International Journal of Management, IT & Engineering
Vol. 8 Issue 6, June 2018,
ISSN: 2249-0558 Impact Factor: 7.119
Journal Homepage: http://www.ijmra.us, Email: editorijmie@gmail.com
Double-Blind Peer Reviewed Refereed Open Access International Journal - Included in the International Serial Directories Indexed & Listed at: Ulrich's Periodicals Directory ©, U.S.A., Open J-Gage as well as in Cabell's Directories of Publishing Opportunities, U.S.A

PERFORMANCE EVALUATION OF LIQUID DEBT MUTUAL FUND SCHEMES IN INDIA

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Abstract

The majority of Indian investors want to yield the maximum returns on their investment by taking the less risk. The safest way of investment is banks and post offices but with lower interest rates the attractiveness of thses is low whereas in mutual funds the portfolio manager tries to reduce the risk and yields higher rate of returns through professional and sound portfolio management. In this paper an evaluation has been made between the performance of liquid debt mutual fund schemes with CCIL T Bill Liquidity whether the funds are outperforming or underperforming. To attempt these purposes the study has relied on secondary data. This study aims to examine the performance of open-ended liquid debt mutual funds in India. To evaluate the performance a sample of 11 liquid debt mutual fund schemes have been selected on the basis of yearly returns compared to benchmark returns. The analysis of these schemes is based on average, standard deviation, beta, co-efficient of determination (R-squared) and also analyzed with the help of risk adjusted performance measures like Treynor ratio, Sharpe ratio and Jensen ratio.

Keywords:

mutual fund,
debt funds,
liquid fund,
market portfolio.

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1. Introduction

1.1 Introduction

The money invested in debt fund is diverted in "debt instruments" like government securities, corporate bonds and money market instruments. These are all debt instruments as the borrowers have borrowed money from the investors by issuing these securities. These "debts", popularly known as "bonds", are regular income generating source i.e.

investors receives regular interest on them. The payment of these instrument could be done periodically like monthly, semi-annually or annually. Most of the debt instruments are not available for retail investors to invest directly. But still they have opportunity to invest indirectly through debt funds which is the best option to invest in income generating instrument i.e. debt mutual fund. The portfolio manager act in a judicious manner so as to bring the worth of investment made by retail investors, and it is that the performance of such funds must be evaluated. The comparative evaluation determines the potential source of information for the prospective retail investors.

1.2 Review of Literature

With the growing importance of the subject under study, some literature covering different aspects of investors' preferences have been shared by economists, researchers and practitioners are mentioned below:

Jambodukar (1996) conducted a study to access the awareness of mutual funds among the investors, to identify the sources of information that influences the buying decision that have an impact on buying behaviour and ultimately become a determinant factor in the choice of a particular fund. The study reveals among other thing that income schemes and close ended scheme are more preferred than growth schemes and close ended schemes during that prevalent market conditions.

Jensen (1986) studied the disciplining effect of debt, as the "control hypothesis" of debt creation, arises from the fact that debt can constrain managerial expropriation in a situation where corporations have more internally generated funds than investment opportunities in terms of the availability of projects with positive net present value.

Sivakumar et.al. (2010) evaluated the performance of mutual funds players in India based on their resource mobilization during the past decade. The study found that the players are broadly classified in to public and private participants. The study revealed that there is significant contribution by all the participants for the growth of the mutual fund industry in India.

Tiwari (2008: 99-147) deals with outlining how to invest in stock market and mutual funds. It provides a comprehensive parameters relating to selection of a mutual fund. The study also outlines various guidelines of purchase and sale of mutual funds, tracking mutual funds performance, procedure of investing in mutual funds.

The study of existing literature found the theoretical framework for investing in the mutual fund industry. But given the different theoretical parameters, investors often get puzzled to choose the right alternative among many. This study is a modest attempt to highlight the scenario of mutual fund industry over the last 15 years so to analyze the growth trend of different segments.

1.3 Need of the study

Mutual fund industry is rapidly growing and popular among the small and household retail investors, who tries to mobilize their savings in capital market through investment in mutual fund. The traditional investment avenue for such investors is banks and post office but such investments are safe but with lower interest rates. The management of mutual fund is done through professional and active fund management which helps to reduce the risk and try to generate maximum returns on investment. The main of study is to reduce the

past research gap also to highlight the performance of current scenario. In this study, an attempt has been made to evaluate the performance of 11 open-ended liquid debt schemes of public sector, private sector, banks and other financial institutions.

1.4 Objectives of the study

To evaluate the performance of the mutual funds, the following are the main objectives of the present study:

i) To examine the risk and return component among these mutual funds.

ii) To study the relationship between NAV and market portfolio return.

iii) To evaluate the return of these mutual funds according to the Treynor ratio, Sharpe ratio and Jensen ratio.

1.5 Hypothesis:

H0:- There is no significance difference between the returns and the risks associated with different liquid debt mutual fund schemes of an investments.

H1:- There is significance difference between the returns and the risks associated with different liquid debt mutual fund schemes of an investments.

1.6 Scope of the study

The study is based on 11 liquid debt mutual fund schemes offered by different public sector, private sector, financial institutions and banks. The time period for the research work is from 1st April 2013 to 31st March 2018. The annual returns are compiled on the basis of NAV. Then these schemes are compared with respective benchmark returns to evaluate the performance of these schemes. An attempt has been made to draw a conclusion which reflects the clear picture of the mutual fund industry in the current scenario.

2. Research Method

2.1 Sample selection

There are different types of mutual fund schemes available in India which is classified under different categories. In the present study, 11 open-ended liquid debt schemes have been selected for the study period. The convenience sampling method is used for the sample selection. For benchmarking and comparison purpose BSE-Sensex and NSE-Nifty is used. To consider risk free return yield on CCIL T Bill Liquidity is accepted which 4.91%, during study period.

2.2 Data collection

The analysis of 11 liquid debt mutual fund is based on secondary data which is collected from various sources like published annual reports of the sponsoring agencies, online bulletins, journals, books, magazines, brochures and other published and online material. The weekly data for the mentioned schemes have been collected from the website www.valueresearchonline.com. The data has been collected from 1st April 2013 to 31st March 2018.

3. Results and Analysis

3.1 Analysis

The present study made an attempt to analyze the performance of the selected mutual fund schemes with the market during the study period of 6 years. In order to achieve the objectives an analysis has been made to compare these schemes with the market on the

basis of risk and return. Different relevant and advanced statistical tools have been employed for analyzing the performance of selected mutual funds. i.e. Standard Deviation (SD), BETA, ALPHA, R-SQUARED, Sharpe Ratio.

TABLE 1: NAVS OF LIQUID DEBT FUNDS

Year	2013	2014	2015	2016	2017	2018
Fund Name	**NAV in Rs.**					
Aditya Birla Sun Life Cash Plus	201.12	219.59	237.99	256.30	273.44	280.60
DSP BlackRock Liquidity Fund - Regular Plan	1795.32	1957.62	2119.71	2281.13	2431.78	2494.92
Franklin India Cash Management Account Fund	20.12	21.49	22.78	24.23	25.67	26.26
IDFC Cash Fund - Regular Plan	1524.75	1663.39	1802.43	1939.25	2067.63	2121.16
JM High Liquidity Fund	34.23	37.35	40.51	43.64	46.57	47.78
Kotak Liquid - Regular Plan	2545.45	2776.96	3008.37	3237.10	3452.66	3542.22
L&T Liquid Fund	1720.45	1876.80	2033.37	2188.46	2335.33	2396.47
LIC MF Liquid Fund	2275.07	2480.17	2687.29	2891.00	3082.60	3162.34
SBI Magnum Ultra Short Duration Fund	2775.56	3026.12	3277.64	3528.61	3761.67	3859.32
Tata Liquid Fund - Regular Plan	2315.94	2524.32	2734.76	2941.79	3137.59	3218.67
UTI Liquid Cash Fund - Regular Plan	2055.50	2242.17	2427.83	2613.70	2788.06	2861.05

The table 1 shows the net asset value (NAV) of liquid debt funds for 6 years. There was an increase in NAV during the study period of all eleven funds. It is mainly due to the upward movement in the stock market and there was a strong improvement in quantity as well as quality of product and service offerings in recent years.

TABLE 2: RETURNS FOR LIQUID DEBT MUTUAL FUNDS

Year	2013	2014	2015	2016	2017	2018	Avg	Benchmark return
Fund Name	**Returns in %age**							
Aditya Birla Sun Life Cash Plus	9.32	9.18	8.38	7.70	6.69	2.62	7.32	4.91
DSP BlackRock Liquidity Fund - Regular Plan	9.23	9.04	8.28	7.62	6.60	2.60	7.23	4.91
Franklin India Cash Management Account Fund	7.13	6.82	6.03	6.34	5.94	2.29	5.76	4.91
IDFC Cash Fund - Regular Plan	9.18	9.09	8.36	7.59	6.62	2.59	7.24	4.91
JM High Liquidity Fund	9.31	9.14	8.44	7.74	6.72	2.59	7.32	4.91
Kotak Liquid - Regular Plan	9.25	9.09	8.33	7.60	6.66	2.59	7.25	4.91
L&T Liquid Fund	9.19	9.09	8.34	7.63	6.71	2.62	7.26	4.91
LIC MF Liquid Fund	9.12	9.01	8.35	7.58	6.63	2.59	7.21	4.91
SBI Magnum Ultra Short Duration Fund	9.33	9.03	8.31	7.66	6.60	2.60	7.26	4.91
Tata Liquid Fund - Regular Plan	9.20	9.00	8.34	7.57	6.66	2.58	7.23	4.91
UTI Liquid Cash Fund - Regular Plan	9.11	9.08	8.28	7.66	6.67	2.62	7.24	4.91

Table 2 reveals the return earned by different liquid debt funds offered by different Mutual Fund companies during the study period (2013-2018). The average return of 11 funds are more or less similar except Franklin India Cash Management Account Fund which is 5.76 where rest of the funds are ranging between 7.21% to 7.32%. But all the funds are giving returns above their benchmark return which is 4.91%.

TABLE 3: STATSTICAL TOOLS USED FOR EVALUATION OF LIQUID DEBT MUTUAL FUNDS

Sr no	Fund name	Returns (%)	Risk (Beta)	Risk/ Return	Sharpe	Treynor	Jensen

1	Aditya Birla Sun Life Cash Plus	**7.32**	0.86	0.12	14.03	2.80	0.56
2	DSP BlackRock Liquidity Fund - Regular Plan	7.23	0.81	0.11	**15.53**	2.86	0.77
3	Franklin India Cash Management Account Fund	5.76	0.18	0.03	10.89	**4.72**	1.62
4	IDFC Cash Fund - Regular Plan	7.24	0.56	0.08	12.28	4.16	2.74
5	JM High Liquidity Fund	**7.32**	0.79	0.11	15.44	3.05	0.84
6	Kotak Liquid - Regular Plan	7.25	0.58	0.08	11.95	4.03	2.74
7	L&T Liquid Fund	7.26	0.55	0.08	12.82	4.27	2.77
8	LIC MF Liquid Fund	7.21	0.53	0.07	12.71	4.34	2.74
9	SBI Magnum Ultra Short Duration Fund	7.26	**1.38**	**0.19**	5.76	1.70	**2.84**
10	Tata Liquid Fund - Regular Plan	7.23	0.54	0.07	13.05	4.30	2.75
11	UTI Liquid Cash Fund - Regular Plan	7.24	0.53	0.07	9.81	4.40	2.15
Mean		**7.12**					
Standard Deviation of returns		**0.43**					
Market Return		**4.91**					
Average risk per unit return (coefficient of variation) work out to be 0.43/7.12 = 0.06							

Table3 reveals the performance of mutual fund in based on annualized compounded returns, annualized standard deviation and Risk - return profile for the period. The respective average return of the mutual fund is more or less same but the highest average is given by Aditya Birla Sun Life Cash Plus & JM High Liquidity Fund which is 7.32%. The average risk per unit return (coefficient of variation) works out to be 0.06.

The risk is ranging from 0.18 to 1.38. Franklin India Cash Management Account Fund comprises of lowest risk of 0.18 which gives low return of 5.76% whereas SBI Magnum Ultra Short Duration Fund comprises of highest risk of 1.38 which gives returns above mean return i.e. 7.26%. The risk - return ratio of respective mutual fund is ranging from 0.03 to 0.19. The risk-return ratio of Franklin India Cash Management Account Fund is lowest i.e. 0.03 whereas SBI Magnum Ultra Short Duration Fund is highest i.e. 0.19.

Sharpe ratio for eleven liquid debt mutual funds has been calculated and the range of excess returns over risk free return per unit of total risk is from 5.76 to 15.53. Based on the Sharpe ratio SBI Magnum Ultra Short Duration Fund is the least performing fund with 5.76 whereas DSP BlackRock Liquidity Fund - Regular Plan is the better performing fund with 15.53.

Treynor ratio has been computed and the performance of liquid debt mutual fund are ranging from 1.70 to 4.72. Franklin India Cash Management Account Fund has the highest Treynor ratio and SBI Magnum Ultra Short Duration Fund has the lowest Treynor ratio. The Jensen ratio is ranging between 0.56 to 2.84. SBI Magnum Ultra Short Duration Fund is with the highest Jensen ratio of 2.84 which determines the superior performance where as the Aditya Birla Sun Life Cash Plus is with the 0.56 Jensen ratio determines the inferior performance although the average return of Aditya Birla Sun Life Cash Plus is highest among the all other mutual funds.

3.2 Testing of hypothesis

There is significance difference between the returns and the risks associated with different liquid debt mutual fund schemes of an investments.

Difference Scores Calculations *Treatment 1*	*Treatment 2*
N_1: 11 $df_1 = N - 1 = 11 - 1 = 10$ M_1: 7.12 SS_1: 2.05 $s^2_1 = SS_1/(N - 1) = 2.05/(11-1) = 0.2$	N_2: 11 $df_2 = N - 1 = 11 - 1 = 10$ M_2: 0.66 SS_2: 0.9 $s^2_2 = SS_2/(N - 1) = 0.9/(11-1) = 0.09$
T-value Calculation $s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((10/20) * 0.2) + ((10/20) * 0.09) = 0.15$ $s^2_{M1} = s^2_p/N_1 = 0.15/11 = 0.01$ $s^2_{M2} = s^2_p/N_2 = 0.15/11 = 0.01$ $t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = 6.46/\sqrt{0.03} = 39.41$ The *t*-value is 39.40976	

To test the hypothesis *t-test* is used. From the above table it can be observed that calculated value of *'t'* i.e. 39.40976 is greater than the table value at 5% level with 10 degree of freedom i.e. 2.2281 so the result is significant. Hence we reject the null hypothesis and accept the alternate hypothesis which is there is significance difference between the returns and the risks associated with different liquid debt mutual fund schemes of an investments.

4. Conclusion

From the above analysis, it can be noted that liquid debt mutual funds have performed better than the benchmark indicators. The average return of the schemes is more than the market index. Debt funds can address a variety of investment objectives and have solutions in any interest rate scenario. In this research paper, we have analyzed different type of debt funds and their risk return characteristics. It can't be ignored that market scenario is changing in a rapid way, so the investment avenues are also changing. The regular investors needs to look at the changing scenario with better investment options.

References

1. Jatana, Renu and Gupta, Nitin (2003), "Exchange Traded Funds- A Block of Stock and Mutual Funds", *The Indian Journal of Commerce*, Volume 56, Number 2&3, pp.123.
2. Jensen, Michal, C. (1968), "The Performance of Mutual Funds in the period 1954-1964", *Journal of Finance*, Volume 23, pp. 389-416.
3. Kane, Alve and Marks Gay (1983), "Performance Evaluation of Market Times-Theory & Evidence", *Journal of Financial and Quantitative Analysis*, Volume 4, pp.425-435.
4. Khurana Ajay, (1996), "Top Management turnover-An Empirical Investigation of Mutual Fund Managers", *Journal of Financial Economics*, Volume 3.
5. Kun, Stanly J. and Frank C. Jen (1978), "Estimation of Time Varying Systematic Risk and Performance of Mutual Fund Portfolios: An Application of Switching Regression", *Journal of Finance*, Volume 3, pp. 457-475.
6. Lee, Cheng-Few and Sahfiqur Rahman (1989), "Market Timing, Selectivity and Mutual Fund Performance: An Empirical Investigation", *Journal of Business*, Number 21, pp. 261-278.
7. Mohanan, S. (2006), "Mutual Fund Industry in India: Development and Growth", *Global Business and Economic Review*, Volume 8, Number 3/4, pp. 280-289.

8. Parihar, B. B. S., Sharma, Rajeev and Singh Parihar, Deepika (2009), "Analyzing Investors‟ Attitude towards Mutual Funds as an Investment Option", *The ICFAI Journal of Management Research*, Volume VIII, Number 7, pp. 56-64.
9. Sarkar, A.K. (1992), "Should We Invest in Mutual Funds", *The Management Accountant*, Volume 27, Number 10, pp. 738.
10. Sharpe, William F. (1966), "Mutual Fund Performance", *Journal of Business*, Volume 39, Supplement, pp. 119-138.
11. Treynor, J. (1965), "How to Rate Management of Investment Funds", *Harvard Business Review*, Volume 43, pp. 63-75.
12. Williamson, J. (1972), "Measuring and Forecasting of Mutual Fund Performance Choosing and Investment Strategy", *Financial Analysis Journal*, pp. 78-84.

Website references:-

www.moneycontrol.com
www.mutualfundindia.com
www.valueresearchonline.com