RELATIONSHIP BETWEEN FUND SIZE AND THE PERFORMANCE OF LIQUID MUTUAL FUND

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ABSTRACT

There are some other factors that may affect the performance of Liquid Mutual Fund Mutual Funds such as investment style of fund managers, fund size and nature of ownership of Asset Management Companies etc. It has been the dilemma of investors and fund managers whether size affects performance of mutual funds. The study focuses on empirically researching what is the effect of fund size on performance of open end Liquid Mutual Fund/growth mutual funds in the Indian context.

Twenty five Liquid Mutual Fund schemes having at least three years track record were only considered for the study. Correlation coefficients between fund size and the four parameters of performance (Return, Risk, Return/Risk, Sharpe, treynore and Jensen alpha Ratio) and ANOVA was applied.

Result suggested that there is conclusive evidence that there is a significant relationship between the fund size and the performance of Liquid Mutual Funds. And there is significance difference between micro, small, medium and large fund size and liquid mutual fund return.

KEYWORDS: Fund Size, Liquid Mutual Funds, Return, Risk, Risk per Return, and Sharpe ratio.

INTRODUCTION

A mutual fund is an investment tool, which brings together the money of investors with common investment objectives. Therefore, it then invests their money in multiple assets, in accordance with the stated objective of the scheme.

Liquid funds are only debt mutual funds that invest money in very short-term market instruments, such as treasury bills, government bonds and call money that is with the low risk. These funds can invest in instruments up to a 91-day maturity. Maturity is mostly much lower than that.

They are the least risky and the least volatile in the category of mutual funds for the following reason: one, mutual funds mainly invest in instruments with a high credit rating. Two, unlike other funds, the net asset value of liquid fund is not volatile, since the only change in their net asset value is mainly due to accruing interest income. In other words, given short-term maturities, these instruments are hardly traded in the market. They remain until maturity. Therefore, your NAV only recognizes a change in the amount of accrued interest income, every day, including weekends.

Past performance does not guarantee future returns and investment objectives often influence investor investment decisions. There are other factors that can influence the performance of liquid mutual funds, such as the investment style of the fund managers, the size of the funds and the nature of the ownership of the asset management companies, etc. of mutual funds. If the size of the fund is sufficiently large, the Fund Manager will have liquidity, flexibility over time in its investment decisions and stock selection. Furthermore, it offers an additional advantage of reducing transaction costs due to mass transactions. The study focuses on the empirical research on the effect of fund size on the performance of liquid mutual funds in the Indian context.

OBJECTIVE OF THE STUDY

(a) To know the relationship between fund size and the performance of liquid mutual funds.

(b) To ascertain the degree or power of relationship between fund size and performance.

(c) To know the difference between micro, small, medium and large fund size and liquid mutual fund return.

Problem Statement

So far, mutual funds have been constantly used by progressive countries, it is a fairly recent area in growing countries like India. For this reason, so far it has not been studied in India and only limited studies have involved liquid mutual funds as a study area with a brief discussion on the effect of fund size on the performance of liquid mutual funds. The focus of the study will be based on finding the answer:

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- What is the relationship between fund size and the performance of liquid mutual fund?
- How the different fund will affect the performance of liquid mutual fund?

SIGNIFICANCE OF THE STUDY

In India, few studies have been studied in terms of the relationship between fund size and the performance of liquid mutual funds and many of them discussed the performance of liquid mutual funds using a number of factors where the size of the fund was one of them and this is the reason for the portfolio, investors do not know the positive and negative results of the size of the funds. Therefore, it is an opportunity to present a slightly more detailed review of the size of the funds in order to provide guidance and assistance to investors and portfolio managers.

LITERATURE REVIEW

Edwin J. Elton, Martin J. Gruber and T. Clifton Green (2004) shows that the volume/size and causes of bigger fund income and correlations in their reserve/fund clans by consuming all funds clans obtainable in January 1998 and also used Investment Company Data Inc. (ICDI) to classify funds/ reserves into 11 categories. By using Regression, correlation and Sharpe ratio, their analysis shows that investors who assured their investments to one fund clan hold chancier portfolios as compare to those who diversify across clans because mutual reserve/fund returns are more strongly correlated within fund clans and fund clans show a tendency to emphasis on great risk or small risk approaches, which clues to a better spreading of risk across limited investors.

Roger M. Edelen, Gregory B. Kadlec and Richard Evans, (2007) flexibly conversed the hypothesis that the scale of diseconomies associated to exchange or trading costs hinder fund performance. They influenced by the discussion of Berk and Green (2004), which announces that the investment arrival of great performing mutual reserves removes yield persistence since fund supervisors face diminishing yields to scale. Roger M. Edelen, Gregory B. Kadlec and Richard Evans, (2007) study based on the model of 1706 U.S. growth funds for the duration 1995-2005 and yearly exchange or trading cost of every fund have been computed and this study backing the Brek and Green (2004) study and displays the exchange or the trading cost harmfully influence fund performance.

Rao, D.N and Rao, S.B (2009) discussed the difficulty faced by the stockholders of equity mutual reserves, which is either to decide that there is any connection among fund size and performance of mutual reserve and there is minor research about this issue in India, that is why the study empirically studies the connection between fund size and mutual fund performance of equity mutual reserves. Correlation coefficient and covariance of fund size and the four dimensions of performance based on Return, Risk, Risk/Return and sharpe ratio was computed for testing the connection which shows all the four measurements of performance in negative terms and marks it vibrant that the correlation coefficient of fund volume/ size and performance factors are not significant and covariance shows that other three measurements of performance (Return, Risk/Return and sharpe ratio) travels side by side in the similar track, it show that the fund supervisor of average and huge size equity reserves are incapable to beat the stock market and also did not get the benefit of moderately great amount of funds at their clearance.

Mian Sajid Nazir and Muhammad Musarat Nawaz (2010) conversed the chief part of Mutual Reserve/Fund business in the emerging countries like Pakistan by suitably consuming the sluggish resource and they support their research through collecting the statistics of 13 clan equity/growth mutual reserves/funds from 2005-2009 and also utilized fixed/ permanent effect and random/ arbitrary effect models for the approximation which shows clan proportion, expenditure ratio and asset turnover are confidently and positively heading to the evolution of mutual reserves/funds, in relative with risk adjusted revenues/returns and management charge are negatively related with mutual reserves/funds growth.

Rida Ali and Rana Abdul Qudous (2012) investigated to answer the questions which inform about the charges of return in relative to the mutual reserves/funds and the capability of reserve/fund managers in reducing the risks involved. For this reason, they took 15 mutual reserves/funds from 2005-2009 and used Treynor and Sharpe technique. The Conclusion was statistically inspected by taking the standard deviation means which shows the performance of mutual reserves/funds is below as expected in Pakistan and the reason is that in Pakistan there is not a sole company that knocks the market, which increases interrogation about the influence of the portfolio supervisor in terms of market timing and their influence to spread their portfolios.

Tom Johansson and Mattias Jacobsson (2012) studied the connection among mutual reserve/fund size, performance, management charges, reserve/fund size and persistence in performance by taking Swedish's 91 mutual reserves/funds through six year term (2006-2011) and outcomes created on significance trials and regression which displays that there is no substantial and significant connection/relationship among reserve/fund size and fund/reserve performance and also display that there is no perseverance in performance for any of the volume/size-based reserve/fund collections. Also, it highlights that mutual reserves/funds with a greater asset initiated agrees to have lesser management charges than minor funds.

Jonathan Reuter and Eric Zitzewitz (2013) checked the crucial rules of the Berk and Green's (2004) influential model, advance-skilled fund supervisors handle additional assets, but due to the diseconomies of scale, produce the similar predictable earnings as less-skilled supervisors. Jonathan

Reuter and Eric Zitzewitz (2013) used regression discontinuity method in the study to experiment the Berk and Green (2004) model crucial rules, which includes the sample as the complete series of Morningstar groups (large-cap equity, corporate bond reserves, sector reserves etc.) and periodic monthly records among December 1996 to August 2009, it shows that the scale of diseconomies in the mutual reserve business, are too minor to transposable old-style opinions about manger abilities and investor cleverness, they need not moderate curiosity in Berk-Green model.

Nopphon Tangjitprom (2014) highlighted the result of the Mutual trust magnitude on its presentation depending on lively equity mutual reserves in Thailand, in the sense of economies of scale, it is likely that reserves with big capacity have benefits in terms of deal costs should be fairly lesser in relation to the average. If fund scope is too excessive due to the huge capacity of fund movement, fund supervisors may not be capable to cope fund successfully, they may cope with big size by scaling up the present fund distribution instead of spreading into fresh assets (Pollet and Wilson, 2008), also show that there is a noteworthy connection between fund scope and its performance. Though, this connection is not direct but quadratic. Lesser fund performance is better as fund scope develops bigger due to economies of scale. However, when it becomes greater, it can decline fund performance because of diseconomies of scale, it tends to perform healthier only for a definite series of full net asset.

Antonella Basso and Stefania Funari (2014) researched the character of the size/volume of mutual funds/reserve in the assessment of the fund/reserve performance by taking the data envelopment analysis (DEA) approach into account, with the focus of learning the subject from diverse viewpoints and with various statistical techniques and in order to apply analysis over the existence of economies or the diseconomies of scale in the mutual reserve/funds market. The Study contains European equity mutual reserves/funds as the sample of 260 verified it for the confirmation of a linear/direct connection among DAE performance and the fund volume/size through the presence of a rank correlation, correlation coefficient and relates the DAE in the capabilities of large and small mutual reserves/funds. After analysis, it shows that there is no direct/linear linking between size/volume and performance, but the large fund tends, on average, to exhibit a slightly higher performance score than the smaller ones, thus indicating the presence of scale economies.

Jeffrey A. Busse, Tarun Chordia, Lei Jiang and Yuehua Tang (2014) scrutinized regarding the greater mutual funds/reserves tends to underachieve in their smaller equivalents because of their properties and not because of higher transaction/trading costs and for this purpose, they construct two groups of sample, first one based on Holding data of Thomson Reuters Mutual Funds for the duration from January, 1980 – September, 2012 and the second-one generataed from Abel Noser-Thomson Reuters institutional trading date and check them by applying CAPM, Fama French, Regression and three factor model. Analysis depicts that greater fund experience lesser percentage trading/transaction expenses than lesser ones. Moreover, small volume/size funds contain small market capitalization shares and to a lesser degree as compare to the shares with great book-to-market ratios and higher momentum.

RESEARCH METHODOLOGY

Data Collection:

Data collection is vital to the research undertaken. There are several sources to collect data. (Tejwani, 2018). The data collection method of the project report is the secondary data and all the data for conducting the research on liquid mutual funds is collected from secondary data i.e official websites of the companies.

Data Analysis:

The techniques used for data analysis are correlation and ANOVA.

Hypothesis:

H1: There is a significant relationship between fund size and returns.

H2: There is a significant difference between micro, small, medium and large fund size and liquid mutual fund return.

DATA PRESENTATION AND ANALYSIS

Data Presentation:

The data for the analysis is collected through secondary sources. Liquid mutual funds of twenty five companies were taken to measure their performance and performances of last 3 years were analyzed using Sharpe Ratio, Jensen Alpha Ratio and Treynor Ratio.

Fund Size

A fund size is defined as “the total amount of capital committed by the investors of a Mutual Fund”.

Risk per Return

Risk per return is defined as “an investment’s return by measuring how much risk is involved in producing that return”.

Returns

Return is defined as the gain or loss realized by an investment portfolio based on the objectives of investment strategy and the risk tolerance of the type of investors.

Sharpe Ratio

Sharpe Ratio is used to evaluate the risk-adjusted performance of a mutual fund. Basically, this ratio tells an investor how much extra return he will receive on holding a risky asset.

Sharpe ratio indicates the degree of returns generated by an investment after taking into account all kinds of risks. It is the most useful ratio to determine the performance of a fund

A higher Sharpe ratio indicates better return yielding capacity of a fund for every additional unit of risk taken by it. It becomes a justification for the underlying volatility of the fund.

It is calculated using the formula given below:

Sharpe Ratio= (Average fund returns-risk free rate) / Standard deviation of fund returns

Average fund returns- The performance of liquid mutual funds of past 3 years

Risk free rate-Sharpe ratio indicates the degree of returns generated by an investment after taking into account all kinds of risks.

Standard deviation-Standard deviation measures the volatility the fund's returns in relation to its average. A fund with a higher standard deviation should earn higher returns to keep its Sharpe Ratio at higher levels. Conversely, a fund with a lower standard deviation can achieve a higher Sharpe Ratio by earning moderate returns consistently.

Sharpe ratio greater than 1 is considered acceptable to good by investors. A ratio higher than 2 is rated as very good, and a ratio of 3 or higher is considered excellent.

Jensen Alpha Ratio

Jensen Alpha Ratio is defined as the excess return of fund over the benchmark. Alpha is performance ratio to measure risk-adjusted performance of a portfolio, intended to help investors determine the risk-reward profile of a mutual fund. Alpha measures the difference between a fund's actual returns and its expected performance, given its level of risk.

It is calculated using the formula given below:

Alpha= {(Fund return-Risk free return) – (Funds beta) *(Benchmark return- risk free return)}

Beta-It is the risk calculation that investment managers use to calculate and compare investment returns. A beta of less than 1.0 indicates that the investment will be less volatile than the market. Correspondingly, a beta of more than 1.0 indicates that the investment's price will be more volatile than the market.

Benchmark Return- Benchmark return can be defined as the unmanaged group of securities which are considered as a benchmark to measure the performance of funds.

Treynor Ratio

Treynor Ratio is a portfolio performance measure of systematic risk. These ratios are concerned with the risk and return performance of a portfolio.

It is calculated using the formula given below:

Treynor Ratio= (Portfolio Return-Risk Free Rate) / Portfolio Beta

The following figures show the performance of liquid mutual funds of their past 3 years performance on quarterly basis.

Table 1: The Performance of Liquid Mutual Schemes

S.no	Name of Schemes	Fund Size (in Crores Rs.)	Total Returns	Risk per Return	Sharpe Ratio	Jensen Alpha Ratio	Treynor Ratio
1.	Reliance Liquid Fund	41188.08	21.2	0.85	14.36	0.52	0.01
2.	HDFC Liquid Fund	69396.55	20.79	0.79	13.89	0.6	0.01
3.	Axis Liquid Fund	28009.79	21.44	0.8	15.3	0.77	0.01
4.	ABSL Liquid Fund	57548.33	21.22	0.85	13.84	0.52	0.01
5.	Tata Liquid Fund	24905.1	21.2	0.81	14.92	0.66	0.01
6.	Kotak Liquid Fund	35086.0	21.04	0.8	14.56	0.65	0.01
7.	ICICI Prudential Liquid Fund	59354.28	21.12	0.86	13.98	0.44	0.01
8.	Indiabulls Liquid Funds	5044.6	21.31	0.76	15.45	0.88	0.01
9.	L&T Liquid Fund	17013.78	21.19	0.76	14.97	0.82	0.02
10.	Essel Liquid Fund	303.11	21.72	0.69	16.77	1.26	0.02
11.	DSP Liquidity Fund	15579.65	21.39	0.82	15.24	0.7	0.01

12.	DHFL PramericaInsta Cash Fund	1793.8	21.25	0.76	14.73	0.86	0.01
13.	Invesco India Liquid	10261.78	21.18	0.8	14.96	0.69	0.01
14.	LIC Liquid Fund	9184.41	21.41	0.8	15.43	0.78	0.01
15.	Baroda Pioneer Liquid	7884.11	20.53	0.73	14.34	0.78	0.01
16.	Sundaram Money Fund	6383.78	21.06	0.8	14.9	0.67	0.01
17.	SBI Liquid Fund	56086.17	20.89	0.88	13.66	0.32	0.01
18.	Mirae Asset Cash Management Fund	2528.26	20.66	0.61	16.48	1.22	0.02
19.	BNP Paribas Liquid Fund	1719.26	21.02	0.76	14.86	0.8	0.01
20.	IIFL Liquid Fund	678.17	19.72	0.67	14.23	0.67	0.01
21.	BOI AXA Liquid Fund	891.28	21.16	0.81	14.68	0.65	0.01
22.	Franklin India Liquid Fund	11908.77	19.25	0.81	11.9	0.01	0.01
23.	JM Liquid Fund	2558.74	21.29	0.8	15.1	0.74	0.01
24.	HSBC Cash Fund	5278.94	21.11	0.73	15.36	0.94	0.01
25.	IDFC Cash Fund	12321.78	21.22	0.82	14.71	0.6	0.01

The following table shows the categorization of liquid mutual fund schemes on that basis of micro, small, medium and large funds.

Micro Funds- Below 1000cr

Small Funds- Between 1000cr to 20000cr

Medium Funds- Between 20000cr to 40000cr

Large Funds- Above 40000cr

Data Analysis:

Correlation and ANOVA were used for analyzing the data.

All values were converted into log.

H01:- There is a significant relationship between return, risk per return, sharpe ratio, Jensen ratio, treynor ratio and fund size.

The below table shows the correlation between the variables:

Table 2: Correlation table showing significance

Correlations							
		Fund size	Return per risk	Sharpe	Jensen	Treynor	Returns
Fund size	Pearson Correlation	1					
	Sig. (2-tailed)						
	N	25					
Return per risk	Pearson Correlation	0.686**	1				
	Sig. (2-tailed)	0.000					
	N	25	25				
Sharpe	Pearson Correlation	0.474*	540**	1			
	Sig. (2-tailed)	0.017	0.005				
	N	25	25	25			
Jensen	Pearson Correlation	0.574**	0.737**	0.935**	1		
	Sig. (2-tailed)	0.003	0.000	0.000			
	N	25	25	25	25		
Treynor	Pearson Correlation	0.407*	0.269	0.029	0.001	1	
	Sig. (2-tailed)	0.043	0.193	0.892	0.996		
	N	25	25	25	25	25	
Returns	Pearson Correlation	0.444*	0.187	0.192	0.145	0.409*	1
	Sig. (2-tailed)	0.026	0.369	0.357	0.488	0.042	
	N	25	25	25	25	25	25

**. Correlation is significant at the 0.01 level (2-tailed).*

**. Correlation is significant at the 0.05 level (2-tailed).*

Table 3: ANOVA table of Returns

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.009	3	0.003	4.994	0.009
Within Groups	0.012	21	0.001		
Total	0.020	24			

ANOVA

Analysis of variance (abbreviated as ANOVA) is a statistical method used to analyze the differences among group means in a sample. ANOVA is useful for testing group means for statistical significance. The result of the ANOVA allows for the analysis of multiple groups of data to determine the variability between samples and within samples. The ANOVA table shows the statistics used to test hypotheses. Following are the terms used to calculate ANOVA to find the significance.

Sum of Squares - Sum of Squares helps to compute the variance estimates displayed in ANOVA tables.

Mean Square- Mean Square is obtained by dividing sum of squares by degrees of freedom.

DF- DF stands for degree of freedom.

F- F value is the relative variance among the group means. The larger the F value the greater the relative variance among the group means.

Interpretation: The above ANOVA table shows the significance P value is 0.009 which is less than 0.05 so null hypotheses is rejected. That means there is a significant difference in returns of micro, small, medium and large liquid funds.

Table 4: ANOVA table of Risk per Return

ANOVA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	0.037	3	0.012	4.824	0.010
Within Groups	0.053	21	0.003		
Total	0.090	24			

Interpretation: From the above ANOVA table, the significance P value is 0.010 which is less than 0.05 so null hypotheses is rejected. That means there is a significant difference in risk per return of micro, small, medium and large liquid funds.

Table 5: ANOVA table of Sharpe Ratio

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	27.076	3	9.025	5.692	0.005
Within Groups	33.299	21	1.586		
Total	60.375	24			

Interpretation: From the above ANOVA table, the significance P value is 0.005 which is less than 0.05 so null hypotheses is rejected. This means there is a significant difference in sharpe ratio of micro, small, medium and large liquid funds.

Table 6: ANOVA table of Jensen Ratio

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	0.529	3	0.176	3.724	0.027
Within Groups	0.995	21	0.047		
Total	1.525	24			

Interpretation: From the above ANOVA table, the significance P value is 0.027 which is less than 0.05 so null hypotheses is rejected. That means there is a significant difference in Jensen ratio of micro, small, medium and large liquid funds.

Table 7: ANOVA table of Treynor Ratio

ANOVA					
	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	17.835	3	5.945	3.574	0.031
Within Groups	34.929	21	1.663		
Total	52.764	24			

Interpretation: From the above ANOVA table, the significance P value is 0.031 which is less than 0.05 so null hypotheses is rejected. That means there is a significant difference in treynor of micro, small, medium and large liquid funds.

FINDINGS OF THE STUDY:

The result of the study led to:

There is a significant relationship between return, risk per return, sharpe ratio, Jensen ratio, treynor ratio and fund size.

Result of ANOVA table shows:

1 There is a significant difference in returns of micro, small, medium and large liquid funds.

2 There is a significant difference in risk of micro, small, medium and large liquid funds.

3 There is a significant difference in sharpe ratio of micro, small, medium and large liquid funds.

4 There is a significant difference in jensen ratio of micro, small, medium and large liquid funds.

5 There is a significant difference in treynor ratio of micro, small, medium and large liquid funds.

- The result showed that the investors are investing more in which liquid fund, on the basis of returns.
- The result shows which liquid mutual fund scheme is best for investment and is considered most popular among all mutual funds.

CONCLUSION

Past returns do not guarantee future returns and investment objectives often influence investment decisions of investors. There are some other factors that may affect the performance of Liquid Mutual Fund Mutual Funds such as investment style of fund managers, fund size and nature of ownership of Asset Management Companies etc. It has been the dilemma of investors and fund managers whether size affects performance of mutual funds.

If the fund size is sufficiently large, the Fund Manager would have liquidity, flexibility for timing his investment decisions and stock selection. Further, it gives added advantage of reducing transaction costs due to bulk transactions. The study focuses on empirically researching what is the effect of fund size on performance of open end Liquid Mutual Fund/growth mutual funds in the Indian context.

Twenty five Liquid Mutual Fund schemes having at least three years track record were only considered for the study and the time period chosen is 3 years (1st April 2016 to 31st March 2018). The sample of 30 Liquid Mutual Funds have fund size varying from Rs. 303.11crores to Rs. 69396.55 crores and they have been classified as Micro-, Small, Medium- and Large sized funds.

Correlation coefficients between fund size and the four parameters of performance (Return, Risk, Return/Risk, Sharpe Ratio) have been computed to assess the degree of relationship between fund size and performance of select Liquid funds and ANOVA was applied to see the difference between micro, small, medium and large fund size and liquid mutual fund return.

From the Hypothesis testing, it is clear that the correlation coefficients of fund size and performance variables are significant and also the Null Hypotheses were rejected. There is conclusive evidence that the fund size affects performance of Liquid Mutual Funds. And there is significance difference between micro, small, medium and large fund size and liquid mutual fund return.

LIMITATIONS

1 The data of the selected companies were collected on the basis of three years so it is difficult to generalize the performance of liquid mutual funds on the basis of its fund size.

2 There was limited time period to study the research.

Suggestions:

Many mutual fund advisors suggest investors to park their surplus funds in liquid mutual funds as they are considered the best among all mutual funds. These funds are least risky as well as least volatile in the category of mutual funds. They have the potential to offer higher returns.

Recommendation

In the liquid mutual fund, it is very hard for funds to generate returns that are significantly different from peers unless they take marginal risks. So it is recommended not to go merely by chart toppers.

When it comes to liquid funds, we prefer known names. Such fund houses attract treasury money of very large corporate houses and hence have a heightened onus to keep risks at bay and follow enough due diligence.

Fund ratings need to be viewed with caution as ratings of liquid funds by various online websites are mostly influenced by returns alone and do not adequately consider risk or diversification because some of the liquid mutual fund companies like reliance liquid fund is rated among top liquid mutual companies but people who invested in that schemes were not satisfied

REFERENCES

1. Ali, R., & Qudous, R. A. (2012). Performance evaluation of mutual funds in Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 3*(9), 1076-1083.
2. Basso, A., & Funari, S. (2014). Constant and variable returns to scale DEA models for socially responsible investment funds. *European Journal of Operational Research, 235*(3), 775-783.
3. Berk, J. B., & Green, R. C. (2004). Mutual fund flows and performance in rational markets. *Journal of political economy, 112*(6), 1269-1295.
4. Busse, J. A., Chordia, T., Jiang, L., & Tang, Y. (2014). How does size affect mutual fund performance? Evidence from mutual fund trades. *Unpublished manuscript. Retrieved from: http://www. ckgsb. edu. cn/uploads/ 201409/paper% 20of% 20Prof, 20.*
5. Edelen, R. M., Evans, R. B., & Kadlec, G. B. (2007). Scale effects in mutual fund performance: The role of trading costs. *Available at SSRN 951367*.
6. Elton, E. J., Gruber, M. J., & Green, T. C. (2007). The impact of mutual fund family membership on investor risk. *Journal of Financial and Quantitative Analysis, 42*(2), 257-277.
7. Idzorek, T. M., Xiong, J. X., & Ibbotson, R. G. (2012). The liquidity style of mutual funds. Financial Analysts Journal, 68(6), 38-53.
8. Iqbal, N. (2011). Paradigm of mutual funds industry in India. Management Prudence, 2(1), 50.

9. Johansson, T., & Jacobsson, M. (2012). Size and Performance of Swedish Mutual Funds: Does Size Matter?.

10. Klement, J. (2015). Liquid Absolute Return Funds: An Alternative to Alternatives?. The Journal of Wealth Management, 18(2), 35.

11. Manek, V. B. (2016). mutual fund performance: a study on the effect of portfolio turnover on mutual fund performance in the indian financial market. *Scholarly Research Journal for Interdisciplinary Studies*, *3*, 23.

12. Mehta, D., & Soni, T. K. (2013). Comparative Study of Mutual Funds Schemes in India: A Post Crisis Analysis. *Available at SSRN 2354838*.

13. Nanda, V., Narayanan, M. P., & Warther, V. A. (2000). Liquidity, investment ability, and mutual fund structure. *Journal of Financial Economics*, *57*(3), 417-443.

14. Nazir, M. S., & Nawaz, M. M. (2010). The determinants of mutual fund growth in Pakistan. *International research journal of finance and economics*, *54*(10), 1051-1060.

15. Pollet, J. M., & Wilson, M. (2008). How does size affect mutual fund behavior?. *The Journal of Finance*, *63*(6), 2941-2969.

16. Rao, D. N., & Rao, S. B. (2009). Does Fund Size Affect the Performance of Equity Mutual Funds? An Empirical Study in the Indian Context.

17. Roy, B., & Deb, S. S. (2004). Conditional alpha and performance persistence for Indian mutual funds: empirical evidence.

18. Reuter, J., & Zitzewitz, E. (2010). *How much does size erode mutual fund performance? A regression discontinuity approach* (No. w16329). National Bureau of Economic Research.

19. Solanki, A. (2016). A study of performance evaluation of mutual fund and reliance mutual fund. *Abhinav National Monthly Refereed Journal of Research in Commerce & Management Volume*, *5*.

20. Viramgami, H. S. (2009). Resource mobilization by Indian mutual fund industry. *Indian Journal of Finance*, *3*(3), 33-38.

21. Tejwani Smita. (2018). "Vocational training and financial literacy: Blending digitization process of self help groups in India." Journal of Global Information and Business Strategy. Vol. 10.

22. Tangjitprom, N. (2014). The Effect of Fund Size on Performance: The Evidence from Active Equity Mutual Funds in Thailand. *Research Journal of Finance and Accounting*, *5*(10).