

## Investor Psychology and its Influence on Investment Decisions

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**Abstract:** The most challenging task of investors is maximizing stock returns through a timely investment decision. Normally, investors act in a rational manner following their instincts and emotional biases while making investment decisions. Various psychological factors influence investors given their risk preferences. This paper uses the Theory of Behavioral Finance to examine the psychological factors that influence investment decisions of investors. Behavioral Finance, which has been receiving more attention in financial research, combines psychological studies of decision-making with more conventional decision-making models of standard finance theory. The main objective of this paper is to explore the behavioral factors influencing individual investor's decision. Nine common investor biases (Cognitive & Emotional) as identified by psychologists are examined in this article with each having its implication for investor behavior and investment decision-making. In this article, apart from the demographic factors like gender, age, market experience, qualification and the like, an economic variable, namely income of the respondent is mainly considered since investment goals are dependent on the income earned by investors and their risk preferences in making investment decisions. The other objective is to find if there is a significant relationship between income and the type of risk - High risk, Moderate risk or Low risk - preferred by the investors.

**Keywords:** Behavioral Finance, Chi-square, MANOVA, Risk Preference, Investor Psychology, Decision Making,

### Introduction

Investment decision making is a complex process, which includes choosing a particular alternative after a proper evaluation of all the available alternatives. Investors should keep themselves updated by obtaining information or gaining knowledge of market-related events to support investment decisions. Being rational, investors efficiently respond to new information regarding the stock market products. Recent research shows that retail investors make decision based on emotion, but not logic. Most investors react to different market situations and often end up buying when market is in peak or sell when the market is bottoming out and leave investor's in a confused and frustrated

mind frame. Behavioral finance seeks to account for this behavior and studies the rationality or otherwise of investors' investment decisions. Understanding behavioral finance helps one to avoid emotion-driven speculation leading to losses, and thus devise an appropriate investment strategy. Behavioral finance uses insights from the field of psychology and applies them to the actions of individuals in trading and other financial applications. The psychology-based theories explain stock market anomalies and help investors to make a better investment decision. In October 2002, Daniel Kahneman and Vernon Smith were honored with Nobel Prize for their contribution to the field of Behavioral Finance by integrating fields

of Psychology and Experimental Economics. They established a theory explaining how one can at times deviate from traditional economic theory. By this they laid the foundation for the field of experimental economics. During the past three decades, studies in the field of Behavioral finance have provided insight into the decision making of individuals and offered explanations for the anomalies sometimes observed in stock markets. The general premise of behavioral finance is that investors do not always act in a fully rational, utility-maximizing manner. It can be inferred that investors' decision are not always consistent with what traditional finance theory suggests. In this article, we discuss the implications of some of the main findings of research in behavioral finance on decision-making of individual investors. Researchers attribute a long list of specific biases of around fifty or more to individual investor behavior. Some authors refer to biases as heuristics or rules of thumb, while some others call them beliefs, preferences or judgment. Still some others classify biases along emotional or cognitive lines. Some of the most common biases which investors, participating in capital market especially secondary market are examined in this research study. Such biases are explained in the following paragraphs.

**1) Overconfidence Bias:** The overconfidence effect is a well-established bias in which an investor's subjective confidence in his or her judgments is reliably greater than the objective accuracy of those judgments, especially when confidence is relatively high. Overconfidence occurs when an investor over estimates the reliability of his skills, knowledge, experience and accuracy of the information or is over optimistic about the future outcome and the ability to control any adverse situations (Camerer & Lovo, 1999, Daniel K, D. Hirshleifer & Subrahmanyam, 2001; Glaser & Weber, 2003).

The key effect of Overconfidence results in indulging in too many trades, too

many risks resulting in paying high brokerage, taxes and loss.

**2) Loss Aversion:** In economics and decision theory, Loss Aversion refers the people's tendency to strongly prefer avoiding losses to acquire gains. Most studies suggest that losses are twice as powerful, psychologically, as gains. Loss aversion was first demonstrated by Amos Tversky and Daniel Kahneman in their Prospect Theory (1979) under the assumption that losses have a larger impact on preference than that of the advantages of gains. If a person were given two equal choices, one expressed in terms of possible gains and the other in possible losses, he would choose the former. Individuals are loss-averse rather than risk-averse because their pain associated with a given amount of loss is greater than their pleasure derived by an equivalent gain i.e. losses loom larger than gains, which is the theme of their Prospect Theory.

**3) Regret Aversion:** This broadly pertains to theory of investor behavior that attempts to explain why investors refuse to admit to themselves that they have made a poor investment decision so they do not have to face unpleasant feelings associated with that decision. This type of aversion causes investors not to correct bad decisions, which can make those decisions even more worse. A psychological error arises out of excessive focus on feelings of regret at having made a poor investment decision. The Regret Aversion theory explains why investors hold on to losing stocks: investors often take more risks to avoid losses than to realize gains (Sherfin and Statman, 1985). The fear of regret happens often when individuals procrastinate while decision making. Various experiments in psychology suggest that regret influences decision-making under uncertainty.

The main consequences of Regret Aversion are that the investors sell the winners too soon and hold on to losing position for too

long a long period resulting in reduced investment returns.

**4) Anchoring:** Anchoring is the tendency to cling to previous information, such as arbitrary pricing levels when considering a decision, such as an investment. It happens when a reference or starting point is given to the subject, as well as when the subject bases the estimate on the result of some incomplete computation. According to Tversky and Kahneman (1974), people usually start with some initial arbitrary value and adjust from it when forming any estimates or predictions. People also make estimates by starting from an initial value that is adjusted to yield. The initial value may be suggested by the formulation of the problem or it may be the result of partial calculations.

The key impact of anchoring on investor is the tendency to consider logically irrelevant price levels important in the process of decision-making, resulting in missed investment opportunities or bad entry/exit timing into the market.

**5) Cognitive Dissonance:** Cognitive Dissonance can be defined as the mental conflict that people experience when they are presented with evidence that their beliefs or assumptions are wrong (Montier, 2002). As a result of this, an investor ignores any new information that contradicts known beliefs and decision. People tend to seek consistency in their beliefs and perceptions. When there a discrepancy between beliefs and behaviors, something must change in order to eliminate or reduce the dissonance. This occurs because of commitment to the original decision forcing the investor to rationalize actions, which would allow him to stick to it, even though these are sub-optimal.

The key effect on investor is that he ignores new information that contradicts known beliefs and decisions and reduces the ability to make rational and fair investment decisions.

**6) Mental Accounting:** Mental accounting is the set of cognitive operations used by the investors to organize, evaluate and keep track of investment activities. Mental accounting is a term coined by Thaler (1980) to refer to the process by which people think about and evaluate their financial transactions. Three components of mental accounting receive most attention. The first captures the perception of outcome and its experience, and how decisions are made and subsequently evaluated. A second component of mental accounting involves the assignment of activities to specific accounts. Both the sources of fund and its applications are labeled in reality as well as in mental accounting systems. The third component concerns the frequency with which accounts are evaluated. Accounts can be balanced daily, weekly, yearly and so on and can be defined narrowly or broadly. Each of the components of mental accounting violates the economic Principle of Fungibility. As a result, mental

accounting influences choice (Thaler, 1999).

The key effect on investor is that it offers low or now diversification which might prove to be irrational and resulting in negative returns.

**7) Gambler's Fallacy:** The Gambler's fallacy, also known as the Monte Carlo Fallacy as its most famous example happen in a Monte Carlo Casino in 1913, and also referred to as the fallacy of the maturity of chances. It is the belief that if deviations from expected behavior are observed in repeated independent trials of some random process, future deviations in the opposite direction are more likely. The Gambler's fallacy can be illustrated by considering the repeated toss of a fair coin. With a fair coin, the outcomes in different tosses are statistically independent and the probability in getting head on a single toss is exactly one by two. If a person wins a toss thrice consecutively saying Heads, there is every possibility that fourth time it can be either

head or tail as both has equal probability, but still bets on further tossing with Heads as his strong preference the fourth time also. Gambler's fallacy arises when people inappropriately predict that a trend will reverse.

The key effect of Gambler's fallacy is that the investor takes too much of risk after a win that can create a chance to incur high loss.

**8) Herding:** One of the important factors that can be attributed to stock market fluctuations is the herding attitude of investors. When investors socialize their investment process then they do not apply quantitative analysis and various other techniques in their investment decision making to assess value of a security. This assessment is based on different information resources which are regarded as standard benchmarks for market analysis. Investors, who follow the herd, treat the outcomes of these analyses as facts and make their investment decisions based on such outcomes. Herd Behavior or herd mentality is the behavior of an investor who follows the action of other investors instead of relying on his own strategic information (Bikhchandani and Sharma, 2001).

The key effect of Herding is that the investors tend to lack individuality in decision-making and the consequences can be seen in market booms and busts.

**9) Confirmation & Hindsight:** In investment decisions, the confirmation bias happens when an investor looks for information that supports his original idea about an investment rather than seek out information that contradicts it. As a result, this bias can often result in faulty decision making because one-sided information tends to skew an investor's frame of reference, leaving him with an incomplete picture of the situation. Consider, for example, an investor who hears market tips from an unverified source and is intrigued by the potential returns. That investor might choose to research the stock in order to "prove" the news in real. For example, if a trader had

belief that US\$ was going to go up, he would look for information that supported that belief. Another common perception bias is hindsight bias, which tends to occur in situations where a person believes after the fact that the onset of some past event was predictable and completely obvious, whereas in fact, the event could not have been reasonably predicted. Shiller (2000) describes Hindsight bias as "the tendency to think that one would have known actual events even before they happened." Both confirmation and hindsight bias are born out of the human need to find order in a world of chaos. Because the markets are such a complex entity, traders will look for any way possible to make sense of it.

The key effect of this bias is that it creates a tendency to feel that a past event was obvious when it really was not and the consequence is that it leads to incorrect oversimplification of decision making.

Forbes and Kara (2010) argues that individual investors' self-confidence mediates how investment financial knowledge influences investors' trading efficacy, and Abreu and Mendes (2012) find that the more overconfident and non-overconfident investors invest in information the more they trade, but the trading behavior is sensitive to the sources of information used. Overconfident investors trade less frequently when they collect information via friends and family, and non-overconfident investors trade more frequently when they use specialized sources of information. But Kirchler's (2010) experimental results show the opposite conclusion: the persistent underperformance of weak informed investors is not due to overconfidence.

Bennet et al. (2011) analyzed data on retail investors and identify the stock specific factors that influence investor's sentiment. The primary data was collected from retail investors in Tamil nadu. The results showed that the investors investment decision of stocks depended upon the investors expectation

surrounding the stock, book value, price cut off rules and financial community.

Jains et al. (2012) analyzed the psychology of investor and his preferences clearly and concisely. Data was collected from retail investors from Udaipur region between September 2011 and January 2012 through a structured questionnaire. His findings were that investors prefer to wait to make any financial decision and are very cautious and their decisions are influenced by various psychological factors and behavioral dimension.

Harsh Purohit, Vibha Dua Satija and Sakshi Saxena (2014) in their findings conclude that retail investors decision making regarding investment differs with respect to their demographics and investors are rational enough while making investment decisions. Investor's combine their behavioral and cognitive psychology with financial decision making process.

### Objectives:

The present study is an attempt to understand the investor psychology and the biases displayed by them in recent volatile Indian Stock market. Attempt is also made to study the impact of one of the main demographic factor i.e monthly income on investor's decision and the biases displayed by an investor with respect to their risk preferences. The other objective is also to know and understand the key behavioral factors influencing individual investor's decision. And also to identify what kind of biases investors display in different salary groups.

### Population and Sample Selection used for this article:

The potential clients, whose trading volume is high and who frequently visit and trade through branch resources and online

platforms are approximately 3000 in number. For a population size of approximately 3000 clients, the sample size is determined to be around 341 clients with 95 per cent confidence level, using Rao's Sample Size Calculator. The questionnaire contained 56 questions out of which 12 were designed to capture quantitative information and remaining 44 were meant to obtain a measure of investor attitude and preferences. These 44 were constructed based on five point "Likert Scale".

The questionnaire used for this article had been tested for its reliability using Cronbach's Alpha statistical measure and arrived at 76.3 per cent accuracy, which is very much in the acceptable range. In this study, Percentage Analysis, Chi- Square Analysis, MANOVA, Factor Analysis and Multiple Regression Analysis have been employed to analyze the data. A comprehensive structural equation model has been developed further using smart PLS.

Descriptive research design was followed and primary data for analysis was gathered using a questionnaire survey. Questionnaires were distributed to active investors and clients of stock broking firms in Chennai, Tamilnadu with a sample size of 305 investors.

### Monthly Income wise classification of Investors:

The classification of investors on the basis of monthly income is shown in Table 1.

Table 1  
Monthly Income Classification

Monthly Income	No. of Investors	Total (%)
Less than 25000	14	4.6
25001 – 50000	145	47.5
50001 – 75000	101	33.1

Above 75000	45	14.8
Total	305	100

Above Table 1 shows that out of 305 investors, 47.5 per cent earn between Rs.25,001 and Rs. 50,000, 33.1 per cent earn between Rs.50,001 and Rs. 75,000, 14.8 per cent earn above Rs.75,000 and 4.6 per cent are with income below Rs.25,000.

**Income and Type of Risk Preference**

Chi-square analysis is carried out to find if there is any significant association between the demographic variables like Age, Gender, Marital Status, Educational Qualification, Occupation, Income and Risk. In this analysis the myth that income of an individual drives or decides the risk preference on their investments, more the income more the risk taking ability, lesser the income more risk averse is observed, to test whether at-least one of the demographic factor i.e Income is considered in this analysis. It is only with Income the investment allocation is made irrespective of Age, Gender, Qualification, Occupation etc. In addition, the investment bias displayed by such investors with different income slab is studied using Multivariate Analysis of Variance (MANOVA). The risk taking ability of the investors towards their investment is ascertained by their risk preference, in this article we have assigned risk preference options as High which means high risk taker, Moderate who are willing to take cautious stance by investing half the capital and risk it, Low is tagged where the investor doesn't risk his investment or assigns very small portion of their investment capital.

**Hypothesis Testing – Monthly Income & Risk Preference**

H<sub>0</sub>: There is no significant association between the Monthly income and risk preference.

H<sub>1</sub>: There is significant association between Monthly income and risk preference.

**Table2: Monthly Income and Risk Preference**

Monthly Income (Rs)	Type of risk preference			Total	Statistical Inference
	High	Moderate	Low		
Up to 25000	3 1%	7 2.3%	4 1.3%	14 4.6%	X <sup>2</sup> = 6.768+ df=6
25001 – 50000	42 13.8%	69 22.6%	34 11.1%	145 47.5%	
50001 – 75000	34 11.1%	36 11.8%	31 10.2%	101 33.1%	
Above 75000	19 6.2%	17 5.6%	9 3%	45 14.8%	
Total	98 32.10%	129 42.30%	78 25.60%	305 100%	
	+ Not Significant				

From the above Table 2, it is observed that respondent in income slab Rs. 25001 to Rs. 50000 form majority where 22.6 per cent are taking moderate risk, 13.8 per cent of them are taking high risk and only 11.1 per cent are taking low risk in investing in equity and other funds.

Further, it is also noted that Income does not have significant association with type of risk and hence null hypothesis (H<sub>0</sub>) is accepted.

**Multivariate Analysis**

The MANOVA (Multivariate Analysis of Variance) is a type of analysis used to analyze data that involve more than one dependent variable at a time. MANOVA allows testing hypotheses regarding the effect of one or more independent variables on two or more dependent variables. Demographic variable viz. monthly income is studied separately and considered as Fixed or Independent Variable while all the Investor Biases viz. Anchoring, Overconfidence, Cognitive Dissonance, Regret

Aversion, Loss Aversion, Mental Accounting, Gamblers Fallacy, Herding, Confirmation and Hindsight are considered as dependent variables.

**Multivariate Test on Income and Investor biases**

H<sub>0</sub>: There is no significant difference across the Income and Investor biases

MANOVA Test for Significant difference across the Income and Investor biases.

Table 3: Multivariate<sup>b</sup> Tests on income and Investor biases

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.984	1954.229 <sup>a</sup>	9.000	293.000	.000
	Wilks' Lambda	.016	1954.229 <sup>a</sup>	9.000	293.000	.000
	Hotelling's Trace	60.027	1954.229 <sup>a</sup>	9.000	293.000	.000
	Roy's Largest Root	60.027	1954.229 <sup>a</sup>	9.000	293.000	.000
Income	Pillai's Trace	.248	2.954	27.000	885.000	.000
	Wilks' Lambda	.762	3.098	27.000	856.353	.000
	Hotelling's Trace	300	3.241	27.000	875.000	.000
	Roy's Largest Root	.251	8.240 <sup>b</sup>	9.000	295.000	.000
a. Exact statistic						
b. Design: Intercept + income						

Table 4: Descriptive Statistics across the Income and Investor biases

Investor Biases	Income (Rs)	Mean	Std. Dev	N
Anchoring	Up to 25000	3.1607	.73122	14
	25001-50000	3.2776	.74309	145
	50001- 75000	3.3020	.52952	101
	Above 75000	3.0389	.81001	45
	Total	3.2451	.69270	305
	Up to 25000	3.1607	.66222	14
Overconfidence	25001-50000	3.3466	.55370	145
	50001- 75000	3.3441	.54182	101
	Above 75000	2.7611	.55123	45

Investor Biases	Income (Rs)	Mean	Std. Dev	N
Investor Biases	Total	3.2508	.58962	305
	Up to 25000	3.2143	.78359	14
	25001-50000	3.3052	.63497	145
Cognitive Dissonance	50001- 75000	3.3045	.70764	101
	Above 75000	3.5556	.58845	45
	Total	3.3377	.66384	305
	Up to 25000	3.5000	.99034	14
Regret Aversion	25001-50000	3.3224	.71317	145
	50001- 75000	3.2748	.75870	101
	Above 75000	3.5111	.70902	45
Loss Aversion	Total	3.3426	.74300	305
	Up to 25000	3.4286	.60787	14
	25001-50000	3.4414	.51117	145
	50001- 75000	3.3688	.61298	101
	Above 75000	3.5222	.55088	45
Mental Accounting	Total	3.4287	.55647	305
	Up to 25000	3.4107	.73122	14
	25001-50000	3.4362	.65337	145
	50001- 75000	3.3787	.73367	101
	Above 75000	3.7111	.54082	45
Gamblers Fallacy	Total	3.4566	.67555	305
	Up to 25000	2.9286	.69634	14
	25001-50000	2.7017	.55535	145
	50001- 75000	2.7475	.63294	101
	Above 75000	2.7944	.55465	45
Herding	Total	2.7410	.58816	305
	Up to 25000	2.8929	.51622	14
	25001-50000	2.5121	.61048	145
	50001- 75000	2.6658	.62478	101
Herding	Above 75000	2.7556	.61582	45

Investor Biases	Income (Rs)	Mean	Std. Dev	N
Confirmation and Hindsight	Total	2.6164	.61936	305
	Up to 25000	3.5179	.34619	14
	25001-50000	3.6172	.54091	145
	50001- 75000	3.5347	.53272	101
	Above 75000	3.5500	.65192	45
	Total	3.5754	.54792	305

Table 5: Tests of Subjects Effects on Income and Investor Biases

Source	Dependent Variable	Type III Sum of Squares	Df	Mean Square	F	Sig.
Monthly Income	Anchoring	2.493 <sup>a</sup>	3	.831	1.745	.158
	Overconfidence	13.112 <sup>b</sup>	3	4.371	14.211	.000
	Cognitive Dissonance	2.614 <sup>c</sup>	3	.871	1.997	.115
	Regret Aversion	2.149 <sup>d</sup>	3	.716	1.301	.274
	Loss Aversion	.779 <sup>e</sup>	3	.260	.837	.474
	Mental Accounting	3.617 <sup>f</sup>	3	1.206	2.686	.047
	Gamblers Fallacy	.849 <sup>g</sup>	3	.283	.817	.485
	Herding	3.767 <sup>h</sup>	3	1.256	3.349	.019
	Confirmation and Hindsight	.497 <sup>i</sup>	3	.166	.549	.649
a. R Squared = .017 (Adjusted R Squared = .007)						
b. R Squared = .124 (Adjusted R Squared = .115)						
c. R Squared = .020 (Adjusted R Squared = .010)						
d. R Squared = .013 (Adjusted R Squared = .003)						
e. R Squared = .008 (Adjusted R Squared = -.002)						
f. R Squared = .026 (Adjusted R Squared = .016)						
g. R Squared = .008 (Adjusted R Squared = -.002)						
h. R Squared = .032 (Adjusted R Squared = .023)						
i. R Squared = .005 (Adjusted R Squared = -.004)						

The hypothesis is tested using the monthly income of the respondents as independent measure (Fixed Factor) and Anchoring, Overconfidence, Herding, Cognitive Dissonance, Gamblers Fallacy, Confirmation and Hindsight, Loss Aversion, Regret Aversion and Mental Accounting as

dependent variables. MANOVA procedure is applied to the data. The table of multivariate tests displays four tests of significance for each model effect.

The entire four tests show significant difference. The significance value of the main effect is less than 0.05 which indicate that income contributes to the model.

Descriptive Statistics table shows the analysis and mean scores of various dependent measures across the independent variable, income, of the investors.

There is a difference in behavior between monthly income and investment behavior on Over-confidence at 1 per cent level of significance. The difference between monthly income and investment behavior on Mental Accounting and Herding behavior is significant at 5 per cent level.

Further, the mean scores show that investors earning between Rs. 25,001 and Rs. 50,000 have higher Overconfidence behavior compared to investors of other income groups.

Investors earning more than Rs.75,000 are higher in Mental Accounting behavior than others. Those with monthly income up to Rs. 25,000 are higher in Herding behavior than rest of the investors.

**Conclusion:**

It is observed using Chi-square analysis, that monthly income does not have any significant association with type of risk preferred by the investor. It is concluded that income, which is an important demographic factor, has no significant association with type of risk preferences. It is also observed that Investors are prone to investment biases based on the income they earn. The investor biases in the income slab 25001-50000 attribute to investment biases Overconfidence & Herd



mentality and investors earning >75000 are prone to display Mental Accounting bias in this article. Overconfidence results in indulging in too many trades, too many risks resulting in paying high brokerage, taxes and loss. Herding leads to market booms & busts. The effect of mental accounting is that it gives scope for low or no diversification, which might lead investor to an irrational decision or leading to negative return.

Further, it is therefore important to have a better understanding of relevant psychological factors which can help investors to move towards ultimate goal of becoming a well-informed, rational and emotionally-neutral investor. From financial professionals perspective it is imperative to incorporate the knowledge from this behavioral finance and advise their clients keeping in mind clients goals, financial conditions, risk tolerance and investment horizon. Creating a behavioral profile for clients through a series of questions will help detect the existence and the magnitude of behavioral biases. Investors taking their own investment decisions are prone to making emotional decisions and moving away from the investment plan, rather stay put on their investment decisions. Hence, investment professional can alone bring down the market anomalies by understanding the role of investor psychology on investment decision through a disciplined approach to investments.

### References:

1. Tversky, Amos. and Kahneman, Daniel "Judgment Under Uncertainty: Heuristics and Biases". *Science*: 185(4157). pp. 1124 – 1131, (1974)
2. Carmines, E. G., & Zeller, R. A. "Reliability and Validity Assessment. In *Sage University Paper Series on Quantitative Applications in the Social Sciences*. Beverly Hills Sage N. Pg 07-17, (1979)
3. Kahneman, Daniel. and Tversky, Amos. *Prospect Theory: An Analysis of Decision under Risk*. *Econometrica* 47(2): pp. 263 – 291, (1979)
4. Thaler, R. H. 'Toward a Positive Theory of Consumer Choice', *Journal of Economic Behavior and Organization*, 1, pp. 39-60, (1980)
5. Fornell, C., & Larcker, D. F, "Evaluating Structural Equation Models with Unobservable Variables and Measurement Error", *Journal of Marketing Research*, 18, pp 39–50, (1981)
6. Shefrin, Hersh and M Statman. The Disposition Effect to Sell Winner too Early and Ride the Losers too Long. *Journal of Finance*, 40 (3), pp. 777-790, (1986)
7. Barclay, D., Higgins, C., & Thompson, R, "The Partial Least Squares (PLS) approach to Causal Modelling: Personal Computer Adoption and use as an illustration", *Technology Studies*, 2, pp 285–309, (1995)
8. Chin, W. W. "The Partial Least Squares Approach for Structural Equation Modeling. In George A., & Marcoulides (Eds.), *Modern Methods for Business Research*, Lawrence Erlbaum Associates, pp. 295–336, (1998)
9. Hair, J. E., Anderson, R. E., Tatham, R. L., & Black, W. C, "Multivariate Data Analysis", 5<sup>th</sup> Ed., Prentice-Hall, Upper Saddle River, NJ, (1998)
10. Camerer, Colin, and Dan Lovallo, "Overconfidence and Excess Entry: An Experimental Approach." *American*

- Economic Review*, 89(1): pp. 306-318, (1999)
11. Thaler, Richard H. Mental Accounting Matters, *Journal of Behavioral Decision Making*, 12(3) : pp. 183 – 206, (1999)
  12. Hulland, J. S, “Use of Partial Least Squares (PLS) in Strategic Management Research: A Review of Four Recent Studies”, *Strategic Management Journal*, 20(4), pg 195–204, (1999)
  13. Koenig, J, “Behavioral Finance: Examining Thought Processes for Better Investing,” *Trust and Investments* 69, pg.17-23, (1999)
  14. Bikhchandani, Sushil & Sharma, Sunil, Herd Behavior in Financial Markets, 47(3), (2000).
  15. Bikhchandani, Sushil & Sharma, Sunil, Herd Behavior in Financial Markets, 47 (3), (2000)
  16. Shiller, Robert L Irrational Exuberance. USA: Princeton University Press, (2000).
  17. Statman, Meir, “Behavioral Portfolio Theory”, *The Journal of Financial and Quantitative Analysis*, 35(2), pg. 127 - 151, (2000)
  18. Brabazon, Tony. *Behavioral Finance: A New Sunrise or a False Dawn?* University of Limerick: 1-7, (2000).
  19. Shefrin, Hersh. *Beyond Greed and Fear: Understanding Behavioral Finance and the Psychology of Investing*. New York: Oxford University Press, (2000)
  20. Barber, Brad M., and Odean, Terrance. *Boys will be Boys: Gender, Overconfidence and Common Stock Investment*. The Quarterly Journal of Economics, 116(1): pg. 261 – 292, (2001)
  21. Daniel, K., D. Hirshleifer, and A. Subrahmanyam, “Overconfidence, Arbitrage and Equilibrium Asset Pricing”, *Journal of Finance*, 56, pp. 921-965, (2001)
  22. Glaser, M., and M. Weber, “Overconfidence and Trading Volume,” CEPR Discussion Paper No. 3941, (2003)
  23. Barberis, Nicholas. and Thaler, Richard. *A Survey of Behavioral Finance*, Handbook of the Economics of Finance. Elsevier Science, pg. 1054-1056, (2003)
  24. Lo, A., D. Repin and B. Steenbarger, “Fear and Greed in Financial Markets: A Clinical Study of Day-Traders”, NBER Working Paper 11243, (2005),
  25. Huang, J., Lin, Y., & Chuang, S, “Elucidating User Behavior of Mobile Learning: A Perspective of the Extended Technology Acceptance Model”, *The Electronic Library*, 25(5), (2007)
  26. Chen G., Kim K., Nofsinger J.R., and Rui O. M. Trading Performance, Disposition Effect, Overconfidence, Representative Bias and Experience of Emerging Market Investors, (2007).
  27. Teo, T. “Examining the Relationship between Student Teachers’ Self-efficacy Beliefs and their Intended uses of Technology for Teaching: A Structural Equation Modelling Approach”, *The*

- Turkish Online Journal of Educational Technology*, 8(4), pg. 7–16, (2009).
28. Ackert, L. F. and Deaves, R. *Behavioral Finance: Psychology, Decision-Making and Markets*. Mason, OH, USA: South-Western Cengage Learning, (2010).
29. Cheung, C. M. K., & Lee, M. K. O. “A Theoretical Model of Intentional Social Action in Online Social Networks”, *Decision Support Systems*, 49(1), pp 24–30, (2010)
30. Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E, “Multivariate Data Analysis”: Prentice-Hall, Upper Saddle River, NJ, (2010)
31. Forbes, J. and M. Kara, “Confidence Mediates How Investment Knowledge Influences Investing Self-efficacy”, *Journal of Economic Psychology* 31, 435–443, (2010).
32. Nofsinger, John R. *The Psychology of Investing*. Pearson Education, Boston, MA, (2011)
33. Parikh, Parag. *Value Investing and Behavioral Finance*. New Delhi : Tata McGraw Hill, (2011)
34. E. Bennet, M. Selvam, E. Ebenezer, V. Karpagam and S.Vanitha, “Investors Attitude on Stock Selection Decision”, *IJMBS*, Vol.1, Issue 2, Pg 7-15, (2011)
35. Montier, James (2002). *Cognitive Dissonance*. [http://Cognitive - Dissonance. Behavioural Finance.net/](http://Cognitive-Dissonance.Behavioural-Finance.net/) Retrieved: February 2012
36. Roldán, J. L., & Sánchez-Franco, M. J. “Variance-based Structural Equation Modeling: Guidelines for Using Partial Least Squares in Information Systems Research”. *Information Science Reference*, pg 193–221, (2012)
37. Abreu, M. and V. Mendes, “Information, Overconfidence and Trading: Do the Sources of Information Matter?”, *Journal of Economic Psychology* 33, Pg 868-881. (2012)
38. D. Jains and J. Dashora, “A Study on impact of market movements on investment decision – An empirical analysis with respect to investors in Udaipur, Rajasthan”, *Journal of Arts, Science & Commerce*, 2(2), Pg 78-88, (2012)
39. Harsh Purohit, Vibha Dua Satija and Sakshi Saxena, “Investors Psychology: An empirical Analysis, (SMS Varanasi, ISSN 0973-936X), Vol X, No.2, (2014).