

## IMPACT OF AVAILABILITY BIAS AND LOSS AVERSION BIAS ON INVESTMENT DECISION MAKING, MODERATING ROLE OF RISK PERCEPTION

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### ABSTRACT

This study investigates an investor perception about investment decision. I used to describe a cognitive heuristic called availability bias. Under loss aversion (prospect theory) can occur in risky and riskless choices. Both biases effect the decision of investor. The investor risk perception as analysis brings logic reason that how investor selects when they faced with multiple option of investment. I used questionnaire based survey method to collect data from randomly selected sample of 207 individuals. Correlation analysis has been used to estimate the models under study. The limitations include. Some recommendations have been made that could help researchers in their future works.

**KEYWORDS:** Availability Bias, Loss Aversion, Risk Perception, Investment Decision

### INTRODUCTION

According to conventional financial theory, investors are perfectly rational in financial decisions but sometimes emotions and psyche influence their decisions, causing them to behave in an irrational way. Behavioral Finance provides the explanation of this phenomenon. Decision making is the mental and cognitive process that results in the selection of a course of action among several alternative situations. Although emotional and cognitive weaknesses or biases affect all people but traditional and standard finance ignores these biases because it assumes that people always make rational decisions (Statman, 1995). According to behavioral finance investor is normal.

Recent research finds out that there are some biases that influence investor decisions(Tversky&Kahneman, 1979). After that, large numbers of biases find out like cognitive bias, representative bias, overconfidence bias and loss aversion bias (Koichi&Toshihiko, 2013). Investors make judgment under uncertainty is re-analyzed with combined effect of some other biases (Armstrong, 1984).Investor's attitude towards gain and loss due to static differences across investors (Feng&Seasholes, 2005) and Investor's psyche has strong effect on investment decision making in stock exchanges while making capital investment that is why they behave irrationally (Zaidi&Tauni, 2012), emotions and psyche are major factors. Number of articles are published to study, analyze, and to inform investors that this is the fact that influence your decision.

Aim of our study is to investigate the impact of Availability Biases (Heuristic bias)that refers as the situation when investors make decisions according to available information or Probability of events by available information and when relevance instances come to mind while decision making (Tversky & Kahneman, 1973)and Loss aversion bias describes the behavioral biases with the effect of disposition(Prospect theory), risk and return paradox (Fiegenbaum& Thomas, 1988). Risk taking and risk aversion priorities vary from securities to securities. It explains the behavior of investor; they

become risk averse when prior return was above the target level and risk seeker in case of previous loss (Jegers, 1991). This theory applies in different perspective when there are so many alternatives because decision makers are not constant in their preferences. One source of information availability is media advertisement and that make investors irrational by quickly reaction on it (Zhu, 2002). People judge the same event will fit into a given category due to similarity with prior happening that is why Investor's Risk taking and risk aversion priority strongly related with prior Losses and gain, it may cause risk assessment error (Mcnamara & Bromiley, 1997), furthermore cognitive and emotional weakness plays vital role and effect of availability bias also described by (Baker & Nofsinger, 2002; Sewell, 2007). Investors use mental short cut while making decisions and use probability of happening same event in future as well.

In this study we will see the moderating effect of investor Risk perception on the relationship of investment decision making, availability bias and loss aversion bias respectively. Risk in the modern world is perceived and acted upon in two fundamental ways. Risk as feelings refers to our instinctive and intuitive reactions to danger. Risk as analysis brings logic, reason, and scientific deliberation to bear on risk assessment and decision making (Paul & Ellen, 2006). Sometime it effect investor to make positive relationship and maintain profit, while sometime investor loss high gains on little investment, so it's also effects negatively the investment decision making.

Purpose of this study is to explore availability bias an loss aversion bias effect on investment decision making and whether risk perception of invertor effect the relationship or not. This study will help the investors to find out the reasons of irrational decision making due to Availability bias and loss aversion bias. It will help the researchers how these behavioral biases vary in collectivist and individualist cultures and impact on the psyche of developing countries like Pakistan. Prior researchers conducted studies on impact of Representative and Availability biases on investment decision in Individualistic dominated culture, but researchers in collectivist dominated countries are comparatively less concern about this cultural aspect in decision making. This study will fill this contextual gap in prior studies. Significance of our study is to examine the impact of behavioral biases on investment decision making that result from investor heuristics, and proposes solutions for reducing such errors. This study has relative importance due to lack of awareness in this in Pakistani economy here investors are not fully awarded about these kinds of biases that they are indulge in it but not known about these biases

Contribution of our survey study is behavioral biases on investment decision making of investor by using field survey are identified. Majority of behavioral finance articles focus on one bias only (Barber & Odean, 2001). In addition, the use of experimental or survey method is still relatively infrequent in financial research. Typical experimental or survey studies on behavioral biases use samples that include only students (Buksar & Conolly, 1988) or only professionals (Montier, 2006). Studies comparing financial market professionals and other people are rare and typically concentrate on differences between two types of respondents (Kaustia et al., 2008; Torngren & Montgomery, 2004). This study uses a sample consisting of separate groups of people investors and business students as well. In addition to the diversity, the data of this study is also rare due to timing. The survey of this study is conducted during the period of historically high uncertainty in markets. To demonstrate behavioral biases we developed the simple regression and correlation among behavioral biases, moderation of risk perception and investment decision making. Overall, the results of this research paper provide valuable new information on behavioral biases and investment decision making.

## LITERATURE REVIEW

### Investment Decisions

Investment is the action or process of investing money with the hope of future benefit but the world of investment can be hot and cold but investing through research and by keeping your head straight can lead you to success. Every investor wants to get desired return from their investment to make optimal investment decision (Sharp, 1964) explained that maximum level of risk for specific level of return to compare the decision from benchmark. In Financial market, Managers have superior information than individual investors because investors just interpret external factors while making investment decision rather managers are aware of internal and external as well (Myers & Majluf, 1984).

In past few decades, some researcher thinks that optimal and rational decision must be depend on advance financial knowledge (Merton, 1987). Investment decision can be irrational from the perspective of researcher but can be rational from the investor point of view (Harrison & Harrel, 1993), because psychological description of investor's mental processes plays vital role (Jaros, Jermier, Koehler, & Sincich, 1993). Factors that influence the investment process can be Returns from investment that depends on whether decision of investor have influence on the policy of firm in which they are going to invest (David, Kochhar, & Levitas, 1998) and cost of investment and benefit from investment can influence, that is why in order to get high returns investor deviate from the right and rational decision (Cascio, Young, & Morris, 1997).

### Availability Bias and Investment Decision Making

In Availability Bias a decision maker relies upon knowledge that is readily available rather than examines other alternative and procedure (Folks, 1988). Decision makers in stock market are also influenced by the information they get during selection and identification of stock (Haley & Stumpf, 1989). Most of investors change their choice by keeping in mind their cost of capital (Modigliani & Miller, 1958). Investor preferences change according to available information (Harris & Raviy, 2005) and as a result in a particular leading pattern and sometime even irrelevant information also influence investment decision (Krichler, Maciejovsky, & Weber, 2010). Here these irrelevance information effect investment decision making negatively, on the basis available information risk taking behavior of investor about particular security change the decision (Grable, Lytton & O'Neill, 2010). Several past studies says that investors feel comfortable in making decision based on if they have superior information (Wang, Keller, & Siegrist, 2011). When a firm in financial market reveal misconduct, the investor of that particular firm's stock get negative signal quickly and jump on the conclusion (Paruchuri & Misangyi, 2012).

**H1:** *Availability Bias is significantly and inversely associated with investment decision making.*

### Loss Aversion Bias and Investment Decisions

Concept of loss aversion is discus first time by two psychologists Daniel Kahneman and Amos Tversky in 1979. They analyzed that people feel double ache from loss as they feel satisfaction from gain (prospect theory). Loss aversion investors think more actively or consciously to protect the decrease in capital and fear of loss rather than growth in their investments (profit). Loss aversion refers to the tendency of people who are more sensitive to reduction in their capital than to increase in it (prospect theory).

Loss averse investors behavior cannot be judged in the small investment and change in environment does not affect the decision of lose averse investor and individual's parameter of loss aversion is similar in different choice environments (Rabin, 2000).

People may also over attend to losses and gains because they underestimate how quickly they will adapt to these changes (Koszegi& Rabin 2006). Cultural values also effect the cognitive biases in the investors, in Pakistan women are more loss averse than men (Tahira Hassan, Wajihah, Khalid & Habib, 2014). Specifically, female investors are said to be probabilistically more loss averse than male individual while making financial decisions (Blavatsky& Pogrebna, 2008). Older people, and unemployed individuals are more loss averse than younger and employed individuals in financial decisions. Loss aversion is the combination of a greater sensitivity to losses than to gains and a tendency to evaluate outcomes frequently. There are two myopic loss aversion are tested experimentally. Investor who myopic risk aversion will be more willing to accept risk if they evaluate their investment less often to gain high return, the other is investor will not accept unknown risk but accepts the low return with known risk due to their low financial knowledge or high psyche of loss averse. Financial knowledge decreases loss aversion up to some extent. High income and higher wealth of investor are significantly linked with loss aversion (Gachter, Johnson, & Herrmann, 2007). The possibility of loss aversion effects suggests, more generally, that treatments of responses to changes in economic variables should routinely separate the cases of favorable and unfavorable change (Kahneman, Knetsch & Thaler, 1991). Kahneman, Knetsch and Thaler (1991) suggest that the loss aversion biased investors are more irrational in making the investment decisions. So our literature distinguishes two type of investors, one is on behalf of loss aversion bias a don't bear unnecessary risk and save capital from loss these or effect positively while investors of second thought didn't effect from such bias and effect negatively on investment decision making.

**H2 (a):** *Loss aversion is associated positively with investment decisions.*

**H2 (b):** *Loss aversion is associated negatively with investment decisions.*

### **Moderating Role of Risk Perception on Investment Decision Making**

The decision making behavior of an individual is affected by the attitude and perception toward risk as well as the way in which the risky investment risk is subjectively perceived by the individual such as decision making behavior of an investor is influenced by the biases. Sitkin and Pablo (1992), Sitkin and Weingart (1995) discussed that taking action on risk is affected by both perception of risk and attitude towards risk. A number of empirical researches have been conducted on this bond and concluded that investment decision making process according to many investors is majorly affected by risk perception (Weber & Hsee, 1998). Chen and Tsai (2010) investigated empirically the relationship between perception of risk and decision making of investment particularly they consider the individual investor factors. Investment decision making is a critical activity for an individual investor who requires more return with biases of loss aversion and availability bias (Veld & Markoulova, 2008; Frigns et al, 2008). The contribution of our paper is to make a bond between perception towards risk and individual investor decision making who makes investment in different stocks. If the level of perception towards risk and forbearance of risk is different, the individual investor thinks differently about his investment, based on economic position and his psyche for this reason, different investors within different concepts about risk make his choice in investment differently.

**Moderation of Risk Perception between Availability Bias and Investment Decision**

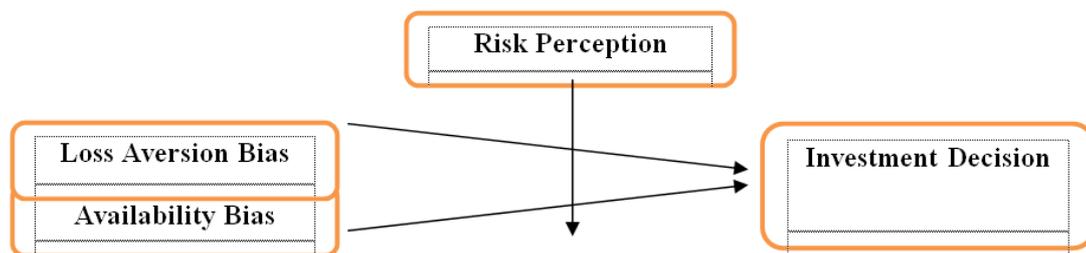
Risk is a widely used term in cross disciplines of knowledge and holds various meanings in different contexts. In behavioral finance, it is one of the key variables that is observed, measured and analyzed. If investors are effected form biases (availability bias) the decision may be irrational (Vicciardi, 2004). After a careful examination of the literature we found that the previous empirical literature was focused on the relationship between risk perception, attitude towards risk and investment decision of individual investors; it is obvious that investment decision largely depends on risk perception and risk attitude of investors. Behavioral Finance literature assumes that decision of asset allocation in risky and riskless assets relies on the risk-taking attitude of investor (Nosic & Weber, 2007). Researchers have always been interested in the factors that determine if perception of investor to word risk is varying or not? Our H1 says that availability bias have impact on investment decision making while including of risk perception may also increase and strengthen this relationship

*H4: Risk perception moderates the relationship of availability bias and investment decision.*

**Moderation of Risk Perception between Loss Aversion Bias and Investment Decision**

It is important for individual investor to notify the crucial factors that to play significant role in choices especially when he/she perceives risk and with bias of loss aversion (Grable et al, 1999; Hallahan et al, 2004). The contribution of our paper is to make and show the relationship between perception towards risk taking as a moderator and individual investor decision making with loss aversion bias that makes investment in different equity shares options. If the level of perception towards risk and forbearance of risk is different, the individual investor thinks differently about his investment, based on economic position and his psyche; for this reason, different investors within different concepts about risk make his choice in investment differently (Hallahan et al, 2004). Tolerance of risk is the individual behavior towards the decision making so this a significant factor that is used by management and other service providers at the time of investment. Here the risk perception use as a moderator strengthens significance the relationship of loss aversion bias and investment decision making.

*H5: Risk perception moderates the relationship between loss aversion bias and investment decision making*



**Figure 1: Model of Research**

**METHODOLOGY**

The present research is a cross sectional study with descriptive nature, as research has already been conducted in this area. Moreover it is a casual type of investigating. Data and sample collected for this paper are questionnaire using convenience sampling, from Islamabad stock exchange and business students. The population of this study was all the people who are above the age of 18 years having well educational qualification and experienced of encountering the

decision making in their lives. Initially 260 questionnaires were distributed and 230 were received back. Out of these 23 questionnaires were incomplete and were omitted. Therefore 207 questionnaires were used for the study, representing response rate of 79%. Most of The participants are real stock investors and others are graduate and post graduate students whose well financial knowledge. The participants were asked not to mention their names or organization's names anywhere in the questionnaire to guarantee confidentiality. Questioners were distributed online and direct through personal meeting held in different situations and 140 are male and 67 are females respondents are asked to choose among the choices that which type of decision they will take and through their responses to the questions study judged the behavioral biases prevalent among their decision. The above collected data for this study was analyzed by using simple regression and correlation Coefficient techniques are run to test our hypothesis. The Correlation coefficient shows the relationship between investment decision making and availability bias and loss aversion bias.

### **Instruments**

**Investment Decision:** Investment decision was measured using questionnaire with 5 dimensions (1=Strongly Disagree to 5= Strongly Agree) by Ahmed (2013)

Some of the items are: money is important goal of my life, it is the more satisfying to save than to invest money, stock market are unpredictable that's why I would never in stocks, I would invest a larger sum of money in stock.

**Risk perception:** Risk perception was measured by a scale with the 5 dimensions from (1=Strongly Disagree to 5= Strongly Agree) by Keh, Foo, Boon, and Lim, (2002).

**Some of the Items Are:** I want to earn more money than my current income level in the long run, I am looking for businesses or employment with higher income, I believe that the key issue of running different types of businesses are similar, I can accurately forecast the total the demand for my business.

**Availability Bias:** Availability bias will be measured by a scale with the 5 dimensions from (1=Strongly Disagree to 5= Strongly Agree) by Parker and Decotiis (1983).

**Loss Aversion Bias:** Loss Aversion Bias will be measured by a scale with the 5 dimensions from (5=Strongly Agree to 1= Strongly Disagree) by Parker and Decotiis (1983).

## **FINDINGS AND RESULTS**

### **Reliability**

For our questionnaire survey I adopt it which has been already used in much research survey. Our questionnaire is more reliable in each other which show the statistical reliability of scale. Cronbach's Alpha is .683 which is very close to .700 the decrease in Cronbach's alpha is due to using 5 Likert scales.

### **Correlation Analysis**

The vary purpose of correlation is to indicate the relation between two variables or to examine whether the two variables move in similar or opposite directions.

**Table 1: Correlation & Reliabilities**

Variables	1	2	3	4
Availability Bias	1			
Loss Aversion	.635**	1		
Risk perception	.341**	.068	1	
Investment decision	-.042	.157*	-.057	1

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

In Table 1, results of descriptive statistics and correlation among the variables are presented. Correlation analysis shows negative (-.042) and significant correlation between availability bias and Investment decision. So our theoretical hypothesis proved statistically. Loss aversion bias is positively (.157\*) and highly significant correlated with Investment decision.

**Regression Analysis**

For drawing conclusions regarding the dependence of one variable on another, regression analysis is used. Regression shows the extent to which a variable depends on another, independent variable on which it is being regressed. After controlling demographic variables Gender, Age, Experience and Qualification, a regression analysis was executed between IV and DV.

**Table 2: Results for Regression Analysis of Investment Decision**

Investment Decision	B	R <sup>2</sup>	ΔR <sup>2</sup>
Predictors			
Step 1 Control variables			.305
Step 2			
Financial literacy	.385***	.55	.155
Financial knowledge	.182***	.84	.129

n=207, Control variables were, Gender, Age, Experience and Qualification, \*\*\*p<.000

and \*\*\*p<.000

**Hypothesis 1:** proved that availability bias is negatively related with the Investment Decision. Table 2 indicates that availability bias is significantly associated with investment decision with  $\beta=.385***$  and  $p<.000$ .

**Hypothesis 2:** proved that loss aversion bias is also positively related with the investment decision with  $\beta=.182$  and  $p<.000$ , so on the base of this support hypotheses 1 and 2 both are accepted.

**Table 3: Moderation Analysis Results for Risk Perception**

Investment Decision	B	R <sup>2</sup>	ΔR <sup>2</sup>
Predictors			
Step 1 Control variables		.305	
Step 2 Availability bias	2.365		
Loss aversion bias	-1.547	.535	.230
Risk perception	1.627		
Step 3			
AB×RP	-.593***	.593	.058
LA×RP	.360***		

n=257, Control variables were Gender, Age, Experience and Qualification, \*\*\* $p < .001$

From Table 3, it can be observed that interaction term of “financial literacy and risk perception” effect on the relationship of “Availability bias and investment decision” with  $\beta = -5.93^{***}$ ,  $p > .063$ . So as the interaction term of “Loss aversion bias and risk perception” effect on the relationship of “Loss aversion bias and risk perception” with  $\beta = .360^{***}$ ,  $p > .001$ , so on the basis of the support hypotheses 4 and 5 are also accepted.

## DISCUSSIONS AND CONCLUSIONS

This study aims to investigate the influence of behavioral biases on investment decisions made by investors. This objective was achieved by administering a questionnaire and collecting empirical data from investors, graduate & post graduate students about their own perceptions of biases. Questionnaire was distributed among the sample of two hundred seven which 72% were males and 28% were females. Two statistical techniques were used to analyze collected data. Correlation was used to analyze the relationship of familiarity (availability) bias, loss aversion bias. Coefficient correlation determines the significant difference between the responses of male and female about risk perception. Results of this study reports weak negative correlation between availability bias and investment decision making discussed in the study. This study concludes there is no significant difference between the responses of male and female decision making regarding loss aversion bias. As Barber and Odean (2001) study concluded that, males are more risk taker than females while making both financial and non-financial decisions. But this study concludes that there is no significant association between risk perception and gender. From the sample of respondents most of them were subject to availability bias. Only few respondents were subject to loss aversion bias and there is positive relationship between investment decisions making. Most of the respondents were subject to familiarity bias and there is weak negative relationship between familiarity (availability) bias and investment decisions making. The moderation of risk perception strengthen the relationship between loss aversion bias investment decisions making, while weakened relationship between familiarity (availability) bias and investment decisions making. The result of this study refutes previous studies conducted on behavioral biases within investment decision making.

### Implication for Managers

The data and information are very useful for managers (investors) who are basically involved in investment processes either individual or at intuitional level. The information gives help to fund manager, how to make investment decision, how to take risk of investment, and how to generate portfolio of investment for achieving desired returns. The data help and give ideas to fund managers how to invest in particular way. The statements we make about how to invest are implication for future investment. There are different variables which are directly link with investment, so fund managers also take the decision in the light of that variable. The data are useful both individual and professional investors, as well as different types of fund managers and different types of managers who delivers the financial services to different clients/customers. The present research highlights major biases which effects investment decision making process and also refers the solution for of the problem.

### Future Direction Recommendations

The research is tests some biases with specific moderation of risk perception but there are many numbers of biases that affect the investment decision making process. If moderation is replace nr mediation then results may be different. If

area of study is extended to many cities, sample size is increased and real investors of stocks are participated in future study then results could be better than present study.

### Limitations

The time horizon for this study was too limited and proper research of variables was not possible. And the data was collected cross sectional from few cities and the trend is now shifting towards longitudinal studies for properly solving the problems. The other limitations cannot be ignored in Pakistani context as Aycan et al (2000) stated that Pakistan is totally different country and need separate studies. The concept of research studies in Pakistan and respondent rate is very low. Most of investors weak financial knowledge so for that they involved in different type of biases and as a result the investment decision making process effect irrational bear a sufficient loss on investment. These effects reflect on national stock exchanges, and miss representation of true economy disturbed.

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## APPENDICES

### Survey for Research

#### Dear Respondent,

I am a student of MS Management Sciences at Mohammad Ali Jinnah University Islamabad. I am conducting a research on impact of behavioral biases on individual investment decisions. You can help us by completing the attached questionnaire, which I think you will find quite interesting. I appreciate your participation in my study and I assure that *your responses will be held confidential* and will only be used for education purposes

Please insert a check mark (√) in the appropriate column to indicate whether you agree or disagree with each of the following statements.

#### Section 1

1	2	3	4	5
Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree

#### Section 2: Investment Decision

Investment Decision						
ID1	I know about interest rates, Finance charges, And credit terms.	1	2	3	4	5
ID2	Money is most important goal of my life	1	2	3	4	5
ID3	I know how to manage the finances.	1	2	3	4	5
ID4	I know how to invest my money.	1	2	3	4	5
ID5	It is more satisfying to save than invest money	1	2	3	4	5
ID6	I would invest a large sum of money in stock.	1	2	3	4	5

Section 2: Contd.,						
ID7	The uncertainty of whether the market will rise or fall keeps me from buying Stocks.	1	2	3	4	5
ID8	I budget my money very well.	1	2	3	4	5

**Section 3: Risk Perception**

Risk Perception						
RP1	I usually have a fear to invest in stocks that have a sure gain	1	2	3	4	5
RP2	I am cautious about stocks which show sudden changes in price or trading activity	1	2	3	4	5
RP3	I usually have worry investing in stocks that have had a past negative performance in trading	1	2	3	4	5
RP4	I usually consider the credibility of brokerage firms that provide the financial services	1	2	3	4	5
RP5	I am often not afraid to invest in stocks that have shown a past positive performance in trading	1	2	3	4	5

**Section 4: Availability Bias**

Availability Bias						
AB1	I prefer to invest in stock which has been evaluated by well-known expert	1	2	3	4	5
AB2	My investment decision depends on new and favorable (positive) information released regarding the stock	1	2	3	4	5
AB3	If someone had told me that a financial crisis is about to happen in a years' time. I would be Convince	1	2	3	4	5
AB4	I prefer to buy stocks on the days when the value of Index increases	1	2	3	4	5
AB5	I prefer to sell stocks on the days when the value of the Index decreases.	1	2	3	4	5

**Section 5: Loss Aversion Bias**

Loss Aversion Bias						
LA1	I have a knowledge to invest my capital in business	1	2	3	4	5
LA2	I am hopeful when undertaking investment that have exhibited a sure loss	1	2	3	4	5
LA3	I am cautious about losses which show sudden changes in price or trading activity	1	2	3	4	5
LA4	I usually have investing in capital that have a past positive performance in trading	1	2	3	4	5
LA5	My decision in business is largely based on knowledge, experiences and education	1	2	3	4	5

**Demographics Data**

Gender	1	2			
	Male	Female			
Age	1	2	3	4	5
	18-25	26-33	34-41	42-49	50 and Above
Age	1	2	3	4	5
	18-25	26-33	34-41	42-49	50 and Above
Experience	1	2	3	4	5
	5 and Less	6-13	14-21	22-29	30 and Above

**Figure 2**