe Ratio:

It is calculated by dividing the risk premium by std. Deviation. Risk premium is return from the scheme over the risk free return.

$$\text{Sharpe Ratio} = \frac{\text{Average NAV growth} - \text{Risk free Return}}{\text{Standard deviation}}$$

Treynor Ratio:

It is a measure to evaluate portfolio performance in a CAPM (Capital Asset Pricing Model) framework that considers volatilities as risk surrogate in contrast to Sharpe’s variability. The Ratio, also known as the reward-to-volatility ratio, provides a measure of performance adjusted for market risk. This measure is based on the premise of market efficiency, which helps

Comment on the adequacy of the portfolio diversification. Therefore it tells us the return over the risk free per unit of market risk it is computed as:

$$\text{Treynor Ratio} = \frac{\text{Average Return on NAV} - \text{Risk free return}}{\text{Market Risk}}$$

Net Asset Value:

If an investor wants to compute the Return on Investment between two dates, he can simply use the per unit Net Asset Value at the beginning and the end periods, and calculate the change in the value of the NAV between the two dates in absolute and percentage terms.

ANALYSIS OF DATA & FINDINGS:

ANALYSIS OF LARGE CAP FUND

HDFC mutual fund -direct plan-large cap fund-growth option				Year -2015
Month	Fund Return	Benchmark Return	RF	Excess risk
JAN	-0.1534	2.32413	7.51	-7.6634
FEB	-0.1768	1.055182826	7.51	-7.6867996
MAR	-2.462404	-4.61533277	7.51	-9.9724038
APR	-3.214588	-3.64503592	7.51	-10.724588
				Sharpe ratio

MAY	3.6101699	3.081953187	7.51	-3.8998301	-	2.602902432
JUN	-0.497141	-0.77250064	7.51	-8.0071412		
JUL	2.6249614	1.96391229	7.51	-4.8850386	Trey nor ratio	
AUG	-7.157596	-6.58103682	7.51	-14.667596	8.98914544	
SEP	-2.272306	-0.28100812	7.51	-9.7823063		
OCT	2.1131182	1.470643737	7.51	-5.3968818		
NOV	2.6946143	-1.61856232	7.51	-4.8153857		
DEC	-0.369358	0.139882171	7.51	-7.879358		
TOTAL	-5.26073	-7.47777237		Variance	Average	
MEAN	-0.438394	-0.6231477		8.96237065	-	7.948394136
STANDARD DEVIATION	3.0536658	2.993721873				
BETA	0.8354521				Standard	
CORRELATION	0.819052					3.053665799

From the 1st Jan 2015 to 31st Dec 2015 the fluctuation was as above. In that, the equity fund performed better than the market performance, it gave higher return as compared to its respective benchmark return. However, benchmark return and fund return were negative in the year 2015. Correlation between fund and benchmark is also very positive.

Reliance mutual fund-direct plan-large cap fund-growth option year-2015

Month	Fund Return	Benchmark Return	RF	EXCESS RETURN		
JAN	1.16391	2.32413	7.51	-6.34609		
FEB	0.175495	1.055183	7.51	-7.33451		
MAR	-1.84169	-4.61533	7.51	-9.35169		
APR	-3.8473	-3.64504	7.51	-11.3573	Sharpe ratio	
MAY	3.656581	3.081953	7.51	-3.85342	-2.7439257	
JUN	-0.33911	-0.7725	7.51	-7.84911		
JUL	5.118927	1.963912	7.51	-2.39107		
AUG	-4.78912	-6.58104	7.51	-12.2991	Trey nor ratio	
SEP	-0.55101	-0.28101	7.51	-8.06101	9.18595587	
OCT	1.299075	1.470644	7.51	-6.21093		
NOV	-1.17047	-1.61856	7.51	-8.68047		
DEC	-1.54038	0.139882	7.51	-9.05038		
TOTAL	-2.6651	-7.47777		variance	Average	
MEAN	-0.22209	-0.62315		8.962371	-7.732092	
STANDARD DEVIATION	2.817894	2.993722				
BETA	0.817552				Standard	
CORRELATION	0.868565					2.81789412

Interpretation –

From the table it can be seen that fund is highly correlated with its benchmark. However, both gave negative return in the 2015. But Fund return was higher than its benchmark.

HDFC mutual fund -direct plan-large cap fund-growth option					Year-2016
Month	Fund Return	Benchmark Return	RF	EXCESS RETURN	
JAN	-2.12461	3.58213	7.51	-9.63461	
FEB	4.8664344	-7.62208222	7.51	-2.6435656	
MAR	7.0406851	10.75346534	7.51	-0.4693149	
APR	-13.18825	1.439574072	7.51	-20.698245	Sharpe ratio
MAY	-3.245466	3.952966955	7.51	-10.755466	-
					0.890606625
JUN	9.3725741	1.564319065	7.51	1.86257412	
JUL	5.2118454	4.23214986	7.51	-2.2981546	
AUG	3.3456115	1.709787579	7.51	-4.1643885	Trey nor ratio
SEP	4.5543594	-1.99232888	7.51	-2.9556406	15.6148
OCT	0.6559256	0.168966979	7.51	-6.8540744	
NOV	-8.451093	-4.65121671	7.51	-15.961093	
DEC	8.1786571	-0.47054532	7.51	0.66865706	
TOTAL MEAN	16.216679	12.66718671		variance	Average
	1.3513899	1.055598893		21.8205797	-
					6.158610079
STANDARD DEVIATION	6.9150733	4.671250336			
BETA	0.2125248				Standard
CORRELATION	0.1435642				6.915073287

Interpretation –

From the table it can be said that fund is correlated with its benchmark. Both gave positive return, but fund's return was higher.

RELIANCE mutual fund-direct plan-large cap fund-growth option					year-2016
Month	Fund Return	Benchmark Return	RF	EXCESS RETURN	
JAN	1.6661	3.58213	7.51	-5.8439	
FEB	-9.08625	-7.62208	7.51	-16.5963	
MAR	10.71105	10.75347	7.51	3.201053	
APR	1.197025	1.439574	7.51	-6.31297	Sharpe ratio
MAY	2.8097	3.952967	7.51	-4.7003	-1.2455169
JUN	3.33329	1.564319	7.51	-4.17671	
JUL	5.449237	4.23215	7.51	-2.06076	
AUG	3.669762	1.709788	7.51	-3.84024	Trey nor ratio
SEP	-0.17935	-1.99233	7.51	-7.68935	7.18017795
OCT	1.432737	0.168967	7.51	-6.07726	
NOV	-5.83591	-4.65122	7.51	-13.3459	
DEC	-1.00462	-0.47055	7.51	-8.51462	
TOTAL	14.16276	12.66719		variance	Average
MEAN	1.18023	1.055599		21.82058	-6.3297697
STANDARD	5.082042	4.67125			
BETA	1.045935				Standard
CORRELATIO	0.96139				5.08204238

Interpretation –

Fund is highly correlated with its benchmark in the year 2016. Both gave positive return, but fund was outperformer compare to its benchmark. Fund return was nearly 2% higher than its benchmark.

HDFC mutual fund -direct plan-large cap fund-growth option					Year-2017
Month	Fund Return	Benchmark Return	RF	EXCESS RETURN	
JAN	1.26641	2.65641	7.51	-6.24359	
FEB	3.4892538	3.717893311	7.51	-4.0207462	
MAR	2.9591869	3.312649218	7.51	-4.5508131	
APR	3.2808052	1.420356997	7.51	-4.2291948	
MAY	4.0290588	3.409268007	7.51	-3.4809412	
JUN	-2.418622	-1.04300377	7.51	-9.9286223	Sharpe ratio
JUL	5.6592064	5.841884696	7.51	-1.8507936	-1.65229966
AUG	-2.863436	-1.57981959	7.51	-10.373436	
SEP	-2.351663	-1.3037034	7.51	-9.8616629	
OCT	7.9863765	5.585068345	7.51	0.47637652	Trey nor ratio
NOV	0.0860177	-1.05221909	7.51	-7.4239823	6.664948939
DEC	2.2936232	2.974121282	7.51	-5.2163768	
TOTAL	23.416217	23.938906		variance	Average
MEAN	1.9513514	1.994908833		7.11763399	-5.558648566
STANDARD	3.3641891	2.667889427			Standard
DEVATION					
BETA	1.1792794				3.364189137
CORRELATION	0.9351992				

Interpretation-

The above table shows a high fluctuation in the return but, however it showed a positive return in the year 2017. Both benchmark and fund have same return that is 23%.

Reliance mutual fund -direct plan large cap fund-growth option					year-2017
Month	Fund Return	Benchmark Return	RF	EXCESS RETURN	
JAN	4.16596	2.65641	7.51	-3.34404	
FEB	5.434587	3.717893	7.51	-2.07541	
MAR	2.371268	3.312649	7.51	-5.13873	
APR	2.41974	1.420357	7.51	-5.09026	
MAY	2.314565	3.409268	7.51	-5.19544	Sharpe ratio
JUN	0.337071	-1.043	7.51	-7.17293	-2.1091257
JUL	4.201811	5.841885	7.51	-3.30819	
AUG	-1.02393	-1.57982	7.51	-8.53393	Trey nor ratio
SEP	-2.33677	-1.3037	7.51	-9.84677	8.93149183
OCT	5.176234	5.585068	7.51	-2.33377	
NOV	0.012983	-1.05222	7.51	-7.49702	
DEC	3.730471	2.974121	7.51	-3.77953	
TOTAL	26.80399	23.93891		variance	Average
MEAN	2.233666	1.994909		7.117634	-5.2763345
STANDARD	2.501669	2.667889			
BETA	0.840845				Standard
CORRELATI	0.896714				2.50166904

Interpretation –

Fund is highly correlated with its benchmark in the year 2017. Both gave positive return, but fund has outperformed compared to its benchmark. Fund return was nearly 3% higher than its benchmark.

INTERPRETATION OF TREYNOR RATIO OF LARGE-CAP FUND**YEAR-2015**

Equity Scheme Large-cap fund	Beta	Avg. NAV	Rate of risk free return	Trey nor Ratio	Rank
Hdfc mutual fund	0.8354521	-0.4383	7.51	8.989145	2
Reliance mutual fund	0.817552	-0.2220	7.51	9.185955	1

YEAR-2016

Equity Scheme Large-cap fund	Beta	Avg. NAV	Rate of risk free return	Trey nor Ratio	Rank
Hdfc mutual fund	0.2125248	1.35138	7.51	15.6148	1
Reliance mutual fund	1.045935	1.1802	7.51	7.181779	2

YEAR-2017

Equity Scheme Large-cap fund	Beta	Avg. NAV	Rate of risk free return	Trey nor Ratio	Rank
Hdfc mutual fund	1.1792794	1.95135	7.51	6.664948	2
Reliance mutual fund	0.840845	2.23366	7.51	8.931491	1

Interpretation –

Higher the Treynor Ratio, the better is the fund so among this two companies reliance has higher ratio, which clearly indicates that Reliance fund is better than HDFC fund in the year 2015 and 2017. However, the position totally changes in the 2016 year in that HDFC performed well.

INTERPRETATION OF SHARPE RATIO OF LARGE-CAP

YEAR-2015

Equity Scheme Large-cap fund	Std. Deviation	Avg. NAV	Rate of risk free return	Sharpe Ratio	Rank
Hdfc mutual fund	3.0536658	-0.4383	7.51	-2.6029	1
Reliance mutual fund	2.817894	-0.2220	7.51	-2.7439	2

YEAR-2016

Equity Scheme Large-cap fund	Std. Deviation	Avg. NAV	Rate of risk free return	Sharpe Ratio	Rank
Hdfc mutual fund	6.9150733	1.35138	7.51	-0.89060	1
Reliance mutual fund	5.082042	1.18023	7.51	-1.245516	2

YEAR-2017

Equity Scheme Large-cap fund	Std. Deviation	Avg. NAV	Rate of risk free return	Sharpe Ratio	Rank
Hdfc mutual fund	3.3641891	1.95135	7.51	-1.652299	1
Reliance mutual fund	2.501669	2.2336	7.51	-2.109125	2

Interpretation –

Sharpe Ratio is a measure of risk adjusted return. Risk free return is assumed to be 7.51%. It represents the amount of risk premium earned for every unit risk. Thus, the higher the Sharpe Ratio, the better the scheme is.

On the basis of Sharpe ratio in all the three years hdfc was outperformer compare to its counterpart.

INTERPRETATION OF NAV RETURN OF LARGE-CAP FUND

YEAR-2015

Equity Scheme Large-cap mutual	NAV as on 1 st Jan 2015	NAV as on 31 st DEC 2015	NAV RETURN %	RANK
Hdfc mutual fund	89.149	84.753	- 4.93	1
Reliance mutual fund	22.9416	23.6436	3.05	2

YEAR-2016

Equity Scheme Large-cap mutual	NAV as on 1 st Jan 2016	NAV as on 31 st DEC 2016	NAV RETURN %	RANK
Hdfc mutual fund	85.086	88.205	3.66570	2
Reliance mutual fund	23.8108	32.6151	36.976	1

YEAR-2017

Equity Scheme Large-cap mutual	NAV as on 1 st Jan 2017	NAV as on 31 st DEC 2017	NAV RETURN %	RANK
Hdfc mutual fund	88.315	114.263	29.3811	2
Reliance mutual fund	24.4766	31.9633	30.5871	1

Interpretation –

We can see from the above table that hdfc gave good return in the year 2015. However, for the following two years that is 2016 and 2017 reliance gave good Returns compared to hdfc that is 36.976 and 30.5871.

CONCLUSION:

Mutual fund industry has given huge opportunity in sub - urban and rural markets which lays untapped yet with the growing income levels in the country. The industry's future look quite bright and growth of mutual fund industry will help as a fuel to the booming Indian economy.

- It is found from this study that both the companies gave good return on equity schemes in comparison to their benchmark.
- It is also found that volatility was high among both the company's equity schemes because of high standard deviation; however reliance large-cap fund is less risky compare to hdfc large-cap fund.

- Both the funds are highly correlated with its respective benchmark if the price of benchmark goes up the fund price also goes up and vice versa

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