Comparing Performance of Equity, Balanced and Debt Mutual Funds – Empirical evidences from India

Gaurav Shreekant, R. S. Rai, T. V. Raman, Gurendra Nath Bhardwaj

Abstract ***In India, one of the broad categorizations of mutual funds is as - equity, balanced, and debt funds, each catering to specific expected return and risk-appetite of investors. Further, it is generally believed that among the aforesaid three categories of funds, Equity funds provide highest returns, followed by balanced funds and debt funds in the given order. However, the risk involved in equity funds is also the higher as compared balanced and debt funds. This paper attempts to empirically compare the returns and risk involved in the aforesaid three broad categories of mutual funds operating in the India over three, five, and ten years time periods. For this, we select three independent samples (of size 60) in each category, namely, equity, balanced, and debt fund. Selection of funds in each category is as per researcher defined criteria. The data on selected schemes is collected from the databases of 'Value Research India Private Limited', and AMFI. Measures like annualized returns, standard deviation of returns, Sharpe ratio, and expense ratio are employed to compare the three categories. Hypotheses tests are performed employing single factor ANOVA and Tukey's HSD test. Based on the evidence gathered, it is observed that over all the three chosen time durations, equity funds have on an average provided superior returns than balanced and debt funds, however, equity funds were also observed to be much more risky than the balanced and debt funds. Therefore for investors ready to take risks in lieu of higher returns, equity funds should be chosen. On the other hand investors who want to play safe with their investments, either balanced or debt funds should be their investment avenues.***

Key Words: Mutual funds performance, equity funds, balanced funds, debt funds, Returns, Sharpe ratio, Standard deviation of returns, expense ratio. JEL Classification: G 11

I. INTRODUCTION

Since 1991, with gradual economic reforms, Indian economy has been witnessing continual income, wealth and asset growth. Resultantly, securities market - a barometer of real economic activity, also grew and matured in terms of processes, participants, products, regulations, and technology. Different investment products are available today in securities market. These include shares, futures and options, debentures, bonds, mutual funds, portfolio management etc. Among these, mutual funds are fast gaining popularity among investors and market analysts in India. Mutual funds as avenue of investment channelize investors' money into stock market. These funds are managed a team of professional experts. The portfolio of a fund is structured as per its pre-stated objectives and is managed with a goal to deliver returns not only superior to benchmark indices, but also to peers. Superior fund performances result in increase in fund's popularity ultimately its corpus. In the current paper, we attempt to analyze and compare the investment performances of *equity, balanced, and debt* mutual funds, i.e. to find which out of these categories of mutual funds, yielded better returns to their investors in Indian mutual funds space.

Revised Manuscript Received on July 05, 2019.

Gaurav Shreekant, Assistant Professor, Amity University Uttar Pradesh, Noida, India

R.S. Rai, Professor – Decision Sciences, Amity Business School Director – Research, Planning & Statistical Services Amity University Uttar Pradesh, Noida, India

T.V. Raman, Professor, Amity University Uttar Pradesh, Noida, India

Gurendra Nath Bhardwaj, Professor, NIIT University, Neemrana, Rajasthan, India.

II. REVIEW OF LITERATURE

Friend *et al.* (1962) in one of the pioneering works on mutual funds performance evaluation observed that on an average returns delivered by mutual funds were similar to those delivered by benchmark market indices. Friend and Vickers (1965) also observed that mutual funds did not yield better returns than random portfolios. Sharpe (1966) comparing performance of select mutual funds with Dow-Jones Industrial average over period 1954 -63 employing a self-developed 'reward to variability' measure (Sharpe ratio) concluded that on average mutual funds did not perform better than the benchmark indices. Jensen (1968) in his study of 115 mutual funds observed that 76 funds yielded negative risk-adjusted returns after considering operations costs. Carlson (1970) in his work on evaluating the performance of select mutual funds over period 1948-68 concluded that funds returns depend on time period, fund type and the benchmark chosen. James RF Guy (1978) in his study on the performance of British investment trust industry found that none of the trusts (funds) were able to deliver performance superior to London Stock Exchange. Grinblatt and Titman (1989) observed that some mutual funds were able to realize abnormally positive returns through stock selection. Yadav and Biswadeep (1996) analyzing the performance of select 14 mutual fund schemes in India observed all of them to have delivered superior non-risk adjusted returns compared to benchmark. Jayadev (1998) evaluating the performance of 44 mutual fund schemes over the period 1987-1995 observed 30 of them to have delivered performance better than benchmark index in terms of total risk. Kulbhushan and

Verma (2005) analyzing performance of five different sector specific mutual funds operating in India observed the selected schemes to have generated superior returns than the BSE Index. Sondhi and Jain (2005) comparing performance of private and public sector equity mutual funds in India found private funds to have delivered better returns than public sector funds. Chakraborty et. al. (2008) in their study on the performance evaluation of 40 Indian equity mutual funds schemes over period 2005 to 2007 observed 70% of them to have posted better returns as compared to the benchmark (BSE 100) index. Rai et. al. (2014) comparing returns of 'large-cap' and 'mid & small-cap' equity mutual funds in India over period 2009-14 found 'mid and small-cap' mutual funds to have delivered comparatively superior returns than their 'large-cap' counterparts.

III. OBJECTIVES OF THE RESEARCH

From investors' perspective, one of the prominent reasons for investment into mutual funds is to build wealth over a period of time. Keeping this behavior of investors in mind, the present work attempts to compare three broad categories of mutual funds viz. *equity, balanced, and debt* funds in India over three, five, and ten years time horizons. Accordingly, following are the objectives of this research work:

1. To compare returns between select *equity, balanced, and debt* mutual fund schemes in India over three, five, and ten years time horizons.
2. To compare 'risk adjusted returns', as measured by 'Sharpe Ratio' of the select *equity, balanced, and debt* mutual fund schemes in India.
3. To compare the 'risk', as measured by 'Standard deviation of returns' of select *equity, balanced, and debt* mutual fund schemes in India.
4. To compare the '*expense ratios'* of select *equity, balanced, and debt* mutual fund schemes in India.

IV. RESEARCH HYPOTHESES

In line with the stated objectives, following hypotheses are postulated:

Ho 1: There is no significant difference in annualized returns between equity, balanced, and debt mutual fund schemes operating in India over three-year time period.

Ho 2: There is no significant difference in annualized returns between equity, balanced, and debt mutual fund schemes operating in India over five-year time period.

Ho 3: There is no significant difference in annualized returns between equity, balanced, and debt mutual fund schemes operating in India over ten-year time period.

Ho 4: There is no significant difference in 'risk-adjusted returns', as measured by 'Sharpe ratio' between equity, balanced, and debt mutual fund schemes operating in India.

Ho 5: There is no significant difference in the 'risk', as measured by 'Standard deviation of returns', between equity, balanced, and debt mutual fund schemes operating in India.

Ho 6: There is no significant difference in 'expense ratios' between equity, balanced, and debt mutual fund schemes operating in India.

V. RESEARCH METHODOLOGY

For achieving stated objectives, data on annualized returns (in percent) over three, five, and ten years time horizons, standard deviation of returns, Sharpe ratios, and expense ratios of 60 mutual fund schemes in each - equity, balanced, and debt categories is sourced from Value research online, Association of Mutual Funds of India (AMFI). In order to even out between three categories under comparison, the sample size in each category is 60 funds. Further, only those open-ended funds which were in operations during the complete period of this study, i.e. March 2008 – March 2018 have been considered. T-bill (91-days) rates, proxy for risk free rate are sourced from RBI. The data pertains to period March 12, 2008 - March 11, 2018. Therefore, *three, five, and ten* years time horizons imply, going back *three, five, and ten* years respectively from the terminal date Mar 11, 2018 (researcher's randomly chosen date). For comparing the three different fund categories (equity, balanced, and debt), following measures are employed fund wise: annualized returns (percent) – over three/five / and ten years time periods, standard deviation of returns, Sharpe ratio, and expense ratios of funds. Hypotheses tests are performed employing 'Single factor ANOVA' and Tukey's HSD test. Fund returns are calculated as 'Compounded annual growth rates (CAGR)' of fund's NAV. Fund's Returns = $(NAV_t - NAV_{t-1}) / NAV_{t-1}$

Standard deviation (S.D.) of fund's returns has been calculated on the basis of last three years monthly returns. The Standard Deviation of fund returns depicts that on an average how much the monthly returns of the fund have deviated from the mean of such returns. The S.D of monthly returns is further annualized. Higher the standard deviation, greater is the volatility in fund's returns. Hence, more is the risk. S.D of fund's returns has been calculated as:

Standard deviation of Portfolio (fund's) Returns = $\{(1/n) \Sigma (R_{pt} - R_p)^2\}^{1/2}$

Where, 'n' is the number of periods

R_{pt} stands for fund's returns over various periods

R_p stands for average fund's returns

Sharpe ratio shows returns generated over the risk free rate (R_f), per unit of risk. Risk, here implies standard deviation of fund's returns. Standard deviation (of returns) is a measure of volatility in the fund's returns. A higher Sharpe ratio implies higher return per unit of risk. The formula for the same is as follows:

Sharpe Ratio = $(R_p – R_f) / \sigma_p$

Where, R_p = Fund's average returns

R_f = Risk-free return (91-days t-bill rate in India)

σ_p = Standard deviation of fund's (portfolio's) returns, i.e. the total risk in fund's returns.

The data on three, five and ten year returns, standard deviation of returns, and Sharpe ratios, and expense ratios of the sampled funds belong to all the three categories - equity, balanced, and debt, and are shown in Annexure I, II and III respectively.

VI. RESULTS OF THE TESTING OF THE HYPOTHESES

1. Comparing overall annualized returns

As the first objective of this paper is to compare returns between select *equity, balanced, and debt* mutual fund schemes in India over three, five, and ten years time horizons, the findings of the first three hypotheses - Ho 1,

Ho 2, and Ho 3 comparing returns are discussed as follows:

Ho 1: There is no significant difference in annualized returns between equity, balanced, and debt mutual fund schemes operating in India over three-year time period (March 2015-March 2018).

Table 1a: Results of single factor ANOVA on 'three-year annualized returns' of funds

SUMMARY						
Groups	Count	Sum	Average	Variance		
Equity funds	60	577.63	9.63	9.03		
Balanced funds	60	468.85	7.81	2.43		
Debt funds	60	458.44	7.64	0.27		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	145.27	2	72.63	18.58187	4.73E-08	3.05
Within Groups	691.85	177	3.91			
Total	837.12	179				

Source: Value Research website

In Table 1a since the p-value of 4.73E-08 is less than alpha (0.05), we reject our Null hypothesis (Ho1) and conclude that based on sample data collected, we have evidence that on an average the three-year annualized returns (percent) of equity, balanced, and debt mutual fund schemes are not equal. And that at least one of the means is different. We then apply Tukey's post Hoc analysis (results shown in table 1b) to determine as to which of the pairs of means are significantly different from each other.

Table 1b: Results of Post Hoc Tukey's HSD Test on three-year annualized returns of funds

Number of Treatments (categories) = 3		Degrees of freedom for the error term = 177	
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3429			
Treatment pair	**Tukey's HSD (Q statistic)**	**Comparing Q(statistic) and Q (critical)**	**Inference**
Equity funds vs. Balanced funds	7.10	Q(statistic) greater than Q (critical)	Significant difference
Equity funds vs. Debt funds	7.78	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	0.68	Q(statistic) less than Q (critical)	Insignificant difference

Test results obtained at:
http://astatsa.com/OneWay_Anova_with_TukeyHSD

The results depicted in Table 1b indicate that equity funds with mean annualized returns of 9.63 percent have yielded significantly superior returns compared to balanced funds (7.81 percent) and debt funds (7.64 percent) over three years time period (2015-18). However, during this period, the average returns of balanced and debt funds were not significantly different.

Ho 2: There is no significant difference in annualized returns between equity, balanced, and debt mutual fund schemes operating in India over five-year time period.

Table 2a: Results of single factor ANOVA on 'five-year annualized returns' of funds						
SUMMARY						
Groups	Count	Sum	Average	Variance		
Equity funds	60	1148	19.13	17.85		
Balanced funds	60	692.56	11.54	10.14		
Debt funds	60	498.14	8.30	0.18		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	3708.57	2	1854.29	197.48	8.28E-46	3.05
Within Groups	1661.94	177	9.39			
Total	5370.52	179				

Source: Value Research website

In Table 2a, since the p-value of 8.28E-46 is less than alpha (0.05), we reject our Null hypothesis (Ho2) and conclude that based on sample data collected, we have evidence that on an average the five-year annualized returns (percent) of equity, balanced, and debt mutual fund schemes are not equal. And that at least one of the means is different. We then apply Tukey's post Hoc analysis (results shown in table 2b) to determine as to which of the pairs of means are significantly different from each other.

Table 2b: Results of Post Hoc Tukey's HSD Test on five-year annualized returns of funds			
Number of Treatments (categories) = 3		Degrees of freedom for the error term = 177	
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3429			
Treatment pair	**Tukey's HSD (Q statistic)**	**Comparing Q(statistic) and Q (critical)**	**Inference**
Equity funds vs. Balanced funds	19.19	Q(statistic) greater than Q (critical)	Significant difference
Equity funds vs. Debt funds	27.38	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	8.19	Q(statistic) greater than Q (critical)	Significant difference

Test results obtained at
: http://astatsa.com/OneWay_Anova_with_TukeyHSD
The results shown in Table 2b indicate that the five-year annualized returns of each of the fund categories pairs (treatment pairs) significant differed. And that during the five years period (2013-18) the average annualized returns of equity funds at 19.13 percent was significantly superior return to both, the balanced funds (11.54 percent) and the debt funds (8.30 percent).

Ho 3: There is no significant difference between the average annualized returns (%) of equity, balanced, and debt mutual fund schemes in India over ten-year period (Mar 2008 - Mar 2018).

Table 3a: Results of single factor ANOVA on 'Ten-year annualized returns' of funds

SUMMARY						
Groups	Count	Sum	Average	Variance		
Equity funds	60	797.12	13.29	5.77		
Balanced funds	60	589.42	9.82	4.37		
Debt funds	60	481.5	8.03	0.19		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	857.79	2	428.89	124.55	1.71E-34	3.05
Within Groups	609.50	177	3.44			
Total	1467.29	179				

Source: Value Research website

In Table 3a, since the p-value of 1.71E-34 is much less than alpha (0.05), we reject our Null hypothesis (Ho2) and conclude that based on sample data collected, we have evidence that on an average the ten-year annualized returns (percent) of equity, balanced, and debt mutual fund schemes are not equal. And that at least one of the means is different. We then apply Tukey's post Hoc analysis (shown in Table 3b) to determine as to which of the pairs of means are significantly different from each other.

Table 3b: Results of Post Hoc Tukey's HSD Test on Ten-year annualized returns of funds

Number of Treatments (categories) = 3		Degrees of freedom for the error term = 177	
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3429			
Treatment pair	**Tukey's HSD (Q statistic)**	**Comparing Q(statistic) and Q (critical)**	**Inference**
Equity funds vs. Balanced funds	14.45	Q(statistic) greater than Q (critical)	Significant difference
Equity funds vs. Debt funds	21.96	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	7.51	Q(statistic) greater than Q (critical)	Significant difference

Test results obtained at:
http://astatsa.com/OneWay_Anova_with_TukeyHSD

The results shown in Table 3b indicate that the ten-year annualized returns in each of the fund categories pairs (treatment pairs) significant differed. And that during the ten years period (2008-18), equity funds with mean annualized returns at 13.29 percent, yielded significantly superior returns than both the balanced funds (9.82 percent) and the debt funds (8.03 percent).

2. Comparing funds categories on 'Sharpe ratios'

Ho 4: There is no significant difference in 'risk-adjusted returns', as measured by 'Sharpe ratio' between equity, balanced, and debt mutual fund schemes operating in India.

Table 4a shows results of single factor ANOVA on funds Sharpe ratios.

Table 4a: Results of Single factor ANOVA on 'Sharpe ratios' of funds

SUMMARY

Groups	Count	Sum	Average	Variance		
Equity funds	60	35	0.58	0.03		
Balanced funds	60	98.29	1.64	4.36		
Debt funds	60	541.43	9.02	35.49		
ANOVA						
Source of Variation	SS	Df	MS	F	P-value	F crit
Between Groups	2538.06	2	1269.03	95.44843	7.57E-29	3.05
Within Groups	2353.29	177	13.30			
Total	4891.35	179				

Source: Value Research website

In Table 4a, since p value of 7.57E-29 is much less than alpha (0.05), we reject our Null hypothesis (Ho4) and conclude that based on sample data collected, we have evidence that on an average the Sharpe measures of equity, balanced, and debt mutual fund schemes are not equal. And that the Sharpe measure of at least one of the three categories of mutual funds is significantly different from that of the other(s). We then apply Tukey's post Hoc analysis (results shown in Table 4b) to determine as to which of the pairs of Sharpe ratios are significantly different from each other.

Table 4b: Post Hoc Tukey's HSD Test results on Sharpe Ratios of funds

Number of Treatments (categories) = 3	Degrees of freedom for the error term = 177		
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3429			
Treatment pair	**Tukey's HSD (Q statistic)**	**Comparing Q(statistic) and Q (critical)**	**Inference**
Equity funds vs. Balanced funds	2.24	Q(statistic) less than Q (critical)	insignificant difference
Equity funds vs. Debt funds	17.93	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	15.69	Q(statistic) greater than Q (critical)	Significant difference

Test results obtained at:
http://astatsa.com/OneWay_Anova_with_TukeyHSD
The results depicted in Table 4b indicate that there are significant differences in the Sharpe measures of: (a) equity funds and debt funds; and (b) Balanced funds and debt funds. And that the Sharpe measure (Risk adjusted returns) of debt funds with an average of 9.02 of the sample, was far superior to that of both equity funds (0.58) and balanced funds (1.64). However, it is also observed that there is no significant difference in Sharpe ratios of equity funds and balanced funds.

3. Comparing level of risk

The overall risk in a portfolio is measured by standard deviation of its returns. Higher the standard deviation of a portfolio, more risky it is. The fifth hypothesis of this research compares the level of risk between equity, balanced, and debt mutual funds, and is stated as follows:

Ho 5: There is no significant difference in the 'risk', as measured by 'Standard deviation of returns', between equity, balanced, and debt mutual fund schemes operating in India.

ANOVA results on S.D of returns of equity, balanced and debt funds are shown in table 5a.

Table 5a: Results of Single factor ANOVA on 'Standard deviation' of returns of funds

SUMMARY

Groups	Count	Sum	Average	Variance		
Equity funds	60	872.45	14.54	2.79		
Balanced funds	60	362.57	6.04	12.06		
Debt funds	60	57.44	0.96	1.01		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	5651.79	2	2825.9	534.14	1.03E-75	3.04
Within Groups	936.41	177	5.29			
Total	6588.20	179				

Source: Value Research website

In Table 5a, we see that p-value of 1.03E-75 is much less than alpha (0.05), we reject our Null hypothesis (Ho5) and conclude that based on sample data collected, we have evidence that on an average the S.D of returns of equity, balanced, and debt mutual fund schemes are not equal. And that the S.D of returns of at least one of the selected categories is significantly different from that of the other(s). For knowing this, we apply Tukey's post Hoc analysis (results shown in table 5b) to determine as to which of the pairs of S.D (of returns) are significantly different from each other.

Table 5b: Post Hoc Tukey's HSD Test results on Standard deviation of returns of funds

Number of Treatments (categories) = 3		Degrees of freedom for the error term = 177	
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3429			
Treatment pair	**Tukey's HSD (Q statistic)**	**Comparing Q(statistic) and Q (critical)**	**Inference**

Equity funds vs. Balanced funds	28.62	Q(statistic) greater than Q (critical)	Significant difference
Equity funds vs. Debt funds	45.74	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	17.13	Q(statistic) greater than Q (critical)	Significant difference

Test results obtained at:
http://astatsa.com/OneWay_Anova_with_TukeyHSD
In Table 5b the results indicate that the Standard deviation of returns of each of the pairs of fund categories (treatment pairs) significant differed. And that the equity funds with average annualized S.D of returns at 14.54 percent were the most risky among the three categories of funds, followed by balanced funds 6.04 percent, and debt funds 0.96 percent.

4. Comparing expense ratios: A fund's expense ratio is that percentage of its total assets which is incurred annually as an expenditure on its operations. It includes funds management **5.** fee, registrar fees, agent commissions, marketing and distribution expenses etc. In India, Securities Exchange Board of India (SEBI) has stipulated a maximum limit on expense ratio for different categories of funds (2.5 per cent for equity funds, and 2.25 per cent for debt funds). For the sampled data, we compare expense ratios of equity, balanced and debt funds. Our hypothesis is:

Ho 6: There is no significant difference in 'expense ratios' between equity, balanced, and debt mutual fund schemes operating in India.

Table 6a: Results of Single factor ANOVA on the 'expense ratios' of the funds

SUMMARY						
Groups	Count	Sum	Average	Variance		
Equity funds	60	130.6	2.18	0.09		
Balanced funds	60	114.6	1.91	0.37		
Debt funds	58	42.8	0.74	0.31		
ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Between Groups	68.72	2	34.361	131.60	1.31E-35	3.048
Within Groups	45.69	175	0.2611			
Total	114.41	177				

Source: Value Research website

Since p value of 1.31E-35 is less than alpha (0.05), we reject our Null hypothesis (Ho 6) and conclude that based on sample data collected, we have evidence that on an average the expense ratios of equity, balanced, and debt mutual fund schemes are not equal. And that the expense ratios of at least one of the three categories of mutual funds is significantly different from that of the other(s). We apply Tukey's post Hoc analysis to determine as to in which of the pairs of expense ratios there is a significant difference between the two categories. Results of the same are shown in Table 6 b.

Table 6 b: Post Hoc Tukey's HSD Test results on expense ratios of funds

Number of Treatments (categories) = 3	Degrees of freedom for the error term = 175
Critical value of studentised Range Q statistic at alpha = 0.05, i.e. Q (critical) = 3.3432	

Treatment pair	Tukey's HSD (Q statistic)	Comparing Q(statistic) and Q (critical)	Inference
Equity funds vs. Balanced funds	4.05	Q(statistic) greater than Q (critical)	Significant difference
Equity funds vs. Debt funds	21.62	Q(statistic) greater than Q (critical)	Significant difference
Balanced funds vs. Debt funds	17.60	Q(statistic) greater than Q (critical)	Significant difference

Test results obtained at:
http://astatsa.com/OneWay_Anova_with_TukeyHSD
The results shown in Table 6b indicate that during the period under review, there were significant differences in the expense ratios of equity, balanced, and debt funds. Equity funds had the highest expense ratio at an average of 2.18 percent, followed by the balanced funds (1.91 percent), and debt funds (0.74 percent). However, with their superior returns compared to balanced and debt funds, over all the three chosen time horizons (three, five and ten years), equity funds were able to justify their higher expense ratios and attract investor interest.

VII. FINDINGS AND DISCUSSION

In this work we have attempted to test the popular market belief that Equity funds provide superior returns compared debt and balanced funds. However, equity funds are believed to be more risky than the debt and balanced funds. Accordingly, we postulate and test these hypotheses on the data obtained on select equity, balanced and debt mutual funds in India over 10 years time period. For the study, 60 mutual funds schemes in each category are selected as per the laid criteria. It is found that on an average across all the three chosen time periods, viz. three, five and ten years, equity funds provided the best returns (9.6 – 19.1 percent per annum) to their investors, followed by balanced funds (7.8 – 11.5 percent per annum). The returns from the Debt funds were the least among the three categories across all the three chosen time frames (in the range of 7.6 – 8.8 percent per annum). However, the returns provided by the equity funds were the most volatile across the three chosen categories of mutual

funds, with an annualized standard deviation of returns equal to 14.5 percent, followed by balanced funds (annualized S.D. of returns equal to 6.04 percent). Debt funds were the least volatile in returns to their investors (annualized S.D. of returns being equal to 0.96 percent). Because of this difference in S.D of returns between the three different categories of mutual funds tested here, the risk-adjusted returns as measured by Sharpe Ratio of the equity funds was least at 0.5, followed by 1.6 for balanced funds, and 9.0 for debt funds. Therefore, selection of mutual fund by investors should be based on their risk appetite, i.e. equity mutual funds as an investment avenue should be chosen by risk taking investors, whereas, balanced and debt funds be opted by risk-averse investors.

VIII. CONCLUSION

Based on the evidence collected and analyzed it is concluded that over the three chosen time durations i.e. three, five, and ten years, equity funds have yielded superior returns than balanced and debt funds, however, equity funds were also observed to be much more risky (in terms of volatility of returns) as compared to balanced and debt funds. Therefore, for investors looking for higher returns and at the same time ready to take risks investments in equity funds is recommended. While, for investors who want to play safe with their investments, either of the balanced or debt funds should be opted as their investment vehicles.

REFERENCES

1. Carlson, R. S. (1970). Aggregate performance of mutual funds, 1948-1967. *Journal of Financial and Quantitative Analysis*, 1-32.
2. Chakraborty, M., Jain, P. K., & Kallianpur, V. (2008). Mutual Fund Performance: An Evaluation of Select Growth Funds in India. *South Asian Journal of Management*, *15*(4).
3. Friend, I., Brown, F. E., Herman, E. S., & Vickers, D. (1962). A study of Mutual Funds. *US Government Printing Office, Washington, DC*.
4. Friend, Irwin and Vickers, Douglas, (1965) "Portfolio Selection and Investment Performance, The Journal of

Finance, Vol. XX, No.3, Sept., pp.391-415.
5. Grinblatt Market & Titman Sheridin, (1989), "Mutual Fund Performance: An Analysis of Quarterly Portfolio Holdings", *Journal of Business*, Vol.62, No.3, pp.3.
6. James RE, Guy,(1978) " The Performance of the British Investment Trust Industry, Journal of Finance, Vol.XXX, No.2, may pp. 443-55.
7. Jayadev, M. (1998). Performance evaluation of portfolio managers: An empirical evidence on Indian mutual funds. *The IUP Journal of Applied Finance*, *5*(2), 41-67.
8. Jensen, M. C. (1968). The performance of mutual funds in the period 1945–1964. *The Journal of finance*.
9. Kulbhushan, C., & Verma, O. P. (2005). Managing Mutual Fund Investments in the Era of Change. *The ICFAI Journal Of Applied Finance*, *11*(9), 56-67.
10. Rai, R.S., Raman, T.V. and Shreekant, G. (2014), Comparing Returns Between 'Large' and 'Mid & Small' Cap Equity Mutual Funds in India, Indian Journal of Applied Research, Volume : 4 | Issue : 12 | Dec 2014
11. Sharpe, W. F. (1966). Mutual fund performance. *Journal of business*, 119-138.
12. Sondhi, H J and Jain, P K (2005) "Financial Management of Private and Public Equity Mutual Funds in India: An Analysis of Profitability", The ICFAI Journal of Applied Finance, July, pp. 15-16
13. Yadav, R. A., & Mishra, B. (1996). Performance evaluation of mutual funds: An empirical analysis. *MDI Management Journal*, *9*(2), 117-125.

AUTHORS PROFILE

Gaurav Shreekant, is Assistant Professor, Amity University Uttar Pradesh, Noida, is an MBA, M.A (Economics), UGC (NET)-Economics, PGDBM, B.Com. has a Teaching and industry experience of more than 20 years and has published a number of research papers in reputed national and International journals. He has also presented his research work at various international conferences. His area of research interest includes macroeconomics and investment finance.

Dr. R.S. Rai, Professor – Decision Sciences, Amity Business School, Director – Research, Planning & Statistical Services, Amity University Uttar Pradesh, Noida, India. He is Ph.D [Statistics], from Mohan Lal Sukhadia University, Udaipur. He has over twenty years of teaching and research experience. He has published and presented his research work at national and international level, and has also guided a number of Ph.D scholars.

.

Dr. T.V. Raman, is a Professor at Amity Business School, Amity University Uttar Pradesh, Noida, India. He is Ph. D-Managerial Decision Making, M.Com-(Tax & Accounting), M.A (Economics). He has over 20 years of work experience. His research interests are Financial Decision Making, Corporate Taxation, Cost & Management Accounting, Mergers and Acquisition, Investors Behavior Analysis. He has over 50 publications to his credit. He is a certified Goods and Services Trainer by NACEN, Ministry of Finance, GOI

Dr. Gurendra Nath Bhardwaj is Professor & Dy. Registrar (Academic Operations) at NIIT University, Neemrana, Rajasthan, India. He is a B.Com, M.Com, and Ph. D (Applied Economics) from University of Lucknow. Prior to joining NIIT University he served as a faculty at IILM Graduate School of Management, Greater Noida, Amity Business School, Noida, Institute of Productivity and Management, Meerut and Lucknow University. He has presented and published more than 60 research papers in the conference and journals of national and international repute. He has also contributed chapters in the books published by leading publisher like Excel, McMilan and Oxford Publication. He has received best volunteer award in Adult Education Progarmme, at Lucknow University sponsored by UGC, and also coordinated various literacy training progarmmes for trainers