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In Search of a Winning Combination-Evidence from India

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Abstract: With the introduction of Mutual funds in India in 1963, the Indian investor has shown positive response to mutual fund investments which is evidenced through increasing AUM (Assets Under Management) every quarter. So far as management style is concerned the industry offers two options to the common investor- on one hand the passively managed funds with the sole objective of replicating their benchmark index and on the other the actively managed funds where the fund manager continuously puts his efforts to enhance the returns, by making frequent changes in the composition of the portfolio. The common investor with limited savings cannot be expected to hold too many funds in his portfolio. Further with limited exposure to financial concepts and complexities he is left guessing on the right combination of funds that should constitute his small portfolio. This paper is a sincere attempt to address the above mentioned situation. We have empirically tested and shown that given the restricted savings which combination, either only two passively managed funds, two actively managed funds or a portfolio comprising of one of each type will win the race for the investor. This paper will be of interest, particularly to the small investors, academicians as well as the financial advisors.

Keywords: Mutual fund; AUM (Assets Under Management); benchmark index; passively managed fund; actively managed fund

JEL Classification G11; G23

1 Introduction

Indian economy witnessed the advent of mutual fund with the introduction of the Unit Trust of India. Since then UTI has grown in leaps and bounds and has emerged as a dominant player in the mutual fund industry of India. It was in 1987 that two insurance companies Life Insurance Company and the General Insurance Company along with the public sector banks were allowed to launch their mutual funds. Mutual funds are the significant contributors for a globalised financial markets and acts as an important source of capital flows for emerging economies like India. Since its inception the Indian investor has shown positive response to mutual fund investments which is evidenced through increasing AUM (Assets Under Management) every quarter. Investment in mutual funds have been considered a safe mode of earning a return on the hard earned money owing to the fact that the Assets Management Companies extend valuable advice through their financial advisors to the novice investor and at the same time assure handsome returns at acceptable risk. The popularity of mutual funds among Indian investors is also partly due to the Government initiatives in the form of tax concessions to the mutual fund investor.

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Day by day increasing number of players in the industry increases the number of opportunities available to the common investor on one hand and on the other enhances the difficulties of the investor who is faced with the issue of deciding upon the right mix of his portfolio. However the mutual fund investor in general is not fully aware of the management styles and other related concepts owing to his limited exposure to investment concepts. Broadly speaking mutual fund options can be classified into either the passively managed funds commonly termed as the index funds or the actively managed funds.

Passive management is a style of management which is associated with exchange traded funds (ETFs) and mutual funds where the fund manager tries to mimic the market index. This style of managing fund is quite different from the active management in which the fund manager attempts to outperform the market with different investing strategies and buying and selling decisions of a portfolio's constituents. Advocates of the passive style of managing strongly believe in the concept of efficient market hypothesis. As per the efficient market hypothesis proposed by Fama it is asserted that at all times market incorporates and portrays all information leading to individual stock picking meaningless (Fama, 1998). Hence according to such school of thoughts the best investing strategy is to invest in an index fund. Historically such funds have been shown to outperform the actively managed funds. Owing to such a trait the index funds have been proved to be cheaper funds most suitable for small and novice investors (*www.investopedia.com*).

Active fund management on the other hand involves excessive human involvement where the fund manager or co-managers or at times a team of experts actively manage the mutual fund's portfolio. Active managers rely heavily on forecasting techniques, analytical research and their own judgment in taking investment decisions and frequently keep on altering the composition of the fund's portfolio, with the objective of beating the market. Advocates of the active management style believe that it is possible to pick the mispriced securities so as to earn a better return than the market. Active funds claim to provide better results than passively managed counterparts but in general are costlier mutual funds (*www.investopedia.com*).

Which of the two styles has an edge over the other still remains a debatable issue. However from the point of view of an amateur investor who can only afford to hold a small portfolio the options available is to either hold only passively managed funds or only hold actively managed funds or at the most hold a combination of the two. This paper aims at empirically testing the above situations and to determine which amongst the three is more beneficial to the small investor in the Indian context. This work is expected to be beneficial to investors and practitioners alike, besides adding its share to the academic literature. People having an inclination to the field of investments in general and specifically to mutual funds will also find this work fruitful.

Different methods for gauging the performance of mutual fund have been suggested. All these methods have one common element i.e. they all use the risk-adjusted returns. Commonly used techniques are Sharpe's index, Treynor's index, Jensen's alfa, Sortino ratio to name a few. Some methods compare returns against the risk free returns while others evaluate the performance in terms of returns for each unit of risk. However each of the suggested methods at times provides different outcomes owing to the difference in assumptions taken to explain the methods (Mishra and Singh, 2016). As the investor's aim is to avoid risk in the author's opinion performance evaluation in terms of returns for each unit of risk is more justifiable.

2 Objective of Study

The main purpose of the paper is to empirically test as to which combination amongst the three- two index funds, two actively managed funds or a portfolio of both the types yield best result for a small investor. As holding period is significant we have considered quarterly returns for our study.

3 Scope and Hypothesis

3.1 Scope of Study

This study encompasses a period from 01st April 2010 till 31st December 2015. Such short duration study is warranted as the economic scenario in a fast developing economy like India is prone to changes. The index funds used for this study are the SBI Nifty Index fund and the Tata Index Fund-Plan A (Nifty). HDFC Capital Builder Fund and Birla Sun Life Equity Fund are the active funds chosen for the study. In one earlier work on gauging the performance of some mutual funds, HDFC Capital Builder Fund was established to have performed best amongst the funds under study (Mishra & Singh, 2016). Further in still another work of the authors judging the performance of few index funds, SBI Nifty Index Fund was proved to be the outperformer (Mishra & Singh, 2016).

The funds have been selected on an arbitrary basis to simulate the way an amateur investor picks his funds. The risk free return for the study must be based on the average yield of the 91-days T Bills during December 2014 to December 2015 which is reported to be 7.35 % p.a. (www.rbi.org.in). This has been rounded off to 7% p.a. However the T Bills are not available to the general public easily so instead of T Bills the rate on Term deposits of nationalized banks must be used as a close substitute of the risk free return (Rao & Ravindran, 2003). The rate of interest available at State Bank of India website (SBI- an Indian multinational, public sector nationalized bank) during the period of study averaged out to be 6.50% p.a. and 6.75% p.a. for general and senior citizen class respectively for a 90 days term deposit which can be rounded off to 7% p.a.(www.sbi.co.in). A senior citizen investor in India is an individual who has attained an age of 60 years.

3.2 Hypothesis

H_0**:** A combination of passively managed fund with an active fund will yield better results than a portfolio comprising only passive type of funds.

H_1**:** A portfolio of only passive type of mutual fund performs better than a combination of either type of funds.

4. Literature Review

Rao and Ravindran (2003) studied the performance evaluation of mutual funds in the Indian industry during the bear phase of the economy. They carried out their evaluation based on relative performance index, risk-return analysis, Treynor's ratio, Sharp's ratio, Sharp's measure, Jensen's measure, and Fama's measure. Grinblatt and Titman (1994) performed their research based on the Jenson's alfa and Treynor's ratio as their index for measuring performance of mutual funds. Eun *et al* (1991) studied the performance of some US-based international mutual funds. Cumby and Glen (1990) measured the performance of US-based mutual funds using Treynor's measure and some other measures.

Athma and Mamatha (2013) studied the growth and progress of ETFs (Exchange Traded Funds) and Index funds in India starting from 1998. Narend (2014) empirically studied the performance of some index funds and ETFs based on tracking error, returns and Jensen's alfa. Similar works are also reported from other parts of the world. Philips *et al* (2014) for instance compared the performance of the actively managed funds vis-à-vis the index funds and concluded that index funds displayed a greater probability of outperforming the actively managed funds even though index funds generally underperform their benchmarks. These findings support the conclusions drawn by Benke & Ferri (2013).

A perusal of the above cited work indicates that researchers have either evaluated the performance of the index funds or the actively managed funds in isolation. Some have even attempted to compare the performance of index funds vis-à-vis actively managed funds. However, there seems a clear research gap of measuring the performance of the portfolio when both style come together. This paper undertakes such a comparative analysis to study the effect of various possible combinations upon the overall performance considering both the risk adjusted returns and the total risk.

5 Research Methodology

First the quarterly NAVs are collected from the websites of the respective Asset Management Companies (AMC) and Association of Mutual Funds of India (AMFI). Next quarterly returns are calculated from the quarterly NAVs thus obtained. This process is followed for all the four selected mutual funds. Quarterly returns are calculated using the below mentioned equation:

$$\text{Returns} = (NAV_t - NAV_{t-1}) \times 100/NAV_{t-1}$$

Where NAV_t is the Net Asset Value of the fund at time t

And NAV_{t-1} is the Net Asset Value of the fund at time t-1

After such calculations equally weighted portfolios comprising of two mutual funds are constructed. These portfolios are enunciated below in Table 1

Table 1. Portfolio Creation.

S No.	Group Name	Composition of Portfolio
1.	Index fund group	SBI Nifty Index Fund and the Tata Index Fund-Plan A (Nifty)
2.	Active fund group	HDFC Capital Builder Fund and Birla Sun Life Equity Fund
3.	Mix group-I	SBI Nifty Index Fund and HDFC Capital Builder Fund
4.	Mix group-II	SBI Nifty Index Fund and Birla Sun Life Equity Fund
5.	Mix group-III	Tata Index Fund-Plan A (Nifty) and HDFC Capital Builder Fund
6.	Mix group-IV	Tata Index Fund-Plan A (Nifty) and Birla Sun Life Equity Fund

Thus six equal weighted portfolios are created which consist of four mixed groups and one having only index funds while the last one has only actively managed funds as its constituents. Further the returns from the portfolios and the risk involved are calculated using Markowitz two security model and the below mentioned equations:

$$R_p \text{ (Return)} = W_1 x R_1 + W_2 x R_2$$

Where R_p is the return from the portfolio

W_1 & W_2 are the weights of the individual mutual fund in the portfolio

And R_1 & R_2 are the quarterly returns of the individual mutual fund in the portfolio

σ_p (Risk) = $\sqrt{(W_1)^2 x(\sigma_1)^2 + (W_2)^2 x(\sigma_2)^2 + 2x\ W_1 x\ W_2 x \rho_{12} x\ \sigma_1 x\ \sigma_2}$

Where W_1 & W_2 are the weights of the individual mutual fund in the portfolio

σ_1 & σ_2 are the standard deviations (risk) of the individual mutual fund in the portfolio

σ_p is the standard deviation (risk) of the constructed portfolio

And ρ_{12} is the coefficient of correlation between returns of individual mutual fund.

After calculation of returns and standard deviations for all the six created portfolios, Sharpe index is used as a measure of their performance. Sharpe index is given as per the equation given below:

$$S_p = \frac{(R_p - R_f)}{\sigma_p}$$

Where S_p is the Sharpe index

R_p is the returns from the portfolio

R_f is the risk-free rate of return

And σ_p is the total risk of the portfolio

Treynor's ratio is not used in this study because it uses β as a measure of risk which is not appropriate in the given situation. In the same manner other evaluation measures have some limitations and do not fit the situation in hand.

On the basis of the value of Sharpe index computed the portfolios are ranked as per the performance during the period under study.

6 Findings & Data Interpretation

The NAV as obtained from the websites of the respective Asset Management Companies (AMC) are shown in Table 2 below

Table 2. NAV Return and Risk Factors of Selected Mutual Funds

Date	**SBI Nifty Index Fund**		**Tata Index Fund**		**HDFC Capital Builder Fund**		**Birla Sun Life Equity Fund**	
	NAV	Return	NAV	Return	NAV	Return	NAV	Return
1-Apr-10	44.61	-	31.50	-	98.41	-	255.14	-
30-Jun-10	45.28	1.50	31.75	0.78	103.58	5.25	257.77	1.03
30-Sep-10	51.46	13.66	36.02	13.44	117.84	13.76	291.8	13.20
31-Dec-10	52.25	1.53	36.54	1.45	119.09	1.06	287.77	-1.38
31-Mar-11	49.53	-5.20	34.63	-5.22	111.74	-6.17	260.06	-9.63
30-Jun-11	48.11	-2.86	33.66	-2.82	111.80	0.06	253.6	-2.48
30-Sep-11	42.20	-12.29	29.45	-12.48	99.46	-11.04	225.85	-10.94
31-Dec-11	39.39	-6.65	27.55	-6.47	90.94	-8.57	203.23	-10.02
31-Mar-12	45.08	14.44	31.48	14.27	105.56	16.08	236.59	16.41
30-Jun-12	45.13	0.12	31.65	0.54	105.23	-0.31	233.96	-1.11
30-Sep-12	48.80	8.12	34.23	8.16	113.97	8.31	258.96	10.69
31-Dec-12	50.56	3.62	35.36	3.31	116.78	2.46	275.86	6.53
31-Mar-13	48.46	-4.17	33.99	-3.88	112.98	-3.25	252.69	-8.40
30-Jun-13	49.95	3.08	35.03	3.06	113.63	0.57	253.25	0.22
30-Sep-13	49.01	-1.88	34.35	-1.93	111.80	-1.61	253.95	0.28

31-Dec-13	53.69	9.55	37.62	9.52	129.41	15.76	295.48	16.35
31-Mar-14	56.91	5.99	39.90	6.06	139.98	8.16	319.89	8.26
30-Jun-14	64.58	13.48	45.33	13.61	169.60	21.16	413.73	29.34
30-Sep-14	67.65	4.76	47.48	4.74	181.40	6.96	426.19	3.01
31-Dec-14	70.06	3.56	49.20	3.62	197.46	8.85	462.75	8.58
31-Mar-15	71.64	2.26	50.37	2.37	201.41	2.00	487.03	5.25
30-Jun-15	70.68	-1.34	49.73	-1.26	201.24	-0.09	474.13	-2.65
30-Sep-15	67.23	-4.89	47.27	-4.94	196.51	-2.35	479.34	1.10
31-Dec-15	67.11	-0.17	47.19	-0.18	208.19	5.94	476.32	-0.63
Mean Return		**2.01**		**1.99**		**3.61**		**3.17**
Risk		**6.81**		**6.79**		**8.07**		**9.72**

Note- Figures are rounded off to two decimal points.

The risk-return values for the equally weighted portfolios are computed which is depicted in Table 3 below

Table 3. Risk-return values of constructed portfolios

Date	**Index fund group**	**Active fund group**	**Mix group-I**	**Mix group-II**	**Mix group-III**	**Mix group-IV**
1-Apr-10	-	-	-	-	-	-
30-Jun-10	1.14	3.14	3.38	1.27	3.02	0.91
30-Sep-10	13.55	13.48	13.71	13.43	13.6	13.32
31-Dec-10	1.49	-0.16	1.30	0.08	1.26	0.04
31-Mar-11	-5.21	-7.9	-5.69	-7.42	-5.70	-7.43
30-Jun-11	-2.84	-1.21	-1.4	-2.67	-1.38	-2.65
30-Sep-11	-12.39	-10.99	-11.67	-11.62	-11.76	-11.71
31-Dec-11	-6.56	-9.30	-7.61	-8.34	-7.52	-8.25
31-Mar-12	14.36	16.25	15.26	15.43	15.18	15.34
30-Jun-12	0.33	-0.71	-0.10	-0.5	0.12	-0.29
30-Sep-12	8.14	9.5	8.22	9.41	8.24	9.43
31-Dec-12	3.47	4.50	3.04	5.08	2.89	4.92
31-Mar-13	-4.03	-5.83	-3.71	-6.29	-3.57	-6.14
30-Jun-13	3.07	0.40	1.83	1.65	1.82	1.64
30-Sep-13	-1.91	-0.67	-1.75	-0.8	-1.77	-0.83
31-Dec-13	9.54	16.06	12.66	12.95	12.64	12.94
31-Mar-14	6.03	8.21	7.08	7.13	7.11	7.16
30-Jun-14	13.55	25.25	17.32	21.41	17.39	21.48
30-Sep-14	4.75	4.99	5.86	3.89	5.85	3.88
31-Dec-14	3.59	8.72	6.21	6.07	6.24	6.1
31-Mar-15	2.32	3.63	2.13	3.76	2.19	3.81
30-Jun-15	-1.3	-1.37	-0.72	-1.99	-0.68	-1.96
30-Sep-15	-4.92	-0.63	-3.62	-1.90	-3.65	-1.92
31-Dec-15	-0.18	2.66	2.89	-0.4	2.88	-0.41
Mean Return	**2.00**	**3.39**	**2.81**	**2.59**	**2.80**	**2.58**
Risk	**6.78**	**8.78**	**7.35**	**8.08**	**7.33**	**8.08**

Note- Figures are rounded off to two decimal points.

Next on the basis of the above calculations the Sharpe index for each of the constructed portfolios are calculated. The value of Sharpe index is shown in Table 4

Table 4. Sharpe Index for the constructed portfolios

Metric	Index fund group	Active fund group	Mix group-I	Mix group-II	Mix group-III	Mix group-IV
Sharpe Index	0.036873	0.186788	0.144218	0.10396	0.143247	0.102723

Based on the Sharpe ratio computed the portfolios are ranked as per their performance. The portfolios are ranked as per the ascending order of value for Sharpe Index. Ranks of the constructed portfolios are shown in Table 5.

Table 5. Ranking of portfolios based on Sharpe Ratio

S No.	Portfolio Name	Sharpe Index value	Ranking
1.	Active fund group	0.186788	Rank-I
2.	Mix group-I	0.144218	Rank-II
3.	Mix group-III	0.143247	Rank-III
4.	Mix group-II	0.103960	Rank-IV
5.	Mix group-IV	0.102723	Rank-V
6.	Index fund group	0.036873	Rank-VI

7 Conclusion

The above analysis throws light on the fact that the performance of the portfolios comprising both types of mutual funds is better than the performance of portfolio comprising of only index funds. It also shows that active funds beat the index funds so far as performance is concerned. However the biggest demerit of the active funds is that they are costlier than the passively managed funds. Thus for a small investor with limited resources the winning combination will be a mix of both type of funds in his portfolio. Thus the null hypothesis is accepted.

Out of the mix groups the group comprising of SBI Nifty Index Fund and HDFC Capital Builder Fund (Mix group-I) has outperformed others.

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9 References

Athma, P. & Mamatha, B. (2013). Performance of index funds in India.*Asian Journal of Research in Business Economics and Management*, *3*(6), 21.

Benke, A. & Ferri, R. (2013). A Case for Index Fund Portfolios. *Internet-Fundstelle: http://www. rickferri. com/WhitePaper. pdf*.

Cumby, R. E. & Glen, J. D. (1990). Evaluating the performance of international mutual funds. *The Journal of finance*, *45*(2), 497-521.

Eun, C. S.; Kolodny, R. & Resnick, B. G. (1991). US-based international mutual funds: A performance evaluation. *The Journal of Portfolio Management*, *17*(3), 88-94.

Grinblatt, M. & Titman, S. (1994). A study of monthly mutual fund returns and performance evaluation techniques. *Journal of financial and quantitative analysis*, *29*(03), 419-444.

http://www.amfiindia.com

http://www.hdfcfund.com

http://www.investopedea.com

http://www.nseindia.com

http://www.rbi.org.in

http://www.sbi.co.in

http://www.sbimf.com

http://www.tataMutualfund.com

Mishra, P & Singh, G (2016). Gauging performance of some mutual funds (The Indian experience), *Asian Resonance*:5(1), 1-4.

Mishra, P & Singh, G (2016). Performance Evaluation of Some Index Funds-Indian Perspective, *Acta Universitatis Danubius. Œconomica,* Vol 12 : in press.

Narend, S. (2014). *Performance of ETFs and Index Funds: a comparative analysis* (Doctoral dissertation, Indian Institute of Technology, Madras).

Phillips, B.; Pukthuanthong, K. & Rau, P. R. (2014). Past performance may be an illusion: Performance, flows, and fees in mutual funds. *Flows, and Fees in Mutual Funds (September 15,)*.

Rao, N. S. & Ravindran, M. (2003). Performance Evaluation of Indian Mutual Funds. *Available at SSRN*.433100.

Sharpe, W. F. (1966). Mutual fund performance. *The Journal of business*,*39*(1), 119-138.

Sharpe, W. F. (1975). Adjusting for risk in portfolio performance measurement. *The Journal of Portfolio Management*, *1*(2), 29-34.

Treynor, J. L. & Black, F. (1973). How to use security analysis to improve portfolio selection. *The Journal of Business*, *46*(1), 66-86.