EFFECT OF LOSS AVERSION BIAS ON INVESTMENT DECISION: A STUDY

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Abstract : . Loss Aversion is a behavioral bias according to which the impact of loss creates more pain than the pleasure from the realization of gain. There have been numerous studies in the area of loss aversion but the results are mixed in terms of its impact on investors. This study aims to find out the existence of loss aversion and its impact on investment decision making of individual investors, who invest in Indian stock markets, through brokerage firms. The present study also examines whether variables like gender, income, investment experience and risk perception have impact over loss aversion. The study was based on the primary data, which were collected, by using a structured questionnaire and data were analysed by statistical toolslike independent t-test, ANOVA and LinearRegression. Results of the study indicated that gender of the respondents did have significant impact on loss aversion and investment decisions by the investors are influenced by loss aversion bias.

***IndexTerms* - Loss aversion, Behavioral bias and Risk perceptionert.**

I. INTRODUCTION

Behavioral finance studies how the psychology of the investor affects investment decisions. Shefrin (2002), reveals that financial decisions would be better understood if it is looked beyond the normal view that market psychology is just about fear and hope. According to him, the primary emotions that determine risk-taking of an investor are hope and fear. The emotion of hope initiates in investor a whole range of non-rational factors, that are incalculable. These factors are not possible to be explained by greed.

Any decision making process requires appropriate use of mental and financial resources to acquire and process information. In an attempt to make quick and easy decisions, individuals tend to deviate from rationality, or what is required for a standard decision making process when he or she is rational. These decisions are termed biases. Thus, biases are systematic errors or offshoots of constraints, that individuals themselves place on resources like time, cost or capacity to process the available information about his or her surroundings. In another sense, they are shortcuts that help in conserving time and energy in the process of decision making.

Loss aversion means that people are willing to take more risks so as to avoid losses, than for realization of gains. In other words, investors are found to be risk seekers when faced with the prospect of losses. However, when they are faced with the prospect of enjoying gains, they become risk averse. In simple parlance, it can be said to be 'the tendency to feel the impact of losses than gains'.According to psychologists, loss aversion is fundamental to any human being and it is an offshoot of evolution and quest for survival. Khaneman and Tversky (1979) opined that individuals are loss averse than risk averse, as the pain associated with loss is greater than the pleasure derived from an equivalent gain. The pain makes people to hold on to how the things currently are. This conservatism leads to status quo, the person avoids losses, and hence originates the bias towards loss aversion. Loss aversion also make people averse to taking decisions that may result in changes. This is because humans focus mostly on the chances of loss than gains.

Loss aversion is found to affect all types of decision making, including financial ones. It may lead to a psychological factor called investor paralysis. Thaler and Johson(1990) state that, 'people are even more averse to the prospect of future losses when they have experienced loss in the recent past'. This attitude results in investor paralysis. Paralysis was very much evident at the time of the 2008 financial crisis. A few remedies that may help to deal with loss aversion include providing alternative anchors or reference points that could provide better choices, restricting the use of alternatives that may be irrelevant, etc.

II. REVIEW OF LITERATURE

Muskaan Arora and Santha Kumari(2015) examined the effect of age and gender on risk taking ability of investors and they also studied the impact of regret and loss aversion on investment decisions.The study indicated that regret and loss aversion facilitate as a intermediary variable which affects the age and gender of the investors and also the risk taking ability of the investors.

Soosunghwang and Steve E. Satchel (2010) explored the existence of behavioral bias of loss aversion in the financial markets of United States of America and United Kingdom using asset allocation problem and the results showed that investors who participate in financial markets, are heavily influenced by loss aversion and investors become more sensitive to loss aversion during the period of bull market than the bear market.

Peter Mbaluka etal(2012) investigated the impact of framing effect and loss aversion among the investors in Nairobi securities exchange and they discovered that investors of Nairobi securities were heavily influenced by the framing effect and loss aversion.

They also found that investors reversed their decisions based on the way that problems were presented and they significantly influenced by loss than gains in the market.

Kiran Aziz Malik etal(2017) examined the existence and impact of behavioral biases such as overconfidence and loss aversion among investors in Islamabad stock exchange. They also examined the mediator effect of risk perception between behavioral bias and results indicated that individual investors of Islamabad stock exchange were heavily influenced by overconfidence and loss aversion but they found that risk perception did not perform any mediator effect between the biases.

BoramLee and YuliaVeld-Merkoulova(2016) explored the relationship between myopic loss aversion and individual investors decision making in the context of investment and they observed the existence of myopic loss aversion among individual investors decision making and they also found that there was a positive relationship between loss aversion and portfolio rebalance.

TaqqadusBashir etal(2013) studied the impact of behavioral bias on investment decision making by male and female employees by using a structured questionnaire. The study also investigated the interrelationship between overconfidence and other behavioral bias such as illusion of control, familiarity bias, confirmation bias and loss aversion. Results indicated that investors were not influenced by loss aversion bias and there was no significant difference between the gender of the respondents, regarding the investment decisions and there was no interrelationship between behavioral biases.

Jacob NiyoyitaMahina etal(2017) analysed the influence of loss aversion bias on investment decision making at Rwanda stock exchange. Researchers concluded the study with the findings that proved the existence of loss aversion bias among investors in Rwanda stock exchange and loss aversion bias plays a major role in individual investors decision making.

Holger A.Rau(2014) examined the impact of gender on behavioral biases like loss aversion and disposition effect and the study confirmed the influence of loss aversion and disposition effect on gender of the investors and they also found that female investors were more loss averse than male investors and with respect to disposition effect, male investors were heavily influenced by it than female investors.

Eyalert and Idoerev(2013) conducted an experimental research on investor decision making under risk. Research results confirmed that people were influenced by loss aversion bias, when they were confronted with choices which involved gain and loss but investors did not express loss aversion bias when the outcome involved only gain.

III. DESIGN OF THE STUDY

3.1 Statement of the problem

Traditional finance assumes that investors being rational, their decision regarding investment are involved with careful understanding of information on market but it is impossible for every individual investor to make investment decision on a rational background because behavioral finance has shown that investors are prone to behavioral bias.Studying the psychological aspects of investment decision making is a necessity in order to fully understand about investment decision making and investor behavior during the period of market anomalies. When an investor becomes aware of the factors behind irrational decision making, then they have chance of making a rational investment decision making which has been portrayed by the traditional finance. Numerous global studies have discovered the existence of loss aversion bias among and investors against this background the present studyproposes to address the factors whichare related to loss aversion and its impact over the loss aversion bias on Indian scenario.

3.2 Objectives of the Study

- To study the difference, among the gender, towards loss aversion bias.
- To study the influence of income and investment experience of the investors on loss aversion bias.
- To study the impact of investors' risk perception on loss aversion bias
- To study the impact of loss aversion bias on investment decision making

3.3 Hypotheses of the Study:

- NH_{01}: Gender of the investors does not have significant difference on loss aversion bias
- NH_{02}: Income group of investors does not have significant difference on loss aversion bias
- NH_{03}: Investment experience of the investors does not have significant difference on loss aversion bias.
- NH_{04}: There is no impact of investors' risk perception on loss aversion bias
- NH_{05}: There is no impact of loss aversion bias on investment decision making

3.4 Methodology

The study was based on the primary data which were collected by using a structured questionnaire. Study adopted convenience sampling technique. Respondents of study were from the brokerages of Trichy and Thanjavur corporations. Questionnaires were administered to 150 sample respondents but only 116 questionnaires were returned. Questionnaire was subdivided into three parts, first segment containing the questions to collect information about the respondent's demographic variables and investment profile, second segment containing the questions to gather the respondent's risk profile and decision making and the final segment containing questions to test the influence of loss aversion bias. Primary data were processed through SPSS software and statistical tools used for the study are Independent T test, ANOVA and Regression analysis. Reliability of the questionnaire construct was analysed using Cronbach alpha technique. Cronbach alpha value, for the 25 variables used in the study, was .855, which means.it was 85.5%. reliable.

A linear regression model was applied in this study. It was applied to answer the qualitative features in the variable. This is denoted by:

$Y=\beta o+\beta 1X1+\varepsilon$.....3.1

Y= Represents the investment decision

β0= Constant

β1 = Represents the regression coefficients for loss aversion

X1= Loss aversion bias.

IV. RESULTS AND DISCUSSION

Table-1 Results of DifferencesAmong the Genderand Loss Aversion Bias

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	4.292	0.04	2.813	120	0.006	3.02361	1.07471	0.89576	5.15146
Equal variances not assumed			2.605	47.906	0.012	3.02361	1.1607	0.68975	5.35747

Source: primary data and computed by using SPSS

Table-1 shows the results of Levene's Test for Homogeneity of Variance and the findings of Independent Sample 'T' Test. The t test assumes homogeneity of variances across observations. While observing the results of Levene's Statistics, it was found that the 'p' value was insignificant at 5% level (0.05) with Levene's statistic value of 4.292. Hence the H0: "The two groups do not have equal variances"was accepted,this evidences the use of independent sample 't' test.

According to Table 1 value of 'P' is 0.006 which is less than 0.05 and this indicates the statistical significance of the results, which confirmed the existence of significant difference between the gender of the respondents towards loss aversion bias. Hence reject the **H01: ": Gender of the investors does not have significant difference on loss aversion bias".**

Table – 2 Results of Analysis of Variance (ANOVA) betweenIncome of Respondents and Loss Aversion Bias

		Sum of Squares	df	Mean Square	F	Sig.
LA	Between Groups	7.199	3	2.4	4.512	0.005
	Within Groups	59.567	112	0.532		
	Total	66.766	115			

Source: primary data and computed by using SPSS

Table-2 explains the results of analysis of variance, for identifying the difference between income of the respondents and overconfidence. The sum of squares values between groups was 7.199 and within groups, it was 59.567. F statistics was found to be 4.512. The significant value of the Table was 0.005, which was less than 0.05 significant level, which indicated significant difference between income of the respondents and loss aversion bias. Hence reject the null hypothesis,**"Income group of investors do not have significant difference on loss aversion bias".**

Table - 3Results of Analysis of Variance (ANOVA) for Investment Experience and Loss Aversion Bias

	Sum of Squares	Df	Mean Square	F	Sig.

LA	Between Groups	2.859	3	.953	1.670	.177
	Within Groups	63.907	112	.571		
	Total	66.766	115			

Source: primary data andcomputed by using SPSS

Table-3presents the results of analysis of variance, for identifying the difference between Investment experience of the respondents and loss aversion. The sum of squares values between groups was 2.859 and within groups, it was 63.907. F statistics was found to be 1.670. The significant value from the table was 0.149, which was greater than 0.05 significant level which indicates that there is no significant difference between investment experience of the investors and loss aversion bias. Hence accept the null hypothesis,**"Investment experience of the investors does not have significant difference on loss aversion bias".**

Table-4 Results of Regression Model Fitness for Loss aversion bias and Investors' Risk Perception

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.410[a]	.168	.161	.69801
a. Predictors: (Constant), IP				

Source: primary data andcomputed by using SPSS

Table-4 shows the results of model summary which highlights the model fitness, considering investment decision as dependent and loss aversion bias as independent variables. The 'R' indicates the degree of relationship between the two variables. It is to be noted that 41% relationship was observed between Loss aversion bias and Investors risk perception. Further, the R square value indicates the extent to which investors risk perception explains loss aversion bias. In the model, 16.8% of variation in loss aversion could be explained by Investors risk perception. Though the percentage explained is small, the impact of Investors risk perception on loss aversion could not be ignored.

Table -5 Results of ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.224	1	11.224	23.037	.000[b]
	Residual	55.542	114	.487		
	Total	66.766	115			
a. Dependent Variable: LA						
b. Predictors: (Constant), IP						

Source: primary data and computed by using SPSS

Table 5 explains the results of ANOVA of theproposed model. The 'F' Statistic value was found to be 23.037, which was significant at 5% level. Therefore, the **H0: "There is no impact of investors' risk perception on loss aversion bias"**was rejected.

Table -6 Results of Co-efficients for Investors' Risk Perception and loss aversion bias

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.683	.329		5.116	.000
	IP	.522	.109	.410	4.800	.000
a. Dependent Variable: LA						

Source: primary data andcomputed by using SPSS

Table-6 shows the findings of co-efficient analysis which explains the degree of impact of over confidence bias on investors' risk perception. The dependent variable, in the model bias,was Loss aversion and the independent variable was Investors' Risk Perception. The 'p' value was significant at 5% level, which indicates there is significant impact of Investors' Risk Perception on Loss aversion. The value of standardized Beta was found to be 0.410 which indicates that 41% Loss aversion bias are influenced by their Investment Risk perception in investment.

Table -7 Results of Regression Model Fitness for Loss aversion bias and Investors' Risk Perception

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.581[a]	.338	.332	.51366
a. Predictors: (Constant), LA				

Source: primary data andcomputed by using SPSS

Table-7 presents the results of model summary, which highlights the model fitness, considering investors decision as dependent and loss aversion bias as independent variables. The 'R' indicates the degree of relationship between the two variables. It is to be noted that 58.1% relationship was observed between loss aversion bias and investment decision. Further, the R square value indicates the extent to which over Loss aversion bias explains Investment decision. In the model, 33.8% of variation in investment decision was explained by loss aversion bias. Though the percentage explained was small, the impact of loss aversion bias on investment decision could not be ignored.

Table-8 Results of ANOVA

ANOVA[a]						
		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.332	1	15.332	58.107	.000[b]
	Residual	30.079	114	.264		
	Total	45.410	115			
a. Dependent Variable: ID						
b. Predictors: (Constant), LA						

Source: primary data andcomputed by using SPSS

Table-8 explains the results of ANOVA of the proposed model. The 'F' Statistic value was found to be 58.107, which was significant at 5% level. Therefore, the **H: "There is no impact of loss aversion bias on investment decision making"**was rejected.

Table -9 Results of Co-efficients for Loss aversion bias and Investment decision

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.592	.209		7.632	.000
	LA	.479	.063	.581	7.623	.000
a. Dependent Variable: ID						

Source: primarydata and computed by using SPSS

Table -9 shows the findings of co-efficient analysis which explains the degree of impact of loss aversion bias on investment decision. The dependent variable in the model was Investment decision and the independent variable was Loss aversion bias. The 'p' value was significant at 5% level, which indicated there was significant impact of loss aversion bias on investment decision. The value of standardized Beta was found to be 0.581, which indicated that 58.1% investors decision were influenced by their overconfidence in investment.

V. FINDINGS OF THE STUDY

Findings of the first objective confirmedthe existence of difference between gender and loss aversion bias which implies that male and female investors did perceive the losses differently. Result of this study agrees with the previous study done by Muskaan Arora and SanthaKumari (2015).Results of ANOVA indicated that income of the investors did have a significant difference with loss aversion bias but investment experience of the investors did not have any significant difference with loss aversion. Results of the regression analysis indicated that risk perception of the investors did have impact on loss aversion bias and loss aversion bias did have a significant impact on investors, who participated in the stock market.

VI Conclusion

The study started with the assumption of finding the impact of behavioral bias like loss aversion on investors, who were involved in the Indian stock markets. The study also considered the possibility of influence of demographic factors such as income and gender on loss aversion. Results of the study indicated the influence of income and gender on loss aversion but investment experience did not influence the loss aversion. Risk perception also did have a significant impact on loss aversion bias and loss aversion bias did have a major impact on investment decision. Major inference of this study is that individual investors cannot be grouped under a homogeneous factor because every individual investor's behavioral aspects, investment motives and perception of risk varied greatly. Hence financial consultants must consider the heterogeneous character of investors behavior and make their financial products according to their behavioral profile. Individual investors also need to acknowledge their irrationality, associated with their investment decision making and try to be as rational as possible, regarding investment decision making.

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