COMPARATIVE ANALYSIS OF LIQUID DEBT MUTUAL FUND AND AGGRESSIVE HYBRID MUTUAL FUND OF SELECTED COMPANIES FROM YEAR 2011 TO 2018

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INTRODUCTION:-

Debt mutual funds are ideal investments for traditional investors. They are suitable for both the short-term and medium-term investment horizon whereas Hybrid Funds is a mutual fund which provides a one-stop investment mix by investing its portfolio in a combination of debt and equity instruments with an aim to balance the risk-reward ratio. The tracking of returns of funds over a period helps to forecast the future returns. Though the past performance may or may not be the same, but still the past performances is one of the influencing factors for inviting new investors and retain the investments of the current investors. As the equity and debt funds are the growth and income schemes which are usually chosen by the investors, annualized returns of selected funds are compared and appraised. The information related to the risk and return analysis of equity and debt for over eight year period is considered for comparison. The average returns, standard deviation and sharpe ratios for three years period (2016-18), five years (2014-18) and eight years (2011-18) are calculated. The random sample comprises of 12 debt and 12 hybrid funds sponsored by different AMCs is chosen. 3 years, 5 years and 8 years bond yield is considered for calculating sharpe ratio.

REVIEW OF LITERATURE:-

The investment in mutual fund is increasing over the period of time which becomes an important issue for all investors' professionals and academicians. Lot of study were undertaken to evaluate the performance of mutual funds. Most of the studies are based on equity mutual fund which gives better returns compared to other schemes. With reference to that following literature has been taken into consideration.

Jayadev (1996) in his study, he observed that the funds are not performing well with reference to total risk and are also not offering diversification and justification to investments.

Bhunaneswari and Selvam (2011) studied that, there is a mismatch between the performances of majority of the sample equity schemes of dividend options and are not significantly related to their market movements during the study period.

Loomba (2011) in his study observed that, market returns are outperformed for all four schemes as per the Mann Whitney-U test but it was evident from Kruskal-Walis H-test that, the returns of the schemes do not vary Significantly.

The exhibit of **Swaminathan and Ananth (2011)** states that, the relationship between Mutual Fund flow and NSE-Nifty is positive but on lower side (11.9%) which means that the R^2 value of the mutual fund flow increases one unit to the change in Nifty by 1.40%.

The study of **Prajapati and Patel (2012)** revealed that, all selected mutual fund companies have positive return during the study period and volatility index is less than one to all selected mutual fund companies.

The findings of the study carried out by **Lohana (2013)** on the basis of risk-return relationship models revealed that, returns of all funds are more than market index returns.

It has been observed from the past studies that, majority of Indian studies have

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been carried out to evaluate the equity-based mutual funds schemes in general. Only selected researchers did research on evaluation of the performance of debt and hybrid mutual fund schemes. However, the method of analyzing risk-returns and risk adjusted returns of mutual fund schemes has not been explored. This gap has been filled in present study to analyse the performance in terms of risk-returns and risk adjusted returns.

OBJECTIVES

The main reasons behind studying this topic are:

1. To evaluate the performance of liquid debt mutual fund and aggressive hybrid mutual fund schemes of selected companies.

2. To compare the performance of liquid debt mutual fund and aggressive hybrid mutual fund schemes of selected companies' vis-à-vis the 3 years, 5 years and 8 years risk free bonds.

3. To compare the risk adjusted returns of liquid debt mutual fund and aggressive hybrid mutual fund schemes of selected companies.

HYPOTHESES:-

H1:- Comparative performances based on 3 years, 5 years and 8 years returns of Liquid Debt funds are different from Aggressive Hybrid Fund schemes.

H2:- Risk adjusted returns of Liquid Debt funds are not matching with Aggressive Hybrid Fund schemes.

SCOPE OF THE STUDY:-

The study is based on 12 liquid debt mutual fund schemes and 12 aggressive hybrid mutual fund schemes offered by different public sector, private sector, financial institutions and banks. The time period for the research work is from 2011 to 2018. The annual returns are compiled on the basis of returns. Then these schemes are compared with respective benchmark returns to evaluate the performance of these schemes. An effort has been taken to draw a conclusion which reflects the clear picture of the mutual fund industry in the current scenario.

RESEARCH METHODOLOGY

SAMPLE SELECTION:

The researcher has chosen the 12 liquid debt fund schemes and 12 aggressive hybrid fund schemes. The selection of schemes is dependent on the number of years spend in the market. The selected mutual funds were in the market for more than 10 years.

For benchmarking and comparison purpose 3 years, 5 years and 8 years bonds are used. The yield of 3 years bond is 7.594%, 5 years bond is 7.711% and for 8 years bond is 7.823%.

ANALYSIS

The present study made an attempt to compare the performance of the selected liquid debt mutual fund schemes with the aggressive hybrid mutual fund schemes during the study period of 8 years. In order to achieve the objectives, the comparative analysis is done on the basis of average return and standard deviation for 3 years, 5 years and 8 years and risk adjusted returns of 3 years, 5 years and 8 years i.e sharpe ratio.

Table 1: Returns of liquid debt mutual fund schemes

Sr. No.	Name of Scheme	2011	2012	2013	2014	2015	2016	2017	2018	3 yrs	5 yrs	8 yrs
		Returns										
1	Aditya Birla Sun Life Liquid Fund	9.02	9.71	9.32	9.18	8.38	7.7	6.69	6.33	6.907	7.656	8.2913
2	HDFC Liquid Fund	8.8	9.56	9.28	9.1	8.35	7.59	6.53	6.17	6.763	7.548	8.1725
3	HSBC Cash Fund		0.77	9.3	9.08	8.31	7.56	6.68	6.38	6.873	7.602	6.01
4	IDFC Cash Fund - Regular Plan	9.01	9.59	9.18	9.09	8.36	7.59	6.62	6.3	6.837	7.592	8.2175
5	JM Liquid Fund	8.97	9.58	9.31	9.14	8.44	7.74	6.72	6.35	6.937	7.678	8.2813
6	Kotak Liquid - Regular Plan	8.98	9.69	9.25	9.09	8.33	7.6	6.66	6.3	6.853	7.596	8.2375
7	L&T Liquid Fund	8.99	9.64	9.19	9.09	8.34	7.63	6.71	6.34	6.893	7.622	8.2413
8	LIC MF Liquid Fund	8.4	9.3	9.12	9.01	8.35	7.58	6.63	6.26	6.823	7.566	8.0813
9	Principal Cash Management Fund	8.94	9.68	9.17	9.07	8.43	7.68	6.75	-2.68	3.917	5.85	7.13
10	Reliance ETF Liquid BeES	7.83	7.39	7.39	6.96	6.56	5.83	5.02	4.66	5.17	5.806	6.455
11	Tata Liquid Fund - Regular Plan	9.03	9.81	9.34	9.11	8.35	7.65	6.68	6.35	6.893	7.628	8.29
12	UTI Liquid Cash Fund - Regular Plan	8.92	9.6	9.11	9.08	8.28	7.66	6.67	6.37	6.9	7.612	8.2113

The table 1 shows the returns of liquid debt funds for 3 years, 5 years and 8 years. The returns of almost all schemes are similar to each other except Principal Cash Management Fund and Reliance ETF Liquid BeES schemes were having the low returns compared to other schemes. The reason being the investment of liquid debt fund is done in fixed return bond instruments.

Table 2: Returns of aggressive hybrid mutual fund schemes

Sr. No	Name of Scheme	2011	2012	2013	2014	2015	2016	2017	2018	3 yrs	5 yrs	8 yrs
		Returns										
1	Aditya Birla Sun Life Equity Hybrid '95 Fund	-13.85	24.62	6.13	48.58	3.36	8.92	25.91	-7.6	9.077	15.83	12.009
2	Canara Robeco Equity Hybrid Fund - RP	-9.78	26.38	4.07	45.68	6.07	3.59	25.18	-1.61	9.053	15.78	12.448
3	DSP Equity & Bond Fund	-16.95	26.3	-0.37	45.02	4.8	8.25	27.61	-8.34	9.173	15.47	10.79
4	Franklin India Equity Hybrid Fund	-12.4	24.21	6.64	47.05	4.85	7.58	20.95	-4.3	8.077	15.23	11.823
5	ICICI Prudential Equity & Debt Fund	-9.33	29.38	11.18	45.56	2.1	13.66	24.78	-3.25	11.73	16.57	14.26
6	JM Equity Hybrid Fund	-17.16	23.9	11.34	33.44	-0.15	3.04	18.48	0.19	7.237	11	9.135
7	Kotak Equity Hybrid Fund - Regular Plan	-14.06	24.79	6.23	28.55	1.9	10.96	23.19	-10.15	8	10.89	8.9263
8	LIC MF Unit Linked Insurance	-14.89	18.21	5.74	30.96	-1.91	0.08	27.58	-3.27	8.13	10.69	7.8125
9	Principal Hybrid Equity Fund	-22.03	34.18	7.22	34.94	3.05	10.14	36.3	-3.45	14.33	16.2	12.544
10	SBI Equity Hybrid Fund	-22.23	35.03	11.86	43.24	7.36	3.7	27.66	-4.35	9.003	15.52	12.784
11	Tata Hybrid Equity Fund - Regular Plan	-12.02	30.55	7.54	49.61	6.97	4.04	19.41	-5.66	5.93	14.87	12.555
12	UTI Hybrid Equity Fund - Regular Plan	-19.23	27.96	6.82	32.84	2.39	8.84	25.69	-6.99	9.18	12.55	9.79

The table 2 shows the returns of aggressive hybrid mutual funds for 3 years, 5 years and 8 years. There is a variation in average returns of 3 years all schemes where Principal Hybrid Equity fund is giving highest returns i.e. 14.33% and Tata Hybrid Equity Fund – RP giving lowest returns i.e. 5.93%. 5 years average returns shows that ICICI Prudential Equity & Debt fund is best performer with 16.57% return whereas JM Equity Hybrid fund is lower performer with 11% return. For 8 years average returns ICICI Prudential Equity & Debt fund is best performer with 14.26% returns and LIC MF Unit Linked Insurance is lower performer with 7.81% returns. The variation in returns is due to mix investment made by AMC's i.e. 60% in equity and 40% in debt instruments.

Table 3: Returns, Standard deviation and Sharpe ratio of liquid debt mutual fund schemes-

Sr. No.	Name of Scheme	Returns			Standard Deviation			Sharpe Ratio		
		3 yrs	5 yrs	8 yrs	3 yrs	5 yrs	8 yrs	3 yrs	5 yrs	8 yrs
1	Aditya Birla Sun Life Liquid Fund	6.907	7.656	8.291	0.710	1.177	1.263	-0.968	-0.047	0.371
2	HDFC Liquid Fund	6.763	7.548	8.173	0.738	1.224	1.281	-1.125	-0.133	0.273
3	HSBC Cash Fund	6.873	7.602	6.010	0.613	1.121	2.910	-1.175	-0.097	-0.623
4	IDFC Cash Fund - Regular Plan	6.837	7.592	8.218	0.672	1.167	1.245	-1.127	-0.102	0.317
5	JM Liquid Fund	6.937	7.678	8.281	0.720	1.162	1.221	-0.913	-0.028	0.375
6	Kotak Liquid - Regular Plan	6.853	7.596	8.238	0.671	1.154	1.258	-1.103	-0.100	0.330
7	L&T Liquid Fund	6.893	7.622	8.241	0.664	1.134	1.224	-1.055	-0.078	0.342
8	LIC MF Liquid Fund	6.823	7.566	8.081	0.681	1.149	1.151	-1.132	-0.126	0.224
9	Principal Cash Management Fund	3.917	5.850	7.130	5.732	4.846	4.072	-0.642	-0.384	-0.170
10	Reliance ETF Liquid BeES	5.170	5.806	6.455	0.599	0.979	1.170	-4.045	-1.946	-1.170
11	Tata Liquid Fund - Regular Plan	6.893	7.628	8.290	0.676	1.146	1.276	-1.037	-0.072	0.366
12	UTI Liquid Cash Fund - Regular Plan	6.900	7.612	8.211	0.675	1.122	1.199	-1.028	-0.088	0.324

Table 3 depicts the relationship between returns, standard deviation and sharpe ratio of liquid debt mutual fund. After observing the above table it can be interpreted that the standard deviation of almost all the schemes is more or less similar so the returns except one i.e. Principal Cash Management Fund whose standard deviation is high for 3 years i.e. 5.732; for 5 years 4.846; and for 8 years 4.072 and returns are low for this scheme compared to other schemes.

The Sharpe ratio explains how much excess return you are receiving for the extra volatility that you endure for holding a riskier asset. For calculation of sharpe ratio 3 years, 5 years and 8 years bond yield is considered which is 7.594%, 7.771% and 7.823% respectively. None of the 3 years scheme is having positive sharpe ratio same in the case of 5 years sharpe ratio. In case of 8 years sharpe ratio only 3 schemes are having negative sign but rest are showing positive sharpe ratio but they are not remarkably high.

Table 4: Returns, Standard deviation and Sharpe ratio of aggressive hybrid mutual fund

Sr. No	Name of Scheme	Average			Standard Deviation			Sharpe Ratio		
		3 yrs	5 yrs	8 yrs	3 yrs	5 yrs	8 yrs	3 yrs	5 yrs	8 yrs
1	Aditya Birla Sun Life Equity Hybrid '95	9.077	15.834	12.009	16.756	21.945	20.220	0.088	0.370	0.207
2	Canara Robeco Equity Hybrid Fund - RP	9.053	15.782	12.448	14.206	19.543	18.290	0.103	0.413	0.253
3	DSP Equity & Bond Fund	9.173	15.468	10.790	17.993	20.937	20.693	0.088	0.370	0.143
4	Franklin India Equity Hybrid Fund	8.077	15.226	11.823	12.632	19.956	18.585	0.038	0.377	0.215
5	ICICI Prudential Equity & Debt Fund	11.730	16.570	14.260	14.114	19.484	18.283	0.293	0.455	0.352
6	JM Equity Hybrid Fund	7.237	11.000	9.135	9.841	14.697	16.017	-0.036	0.224	0.082
7	Kotak Equity Hybrid Fund - Regular Plan	8.000	10.890	8.926	16.866	15.706	16.006	0.024	0.202	0.069
8	LIC MF Unit Linked Insurance	8.130	10.688	7.813	16.927	17.047	16.175	0.032	0.175	0.001
9	Principal Hybrid Equity Fund	14.330	16.196	12.544	20.204	18.378	21.076	0.333	0.462	0.224
10	SBI Equity Hybrid Fund	9.003	15.522	12.784	16.651	19.474	21.634	0.085	0.401	0.229
11	Tata Hybrid Equity Fund - Regular Plan	5.930	14.874	12.555	12.641	21.381	20.030	-0.132	0.335	0.236
12	UTI Hybrid Equity Fund - Regular Plan	9.180	12.554	9.790	16.343	16.456	18.136	0.097	0.294	0.108

Table 4 depicts the relationship between returns, standard deviation and sharpe ratio of aggressive hybrid mutual fund. After observing the above table it can be interpreted that there is variation in standard deviation values so the returns.

The Sharpe ratio explains how much excess return you are receiving for the extra volatility that you endure for holding a riskier asset. For calculation of sharpe ratio 3 years, 5 years and 8 years bond yield is considered which is 7.594%, 7.771% and 7.823% respectively. In 3 years sharpe ratio 2 schemes are with negative ratio i.e. JM equity hybrid fund and Tata Hybrid Equity Fund – Regular Plan so the returns are also low for 3 years average.

TESTING OF HYPOTHESIS

H1:- Comparative performances based on 3 years, 5 years and 8 years returns of Liquid Debt funds are different from Aggressive Hybrid Fund schemes.

H2:- Risk adjusted returns of Liquid Debt funds are not matching with Aggressive Hybrid Fund schemes.

3 years average returns

Treatment 1

N_1: 12

$df_1 = N - 1 = 12 - 1 = 11$

M_1: 6.48

SS_1: 9.81

$s^2_1 = SS_1/(N-1) = 9.81/(12-1) = 0.89$

Treatment 2

N_2: 12

$df_2 = N - 1 = 12 - 1 = 11$

M_2: 9.08

SS_2: 51

$s^2_2 = SS_2/(N-1) = 51/(12-1) = 4.64$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((11/22) * 0.89) + ((11/22) * 4.64) = 2.76$

$s^2_{M1} = s^2_p/N_1 = 2.76/12 = 0.23$

$s^2_{M2} = s^2_p/N_2 = 2.76/12 = 0.23$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = -2.6/\sqrt{0.46} = -3.82$

5 years average returns

Treatment 1

N_1: 12

$df_1 = N - 1 = 12 - 1 = 11$

M_1: 7.31

SS_1: 5.31

$s^2_1 = SS_1/(N-1) = 5.31/(12-1) = 0.48$

Treatment 2

N_2: 12

$df_2 = N - 1 = 12 - 1 = 11$

M_2: 14.22

SS_2: 55.87

$s^2_2 = SS_2/(N-1) = 55.87/(12-1) = 5.08$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((11/22) * 0.48) + ((11/22) * 5.08) = 2.78$

$s^2_{M1} = s^2_p/N_1 = 2.78/12 = 0.23$

$s^2_{M2} = s^2_p/N_2 = 2.78/12 = 0.23$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = -6.9/\sqrt{0.46} = -10.14$

8 years average returns

Treatment 1

N_1: 12

$df_1 = N - 1 = 12 - 1 = 11$

M_1: 7.8

SS_1: 7.12

$s^2_1 = SS_1/(N-1) = 7.12/(12-1) = 0.65$

Treatment 2

N_2: 12

$df_2 = N - 1 = 12 - 1 = 11$

M_2: 11.24

SS_2: 41.16

$s^2_2 = SS_2/(N-1) = 41.16/(12-1) = 3.74$

T-value Calculation

$s^2_p = ((df_1/(df_1 + df_2)) * s^2_1) + ((df_2/(df_2 + df_2)) * s^2_2) = ((11/22) * 0.65) + ((11/22) * 3.74) = 2.19$

$s^2_{M1} = s^2_p/N_1 = 2.19/12 = 0.18$

$s^2_{M2} = s^2_p/N_2 = 2.19/12 = 0.18$

$t = (M_1 - M_2)/\sqrt{(s^2_{M1} + s^2_{M2})} = -3.44/\sqrt{0.37} = -5.68$

To test the hypothesis t-test is used. From the above tables it can be observed that the result is significant. With this observation we can reject the null hypothesis and accept the alternate hypothesis.

CONCLUSION

From the above analysis, it can be noted that liquid debt mutual funds have not performed compared with the performance of aggressive hybrid mutual fund schemes. The average returns 3 years, 5 years and 8 years of the liquid debt mutual fund schemes are less than the average returns of 3 years, 5 years and 8 years aggressive hybrid mutual fund schemes. Debt funds can address a variety of investment objectives and have solutions in any interest rate scenario. It can't be ignored that market scenario is changing in a rapid way, so the investment avenues are also changing. The regular investor needs to look at the changing scenario with better investment options.

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