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A STUDY ON BEHAVIORAL BIAS OF INDIVIDUAL INVESTORS

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Abstract: *Investment decisions are influenced by different facets like Perception, Awareness, Behavioral Biases and so on, out of which behavioral biases is the key facet that highly impacts the investment decision making process. Behavioral bias is defined as a pattern of variation in judgment that occurs in particular situations, which may sometimes lead to perceptual alteration, inaccurate judgment, illogical interpretation or what is largely called irrationality. This paper had attempted to examine the behavioral biases of the individual investor during the investment decision making. Results of this study favors to the existence of behavioral bias among the individual investors.*

Keywords: *Investor Psychology, Behavioral Finance, Investment Behavior, Behavioral Biases, Psychological Biases*

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1. INTRODUCTION

Behavioral Finance a branch of finance deals with the human psychology and its impact on investment decision making process. In traditional finance theory, investors are assumed to operate rationally. They're assumed to have access to complete information, process that information without emotion or any bias, act in a self-centered manner and be risk-averse. Traditional Finance and Efficient Market Hypothesis had gained acceptance by explaining the market behaviors by assuming that individual investors are completely rational, omniscient and have a general desire to maximize the expected utility. Moreover it explains that investor behavior using the utility functions that

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only incorporates risk and returns limiting its consideration on investors psychology, needs, behavior and emotions which was vital in the decision making process. Behavioral Finance is a mix of Psychology and Sociology, built on two blocks Cognitive Psychology and the Limits to Arbitrage. Behavioral Finance extends the scope and application of psychological insights and behavioral biases in to the investment decision making. This paper had attempted to examine the behavioral biases of the individual investor during the investment decision making. By realizing the psychological mechanisms, behavior, perception and attitude involved in the investment decision making, extant models may be improvised to succumb to the fallacy and generate models appropriate to the current market scenario.

1.1. Importance of the study

Decision making towards investment choice has been highly influenced by day to day emotions, individual's behavior and cognitive biases although the traditional theories are not inclined towards investor's irrationality and suboptimal decision making mechanism.

By and large investment decision making process is highly driven by behavioral biases interrupting the investors behaving irrationally and omnisciently. As behavioral finance being a relatively new area of study, extant literatures find more scope for further research. Findings from this study may help financial institutions in profiling individual investors and devising apposite investment strategies as per the personas and meeting their needs. Results from this study may cognize individual investors to steer clear of the interlude caused by behavioral biases during the investment decision making.

1.2. Theoretical Framework

Research in psychology has derived a range of decision making behaviors are referred to be biases. Behavioral bias is defined as a pattern of variation in judgment that occurs in particular situations, which may sometimes lead to perceptual alteration, inaccurate judgment, illogical interpretation or what is largely called irrationality. These biases affect both the individual and institutional investors

As per the conventional financial theory, individual investors are fully rational in the investment decision making who maximize the wealth by taking optimal decisions without the impact of emotions and cognitions. Traditional theory had limited its consideration on the investor's behavior and irrationality. Behavioral Finance is an emerging science that coalesce conventional economic and traditional financial theories with behavioral and psychological modern facets to determine the irrational behavior of investors.

Traditional Finance

Traditional theory assumes investors make economic decisions using utility theory, where they maximize the net present value (NPV) of utility, or the benefit they receive

from an action, subject to a constraint. This benefit can also be characterized as satisfaction resulting from the consumption of goods and services.

Expected utility is the total sum of utility values of results multiplied by their expected probabilities. In utility theory, rational investors are assumed to be able to clearly define their choices among any two options. The theory also assumes that investors make decisions consistently, rationally and independently of other choices. Finally, utility theory assumes that investors have continuous indifference curves and that they will make the same decisions when unfavorable aftermaths are combined or weighted with more favorable outcomes.

Unfortunately, most investors do not make decisions in a vacuum of perfect information and process that information without bias in or emotion. Neither do they maximize the net present value of the future benefits of their choices and actions by making decisions in their own best interests with their capital. Most investors do not see the ramifications of their daily actions, let alone the results of their actions months and years in the future. To put it simple that there cannot be such idealistic scenario that can favor the above assumption.

It's clear that the normative assumptions that traditional finance and utility theory use don't apply to the way most investors make decisions and allocate capital. It's clear that investors are not rational, the scenario is not ideal and they don't make consistent and independent decisions.

Behavioral Finance

Behavioral Finance does not try to neglect the basic components of EMH but rather it has been built on the traditional theory and steps to remove the idealistic supposition and make it more pragmatic.

Behavioral finance can be studied from both the micro and macro levels of the economy and capital markets. Behavioral Finance MIcro (BFMI) focuses on the behaviors of individual investors, whereas Behavioral Finance MAcro (BFMA) focuses on the behavior of the markets, anomalies in the markets against the efficient markets, questioning ideas of market efficiency. BMFI and BMFA differ from traditional finance theory, which assumes normative principles to model how the markets should act Behavioral finance challenges the idea that investors are rational at both the micro and macro levels. Efficient Market Hypothesis (EMH) refers that markets are always efficient, but in reality markets are not.

Behavioral biases can be either due to cognitive errors or emotional biases. Whilst cognitive errors stem from misinterpretation of data, faulty reckoning, statistical inaccuracy, or memory error, emotional biases stem from feelings, intuition, or impulsive thinking,. Both types of biases can lead to poor investment decisions that are not rational. BFMI suggests that these biases impact an individual's investment decisions, and BFMA asserts that markets are subject to the effects of these collective

decisions. Behavioral Biases highly impacts the investor's decision making and investor's perception. These behavioral biases are grouped under 3 themes Heuristics, Frame dependence and Inefficient Markets.

This study focuses on behavior of individual investors the micro facet of Behavioral Finance and the fundamental framework used for this research is as per CFA Level-3 2011 Book-1 ETHICAL AND PROFESSIONAL STANDARDS, BEHAVIORAL FINANCE AND PRIVATE WEALTH MANAGEMENT. Behavioral Finance has three themes Heuristic - Driven Bias, Frame Dependence and Inefficient Markets.

HEURISTIC - DRIVEN BIAS

Heuristic is rule of thumb by which people develop investment decision-making rules through experiment, trial and error, or personal experience. Heuristics include Representativeness, Overconfidence, Anchoring-and-Adjustment/Conservatism and Aversion to Ambiguity.

Representativeness

Representativeness is a heuristic process by which investor's base expectations upon past experience and/or applying stereotypes.

Overconfidence

Overconfidence means that people tend to place too much confidence in their ability to predict and make investment decisions.

Anchoring-and-Adjustment/Conservatism

Anchoring refers to the inability to fully incorporate or adjust the impact of new information on projections.

Aversion to Ambiguity

Aversion to ambiguity refers "fear of the unknown." Although aversion to ambiguity can be applied to investing, it is best described using probabilities associated with choices.

FRAME DEPENDENCE

Frame dependence implies that individuals make decisions and take actions according to the framework within which information is received like media or the individual's circumstances at the time like emotional state. Frame Dependence includes Loss Aversion, Self Control, Regret Minimization and Money Illusion.

Loss Aversion

Loss aversion refers to the individual's reluctance to accept a loss.

Self Control

Self control is related to frame dependence which implies that individuals' reactions to information are affected by the framework within which the information is received, and the framework is the media carrying the information, as well as the individual's circumstances, when the information is received.

Regret Minimization

Regret is the feeling associated with making a bad decision. Regret minimization can lead to two common situations. First, to avoid the possibility of feeling regret, investors can tend to stay in comfortable investments, such as stocks and bonds (i.e., regret minimization can lead to lack of variety in investments). Next, rather than sell profitable investments, investors may tend to use their cash flows, such as interest payments and dividends, for living expenses.

Money Illusion

Money illusion refers to the way individuals react to inflation and its impact on investment performance.

INEFFICIENT MARKETS

Market efficiency assumes all investors have the same information, interpret it the same, and make the same forecasts. Inefficient Markets include Representativeness, Anchoring-and-Adjustment/Conservatism, Frame Dependence and Overconfidence.

Representativeness

Representativeness can lead investors to make incorrect projections based upon stereotypes.

Anchoring-and-Adjustment/Conservatism

Conservatism refers to the inability of analysts to fully incorporate the impact of new information like earnings surprises on their projections.

Frame dependence

Frame dependence refers to investors' tendency to change (frame) their risk tolerance according to the direction of the market.

Overconfidence

Overconfidence has two implications and the resulting failure to recognize the true risk of an investment. First, being overly confident in their ability to interpret information and forecast performance, investors don't realize they do not have all the information necessary to form unbiased projections. Second, also based upon their

perceived ability to interpret information, investors tend to trade more frequently than can be justified by the information. The combination of the two results can lead to concentrated portfolios like lack of diversification and reduced returns from excess trading costs.

2. LITERATURE REVIEW

Hoang Thanh Hue Ton and Trung Kien Dao (2014) found the existence of psychology factors affecting investors' decision making in Vietnam Stock Exchange. The empirical findings suggest that only excessive optimism, psychology of risk and excessive pessimistic affect investors' decision makings. They have also evidenced that psychology of risk and optimism factor have impact on the way investors invest in.

T.C. Thomas and G. Rajendran (2012) found that the personality of an investor influences the investment patterns and types of investments made. It was also found that BB&K personality dimension Adventurer and Straight Arrow drive preferences for Type 1 investors invest in Equity related products, Equity oriented Mutual Funds, Hedge Funds and so on, Celebrity drive preferences for Type 2 investors invest in Equity related products, Equity oriented Mutual Funds, Individualist drive preferences for Type 3 investors invest in Derivatives, Direct Equity and Real Estate, Guardian drive preferences for Type 4 investors invest in Fixed Income securities, Pension schemes, Bullion and Straight Arrow drive preferences for Type 5 investors invest in Equity related products, Fixed Income securities & Pension schemes.

Rasoul Sadi, Hassan Ghalibaf Asl, Mohammad Reza Rostami, Aryan Gholipour and Fattaneh Gholipour (2011) found that there is a strong relation between the investor's personality and the perceptional errors in Tehran's stock market. It also confirms that there is a positive relation between extroversion and hindsight bias, straight relation between Neuroticism and Randomness bias, hindsight bias and availability bias, openness, hindsight and overconfidence bias, reverse relation between dutifulness and randomness bias, openness and availability bias and no relation between agreeableness and perceptional errors.

Soumya Saha and Munmun Dey (2011) examined the influence of demographic variables on the MF conceptual awareness level of individual investor and to identify the information sources influencing the scheme selection decision of investors. It was found that 72% of the respondents have good awareness level of MFs. This could be attributed to the wide publicity given to the MF industry by the media and investor education programs organized by AMFI from time to time. However, it should be noted that this study was based in the metropolitan city of Kolkata, where the awareness level would be considerably high. The challenge would be to educate the less aware investors about the advantages of investing in MFs compared to the traditional saving instruments in order to encourage investment in MFs. Further results to the analysis shows there is no relationship between awareness and

demographic variables like gender, age and income. It also found that the investor's preference for liquidity is found to be high, so suggested more of the new schemes to be open-ended.

Awan M. Hayat, Khuram Shahzad Bukhari and Bushra Ghufran (2010) found that dimension of overconfidence plays an important role in the determination of overall behavior. He also suggests that dimension of involvement, risk attitude and overconfidence are significantly associated with the investment decision. He also found that individual investors have high level of involvement and overconfidence while they are not much optimistic about the future outlook of market moreover they have been found to have an aversion to risk.

Antti Seppala (2009) found that investors in general are exposed to the studied behavioral biases but the degree and impact are affected by experience and other characteristics. Investment advisers are generally less exposed to hindsight bias than other people. Moreover, professionals generally outperform other people with lower level of confidence and are most exposed to self-attribution bias. Results also indicate that investors with more intuition are more exposed to behavioral biases.

V.K Ranjith (2002) examined the investor's risk perception by classifying them into low, medium and high risk-takers. The study also attempted to understand the influence of age, income, educational background and profession on risk preference. His study resulted in showing that majority of the investors prefer to take moderate amount of risk while making investment decisions. His study also determined that as the age increases the tendency of the investors to invest decreases. It is also observed that majority of the investors were not concerned about what they get by the end of the investment horizon and investor's awareness about the investment decision is limited to financial performance of the company. The study concludes that investors tend to make investment decision because of other influence who is working in their department or organizations. This is the trend observed amongst the people belonging to the service class.

Mohammad Shafi (2014) found that most common determinants that have a significant impact on the investors' behavior are Herding, Over-Reaction, Cognitive Bias, Irrational Thinking, Confidence, Gender, Age, Income, Education, Risk Factor, Dividends, Influence of people's opinion, Past performance of the company, Accounting, Information Ownership structure, Bonus Payments, Expected Corporate Earning and desire to get rich.

2.1. Objective and Scope

The Objective of the study focuses on understanding the investment behavior and its factors influencing the investment decision making of individual investors belonging to IT/ITES/Software professionals in Chennai, India. The major objectives of this study are:

- To report the existence of behavioral bias among the individual investors in Chennai, India belonging to Software/IT/ITES profession
- To study the behavior of individual investors in Chennai, India belonging to Software/IT/ITES profession
- To explore the effect of behavioral bias over the investment decision making

2.3. Period and area of study

Period of the study and data collection is covering the financial years 2007 to 2014 to cover the economic inflation and recession in the research variables. Area of study mostly covers the Investment Management strategies and decision making behavior.

3. MATERIALS AND METHODS

The Research methodology used for this study is survey research methodology. Based on literature review and identified gaps in the related areas a survey instrument, questionnaire was created to capture the awareness of individual investors on investment avenues and terminologies. Pilot study was conducted to test the reliability and validity of the questionnaire with the data collected from 60 respondents. After pilot testing, questions in the questionnaire with the lesser reliability value were removed.Baselined questionnaire was circulated to the individual investors of age varying from 23 to 57 years belonging to Software/IT/ITES profession in Chennai city part of various Information Technology Organizations. Sample was carefully considered such that the respondents are part of different strata to belong Pay scale, Age group, Designation, Educational background, Financial knowledge, Experience level, Financial Industry Experience, Social & Marital status and Investment Mode. Below sub-sections section gives a brief description of the Population and Sample, the Survey instrument, Pilot Study and the Survey procedure.

3.1. Research Population and Sample

The methodology adopted for this research is "Descriptive Survey", to assess the investor behavior and its impact on investment decision making. Mean, Median and Standard Deviation are the techniques used for the assessment. Population considered for this are the active individual investors working in the IT/ITES/Software industry at various levels in Chennai city, India. Data has been collected from primary sources by means of survey method through questionnaires. The whole population is the total number of IT professionals in Chennai. The sampling method adopted here is Convenience non-probabilistic sampling and the sample size is 573.The samples are stratified based the income levels and various other factors of the population and the proportion of the population is obtained from some of the related surveys of the various income categories of IT professionals. Below is the sample distribution of different strata:

Table 1
Sample Data Distribution

Factors	*Categories*	*Number of Respondents*	*Percentage*	*Cumulative Percentage*
Gender	Male	477	83.2%	83.2%
	Female	96	16.8%	100.0%
Age	Young Aged (23 - 35)	298	52.0%	52.0%
	Middle Aged (36 - 45)	241	42.1%	94.1%
	Elderly Aged (46 & above)	34	5.9%	100.0%
Education	Diploma	38	6.6%	6.6%
	U.G.	330	57.6%	64.2%
	P.G.	192	33.5%	97.7%
	Others	13	2.3%	100.0%
Finance Education	Yes	227	39.6%	39.6%
	No	346	60.4%	100.0%
DesignationLevel	Beginners & Intermediate - Operational	261	45.5%	45.5%
	Middle Level - Tactical	251	43.8%	89.3%
	Senior Level - Strategic	38	6.6%	95.9%
	Executive Level - Visionary	23	4.1%	100.0%
Total Experiencein	1 - 10 Years	213	37.2%	37.2%
Years	11 - 20 Years	306	53.4%	90.6%
	21 - 35 Years	54	9.4%	100.0%
Finance Industry	No Experience	176	30.7%	30.7%
Experiencein Years	1-10 Years	266	46.4%	77.1%
	11 - 20 Years	119	20.8%	97.9%
	21 - 35 Years	12	2.1%	100.0%
Total Monthly	INR 5000 - 20000	3	0.5%	0.5%
Income (INR)	INR 20001 - 50000	45	7.9%	8.4%
	INR 50001 - 80000	71	12.4%	20.8%
	INR 80001 - 120000	77	13.4%	34.2%
	INR 120001 - 150000	96	16.8%	51.0%
	INR 150001 - 200000	111	19.3%	70.3%
	INR 200001 - 250000	76	13.3%	83.6%
	INR 250001 - 300000	54	9.4%	93.0%
	> INR 300000	40	7.0%	100.0%
Maximum	10%	105	18.3%	18.3%
Tax Slab %	20%	116	20.2%	38.5%
	30%	352	61.5%	100.0%
Marital Status	Married	487	85.0%	85.0%
	Single	86	15.0%	100.0%
Self-owned Home	Yes	391	68.2%	68.2%
	No	182	31.8%	100.0%
Self-owned Car	Yes	344	60.0%	60.0%
	No	229	40.0%	100.0%
Planned	Early Retirement Age	115	20.1%	20.1%
Retirement Age	Normal Retirement Age	409	71.3%	91.4%
	Late Retirement Age	49	8.6%	100.0%
Investment Mode	Invest Directly	297	51.8%	51.8%
	Invest through Agents	276	48.2%	100.0%

3.2. Survey Instrument

A six page questionnaire consisting of two sections was developed. First section concentrated on demographic information such as Education, Finance Education, Designation Level, Total Experience in Years, Finance Industry Experience in Years, Total Monthly Income in INR, Maximum Tax Slab in Percentage, Number of Dependents, Various Family expenses, Marital Status, Self-owned Home, Self-owned Car and Planned Retirement Age. Later section deals with five-point Likert rating scale being rated by the investors on their perception towards investments and small savings. Each of the 38 questions was representing a perceptual factor rated with the five-point Likert rating scale by the individual investors.

Five-point Likert rating scale of first part has five different ratings/weightage Strongly Disagree (1), Disagree (2), Neither Agree or Disagree (3), Agree (4) and Strongly Agree (5). The questionnaire was prepared by referring to some of the similar instruments reported in the literature by previous researchers and enhanced with the feedback from the focus group. The fieldwork was done by means of personal interviews and also through e-Mails to get the questionnaire filled by professionals in 33 IT organizations in Chennai, India.

3.3. Pilot Study

Pilot study was done with the data collected from 60 individual investors belonging to IT/ITES/Software profession in Chennai, India to test the reliability & validity of the survey instrument. Preliminary analysis of the pilot data had shown that the respondents who filled the questionnaire were generally happy with the questions, length of questions asked in the questionnaire. Few changes were made to the subscale statements to improve clarity of the presentation and to make the responses more objective than keeping it subjective. To ensure the degree of objectivity and high quality in the survey data, the respondents were personally interviewed to verify the accuracy and integrity of the collected data. Below were the recommendations/impressions from the pilot study

- The reliability looks decent for all the broader sections
- Lower reliability variables needs to be deleted for few questions
- The variables in Section 1 are too many, so should plan to split the variables in to factors before proceeding main study

Above recommendations were accommodated in the base lined questionnaire used for further data collection

4. DATA ANALYSIS & INTERPRETATION

The data collected from the survey was scored and entered in the system for analysis by the SAS 5.1 software. Some preliminary results relating to the sample characteristics, the reliability of the questionnaire are reported in this section.

4.1. Data Collection Procedure and Respondent Characteristics

Questionnaire has been shared with 680 individual investors belonging to IT/ITES/ Software profession in Chennai. Data collection is done by sharing the questionnaire thru e-mail and personal interviews. Out of the 680 questionnaires distributed for response, 79 questionnaire response were returned, representing a response rate of 88% but out of this 28 questionnaire response were not considered for research since some of them are not properly filled . So the final ratios of forms which are considered for research are 84%, which is considered as an acceptable level of response rate in the type of research.

4.2. Reliability of Scale

In order to validate the reliability of the questionnaire, the Cronbach (1981) alpha coefficients for the questionnaire and the five ranking point subscales were calculated. It is evidenced that values given in section2 was found to have a mean value ranging from 3.71.in the Liker Point scale, where a value of 3 is regarded as neutral point. This indicates that ratings from the respondents tend to lie on the positive side of the rating scale. Furthermore, the standard deviation was found to be from 0.88 indicating a relatively high degree of consensus among the respondents in their perception of the rating the variables in the questionnaire.

4.2.1. Reliability Statistics for Investor behavioral biases

Table 2

Cronbach's Alpha	*N of Items*
0.758	44

4.3. Investor Behavioral Bias

Investor behavior and its impact on decision making can be assessed by the measuring the behavioral biases. Each of the 44 questions in the section 2 of questionnaire has been mapped to one of the behavioral biases. Behavioral bias considered for factorization falls under 3 themes Frame Dependence, Heuristics and Inefficient Markets. Behavioral Biases considered for the study were Frame Dependence : Self Control, Heuristics: Representativeness, Frame Dependence : Regret Minimization, Heuristics : Overconfidence, Frame Dependence : Loss Aversion, Frame Dependence : Money illusion, Inefficient Markets : Representativeness, Heuristics : Anchoring and Adjustments, Inefficient Markets : Conservatism, Inefficient Markets : Over Confidence, Inefficient Markets : Frame Dependence and Heuristics : Aversion to Ambiguity.

Table 3
Investors exhibiting Behavioral Bias

Behavioral Bias	*Biased*	*Neutral*	*Not Biased*
Frame Dependence : Self Control	86.34%	2.77%	10.89%
Heuristics: Representativeness	79.71%	3.69%	16.60%
Frame Dependence : Regret Minimization	67.68%	3.64%	28.68%
Heuristics : Overconfidence	64.09%	1.92%	33.99%
Frame Dependence : Loss Aversion	51.45%	4.54%	44.01%
Frame Dependence : Money illusion	40.88%	1.27%	57.85%
Inefficient Markets : Representativeness	39.35%	0.79%	59.86%
Heuristics : Anchoring and Adjustments	28.79%	1.31%	69.90%
Inefficient Markets : Conservatism	34.04%	5.76%	60.20%
Inefficient Markets : Over Confidence	35.78%	0.52%	63.70%
Inefficient Markets : Frame Dependence	12.56%	30.72%	56.72%
Heuristics : Aversion to Ambiguity	19.02%	9.25%	71.73%

With the initial assessment, more than 50% of the investors are seem to be biased towards Frame Dependence : Self Control (86.34%), Heuristics: Representativeness (79.71%),, Frame Dependence : Regret Minimization (67.68%), Heuristics : Overconfidence and Frame Dependence : Loss Aversion (51.45%), Frame Dependence : Money illusion (40.88%), Inefficient Markets : Representativeness (39.35%), Heuristics : Anchoring and Adjustments (28.79%), Inefficient Markets : Conservatism (34.04%), Inefficient Markets : Over Confidence (35.78%),, Inefficient Markets : Frame Dependence (12.56%), and Heuristics : Aversion to Ambiguity (19.02%).

Table 4
Frequency of Behavioral Bias

Behavioral Bias	*Strongly Disagree*		*Disagree Nor Disagree*		*Neither Agree*		*Agree*		*Strongly Agree*	
	Freq.	*%*	*Freq.*	*%*	*Freq.*	*%*	*Freq.*	*%*	*Freq.*	*%*
Frame Dependence: Self Control	234	4.54	327	6.34	143	2.77	1668	32.34	2785	54.00
Heuristics: Representativeness	287	7.16	379	9.45	148	3.69	1525	38.02	1672	41.69
Frame Dependence: Regret Minimization	299	8.70	687	19.98	125	3.64	1092	31.76	1235	35.92
Heuristics : Overconfidence	484	16.89	490	17.10	55	1.92	1221	42.62	615	21.47
Frame Dependence: Loss Aversion	728	25.41	533	18.60	130	4.54	1052	36.72	422	14.73
Frame Dependence: Money illusion	658	28.71	668	29.14	29	1.27	722	31.50	215	9.38
Inefficient Markets: Representativeness	462	40.31	224	19.55	9	0.79	375	32.72	76	6.63
Heuristics : Anchoring and Adjustments	311	27.14	490	42.76	15	1.31	233	20.33	97	8.46
Inefficient Markets: Conservatism	229	39.97	116	20.24	33	5.76	176	30.72	19	3.32
Inefficient Markets: Over Confidence	243	42.41	122	21.29	3	0.52	195	34.03	10	1.75
Inefficient Markets: Frame Dependence	194	33.86	131	22.86	176	30.72	36	6.28	36	6.28
Heuristics : Aversion to Ambiguity	219	38.22	192	33.51	53	9.25	75	13.09	34	5.93

Five-point Likert rating scale with five different Strongly Disagree (1), Disagree (2), Neither Agree or Disagree (3), Agree (4) and Strongly Agree (5) was used to assess the behavioral biases by on valuating 44 different variables questions falling under 12 factors. Above table 4 shows the frequency and percentage of the five point scale.

Table 5
Behavioral Bias – Individual Investors

Behavioral Bias-Factors	*Variables*	*Mean Frequency*	*Cumulative Mean*	*Median Frequency*	*S.D.*	*Min Mean Value*	*Max Mean Value*
Frame Dependence:	v2.1	4.38	4.38	5	1.1	4.15	4.38
Self Control	v2.42	4.32	4.35	5	1.02	4.15	4.38
	v2.6	4.3	4.33	5	1.11	4.15	4.38
	v2.30	4.25	4.31	4	0.92	4.15	4.38
	v2.26	4.23	4.30	5	1.11	4.15	4.38
	v2.21	4.21	4.28	4	1.07	4.15	4.38
	v2.18	4.2	4.27	4	1.02	4.15	4.38
	v2.15	4.18	4.26	5	1.12	4.15	4.38
	v2.11	4.15	4.25	5	1.2	4.15	4.38
Heuristics:	v2.31	4.11	4.11	4	1.17	3.81	4.11
Representativeness	v2.39	4.09	4.10	5	1.37	3.81	4.11
	v2.40	4.04	4.08	4	1.09	3.81	4.11
	v2.43	3.99	4.06	4	1.15	3.81	4.11
	v2.44	3.92	4.03	4	1.22	3.81	4.11
	v2.20	3.86	4.00	4	1.22	3.81	4.11
	v2.5	3.81	3.97	4	1.23	3.81	4.11
Frame Dependence:	v2.27	3.82	3.82	5	1.47	3.59	3.82
Regret Minimization	v2.12	3.71	3.77	4	1.32	3.59	3.82
	v2.4	3.63	3.72	4	1.33	3.59	3.82
	v2.2	3.61	3.69	4	1.45	3.59	3.82
	v2.36	3.6	3.67	4	1.21	3.59	3.82
	v2.22	3.59	3.66	4	1.38	3.59	3.82
Heuristics :	v2.41	3.53	3.53	4	1.32	3.18	3.53
Overconfidence	v2.3	3.44	3.49	4	1.44	3.18	3.53
	v2.19	3.35	3.44	4	1.41	3.18	3.53
	v2.38	3.23	3.39	4	1.46	3.18	3.53
	v2.7	3.18	3.35	4	1.44	3.18	3.53
Frame Dependence:	v2.37	3.12	3.12	4	1.49	2.81	3.12
Loss Aversion	v2.10	3.04	3.08	3	1.4	2.81	3.12
	v2.14	2.99	3.05	4	1.52	2.81	3.12
	v2.28	2.87	3.01	4	1.45	2.81	3.12
	v2.16	2.81	2.97	3	1.47	2.81	3.12
Frame Dependence :	v2.33	2.73	2.73	2	1.42	2.54	2.73
Money Illusion	v2.34	2.68	2.71	2	1.39	2.54	2.73
	v2.32	2.59	2.67	2	1.41	2.54	2.73
	v2.17	2.54	2.64	2	1.43	2.54	2.73
Inefficient Markets :	v2.25	2.48	2.48	2	1.42	2.43	2.48
Representativeness	v2.23	2.43	2.46	2	1.48	2.43	2.48
Heuristics : Anchoring	v2.8	2.41	2.41	2	1.35	2.39	2.41
and Adjustments	v2.35	2.39	2.40	2	1.26	2.39	2.41
Inefficient Markets: Conservatism	v2.24	2.37	2.37	2	1.36	2.37	2.37
Inefficient Markets : Over Confidence	v2.29	2.31	2.31	2	1.36	2.31	2.31
Inefficient Markets : Frame Dependence	v2.13	2.28	2.28	2	1.18	2.28	2.28
Heuristics : Aversion to Ambiguity	v2.9	2.15	2.15	2	1.23	2.15	2.15

Above table (Table 5) shows the mean values and cumulative mean values investor behavioral bias results are discussed below. Majority of individual investors from IT/ ITES/Software organization exhibit Frame Dependence: Self Control and Heuristics:

Representativeness with cumulative mean as 4.25 and 3.97. Very less individual investors from IT/ITES/Software organization exhibit Inefficient Markets: Frame Dependence and Heuristics: Aversion to Ambiguity with cumulative mean as 2.28 and 2.15.

4.4. Results and Discussion

- It has been evidenced that majority of individual investors from IT/ITES/ Software organization exhibit Frame Dependence : Self Control and Heuristics:

  Representativeness with cumulative mean as 4.25 and 3.97 respectively
- It has been found that very less individual investors from IT/ITES/Software organization exhibit Inefficient Markets : Frame Dependence and Heuristics : Aversion to Ambiguity with cumulative mean as 2.28 and 2.15 respectively
- There seems to be the existence of behavioral bias and irrational behavior of the individual investors fueling scope to the modern theory of Behavioral Finance

4.9. Limitations of the study and future scope

Some of the Limitations of this study are as follows.

- This study focuses only on the salaried group working in IT/ITES/Software Profession. This doesn't focus on salaried group of professionals in other industries or entrepreneurs in IT industry which can be focused for future research to determine investor perception
- This study has analyzed the behavioral determinants of individual investors. Future study can include other class of investors like institutional investors
- This study has limited the study area only to Chennai city. It can be further extended to other metropolitan cities over the country to explore national level investor perception
- The study related to behavioral finance and investor's psychology are still in nascent stages, henceforth secondary data related to the study is circumscribed

5. CONCLUSIONS AND RECOMMENDATIONS

Stakeholders have been mostly depending on the efficient market and rational investment behavior to make investment decisions. But the irrational behavior of the investors has always been exhibited with different behavioral biases since inception. With the scope of study, it was evidenced that majority of individual investors from

IT/ITES/Software organization exhibit Frame Dependence: Self Control and Heuristics: Representativeness with cumulative mean as 4.25 and 3.97. Very less individual investors from IT/ITES/ Software organization exhibit Inefficient Markets: Frame Dependence and Heuristics: Aversion to Ambiguity with cumulative mean as 2.28 and 2.15. It indeed proves the behavioral bias and irrational behavior of the individual investors fertilizing path and scope to the modern theory of Behavioral Finance.

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