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EVALUATION OF MUTUAL FUND SCHEMES IN INDIA - DOES PROLONGED EXISTENCE REWARDS PERFORMANCE?

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Abstract *Mutual fund is an intermediary that mobilizes the money of small investors by sparing them from the responsibility of individually selecting securities from the market and provides them with the benefit of diversification, professional management, liquidity, tax deduction, etc. However, it is suggestive that the investors must examine the past performance of the mutual fund schemes before investment. In the present study, the performance of open-ended short-term debt mutual fund schemes has been evaluated using risk-adjusted measures such as, Sharpe ratio, Treynor ratio, Jensen alpha, Appraisal ratio, MM measure and Information ratio for the period April 2015 to March 2020. It was found that Baroda Short Term Bond Fund and Indiabulls Short Term Fund were the pre-eminent performers while JM Financial Short Term Fund and Tata Short Term Bond Fund were the nastiest performing schemes during the study period. Further categorization of these schemes according to their years of inception (experienced) indicated no significant difference between their performances. However, investment in experienced or non-experienced mutual fund schemes seems promising.*

Keywords: *Mutual Funds, Short Term Debt Schemes, Average Return, Standard Deviation, Risk-Adjusted Measures*

INTRODUCTION

It is rightly said by Suze Orman, a Financial Advisor of U.S.A., that "To make the most of your money, I recommend sticking with mutual funds that don't charge a commission when you buy or sell". Mutual fund acts as a mediator that pools the money (savings) of small investors by relieving them from the burden of individually selecting securities out of cumbersome options in the market and investing on their behalf. The return so obtained (deducting expenses) from such an investment is "mutually" shared between all the investors in the ratio of their contribution. "The principal role of the mutual fund is to serve its investors" as mentioned by John C. Bogle, a Business Magnate of U.S.A. It serves by providing professional investment mechanism and focusing on reducing the unsystematic risk through diversification policies to provide better outcomes, which investors could not earn on their own. An individual, Association of Persons, Hindu Undivided Family, Companies, Foreign Institutional Investors, Banks or any other institution can turn out to be clients of this industry. The investors have two options, either to invest in lump sum or through Systematic Investment Plan (SIP), where investor can have gradual expend of money in instalments but the latter is more popular. Numerous schemes such as equity, debt, hybrid, gilt, ETFs & others are available and the investor can select scheme as per his own objective of investment considering risk, return, tax and time factors of each scheme as explained in Scheme Information Document (SID). The returns from the schemes can be fetched as regular income (dividend option) or in lump sum at the time of redemption (capital appreciation). Although, investors always have the provision to redeem whole invested amount anytime (at prevailing NAV) directly from Asset Management Company (AMC), in case of open-ended schemes and from stock exchange, in case of close-ended schemes, assuring liquidity. The details related to schemes such as Net Asset Value (NAV), inception date, Assets under Management (AUM), benchmark, fund manager and expense ratio are disclosed in factsheets, which are published monthly.

The concept of mutual funds was traced in the 18th century in Europe and further its footprints were observed in the Netherlands where first close-ended scheme was launched. Later, similar types of institutions were established in Switzerland, the U.K., the U.S.A., Canada and Korea. It was in 1964 when Sri. T.T. Krishnamachari, the then Finance Minister, coined the concept of mutual fund in India. The Unit Trust of India (UTI) was thereby established to bring up the operations of mutual funds in India. Thereafter, public, private and foreign sector mutual funds also joined

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the industry. Securities and Exchange Board of India (SEBI) is a regulatory body to protect the interest of the investors and development of the industry. The mutual fund industry has shown a tremendous growth in India during the last two decade as shown in Fig. 1 in terms.

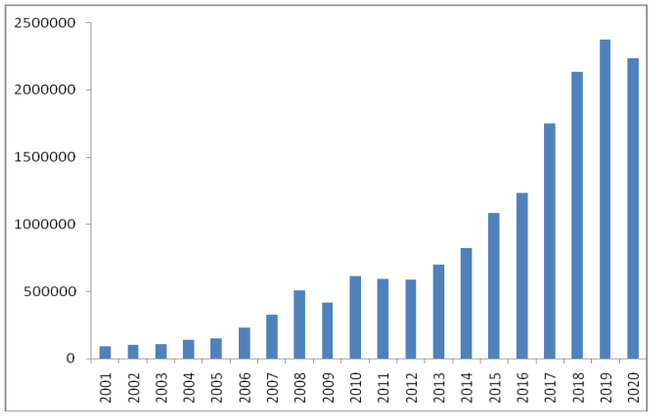

Fig. 1: Asset under Management of India since 2001 to 2020 (in Crores)

LITERATURE REVIEW

Jayadev (1996) evaluated the performance of Mastergain and Magnum Express for 21 months i.e. from June 1992 to March 1994 wherein Mastergain performed better in terms of risk-adjusted measures. However, when examined both funds could not outperform on the basis of marketing and selectivity basis. Chawla and Batra (2000) studied the performance of SBI mutual funds with other competitors and the results indicated inferior position of SBI mutual funds in comparison to UTI and other private sector funds because of its high initial investment cost. Singh and Chander (2003) measured the growth of mutual fund industry from 1963 to 2001 and analysed the performance of income open-ended schemes using risk-adjusted measures. The study revealed that mutual fund industry had a positive growth during the study period and majority of the schemes outperformed the respective benchmark indices. Muthappan and Damodharan (2006) studied the performance of 40 mutual fund schemes from 1995 to 2000 using risk-adjusted measures and concluded that only 50% of schemes could outperform BSE-Sensex, which included Birla, SBI Magnum, Can Global, Kothari Pioneer and Tata Schemes. Varghese and Murthy (2009) analysed 20 equity diversified schemes for 3 years that is 2005 to 2008 and revealed that majority of the selected schemes showed positive return and outperformed benchmark index. The authors further suggested few schemes for the investment such as Birla Sun Life Frontline Equity Fund, SBI Magnum Global Fund and Sundaram Select Midcap Fund. Dhume (2013) made an attempt to evaluate the performance of 68 open-ended equity schemes from 2007 to 2012 on the basis of risk-adjusted measures and analysed the impact of various factors like fund size, fund flow and expense ratio on the performance of mutual fund schemes. The study concluded that schemes with dividend and bonus plans achieved higher return. Further, the fund size, fund flow had inverse and expense ratio had positive relation with fund performance. Sudher (2015) appraised the performance of five types of sectoral mutual funds i.e. Fast Moving Consumer Goods, Information Technology, Infrastructure, Pharma and Banking using moving average basis. It was concluded that Pharma and Banking sector mutual funds outperformed in comparison to other selected sectors. Biplod (2017) analysed the performance of 15 close-ended mutual fund schemes of Bangladesh from 2013 to 2017 using risk-adjusted measures and found that 12 out 15 schemes outperformed. Further, the schemes were examined on the basis of market timing & selectivity skills of managers using coefficient of determination and quadratic regression and had shown outperformance of 9 out of 15 schemes. Rehmani (2018) compared the investment performance of four public and four private sector schemes for 7 years i.e. 2010 to 2017. 91-day Treasury bill and BSE 100 were considered for risk-free and market index respectively. The study concluded that private sector schemes outperformed public sector schemes. Singh and Mishra (2019) in their study examined the performance of five open-ended growth schemes from 2012 to 2017 using average returns of monthly NAV, standard deviation, beta and risk-adjusted measures. 60% of the schemes outperformed NSE Nifty 100 by taking 91-day Treasury bill as risk-free return.

OBJECTIVES OF THE STUDY

It is generally believed that the future returns of any mutual fund schemes cannot be predicted from its past performance. Although, an International Financial Expert, Peter Lynch, believes that one should stick with steady and consistent performer to analyse its future. Thus, it seems that evaluation of any mutual fund scheme for certain period of time must be conducted before investment. Further, debt mutual fund schemes provide more safety of capital amount and fixed returns in comparison to other types of mutual fund schemes. In this direction, the objectives of the present study are:

- To examine the performance of short-term debt schemes on the basis of risk and return.
- To evaluate the performance of short-term debt schemes using risk-adjusted measures.
- To compare the performance of experienced and non-experienced short-term debt mutual fund schemes.

RESEARCH METHODOLOGY

Sample Selection: The present study comprises of 20 short-term debt mutual fund schemes that were selected on the basis of inception date and availability of data. These schemes were categorized as experienced versus non-experienced with a time gap of minimum 4.5 years. Of total, 10 schemes (experienced) had an inception date before September 2002 while rest of the schemes had inception date after February 2007. Open-ended schemes with growth option have been chosen for the purpose of the study. Table 1 shows the details of schemes selected.

Table 1: Inception Date of Experienced and New Schemes

Experienced Schemes			New Schemes		
Sr. No.	**Name of the Scheme**	**Inception Date**	**Sr. No.**	**Name of the Scheme**	**Inception Date**
1	IDFC-Bond Fund-Short Term Plan	Dec 14, 2000	1	Axis Short Term Fund	Jan 01, 2013
2	ICICI Prudential Short Term Fund	Oct 25, 2001	2	Indiabulls Short Term Fund	Sep 13, 2013
3	DSP Short Term Fund	Sep 09, 2002	3	Canara Robeco Short Duration Fund	Apr 25, 2011
4	Franklin India Short Term Income Plan	Jan 31, 2002	4	IDBI Short Term Bond Fund	Mar 23, 2011
5	HSBC Short Duration Fund	Dec 10, 2002	5	L&T Short Term Bond Fund	Dec 27, 2011
6	JM Financial Short Term Fund	Jun 18, 2002	6	Baroda Short Term Bond Fund	Jun 30, 2010
7	Kotak Bond Short Term Fund	May 02, 2002	7	HDFC Short Term Debt Fund	Jun 25, 2010
8	Nippon India Short Term Fund	Dec 18, 2002	8	BOI AXA Short Term Income Fund	Dec 18, 2008
9	Sundaram Short Term Debt Fund	Sep 01, 2002	9	SBI Short Term Debt Fund	Jul 27, 2007
10	Tata Short Term Bond Fund	Aug 08, 2002	10	Invesco India Short Term Fund	Mar 24, 2007

The performance of selected short term debt mutual fund schemes have been evaluated and compared for the period April 01, 2015 to March 31, 2020. Monthly NAVs were collected for the purpose of evaluation. 91-day Treasury bill was considered as risk-free rate and CRISIL Short Term Bond Fund Index was considered as market index for comparison.

Data Collection: The study is purely based on secondary data obtained from official websites of AMFI, SEBI, RBI and respective mutual funds.

Methodology: To examine the risk and return of selected schemes, standard deviation, beta, average annual returns have been calculated. Further, to evaluate the risk-adjusted performance of schemes, Sharpe ratio, Treynor ratio, Jensen alpha, Appraisal Ratio, MM measure and Information ratio were calculated. To compare the performance of the experienced and new schemes, t-test has been applied at 0.05 significant level.

Hypotheses for Objective 3

H0: There is no difference between the performance of experienced and new schemes.

H1: There is difference between the performance of experienced and new schemes.

RESULTS AND DISCUSSION

Table 2 highlights the performance of selected open-ended short-term debt mutual fund schemes for the period April 2015 to March 2020. It is revealed that Baroda Short Term Bond Fund earned highest average return 9.17 followed by Franklin India Short Term Income Fund Plan (9.16) and ICICI Prudential Short Term Fund (9.12). On the other hand, BOI AXA Short Term Income Fund had lowest average return 5.86. Further, it is noticeable that no scheme had shown negative average return during the study period.

Table 2: Performance of the Schemes on the Basis of Risk-Return

Sr. No.	Name of the Scheme	Avg.	σ	beta	Cov.	CC	Skew	Kurt	Min	Max
1	IDFC-Bond Fund-Short Term Plan	8.51	1.86	0.96	3.36	0.98	-0.57	-0.58	4.66	11.74
2	ICICI Prudential Short Term Fund	9.12	2.22	1.11	3.90	0.96	-0.53	-0.78	4.68	13.12
3	DSP Short Term Fund	8.55	1.99	1.04	3.63	0.99	-0.74	-0.49	4.10	11.34
4	Franklin India Short Term Income Plan	9.16	2.29	0.21	0.73	0.17	-1.22	3.21	1.02	13.07
5	HSBC Short Duration Fund	7.03	3.24	0.19	0.68	0.11	-1.04	0.05	-0.40	11.03
6	JM Financial Short Term Fund	6.26	3.77	0.02	0.07	0.01	-1.41	1.66	-4.04	11.57
7	Kotak Bond Short Term Fund	8.82	2.01	1.04	3.65	0.99	-0.62	-0.81	4.87	11.73
8	Nippon India Short Term Fund	8.79	2.38	1.21	4.23	0.97	-0.57	-0.74	3.87	12.81
9	Sundaram Short Term Debt Fund	6.71	4.41	-0.22	-0.76	-0.09	-1.61	1.54	-4.42	11.36
10	Tata Short Term Bond Fund	6.53	3.38	1.17	4.11	0.66	-0.94	-0.24	-1.98	10.76
11	Axis Short Term Fund	8.05	1.83	0.96	3.35	0.99	-0.61	-0.78	4.35	10.72
12	Indiabulls Short Term Fund	9.01	1.70	0.50	1.76	0.56	-0.23	-1.25	6.16	11.60
13	Canara Robeco Short Duration Fund	7.14	1.78	0.64	2.24	0.69	-0.10	-1.19	3.72	9.97
14	IDBI Short Term Bond Fund	7.38	2.32	0.06	0.21	0.05	-1.32	1.25	0.86	10.54
15	L&T Short Term Bond Fund	8.41	1.68	0.87	3.04	0.99	-0.51	-0.77	5.01	11.20
16	Baroda Short Term Bond Fund	9.17	1.26	0.61	2.15	0.93	-0.65	-0.69	6.48	11.05
17	HDFC Short Term Debt Fund	8.49	1.54	0.80	2.79	0.99	-0.53	-0.78	5.37	10.82
18	BOI AXA Short Term Income Fund	5.86	7.42	-0.77	-2.71	-0.20	-1.83	1.97	-13.27	11.72
19	SBI Short Term Debt Fund	8.57	1.92	1.00	3.50	0.99	-0.64	0.76	4.55	11.26
20	Invesco India Short Term Fund	8.27	2.12	1.09	3.82	0.98	-0.41	-0.99	4.25	11.54

Avg.: Average Return of the Schemes σ: Standard Deviation Cov: Covariance
CC: Coefficient of Correlation Skew: Skewness Kurt: Kurtosis
Min: Minimum Max: Maximum

BOI AXA Short Term Income Fund displayed highest total risk (standard deviation) 7.42 in contrast to every other selected schemes while Baroda Short Term Bond Fund had lowest risk 1.26. Further, Nippon India Short Term Fund exhibited highest market risk (beta) 1.21 followed by Tata Short Term Fund (1.17), ICICI Prudential Short Term Fund (1.11) and Invesco India Short Term Fund (1.09). In terms of covariance between the scheme return and market return, Nippon India Short Term Fund had highest value 4.23 followed by Tata Short Term Bond Fund (4.11) and ICICI Prudential Short Term Fund (3.90). Further, 11 out of selected 20 schemes had shown more than 90% of correlation with the market. It is important to note that two schemes vis-a-vis Sundaram Short Term Debt Fund and BOI AXA Short Term Income Fund exhibited negative beta, covariance and coefficient of correlation indicating movement of the selected schemes in the opposite direction from the market. On the other hand, all other schemes showed positive values with respect to these terms.

Except for few schemes, majority of the schemes depicted symmetry and normality with values nearer to '0' in case of Skewness and '3' in case of Kurtosis.

Table 3 highlights the risk-adjusted performance of selected open-ended short-term debt mutual fund schemes in comparison to market index using rank. It is clearly visible that 11 out of 20 schemes have positive Sharpe ratio indicating better performance in comparison to selected benchmark considering total risk (standard deviation). Baroda Short Term Bond Fund (1.19), Indiabulls Short Term Fund (0.53) and HDFC Short Term Debt Fund (0.35) came out as top performers based on Sharpe's measure. On the basis of Treynor's ratio, 13 out of 20 schemes indicated positive value pointing towards the outperformance of the schemes in terms of market risk (beta). IDBI Short Term Bond Fund (14.05) and Franklin India Short Term Income Plan (11.19) were the top-performing schemes. The results from both the measures are generally complimentary to each other, which indicate complete diversification of the schemes. However, in the present study, two schemes that is IDBI Short Term Bond Fund and HSBS Short Duration Fund outperformed as per Treynor's measure while displayed negative value as per Sharpe's measure. This variation may be attributed towards the poor diversification of the portfolios of these two schemes.

Table 3: Performance of the Schemes on the Basis of Risk-Adjusted Measures

Sr. No	Name of the Scheme	Sharpe's Ratio	R	Treynor's Ratio	R	Jensen Alpha	R	Appraisal Ratio	R	MM Measure	R	Info Ratio	R	TE
1	IDFC-Bond Fund-Short Term Plan	0.13	8	0.32	10	0.3	11	1.27	9	0.25	8	0.67	7	0.34
2	ICICI Prudential Short Term Fund	0.23	4	0.57	7	0.63	7	2.21	6	0.42	4	1.21	2	0.70
3	DSP Short Term Fund	0.08	10	0.2	12	0.2	14	0.79	13	0.14	10	0.9	5	0.30
4	Franklin India Short Term Income Plan	0.2	5	11.19	2	2.34	1	7.93	2	0.38	5	0.33	11	2.69
5	HSBC Short Duration Fund	-0.8	16	1.25	5	0.24	13	0.58	14	-1.5	16	-0.35	16	3.55
6	JM Financial Short Term Fund	-1.03	19	-10.66	20	-0.2	18	-0.41	16	-1.93	19	-0.48	17	4.19
7	Kotak Bond Short Term Fund	0.2	5	0.44	8	0.46	9	1.78	7	0.38	5	1.62	1	0.33
8	Nippon India Short Term Fund	0	11	0.11	13	0.13	15	0.42	15	0.01	11	0.68	6	0.75
9	Sundaram Short Term Debt Fund	-0.93	17	-3.14	19	0.69	6	1.2	10	-1.73	17	-0.32	15	4.95
10	Tata Short Term Bond Fund	-0.96	18	-1.77	18	-2.08	20	-4.75	20	-1.8	18	-0.68	18	2.56
11	Axis Short Term Fund	-0.11	12	-0.16	14	-0.15	16	-0.64	18	-0.2	12	-1.02	20	0.23
12	Indiabulls Short Term Fund	0.53	2	3.29	3	1.65	2	7.53	3	0.99	2	0.44	9	1.68
13	Canara Robeco Short Duration Fund	-0.59	15	-0.74	16	-0.48	19	-2.07	19	-1.1	15	-0.78	19	1.45
14	IDBI Short Term Bond Fund	-0.58	14	14.05	1	0.85	5	2.83	5	-1.08	14	-0.31	14	2.90
15	L&T Short Term Bond Fund	0.19	7	0.42	9	0.37	10	1.7	8	0.35	7	0.36	10	0.36
16	Baroda Short Term Bond Fund	1.19	1	2.61	4	1.6	3	9.87	1	2.22	1	1.05	3	0.85
17	HDFC Short Term Debt Fund	0.35	3	0.73	6	0.58	8	2.94	4	0.66	3	0.49	8	0.43
18	BOI AXA Short Term Income Fund	-1.07	20	-1.12	17	0.87	4	0.9	12	-1.99	20	-0.3	13	8.01
19	SBI Short Term Debt Fund	0.12	9	0.29	11	0.29	12	1.17	11	0.23	9	1.01	4	0.29
20	Invesco India Short Term Fund	-0.12	13	-0.16	14	-0.17	17	-0.63	17	-0.22	13	-0.01	12	0.46

R: Rank
TE: Tracking error

According to Jensen's alpha, 15 out of 20 schemes had outperformed market index. The names of top-performing schemes are Franklin India Short Term Income Plan (2.34), Indiabulls Short Term Fund (1.65) and Baroda Short Term Bond Fund (1.6). Further, Appraisal ratio is an extended version of Jensen's alpha measure to determine whether the observed alpha is by chance or due to the managerial skills of the managers. The results indicated minimum deviation in ranking according to both the measures, thus highlighting managerial stock picking ability. However, it is observed that according to Jensen alpha BOI AXA Short Term Income Fund and Sundaram Short Term Debt Fund being on 4th rank and 6th rank, respectively, had earned 12th rank and 10th rank, respectively, as per Appraisal ratio. The high ranks of these schemes as per Jensen alpha could only earned fortuitously.

MM measure as a performance evaluator compares the calculated return with the market return and the scheme having positive values point towards better performance. It is visible that 11 (55%) out of 20 schemes had outperformed the market index and three top-performing schemes are Baroda Short Term Bond Fund (2.22), Indiabulls Short Term Fund (0.99) and HDFC Short Term Debt Fund (0.66). Information ratio demonstrates the ability of the managers to use the available information as per their knowledge to earn excess return over the market. It was found that 11 out of 20 schemes had positive information ratio indicating superior performance of the schemes viz. Kotak Bond Short Term Fund (1.62), ICICI Prudential Short Term Fund (1.21), Baroda Short Term Bond Fund (1.05) and SBI Short Term Debt Fund (1.01).

Tracking error value denotes the difference between scheme return and market return. It is only in the case of BOI AXA Short Term Income Fund (8.01) where tracking error is very high followed by Sundaram Short Term Debt Fund (4.95), JM Financial Short Term Fund (4.19) and HSBC Short Duration Fund (3.55). On the other hand, all other 16 schemes showed better replication to the market index having value less than 3.

From the above analysis, the five top-performing schemes according to all the measures applied are Baroda Short Term Bond Fund, Indiabulls Short Term Fund, Franklin India Short Term Income Plan, ICICI Prudential Short Term Fund and HDFC Short Term Debt Fund. On the other hand, the worst-performing schemes are JM Financial Short Term Fund, Tata Short Term Bond Fund, Canara Robeco Short Duration Fund, Axis Short Term Fund and Invesco India Short Term Fund.

Table 4 highlights the comparison of experienced and non-experienced schemes using t-test statistics (t-stat) based on Sharpe ratio, Treynor ratio, Jensen alpha, Appraisal ratio, MM measure and Information ratio. It was observed that value of t-stat is below t-critical value and p-value was above 0.05 for all the risk-adjusted measures. Thus, concluding to retain null hypothesis and proving that there is no significant difference between the performance of schemes working with experience and recently incepted.

Table 4: Comparison of Experienced and New Schemes on the Basis of T-Test

Particulars	Sharpe's Ratio	Treynor's Ratio	Jensen (Alpha)	Appraisal Ratio	MM Measure	Info Ratio
Mean (Scheme)	-0.29	-0.15	0.27	1.10	-0.54	0.36
Mean (Market)	-0.01	1.92	0.54	2.36	-0.01	0.09
Variance (Scheme)	0.31	28.21	1.16	9.52	1.10	0.62
Variance (Market)	0.41	20.09	0.52	13.92	1.44	0.49
T-Stat	-1.04	-0.94	-0.66	-0.82	-1.04	0.80
T-Critical	2.10	2.10	2.10	2.10	2.10	2.10
P Value	0.31	0.36	0.52	0.42	0.31	0.44

CONCLUSION

Mutual fund has come up as a platform for investors of every age to earn some extra on money in future by saving at present. In the present paper, analysing the performance of selected schemes highlighted that Baroda Short Term Bond Fund has earned highest average return with low standard deviation and beta value. Further, Baroda Short Term Bond Fund has continued its legacy by outperforming according to all the measures used for analysis. However, JM Financial Short Term Fund had performed inadequately during the study period. It was further observed that being no significant difference between the experienced and non-experienced schemes has proven that irrespective of their period of existence in the market all the schemes are showing more or less equal outcomes. Moreover, putting some extra efforts on analysing the past performance of the schemes based on risk-adjusted measures would always help in getting fruitful results.

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