International Business Management 8 (1): 30-35, 2014
ISSN: 1993-5250

Mutual Fund Investor and Loss Aversion: A Study on the Influence of Gender, Experience and Investor Type

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Abstract: The main objective of this study is to find the influence of gender, investment experience and investor type on loss aversion. A survey method was used and data collected from 309 mutual fund investors from Bangalore city. ANOVA test was used to test the influence of the independent variables on loss aversion. The findings of the study suggest that women are more loss aversive than men, novice investors are more loss aversive than experienced investors and the impact of loss aversion is high on direct investors than on financial consultants.

Key words: Loss aversion, prospect theory, gender, novice investor, direct investor

INTRODUCTION

The 2 basic assumptions of standard finance theory and economic models are:

- Rationality
- Market efficiency

The assumption of traditional economists portrays humans as rational beings that always strive to maximize their utility. Fama (1965) defined efficient market as a market with 1 large number of rational profit maximizers competing against each other to predict future values of individual securities and 2 in which important current information is almost freely available to all participants. The proponents of behavioural finance, continuously challenge this assumption and believe that numerous factors both rational and irrational thinking drive investor behavior. They believe that market price is not always a fair estimate of the underlying fundamental value and that investor psychology can drive market prices and fundamental value very far apart (Shefrin, 2007). Empirical research and studies on investor behavior have shown the existence of irrational thinking and the influence of investor bias impacts investment outcomes. Shefrin (2007) defines bias as a predisposition towards error. It is a prejudice or a propensity to make decisions while already being influenced by an underlying belief. Studies emphasize that individuals are affected by psychological factors like cognitive biases in their decision making, rather than being rational and wealth-maximizing (Forbes, 2009). This study focuses on loss aversion and how factors like gender, experience and investor type have an impact on loss aversion.

Loss aversion: Kahneman and Tversky (1979) in their studies on human decision making found that the pain people feel from a loss is about as twice as strong as the pleasure felt from an equivalent experience of gain. According to them, loss aversion is the disutility of giving up is greater than the utility associated with acquiring it. Loss aversion is a salient feature of prospect theory. People who are loss aversive when faced with an investment choice, tend to have a stronger preference for avoiding possible losses than making gains. Another implication of loss aversion is that individuals have a strong tendency to remain at status quo (Samuelson and Zeckhauser, 1988) because the disadvantages of leaving it loom larger than advantages. They are willing to give up more potential upside in order to protect themselves from the downside.

Myopic loss aversion: It is a form of loss aversion in which greater sensitivity to losses than gains is compounded by the frequent evaluation of outcomes. This behavior of frequent evaluation of portfolio performance can lead to shifts in an investors long term asset allocation mix. This increases the likelihood of seeing a loss which produces more mental agony than comparable gains satisfy. Benartzi and Thaler (1999) conducted experiments in the context of retirement savings decisions to study repeated investment decisions overtime. The study found that when investors are loss aversive, they are willing to take more risk if they evaluate their performance less frequently. Benartzi and Thaler (1995) labeled the combination of loss aversion and a short evaluation period as myopic loss aversion. The study, also revealed that myopic loss aversive investors do not want to invest in stocks, even in the face of

substantial equity premium. Also, shorter evaluation period makes stocks less attractive to a loss aversive investor.

Prospect theory-Amos Tversky and Daniel Kahneman: The most important research in behavioral finance was published in 1979 by Amos Tversky and Daniel Kahnemans, prospect theory. An analysis of decision under risk. Prospect theory describes how individuals evaluate gains and losses. It talks about 2 specific thought processes namely; editing and evaluation. During the editing state, alternatives are ranked according to, a basic rule of thumb. Then during the evaluation phase, some reference point that provides a relative basis for appraising gains and losses is designated. In this model, utility is defined over gains and losses relative to some neutral reference point. This utility function has a kink at the origin with the slope of the loss function steeper than the gain function. The ratio of theses slopes at the origin is a measure of loss aversion, i.e., the tendency to feel the impact of losses more than gains (Fig. 1).

Disposition effect: The prospect theory, also explains the so called disposition effect which constitutes one of the most common fallacies among investors and traders. The disposition effect explains the tendency by investors to hold on to losing stocks too long while they sell winning stocks too early. The value function explains this by indicating how continuous gains are valued less, thus providing incentives to settle for an early guaranteed gain. When dealing with losses on the other hand, individuals are less risk averse and therefore unwilling to settle for an early loss (Goldberg and von Nitzsch, 2001).

Review: Thaler *et al.* (1997) on explaining the effect of Myopia and loss aversion on risk taking, have demonstrated that loss aversive investors have greater sensitivity to losses than to gains which is compounded by the frequent evaluation of outcomes. The frequent evaluation of a portfolio performance can lead to shifts in an investors long term asset allocation mix. This increases the likelihood of seeing a loss which produces more mental agony than comparable gains satisfy. Benartzi and Thaler (1999) conducted experiments in the context of retirement savings decision to study repeated investment decisions overtime. The study found that when investors are loss aversive, they are willing to take more risk if they evaluate their performance less frequently. Benartzi and Thaler (1995) have also found that myopic loss aversive investors do not want to invest in stocks even in the face of substantial equity premium. Also, shorter evaluation period makes stocks less attractive to a loss aversive investor.

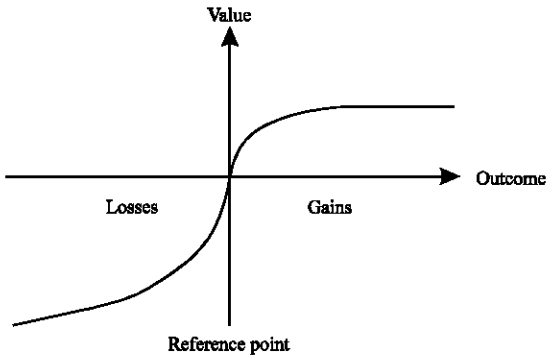

Fig. 1: Prospect theory by Kahneman and Tversky (1979)

Thaler and Johnson (1990) studied how risk aversion is effected by prior gains and losses. They found evidence that people are highly risk aversive after prior losses and risk seeking after prior gains. Thaler *et al.* (1992) find an endowment effect among subjects endowed with even a relatively low cost gift. People are more likely to believe something they own is better than something they do not own.

Gachter *et al.* (2007) in a study on how socio-demographic variables affect loss aversion in riskless and risky choices, found that females are more loss aversive than their male counterparts. Brooks and Zank (2005) in their experiments on binary choices among lotteries, involving students, observed a gender effect in which women were more loss aversive than men. Studies by Schmidt and Traub (2002), also confirm that females exhibited higher degree of loss aversion than men. Experiments show contradictory outcomes with respect to biases among financial advisors and their experience in investment decisions. For example, Feng and Seasholes (2005) shows empirical evidence that indicate investor sophistication and market experience reduce behavioural biases. But Haigh and List (2005), found that professional traders exhibit myopic loss aversion to a greater extent than students. Eriksen and Kvaloy (2010), also confirm that financial advisors exhibit myopic loss aversion.

This study focuses on the impact of gender, investor experience (depending on the number of years of experience in investment) and the type of investor on loss aversion. An investor with <2 years of investment experience is called a novice investor and investors who handle their investments and make their own investment decisions are called direct investors. A simple ANOVA test is applied to test the following hypothesis:

H_1 : There is significant difference in the level of loss aversion among male and female respondents (gender)

H_2 : There is significant difference in the level of loss aversion between novice and experienced investors (experience)

H_3 : There is significant difference in the level of loss aversion between direct investors and financial consultants (type of investor)

MAREIALS AND METHODS

To test the mentioned earlier hypothesis, the primary data was collected from a sample of 309 mutual fund investors chosen at random. Population samples are random when no bias determines their individual selection (Bill Godden). The study used a survey research method and focuses on the said respondents only from Bangalore city who have registered with the asset management companies from the same city. A questionnaire was designed and administered to capture the dimension of loss aversion. The scales used for measuring the bias in earlier studies were adopted for this study too.

About 4 scenarios were given and the respondents were asked to respond by choosing alternatives in each of them. In Q. 1, the respondents were asked that if they make a plan to invest Rs. 70, 000 and are presented with 2 alternatives. Which scenario would they rather choose? The options given were:

- Know that 1, 2 only be repaid Rs60,000 for sure
- Take a 50-50 gamble, knowing that 1, 2 get back either Rs. 75,000 or 50,000

In Q. 2, they were asked to choose one of the following options:

- A 100% chance of winning Rs. 1,00,000
- An 80% chance of winning Rs. 1,40,000 and a 20% chance of winning nothing

Question 3 was that if they planned to invest Rs. 50,000 and are presented with 2 alternatives which scenario would they rather choose? The options were:

- Be assured that 1, 2 get back my Rs. 50,000 at the very least, even if I don not make any more money
- Have a 50% chance of getting Rs. 70,000 and a 50% chance of getting Rs. 35,000

In Q. 4, they were asked to choose 1 of the 2 outcomes:

- An assured gain of Rs. 5000
- A 25% chance of gaining Rs. 25,000 and 75% chance of gaining nothing

An ANOVA test is applied to find if there is any statistical difference between the independent variables like gender, experience and investor type and the dependent variable, loss aversion.

RESULTS AND DISCUSSION

Demographic profile: The sample of 309 respondents consisted of 74.1% of male and 25.9% of females:

- Marital status 71.2% of respondents are married and 28.8% of respondents are unmarried
- Education majority of the respondents are graduates (53.7%) followed by post graduates constituing 53.7% and respondents who have completed high school education is 7.1%
- Type of investors 66.2 % of are direct investors, i.e., investors who make their own investment decisions and 33.8% of investors are indirect investors, i.e., they consult a financial advisor for their investment decisions
- Occcupation 55.5% of sample respondents are employed in areas not related to finance and 44.5% of respondents have work experience related to finance
- Experience 29.6% of investors are novice investors that is with <2 years of experience and 70.4% of investors are experienced meaning they have >2 years of experience

Gender and loss aversion: The ANOVA test is applied to find if there is any significant statistical difference between male and female respondents (independent variable) on the dependent variable loss aversion bias.

Table 1 shows the response based on the gender. The mean score related to all questions is higher for all female respondents than male respondents. However, the sig value for Q. 1, 2 and 4 are >0.05 LOS and so there is no significant statistical difference in their responses.

The mean score for Q. 3, for male respondents is 0.47 and for female respondents it is 0.64. The ANOVA output shows an F-value of 6.811 and the sig. value is 0.010. Since, the sig. value is <0.05 the difference in mean score between male and female respondents is statistically significant which implies that difference in response based on investors gender is statically significant. Similarly, the mean score for loss aversion of male respondents is 1.8553 and for female respondents, it is 2.3375. The ANOVA output shows an F-value of 6.862 and sig. value is 0.009. Since, the sig. value <0.05 the difference in the mean score between male and female respondents is significant which implies that difference in response based on gender is statistically significant. Though, the level of loss aversion is different among male

Table 1: Loss aversion and gender

Attributes	Gender	N	Mean	SD	F-value	Sig.
Q. 1: You are presented with 2 alternatives	Male	223	0.40	0.49	1.69	0.19
Which scenario would you rather have?	Female	80	0.49	0.50		
	Total	303	0.43	0.50		
Q. 2: Which of the following would you choose?	Male	228	0.47	0.50	2.65	0.10
	Female	80	0.58	0.50		
	Total	308	0.50	0.50		
Q. 3: Suppose you make a plan to invest Rs50,000	Male	228	0.47	0.50	6.81	0.01
You are presented with two alternatives	Female	80	0.64	0.48		
Which scenario would you rather have?	Total	308	0.51	0.50		
Q. 4: Assured gain 25-75% nothing	Male	227	0.52	0.50	3.08	0.08
	Female	80	0.64	0.48		
	Total	307	0.55	0.50		
Loss aversion	Male	228	1.86	1.40	6.86	0.01
	Female	80	2.34	1.46		
	Total	308	1.98	1.43		

Table 2: Loss aversion and experience

Attributes	Experiences (years)	N	Mean	SD	F-value	Sig.
Q. 1: You are presented with two alternatives	<2	88	0.45	0.501	0.341	0.560
Which scenario would you rather have?	Over 2	213	0.42	0.494		
	Total	301	0.43	0.496		
Q. 2: Which of the following would you choose?	<2	91	0.65	0.480	12.311	0.001
	Over 2	215	0.43	0.497		
	Total	306	0.50	0.501		
Q. 3: Suppose you make a plan to invest Rs. 50,000. You	<2	91	0.58	0.496	2.497	0.115
are presented with two alternatives. Which scenario would	Over 2	215	0.48	0.501		
you rather have?	Total	306	0.51	0.501		
Q. 4: Assured gain 25-75% nothing	<2	91	0.59	0.494	0.808	0.369
	Over 2	214	0.54	0.500		
	Total	305	0.55	0.498		
Loss aversion	<2	91	2.2637	1.43632	5.040	0.025
	Over 2	215	1.8651	1.41271		
	Total	306	1.9837	1.42911		

and female for the different questions asked, the ANOVA shows that there is a significant difference in the mean score of respondents based on gender. So, the null hypothesis is rejected and researchers can infer that there is significant difference in the level loss aversion among male and females. That is females are more loss aversive than men.

Loss aversion and experience: The ANOVA test is also applied to find if there is any significant statistical difference between less experienced and experienced respondents (independent variable) on the dependent variable loss aversion bias.

Interpretation: Table 2 shows the respondents choice based on their level of experience. The mean score for all questions show that level of loss aversion is higher for less experienced investors than experienced investors. But, the difference is not statistically significant for Q. 1, 3 and 4.

The mean score for Q. 2 of less experienced investors is 0.65 and experienced investors is 0.43. The ANOVA output shows an F-value of 12.311 and the sig. value is 0.001. Since, the sig. value is <0.05 the difference in mean score between less experienced and experienced investors is statistically significant which implies that there is significant difference in response based on investors level of experience.

The mean score for loss aversion of less experienced investors is 2.2637 and experienced investors is 1.8651. The ANOVA output shows an F-value of 0.5040 and sig. value is 0.025. Since, the sig. value <0.05 the difference in the mean score between less experienced and experienced investors is significant which implies that difference in response based on the level of experience is statistically significant and it can be inferred that less experienced investors are more loss aversive than experienced investors.

Loss aversion and type of investor: The ANOVA test is applied to find if there is any significant statistical difference between direct investors and financial consultants (independent variable) on the dependent variable loss aversion bias.

Interpretation: Analysis of Table 3 shows the choice of the respondents based on the type of investor. The mean score related to all questions is higher for direct investors than indirect investors. But, the difference is not statistically significant for Q. 3 and 4.

Table 3: Loss aversion and investor type

Attributes	Investor type	N	Mean	SD	F-value	Sig.
Q. 1: You are presented with 2 alternatives	Direct investor	202	0.47	0.50	4.97	0.03
Which scenario would you rather have?	Financial consultant	101	0.34	0.47		
	Total	303	0.43	0.50		
Q. 2: which of the following would you choose?	Direct investor	203	0.54	0.50	4.23	0.04
	Financial consultant	104	0.41	0.49		
	Total	307	0.50	0.50		
Q. 3: Suppose you make a plan to invest Rs50,000	Direct investor	203	0.55	0.50	3.31	0.07
You are presented with two alternatives. Which scenario	Financial consultant	104	0.44	0.50		
would you rather have?	Total	307	0.51	0.50		
Q. 4: Assured gain 25-75% nothing	Direct investor	202	0.59	0.49	3.27	0.07
	Financial consultant	104	0.48	0.50		
	Total	306	0.55	0.50		
Loss aversion	Direct investor	203	2.14	1.44	7.88	0.01
	Financial consultant	104	1.66	1.37		
	Total	307	1.98	1.43		

The mean score for Q. 1 of direct investor is 0.47 and for financial consultants, it is 0.34. The ANOVA output shows an F-value of 4.97 and sig. value is 0.03. Since, the sig. value is <0.05 the mean difference between direct investor and financial consultant is significant which implies that difference in response based on the type of investor is statistically significant. Similarly, the mean score for Q. 2 of direct investor is 0.54 and for financial consultants it is 0.41. The ANOVA output shows an F-value of 4.23 and sig. value is 0.04. Since, the sig. value is <0.05 the mean difference between direct investor and financial consultant is significant which implies that difference in response based on the type of investor is statistically significant.

The mean score for loss aversion of direct investor is 2.14 and for financial consultants, it is 1.66. The ANOVA output shows an F-value of 7.88 and the sig. value is 0.01. Since, the sig. value is <0.05 the mean difference between direct investor and financial consultant is statistically significant which implies that there is significant difference in the level of loss aversion based on the type of investor. So, the null hypothesis is rejected and it can be inferred that direct investors are more loss aversive than financial consultants.

CONCLUSION

The study finds that there is significant difference in the level of loss aversion between male and female investors. Studies by Gachter *et al.* (2007), found that females are more loss aversive than their male counterparts. Brooks and Zank (2005) in their experiments on binary choices among lotteries involving students, observed a gender effect in which women were more loss aversive than men. Also by Schmidt and Traub (2002), also confirm that females exhibited higher degree of loss aversion than men. This study on mutual fund investors in line with earlier studies also has confirmed that females are more loss aversive than men.

Experiments show contradictory outcomes with respect to biases among financial advisors and their experience in investment decisions. For example, Feng and Seasholes (2005) shows empirical evidence that indicate investor sophistication and market experience reduce behavioural biases. But Haigh and List (2005), found that professional traders exhibit myopic loss aversion to a greater extent than students. Eriksen and Kvaloy (2010) also confirm that financial advisors exhibit myopic loss aversion. But, this study on mutual fund investors show that direct investors who manage their own investments are more loss aversive than financial consultants. The findings of this study also suggest that novice investors, i.e., investors with <2 years of investment experience are more loss aversive than experienced investors.

This study contributes to the body of literature, especially the studies on loss aversion and also mutual fund investors behaviour. It adds to the literature of loss aversion on gender, investment experience and investor type. The study confirms the presence of loss aversion amongst investors and especially women, as women are more loss aversive than men. Similarly, direct investors and novice investors are more loss aversive than financial advisors and experienced investors. An understanding on the impact of loss aversion on investment decisions can go a long way in making rational investment choices.

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