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## **Impact of demographic characteristics on self – attribution and overconfidence bias with reference to the investors from Odisha**

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### **Abstract**

Behavioral finance paradigm suggests that investment decision is influenced in a large proportion by psychological and emotional factors. Behavioral finance is a relatively recent and high impact paradigm which provides an interesting alternative to classical finance. This paper aims at studying the impact of investors' investment experience, gender, and level of education on self-attribution and overconfidence bias while taking their investment decisions. Data collected from a sample of 212 mutual fund investors were analyzed. The ANOVA is used to analyze the perceptual difference among the investors according to gender, education and investment experience. This study has some novel implications regarding investing behaviour of individuals while selecting mutual fund as an investment instrument. The results provide an insight on the existence of investors susceptible to behavioural biases. Practitioners can get an insight in dealing with various types of investors in the market place.

**Keywords:** Self-attribution, overconfidence, gender, experience, education, bias

### **Introduction**

After the process of economic Liberalization, Privatization and Globalization, the Indian capital market has been assigned very dominating place in financing and lending industry. The stock market is playing a leading role in financing corporate industry, encouraging entrepreneurship, mobilizing resources, allocation of resources with respect to economic growth. According to the survey, India will become the world's third largest economy after 2030 (The Economic Times, 2019). After getting the freedom, Indian economy has survived with rebuilding their stand through monetary policies, fiscal policies, five years plan etc. Effective and efficient stock market is a place where prices of the securities are showing all related information about its true worth. Financial assets mainly directed towards the securities issued by companies or in other words they include mainly the shares or stocks, debentures, bonds etc. The study of financial markets has always been a centre of attraction of the researchers.

The emerging discrepancy between the efficient market hypothesis and reality encouraged a deeper insight focused on psychology, as an important factor in financial theory. Behavioral finance was formulated - a new branch of theory, combining the knowledge of psychology, sociology and other social sciences (Bernheim, Douglas, 2008) <sup>[1]</sup>. The integration of various scientific knowledge of behavioral finance has explained market anomalies and financial behavior of individuals. An efficient market theory maintains that investors, while competing for big profits, establish fair prices. In order to better understand an individual financial behavior, the behavioral theory of psychology, sociology and anthropology is applied.

Investing in financial markets in recent decades has become popular not only among institutional but also individual investors. Communications and information have become available worldwide in seconds of speed. Undoubtedly, investment decisions depend on the object and its financial status in the future, but often short-term price changes are driven by market participants that are not always based on logic, sometimes are inspired by mood or instantly "received news". Behavioral finance provides a different perspective, very complex and unconventional. Human emotional complexity includes the following primary feelings: fear, panic, anxiety, envy, euphoria, greed, satisfaction, ambition or vanity.

Very likely that all these emotions interfere in certain proportions in a financial investment decision making (Birau, 2011a) <sup>[2]</sup>. Behavioral finance is the study of the influence of the psychological factors on financial markets evolution. In other words, financial markets inefficiency is analyzed in the light of the psychological theories and perspectives. The classical finance assumes that capital markets are efficient, investors are rational and it's not possible to outperform the market over the long-term.

Psychological principles of behavioral finance include among others heuristics and biases, overconfidence, emotion and social forces. A very important step for an investor is to understand his financial personality. In other words, in the posture of investor is vitally important to understand why you make certain financial decisions or how you are likely to react in common conditions of uncertainty. This form of analysis is useful in order to understand how you can temper the irrational components of investment decisions while still satisfying your individual preferences and requirements. The concept of behavioral finance theories is relatively new and complex. The amount of existing studies is limited. However, behavioral finance has a major impact on peoples' everyday decisions regarding their purchasing habits. In the field of investments the direct and indirect implications of behavioral finance are remarkably strong. Therefore, examining investor behaviour in order to understand the fluctuations of money markets is essential. This information may provide significant advantages in the future.

Shefrin (2007) <sup>[3]</sup> defined bias as a predisposition towards error: It is a prejudice or a propensity to make decisions while already being influenced by an underlying belief. Psychologists have long studied the type of errors people are prone to in decision making. Studies emphasize that individuals are affected by psychological factors such as cognitive biases in their decision making, rather than being rational and wealth maximizing (Forbes, 2009)<sup>[4]</sup>. This paper is an attempt to study the impact of investment experience, gender, and the level of education on two specific biases, overconfidence and self-attribution. It also aims at studying the relationship between overconfidence bias and self-attribution bias. This paper is an attempt to study the impact of investment experience, gender, and the level of education on self-attribution bias and overconfident bias. The sections of this paper are arranged in the following order. The first section describes self-attribution and over confident bias with their implications to the investor. This is followed by a review of earlier papers showing the impact of gender, experience, and level of education on self-attribution and over confident bias. The third section describes the methodology and questionnaire for the study. The fourth section includes the results, followed by discussion and conclusion.

## Literature Review

Empirical researches and studies on investor behaviour have shown the existence of irrational thinking in investor decision making. Behavioral scientists brought in their knowledge of human behaviour to explain the reasons for over- and under-valuation of shares in the market. There are studies on the impact of investment experience, gender, and level of education on self-attribution and over confident bias.

## Demographic Factors of Investor and investment decisions

Many studies have been carried out to examine the perceptions of the investors and the investment preferences with regard to gender, age, education, occupation & income. Stendardi (2006) <sup>[5]</sup> reveals that though personality is a trait that is very dynamic and has a tendency to waiver and change with time, the process is rather slow, takes considerable period of time and is fairly stable in varying situations and circumstances. Thus personality makes a considerable impact in shaping the decisions of an individual.

While there have been studies on investors behavior and the impact on investments but there seems to be less number of studies on the investors' perceptions influencing the investment decisions. The roles of gender and education on investment preferences have been the focus of behavioral finance literature. Chin (2012) <sup>[6]</sup> and Ahmad, Safwan, Ali and Tabasum, (2011) <sup>[7]</sup> predicted individual investment choices (e.g., stocks, bonds, real estate) based on lifestyle and demographic attributes. These investors see rewards as contingent upon their own behavior (Chira and Thornton, 2008) <sup>[8]</sup>. Iman (2011) <sup>[9]</sup> studied and sought to understand the patterns of differences in the risk taking habits of men and women. Their studies reaffirmed the result that women significantly differ in their investment behaviors than men. This was supported by experimental and field studies. There was a consensus that women make more conservative decisions than men when investing. Other studies have also reiterated this finding. The studies of Fisher (2010)<sup>[10]</sup> showed that females are less risk seeking than males irrespective of familiarity and framing, cost or ambiguity. Gender is related to risk taking as revealed in Mutual Fund investment decision (Diacan, 2004) <sup>[11]</sup>. It was found that women exhibit less risk taking than men in their most recent, largest and riskiest mutual fund investment decisions. A study highlighting the influence of race has also contributed to this burgeoning literature. Like the studies of Fisher (2010) <sup>[10]</sup> gave evidence that suggests that men, both Black and White, take an active role in their portfolio allocations, with White men choosing riskier portfolios.

Education has also been considered a significant factor in influencing investor profiles. Investors with education higher than the secondary level hold more risky portfolios (Weber, Blais, & Betz, 2002) <sup>[12]</sup>. Income is another factor that researchers have investigated the impact on investments. Relative risk aversion of persons reduces as the income level rises and for high income individuals, it reduces significantly (Graham et. al, 2002) <sup>[13]</sup>. Smith and Harvey (2011)<sup>[14]</sup> have studied perceptions of bank depositors on quality circles, customer complaint cell, priority banking, mobile banking and customer meets in private banks.

## Self-attribution bias

Self-attribution is a cognitive phenomenon by which people tend to attribute success to innate aspects such as talent and foresight, and attribute failures to situational factors. Individuals would take credit for successes and blame external factors for failures (Bradley, 1978) <sup>[15]</sup>. An example could be students attributing higher grades to their own

intelligence and hard work, and citing unfair grading when they obtain lower grades. According to Heider (1958) <sup>[16]</sup>, in ambiguous situations, attributions are influenced by a person's "needs and wishes". Technically, self-attribution bias consists of

1. Self-enhancing bias-this refers to the tendency of people to claim an irrational degree of credit for their success
2. Self-protecting bias-this refers to the irrational denial of responsibility for failure

The self-attribution bias has a cognitive and a motivational component. According to Miller and Ross (1975) <sup>[17]</sup> it is the limited information processing capacity of individuals that drives the self-attribution bias, which explains the cognitive component. The motivational approach argues that people make internal attributions for success and external attributions for failure to maintain their self-esteem and feel good about themselves (Zuckerman, 1979) <sup>[18]</sup>. The two motives for self-attribution are self-enhancement and self-presentation. The self-enhancing motivation helps individuals protect their self-esteem by creating causal explanations that serve to make them feel better. The self-presentation motivation refers to the drive to convey a desired image to others (Schlenker, 1980) <sup>[19]</sup>. Studies provide evidence to the existence of self-serving bias among students (Dunn, 1989) <sup>[20]</sup>. Studies by Daniel, Hirshleifer, and Subrahmanyam (1998) <sup>[21]</sup>, and Gervais and Odean (2001) <sup>[22]</sup>, formally introduced the self-attribution bias into standard learning models. An investor who is susceptible to the self-attribution bias would attribute the rise in the value of an investment that is purchased to his/her being investment or business savvy and to bad luck or some external factor if it comes down in value.

### Overconfidence bias

Overconfidence can be summarised as unwarranted faith in one's intuitive reasoning, judgments, and cognitive abilities (Pompian, 2006) <sup>[23]</sup>. Psychologists find overconfidence to be an all pervasive human characteristic (De Bondt & Thaler, 1995) <sup>[24]</sup>. Fischhoff, Slovic, and Lichtenstein (1977) <sup>[25]</sup> observed that people are poorly calibrated when estimating probabilities. Events which they think are certain to occur actually occur only 80% of the time, and events they think are impossible occur approximately 20% of the time. Shefrin (2000) <sup>[26]</sup> describes overconfidence with an example of driving. A research group was asked about their driving ability, and between 65% and 80% of the respondents rated themselves above average. Montier (2002) <sup>[27]</sup> conducted a study of 300 professional fund managers in which 74% believed that they had delivered above-average performance and the remaining 26% believed that their performance was average. Almost all the respondents believed that their performance was average or better. In both these studies, overconfidence was measured through better than average effect which is an inclination in people to exaggerate their talents. On nearly any dimension that is both subjective and socially desirable, most people will see themselves as better than average (Myers, 1996) <sup>[28]</sup>. Camerer and Lovallo (1999) <sup>[29]</sup> found that overconfidence and optimism lead to excessive business entry, i.e., more people who are overconfident and optimistic about their relevant skills enter new business and quit later due to business failures. Barber and Odean (2000) <sup>[30]</sup> noted that overconfident investors overestimate the precision of their

information and thereby the expected gains by trading. They also noted that individuals turned over their common stock investments about 70% annually. Also Roll (1986)<sup>[31]</sup>, showed that just as overconfidence among individual investors may lead to excessive trading so overconfidence among managers may lead to excessive takeover activity. Howard (1962) <sup>[32]</sup> and Johnson (2009) <sup>[33]</sup> have identified overconfidence among one of the factors that may cause a war. At last, Plous (1993) <sup>[34]</sup> said that in judgment and decision making overconfidence is more prevalent and more terrible. Schrand and Zechman (2012) <sup>[35]</sup> clearly stated that overconfident managers have high expectations and when these expectations no longer meet they are more likely to engage in fraud. Overconfidence bias can be measured in three ways or we can say that it has three facets. The first one is over estimation defined as overstating one's own ability (Soll, 2007) <sup>[36]</sup>. Although men and women are found to be overconfident, studies have shown that the degree of overconfidence varies among them and men are more overconfident than women. Lewellen, Lease, and Schlarbaum (1977) <sup>[37]</sup> found that men have a stronger tendency to overconfident behaviour than women. Lundeberg, Fox, and Puncchohar (1994) <sup>[38]</sup> claimed that the higher degree of overconfidence in men is dependent on the task involved. Studies also show that the higher level of overconfidence in men is related to masculine jobs and also to the frequency of the feedback they receive (Beyer & Bowden, 1997; Lenney, 1977) <sup>[39]</sup>.

### Research objectives and Methodology

This paper aims at studying the impact of investment experience, gender, and level of education on self-attribution bias for mutual fund investors. The primary objective of the paper is to ascertain the impact of investment experience, gender, and level of education on two specific biases-overconfidence and self-attribution.

The literatures were reviewed and hypotheses are developed as per the objectives of the study as follows;

H<sub>1</sub>: Gender of investor has an impact on Self-attribution and overconfidence bias.

H<sub>2</sub>: Self-attribution and overconfidence bias are affected by level of education of investors.

H<sub>3</sub>: Investment Experience of investors influences the self-attribution and overconfidence bias.

In order to test the above mentioned hypotheses, primary data were collected from a sample of 212 mutual fund investors. The sample was chosen purposively from mutual fund investors of Odisha who invested in various mutual funds companies. The study uses a survey research method, using a questionnaire with questions on demographic characteristics of investors and self-attribution bias. (Mishra & Metilda, 2013) used a scale to measure self-attribution and overconfidence bias. Self-attribution bias was measured using a Likert scale with five questions tapping this dimension. Total of 300 questionnaires were distributed among the investors but only 212 were returned showing a response rate of 70 percent. In order to capture the dimension of self-attribution bias, the respondents were asked four questions. They were asked to choose the option that best described their feeling. (1) "After making an investment, assume that you hear of a news report that has negative implications regarding the potential outcome of the investment you have just executed. How likely are you then to seek information that could confirm that you have made a

bad decision?”(SA1), (2) “When returns to your portfolio increase, what you believe the change in performance is mainly due to?” (SA2), (3) “After you have made a successful trade, how likely are you to put your profits to work in a quick subsequent trade, rather than letting the money idle until you are sure you have located another good investment?” (SA3), and (4) “Suppose, your investment was less successful, what do you think is the reason?” (SA4). Similarly, to capture the dimension of overconfidence bias, the respondents were asked four questions. The respondents were asked to indicate their response which best described their feeling against each of the items. The questions were: (1) “I feel that I can, on average, predict future share prices better than others” (OC1), (2) “I take the responsibility of managing my portfolio and I trust my decisions” (OC2), and (3) “I attribute my investment success to my knowledge and understanding of the stock market.” (OC3). An analysis of variance (ANOVA) test was applied to test the significant difference between gender, level of education, and investor experience (independent variable) with the dependent variable i.e. self-attribution and overconfidence biases.

**Data Analysis and Interpretation**

The data collected through questionnaire were analyzed to draw conclusion about the hypotheses which were framed to study the difference in opinion in respect of gender, education and investment experience of the investors towards self-attribution and overconfidence bias. The following table is a descriptive statistics of demographic characteristics of the investors.

**Table 1:** Demographic profile of the respondents

Variable	Levels	Frequency	Percentage
Gender	Female	47	22.2
	Male	165	77.8
Marital Status	Unmarried	91	42.9
	Married	121	56.1
Education	High School	31	14.6
	Undergraduate	77	36.3
	Post Graduate	104	49.1
Experience in investment	Below 2 Years	54	25.5
	2-4 years	71	33.5
	Above 4years	87	41.0

Source: Field data

The table 1 shows that the sample of bank customers used in this study included more males (77.8%) than females (22.2%) and more post graduates (49.1%) than other categories. Similarly, the investors with an experience above four years (41.0%) are more in compare to experience between 2-4 years (33.5%) and below 2 years (25.5%). The second part of the analysis use ANOVA to study the perceptual difference between the investors across gender, level of education and their experience in investment is exhibited in subsequent tables.

**Self-attribution, overconfidence bias and experience**

The perception of the respondents categorized on the basis of their level of investment experience is presented in table 2. The mean score for “SA1” given by investors with less than two years of experience are 1.95, by investors between 2-4 years are 2.06 and by investors with over four years of experience are 2.89. The ANOVA output shows an F value of 5.690 and sig. value of 0.018. Since the sig. value is < 0.05, the mean difference is significant which implies that

difference in response based on the years of experience is statistically significant. The mean score for “SA2” given by investors with less than two years of experience is 2.22, by investors between 2-4 years are 2.46 and by investors with over four years of experience are 2.68. The ANOVA output shows an F value of 6.915 and the sig. value is 0.009. Since the sig. value is <0.05, the mean difference is significant, which implies that there is significant difference in response based on investor experience. The mean score for “SA3” given by investors with less than two years of experience is 3.27, by investors between 2-4 years are 3.35 and by investors with over four years of experience are 3.47. The ANOVA output shows an F value of 3.666 and a sig. value of 0.046. Since the sig. value is less to 0.05, the mean difference is significant, which implies that difference in response based on investor’s experience is statistically significant.

**Table 2:** Self-attribution and overconfidence bias vs. experience

Statements	Experience	Mean	F-value	Sig.
SA1	<2 years	1.95	5.690	0.018
	2 - 4 years	2.06		
	>4 years	2.89		
SA2	<2 years	2.22	6.915	0.009
	2 - 4 years	2.46		
	>4 years	2.68		
SA3	<2 years	3.27	3.666	0.046
	2 - 4 years	3.35		
	>4 years	3.47		
SA4	<2 years	2.90	0.323	0.570
	2 - 4 years	3.14		
	>4 years	3.26		
Self-attribution bias	<2 years	3.33	0.759	0.453
	2 - 4 years	3.63		
	>4 years	3.74		
OC1	<2 years	2.80	9.271	0.001
	2 - 4 years	2.96		
	>4 years	3.02		
OC2	<2 years	2.22	5.785	0.171
	2 - 4 years	2.50		
	>4 years	2.61		
OC3	<2 years	2.43	1.507	0.212
	2 - 4 years	2.45		
	>4 years	2.47		
Over-confidence bias	<2 years	2.32	13.974	0.000
	2 - 4 years	2.59		
	>4 years	2.89		

Source: Primary data

The mean score for “SA4” given by investors with less than two years of experience is 2.90, by investors between 2-4 years are 3.14 and by investors with over four years of experience are 3.26. The ANOVA output shows an F value of 0.323 and sig. value of 0.570. Since the sig. value is >0.05, the mean difference is not significant. The mean score for self-attribution of respondents based on the years of experience given by investors with less than two years of experience is 3.33, by investors between 2-4 years are 3.63 and by investors with over two years of experience are 3.74. The ANOVA output shows an F value of 0.759 and a sig. value of 0.453. Since, the sig. value is >0.005, the mean difference between respondents based on their experience is not significant which implies that here is no significant difference between the years of experience in investment and self-attribution. So, the null hypothesis is accepted.

Similarly, it can be observed that the mean score for “OC1” given by investors with less than two years of experience is 2.80, by investors between 2-4 years are 2.96 and by investors with over four years of experience are 3.02. The ANOVA output shows an F value of 9.271 and sig. value of 0.001. Since the sig. value is  $<0.05$ , the mean difference is significant. The F value for OC2 is 5.785 with a significance value of 0.171 which is  $>0.05$  means the difference is not significant. The F- value for OC3 is 1.507 with a significance value of 0.212 which is also  $>0.05$  means the difference in opinion between the group is not significant. The mean score for overconfidence of respondents based on the years of experience given by investors with less than two years of experience is 2.32, by investors between 2-4 years are 2.59 and by investors with over four years of experience are 2.89. The ANOVA output shows an F value of 13.974 and a sig. value of 0.00. Since, the sig. value is  $<0.05$ , the mean difference between respondents based on their experience is significant which implies that here is a significant difference between the years of experience on investment and self-attribution. So, the null hypothesis is not accepted and the alternative hypothesis is accepted.

### Self-attribution, overconfidence bias and gender

Table 3 shows the perception of the respondents categorized on the basis of their gender. The mean score for “SA1” given by male respondents are 2.70, and by female respondents are 2.89. The ANOVA output shows an F value of 0.921 and sig. value of 0.338. Since the sig. value is  $>0.05$ , the mean difference is not statistically significant. The mean score for “SA2” given by male respondents is 2.47, and by female respondents are 2.23. The ANOVA output shows an F value of 1.078 and a sig. value of 0.300. Since the sig. value is  $>0.05$ , the mean difference is not significant, which implies that there is no significant difference in response based on investor gender.

**Table 3:** Self-attribution and overconfidence bias vs. gender

Statements	Gender	Mean	F-value	Sig.
SA1	Female	2.89	0.921	0.338
	Male	2.70		
SA2	Female	2.23	1.078	0.300
	Male	2.47		
SA3	Female	3.38	0.005	0.946
	Male	3.37		
SA4	Female	4.09	3.899	0.050
	Male	3.74		
Self-attribution bias	Female	3.76	1.143	0.286
	Male	3.66		
OC1	Female	2.09	12.76	0.000
	Male	3.96		
OC2	Female	2.12	11.88	0.001
	Male	2.95		
OC3	Female	2.53	10.23	0.001
	Male	2.18		
Overconfidence bias	Female	2.39	12.13	0.000
	Male	2.75		

Source: Primary data

The mean score for “SA3” given by male respondents is 3.37 and by female are 3.38. The ANOVA output shows an F value of 0.005 and a sig. value of 0.946. Since the sig. value is  $>0.05$ , the mean difference is no significant which implies that difference in response based on investor’s gender is not statistically significant. The mean score for

“SA4” given by male respondents is 3.74 and by female respondents are 4.09. The ANOVA output shows an F value of 3.899 and a sig. value of 0.05. Since the sig. value is  $\leq 0.05$ , the mean difference is significant. The mean score for self-attribution of respondents based on their genders given by male respondents is 3.66 and by female respondents are 3.76. The ANOVA output shows an F value of 1.143 and sig. value of 0.286. Since the sig. value is  $>0.05$ , the mean difference between respondents based on their gender is not significant which implies that self-attribution has no significant relationship with the gender of the respondents and the null hypothesis is accepted.

Similarly, it can be observed that the mean score for “OC1” given by male investors is 3.96, and by female investors are 2.09. The ANOVA output shows an F value of 12.76 and sig. value of 0.000. Since the sig. value is  $<0.05$ , the mean difference is significant. The F value for OC2 is 11.88 with a significance value of 0.001 which is also  $<0.05$  means the difference in opinion between the group is significant. The mean score for overconfidence of male respondents is 2.39 and by female investors are 2.75. The ANOVA output shows an F value of 12.13 and a sig. value of 0.00. Since, the sig. value is  $<0.05$ , the mean difference between respondents based on their gender is significant which implies that here is a significant difference between the male and female on investment and self-attribution. So, the null hypothesis is not accepted and the alternative hypothesis is accepted.

### Self-attribution, overconfidence bias and education

Similarly, the table 4 shows the perception of the respondents categorised on the basis of their level of education. The mean score for “SA1” given by the high school educated investors is 2.68, by graduates are 2.76, and by post graduates are 2.84. The ANOVA output shows the F value to be 3.871 and sig. value to be 0.020. Since the level of significance is  $<0.05$ , the mean difference is significant which implies that difference in response based on the level of education is significant. The mean score for “SA2” given by high school educated investors is 2.34, by graduates are 2.39, and by post graduates are 2.48. The ANOVA output showed the F value is 0.253 and significant value is 0.777. Since the level of significance is greater than 0.05, the mean difference is not significant, which implies that there is significant difference in response based on investor education. The mean score for “SA3” given by high school educated investors is 3.32, by graduates is 3.38, and by post graduates it 3.58. The ANOVA output showed the F value is 4.538 and significant value is 0.011. Since the level of significance is less than 0.05, the mean difference is significant which implies that difference in response based on investor education is statistically significant. The mean score for “SA4” given by high school educated investors is 3.63, by graduates are 3.69, and by post graduates are 3.77. The ANOVA output showed the F value is 3.980 and significant value is 0.018. Since the level of significance is less than 0.05, the mean difference is significant which implies that difference in response based on their level of education is statistically significant. The mean score for self-attribution of respondents based on the level of education given by high school educated investors is 3.65, by graduates are 3.72, and by post graduates are 3.89. The ANOVA output shows an F value of 6.145 and a sig. value of 0.002. Since the sig. value is  $<0.005$ , the mean difference

between respondents at different levels of education is significant which implies that self-attribution increases with education and the null hypothesis is rejected.

Similarly, the difference in opinion of investors according to their education level is analysed and conclusion is drawn towards the impact of educational level of investors and overconfidence bias. It can be observed that the mean score for "OC1" given by the high school educated investors is 2.82, by graduates are 2.96, and by post graduates are

3.40. The ANOVA output shows an F value of 7.871 and sig. value of 0.000. Since the sig. value is  $< 0.05$ , the mean difference is significant. The F value for "OC2" is 3.222 with a significance value of 0.480 which is  $> 0.05$  means the difference is not significant. The F-value for "OC3" is 5.945 with a significance value of 0.003 which is also  $< 0.05$  means the difference in opinion between the group is significant.

**Table 4:** Self-attribution and overconfidence bias vs. education

Statements	Education	Mean	F-value	Sig.
SA1	High School	2.68	3.871	0.020
	Graduate	2.76		
	Post Graduate	2.84		
SA2	High School	2.34	0.253	0.777
	Graduate	2.39		
	Post Graduate	2.48		
SA3	High School	3.32	4.538	0.011
	Graduate	3.38		
	Post Graduate	3.58		
SA4	High School	3.63	3.980	0.018
	Graduate	3.69		
	Post Graduate	3.77		
Self-attribution bias	High School	3.65	6.145	0.002
	Graduate	3.72		
	Post Graduate	3.89		
OC1	High School	2.82	7.871	0.000
	Graduate	2.96		
	Post Graduate	3.40		
OC2	High School	2.54	3.222	0.480
	Graduate	2.60		
	Post Graduate	2.73		
OC3	High School	1.94	5.945	0.003
	Graduate	2.01		
	Post Graduate	2.58		
Overconfidence bias	High School	2.38	10.503	0.000
	Graduate	2.49		
	Post Graduate	2.85		

Source: Primary data

The mean score for overconfidence of high school qualified respondents is 2.38, by the graduates are 2.49 and by post graduated investors are 2.85. The ANOVA output shows an F value of 10.503 and a significance value of 0.00. Since, the sig. value is  $< 0.05$ , the mean difference between respondents based on their educational qualification is significant which implies that here is a significant between respondents at different levels of education is significant which implies that overconfidence biasness increases with education and the null hypothesis is rejected. So, the null hypothesis is not accepted and the alternative hypothesis is accepted.

### Major Findings

This study has indicated that investors' experience in investment has an impact on overconfidence bias and self-attribution bias among mutual fund investors. The studies by Heath and Tversky (1991), Frascara (1999), Kirchler and Maciejovsky (2002), Bhandari and Deaves (2006), Glaser and Weber (2007), and Deaves *et al.* (2010) show that overconfidence increases with experience. Self-attribution bias shows a slightly higher mean for experienced investors compared to novice investors. However, the difference is not significant. In line with these findings, our findings also suggest that overconfidence increases with experience.

When it comes to the role of gender on overconfidence and self-attribution bias, most studies confirm that men are overconfident and highly self-attributive when compared to women. Lewellen *et al.* (1977), Lundeberg *et al.* (1994), Lenney (1977), Beyer and Bowden (1997), Barber and Odean (2001) and Pompian and Longo (2004) have in their studies empirically proved that men are more overconfident than women. Our study also finds that men are more overconfident than women. Similarly, in case of self-attribution bias, this study shows a slightly higher mean value for male compared to female investors. Studies of Deaux and Farris (1977), Meehan and Overton (1986), and Beyer (1990) also show that men are more prone to self-attribution bias than women. Since, the difference is not statistically significant our study does not show any significant difference in the self-attributive bias between men and women.

Our study also proves that both overconfidence and self-attribution bias increase with the level of education. The level of self-attribution is more or less equal for those with high school education and graduates, and higher for post graduates. So the results of our study show that: (1) the level of overconfidence increases as investor's experience in investment increases, (2) there is no such statistical significance in the association between self-attribution and

investor's experience, (3) the level of overconfidence increases with the level of education, (4) self-attribution bias increases with the level of education. (5) men are more overconfident than women, (6) there is no significant relationship between the gender of the respondents and their level of self-attribution.

### Conclusion

Psychological biases are considered as causing irregularities in the market. Researchers in behavioral finance have provided evidences that psychological biases are disturbing the market efficiency. Psychological biases are considered to generate asset pricing anomalies such as momentum, post announcement drifts, reversals and closed-end fund discounts etc., which causes market inefficiency. This study has some novel implications regarding investing behavior of individuals. The results provide an insight on the existence of investors susceptible to behavioral biases. Practitioners can get an insight in dealing with various types of investors in the market place.

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