International Journal of Science and Research (IJSR)
ISSN: 2319-7064
ResearchGate Impact Factor (2018): 0.28 | SJIF (2018): 7.426

Impact of Behavioral Finance on Equity Selection Pattern by Retail Investor - An Analytical study of Varanasi and Prayag Raj

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Abstract: ***Purpose of the Study*: Through this paper, an attempt is being made to study the behavior pattern of the retail investor when it comes to equity Investment and how Cognitive and Emotional Biases affect Individual Decision making. *Methodology*: An exploratory study conducted on the 51 equity share investors using Purposive sampling method from Varanasi and PrayagRaj Region of Uttar Pradesh in India during the time period of 1st June to 3o June 2019. *Main Findings*: Age and Gender both are affected by various types of Biases especially Herd Instinct, Self Attribution Bias and Regret Aversion. *Social Implication*: The impacting Cognitive and Emotional Biases are examined to draw a framework and guideline for the informed action. This will help the Investment Intermediaries to plan apt strategies and the customers to be aware of the impending factors that affect choices. *The novelty of the study*: Very few Researches have touched bases with both Cognitive and Emotional factors acting as parameters especially in Tier-II cities of India like Prayagraj which are the new Engines of Growth and Investment and wherein the new aspirational middle class resides. Hence such research may act as a catalyst for Investment strategy formulation.***

Keywords: Cognitive Biases; Emotional Biases; Behavioral Finance; Representativeness Heuristic; Herd Instinct Bias; Self Attribution Bias

1. Introduction

People make irrational financial decisions affected by their behavior and Cognitive Psychology. In order to understand why people make such decisions, Behavioral Finance comes as a new field of study in combination with Conventional and economic theory. Behavioral finance studies the behavior of Financial Practitioners and their effect on the Security market. It explains as to why people don't do fundamental Analysis and behaves irrationally before buying or selling the security market instrument.

Behavioral finance can be defined by establishing strong definitions for sociology, psychology, and finance.

Conventional finance is still the bedrock financial principle, whereasBehavioralfinance as a concept is based around psychology and sociology. It draws its value and strength from concepts that define elements of human physic. It is believed that conventional Finance theory is centered around the fact that investors have a reasoned approach when they make a long term financial decision with high stakes based on various economic models or estimations. Existing studies support the fact that human decisions are contingent upon their nature, instinct, and style, cognitive or emotional biases. After gathering enough information to confirm that human behavior is contrary to Conventional Finance theory – a new branch of knowledgeBEHAVIOR FINANCE began to emerge.Conventional finance theory states that Investors are logical while on another hand Modern Finance theory suggests that Investor's financial decisions are not based on available facts and analysis. The decisions taken by them are of conflicting nature and subject to several Cognitive misconceptions.

An investor may be a rational being who can perpetually act to maximize his gain. However, we are definitely not reasonable being. For sure, we settle on a large portion of our life choices on absolutely enthusiastic contemplations. In the money related world, speculator's occasionally base their choices on superfluous figures and measurements, e.g., some financial specialists may put resources into the stock that have seen impressive fall after a consistent development in later past. They trust that cost has fallen which is just because of momentary market developments, making a chance to purchase the stock modest. Be that as it may, in all actuality, stocks do regularly additionally decrease in an incentive because of changes in their basic essentials.

Olsen (1998):[1]"Behavioral finance seeks to understand and predict systematic financial market implications of psychological decision process."

Pompian (2012)[2]found that in finance and economics, Behavioral biases refer to the tendency of decision making that results in irrational financial decisions caused by faulty cognitive reasoning and /or reasoning influenced by emotions.

Thaler (2005)[3]A rational investor can be defined as a one that always (i) updates his beliefs in a the timely and appropriate manner on receiving new information; (ii) makes choices that are normatively acceptable.

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[1]Olsen, R. (1998). 'Behavioral finance and its implications for stock price volatility', Financial Analysts Journal
[2]Michael M. Pompian (2012) Behavioral Finance and Investor Types: Managing Behavior to Make Better.
[3]Richard J Thaler, (1999), 'Mental Accounting Matters', Journal of Behavioral Decision making

Shefrin's (2001)[4] Behavioral finance is the study of how psychological phenomena impact financial Behavior.

2. Types of Biases

Behavioral financeintegrates it findings from psychology, sociology, and finance for analyzing how Psychological and social factors impact investment decisions. It indicates that both small and institutional Investorscomprehensively make mistakes while investing and a major reason for those mistakes are the various biases that creep in the decision making. Investors, for example, have difficulties ininterpreting probabilities or let emotions take the upper hand. As such, investors are less rational thanassumed by standard finance. Some of the most common biases encountered by the investors are:

- Self-attribution bias;(Seppälä, 2009)referred toit as a tendency to overestimate the degree to which people areresponsible for their own success.When a trader is successful, he attributes too much of his success to his own ability and revises his beliefs abouthis ability upward too much, which increases overconfidence.
- Regret Aversion Bias; According to (Sachan, 2017)People tend to avoid making decisions as they fear that the decision may turn out poor.
- Representativeness Heuristic; (Athur, 2013)stated it as a belief perseverance bias in which people tend to classify new information based on past experiences and classifications. They believe their classifications are appropriate and place undue weight on them.
- Cognitive Dissonance Bias ; (Athur, 2013)defined it as "The term cognitive dissonance encompasses the responses that arise when people struggle to harmonize cognitions and thereby relieve their mental discomfort. As a result of cognitive dissonance bias, cognitive dissonance can cause investors to hold losing securities positions that they otherwise would sell because they want to avoid the mental pain associated with admitting that they made a bad decision."
- Over Optimism Bias; As mentioned by (Athur, 2013)is the tendency to overvalue the possibility of desired outcomes and undervalue the occurrence of unfavorable events
- Anchoring; (Kannadhasan, 2015)describes it as the common human tendency to rely too heavily, or'anchor' on one trait or piece of information when making decisions. Whenpresented with new information, the investors tend to be slow to change or thevalue scale is fixed or anchored by recent observations. They are expecting thetrend of earning is to remain with a historical trend, which may lead to possibleunder reactions to trending changes.
- Herd Instinct Bias;(Jaypee, 2014)said that It is the tendency of investors to follow the crowd,
- Hindsight Bias;(Athur, 2013)stated that hindsight bias occurs when people see past events as having been predictable and reasonable to expect. People tend to remember their own predictions of the future as more accurate than they actually were because they are biased by the knowledge of what has actually happened.
- Illusion of Control Bias; (Manuel Joychen Dr, 2017)termed it as bias in which people tend to believe that they can control orinfluence outcomes when, in fact, they cannot.

[4]Shefrin, H, (2000),'Beyond Greed and Fear: understanding Behavioral finance and the psychology of investing', Harvard Business School Press, Boston, USA.

3. Literature Review

Mirji,Amit B. (2017) in their study observed that Age composition of investors covered by the study indicated that they possess adequate knowledge of stock market conditions compared to the younger age group of investors & Occupational status of the respondent investors indicates that belong to a reasonably high-income group and their liquidity is quite good. Their income status enables them to involve actively in stock trading. Further Knowledge on Behavioral Finance is at higher side (4-5 scales) by the majority of male and female respondent investors. Thus they have a high rating about their own knowledge in this important area of investment behavioral discipline.

Sachan, Abhishek (2017)Observed that gender were the prominent demographic factors that showed relationships with multiple biases, hence, maybe considered with most importance while advising clients. Rural Investors are high on optimism and availability bias, while urban investors are high on regret aversion and conservatism bias. Similarly, males are more optimistic while females are high with overconfidence bias. And the relationships of behavioral biases with personality traits demonstrated that conscientiousness, agreeableness, extraversion and openness to experience are the most important traits of an investor.

Manuel, Dr. Joychen , Mathew, George(2017)studied the various types of Behavioral biases that effects a rational investor and upto what extent it affected their investment decisions. It was found that there is very high impact of Cognitive and Emotional Biases on an Individual investor. It was also observed that extreme movements in global indices and stock prices because of fear and anticipation has made it tough for a rational investor to take any Investment decision.

Bodhgire ,Nandkumar Baburao (2016)This study observed that the savings and investment habits of the Salaried and Self-employed investors are dependent on attitude towards risk, some social, psychological, demographic and personal factors. Herding, Imitations, Heuristics and Representativeness factors are more influential while taking the decision of savings and investment by salaried and self-employed investors. This study also noted that financial illiteracy is still present in educated investors. Nobody is interested to invest in the commodity market except commercial investors. The young generation is giving more preference to risky investment avenues rather than traditional investment avenues.

Prosad ,Jaya Mamta (2015)Observed that there is presence and impact of Behavioral biases on various indicators of the India equity market like return dispersion, risk premium, volatility andtransaction volume. The results reveal that herd behavior is not seen in overall market although, it persists in bull phase. The study also shows that past volatility is oneof the factors behind pessimism. This bias is responsible for creating a negative risk-returnrelationship in investors. Additionally, overconfidence and the disposition effect also prevail in the Indian equity market. However, overconfidence comes out to be the most important bias in the Indian equity market.

Athur,Abdulahi Dakane (2013)Studied that Individual investor decisions were influenced by several Behavioral biases. The investors thereby showed that their decisions are influenced by the Behavioral factors as opposed to being rational. The factors that were most prevalent among individual investors manifested in the form of representativeness bias, leading to individual investors‟ past history influencing their present investment decisions. Similarly, individual investors were affected by cognitive dissonance bias, herd instinct bias, hindsight bias. However, individual investors were not susceptible to self-attribution bias, regret aversion bias, over-optimism, and loss aversion bias.

Wang, Alex (2011) observed that Knowledge, experience and salary are imperative factors that impact investing practices of younger generations. Women of Young age will in general display less contributing practices that their men partners do. Gender orientation contrasts have critical ramifications for Wealth Advisors. Wealth Advisors should enable younger women to upgrade their wealth management and financial future by encouraging them to procure important monetary information before investing.

Seppala, Antti (2009)observed from their research survey that people, in general, are exposed to the studied Behavioral biases but the degree and impact are affected by experience and other characteristics. Investment advisors are generally less exposed to hindsight bias than other people. Professionals generally outperform other people with lower level of confidence which indicated lower overconfidence. Professionals are exposed to self-attribution bias.

4. Objective of the Study

- To analyze the behavior of the average retail investor.
- To determine the emotional biases &cognitive biases that affect investor decisions
- To Identifying the relationship between demographic factors and biases of individual Investors.

5. Hypothesis of the Study

- H_0- There is a significant relationship between Age and biases of the individual investor
  H1- There is no significant relationship between Age and biases of the individual investor
- H_{0-} There is a significant relationship between Gender and biases of the individual investor
  H_{1-} There is no significant relationship between Gender and biases of the individual investor

6. Research Methodology

An exploratory study conducted on the equity share investors of Varanasi and PrayagRaj Region of Uttar Pradesh in India during the time period of 1stJune to 3o June 2019.

- Universe and Sample – The Individual Equity investors of Varanasi and PrayagRaj constitutes the Sampling Unit for the study and a sample size of 51 respondents was selected. The analysis was done at 99% Confidence Level. Hence the sample mean and the population mean fall within the same range, thereby enabling the predictability of the sample analysis to be in sync with the population. Overall 60 respondents were approached for data collection and 51 fully completed responses were received.
- Questionnaire Design- 14 Questions relating to the Individual Investor behavior regarding the Investment into Equity Shares was included in Questionnaire which was related to different types of Biases. Respondents were asked to give their opinion on these 14 items based on the Five-point 'Likert Scale' ranging from '5 for Strongly Disagree' to '1 for Strong Agree'. Several Parameters were considered to be included in the questionnaire either as Cognitive aspect or emotional aspect. Rough Draft of the questionnaire were shown and discussed with Experts and qualitatively parameters were chosen for inclusion after consideration of Expert Opinion and review of the literature. The questionnaire was analyzed through the Statistical tool of Cronbach's Alpha and the value obtained (0.916) indicates a high degree of Reliability and hence making the questionnaire usable.
- Method of Data Analysis and Interpretation – In this study, various tools of statistical analysis, using SPSS Statistical Software, such as Percentages, Cross Tabulation, Reliability test and Chi-Square test for hypothesis were used to arrive at a logical conclusion in respect of Sample data.

7. Analysis and Interpretation

Reliability of the scale

On conducting the reliability of scale test the coefficient of Cronbach's alpha was found to be 0.916 of 14 items considered for this study. A very high value of Cronbach's alpha (0.916) indicates a very high degree of reliability of the scale.

Analysis of H_0- There is a significant relationship between Age and biases of individual investor

The scale contains 11 items for Cognitive biases. The maximum score possible for an Individual Respondent is 55(=11*5) and the minimum score possible for an Individual respondent is 11. The interval between 55 and 11, i.e 44, is divided into five classes to show five different levels of Cognitive Biases in respect of Equity Investment. It is 8.8. Thus, first interval scores of 11 to 19.8 a respondent who strongly disagrees with relation with Cognitive biases and accordingly the other level of cognitive biases (i.e. Disagree, Neutral, Agree and Strongly Agree).

Exhibit 1

Cognitive Score	Interpretation
11 - 19.8	Strongly Disagree
19.8 - 28.6	Disagree
28.6 - 37.4	Neutral
37.4 - 46.2	Agree
46.2 - 55.0	Strongly Agree

Based on Exhibit 1, Cognitive score with respect to Equity Investment in relation to the Age of 51 respondents is classified into five categories. It is presented in Table 1.

Table 1: Crosstabulation

			Age (Binned)		Total
			25-30	30-35	
cognitive_sum (Binned)	Disagree	Count	5	6	11
		% within Age (Binned)	19.2%	24.0%	21.6%
	Neutral	Count	2	9	11
		% within Age (Binned)	7.7%	36.0%	21.6%
	Agree	Count	18	10	28
		% within Age (Binned)	69.2%	40.0%	54.9%
	Strongly Agree	Count	1	0	1
		% within Age (Binned)	3.8%	0.0%	2.0%
Total		Count	26	25	51
		% within Age (Binned)	100.0%	100.0%	100.0%

With the help of SPSS, a cross tab was formed to see the percent of respondent coming under the Exhibit 1 criteria with Dependent factor as Age which was divided into two categories i.ebetween 25-30 and Above 30. It is found that none of the respondents are in the category of Strongly Disagree level of Cognitive biases. The highest numbers of respondents are for Category Age between 25-30years in Agree level with 69.2% whereas in Category age above 30 years is also at Agree level with 40%. Only 19.2% (between 25-30) and 24% (above 30) are in Disagree category. Thus, most of the respondents have Agree to Neutral level Of cognitive bias in respect to their equity investment decisions.A similar kind of score category was also created for checking the percent of respondents affecting from Emotional biases. Below exhibit shows the categories created with their respective scores.

Exhibit 2

Emotional Score	Interpretation
3 - 5.4	Strongly Disagree
5.4 - 7.8	Disagree
7.8 - 10.2	Neutral
10.2 - 12.6	Agree
12.6 - 15	Strongly Agree

Table 2: Cross Tabulation (Age*Emotional Biases)

Particulars			Age (Binned)		Total
			25-30	30-35	
Emotional_sum (Binned)	Strongly Disagree	Count	0	1	1
		% within Age (Binned)	0.0%	4.0%	2.0%
	Disagree	Count	4	2	6
		% within Age (Binned)	15.4%	8.0%	11.8%
	Neutral	Count	8	8	16
		% within Age (Binned)	30.8%	32.0%	31.4%
	Agree	Count	8	11	19
		% within Age (Binned)	30.8%	44.0%	37.3%
	Strongly Agree	Count	6	3	9
		% within Age (Binned)	23.1%	12.0%	17.6%
Total		Count	26	25	51
		% within Age (Binned)	100.0%	100.0%	100.0%

On cross-tabulation we found that in category Age between 25-30, the number of respondents are highest under Agree and Neutral i.e. 30.8% whereas in Category Age above 30 respondents are seen Agree with highest response i.e44.0%. Both categories strongly disagreewith the fact that emotional biases don't affect them.

Analysis of H_0- There is significant relationship between Gender and biases of individual investor

Again applying the same method as above to analyze whether there is a significant relationship between Age and biases of Individual Investor we categories the Individual Likert's score into 5 categories as mentioned below

Exhibit 3

Cognitive Score	Interpretation
11 - 19.8	Strongly Disagree
19.8 - 28.6	Disagree
28.6 - 37.4	Neutral
37.4 - 46.2	Agree
46.2 - 55.0	Strongly Agree

Exhibit 4

Emotional Score	Interpretation
3 - 5.4	Strongly Disagree
5.4 - 7.8	Disagree
7.8 - 10.2	Neutral
10.2 - 12.6	Agree
12.6 - 15	Strongly Agree

Table 3: Cognitive_sum (Binned) * Gender_1 Crosstabulation (1 denotes "Male" and 2 "Female")

			Gender_1		Total
			1	2	
cognitive_sum (Binned)	Disagree	Count	6	5	11
		% within Gender_1	17.6%	29.4%	21.6%
	Neutral	Count	11	0	11
		% within Gender_1	32.4%	0.0%	21.6%
	Agree	Count	16	12	28
		% within Gender_1	47.1%	70.6%	54.9%
	Strongly Agree	Count	1	0	1
		% within Gender_1	2.9%	0.0%	2.0%
Total		Count	34	17	51
		% within Gender_1	100.0%	100.0%	100.0%

Table 4: Emotional_sum (Binned) * Gender Crosstabulation (1 denotes "Male"and 2 "Female")

			Gender		Total
			2	1	
emotional_sum (Binned)	Strongly Disgree	Count	1	0	1
		% within Gender	5.9%	0.0%	2.0%
	Disagree	Count	3	3	6
		% within Gender	17.6%	8.8%	11.8%
	Neutral	Count	8	8	16
		% within Gender	47.1%	23.5%	31.4%
	Agree	Count	3	16	19
		% within Gender	17.6%	47.1%	37.3%
	Strongly Agree	Count	2	7	9
		% within Gender	11.8%	20.6%	17.6%
Total		Count	17	34	51
		% within Gender	100.0%	100.0%	100.0%

Again on applying the method of crosstabulation in SPSS to analyze the relationship between Gender and biases it was found that in Table No. 3 Male and females both have the highest percent to agree i.e Male= 47.1% & Female = 70.6% that Cognitive Biases affect them. Whereas in Case of Emotional Biases Female is neutral (i.e with highest 47.1% falling under neutral scale) and Male has highest 47.1% on Agree scale.

Test of Hypothesis

a) H_o – There is a significant relationship between Age and Individual Biases

To test that there is a significant relationship between Age and Individual Biases we applied Chi-square test method on various types of Biases with Age and results are summarized below.

Table 5: Chi Square Test

Relationship	Value	Df	Asymptotic Significance (2-sided)
Age*Anchoring	14.964[a]	15	.454
Age*Hindsight	7.953[a]	7	.337
Age*Illusion of Control	1.453[a]	4	.835
Age*Herd	5.713[a]	8	.679
Age*Over Optimism	2.982[a]	4	.561
Age*Self Attribution	1.739[a]	4	.784
Age*Regret Aversion	3.069[a]	4	.546
Age*Representative	3.297[a]	4	.509

In all the cases mentioned in table 5 it was found that ***the 'p-value for chi-square test' is greater than 0.05*** which implies that ***H_o is accepted*** in all cases. Hence it can be concluded that there is a significant relationship between Age and Individual Biases.

b) H_o – There is a significant relationship between Gender and Individual Biases

To test that there is a significant relationship between Gender and Individual Biases, the Chi-square test method was applied and the following results were found.

Table 6: Chi Square Test

Relationship	Value	df	Asymptotic Significance (2-sided)
Gender*Anchoring	17.338a	15	.299
Gender *Hindsight	10.670a	7	.154
Gender *Illusion of Control	6.278a	4	.179
Gender *Herd	8.696a	8	.369
Gender *Over Optimism	5.825a	4	.213
Gender *Self Attribution	1.307a	4	.860
Gender *Regret Aversion	6.298a	4	.178
Gender *Representative	3.765a	4	.439

From table 6 it can be seen that ***'p-value'>0.05*** in every relationship tested for significance and thus H_O is accepted and with *Gender *Self Attribution it is 0.860 which implies a highly significant relationship between Gender and Self Attribution Biases*.

8. Findings

- A very high value of Cronbach's alpha (0.916) was found indicating a very high degree of reliability of the scale.
- On analysis of the relationship of Age with Cognitive biases, it was found that none of the respondents are in the category of Strongly Disagree level of Cognitive biases. The highest numbers of respondents were in Category Age between 25-30 years in Agree level with 69.2% whereas in Category age above 30 years is also in Agree level with 40%.
- In the case of emotional biases on analysis, it was found that category Age between 25-30, the number of respondents is highest under Agree and Neutral scale i.e. 30.8% whereas in Category Age above 30 respondents are seen under Agree scale with the highest response i.e. 44.0%. Both categories strongly disagree with the fact that emotional biases don't affect them.
- The study revealed an analysis of Relationship of Gender with Biases that Male and female both have highest percent response to agree i.e. Male= 47.1% & Female = 70.6%. Here female respondents are more inclined to cognitive biases as compared to Male respondents.
- Female respondents have highest respondents in the Neutral scale with 47.1% whereas Male are more affected by Emotional Biases with highest percent response i.e. 47.1% in Agree scale.

9. Recommendations

- It is recommended that the retail investors between the age group of 25-30 should be more alert, vigilant and must seek expert advice and opinion before making financial investments as the results revealed that this age group displays least care and regard to expertise.
- It is suggested that Individual Investorsbetween theages of 30-35 should seek expert opinion and proper analysis of Financial Instrument and strategizing cognitively not emotionally as the study found that Investors between this age group are more emotionally inclined towards the Investment decision then Cognitive biases.
- It is recommended to the males that they should undergoFinancial Education and awareness programs, be more cognitiveand more inclined on taking Financial Expert advice before investment as the result revealed that Women are less emotional while taking investment decision as compared to men.
- It is also suggested to the Investment Companies to make their strategies that have more of an emotional appealand attract the sentiments of individuals as it was found in the study that regardless of Gender and Age, Individual Investors are somewhere more affected by emotional biases.

10. Conclusion

Behavioral finance studies the behavior of Financial Practitioners and its effect on the Security market. It explains as to why people don't do fundamental Analysis and behaves irrationally before buying or selling the security market instrument. In other words, Behavioral finance gives explanations about why Individual Retail Investor makes irrational decisions. Emotional and Cognitive Biases are the two bases on which this study was conducted.An emotional bias is a distortion in cognition and decision making due to emotional factors whereas A cognitive bias is a systematic error in thinking that affects the decisions and judgments that people make. In this paper it has been tried to establish a relationship between Cognitive and Emotional Biases with Demographic factors i.e. Age and Gender. After analysis, it can be concluded that Age and Gender both are affected by various types of Biases especially Herd Instinct, Self Attribution Bias and Regret Aversion. Proper Financial Awareness Programmes should be conducted and Financial Experts advice should be undertaken in order to maximize the gains. This will satisfy Individual Retail Investor Financial, Social and Psychological needs as well.

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