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Behavioral predispositions of Individual Investors: A gender based comparative analysis of investment behaviour at Indian Stock Market

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Abstract
This study explores the behavioural biases exhibited by the individual investors in the stock market of India highlighting most common biases among investors irrespective of their gender, experience, education, or income. The primary survey involved individual investors spread across 30 major cities of India during the second half of 2024. With the direct support of top ranked broking houses, 3122 individuals randomly selected could be reached. The survey used a structured questionnaire to collect opinion under 5-point Likert scale. 1036 investors (552 men and 484 women) participated in the study. Statistical tools like mean, one sample t-test, factor analysis and multiple regression analysis were used to draw conclusion on the subject. The result showed that gender truly impacts the decision-making of the respondents. The investment decisions taken by women investors were impacted more by anchoring, regret aversion and status quo biases in comparison to the male investors. Similarly, the male investors showed high degree of availability, herd and overconfidence behaviour biases. As regards the level of satisfaction in terms of attaining desired return, both male and female investors did not appear to have achieved it. The prevalence of these biases in their decisions has more likely resulted in reducing the earning potential from their stock investment.

Keywords: Cognitive bias, Emotional bias, investment decisions, stock investment performance.

1. Introduction
In today's financially dynamic and fast paced world, the ability to make sound investment decisions has become increasingly complex. There are situations where information is not fully disseminated or skillfully executed. And, the decisions appear to be incorrect because there are various subjective impulses as well as faulty reasoning which become responsible for an error in judgement, commonly known as behavioural bias. A common observation about the retail investors is that they mostly decide their stock investment in secondary market with very little analysis of the fundamental strength or growth potential of the company. Scholars attribute that their decisions are to a large extent influenced by either heuristics or emotions impacting their desired return too. Apart from market factors, demographic variables such as age, income, education, experience also act as major influencers to such decision making process. Gender seems to be another variable which has the potential to distort the investment decisions of the individuals. Further, scholars have also identified varieties of biases which play decisive roles to impact the retail investors. This study attempts

to determine the influential biases impacting the retail investors' minds. It also explores if gender matters in the investment decision-making; and if biases among men and women are different from each group. This study has referred to the seminal works of Barber and Odean (2001), Mercer Consulting, UK (2010), Baker and Yi (2016), Zahera and Bansal (2018), and Calzadilla et al (2020), All these researchers have presented the behavioural biases of individual investors in general, without making any distinction of men and women. Thus, their analysis and findings are inclusive in nature. However, Matsumoto et al. (2013), in their study have observed that women investors appear to be more rational than men due to reduced overconfidence behaviour. Bogan et al. (2013) have also concluded that women investors reduced loss and biases in investment decisions because of difference in information processing skills. This study therefore, bears significance as it attempts to explore the biases that the gender matters to contribute to it. Against this backdrop, this paper has set the following research questions:

i. What are the influential biases that impact decisions of the individual investors in the stock market;

ii. Whether men and women investors exhibit behavioural biases different from each other, and;

iii. If the men and women investors have achieved desired return from their stock investment.

2. Literature review

Michael Pompian (2006) writes that behavioural biases are systematic errors in judgement and has classified behavioural biases into two broad categories namely cognitive and emotional types. Cognitive biases originate from faulty reasoning and so, better information and skills may correct them. Pompian also suggests that all heuristics bias like anchoring, availability, representativeness, gambler's fallacy and overconfidence fall under this category of cognitive biases. On the contrary, emotional biases like loss aversion, regret aversion, mental accounting, herd, status quo biases originate from impulses or intuitions instead of conscious calculations. It is therefore, vital for an investor to infuse rationality into his decision making and remain free from any bias so that he could maximise his return from the stock market. Aren et al. (2016) point out that the decision to invest in a financial product is influenced by the investor's psychological, social, and emotional state. Investor's minds get impacted by overconfidence, status quo, regret aversion, mental accounting, herding, and many more biases that influence investment decisions too (Waweru et al., 2008). Kahneman and Tversky (1974), Kengatharan & Kengatharan (2014) , Gupta & Ahmed (2016) have all explicated the biases substantially and contributed significantly to the field of behavioural finance.

People make judgments about money and other matters essentially through heuristics (rules of thumb) as a result of time restrictions and a lack of knowledge in situations that are both complicated and unpredictable (Ritter, 2003; Waweru, 2008). Heuristics are "the processes by which people reach conclusions, typically from available information" Chandra and Kumar (2012). More investors inevitably resort to using heuristics, even if doing so isn't always to their advantage and may even result in further mistakes (Shefrin, 2000). Despite the efficacy of heuristics in certain cases, Subash (2012) argues that there is a systemic bias in the investing process. Psychological biases in investing choices and market results have been studied by several scholars, including Bikhchandani et al. (1992), Pompian (2006), Shefrin

(2008), and many more. The results of their investigations show that heuristics have an effect on investors' choices and returns.

Daniel Kahneman and Amos Tversky (1974), two Nobel laureates, provided an explanation for investors' decision-making behaviour in high-risk scenarios. Studies show that individuals respond differently to comparable events based on the context of losses or benefits that are provided to them (Waweru et al., 2008). Investors avoid regret because they are unable to accept responsibility for their actions. As a result, investors may put off making a move for fear of sub-optimal performance (Waweru, 2008). Holding on to a losing stock for too long is more often regretted than selling a winning stock too soon, according to researches by Lehenkari & Perttunen, 2004, and Forgel & Berry, 2006. Barberis and Huang (2001) provide that individuals experience a "loss aversion" when they lose money on an investment rather than making a profit (Barberis & Thaler, 2003). Although risk aversion is a typical trait among investors, it may lead to poor choices that have a negative impact on wealth (Odean, 1998). Kahneman and Tversky (1991) provide a theory that reflects how people really operate when they are required to make decisions in the face of uncertainty (Thaler, 1995). In 1980, Richard Thaler first discussed the phenomenon of mental accounting bias. Thaler theorized this approach to explain how people instinctively interpret transactions in order to measure the value they anticipate to earn or get (Barberis and Huang, 2001). The essential principle is that the decision maker tends to create distinct accounts for the many scenarios, apply decision rules to each account separately, and overlook the potential for interaction between the various accounts (Shiller, 1998). Investors' reluctance to re-evaluate a stock's relative value may be explained by mental accounting (Shefrin & Statman, 1985).

According to Hwang and Salmon (2004), "herding behaviour" occurs when market players blindly follow one another's lead or base their choices on those of the person who made them before them. In certain situations, they mimic the judgments of other institutional investors to safeguard their own reputation (Kumar and Goyal, 2015). In the context, herding may take on a variety of forms, including the imitating others' asset trading actions (such as buying and selling), asset allocation, investment outlooks, and information from reputable media sources at the expense of one's own opinions and facts. The strength of social influence on an individual's judgment is substantial. Most individuals prefer to assume that everyone else must be right. A big number of individuals have come to a conclusion different from their own, and they are responding positively to this news (Shiller, 2000). The spread of information by word of mouth is another key aspect of herding. Friends, family, and co-workers tend to be more reliable sources of information than the media. Even newspapers, television, and radio are powerful tools for disseminating information (Arthur, 2014).

Overconfidence, familiarity bias, the representativeness heuristic, and the status quo bias were all investigated by Tekçe et al. (2016). The findings showed that there were significant differences in the prevalence of prejudice among Turkish investors based on both gender and age. Researchers Hunguru et al. (2020) found that people's personal characteristics, such as age, gender, education, income, employment, and marital status, had a significant impact on their investing choices. They also verified that the investor's investing style is heavily influenced by the investor's age, income, language, and education. By analysing data from the Lithuanian stock market, Kartasova (2013) found a correlation between age, gender, investment experience, and occupation and concluded that these factors contribute to irrational individual investor behaviour. The findings also revealed that the most significant

impact on financial decision making was produced by overconfidence, anchoring psychological biases. Researchers found that people's willingness to take risks decreased with age. Similarly, Gunay, mental accounting, and herd behaviour. It has been proven in another research that demography may have an impact on and Demirel (2011) discovered results that emphasized the direct link between a person's gender and the impacts on their behaviour.
Any or all of heuristics, prospects, the herding effect, whether cognitive or emotional may play a role in investors' decision-making. These variables provide a comprehensive picture of human behaviour that might influence investors' choices in stock markets and their predicted return. The hope for a substantial profit is what keeps investors continue in the stock market. But, biases drive them to be irrational in investing causing them to make errors that reduce their returns or even lead them to lose a lot of money.

3. Research Objectives

The study has set these following three objectives:

i. To find out the influential biases impacting the decisions of the individual investors
ii. To explore if the men and women investors exhibit behavioural biases different from each other; and
iii. To ascertain if the male and female investors achieve the desired return from their investment.

Based on the research objectives and the literature review the following hypotheses have been developed for further testing.

H_1: Individual investment decisions of investors contain both cognitive and emotional biases
H_2: Men and Women investors exhibit same behavioural biases in their decisions.
H_3: Men and women investors achieve desired level of return form their investment.

4. Research Methods

This study involves a descriptive quantitative analysis based on the primary survey of individual investors of India having active demat accounts and operating either through National Stock Exchange (NSE) of India or in Bombay Stock Exchange (BSE). Three aspects like behavioural biases, investment decision and the stock performance, and their interrelationship is the central issue of this study. Therefore, a structured questionnaire was prepared in the light of the earlier studies undertaken by various scholars in India and abroad. After its successful pilot study, it was circulated among 3000 Indian investors spread across 30 major capital and business cities of 20 states and union territories from the four regions of India. The individual investors who possessed at least one year of experience and have done at least one trading during the year formed the target population for the study. The researchers took assistance from 15 leading broking houses having national presence.

Questionnaire was developed in the light of the studies undertaken by Waweru (2008), Prosad et al (2014), and Abdin et al (2017). A time frame of six months of later part of 2024 was fixed for the study. The questionnaire consisted of four sections consisting of demographic and investment profile of the respondents in first section. The second section consisted of 6 statements dealing with the investment process adopted by them. The third section consisted of 28 statements pertaining to cognitive biases and emotional biases under the heading like availability, anchoring, representativeness, overconfidence, gambler’s fallacy, loss aversion, regret aversion, mental accounting, status quo, herd, impacting their decision making. The last section consisted of 3 question items which sought opinion of their satisfaction on the

investment performances. The survey used 5-point Likert Scale as measurement scale. Responses from 1036 retail investors (552 men and 484 women) could be obtained through the active support of the officials of broking houses. The Taro-Yamane formula found the sample size to be statistically appropriate for further analysis. Statistical analysis was carried out using the tools like mean, standard deviation, one sample t-test, factor analysis, multiple regression analysis to study the variables and the degree of impact of biases on the investment decisions of men and women investors. The questionnaire passed the test of data validity and reliability measured through the Cronbach's alpha coefficient. The coefficient of 0.87 confirmed the data consistency.

5. Data Analysis and Results

Table-1 illustrates the demographic variables of the respondents. It is observed from the table that 53.28% (552) of the respondents are male and, rest 46.72% (484) respondents are female. Men furnishing opinion in larger number indicates their interest in the stock trading activity than the females. In terms of age-wise distribution; a large section of respondents (42.08%) is within the age group of 21-30 showing this group of people is most active in the stock market. As regards, education, 55.41 per cent participants are graduates and, 31.66% of respondents are having post graduate or professional qualifications. Thus, 87% of respondents belong to critical mass. In terms of occupation, the highest number of investors (55.41%) belongs to the salaried class. An interesting phenomenon is observed in different categories of occupation of the participants; students account for one-fifth of the respondents. This establishes growing popularity of investment in stock market among students. Possibly, the investment via mobile apps of different broking houses is widely gaining acceptance by the students. Income wise, a sizeable per cent (over 73%) of participants are financially well off. Thus, taking the age, education and occupation and income level, this can be concluded that the respondents constitute a good sample for the study.

Table-1 Demographic profile of respondents (n=1036)

Items	Groups	Male	Female	Total	Percent	Average
Gender	Male / Female	552 (53.28 %)	484 (46.72%)	1036	%	-
Age in years	21-30	232	204	436	42.08	33.92
	31-40	182	158	340	32.81	
	41-50	102	94	196	18.92	
	51 and above	36	28	64	06.18	
Education	Undergraduates	82	52	134	12.93	-
	Graduates	294	280	574	55.41	
	Postgraduates	176	152	328	31.66	
Occupation	Students	124	88	212	20.46	-
	Salaried	304	268	572	55.21	
	Self-employed/HM	106	122	228	22.00	
	Retirees	18	06	24	2.37	
Annual Income in	Less than 3 lakh	144	142	286	27.61	5.26
	3 lakh to 6 lakh	202	194	396	38.22	
	6 lakh to 12	134	88	222	21.42	

Rupees	lakhs	72	60	132	14.67
	Above 12 lakhs				

Source: survey results

Table-2 presents the vital statistics about the investment profile of the respondents. It is observed that the investment objectives of the respondents are almost equally distributed. As regards investment experience, more than 70% respondents have trading experience of 1 to 6 years. In the matter of investment outlay, nearly one third (32.43%) respondents have corpus less than Rs1,00,000. It is seen that around 77% respondents have investment corpus less than Rs 1,00,000.. Further, as to the investment transactions, the data presents that around 85% of respondents have made investment transactions of 3 to 4 times in the stock market during the last year. It is also observed that nearly 60% investors go for online investment and the rest of respondents go for consulting the broking house branch offices for their investment actions. In sum, the investment sophistication of the respondents suggests that they belong to a sensitive but knowledgeable class in the matter of investment and their responses give a positive direction to this study.

Table-2: Investment profile of Respondents

Items	**Groups**	**Male (n_1=552)**	**Female (n_2=484)**	**Total**	**Per cent**
Investment objective	Capital growth	180	170	350	33.78
	Future needs	178	184	362	34.94
	Speculation	194	130	324	31.27
Investment experience (in years)	1-3	160	190	350	33.78
	3-6	200	176	376	36.29
	6-10	130	74	204	19.69
	10 and above	62	44	106	10.23
Investment Corpus (in Rupees)	Less than 50,000	150	186	336	32.43
	50,000 - 1,00,000	216	248	464	44.79
	1,00,000 - 2,00,000	186	50	236	22.78
Investment transactions last year	2 times	50	34	84	8.11
	3 times	262	230	496	47.49
	4 times	198	196	394	38.03
	5 times and above	42	24	66	6.37
Trading type	Online	342	276	618	59.65
	Indirect	210	208	418	40.35

Source: survey result

5.1 Rational Investment decision making

As regards the adoption rational decision making in their investment, the responses have been tabulated and presented in the Table-3 in terms of the mean, and t-values and percentage of people agreeing to the statements. The responses on this score were obtained using the Mintzberg (1974) model which comprised (i) setting goals of their investment, (ii) searching information about the stock parameters of the target companies and, (iii) evaluation of alternatives of the identified stocks for the actual investment. The questionnaire was framed in the line of the Mintzberg Model, and as outlined by other research scholars namely Keswani et al. (2019). The mean score, standard deviation, t-statistics and, acceptance percentage

computed on the basis of the responses obtained on Likert scale are presented in Table 3 below.

Table-3: Adoption of Investment decision making process

3-steps decision process	Codes used	Mean	t-test	AP
Goal Setting	(GS1, GS2)	3.26	5.97	53.38
Alternative Evaluation	(AE1, AE2)	3.27	5.91	53.24
Investment Action	(IA1, IA 2)	3.21	5.87	52.87

It is observed from the above table that the mean, t-stats and percentages agreeing (AP) to 3 step processes of decision making are significant. It also confirms about the respondents following the rational decision making principle. Despite the existence of rationality in decision making as per the above data, there might be biases in some forms or others in their decisions. The next section analyses the responses to explore the prevalence of significant behavioural biases in their decisions.

5.2 Behavioural Biases in investment decisions

Table-4 presents the behavioural biases of the respondents as evidenced through the mean values, t-test values and the percentage of respondents agreeing to the statements and the relative ranks of each bias. The t-values exceeding the benchmark value of 2.40 shows that the biases showing the ranks from 1 to 6 in the table below are statistically significant at 95% level of confidence and these biases exert significant impact on the decision making of the respondents. The figures in the table also illustrates that these six biases predominantly impact the decision making of the investors.

Table-4: Results of Mean score t-values and Bias-wise Ranks

Bias Types	Codes used	Mean	t-test	AP	Ranks (as per mean values)
Anchoring	An1,An2, An3	3.68	7.73	58.87	1
Availability	Av1, Av2, Av3	3.50	7.41	54.33	2
Regret Aversion	Ra1, Ra2, Ra3	3.47	7.07	54.31	3
Herd	Hd1, Hd2, Hd3, Hd4	3.46	6.97	55.16	4
Status-quo	Sq1, Sq2	3.41	5.32	56.14	5
Overconfidence	Oc1,Oc2,Oc3,Oc4	3.33	5.31	53.94	6
Representativeness	Rp1, Rp2	2.46	2.21	46.65	7
Gambler's fallacy	Gf1, Gf2	2.45	2.12	43.23	8
Loss Aversion	La1, La2,La3	2.34	2.19	41.21	9
Mental Accounting	Ma1, Ma2	2.21	2.31	39.87	10

Source : Survey data; AP = Agree percentage

5.3 Factor Analysis

The factor analysis was also conducted to find which of the variables are retained by it. All the 28 question items pass the reliability test which shows the value to be 0.897 and the KMO test result to be 0.912 showing the rate of acceptance at 91.20%. The total variance done under factor analysis retained 6 variables which explained variance of 81.098% and reduced

the question items to 16. Table-5 confirms that only these six biases namely anchoring, availability, regret aversion, status quo, herd and overconfidence exert significant level of influence in their investment decisions.

Table-5 Total variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum %	Total	% of Variance	Cum %	Total	% of Variance	Cum %
1	**7.052**	**24.318**	**24.318**	**7.052**	**24.318**	**24.318**	**6.862**	**23.663**	**23.663**
2	**5.381**	**18.555**	**42.873**	**5.381**	**18.555**	**42.873**	**3.882**	**13.385**	**37.048**
3	**3.630**	**12.518**	**55.391**	**3.630**	**12.518**	**55.391**	**3.856**	**13.295**	**50.344**
4	**2.933**	**10.115**	**65.506**	**2.933**	**10.115**	**65.506**	**3.452**	**11.903**	**62.246**
5	**2.607**	**8.990**	**74.496**	**2.607**	**8.990**	**74.496**	**3.017**	**10.403**	**72.649**
6	**1.914**	**6.602**	**81.098**	**1.914**	**6.602**	**81.098**	**2.450**	**8.449**	**81.098**
7	.902	3.112	84.209						
8	.698	2.408	86.617						
9	.638	2.199	88.816						
10	.563	1.941	90.757						
Extraction method: Principal Component Analysis									

Source: computed data

The factor analysis confirms that the individual investors are influenced by cognitive biases like anchoring, availability and overconfidence and emotional biases like regret aversion, status quo and herd effect. As such the first hypothesis is accepted to the extent that the investment decisions made by individual investors contain both the cognitive and emotional biases.

5.4 Comparison of Multiple Regression coefficients to test the second hypothesis

In order to examine the degree of impact of behavioural biases as filtered by the factor analysis, multiple regression analysis has been conducted. The dependent variable is taken as the investment decision whereas the independent variables taken for the study are the biases such as availability, anchoring, overconfidence, regret aversion bias, status quo and herd behaviour. The other behavioural biases such as representativeness, gambler's fallacy and mental accounting and loss aversion biases have been dropped from the regression analysis. The multiple regression analysis shall determine the direction and quantify the degree to which the individual men and women are influenced by these biases separately.

The regression equations shall be:

$$Yid_m = \alpha + \beta_1 (Anm) + \beta_2 (Avm) + \beta_3 (Ovm) + \beta_4 (Ram) + \beta_5 (Sqm) + \beta_6 (hdm) + \varepsilon \ldots\ldots.(1)$$

Here, m subscripts denote Male

And,

$$Yid_f = \alpha + \beta_1 (Anf) + \beta_2 (Avf) + \beta_3 (Ovf) + \beta_4 (Raf) + \beta_5 (Sqf) + \beta_6 (hdf) + \varepsilon \ldots\ldots.(1)$$

Here, f subscripts denote Female

Here, Yid_m and Yid_f represent the investment decisions made by the Men and women investors respectively. β_1 , β_2 , β_3 , β_4, β_5 ,β_6 , represents the beta coefficients of anchoring, availability, overconfidence, regret aversion, status quo and herd variables factors respectively.

The results of Table-6 show that 67.3% change in the dependent variable is due to independent variables. Rest 32.7% change in the dependent variable is due to other variables not included in the study. There being no multi collinearity issue (VIF within the range of 1 to 2), the model is fit for the prediction of the investor's decision making behaviour. Table-6 below shows the regression statistics for the men investors.

Table-6 : Results of multiple regression analysis (Male investors)

Multiple R	0.822[a]
R^2	0.673
Adjusted R^2	0.651
Standard error	0.612
Observations	522

a. Predictors: (Constant), availability, anchoring, overconfidence, regret aversion, status quo and herd

b. Dependent variable: ID mean

ANOVA [a]

	Df	SS	MS	F	Sig. F
Regression	6	1512.71	66.09	18.172	0.0127[b]
Residual	545	1854.82	3.637		
Total	551	3367.53			

a. Dependent variable: ID mean

b. Predictors: (Constant), availability, anchoring, representativeness, overconfidence, loss aversion bias, regret aversion bias, mental accounting, herd and, marketing factors

Coefficients[a]

	Unstandard Coefficients (B)	**Std. Error**	**Standardised Coefficients β**	**t**	**p**
Constant	4.118	0.542		7.601	0.007
Anchoring (An)	0.247	0.074	0.217	3.338	0.025
Availability (Av)	0.348	0.067	0.198	3.224	0.031
Overconfidence (Ov)	0.414	0.087	0. 321	3.713	0.018
Regret aversion (Ra)	0.327	0.066	0.128	3.788	0.012
Status Quo (Sq)	-0.371	0.126	-0.237	-2.944	0.001
Herd (Hd)	0. 351	0.081	0. 255	4.272	0.000

a. Dependent variable: Investment decision

By putting the values of coefficients in the regression equation, we get,

Y_{idm}= 4.118 + 0.217 (An) + 0.198 (Av) + 0.255 (Ov) + 0.228 (Ra) - 0.228 (Sq) + 0.237(Hd) +e

The positive coefficients of the independent predictors such as availability, anchoring, overconfidence, regret aversion, loss aversion, mental accounting, herd and market factors in the above equation suggest that these biases are predominant among the investment decisions taken by male individuals. The t values are also more than the standard value of 2.4 at 95% confidence level (Baker &Yi, 2012) for each bias which suggest that the variables are significant. For every unit increase of these biases, the impact on investment decision would

increase. If there is complete absence of biases in their decision making, the investments are likely to show a constant 4.118 unit of positive outcome. It can be concluded from the Beta coefficients that individual decisions of Men investors are more impacted by overconfidence, herd and anchoring variables. The beta coefficient of status quo variable is negative and the t value is significant which imply that the men investors do not exhibit status quo bias.

The second regression equation relates to the female investors where the independent variables are same like that of the men investors. The results of Table- 7 show that 61.0% change in the dependent variable is due to independent variables. Rest 39.0% change in the dependent variable is due to other variables not included in the study. The model is fit for the prediction of the investor's decision making behaviour as there is no multi collinearity issue. Table 7 shows the statistics for the female investors.

Table-7 : Results of multiple regression analysis in respect of decision making by Female investors

Multiple R	0.781[a]
R^2	0.610
Adjusted R^2	0.561
Standard error	0.224
Observation	484

c. Predictors: (Constant), availability, anchoring, representativeness, overconfidence, loss aversion, regret aversion, herd and, marketing factors

d. Dependent variable: ID mean

ANOVA [a]

	Df	SS	MS	F	Sig. F
Regression	8	1405.81	67.64	21.89	0.022[b]
Residual	475	1725.22	3.09		
Total	483	3131.03			

a. Dependent variable: ID mean

b.Predictors: (Constant), anchoring, availability, overconfidence, regret aversion status quo and herd

Co-efficients[a]

	Unstandardised Co-efficient (B)	Std. Error	Standardised Coefficients β	t	p
Constant	3.427	0.542		4.478	0.017
Anchoring (An)	0.236	0.074	0.227	3.187	0.021
Availability (Av)	0.179	0.057	0.193	3.141	0.028
Overconfidence (Ov)	-0.132	0.054	-0.113	3.042	0.057
Regret aversion (Ra)	0.239	0.097	0.195	3.173	0.053
Status Quo (Sq)	0.411	0.088	0.271	4.660	0.051
Herd (Hd)	-0.221	0.063	-0.218	3.498	0.002

b. Dependent variable: Investment Performance

The regression equation is,

$Y_{idf} = \alpha + \beta_1(An) + \beta_2(Av) + \beta_3(Ov) + \beta_4(Ra + \beta_5(Sq) + \beta_6(Hd) + \varepsilon$

By putting the values of coefficients
$Y_{idf} = 3.427 + 0.227(An) + 0.193(Av) - 0.113(Ov) + 0.165(Ra) + 0.271(Sq) - 0.218(Hd) + e$

The positive beta coefficients of the independent predictors in the above equation suggest that the women investors' decision making are affected by these behavioural variables. For every unit increase of the variables among the respondents, the investment decision making gets positively affected to the extent of the beta coefficients of the respective variables. An interesting feature is noted here that there is high degree of positive and significant impact of status quo and anchoring in their decision. And there is negative impact with respect to overconfidence and herd behaviour. Since the t values are above the benchmark, it implies that all the variable factors have significant impact in their decisions it is whether positive or negative.

Now, a comparison of the beta coefficients for each independent variable in respect of the male and female investors is presented in the Table-8. It reveals that there exists a marked difference in the degree of impact of such variables on the dependent variable of investment decision making of Male and Female investors.

Table-8 : Comparison of Alpha (α) and Beta (β) coefficients

Independent variables		Male	p (M)	Female	p (F)
Constant	α	4.118	0.007	3.427	0.017
Anchoring (An)	β_1	0.217	0.025	0.227	0.021
Availability (Av)	β_2	0.198	0.031	0.193	0.008
Overconfidence (Ov)	β_3	0. 321	0.018	-0.113	0.037
Regret aversion (Ra)	β_4	0.128	0.012	0.195	0.033
Status Quo (Sq)	β_5	-0.237	0.001	0.271	0.031
Herd (Hd)	β_6	0. 255	0.000	-0.218	0.002

Source: Author's own, p(M) and p(F) represents the p values for Male and Female investors respectively.

Thus, a comparison of the beta coefficients of the independent variables of men and women investors reveals that the women investors exhibit high level of investment biases in terms of anchoring, regret aversion, status quo bias in comparison to their male counterparts; whereas the men demonstrate relatively more of availability, herd and overconfidence behaviour. The women investors seemed to be least impacted by overconfidence and availability biases. Similarly, the men investors are negatively impacted by status quo bias. This meets the second objective of this study.

5.6 Responses on Investment Performance

It is observed that the respondents resort to a fair degree of rational investing so that their investment might produce desired results. But, despite adequate care, their decisions might not be absolutely unbiased. Three indicators were used to analyse the influence of the decisions taken under the influence of behavioural variables upon the investment performance. Individuals afflicted with different behavioural biases tend to take decisions to buy, sell or hold depending upon the time-frame and state of mind during the investment time in question. The keys used to elicit opinion of the respondents are; 1 = never, 2 = rarely, 3 = sometimes, 4

= often, 5 = always. Here, the numerical values 3, 4 and 5 are treated as positive opinion whereas 1 and 2 are negative opinion. The responses have been presented in the Table 6 below:

Table 6: Descriptive statistics on investment performance

Code	Indicators	Mean		t-test		% agreeing	
		Men	Women	Men	Women	Men	Women
IP1	Investment generates the expected rate of return.	3.04	3.02	2.45	2.32	54.18	48.62
IP2	Rate of return equals to or higher than market return.	3.15	3.11	2.48	2.67	49.12	50.23
IP3	Satisfied with investment decisions	3.12	3.09	2.56	2.33	51.12	50.19

Source: Survey results; IP is the abbreviation for Investment Performance

A comparison of the t values with respect to men and women investors for each of the three statements reveals that the male investors have achieved desired return and are satisfied. In contrast, the female investors are seen to have not attained the desired return (t- value 2.33 <2.40) and therefore, they are not satisfied with the performance of the stocks (t value 2.33<2.40) at 95 % level of confidence. The mean values above 3.00 and one sample t-test values are above the benchmark level of 2.40 justify significant level of acceptance of the statements and vice versa.

6. Conclusions

It is observed from the foregoing analysis that in general, all the cognitive and emotional biases under the study do affect the investors' decision making behaviour irrespective of the gender. The one sample statistics also prove the point that all the investors are prone to mistakes at the stock market. The factor analysis also pinpointed to six biases which are largely impacting the decision making behaviour of the respondents leading the investors to commit different behavioural biases. In terms of specific biases, the women exhibit more of anchoring, regret aversion and status quo biases than their male counterparts, and the male investors exhibit biases like availability, overconfidence and herd behaviour which are significantly higher than the women investors. In view of the differences in the beta coefficients for each factor, it can be summarized that the men tend to be more overconfident, exhibit herd behaviour and resort to availability bias in comparison to the women investors. So, while dealing with women investors, the fund managers have to be adequately careful about theses biases.

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