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“The Influence of Investor Psychology on Regret Aversion”

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I. INTRODUCTION

Due to the Liberalization, Globalization and Privatization financial sector is also progressive at a very fast pace and due to which question arising is of what is the effect the investors' psychology on the regret aversion. It is very difficult for investor to take decision and survive in this highly competitive economic world as well s for organizations coming up with financial products. If they are unable to comprehend the investor psychology on regret aversion, they will fail.

The Investor psychology is the scientific study of investor mind and behavior. Psychology is the study of the human brain including people's behaviors, attitudes, feelings and personality. Investors, like any decision maker, feel regret when they compare the outcome of an investment with what the outcome would have been they invested differently. To take any good decision investor check positives and negatives of each option, and consider all the alternatives.

Regret Aversion in simple words is the trend to avoid making decision due to the fear of experiencing the hurt of regrets. investor avoid taking decisive actions due to regret aversion because they fear that, in perception, whatever course they select will prove less than optimal. Essentially, this bias seeks to forestall the pain of regret associated with poor decision making. There is a role of regret aversion in decision making. Specifically, it examines how regret aversion influences decision process, choice, and post-decisional behaviors and feelings most investors are familiar with the painful

pangs of regret resulting from negative Consequences of a decision, such as receiving a bad grade after not studying, losing money after making a stupid investment, or feeling frustrated after taking the wrong decision about investment. Regret is considered an important negative emotion.

This research focuses on influence of investor psychology on regret aversion. This study examined investors' decisions to realize gains and losses in the any kind of financial decision they make. Specifically, the attention is focused on the different gender, age, qualification and Income.

II. REGRET AVERSION

Bell, Loomes & Sugden (1982) came up with very first definition of regret aversion and said that it motivates individuals to engage in decision behaviors and choices that avoid future regret, for example, by choosing the option for which the least regret is expected. Later, *Shefrin and Statman (1985)* suggested that regret aversion is an emotional feeling associated with the ex post knowledge that a different past decision would have fared better than the one chosen, as one of the factors leading to the disposition effect. *Samuelson and Zeckhauser (1988)* said regret aversion refers to the phenomenon that people keep the status quo because they know from experience that options that seem to be favorable given the apparently correct information at the time the decision is to be made, may later turn out to be less favorable than previously assumed.

Baber and Odean (1999) suggested investors want to avoid regret. When investors hold the paper gains stock, investors worry about the stock price will fall, so investors sell paper gains stock to become realized gains. Conversely, when investors ride the paper losses stock, investors will expect the stock price will go up in the future, so they will ride the loss stock.

Regret Aversion can be only put as the tendency to avoid making decision due to the fear of experiencing the pain of regrets. People demonstrate regret aversion avoid taking decisive actions because they fear that, in hindsight, whatever course they select will prove less than optimal. Essentially, this bias seeks to forestall the pain of regret associated with poor decision making. Each word has its own meaning.

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III. RELATIONSHIP BETWEEN DISPOSITION EFFECT AND REGRET AVERSION

Shiller (2000) argued that regret theory may apparently help explaining the fact that investors defer the selling of stocks that have gone down in value and accelerate the selling of stocks that have going up in value. Since the fear of regret leads investors to postpone losses, symmetrically, the desire for pride leads to the realization of gains. In short it can be inferred that investors might feel regret when they realize a loss, and, conversely, feel pride when they realize a paper gains.

IV. INVESTOR PSYCHOLOGY

Elliott (1930) developed the Elliott wave theory. Through use of sophisticated measurements that he called "wave counting," a wave theorist could forecast market turns with a high degree of accuracy. Further, *Sun1 and Hsiao (1983)* proposed Prospect Theory. Prospect theory to explain how decision makers actually behave when confronted with choice under uncertainty and formalizes an S-shaped value function to substitute for expected utility function of expected utility theory. *Weber & Camerer (1998)* found evidence of disposition affect in experimental market by pooling investor responses and analyzing buy and sale trends of sis risky assets. They argued that this was a construct of investor being risk averse with winnings, and risk seeking with losses with the purchase price as the reference point.

Traditional economic modeling assumes that people make *decisions rationally*, taking into account all available information (adjusted for the cost of gathering and analyzing the information). However, increasing evidence suggests that people's decision making is influenced by certain behavioral biases and has led to a growing body of work investigating the impact of these biases on financial markets.

The *impact of psychology* can be clearly seen in investor behavior, such as "herding". This can lead to bubbles and crashes and fear of regret, for example, where investors avoid selling a poorly performing investment because they do not want to admit to having made a bad decision to begin with.

V. RELATIONSHIP BETWEEN INVESTOR PSYCHOLOGY AND REGRET AVERSION

Investor psychology is the mental conflict that people experience when they are presented with evidence that their beliefs or assumptions are wrong; as such, *cognitive* dissonance might be classified as a sort of pain of regret, regret over mistaken beliefs. As with regret theory, the theory of regret aversion goes parallel. *Festinger (1957)* asserts that there is a tendency for people to take actions to reduce cognitive dissonance that would not normally be considered fully rational: the

person may avoid the new information or develop contorted arguments to maintain the beliefs or assumptions. There is empirical support that people often make the errors represented by the theory of cognitive dissonance. *McFadden (1974)* modeled the effect of cognitive dissonance in terms of a probability of forgetting contrary evidence and showed how this probability will ultimately distort subjective probabilities.

Goetzmann and Peles (1993) have argued that the same theory of cognitive dissonance could explain the observed phenomenon that money flows in more rapidly to mutual funds that have performed extremely well than flows out from mutual funds that have performed extremely poorly: investors in losing funds are unwilling to confront the evidence that they made a bad investment by selling their investments.

VI. LITERATURE REVIEW

Recent literature in empirical finance is surveyed in its relation to underlying behavioral principles, principles which come primarily from psychology, sociology and anthropology. In a study of verbal expressions of emotions,

Shimanoff (1984) found that regret was the most frequently named *negative emotion*, attitudes toward regret are mainly favorable versus unfavorable, whether individuals are self-serving in their ascription of regret experiences, and which beneficial functions people ascribe to regret versus other negative emotions. Although previous research has offered comparative profiles of various specific emotions in terms of psychology, intensity, or duration the present research is the first to benchmark regret against other common emotions in terms of these basic evaluations.

Lankman (1993) confirmed that regret is a common, if not universal, experience. Regret the persistence of the possible. Evidence for regret aversion has been documented in areas *Richard, van der Pligt, de Vries (1996)*, negotiation behavior. *Larrick & Boles, (1995)*, health-related decisions *Connolly & Reb, (2003)*, lottery ticket purchases *Zeelenberg & Pieters, (2004)*, and monetary gambles in the laboratory *Zeelenberg, Beattie, van der Pligt, & de Vries, (1996)*, among others.

Shefrin and Statman, (1985) examined the influences of *overconfidence, mental accounting, regret aversion and self-control* on the disposition effect of selling winners too early and holding losers too long. The findings show that (1) overconfidence, mental accounting and self-control positively influence the disposition effect, and (2) self-control negatively influences the disposition effect. As predicted, self control can reduce irrational behavior of investor.

Zeelenberg (1999b) and Roese (2005) found regret can tell us that we could have done better by choosing a different option. The regret experienced after trusting an untrustworthy leader, losing money in a

phony investment, *cheating* on one's spouse, or not blowing the whistle about corporate wrong -doing is likely to increase the probability of better choices in the future. By making better choices, in turn, decision makers should experience less regret. Thus, being willing to experience regret in the short -run might lead to better choices and less future regret.

Simonson (1989); Slavic (1975) studied the effects of decision making and explained as the result of decision makers, tendency to make easily justifiable reason-based choices. All violate certain normative principles of choice. However, as a pretest showed, the justifications underlying the effects are not all are considered equally unreasonable.

*Janis and Mann (1977) said that anticipatory regret might again lead to increased information purchase and, as a consequence, lead to worse overall monetary payoffs. The results show that making regret salient led to less rather than more information search under these conditions. It appears, then, that anticipatory regret did not lead to "mindless" information collection with the purpose of providing a justification that could protect the decision maker if the choice outcome turned out to be bad. Bell, Loomes & Sugden, (1982) Zeelenberg (1999) said that investor psychology is the pre-choice decision process. The results told that increasing *anticipatory* regret can, in some circumstances, lead to better, more heedful decision making.*

Larrick & Boles (1995) suggested that decision makers' tendency to seek feedback is actually much stronger than the tendency to avoid feedback when both options are equally effortless and costless to implement and regret is not particularly salient. However, once regret is more salient, feedback avoidance increases substantially and bad decision making increases as well.

*Subash (2011/2012) founds investors who are participating in the Indian Stock Market is rational at all times. The work focuses on nine identified *behavioral biases*, namely: Overconfidence, Representativeness, Herding, Anchoring, Cognitive Dissonance, Regret Aversion, Gamblers' Fallacy, Mental Accounting and Hindsight Bias. Effects of these nine factors on the decision making process of portfolio investors in Kerala, India has been analyzed in this study. The influence has primarily been analyzed in terms of whether behavioral factors affect the investors' decision to buy sell or hold stocks.*

Barber and Odean (2001) partitioned investors based on gender and, based on the previous psychological research fact that men are more overconfident than women, tested the theory that overconfident investors trade excessively. They document that men trade 45% more than women, and find that men's net returns were cut by 2.5% a year while

it was 1.72% for women, in data gathered from 1991 through 1997.

Montier (2002) Cognitive Dissonance is the mental conflict that people experience when they are presented with evidence that their beliefs or assumptions are wrong."

Markowitz and Pompian (2006) told that I should have computed the historical covariance of the asset classes and drawn an efficient frontier. Instead, I visualized my grief if the stock market went way up and I wasn't in it-or if it went way down and I was completely in it. My intention was to minimize my future regret, so I split my [pension scheme] contributions 50/50 between bonds and equities.

*Chandra (2008) explored the impact of *behavioral factors* and investor's psychology on their decision-making, and to examine the relationship between investor's attitude towards regret and psychology of decision-making. Chandra finds that unlike the classical finance theory suggests, individual investors do not always make rational investment decisions. The investment decision-making is influenced, largely, by behavioral factors like greed and fear, Cognitive Dissonance, heuristics, Mental Accounting, and Anchoring. These *psychological factors* must be taken into account as regret factors while making investment decisions.*

Poteshman and Serbin (2003) research show that to their detriment, investors tend to select a stock's 52-week high as the appropriate reference point. Samuelson and Zeckhauser (1988) said regret aversion is closely linked to the theory of omission bias, which holds that people perceive harmful commissions as worse than corresponding omissions and, therefore, prefer omission to commission.

*Ritov and Baron (1992) said selection of an alternative also means commitment to the alternative. Psychological commitment claims behavior on behalf of a position, as a change may damage self-esteem. When a *poor decision* is undeniable to ourselves, the natural survival instinct is to downplay the importance of the event or change the way we think about the outcome altogether. That is, we change the reference point from which the outcome is evaluated.*

*Wang, Zhao, Chan, and Chau (2000) demonstrated that developers become *over-confident* and that their over-confidence leads to over-building. These actions are found to cause excessive volatility in the real estate sector and even affect real estate cycles.*

*Hirshleifer, Subrahmanyam, & Titman (1994) experimental and empirical evidence show individual in groups abides the *group decision*, even when they perceive the group to be wrong. Individual suppresses their own beliefs and relies on their investment decision solely on the collective action, even though they disagree with the prediction.*

Savage's (1951) told that regret rule for decision making under ignorance. The *absence of any knowledge* about the probabilities with which different states of the world occur and that was perhaps the first formulation of a decision rule that seeks to minimize the regret for having chosen the relatively worse option.

Zeelenberg (2002) found further direct evidence for the role of having *good reasons* for one's choice. They studied regret after consumer decisions based on more or less convincing reasons and found that regret was more intense after unreasonable choices such as switching to a different product when the product performed well in the past, or not switching when it performed badly.

Reb and Connolly (2005) justified of the decision process may be of even stronger importance for the experience of regret. In the series of scenario - based studies, tested the effect of decision process quality on anticipated regret.

Based on the above extensive review of literature the objectives of the study were formulated to carry out a study on Investor Psychology and Regret Aversion in Indian context. The review was used as base for questionnaire preparation too.

VII. OBJECTIVES

1. To design, develop and standardize a measure to evaluate Investor Psychology.
2. To design, develop and standardize a measure to evaluate Regret Aversion.
3. To find out the underlying factors of Investor Psychology and Regret Aversion.
4. To find out differences between male and female Investors on Psychology and Regret Aversion.
5. To find out the causal relationship between Investor Psychology and Regret Aversion.
6. To open new vistas for further study.

VIII. RESEARCH METHODOLOGY

The study was exploratory in nature and survey was used to complete it. Population subsumed the entire Investors of Gwalior region. Since there was no list of existing investors of Gwalior region, no sampling frame was used. Individual Respondent was the sampling element. 200 individuals including 100 male and 100 female investors were the respondents and Non probability judgmental sampling was used.

IX. TOOLS USED FOR DATA COLLECTION

For the purpose of data collection, a standardized questionnaire was used as a base (Marcatto and Ferrante, 2008). The same was re-standardized again in Indian context. Responses were solicited on Likert-type scale 1 to 5, where 1 stands for minimum agreement and 5 stands for maximum agreement would be used.

X. TOOLS USED FOR DATA ANALYSIS

1. Item to total correlation was used to check the internal consistency of the questionnaires.
2. Reliability test was applied to check the reliability of the questionnaire with the help of Cranach Alpha.
3. Factor analysis was applied to find out the factors of Investor Psychology as well as Regret Aversion.
4. The simple linear regression was used to find out cause and effect relationship between Investor Psychology and Regret Aversion.
5. MANOVA was used to compare the Psychology and Regret Aversion of different categorical factors.

XI. RESULTS AND DISCUSSIONS

a) Reliability Test

Cronbach Alpha reliability method was applied to check the reliability of all items in the questionnaire. The reliability measure of questionnaire (combined) was computed by using SPSS software. Cranach alpha Reliability coefficients were computed to calculated reliability of all items in the questionnaires of *Investor Psychology and regret Aversion*.

b) Reliability Statistics

Reliability of both the questionnaires was checked through SPSS 18 was greater than 0.7. It is considered that reliability of all measure is adequate. So the statements in the questionnaire were treated as reliable statements.

Reliability Statistics of Investor Psychology

Reliability Statistics	
Cronbach's Alpha	N of Items
.728	12

Reliability Statistics of Regret Aversion

Reliability Statistics	
Cronbach's Alpha	N of Items
.723	8

c) KMO and Bartlett's Test

Further KMO Bartlett's test was used for sample adequacy. The results are discussed in table below.

The Kaiser Meyer Olkin Measure of Sampling Adequacy value was 0.718 indicating that the sample was adequate to consider the data as normally distributed. The Bartlett's Test of Sphericity tests the null hypothesis that the item-to-item correlation matrix was an identity matrix. The hypothesis was tested through

Chi-Square test; the value of Chi-square was found to be 1242.851, which is significant at 0% level of significance. Therefore, null hypothesis is rejected; indicating that the item-to-item correlation matrix is not an identity matrix and is therefore suitable for factor analysis.

Principle component factor analysis with Varimax rotation and Kaiser Normalization was applied. The factor analysis resulted in 4 factors for Investor Psychology. The details about factors, the factor name, Eigen value, Variables converged; Loadings, Variance% and cumulative% are shown follows

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.718
Bartlett's Test of Sphericity	Approx. Chi-Square	1242.851
	Df	190
	Sig.	.000

d) Factor analysis of Investor Psychology

Factor name	Total eigen values	% of variance	Items converged	Factors loads
1. Curious and fearless	2.050	17.081	R-1. My style is more spontaneous action then Cool deliberation.	.268
			R-9. I like to gather data a lot on any new Opportunities that arise.	.408
			R-10. I love taking chances.	.383
			R-11. Success is all about that matters to me.	.491
2. Distressed	1.929	16.076	R-4. I am someone who prefers routine to Uncertainty.	.369
			R-7. I never upset people.	.464
			R-12. Occasionally people make me angry.	.288
3. Balance Decision making	1.666	13.881	R-5. I would rather achieve balance than Success In my life.	.537
			R-6. I like to make decisions quickly and Instinctively.	.370
4. Heuristic	1.483	12.355	R-2. When things go wrong at work it takes me A while to get over it.	.145
			R-3. High risk activities excite me.	.299
			R-8. Before buying a quiet expensive item I do Exhaustive research.	.376

e) Description of Investor Psychology factors

- Curezious and fearless:* - This factor has included the most important determinant of research total variance 17.081. Major elements of this factor include "R-1. My style is more spontaneous action then cool deliberation."(0.268). "R-9 I like to gather data a lot on any new opportunities that arise."(0.408). "R-10 I love taking chances. (0.383)" "R-11 Success is all about that matters to me."(0.491).
- Distressed:* - This factor has included the most important determinant of research total variance 16.076. Major elements of this factor include "R- 4. I am someone who prefers routine to uncertainty (0.369)." "R-7 I never upset people (0.464)." R-12 Occasionally people make me angry (0.288)."

- 3. *Balance Decision making:* - This factor has included the most important determinant of research total variance 13.881. Major elements of this factor include "R-5. I would rather achieve balance than success in my life. (0.537)" "R-6 I like to make decisions quickly and instinctively (0.370)".
- 4. *Heuristic:* - This factor has included the most important determinant of research total variance 12.355. Major elements of this factor include. "R-2 When things go wrong at work it takes me a while to get over it. (0.145)". "R-3 High risk activities excite me. (0.299)". "R-8 Before buying a quiet expensive item I do exhaustive research. (0.376)"

f) *KMO test table for Regret Aversion*

The Kaiser Meyer Olkin Measure of Sampling Adequacy value was 0.737 indicating that the sample was adequate to consider the data as normally distributed. The Bartlett's Test of Sphericity tests the null hypothesis that the item-to-item correlation matrix was an identity matrix. The hypothesis was tested through Chi-Square test; the value of Chi-square was found to be 283.761, which is significant at 0% level of significance. Therefore, null hypothesis is rejected; indicating that the item-to-item correlation matrix is not an identity matrix and is therefore suitable for factor analysis.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.737
Bartlett's Test of Sphericity	Approx. Chi-Square	283.761
	Df	28
	Sig.	.000

Principle component factor analysis with Varimax rotation and Kaiser Normalization was applied. The factor analysis resulted in 3 factors for Investor

Psychology. The details about factors, the factor name, Eigen value, Variables converged; Loadings, Variance% and cumulative% are shown follows

g) *Factor analysis of Regret Aversion*

Factor name	Total eigen values	% of variance	Items converged	Factors loads
1. Risk Averse	2.231	27.839	R- 13. Whenever I make a choice, I'm curious about what would have happened if I had chosen Differently.	.421
			R-16. When I think about how I'm doing in life, I Often assess opportunities I have passed up.	.470
			R-19. I find that to adopt a careful, analytical Approach to making decision takes too long.	.522
			R-20. I am always prepared to take a gamble.	.352
2. Risk Neutral	1.391	17.390	R-15. If I make a choice and it turns out well, I still Feel like something of a failure if I find out that another choice would have turned out Better.	.422
			R-18. I feel at home in situations where I am under In pressure to make quick decision.	.277
3. Risk Taking	1.325	16.560	R-14. Whenever I make a choice, I try to get in-formation how the other alternatives turned Out.	.217
			R-17. Once I make a decision, I don't look back.	.224

h) *Description of Regret Aversion Factor*

1. *Risk Averse*: - This factor has included the most important determinant of research total variance 27.889. Major elements of this factor include. "R- 13 whenever I make a choice, I'm curious about what would have happened if I had chosen differently (0.421)." "R-16 When I think about how I'm doing in life, I often assess opportunities I have passed up. (0.470)" "R-19 I find that to adopt a careful, analytical approach to making decision takes too long (0.522)" "R-20 I am always prepared to take a gamble. (0.352)."
2. *Risk Neutral*: - This factor has included the most important determinant of research total variance 17.390. Major elements of this factor include. "R-15 If I make a choice and it turns out well, I still feel like something of a failure if I find out that another choice would have turned out better. (0.422)" "R-18 I feel at

home in situations where I am under in pressure to make quick decision (0.277)"

3. *Risk Taking*: - This factor has included the most important determinant of research total variance 16.560. Major elements of this factor include. "R-14 Whenever I make a choice, I try to get in- formation how the other alternatives turned out. (0.217)" "R-17 Once I make a decision, I don't look back (0.224).

Further to find out Relationship between Investor Psychology and Regret aversion and different demographic variables, generalized linear model were applied to the data.

i. *Manova*
a. *Descriptive statics*

Ideally, we would like to see a significant relationship between the investor psychology and the regret aversion. Both these variables are dependent here.

Box's Test of Equality of Covariance Matrices^a

Box's M	84.794
F	1.298
df1	54
df2	2593.666
Sig.	.072

Tests the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups.

- a. Design: Intercept + gender + age + income + gender * age + gender * income + age * income + gender * age * income

The Box's Test of Equality of Covariance Matrices checks the assumption of homogeneity of covariance across the groups using $p < .001$ as a criterion. Here, we do not have a concern – as Box's M (84.79) was not significant, $p (.072) > (.001)$ – indicating that there are no significant differences between the covariance matrices. Therefore, the assumption is not

violated and Wilk's Lambda is an appropriate test to use.

The following is the MANOVA using the Wilk's Lambda test.

Using an alpha level of .00, we see that this test is significant, Wilk's = .014. This significant F indicates that there are significant differences among the age gender, income, groups on a linear combination of the investor psychology and regret aversion.

Table : Interpretation of Wilki's Lambda

Multivariate Tests^a

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.986	5827.452 ^b	2.000	168.000	.000
	Wilks' Lambda	.014	5827.452 ^b	2.000	168.000	.000
	Hotelling's Trace	69.374	5827.452 ^b	2.000	168.000	.000
	Roy's Largest Root	69.374	5827.452 ^b	2.000	168.000	.000
	Pillai's Trace	.002	.180 ^b	2.000	168.000	.835
	Wilks' Lambda	.998	.180 ^b	2.000	168.000	.835

Gender	Hotelling's Trace	.002	.180 ^b	2.000	168.000	.835
	Roy's Largest Root	.002	.180 ^b	2.000	168.000	.835
	Pillai's Trace	.038	1.080	6.000	338.000	.374
Age	Wilks' Lambda	.963	1.077 ^b	6.000	336.000	.376
	Hotelling's Trace	.039	1.074	6.000	334.000	.377
	Roy's Largest Root	.031	1.743 ^c	3.000	169.000	.160
	Pillai's Trace	.037	1.049	6.000	338.000	.393
Income	Wilks' Lambda	.964	1.043 ^b	6.000	336.000	.397
	Hotelling's Trace	.037	1.037	6.000	334.000	.401
	Roy's Largest Root	.022	1.240 ^c	3.000	169.000	.297
	Pillai's Trace	.079	2.309	6.000	338.000	.034
gender * age	Wilks' Lambda	.923	2.299 ^b	6.000	336.000	.034
	Hotelling's Trace	.082	2.290	6.000	334.000	.035
	Roy's Largest Root	.053	2.997 ^c	3.000	169.000	.032
gender * income	Pillai's Trace	.036	1.037	6.000	338.000	.401
	Wilks' Lambda	.964	1.036 ^b	6.000	336.000	.402
	Hotelling's Trace	.037	1.035	6.000	334.000	.402
	Roy's Largest Root	.032	1.827 ^c	3.000	169.000	.144
age * income	Pillai's Trace	.063	.610	18.000	338.000	.892
	Wilks' Lambda	.938	.607 ^b	18.000	336.000	.894
	Hotelling's Trace	.065	.605	18.000	334.000	.895
	Roy's Largest Root	.045	.838 ^c	9.000	169.000	.582
gender * age * income	Pillai's Trace	.061	.753	14.000	338.000	.720
	Wilks' Lambda	.940	.750 ^b	14.000	336.000	.723
	Hotelling's Trace	.063	.746	14.000	334.000	.727
	Roy's Largest Root	.039	.951 ^c	7.000	169.000	.469

a. Design: Intercept + gender + age + income + gender * age + gender * income + age * income + gender * age * income

b. Exact statistic

c. The statistic is an upper bound on F that yields a lower bound on the significance level.

We see that there are three functions age, gender, income; are significant in examining group differences. With our univariate F-tests, we identify the insignificant variables. When it comes to finding out differences among various sub categories of age, income and gender, we see the differences are insignificant.

XII. INTERPRETING THE POST HOC TEST FOR AGE

The MULTIPLE COMPARISONS table is showing the results for the Tukey HSD and the LSD

follow-up tests. Since the assumption of homogeneity of variance was met in our example – we only need to review the Tukey HSD information. The information for the LSD can be ignored at this time.

The Tukey HSD tests the null hypothesis that the two means are equal.

At first glance, this table is rather intimidating – however, there is only certain pieces of data that we need to make our conclusion. We can see that the mean of age category (I) 25 - 35 differs significantly in income from (IV) 55 - 65 years of age category for Investor Psychology.

Multiple Comparisons

Dependent Variable	(I) age	(J) age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD		2.00	-1.00	.921	.696	-3.39	1.39
	1.00	3.00	-.48	.921	.953	-2.87	1.91
		4.00	1.76	.921	.229	-.63	4.15
	1.00	1.00	1.00	.921	.696	-1.39	3.39
	2.00	3.00	.52	.916	.942	-1.86	2.90
		4.00	2.76*	.916	.016	.38	5.14
	1.00	1.00	.48	.921	.953	-1.91	2.87
	3.00	2.00	-.52	.916	.942	-2.90	1.86
		4.00	2.24	.916	.073	-.14	4.62
	1.00	1.00	-1.76	.921	.229	-4.15	.63
Invphy	4.00	2.00	-2.76*	.916	.016	-5.14	-.38
		3.00	-2.24	.916	.073	-4.62	.14
		2.00	-1.00	.921	.277	-2.82	.81
	1.00	3.00	-.48	.921	.600	-2.30	1.33
		4.00	1.76	.921	.058	-.06	3.57
LSD	1.00	1.00	1.00	.921	.277	-.81	2.82
	2.00	3.00	.52	.916	.571	-1.29	2.33
		4.00	2.76*	.916	.003	.95	4.57
	1.00	1.00	.48	.921	.600	-1.33	2.30

		3.00	2.00			- .52	.916	.571		-2.33		1.29
			4.00			2.24*	.916	.016		.43		4.05
			1.00			-1.76	.921	.058		-3.57		.06
		4.00	2.00			-2.76*	.916	.003		-4.57		- .95
			3.00			-2.24*	.916	.016		-4.05		- .43
			2.00			.27	.761	.984		-1.70		2.25
		1.00	3.00			.45	.761	.934		-1.52		2.43
			4.00			1.05	.761	.512		-.92		3.03
			1.00			-.27	.761	.984		-2.25		1.70
		2.00	3.00			.18	.757	.995		-1.78		2.14
			4.00			.78	.757	.732		-1.18		2.74
			1.00			-.45	.761	.934		-2.43		1.52
Tukey HSD		3.00	2.00			-.18	.757	.995		-2.14		1.78
			4.00			.60	.757	.858		-1.36		2.56
			1.00			-1.05	.761	.512		-3.03		.92
		4.00	2.00			-.78	.757	.732		-2.74		1.18
			3.00			-.60	.757	.858		-2.56		1.36
regaversion			2.00			.27	.761	.721		-1.23		1.77
		1.00	3.00			.45	.761	.553		-1.05		1.95
			4.00			1.05	.761	.169		-.45		2.55
			1.00			-.27	.761	.721		-1.77		1.23
		2.00	3.00			.18	.757	.812		-1.31		1.67
			4.00			.78	.757	.304		-.71		2.27
LSD			1.00			-.45	.761	.553		-1.95		1.05
		3.00	2.00			-.18	.757	.812		-1.67		1.31
			4.00			.60	.757	.429		-.89		2.09
			1.00			-1.05	.761	.169		-2.55		.45
		4.00	2.00			-.78	.757	.304		-2.27		.71
			3.00			-.60	.757	.429		-2.09		.89

Based on observed means.

The error term is Mean Square(Error) = 14.330.

*. The mean difference is significant at the .05 level.

XIII. INTERPRETING THE POST HOC TEST FOR INCOME

The *MULTIPLE COMPARISONS* table (in our example) is showing the results for the Tukey HSD and the LSD follow-up tests. Since the assumption of homogeneity of variance was met in our example – we only need to review the Tukey HSD information. The information for the LSD can be ignored at this time.

We can see that this test indicates the differences in mean income levels amongst the groups.

The first row indicates the difference in income level between those in group 1 (up to 2 lakh) versus those who are in group 2 (2-5 lakh) and group 3 (5-10 lakh) and group 4(55 lakh above). We can determine that the mean difference by examining the second column of the table. Here we can see that the mean difference on Investor Psychology as well as Regret Aversion among different income groups are not significant.

Multiple Comparisons

Dependent Variable	(I) income	(J) income	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD		2.00	-1.56	1.019	.421	-4.21	1.08
	1.00	3.00	-1.17	.970	.624	-3.69	1.35
		4.00	-1.30	1.323	.759	-4.73	2.13
		1.00	1.56	1.019	.421	-1.08	4.21
	2.00	3.00	.39	.762	.956	-1.58	2.37
		4.00	.26	1.178	.996	-2.80	3.32
		1.00	1.17	.970	.624	-1.35	3.69
	3.00	2.00	-.39	.762	.956	-2.37	1.58
		4.00	-.13	1.136	.999	-3.08	2.82
		1.00	1.30	1.323	.759	-2.13	4.73
Invphy	4.00	2.00	-.26	1.178	.996	-3.32	2.80
		3.00	.13	1.136	.999	-2.82	3.08
		2.00	-1.56	1.019	.127	-3.57	.45
	1.00	3.00	-1.17	.970	.229	-3.09	.75
		4.00	-1.30	1.323	.327	-3.91	1.31
		1.00	1.56	1.019	.127	-.45	3.57
LSD	2.00	3.00	.39	.762	.608	-1.11	1.89
		4.00	.26	1.178	.825	-2.06	2.59
		1.00	1.17	.970	.229	-.75	3.09
	3.00	2.00	-.39	.762	.608	-1.89	1.11
		4.00	-.13	1.136	.909	-2.37	2.11

		1.00		1.30	1.323	.327		-1.31	3.91
	4.00	2.00		-.26	1.178	.825		-2.59	2.06
		3.00		.13	1.136	.909		-2.11	2.37
		2.00		-.58	.842	.902		-2.76	1.61
	1.00	3.00		-.20	.801	.995		-2.28	1.88
		4.00		1.67	1.093	.425		-1.17	4.50
		1.00		.58	.842	.902		-1.61	2.76
	2.00	3.00		.38	.629	.930		-1.25	2.01
		4.00		2.25	.973	.101		-.28	4.77
Tukey HSD		1.00		.20	.801	.995		-1.88	2.28
	3.00	2.00		-.38	.629	.930		-2.01	1.25
		4.00		1.86	.939	.197		-.57	4.30
		1.00		-1.67	1.093	.425		-4.50	1.17
	4.00	2.00		-2.25	.973	.101		-4.77	.28
		3.00		-1.86	.939	.197		-4.30	.57
regaversio		2.00		-.58	.842	.493		-2.24	1.08
	1.00	3.00		-.20	.801	.805		-1.78	1.38
		4.00		1.67	1.093	.129		-.49	3.82
		1.00		.58	.842	.493		-1.08	2.24
	2.00	3.00		.38	.629	.546		-.86	1.62
		4.00		2.25*	.973	.022		.32	4.17
LSD		1.00		.20	.801	.805		-1.38	1.78
	3.00	2.00		-.38	.629	.546		-1.62	.86
		4.00		1.86*	.939	.049		.01	3.72
		1.00		-1.67	1.093	.129		-3.82	.49
	4.00	2.00		-2.25*	.973	.022		-4.17	-.32
		3.00		-1.86*	.939	.049		-3.72	-.01

Based on observed means.

The error term is Mean Square(Error) = 14.330.

*. The mean difference is significant at the .05 level.

XIV. ONEWAY INTERPRETATION: FOR GENDER AS CATEGORICAL VARIABLE

Descriptives

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
1.00	100	49.3800	4.83627	.48363	48.4204	50.3396	32.00	58.00
Invphysco 2.00	100	50.0900	4.70567	.47057	49.1563	51.0237	32.00	58.00
Total	200	49.7350	4.77270	.33748	49.0695	50.4005	32.00	58.00
1.00	100	32.9100	3.96728	.39673	32.1228	33.6972	23.00	39.00
regaversion 2.00	100	33.4800	3.74025	.37403	32.7379	34.2221	23.00	40.00
Total	200	33.1950	3.85634	.27268	32.6573	33.7327	23.00	40.00

Test of Homogeneity of Variances

	Levene Statistic	df1	df2	Sig.
Invphysco	.608	1	198	.436
Regaversion	1.353	1	198	.246

In the table 'Test of Homogeneity of Variances' we can find the result of Levene's Test for Equality of Variances. It tests the condition that the variances of both samples are equal, indicated by the Levene Statistic. In this statistic, a high value results normally in a significant difference, in this example that is Sig. =

0,000. Strictly speaking, the Bonferroni procedure can therefore not be used, as it assumes equal variances. However, we are dealing with large a sample, which reduces the problem, and the Bonferroni test can be used and interpreted with care.

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Invphysco	Between Groups	25.205	1	25.205	1.107	.294
	Within Groups	4507.750	198	22.766		
	Total	4532.955	199			
regaversion	Between Groups	16.245	1	16.245	1.093	.297
	Within Groups	2943.150	198	14.864		
	Total	2959.395	199			

As we can see, there is not much difference between the two Mean Squares for investor psychology (25.207, 22.766 and regret aversion 16.245, 14.864), resulting in a no significant difference ($F = 1.107$ investor psychology and 1.093 regret aversion; Sig. = 0.294 investor psychology 0.297 regret aversion). This means that H_0 must not be rejected. Thus: the average age of people who find regret aversion, investor psychology, or Exciting are all equal.

XV. CONCLUSION

The casual study was based on a survey of 200 males and females investors belonging in different location of the Gwalior region. The variables of the study were the Investor Psychology, Regret Aversion. The objectives of the study were to identify the Factors affecting Investor Psychology and Regret Aversion & further to find relationship between Investor Psychology and Regret Aversion. The study resulted in four factors for Investor Psychology viz Cautious and fearless, Distressed, Balance Decision making and Heuristic. Three factors were found for Regret aversion: Risk Averse, Risk Neutral and Risk Taking.

The result reveals that there is significant difference between investor psychology for age group category (I) 25 - 35 and (IV) 55 - 65 years. We can see here that there is a gradual change in the value system of people in India and people are now more concerned with quality life rather than economic achievement.

Previous research has shown differences in financial satisfaction by gender, though there were differences depending on what aspects of personal finance were measured (Hira & Mugenda, 2000). As quoted by Woodyard and Robb (2012), Previous research (Hilgert et al., 2003; Lusardi & Mitchell, 2006, 2007) has shown that objective knowledge influences financial behavior, and the general assumption has been that there is a subsequent impact on financial satisfaction as well. Financial decisions are taken in situations of high complexity and uncertainty which compels the decision maker to rely on institution.

Several factors influence decision making. These factors, including past experience (Juliusson, Karlsson, & Gärling, 2005), cognitive biases (Stanovich & West, 2008), age and individual differences (Bruin, Parker, & Fischhoff, 2007), belief in personal relevance (Acevedo, & Krueger, 2004), and an escalation of commitment, influence what choices people make. Understanding the factors that influence decision making process is important to understanding what decisions are made.

Weber(2003)

The conclusion drawn from this research lead to recommendations for a series of action which if adopted would help to establish the investor psychology which would improve the satisfaction of investor psychology similar results.(e.g., Bell, 1982; Loomes & Sugden,

1982; Zeelenberg, 1999a) but also the pre - choice decision making. Therefore, investor must recognize this fact and try to practice some mechanisms to control his (her) irrational behavior Based on the prospect theory of Kahneman and Tversky (1979), Shefrin and Statman (1985). The psychology effect implies that investors, in trying to avoid regret, will have a greater tendency to sell winners than losers. Investors will tend to hold losers too long and sell winners too soon. Therefore, investor must try to practice some mechanisms to control his (her) irrational behavior.

REFERENCES RÉFÉRENCES REFERENCIAS

1. Bell, D. E. (1983). Risk premiums for decision regret. *Management Science*, 29, 1156- 1166.
2. Bell, D.E. (1982). Regret in decision making under uncertainty. *Operations Research*, 30, 961-981.
3. Benartzi, Shlomo, and Richard H. Thaler. "Myopic Loss Aversion and the Equity Premium Puzzle." *Quarterly Journal of Economics*, February 1995, pp. 73- 92.
4. Connolly, T., & Reb, J. (2003). Omission bias in vaccination decisions: Where's the "omission"? Where's the "bias"? *Organizational Behavior and Human Decision Processes*, 91, 186-202.
5. Francesco Marcatto and Donatella Ferrante (2008), "The Regret and Disappointment Scale: An instrument for assessing regret and disappointment in decision making" *Judgment and Decision Making*, Vol. 3, No. 1, January 2008, pp. 87–99.
6. Festinger, L. A Theory of Cognitive Dissonance. First edition. Evanston, IL: Row Peterson, 1957.
7. Gilovich Tom, Robert Vallone, and Tversky, Amos. "The Hot Hand in Basketball: On the Misperception of Random Sequences." *Cognitive Psychology*, 1985, pp. 295-314.
8. Janis, I. L., & Mann, L. (1977). *Decision making: A psychological analysis of conflict, choice, and commitment*. New York: Free Press.
9. Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, 47, 263-291.
10. Kuo Min-Hua, Nai-Fong Kuo, Yao-Chu Chiu and Ping-Hang Fan. "Gender and Taiwanese Individual Stock Investors Behavioral" *Taiwan Banking and Finance quarterly*13, no 2, pp.1-28, 2005.
11. Landman, J. (1993). *Regret: The persistence of the possible*. New York: Oxford University Press.
12. Larrick, R. P., & Boles, T. L. (1995). Avoiding regret in decisions with feedback: A negotiation example. *Organizational Behavior and Human Decision Processes*, 63, 87-97.
13. Loomes, G., & Sugden, R. (1982). Regret Theory: An alternative theory of rational choice under uncertainty. *Economic Journal*, 92, 805-824.
14. Muermann, A., O. S. Mitchell, and J. Volkmann.(2006). Regret, portfolio choice, and guarantees in

- defined contribution schemes. *Insurance: Mathematics and Economics* 39(2)219-229
15. Nofsinger, J. and R. Sias, (1999), "Herd and Feedback Trading by Institutional and Individual Investors." *Journal of Finance*, 54, 6: 2263-2295
 16. Odean, T. (1998). Are investors reluctant to realize their losses? *Journal of Finance* 53(5) 1775-1798.
 17. Odean, Terrance. "Are Investors Reluctant to Realize Their Losses?" Haas School of Business Research Program in Finance Working Paper Series, No. 269, November 1996.
 18. Proquest.com
 19. R. J. Shiller, "Measuring Bubble Expectations and Investor Confidence", Reprinted in *Journal of Psychology and Financial Markets* 1, pp.49-60, 2000.
 20. Reb, J., & Connolly, T. (2005). Decision justifiability and anticipated regret. Manuscript under review. University of Arizona
 21. Richard, R., van der Pligt, J., & de Vries, N. K. (1996). Anticipated regret and time perspective: Changing sexual risk-taking behavior. *Journal of Behavioral Decision Making*, 9, 185-199.
 22. Roese, N. J. (2005). *If only: How to turn regret into opportunity*. New York: Broadway Books.
 23. Samuelson, W. and R. Zeckhauser. Status-quo Bias in Decision Making. *Journal of Risk and Uncertainty*, 1988, 1, 7-59.
 24. Savage, L. J. (1951). The theory of statistical decision. *Journal of the American Statistical Association*, 46, 55-67..
 25. Scribd.com
 26. Sewell, Martin. 2007. *Behavioral Finance*. <http://www.behaviouralfinance.net/behaviouralfinance.pdf>. Retrieved: February 2012.
 27. Shefrin and Statman (1985) *Journal of Finance* 40(3)777-790 Small Investor Behavior In Istanbul Stock Exchange (ISE), Euro journal Publishing, Inc, Middle Eastern Finance And Economics, ISSN: 14550-2889.
 28. Shiller, Robert, (1999), *Human Behavior and Efficiency of the Financial System*, *Handbook of Macroeconomics* (Johan B. Taylor and Michael Woodford, Editor), North- Holland, p 588.
 29. Shimanoff, S. B. (1984). Commonly named emotions in everyday conversations. *Perceptual and Motor Skills*, 58, 514.
 30. Simonson, I. (1989). Choice based on reasons: The case of attraction and compromise effects. *Journal of Consumer Research*, 16, 158-174.
 31. Slavic, P. (1975). Choice between equally-valued alternatives. *Journal of Experimental Psychology: Human Perception and Performance*, 1, 280-287.
 32. T. Odean, "Are Investors Reluctant to Realize Their Losses?" *Journal of Finance*, 53, pp.1775-1798, 1998.
 33. Tversky, A. (1972). Elimination by aspects: A theory of choice. *Psychological Review*, 79, 281-299.
 34. Zeelenberg, (2002). The inaction effect in the psychology of regret. *Journal of Personality and Social Psychology*, 82, 314- 327.
 35. Zeelenberg, M. (1999b). The use of crying over spilled milk: A note on the rationality and functionality of regret. *Philosophical Psychology*, 12, 325-340.
 36. Zeelenberg, M., & Pieters, R. (2004). Consequences of regret aversion in real life: The case of the Dutch postcode lottery. *Organizational Behavior and Human Decision Processes*, 93, 155-168.