

# Performance Analysis of Indian Mutual Funds with S&P CNX Nifty Index

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*The Mutual Funds play a vigorous role in financial intermediation under the changed environment through which development of Capital Markets and the growth of the corporate sector also takes place. This paper attempts to investigate the financial performance of the mutual funds with the tools of return, standard deviation and beta. Statistical ratios have been used like Treynor ratio, Sharpe ratio, standard deviation, beta, co variance etc. The performance of HDFC, Birla sun life and ICICI equity have been analysed with the S&P CNX Nifty Index. It is being found that HDFC mutual fund and ICICI prudential mutual fund return has outperformed the market whereas Birla Sun Life Insurance has been lowest in the performance when compared to stock market in terms of returns.*

**Key Words:** Mutual funds, Treynor Ratio, Sharpe Ratio, Beta

**JEL Classification:** D90, D92

## INTRODUCTION

During the last decade, unparalleled developments witnessed by the Indian Capital Market. This unprecedented growth was the result of new financial institutions and new financial instruments like Mutual Funds and many other instruments. For the investors who lack the knowledge of investing in the market, mutual fund is the best financial instrument for them. Mutual Funds is that type of an investment instrument which deploy savings of individuals and institutions and direct these savings into corporate securities to deliver the investors a steady stream of returns and capital appreciation. The Mutual Funds play a vigorous role in financial intermediation under the changed environment through which development of Capital Markets and the growth of the corporate sector also takes place. For average Indian investors, Mutual funds have become important medium of investment. This allows investors to invest indirectly into the capital market and gain the knowledge and skills from professionals. Risk can be diversified if proper diversification will be done. Through information gathered in advance one can reduce the magnitude of the risk for investment decisions.

## LITERATURE REVIEW

Mohamed.zaheeruddin, Pinninti Sivakumar, K.Srinivas Reddy(Feb 2013) explains the advantages of investing in the mutual fund over stock market. And examining the performance of mutual funds based on their fund return, risk and performance ratios.

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Dr. Sarita Bahl and Meenakshi Rani (July 2012) evaluated the performance of the mutual fund. They 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 have been used to calculate the returns from the fund schemes. BSE-sensex has been used for market portfolio. The historical performance of the selected schemes were evaluated on the basis of Sharpe, Treynor, and Jensen's measure whose results will be useful for investors for taking better investment decisions.

Sahil Jain (August 2012) in his paper made an attempt to analyze the performance of equity based mutual funds. A total of 45 schemes offered by 2 private sector companies and 2 public sector companies, have been studied over the period 15 years. The analysis has been made using the risk-return relationship and CapitalAssetPricingModel (CAPM). The overall analysis finds that HDFC and ICICI have been the best performers, UTI an average performer and LIC the worst performer which gave below- expected returns on the risk-return relationship.

Dr. R. Narayanasamy, V. Rathnamani(April 2013) In his study mainly focused on the performance of selected equity large cap mutual fund schemes in terms of risk- return relationship. The main objectives of this research work is to analysis financial performance of selected mutual fund schemes through the statistical parameters such as (alpha , beta, standard deviation, r-squared, Sharpe ratio) and concluded that all the funds have performed well in the high volatile market movement.

According to studies of Ercetin (1997), Karacabey (1999), Gursay and Erzurumlu (2001), Kilic(2002), Canbas and Kadir (2002), Vuran (2002), and Arslan (2005), comparative analysis of Turkish mutual Funds performances is relatively low to other countries' mutual funds performances" (Arslan & Arslan, 2010). On the other hand, Christensen (2003) claims that Danish mutual funds have weak

performances. Those funds either perform neutral or negative. Therefore, Danish and Turkish mutual fund assets are proper to make a comparison between them.

Timotej Jagric, Boris Podobnik, Sebastjan Strasek, Vita Jagric studies the mutual fund industry and applies various tests to evaluate the performance capacity of mutual funds. Calculated the performance measures of mutual funds and ranked them according to the results. The rankings were obtained by performing both the Sharpe and Treynor rules to be almost the same, implying that funds are well diversified and revealed that all analyzed funds outperformed the market on a risk-adjusted basis.

Dr H. Sadak(2003) basically focused on the growth and development of mutual funds in India. The entire gamut of the theoretical aspects of the fund management has been critically examined in the context of the performance of mutual funds and it provides an insight into fund management and the areas of weakness.

## Objectives of the Study

- To investigate the financial performance of the mutual funds with the tools of return, standard deviation and beta.
- To evaluate the selected funds assessment on the basis of various performance ratios (Sharpe, Treynor, Jensen)
- To compare HDFC, Birla sun life and ICICI equity performance with the S&P CNX Nifty Index, to give rankings of mutual funds by their outstanding performance.

## Data Collection:

### Secondary Data

Stocks Selected :

- HDFC INDEX FUND
- Birla Sun Life INDEX FUND
- ICICI Prudential INDEX

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The data has been mainly collected from the secondary sources. Secondary Data has been collected from:

- Capitaline Database
- NSE Website
- BSE Website
- Mutualfundsindia.com
- AMFI Module

### Research Design

The research study is descriptive in nature.

### Tools and Techniques Used

- Microsoft Excel is used to analyze the data.

- Statistical ratios have been used like Treynor ratio, Sharpe ratio, standard deviation, beta, co variance etc.

## LIMITATIONS OF THE STUDY

- The study is limited to selected mutual fund schemes.
- The lack of information sources for the analysis part.
- The study is limited to the different schemes available under the mutual funds selected.
- The time constraint was one of the major problems.

## COMPARISON OF THE PEFROMANCE OF MUTUAL FUND WITH STOCK MARKET

Table.1: Calculation of monthly returns and risk and covariance of CNX NIFTY and HDFC mutual fund.

CNX NIFTY					HDFC INDEX FUND				
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>i</sub>	Cov.= D <sup>∧</sup> D <sub>i</sub>
30-Apr-09	3359.83	-	-	-	30-Apr-09	92.40	-	-	-
30-May-09	3957.96	17.80	16.52	272.99	30-May-09	110.02	19.07	17.71	313.73
30-Jun-09	4436.37	12.09	10.81	116.80	30-Jun-09	124.07	12.77	11.41	130.11
30-Jul-09	4343.10	-2.10	-3.38	11.44	30-Jul-09	122.73	-1.07	-2.43	5.93
30-Aug-09	4571.11	5.25	3.97	15.76	30-Aug-09	129.22	5.28	3.92	15.39
30-Sep-09	4859.31	6.30	5.02	25.25	30-Sep-09	136.79	5.86	4.50	20.29
30-Oct-09	4994.11	2.77	1.49	2.23	30-Oct-09	140.45	2.67	1.31	1.73
30-Nov-09	4953.54	-0.81	-2.09	4.38	30-Nov-09	139.54	-0.65	-2.01	4.03
30-Dec-09	5099.74	2.95	1.67	2.79	30-Dec-09	142.74	2.29	0.93	0.87
30-Jan-10	5156.22	1.11	-0.17	0.03	30-Jan-10	144.14	0.98	-0.38	0.14
28-Feb-10	4839.57	-6.14	-7.42	55.07	28-Feb-10	135.18	-6.22	-7.58	57.39
30-Mar-10	5178.15	7.00	5.72	32.67	30-Mar-10	144.23	6.69	5.33	28.42
30-Apr-10	5294.76	2.25	0.97	0.94	30-Apr-10	146.81	1.79	0.43	0.19
30-May-10	5052.97	-4.57	-5.85	34.18	30-May-10	139.83	-4.76	-6.12	37.45
30-Jun-10	5186.13	2.64	1.36	1.84	30-Jun-10	144.09	3.05	1.69	2.87
30-Jul-10	5359.75	3.35	2.07	4.28	30-Jul-10	148.78	3.25	1.89	3.57
30-Aug-10	5457.24	1.82	0.54	0.29	30-Aug-10	151.70	1.96	0.60	0.37
30-Sep-10	5811.48	6.49	5.21	27.16	30-Sep-10	161.74	6.62	5.26	27.62
30-Oct-10	6096.11	4.90	3.62	13.09	30-Oct-10	169.19	4.61	3.25	10.57
30-Nov-10	6055.33	-0.67	-1.95	3.80	30-Nov-10	167.87	-0.79	-2.15	4.60
30-Dec-10	5971.32	-1.39	-2.67	7.11	30-Dec-10	166.55	-0.78	-2.14	4.59
30-Jan-11	5782.71	-3.16	-4.44	19.70	30-Jan-11	161.08	-3.29	-4.65	21.59

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CNX NIFTY					HDFC INDEX FUND				
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>i</sub>	Cov.= D <sup>∧</sup> D <sub>i</sub>
28-Feb-11	5400.92	-6.60	-7.88	62.13	28-Feb-11	150.37	-6.65	-8.01	64.10
30-Mar-11	5538.42	2.55	1.27	1.60	30-Mar-11	153.07	1.79	0.43	0.19
30-Apr-11	5839.09	5.43	4.15	17.21	30-Apr-11	160.98	5.17	3.81	14.53
30-May-11	5492.20	-5.94	-7.22	52.14	30-May-11	151.82	-5.69	-7.05	49.71
30-Jun-11	5472.64	-0.36	-1.64	2.68	30-Jun-11	151.44	-0.25	-1.61	2.59
30-Jul-11	5596.59	2.26	0.98	0.97	30-Jul-11	154.88	2.27	0.91	0.83
30-Aug-11	5076.74	-9.29	-10.57	111.70	30-Aug-11	140.59	-9.23	-10.59	112.11
30-Sep-11	5015.58	-1.20	-2.48	6.17	30-Sep-11	138.96	-1.16	-2.52	6.34
30-Oct-11	5060.02	0.89	-0.39	0.16	30-Oct-11	139.69	0.52	-0.84	0.70
30-Nov-11	5004.28	-1.10	-2.38	5.67	30-Nov-11	138.55	-0.82	-2.18	4.74
30-Dec-11	4782.36	-4.43	-5.71	32.66	30-Dec-11	132.60	-4.30	-5.66	31.98
30-Jan-12	4920.02	2.88	1.60	2.55	30-Jan-12	136.09	2.64	1.28	1.63
29-Feb-12	4920.02	0.00	-1.28	1.64	29-Feb-12	148.16	8.86	7.50	56.30
30-Mar-12	5409.09	9.94	8.66	75.00	30-Mar-12	144.55	-2.43	-3.79	14.38
30-Apr-12	5298.48	-2.04	-3.32	11.05	30-Apr-12	143.44	-0.77	-2.13	4.53
30-May-12	5254.48	-0.83	-2.11	4.45	30-May-12	136.12	-5.11	-6.47	41.86
30-Jun-12	5074.21	-3.43	-4.71	22.19	30-Jun-12	139.63	2.58	1.22	1.50
30-Jul-12	5222.01	2.91	1.63	2.67	30-Jul-12	143.94	3.09	1.73	2.98
30-Aug-12	5333.28	2.13	0.85	0.72	30-Aug-12	147.15	2.23	0.87	0.76
30-Sep-12	5497.45	3.08	1.80	3.23	30-Sep-12	151.84	3.19	1.83	3.35
30-Oct-12	5688.63	3.48	2.20	4.83	30-Oct-12	132.60	-12.68	-14.04	197.00
30-Nov-12	5679.62	-0.16	-1.44	2.07	30-Nov-12	156.22	17.81	16.45	270.71
30-Dec-12	5890.96	3.72	2.44	5.96	30-Dec-12	161.83	3.59	2.23	4.99
30-Jan-13	6023.12	2.24	0.96	0.93	30-Jan-13	166.03	2.59	1.23	1.52
28-Feb-13	5893.59	-2.15	-3.43	11.77	28-Feb-13	162.53	-2.11	-3.47	12.04
30-Mar-13	5782.26	-1.89	-3.17	10.04	30-Mar-13	159.76	-1.70	-3.06	9.36
30-Apr-13	5699.76	-1.43	-2.71	7.33	30-Apr-13	157.21	-1.60	-2.96	8.74
30-May-13	6064.52	6.40	5.12	26.21	30-May-13	166.88	6.15	4.79	22.92
30-Jun-13	5782.08	-4.66	-5.94	35.25	30-Jun-13	160.64	-3.74	-5.10	25.97
30-Jul-13	5909.24	2.20	0.92	0.85	30-Jul-13	165.95	3.31	1.95	3.79
30-Aug-13	5510.44	-6.75	-8.03	64.46	30-Aug-13	157.33	-5.20	-6.56	42.98
30-Sep-13	5797.48	5.21	3.93	15.44	30-Sep-13	165.72	5.33	3.97	15.77
30-Oct-13	6083.87	4.94	3.66	13.40	30-Oct-13	173.05	4.42	3.06	9.37
30-Nov-13	6128.64	0.74	-0.54	0.30	30-Nov-13	174.00	0.55	-0.81	0.65
30-Dec-13	6246.87	1.93	0.65	0.42	30-Dec-13	177.09	1.77	0.41	0.17
30-Jan-14	6223.16	-0.38	-1.66	2.75	30-Jan-14	176.80	-0.16	-1.52	2.31
28-Feb-14	6098.74	-2.00	-3.28	10.75	28-Feb-14	173.37	-1.94	-3.30	10.88
30-Mar-14	6507.98	6.71	5.43	29.49	30-Mar-14	184.04	6.15	4.79	22.96
30-Apr-14	6758.17	3.84	2.56	6.58	30-Apr-14	190.33	3.42	2.06	4.23
	<b>TOTAL</b>	<b>76.71</b>		<b>1317.23</b>			<b>81.30</b>		<b>1772.90</b>
									<b>1103.64</b>

Source: [http://www.kotaksecurities.com/stock-market-news/mutual-fund/2017/HDFC-INDEX-SENSEX-\(G\)-historical-nav/14051141.00/2066/2008-04-1/2014-04-29/49](http://www.kotaksecurities.com/stock-market-news/mutual-fund/2017/HDFC-INDEX-SENSEX-(G)-historical-nav/14051141.00/2066/2008-04-1/2014-04-29/49)

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**Table.2: Calculations and comparison of the returns of CNX NIFTY and HDFC mutual fund.**

Return:	$\sum R/n-1$	
Calculation of HDFC Return	=	1.36

**Table.3: Calculations and comparison of the risk of the HDFC and CNX nifty fund**

RISK:	$\sqrt{D^2/N-1}$	
Calculation of HDFC's (S.D) Risk	=	0.70
Calculation of S&P CNX Nifty's (S.D) Risk	=	0.60

**Table.4: Calculation of covariance of HDFC and CNX NIFTY.**

COVARIANCE	Cov.= $D \cdot D_i$	
Calculation of Covariance = Avg. covariance	=	18.39

**Table.5: Calculations of Beta.**

BETA VALUE( $\beta$ )	Cov. / $\sigma_m \sigma_m$	
Calculation of ( $\beta$ ) Beta value	=	0.83

\*Risk free return considered is the 91 days interest rate.

**Table.6: Calculation of the ratio's of the HDFC mutual fund.**

Calculation of Sharpe's ratio	=	$(R_m - R_f) / \sigma$	1.90
Calculation of Treynor's ratio	=	$(R_m - R_f) / \beta$	1.59
Calculation of Jensen's Alpha	=	$(R - R_m)$	0.08

**Table.7: Calculation of monthly returns and risk and covariance of CNX NIFTY and Birla Sun Life Index mutual fund.**

CNX NIFTY					Birla Sun Life INDEX FUND				
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>2</sub>	Cov.
30-Apr-09	3359.83	-	-	-	30-Apr-09	13.03	-	-	-
30-May-09	3957.96	17.80	16.52	272.99	30-May-09	15.25	16.98	15.96	263.71
30-Jun-09	4436.37	12.09	10.81	116.80	30-Jun-09	17.19	12.74	11.72	126.67
30-Jul-09	4343.10	-2.10	-3.38	11.44	30-Jul-09	16.76	-2.49	-3.51	11.88
30-Aug-09	4571.11	5.25	3.97	15.76	30-Aug-09	17.67	5.45	4.43	19.63
30-Sep-09	4859.31	6.30	5.02	25.25	30-Sep-09	18.77	6.21	5.19	26.91

# INTERPRETATION

As the Covariance of this mutual fund with respect to the market is positive, this tells that the movement of the NAV of this scheme depends on the movement of the market. The covariance clears the point that the moves are in the same direction and in parallel with the stock market either upwards or downwards.

A beta of less than 1 means that the security will be less volatile than the market, this volatility measure is supposed to give you some sense of how far the fund will fall if the market takes a dive and how high the fund will rise if the bull starts to climb. So we can say that the investing in the fund is not risky as it might provide with return, even when the market is going at a downfall.

If we look at the return of this fund it has clearly outperformed than market. Where the return from investing in market is 1.28%, fund gave the return of 1.36%.

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CNX NIFTY					Birla Sun Life INDEX FUND				
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>2</sub>	Cov.
30-Oct-09	4994.11	2.77	1.49	2.23	30-Oct-09	19.25	2.54	1.52	2.27
30-Nov-09	4953.54	-0.81	-2.09	4.38	30-Nov-09	19.09	-0.81	-1.83	3.82
30-Dec-09	5099.74	2.95	1.67	2.79	30-Dec-09	19.67	3.02	2.00	3.98
30-Jan-10	5156.22	1.11	-0.17	0.03	30-Jan-10	19.86	0.96	-0.06	0.01
28-Feb-10	4839.57	-6.14	-7.42	55.07	28-Feb-10	18.66	-6.04	-7.06	52.39
30-Mar-10	5178.15	7.00	5.72	32.67	30-Mar-10	19.91	6.71	5.69	32.43
30-Apr-10	5294.76	2.25	0.97	0.94	30-Apr-10	20.32	2.04	1.02	1.00
30-May-10	5052.97	-4.57	-5.85	34.18	30-May-10	19.38	-4.60	-5.62	31.57
30-Jun-10	5186.13	2.64	1.36	1.84	30-Jun-10	19.94	2.87	1.85	3.43
30-Jul-10	5359.75	3.35	2.07	4.28	30-Jul-10	20.67	3.66	2.64	5.46
30-Aug-10	5457.24	1.82	0.54	0.29	30-Aug-10	21.05	1.83	0.81	0.66
30-Sep-10	5811.48	6.49	5.21	27.16	30-Sep-10	22.07	4.83	3.81	14.53
30-Oct-10	6096.11	4.90	3.62	13.09	30-Oct-10	23.41	6.09	5.07	25.69
30-Nov-10	6055.33	-0.67	-1.95	3.80	30-Nov-10	23.20	-0.89	-1.91	3.65
30-Dec-10	5971.32	-1.39	-2.67	7.11	30-Dec-10	23.16	-0.20	-1.22	1.48
30-Jan-11	5782.71	-3.16	-4.44	19.70	30-Jan-11	21.96	-5.15	-6.17	38.13
28-Feb-11	5400.92	-6.60	-7.88	62.13	28-Feb-11	20.70	-5.73	-6.75	45.50
30-Mar-11	5538.42	2.55	1.27	1.60	30-Mar-11	21.15	2.16	1.14	1.29
30-Apr-11	5839.09	5.43	4.15	17.21	30-Apr-11	22.31	5.46	4.44	19.72
30-May-11	5492.20	-5.94	-7.22	52.14	30-May-11	20.88	-6.39	-7.41	54.87
30-Jun-11	5472.64	-0.36	-1.64	2.68	30-Jun-11	20.86	-0.11	-1.13	1.28
30-Jul-11	5596.59	2.26	0.98	0.97	30-Jul-11	21.36	2.43	1.41	1.98
30-Aug-11	5076.74	-9.29	-10.57	111.70	30-Aug-11	19.41	-9.14	-10.16	103.30
30-Sep-11	5015.58	-1.20	-2.48	6.17	30-Sep-11	19.18	-1.21	-2.23	4.97
30-Oct-11	5060.02	0.89	-0.39	0.16	30-Oct-11	19.28	0.54	-0.48	0.23
30-Nov-11	5004.28	-1.10	-2.38	5.67	30-Nov-11	19.06	-1.12	-2.14	4.59
30-Dec-11	4782.36	-4.43	-5.71	32.66	30-Dec-11	18.19	-4.55	-5.57	31.07
30-Jan-12	4920.02	2.88	1.60	2.55	30-Jan-12	18.73	2.92	1.90	3.61
29-Feb-12	4920.02	0.00	-1.28	1.64	29-Feb-12	20.55	9.75	8.73	76.18
30-Mar-12	5409.09	9.94	8.66	75.00	30-Mar-12	20.08	-2.27	-3.29	10.85
30-Apr-12	5298.48	-2.04	-3.32	11.05	30-Apr-12	19.90	-0.94	-1.96	3.84
30-May-12	5254.48	-0.83	-2.11	4.45	30-May-12	18.75	-5.76	-6.78	46.00
30-Jun-12	5074.21	-3.43	-4.71	22.19	30-Jun-12	19.25	2.69	1.67	2.78
30-Jul-12	5222.01	2.91	1.63	2.67	30-Jul-12	19.85	3.11	2.09	4.38
30-Aug-12	5333.28	2.13	0.85	0.72	30-Aug-12	20.26	2.07	1.05	1.09
30-Sep-12	5497.45	3.08	1.80	3.23	30-Sep-12	20.86	2.93	1.91	3.66
30-Oct-12	5688.63	3.48	2.20	4.83	30-Oct-12	21.57	3.42	2.40	5.77
30-Nov-12	5679.62	-0.16	-1.44	2.07	30-Nov-12	21.52	-0.24	-1.26	1.58
30-Dec-12	5890.96	3.72	2.44	5.96	30-Dec-12	22.29	3.56	2.54	6.47
30-Jan-13	6023.12	2.24	0.96	0.93	30-Jan-13	22.61	1.47	0.45	0.20
28-Feb-13	5893.59	-2.15	-3.43	11.77	28-Feb-13	20.26	-10.42	-11.44	130.82



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NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>1</sub>	D <sub>1</sub> <sup>2</sup>	Cov.
30-Mar-13	5782.26	-1.89	-3.17	10.04	30-Mar-13	19.86	-1.96	-2.98	8.86	9.43
30-Apr-13	5699.76	-1.43	-2.71	7.33	30-Apr-13	19.70	-0.82	-1.84	3.40	4.99
30-May-13	6064.52	6.40	5.12	26.21	30-May-13	20.80	5.59	4.57	20.89	23.40
30-Jun-13	5782.08	-4.66	-5.94	35.25	30-Jun-13	19.90	-4.31	-5.33	28.45	31.67
30-Jul-13	5909.24	2.20	0.92	0.85	30-Jul-13	20.40	2.52	1.50	2.24	1.38
30-Aug-13	5510.44	-6.75	-8.03	64.46	30-Aug-13	19.08	-6.47	-7.49	56.08	60.13
30-Sep-13	5797.48	5.21	3.93	15.44	30-Sep-13	20.07	5.18	4.16	17.27	16.33
30-Oct-13	6083.87	4.94	3.66	13.40	30-Oct-13	21.06	4.92	3.90	15.19	14.26
30-Nov-13	6128.64	0.74	-0.54	0.30	30-Nov-13	21.20	0.67	-0.35	0.12	0.19
30-Dec-13	6246.87	1.93	0.65	0.42	30-Dec-13	21.62	2.01	0.99	0.99	0.65
30-Jan-14	6223.16	-0.38	-1.66	2.75	30-Jan-14	21.31	-1.46	-2.48	6.14	4.11
28-Feb-14	6098.74	-2.00	-3.28	10.75	28-Feb-14	20.12	-5.59	-6.61	43.75	21.69
30-Mar-14	6507.98	6.71	5.43	29.49	30-Mar-14	21.46	6.69	5.67	32.17	30.80
30-Apr-14	6758.17	3.84	2.56	6.58	30-Apr-14	22.27	3.74	2.72	7.39	6.97
TOTAL		76.71		1317.23			61.08		1479.05	1198.01

Source: [http://www.moneycontrol.com/stocks/hist\\_index\\_result.php?indian\\_indices=9](http://www.moneycontrol.com/stocks/hist_index_result.php?indian_indices=9)

**Table. 8: Calculations and comparison of the returns of CNX NIFTY and BSL mutual fund.**

Return:	$\Sigma R/n-1$	
Calculation of BSL Return	=	1.02
Calculation of S&P CNX Nifty Return	=	1.28

**Table.9: Calculations and comparison of the risk of CNX NIFTY and BSL mutual fund.**

RISK:	$\sqrt{D^2/N-1}$	
Calculation of BSL's (S.D) Risk	=	0.64
Calculation of S&P CNX Nifty's (S.D) Risk	=	0.60

**Table.10: Calculations of covariance CNX NIFTY and BSL mutual fund.**

COVARIANCE	Cov.= $D \cdot D_1$	
Calculation of Covariance = Avg. covariance	=	19.97

**Table.11: Calculations of Beta of CNX NIFTY and BSL mutual fund.**

BETA VALUE( $\beta$ )	Cov. / $\sigma_{m \times m}$	
Calculation of ( $\beta$ ) Beta value	=	0.90

## INTERPRETATION

As the Covariance of this mutual fund with respect to the market is positive, this tells that the movement of the NAV of this scheme depends on the movement of the market. The covariance clears the point that the moves are in the same direction and in parallel with the stock market either upwards or downwards.

A beta of less than 1 means that the security will be less volatile than the market, this volatility measure is supposed to give you some sense of how far the fund will fall if the market takes a dive and how high the

fund will rise if the bull starts to climb. So we can say that the investing in the fund is not risky as it might provide with return, even when the market is going at a downfall.

If we look at the return of this fund it has underperformed than market. Where the return from investing in market is 1.28%, fund gave the return of 1.02%.

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**Table.12: Calculation of the ratio's of the BSL mutual fund.**

Calculation of Sharpe's ratio	=	$(R_m - R_f)/\sigma$	1.56
Calculation of Treynor's ratio	=	$(R_m - R_f)/\beta$	1.10
Calculation of Jensen's Alpha	=	$(R - R_m)$	-0.26

**Calculation of monthly returns and risk and covariance of CNX NIFTY and ICICI Prudential Index mutual fund.**

CNX NIFTY					ICICI Prudential INDEX Fund					
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>1</sub>	D <sub>1</sub> <sup>2</sup>	Cov.
30-Apr-09	3359.83	-	-	-	30-Apr-09	31.12	-	-	-	-
30-May-09	3957.96	17.80	16.52	272.99	30-May-09	36.48	17.19	15.86	251.58	262.07
30-Jun-09	4436.37	12.09	10.81	116.80	30-Jun-09	33.66	-7.73	-9.06	82.03	-97.88
30-Jul-09	4343.10	-2.10	-3.38	11.44	30-Jul-09	40.26	19.61	18.28	334.22	-61.84
30-Aug-09	4571.11	5.25	3.97	15.76	30-Aug-09	42.34	5.18	3.85	14.82	15.28
30-Sep-09	4859.31	6.30	5.02	25.25	30-Sep-09	45.03	6.35	5.02	25.19	25.22
30-Oct-09	4994.11	2.77	1.49	2.23	30-Oct-09	46.13	2.43	1.10	1.21	1.65
30-Nov-09	4953.54	-0.81	-2.09	4.38	30-Nov-09	45.81	-0.69	-2.02	4.06	4.22
30-Dec-09	5099.74	2.95	1.67	2.79	30-Dec-09	47.08	2.78	1.45	2.11	2.43
30-Jan-10	5156.22	1.11	-0.17	0.03	30-Jan-10	47.54	0.96	-0.37	0.13	0.06
28-Feb-10	4839.57	-6.14	-7.42	55.07	28-Feb-10	44.64	-6.10	-7.43	55.25	55.16
30-Mar-10	5178.15	7.00	5.72	32.67	30-Mar-10	47.65	6.74	5.41	29.29	30.94
30-Apr-10	5294.76	2.25	0.97	0.94	30-Apr-10	48.69	2.19	0.86	0.73	0.83
30-May-10	5052.97	-4.57	-5.85	34.18	30-May-10	46.47	-4.55	-5.88	34.57	34.37
30-Jun-10	5186.13	2.64	1.36	1.84	30-Jun-10	47.96	3.20	1.87	3.51	2.54
30-Jul-10	5359.75	3.35	2.07	4.28	30-Jul-10	49.71	3.63	2.30	5.31	4.76
30-Aug-10	5457.24	1.82	0.54	0.29	30-Aug-10	50.63	1.86	0.53	0.28	0.29
30-Sep-10	5811.48	6.49	5.21	27.16	30-Sep-10	53.97	6.60	5.27	27.75	27.45
30-Oct-10	6096.11	4.90	3.62	13.09	30-Oct-10	56.61	4.89	3.56	12.65	12.87
30-Nov-10	6055.33	-0.67	-1.95	3.80	30-Nov-10	56.12	-0.87	-2.20	4.83	4.28
30-Dec-10	5971.32	-1.39	-2.67	7.11	30-Dec-10	55.45	-1.19	-2.52	6.35	6.72
30-Jan-11	5782.71	-3.16	-4.44	19.70	30-Jan-11	53.66	-3.22	-4.55	20.72	20.20
28-Feb-11	5400.92	-6.60	-7.88	62.13	28-Feb-11	50.12	-6.60	-7.93	62.92	62.52
30-Mar-11	5538.42	2.55	1.27	1.60	30-Mar-11	51.39	2.53	1.20	1.43	1.51
30-Apr-11	5839.09	5.43	4.15	17.21	30-Apr-11	54.07	5.23	3.90	15.19	16.17
30-May-11	5492.20	-5.94	-7.22	52.14	30-May-11	50.99	-5.70	-7.03	49.43	50.77
30-Jun-11	5472.64	-0.36	-1.64	2.68	30-Jun-11	50.96	-0.06	-1.39	1.94	2.28
30-Jul-11	5596.59	2.26	0.98	0.97	30-Jul-11	52.15	2.33	1.00	1.00	0.98
30-Aug-11	5076.74	-9.29	-10.57	111.70	30-Aug-11	47.58	-8.75	-10.08	101.70	106.58
30-Sep-11	5015.58	-1.20	-2.48	6.17	30-Sep-11	47.07	-1.08	-2.41	5.82	6.00
30-Oct-11	5060.02	0.89	-0.39	0.16	30-Oct-11	47.42	0.76	-0.57	0.33	0.23
30-Nov-11	5004.28	-1.10	-2.38	5.67	30-Nov-11	47.01	-0.86	-2.19	4.80	5.22
30-Dec-11	4782.36	-4.43	-5.71	32.66	30-Dec-11	45.00	-4.29	-5.62	31.59	32.12

Performance Analysis of Indian Mutual Funds  
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CNX NIFTY					ICICI Prudential INDEX Fund					
NAV date	NAV	R	D	D <sup>2</sup>	NAV date	NAV	R	D <sub>i</sub>	D <sub>i</sub> <sup>2</sup>	Cov.
30-Jan-12	4920.02	2.88	1.60	2.55	30-Jan-12	46.28	2.85	1.52	2.31	2.43
29-Feb-12	4920.02	0.00	-1.28	1.64	29-Feb-12	50.59	9.31	7.98	63.68	-10.21
30-Mar-12	5409.09	9.94	8.66	75.00	30-Mar-12	49.49	-2.17	-3.50	12.25	-30.31
30-Apr-12	5298.48	-2.04	-3.32	11.05	30-Apr-12	49.04	-0.90	-2.23	4.99	7.43
30-May-12	5254.48	-0.83	-2.11	4.45	30-May-12	46.38	-5.43	-6.76	45.69	14.27
30-Jun-12	5074.21	-3.43	-4.71	22.19	30-Jun-12	47.56	2.54	1.21	1.46	-5.70
30-Jul-12	5222.01	2.91	1.63	2.67	30-Jul-12	49.02	3.09	1.76	3.09	2.87
30-Aug-12	5333.28	2.13	0.85	0.72	30-Aug-12	48.23	-1.63	-2.96	8.73	-2.51
30-Sep-12	5497.45	3.08	1.80	3.23	30-Sep-12	51.50	6.79	5.46	29.79	9.81
30-Oct-12	5688.63	3.48	2.20	4.83	30-Oct-12	53.22	3.33	2.00	4.02	4.40
30-Nov-12	5679.62	-0.16	-1.44	2.07	30-Nov-12	53.12	-0.19	-1.52	2.31	2.18
30-Dec-12	5890.96	3.72	2.44	5.96	30-Dec-12	54.95	3.45	2.12	4.50	5.18
30-Jan-13	6023.12	2.24	0.96	0.93	30-Jan-13	56.11	2.10	0.77	0.59	0.74
28-Feb-13	5893.59	-2.15	-3.43	11.77	28-Feb-13	54.92	-2.10	-3.43	11.80	11.78
30-Mar-13	5782.26	-1.89	-3.17	10.04	30-Mar-13	53.91	-1.86	-3.19	10.15	10.10
30-Apr-13	5699.76	-1.43	-2.71	7.33	30-Apr-13	53.08	-1.52	-2.85	8.13	7.72
30-May-13	6064.52	6.40	5.12	26.21	30-May-13	56.41	6.27	4.94	24.40	25.29
30-Jun-13	5782.08	-4.66	-5.94	35.25	30-Jun-13	54.02	-4.24	-5.57	31.04	33.08
30-Jul-13	5909.24	2.20	0.92	0.85	30-Jul-13	55.36	2.48	1.15	1.32	1.05
30-Aug-13	5510.44	-6.75	-8.03	64.46	30-Aug-13	51.79	-6.44	-7.77	60.44	62.42
30-Sep-13	5797.48	5.21	3.93	15.44	30-Sep-13	54.72	5.65	4.32	18.69	16.99
30-Oct-13	6083.87	4.94	3.66	13.40	30-Oct-13	57.46	5.01	3.68	13.54	13.47
30-Nov-13	6128.64	0.74	-0.54	0.30	30-Nov-13	57.79	0.57	-0.76	0.58	0.41
30-Dec-13	6246.87	1.93	0.65	0.42	30-Dec-13	58.93	1.98	0.65	0.42	0.42
30-Jan-14	6223.16	-0.38	-1.66	2.75	30-Jan-14	58.71	-0.37	-1.70	2.88	2.82
28-Feb-14	6098.74	-2.00	-3.28	10.75	28-Feb-14	57.53	-2.01	-3.34	11.15	10.95
30-Mar-14	6507.98	6.71	5.43	29.49	30-Mar-14	61.39	6.70	5.37	28.84	29.16
30-Apr-14	6758.17	3.84	2.56	6.58	30-Apr-14	63.70	3.76	2.43	5.91	6.24
TOTAL		76.71		1317.23			79.78		1605.43	868.47

Source: <http://www.icicipruamc.com/icici-prudential-scheme-nav-dividends.aspx>.

Calculations and comparison of the returns of CNX NIFTY and ICICI Prudential Index mutual fund.		
Return:	$\Sigma R/n-1$	
Calculation of ICICI prudential Return	=	1.33
Calculation of S&P CNX Nifty Return	=	1.28

Table: Calculations and comparison of the risk of CNX NIFTY and ICICI Prudential Index mutual fund.		
RISK:	$\sqrt{D^2/N-1}$	
Calculation of ICICI prudential's (S.D) Risk	=	0.67
Calculation of S&P CNX Nifty's (S.D) Risk	=	0.70

Performance Analysis of Indian Mutual Funds  
with S&P CNX Nifty Index

Table: Calculations of covariance CNX NIFTY and ICICI Prudential Index mutual fund.		
COVARIANCE	Cov.= D'D <sub>i</sub>	
Calculation of Covariance = Avg. covariance	=	14.5

Table: Calculations of Beta CNX NIFTY and ICICI Prudential Index mutual fund.		
BETA VALUE(β)	Cov. /σ <sub>m</sub> σ <sub>m</sub>	
Calculation of (β) Beta value	=	0.66

Table: Calculation of the ratio's of the ICICI mutual fund.			
Calculation of Sharpe's ratio	=	(R <sub>m</sub> - R <sub>f</sub> )/σ	1.96
Calculation of Treynor's ratio	=	(R <sub>m</sub> - R <sub>f</sub> )/β	1.99
Calculation of Jensen's Alpha	=	(R - R <sub>m</sub> )	0.05

Analysis of Performance of three funds

Sr. no.	Name of the Fund	Average return	Risk(S.D)	Beta	Sharpe Ratio	Treynor's ratio	Jensen's Alpha
1	HDFC INDEX FUND	1.36	0.7	0.84	1.90	1.59	0.08
2	Birla Sun Life INDEX FUND	1.02	0.64	0.90	1.56	1.10	-0.26
3	ICICI Prudential INDEX FUND	1.33	0.67	0.66	1.96	1.99	0.05

Ranking of funds according to 3 performance ratios.

Sharpe Ratio	RANK	Treynor's ratio	RANK	Jensen's Alpha	RANK
HDFC INDEX FUND	2	HDFC INDEX FUND	2	HDFC INDEX FUND	1
Birla Sun Life INDEX FUND	3	Birla Sun Life INDEX FUND	3	Birla Sun Life INDEX FUND	3
ICICI Prudential INDEX FUND	1	ICICI Prudential INDEX FUND	1	ICICI Prudential INDEX FUND	2

## INTERPRETATION

As the Covariance of this mutual fund with respect to the market is positive, this tells that the movement of the NAV of this scheme depends on the movement of the market. The covariance clears the point that the moves are in the same direction

and in parallel with the stock market either upwards or downwards.

A beta of less than 1 means that the security will be less volatile than the market, this volatility measure is supposed to give you some sense of how far the fund will fall if the market takes a dive and how high the fund will rise if the bull starts to climb. So we can

say that the investing in the fund is not risky as it might provide with return, even when the market is going at a downfall.

If we look at the return of this fund it has outperformed than market. Where the return from investing in market is 1.28%, fund gave the return of 1.33%

INTERPRETATION: Out of the selected financial intermediaries, the interested investor can invest in ICICI mutual fund as it is ranked in the top position as per the performance ratios.

## FINDINGS

- It is being found that HDFC mutual fund and ICICI prudential mutual fund return has outperformed the market whereas Birla Sun life Insurance has been lowest in the performance when compared to stock market in terms of returns.
- Among the selected funds HDFC has been the fund providing highest return.
- The entire three funds have high market risk in comparison to the Benchmark.
- In terms of market risk among the selected funds HDFC and ICICI mutual funds have been high, whereas Birla sun life insurance is exposed to the low market risk in comparison.
- ICICI has the lowest systematic risk among the selected funds, which makes it profitable for the investors to invest in such fund where the probability of earning the high profit increases.
- Where in the Birla Sun Life Insurance has been exposed to the highest systematic risk after HDFC mutual fund.
- As per the performance ratios i.e. Sharpe and the Treynor ratios the ICICI has remained the top ranked performing fund in market.
- Jensen's alpha gave a bit different result, as per this HDFC mutual fund has been ranked at the top.

## CONCLUSION

The study has investigated the mutual fund schemes of three different top performing mutual fund and has been compared its performance with the performance of the stock market. It's been clear that funds have been performing well in market. With the covariance its has been clear that funds have been moving in the direction of the market and beta proved that funds have volatility with market as the beta is near 1 for all the selected funds. In the ultimate analysis, it can be concluded that the Mutual funds are one of the best investment source available for Indian small investors to make an investment, if thoroughly assessed it may give big returns with little savings. The above performance ratios are very much helpful for the evaluator to assess the fund's performance. As the Mutual Fund investment is subject to market conditions, therefore for the risk averse investors there are so many other investment alternatives available apart from the mutual funds, such as investment in other Financial Assets (stock market, debentures, Bonds, Treasury bills etc) and other Non Financial Assets (post office certificates, Bank deposits, Pension schemes, Real estate's) to avoid risk. As per the performance ratio the ICICI mutual fund has been the best performing in the market though in comparison to return it is providing a little low return but when looked at the systematic risk being faced by the fund it can be seen that ICICI has been the lowest followed by HDFC mutual fund and Birla Sun life Insurance has been the worst performing fund. Therefore it is important for the investor to consider these performance ratios before investing. Market return have been considered average when compared with the returns provided by the mutual fund, except the Birla sun Life insurance which has been the lowest performer being exposed the maximum to the market risk. In the overall analysis it has been analysed that mutual funds have performed well ahead than stock market.

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