

PERFORMANCE APPRAISAL OF MUTUAL FUNDS IN INDIA

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Abstract: Mutual funds are an alternative investment instrument for small saving holders in stock market. In this paper importance and kinds of mutual funds has been elaborated. Performance of mutual funds offered by HDFC has been tested with the help of t-test and ANOVA after data collection from stock market.

CONCEPT OF MUTUAL FUND: A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money thus collected is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realised are shared by its unit holders in proportion to the number of units owned by them. Thus a Mutual Fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

TERMINOLOGY:

Net Asset Value (NAV): The performance of a particular scheme of a mutual fund is denoted by Net Asset Value (NAV). Mutual funds invest the money collected from the investors in securities markets. In simple words, Net Asset Value is the market value of the securities held by the scheme.

Load or No Load Fund: A load fund is one that charges a percentage of NAV of entry or exit. That is, each time one buys or sells units in the fund, a charge will be payable. That is, each time one buys or sells units in the fund, a charge will be payable. A no-load fund is one that does not charge for entry or exit. It means the investors can enter the fund/scheme at NAV and no additional charges are payable on purchase on purchase or sale of units.

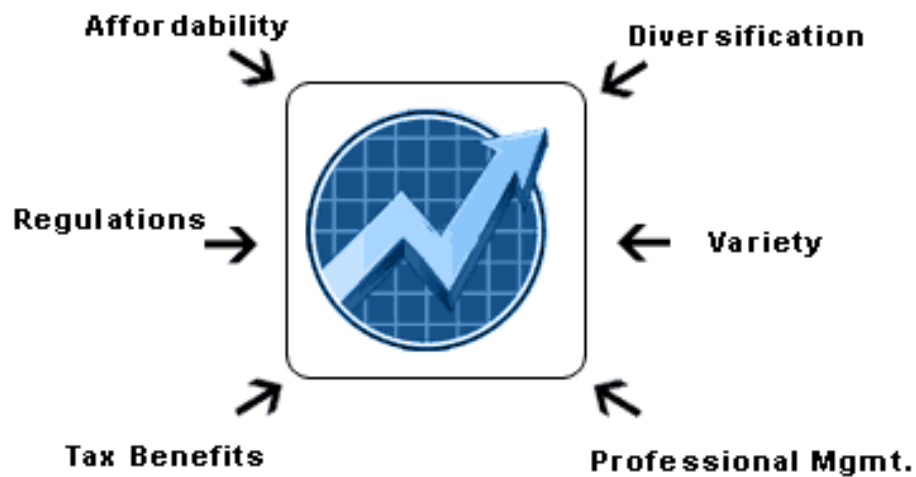
Sale or Repurchase/ Redemption Price: The price or NAV a unit holder is charged while investing in an open-ended scheme is called sales price. It may include sales load, if applicable. Repurchase or redemption price is the price or NAV at which an open-ended scheme purchases or redeems its units from the unit holders. It may include exit load, if applicable.

TYPES OF MUTUAL FUNDS SCHEMES-

Mutual Fund Schemes

1. By Structure : Open - Ended Schemes- Close Ended Schemes- Interval Schemes.
2. By Investment Objective: Growth Schemes- Income Schemes- Balanced Schemes- Money Market Schemes
3. Other Schemes: Tax Saving Schemes- Special Schemes- Index Schemes- Sector Specific Schemes

BENEFITS OF MUTUAL FUNDS



Regulations: Securities Exchange Board of India (“SEBI”), the mutual funds regulator has clearly defined rules, which govern mutual funds. These rules relate to the formation, administration and management of mutual funds and also prescribe disclosure and accounting requirements. Such a high level of regulation seeks to protect the interest of investors.

HDFC Mutual Fund: HDFC Mutual Fund has been one of the best performing funds in recent years. The sponsors of the fund are housing finance major HDFC and British investment company Standard Life Investments. As of February 2007, the fund has assets of Rs.31,080 crore under management.' Standard Life is one of the better known investment companies in the UK. The company offers pension fund management, money market funds and private equity among other products. The Standard Life group has a history of over 175 years and has over \$190 billion in assets under management globally. The trustee of the fund is HDFC Trustee Company Limited, a subsidiary of HDFC Limited. The chairman of the board of trustees is Anil Kumar Hirjee, vice chairman of Bombay Burmah Trading Corporation. Other members of the board include Keki Mistry of HDFC and James Aird of Standard Life. The AMC, HDFC Asset Management Company Limited, is owned between HDFC and Standard Life with HDFC holding slightly more than 50 per cent of the shares.

The board of directors has among its members Alexander Crombie of Standard Life, former head of Kodak India H Dhanrajgir, former head of BASF India P M Thampi, and Renu S Karnad of HDFC. The management of the AMC is headed by Milind Barve, managing director. In 2003, HDFC Asset Management Company took over the asset management business of Zurich India Mutual Fund. Subsequently, all the schemes of Zurich Mutual Fund in India had been transferred to HDFC Mutual Fund and renamed as HDFC schemes

Research Methodology:

Objectives of the study:

1. To evaluate the performance of different mutual fund schemes in term of their returns and risks by applying Sharpe, Treynor's and Jensen indices.
2. To carry out the funds sensitivity to the market movements by calculating Beta.
3. To carry out a comparative analysis of the performance of mutual fund schemes and that of market portfolio, i.e. NSE NIFTY, so as to bring out whether mutual fund schemes are outperforming or underperforming the benchmark (NSE NIFTY).

Sample Size: A sample size is 24 of equity schemes have been selected randomly out of various schemes. These schemes are as follows:

1. SBI Mutual Fund:

- Magnum Equity fund
- Magnum Emerging Business Fund
- Magnum Global Fund
- Magnum Multiplier Fund

2. HDFC Mutual Fund:

- HDFC Capital Fund.
- HDFC Equity Fund

- HDFC Growth Fund.
- HDFC Top
- 3. Canbank Mutual Fund:**
 - CanIndex
 - Canequity Diversified
 - Canexpo
 - Canequity- Tax saver
- 4. Birla Sunlife Mutual Fund:**
 - Birla Sunlife Buy India Fund
 - Birla Sunlife Equity Fund
 - Birla Sunlife Midcap Fund
 - Birla Sunlife Top200
- 5. Tata Mutual Fund:**
 - Tata Equity Fund.
 - Tata Life Science and Technology
 - Tata Select Equity Fund.
 - Tata Pure Equity Fund
- 6. Franklin Templeton Mutual Fund:**
 - Franklin India Bluechip Fund
 - Franklin India Growth Fund
 - Franklin Pharma Fund
 - Franklin India Prima Plus

Sources of Data: This study is entirely based upon secondary sources. NAV's and returns have been taken for the last one year starting from April, 2005 to March, 2006 and index has been noted from the website of NSE for different dates. Data has also been collected from Books, Newspapers, Magazines and Internet.

Assumptions under the Study: Rate of risk less return (Interest rate on Fixed Deposit offered by SBI) is taken @ 6.5% p.a. and second is Secondary data sources are assumed to be true.

Analysis of Data: To know the findings of the research project, an extensive use of statistical techniques has been made. Following tools have been for analysis of data:

Return of a Portfolio (Rp):

$$R_p = \frac{NAV(t) - NAV(t-1)}{NAV(t-1)}$$

Where, NAV (t) = Net Asset Value of the portfolio for the present day

NAV (t-1) = Net Asset Value of the portfolio for the previous day

Return of Market (Rm):

$$R_m = \frac{NSE(t) - NSE(t-1)}{NSE(t-1)}$$

Where, NSE (t) = Index of NSE NIFTY for the present day.

NSE (t-1) = Index of NSE NIFTY for the previous day.

Measurement of Risk: Total risk is measured with the help of standard deviation of daily returns both for the mutual fund schemes (σ_p) and the market (σ_m). Mathematically, the following formulae are used to compute mutual fund scheme risk and the market risk:

Total risk of the scheme:

$$(\sigma_p) = \left(\frac{\sum (R_p - R_{p1})^2}{n-1} \right)^{1/2}$$

Where, R_p = Average return on portfolio

R_p = Actual return on portfolio.

Total risk of the market portfolio

$$(\sigma_m) = (\sum (R_m - R_{m1})^2 / n-1)^{1/2}$$

Where, R_{m1} = average return on market

R_m = Actual return on market.

Beta Computation: Beta (β) is the measure of the systematic risk, also known as undiversifiable risk. It shows how the price of the portfolio responds to the market forces. Beta for overall market is equal to 1. Beta can be calculated as:

$$\beta_p = \frac{\text{Cov}(R_p, R_m)}{\sigma_m^2}$$

Where, σ_m^2 = Variance of the market portfolio,

$\text{Cov}(R_p, R_m)$ = Covariance of the scheme returns and market portfolio returns. Beta shows the volatility of the scheme over the market. It may be either aggressive or defensive or the same as that of the market.

Sharpe's Ratio : William F. Sharpe developed a method of measuring return per unit of risk in 1966. The reward to variability ratio attempted by Sharpe is referred as the Sharpe Ratio. Infact this ratio is simply the ratio of the reward, defined as the realized portfolio return that is R_p in excess of the risk free rate, to the variability of return as measured by the standard deviation of returns (σ_p).

$$SI = \frac{\text{Average } R_p - R_f}{\sigma_p}$$

where, R_p = Return on Portfolio

R_f = Risk free Return

Average Rm - Rf

$$\text{Bench Mark} = \frac{\text{Average Rm - Rf}}{\sigma_m}$$

Where Rm = market return

Rf = Risk free Return, In case SI is greater then the benchmark, a funds performance is better than market.

Treynor' Ratio :

According to Treynor's Ratio, the additional returns of the portfolio(fund) over the risk free return is expressed in relation to portfolios systematic risk measured by beta.

This is known as reward to volatility and expressed as:

$$\text{TN} = \frac{\text{Average Rp-Rf}}{\text{Bp}}$$

Where, Rp = return on portfolio

Rf = risk free return.

Bp = Beta of portfolio.

Average Rm- Rf

$$\text{Benchmark} = \frac{\text{Average Rm- Rf}}{\beta_p}$$

Where, Rm = Return on market

Rf = risk free return

Bp = beta of portfolio.

Greater value of TN over benchmark indicates a superior performance of the fund.

Jensen Measure: The Sharpe and Treynor's models provide measures for ranking the relative performance of various portfolios on a risk adjusted basis. Jensen attempts to construct a measure of absolute performance on a risk adjusted basis that is, definite standard against which performance of various funds can be measured. According to

Jensen, equilibrium average return on a portfolio would be Bench mark. Equilibrium average return is the return of the portfolio by the market with respect to systematic risk of the portfolio. This is a return the portfolio should earn with the given systematic risk,

$$EAR_p = R_f + (R_m - R_f) \beta_p$$

Where , **EAR_p** is the equilibrium average return of the portfolio. Difference between equilibrium average return and average return of the portfolio indicates superior/inferior performance of the fund; this is called Alpha (α). $\alpha_p = Avg R_p - EAR_p$ If Alpha is positive, the portfolio has performed better and if it is negative, it has not shown performance up to the benchmark.

Performance Appraisal of Mutual Funds:

Return Analysis - Risk Analysis- Risk Adjusted Performance Appraisal

PERFORMANCE APPRAISAL OF MUTUAL FUNDS

The performance appraisal of different mutual fund scheme is classified into:

1. Return Analysis
2. Risk Analysis
3. Risk- Adjusted performance appraisal

Return Analysis: In this, different schemes of mutual fund analysis and ranks are given on the basis of average daily returns. The statistics with respect to the average daily returns worked out for the sample schemes are presented through various tables (as shown below).

Table 1

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY BANKS) ACCORDING TO NAV BASED AVERAGE DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Average Return	Rank
1	Magnum Equity Fund	SBI	0.002555738	2
2	Magnum Emerging Business Fund	SBI	0.000862574	10
3	Magnum Global Fund	SBI	0.00198843	11
4	Magnum Multiplier Plus	SBI	0.002724603	1
5	HDFC Equity Fund	HDFC	0.002106975	5
6	HDFC Growth Fund	HDFC	0.001724495	7
7	HDFC Capital Builder	HDFC	0.001330142	8
8	HDFC Top 200	HDFC	0.001960103	12
9	Canequity Diversified	CANARA	0.002111163	4
10	Canequity-Taxsaver	CANARA	0.0018093	6
11	Canexpo	CANARA	0.001285193	8
12	Canindex	CANARA	0.002311495	3

Table 1 reveals the comparison of different mutual fund schemes launched by banks. These schemes are analyzed on the basis of daily average return. So table shows that Magnum Multiplier Plus a scheme of SBI mutual fund shows the best return. Therefore, it is given the highest rank among the sample. While, on the other hand, HDFC Top 200 a scheme of HDFC mutual bank shows lowest return as a result it is allotted last rank among all schemes as shown in the table.

Table 2

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY CORPORATES) ACCORDING TO NAV BASED AVERAGE DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Average Return	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.0013185	12
2	Birla Sunlife Equity Fund	BIRLA	0.0023369	4
3	Birla Sunlife Midcap Fund	BIRLA	0.0020149	6
4	Birla Sunlife MNC Fund	BIRLA	0.0018185	9
5	Tata Equity Opportunities Fund.	TATA	0.0025784	2
6	Tata Life Science and Technology	TATA	0.0022649	5
7	Tata Select Equity Fund.	TATA	0.0026043	1
8	Tata Pure Equity Fund	TATA	0.0018551	8
9	Franklin India Bluechip Fund	TEMPELTON	0.0019699	7
10	Franklin India Growth Fund	TEMPELTON	0.0023912	3
11	Franklin Pharma Fund	TEMPELTON	0.0013257	11
12	Franklin India Prima Plus	TEMPELTON	0.0015902	10

Table 2 reveals the comparison of different mutual fund schemes launched by corporates on the basis of their average daily returns. In this, Tata Select Equity Fund a scheme of Tata mutual fund is allotted highest rank as it shows the highest return among the sample. On the other hand, Birla Sunlife Buy India Fund a scheme of Birla Sunlife Mutual fund is the worst performer as its returns is lowest.

Table 3

OVERALL RANKING OF MUTUAL FUND SCHEMES ACCORDING TO NAV BASED AVERAGE DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Average Return	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.001319	22
2	Birla Sunlife Equity Fund	BIRLA	0.002337	6
3	Birla Sunlife Midcap Fund	BIRLA	0.002015	11
4	Birla Sunlife MNC Fund	BIRLA	0.001819	16
5	Tata Equity Opportunities Fund.	TATA	0.002578	3
6	Tata Life Science and Technology	TATA	0.002265	8
7	Tata Select Equity Fund.	TATA	0.002604	2
8	Tata Pure Equity Fund	TATA	0.001855	14
9	Franklin India Bluechip Fund	TEMPELTON	0.00197	13
10	Franklin India Growth Fund	TEMPELTON	0.002391	5
11	Franklin Pharma Fund	TEMPELTON	0.001326	20
12	Franklin India Prima Plus	TEMPELTON	0.00159	19
13	Magnum Equity Fund	SBI	0.002556	4
14	Magnum Emerging Business Fund	SBI	0.000863	24
15	Magnum Global Fund	SBI	0.001988	12
16	Magnum Multiplier Plus	SBI	0.002725	1
17	HDFC Equity Fund	HDFC	0.002107	10
18	HDFC Growth Fund	HDFC	0.001724	18
19	HDFC Capital Builder	HDFC	0.00133	21
20	HDFC Top 200	HDFC	0.00196	12
21	Canequity Diversified	CANARA	0.002111	9
22	Canequity-Taxsaver	CANARA	0.001809	17
23	Canexpo	CANARA	0.001285	23
24	Canindex	CANARA	0.002311	7

Table 3 shows the overall comparison of different schemes of mutual funds on the basis of average daily returns. In this Magnum Multiplier Plus is the best performer as its return is highest among all schemes as shown in the above table. While, on the other hand, Magnum Emerging Business Fund is the worst scheme due to its lowest return.

Risk Analysis: It is common knowledge that most investments imply some degree of risk and they also require certain sacrifice in the present for a certain future benefit. The source of uncertainties that contribute to investment risk include interest rate risk, purchasing power variability, status of market (bull/bear market), changes in corporate management, changes in financial integrity of the investment, political factors, liquidity risk and the variability of returns caused by events that affect the products and firms, which make up an industry. For the purpose of present analysis risk refers to the measure of variability of weekly returns generated by the sample schemes.

Table 4

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY BANKS) ACCORDING TO STANDARD DEVIATION OF NAV BASED DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Standard Deviation	Rank
1	Magnum Equity Fund	SBI	0.010753487	2
2	Magnum Emerging Business Fund	SBI	0.023349444	12
3	Magnum Global Fund	SBI	0.017072209	10
4	Magnum Multiplier Plus	SBI	0.011578561	5
5	HDFC Equity Fund	HDFC	0.012735805	7
6	HDFC Growth Fund	HDFC	0.011204823	4
7	HDFC Capital Builder	HDFC	0.015815036	9
8	HDFC Top 200	HDFC	0.012495706	6

9	Canequity Diversified	CANARA	0.011123045	3
10	Canequity-Taxsaver	CANARA	0.017179987	11
11	Canexpo	CANARA	0.014808249	8
12	Canindex	CANARA	0.010594375	1

Table 4 shows comparison of different mutual fund schemes launched by banks on the basis of their total risk i.e. standard deviation. These schemes are also allotted ranks on the basis of their standard deviation. Since the standard deviation of Canindex scheme is lowest. Therefore its risk will be lowest and should be allotted the highest rank. On the other hand, the Magnum Emerging Business Fund is allotted lowest rank, as its standard deviation is highest.

Table 5

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY CORPORATES) ACCORDING TO STANDARD DEVIATION OF NAV BASED AVERAGE DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Standard Deviation	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.021005	12
2	Birla Sunlife Equity Fund	BIRLA	0.010841	5
3	Birla Sunlife Midcap Fund	BIRLA	0.011632	8
4	Birla Sunlife MNC Fund	BIRLA	0.013308	10
5	Tata Equity Opportunities Fund.	TATA	0.010267	3
6	Tata Life Science and Technology	TATA	0.009007	1
7	Tata Select Equity Fund.	TATA	0.011107	6
8	Tata Pure Equity Fund	TATA	0.011591	7
9	Franklin India Bluechip Fund	TEMPELTON	0.010714	4
10	Franklin India Growth Fund	TEMPELTON	0.009785	2

11	Franklin Pharma Fund	TEMPELTON	0.012531	9
12	Franklin India Prima Plus	TEMPELTON	0.014647	11

Table 5 reveals the comparison of different mutual fund schemes launched by corporates on the basis of their total risk i.e. standard deviation. Ranks are allotted to different schemes on the basis of their total risk. Highest rank is allotted to scheme, which has lowest standard deviation i.e. total risk vice versa. In the above table, Tata Life Science and Technology is given highest rank as it has lowest risk among the sample. On the other hand, Birla Sunlife Buy India Fund is the most risky scheme as its standard deviation is highest.

Table 6

OVERALL RANKING OF MUTUAL FUND SCHEMES ACCORDING TO STANDARD DEVIATION OF NAV BASED AVERAGE DAILY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Standard Deviation	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.021005	23
2	Birla Sunlife Equity Fund	BIRLA	0.010841	8
3	Birla Sunlife Midcap Fund	BIRLA	0.011632	14
4	Birla Sunlife MNC Fund	BIRLA	0.013308	18
5	Tata Equity Opportunities Fund.	TATA	0.010267	3
6	Tata Life Science and Technology	TATA	0.009007	1
7	Tata Select Equity Fund.	TATA	0.011107	9
8	Tata Pure Equity Fund	TATA	0.011591	13
9	Franklin India Bluechip Fund	TEMPELTON	0.010714	5
10	Franklin India Growth Fund	TEMPELTON	0.009785	2
11	Franklin Pharma Fund	TEMPELTON	0.012531	16
12	Franklin India Prima Plus	TEMPELTON	0.014647	19
13	Magnum Equity Fund	SBI	0.010753	7

14	Magnum Emerging Business Fund	SBI	0.023349	24
15	Magnum Global Fund	SBI	0.017072	22
16	Magnum Multiplier Plus	SBI	0.011579	12
17	HDFC Equity Fund	HDFC	0.012736	17
18	HDFC Growth Fund	HDFC	0.011205	10
19	HDFC Capital Builder	HDFC	0.015815	21
20	HDFC Top 200	HDFC	0.012496	15
21	Canequity Diversified	CANARA	0.011123	11
22	Canequity-Taxsaver	CANARA	0.01718	6
23	Canexpo	CANARA	0.014808	20
24	Canindex	CANARA	0.010594	4

Table 6 shows overall comparison of different mutual funds on the basis of their total risk which is shown by their standard deviation. Ranks are also allotted on the basis of total risk involved in the scheme. In the above table, Tata Life Science and Technology, Franklin India Growth Fund, Tata Equity Opportunities Fund is best schemes due to less risk involved in these schemes. These are allotted first, second, & third rank respectively. On the other hand, Magnum Global Fund, Birla Sunlife Buy India Fund, & Magnum Emerging Business Fund are allotted lowest rank i.e 22, 23, & 24 respectively.

Table 7

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY BANKS) ACCORDING TO BETA VALUES BASED ON NAV AND NSE NIFTY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Bank	BETA	Rank
1	Magnum Equity Fund	SBI	0.878	11
2	Magnum Emerging Business Fund	SBI	0.582	2
3	Magnum Global Fund	SBI	0.704	3
4	Magnum Multiplier Plus	SBI	0.761	5

5	HDFC Equity Fund	HDFC	0.827	8
6	HDFC Growth Fund	HDFC	0.75	4
7	HDFC Capital Builder	HDFC	0.668	7
8	HDFC Top 200	HDFC	0.839	10
9	Canequity Diversified	CANARA	0.791	6
10	Canequity-Taxsaver	CANARA	0.824	9
11	Canexpo	CANARA	0.352	1
12	Canindex	CANARA	0.945	12

Table 7 reveals that the comparison of various mutual fund schemes as launched by banks on the basis of their systematic risk which is known as Beta. Ranks are allotted on the basis of degree of systematic risk. Since Canexpo has the lowest beta therefore it is allotted first rank among all the schemes as shown in the table. On the other hand, Canindex has allotted the last rank due to higher degree of systematic risk involved in the scheme.

Table 8

RANKING OF MUTUAL FUND SCHEMES (LAUNCHED BY CORPORATES) ACCORDING TO BETA VALUES BASED ON NAV AND NSE NIFTY RETURNS (from 1.APRIL.2005 to 31.MARCH.2006)				
Sr.No.	Name of the Scheme	Sponsor	Beta	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.489496	1
2	Birla Sunlife Equity Fund	BIRLA	0.788923	8
3	Birla Sunlife Midcap Fund	BIRLA	0.550246	3
4	Birla Sunlife MNC Fund	BIRLA	0.65202	4
5	Birla Sunlife Buy India Fund.	TATA	0.826803	12
6	Tata Life Science and Technology	TATA	0.701631	5
7	Tata Select Equity Fund.	TATA	0.820826	10
8	Tata Pure Equity Fund	TATA	0.789279	9
9	Franklin India Bluechip Fund	TEMPELTON	0.829635	11

10	Franklin India Growth Fund	TEMPELTON	0.749841	6
11	Franklin Pharma Fund	TEMPELTON	0.548723	2
12	Franklin India Prima Plus	TEMPELTON	0.781626	7

Table 8 shows the comparison of different mutual fund schemes launched by corporates on the basis of degree of systematic risk involved in schemes rather than total risk. The degree of systematic risk is denoted by Beta. The best scheme is that one which has lowest Beta, vice-versa. Birla Sunlife Buy India Fund is the best scheme among the sample as it has lowest Beta. it means that there is less degree of systematic risk involved in this scheme. Therefore it is allotted first rank among all schemes. On the other hand, Birla Sunlife Buy India Fund has allotted last rank due to more systematic risk involved in this scheme as shown by Beta.

Table 9

OVERALL RANKING OF MUTUAL FUND SCHEMES ACCORDING TO BETA VALUES BASED ON NAV AND NSE NIFTY RETURNS				
Sr. No.	Name of the Scheme	Sponsor	Beta	Rank
1	Birla Sunlife Buy India Fund	BIRLA	0.489496	2
2	Birla Sunlife Equity Fund	BIRLA	0.788923	15
3	Birla Sunlife Midcap Fund	BIRLA	0.550246	4
4	Birla Sunlife MNC Fund	BIRLA	0.65202	6
5	Tata Equity Opportunities Fund.	TATA	0.826803	19
6	Tata Life Science and Technology	TATA	0.701631	8
7	Tata Select Equity Fund.	TATA	0.820826	17
8	Tata Pure Equity Fund	TATA	0.789279	14
9	Franklin India Bluechip Fund	TEMPELTON	0.829635	21
10	Franklin India Growth Fund	TEMPELTON	0.749841	11
11	Franklin Pharma Fund	TEMPELTON	0.548723	3
12	Franklin India Prima Plus	TEMPELTON	0.781626	13

13	Magnum Equity Fund	SBI	0.877985	23
14	Magnum Emerging Business Fund	SBI	0.582179	5
15	Magnum Global Fund	SBI	0.70419	9
16	Magnum Multiplier Plus	SBI	0.760877	12
17	HDFC Equity Fund	HDFC	0.827165	20
18	HDFC Growth Fund	HDFC	0.749591	10
19	HDFC Capital Builder	HDFC	0.66823	7
20	HDFC Top 200	HDFC	0.839358	22
21	Canequity Diversified	CANARA	0.791028	16
22	Canequity-Taxsaver	CANARA	0.823785	18
23	Canexpo	CANARA	0.352256	1
24	Canindex	CANARA	0.9448	24

Table 9 reveals the overall comparison of various mutual fund schemes on the basis of degree of risk involved in schemes which is known as Beta. Ranks are allotted to all schemes in the table on the basis of Beta. Canexpo, Birla Sunlife Buy India Fund and Franklin Pharma Fund are allotted first, second and third rank respectively as shown in the above table due to less Beta. On the other hand, Canindex, Magnum equity fund and HDFC Top 200 have shown higher degree of systematic risk. Therefore, these schemes are allotted 24,23 and 22 ranks respectively.

Risk- Adjusted performance appraisal: The present subsection is devoted to the examination of mutual funds' performance in comparison to their benchmark or market portfolio. Here, the National Stock Exchange NIFTY is selected as market portfolio. The risk-adjusted measures suggested by Sharpe, Treynor and Jensen have been applied here to evaluate the risk-adjusted performance of the mutual fund schemes. It is necessary to point out that these measures are well-established models for evaluating whether a particular scheme/ portfolio is underperforming or outperforming the market portfolio.

Sharpe's Measure: The first measure applied to examine the issue whether mutual fund schemes are outperforming or underperforming the benchmark is Sharpe's portfolio performance measure. As we know, this model is based on total risk i.e. portfolio's standard deviation. Under this model, first we calculate reward to volatility of the portfolio and then additional return of the market over risk free return ($R_m - R_f$). The difference between market return and risk free return serves as benchmark. Further, a difference between Sharpe's reward to volatility and benchmark (i.e. market portfolio) is worked out. A scheme will be adjudged as outperforming in case Sharpe's index connected thereto exceeds the benchmark and underperforming in case of vice-versa situation. The Sharpe's model has also been applied by considering its benchmark according to NSE NIFTY.

Table 10

SHARPE'S INDEX (SI) AND IT'S DIFFERENCE FROM BENCHMARK (SI-BMS) BASED ON NSE NIFTY AND NAV RETURNS FOR OPEN ENDED SCHEMES (from 1.APRIL.2005 to 31.MARCH.2006)					
Sr.No.	Name of the Scheme	Sponsor	Sharpe's Index (SI)	Benchmark (BMS)	SI - BMS
1	Birla Sunlife Buy India Fund	BIRLA	0.054295512	0.18322461	-0.128929097
2	Birla Sunlife Equity Fund	BIRLA	0.199136318	0.18322461	0.015911708
3	Birla Sunlife Midcap Fund	BIRLA	0.157911093	0.18322461	-0.025313517
4	Birla Sunlife MNC Fund	BIRLA	0.123262336	0.18322461	-0.059962273
5	Tata Equity Opportunities Fund.	TATA	0.233789937	0.18322461	0.050565327
6	Tata life Science & Technology	TATA	0.231699217	0.18322461	0.048474607
7	Tata Select Equity Fund.	TATA	0.21845103	0.18322461	0.03522642
8	Tata Pure Equity Fund	TATA	0.144674952	0.18322461	-0.038549658
9	Franklin India Bluechip Fund	TEMP.	0.167243527	0.18322461	-0.015981083
10	Franklin India Growth Fund	TEMP.	0.22617937	0.18322461	0.04295476
11	Franklin Pharma Fund	TEMP.	0.09158675	0.18322461	-0.09163786
12	Franklin India Prima Plus	TEMP.	0.096408441	0.18322461	-0.086816169
13	Magnum Equity Fund	SBI	0.221105804	0.18322461	0.037881195
14	Magnum Emerging Bus. Fund	SBI	0.029315214	0.18322461	-0.153909396
15	Magnum Global Fund	SBI	0.106040731	0.18322461	-0.077183879

16	Magnum Multiplier Plus	SBI	0.242078605	0.18322461	0.058853995
17	HDFC Equity Fund	HDFC	0.151454478	0.18322461	-0.031770132
18	HDFC Growth Fund	HDFC	0.138013364	0.18322461	-0.045211245
19	HDFC Capital Builder	HDFC	0.110421454	0.18322461	-0.072803155
20	HDFC Top 200	HDFC	0.142610859	0.18322461	-0.040613751
21	Canequity Diversified	CANAR A	0.173790801	0.18322461	-0.009433809
22	Canequity-Taxsaver	CANAR A	0.094948839	0.18322461	-0.088275771
23	Canexpo	CANAR A	0.074763287	0.18322461	-0.108461323
24	Canindex	CANAR A	0.201372385	0.18322461	0.018147775

Table 10 presents working of Sharpe's Index (SI), and its difference from the benchmark (SI- BMS) based on NSE NIFTY. From the above table it can be analysed that majority of schemes have underperformed. Their number are 15 out of 24 schemes. Those schemes which have underperformed are Birla Sunlife Buy India Fund, Birla Sunlife Midcap Fund, Birla Sunlife MNC Fund , Tata Pure Equity Fund, Franklin India Bluechip Fund, Franklin Pharma Fund, Franklin India Prima Plus, Magnum Emerging Business Fund, Magnum Global Fund, HDFC Equity Fund, HDFC Growth Fund, HDFC Capital Builder, HDFC Top 200, Canequity Diversified, Canequity-Taxsaver, Canexpo. On the other hand those schemes whose difference between Sharpe's Index (SI) and Benchmark (BMS) is positive are outperforming. These schemes are Birla Sunlife Equity Fund, Tata Equity Opportunities Fund, Tata Life Science and Technology, Tata Select Equity Fund, Franklin India Growth Fund, Magnum Equity Fund, Magnum Multiplier Plus, Canindex. **Treynor's Measure:** The second measure applied to examine the issue whether mutual fund schemes are outperforming or underperforming the benchmark is Treynor's portfolio performance measure. As we know, this model is based on systematic risk i.e. portfolio's Beta coefficients. Under this model, first we calculate reward to volatility of the portfolio

and then additional return of the market over risk free return ($R_m - R_f$). The difference between market return and risk free return serves as benchmark. Further, a difference between Treynor's reward to volatility and benchmark (i.e. market portfolio) is worked out. A scheme will be adjudged as outperforming in case treynor's index connected thereto exceeds the benchmark and underperforming in case of vice-versa situation. The Treynor's model has also been applied by considering its benchmark according to NSE NIFTY.

Table 11
TREYNOR'S INDEX (SI) AND IT'S DIFFERENCE FROM BENCHMARK (TI-BMS)
BASED ON NSE NIFTY AND NAV RETURNS FOR OPEN ENDED SCHEMES (from 1.APRIL.2005
31.MARCH.2006)

Sr.No.	Name of the Scheme	Sponsor	Treynor's Index (TI)	Benchmark (BMS)	TI – BMS
1	Birla Sunlife Buy India Fund	BIRLA	0.002329852	0.002860752	-0.0005309
2	Birla Sunlife Equity Fund	BIRLA	0.002736418	0.002860752	-0.000124334
3	Birla Sunlife Midcap Fund	BIRLA	0.003338256	0.002860752	0.000477504
4	Birla Sunlife MNC Fund	BIRLA	0.002515929	0.002860752	-0.000344822
5	Tata Equity Opportunities Fund.	TATA	0.002903183	0.002860752	4.24313E-05
6	Tata Life Science &Technology	TATA	0.002974228	0.002860752	0.000113476
7	Tata Select Equity Fund.	TATA	0.002955843	0.002860752	9.50914E-05
8	Tata Pure Equity Fund	TATA	0.002124685	0.002860752	-0.000736066
9	Franklin India Bluechip Fund	TEMP.	0.002159809	0.002860752	-0.000700943
10	Franklin India Growth Fund	TEMP.	0.002951431	0.002860752	9.06788E-05
11	Franklin Pharma Fund	TEMP.	0.002091525	0.002860752	-0.000769227
12	Franklin India Prima Plus	TEMP.	0.001806661	0.002860752	-0.001054091
13	Magnum Equity Fund	SBI	0.002708086	0.002860752	-0.000152665
14	Magnum Emerging	SBI	0.001175744	0.002860752	-0.001685008

Bus.Fund					
15	Magnum Global Fund	SBI	0.002570824	0.002860752	-0.000289928
16	Magnum Multiplier Plus	SBI	0.003346825	0.002860752	0.000486073
17	HDFC Equity Fund	HDFC	0.002331935	0.002860752	-0.000528817
18	HDFC Growth Fund	HDFC	0.002063012	0.002860752	-0.00079774
19	HDFC Capital Builder	HDFC	0.00172405	0.002860752	-0.001136702
20	HDFC Top 200	HDFC	0.00212308	0.002860752	-0.000737672
21	Canequity Diversified	CANARA	0.002443762	0.002860752	-0.00041699
22	Canequity-Taxsaver	CANARA	0.001980153	0.002860752	-0.000880599
23	Canexpo	CANARA	0.003142919	0.002860752	0.000282167
24	Canindex	CANARA	0.002258059	0.002860752	-0.000602693

Table 11 shows the Treynor's Index (TI) of various schemes and its difference from benchmark (TI – BMS) based on NSE NIFTY. From the above table it can be analyzed that most of schemes are under performed in comparison to market i.e. NSE NIFTY. These schemes are Birla Sunlife Buy India Fund, Birla Sunlife Equity Fund, Birla Sunlife MNC Fund, Tata Pure Equity Fund, Franklin India Bluechip Fund, Franklin Pharma Fund, Franklin India Prima Plus, Magnum Equity Fund, Magnum Emerging Business Fund, Magnum Global Fund, HDFC Equity Fund, HDFC Growth Fund, HDFC Capital Builder, HDFC Top 200, Canequity Diversified, Canindex. On the other hand, the number of schemes which are overperformed, is very minor. Those schemes which have overperformed, are Birla Sunlife Midcap Fund, Tata Equity Opportunities Fund, Tata Life Science and Technology, Tata Select Equity Fund, Franklin India Growth Fund, Canexpo.

Jensen's measure: The third measure applied to evaluate the performance of the selected schemes is Jensen's measure. This measure attempts to construct an index of absolute performance on a risk adjusted basis as compared to the relative performance measured by both Sharpe's and Treynor's measures on a risk adjusted basis. In fact, Jensen's measure provides a definite standard against which performance of various

schemes can be measured. The equilibrium average return on a market portfolio serves as a benchmark under this measure. The difference between equilibrium average return on a market portfolio and average return of the mutual scheme indicates superior or inferior position of the fund. This difference is symbolized as Alpha (α). A positive Alpha implies that the scheme has outperformed the market index and negative Alpha indicates just the opposite.

Table 12

**JENSEN'S MEASURE (ALPHA) BASED ON NSE NIFTY AND NAV RETURNS
FOR OPEN ENDED SCHEMES (from 1.APRIL.2005 to 31.MARCH.2006)**

Sr.No.	Name of the Scheme	Sponsor	ALPHA
1	Birla Sunlife Buy India Fund	BIRLA	0.000208652
2	Birla Sunlife Equity Fund	BIRLA	0.000658653
3	Birla Sunlife Midcap Fund	BIRLA	-0.001622664
4	Birla Sunlife MNC Fund	BIRLA	0.000400593
5	Tata Equity Opportunities Fund.	TATA	0.000820699
6	Tata Life Science and Technology	TATA	0.000746298
7	Tata Select Equity Fund.	TATA	0.00085799
8	Tata Pure Equity Fund	TATA	0.000169
9	Franklin India Bluechip Fund	TEMPELTON	0.00020678
10	Franklin India Growth Fund	TEMPELTON	0.000765944
11	Franklin Pharma Fund	TEMPELTON	9.92961E-05
12	Franklin India Prima Plus	TEMPELTON	-8.12151E-05
13	Magnum Equity Fund	SBI	0.000668766
14	Magnum Emerging Business Fund	SBI	-0.000448649
15	Magnum Global Fund	SBI	0.000439727
16	Magnum Multiplier Plus	SBI	0.001065566
17	HDFC Equity Fund	HDFC	0.000347653

18	HDFC Growth Fund	HDFC	0.000113467
19	HDFC Capital Builder	HDFC	-0.000125353
20	HDFC Top 200	HDFC	0.000177474
21	Canequity Diversified	CANARA	0.000385896
22	Canequity-Taxsaver	CANARA	-0.000127109
23	Canexpo	CANARA	0.000418128
24	Canindex	CANARA	0.000116784

Table 12 shows Jensen's measure. The above table reveals that majority of schemes have positive alpha which shows that they are outperformed the market index i.e. NSE NIFTY. Only five schemes have negative alpha. These are Birla Sunlife Midcap Fund, Franklin India Prima Plus, HDFC Capital Builder, Canequity-Taxsaver, Magnum Emerging Business Fund. Negative Alpha means that the performance of scheme is not up to mark or , in other words, they are underperformed.

FINDINGS AND CONCLUSIONS

Findings with Facts:

1. To evaluate the performance of different mutual fund schemes in term of their returns and risks by applying Sharpe, Treynor's and Jensen indexes.
2. To carry out the funds sensitivity to the market movements by calculating Beta.
3. To carry out a comparative analysis of the performance of mutual fund schemes and that of market portfolio, i.e. NSE NIFTY, so as to bring out whether mutual fund schemes are outperforming or underperforming the benchmark (NSE NIFTY).

The reference period of the study for collecting data regarding daily NAVs, which forms the very basis of the appraisal, i.e. 1, April, 2005 to 31, March, 2006. The secondary data of NAVs and stock market index data is collected from different

internet websites, monthly reports issued by different mutual funds, newspapers and magazines. Due to large number of mutual fund schemes in existence, it is not feasible to analyse all the schemes. Therefore, the analysis of mutual fund schemes is restricted to 24 schemes including 4 of SBI, 4 of HDFC, 4 of Canbank, 4 of Birla Sunlife, 4 of Tata and 4 of Tempelton. These schemes were selected on the basis of judgement and convenience basis. To carry out return and risk analysis and evaluate risk adjusted performance of mutual funds, fairly large samples comprising of open ended equity schemes have been taken on judgement basis.

The analysis has been carried out on the following dimensions:

1. Return analysis
2. Risk analysis
3. Risk adjusted performance measures

The performance of open ended equity schemes has been satisfactory in terms of NAV based returns. All the selected open- ended equity schemes have succeeded in producing positive returns.

Regarding returns of open-ended schemes the study shows that Magnum Multiplier performed better among all schemes launched by banks. While Tata Select Equity Fund is best among schemes launched by corporates. Magnum Multiplier performs better in case of overall comparison. Considering all the open-ended equity schemes launched by banks, the risk level is found at the lowest level in case of Canindex. While Tata Life Science and Technology shows the lowest risk among all schemes launched by corporates. In case of overall comparison, Tata Life Science and Technology shows the lowest risk. In case of open-ended equity schemes launched by banks, the average Beta value Canexpo is lowest. While on the other hand, Birla Sunlife Buy India Fund shows the lowest average Beta among open-ended schemes launched by corporates. In case of overall comparison, Canexpo has produced the lowest average Beta.

According to Sharpe's measure of risk-adjusted performance, the open-ended equity schemes a very discouraging performance. For instance out of 24 schemes 15 schemes show that they are underperforming. The number of outperforming schemes is limited to 9.

The percentage of outperforming schemes as per Treynor's measure is lower than that found on the application of Sharpe index. The number of outperforming schemes is limited to 7.

Jensen's Alpha has been found positive values in case of majority of the schemes. Except Can-equity Tax saver, HDFC Capital Builder, Magnum Emerging Business Fund, Franklin India Prima Plus, and Birla Sunlife Midcap Fund, there is no such scheme as has underperformed.

A summary of top schemes on the basis of different variables are shown with help of following tables.

Table 1

TOP THREE SCHEMES ON THE BASIS OF THEIR AVERAGE DAILY RETURN

Sr. No.	Schemes	Sponsor	Average Return	Rank
1	Magnum Multiplier Plus	SBI	0.002725	1
2	Tata Select Equity Fund.	TATA	0.002604	2
3	Tata Equity Opportunities	TATA	0.002578	3

Table 2

TOP THREE SCHEMES ON THE BASIS OF THEIR TOTAL RISK

Sr.	Schemes	Sponsor	Total Risk	Rank
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No.				
1	Tata Life Science and Technology	TATA	0.009007	1
2	Tata Equity Opportunities Fund.	TATA	0.010267	3
3	Franklin India Growth Fund	TEMPELTON	0.009785	2

Table 3**TOP THREE SCHEMES ON THE BASIS OF THEIR BETA**

Sr. No.	Schemes	Sponsor	Beta	Rank
1	Canexpo	CANARA	0.352256	1
2	Birla Sunlife Buy India Fund	BIRLA	0.489496	2
3	Franklin Pharma Fund	TEMPELTON	0.548723	3

Table 4**TOP THREE SCHEMES ON THE BASIS OF SHARPE'S INDEX**

Sr. No.	Schemes	Sponsor	SI - BMS
1	Magnum Multiplier Plus	SBI	0.058853995
2	Tata Equity Opportunities Fund.	TATA	0.050565327
3	Tata Life Science and Technology	TATA	0.048474607

Table 5**TOP THREE SCHEMES ON THE BASIS OF TREYNOR'S INDEX**

Sr. No.	Schemes	Sponsor	TI - BMS
1	Magnum Multiplier Plus	SBI	0.000486073
2	Birla Sunlife Midcap Fund	BIRLA	0.000477504
3	Canexpo	CANARA	0.000282167

Table 6

TOP THREE SCHEMES ON THE BASIS OS JENSEN'S MEASURE

Sr. No.	Schemes	Sponsor	ALPHA
1	Tata Equity Opportunities Fund.	TATA	0.000820699
2	Tata Equity Opportunities Fund.	TATA	0.000820699
3	Tata Life Science and Technology	TATA	0.000746298

In the last, I want to say that the importance of research and analysis in the mutual fund industry can hardly be over emphasized; many Indian mutual funds are still devoid of such culture. It is unquestionable that continuous research on any subject makes it attain maturity and takes it from developing stage to developed stage. In developed countries of the world none can think of operating in the capital market without the intelligent support of the standard research. The performance of mutual fund depends largely on the caliber of the fund managers in structuring investment portfolio, portfolio diversification skills and the extent to which market risk is reduced.

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International Journal of Computing and Business Research (IJCBR)

ISSN (Online) : 2229-6166

International Manuscript ID : 22296166V7I1201709

Volume 7 Issue 1 May - June 2017

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