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Does Demographic Profile Create a Difference in the Investor Behavior?

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Abstract:
Behavioral finance proposes psychology based theories and in depth study on stock market anomalies. The information structure and the characteristics of market participants systematically influence individuals' investment decisions as well as market outcomes. The paper investigates how demographic profile creates a difference in the investor behavior. For the purpose of the study, data are collected from 110 respondents from various financial broking services and individual investor's. Descriptive analysis, Factor analysis and Anova, are the statistical tools used for the analysis. The results indicate that investor behavior is subject to Representativeness, Conservatism, Regret Aversion, Price Anchoring and Overconfidence factors. The major findings take into account that behavioral factors like Representativeness and Overconfidence are ranked with highest mean score followed by Conservatism, Price Anchoring and Regret Aversion. Apart from these biases, on the basis of demographic variables, it is found that gender, age, education and experience have an interaction with behavioral factors in investment decisions.

Keywords: Behavioral finance, Investor Behavior, Decision making and Behavioral Bias

1. Introduction

Behavioral finance helps to understand psychological influence on market fluctuations and improves the investment decision making process. Psychology and Cognitive factors are the approaches in the literature to examine individual decision-making that deviates from rational choices in systematic ways. Weber (1999) observes that Behavioral finance closely combines individual behavior and market phenomena and uses the knowledge taken from both the psychological field and financial theory. It also attempts to identify the behavioral bias commonly exhibited by investors and also provides strategies to overcome them. Previous research on behavioral finance issues have focused on investor heuristics, biases, and framing effects. In addition, Odean (1998-99), tends to recognize the natural effect of some psychological biases on the investor decisions and reactions. The present study insists on behavioral factors Representativeness, Conservatism, Regret, Price Anchoring and Overconfidence determines investment decisions.

2. Literature Review

- *Representativeness* means investors over react to the situation based on the past experiences. Fama (1970) exposed that prior stock performance was generally not a good indication or prediction of future stock returns. But investors continued to rely on such information in the decision making process. According to Tversky and Kahneman (1974) people judge probabilities by equating situation A to situation B or by the similarities between A and B, i.e. representativeness heuristic and it happens when investors confront uncertainty or a lack of information. In making investment decision they scout for familiar patterns and equate future patterns to the past, often without performing enough reasoning to the probabilities of these patterns repeating themselves. De Bondt and Thaler (1985), shows that the investors irrational behavior as a concept has significant influences on price formation in the Stock Market. He also defended that in representativeness heuristic, investors exhibited over optimism towards past winners and over pessimism towards past losers. The representativeness bias, involves over reliance on stereotypes (Shefrin, 2005).

- *Anchoring* refers to individual's tendency to base their estimates and decisions on familiar positions, known as anchors, with an adjustment relative to the starting point, known as reference points. Benartzi and Thaler (1995) argue that a reference point is the stock price that investors compare to the current stock price. The brains choice of a reference point is important because it determines whether the investor feels the pleasure of obtaining a profit of the pain when experiencing loss. One important reference point is the purchase price of the security. In case an investor bought an asset long ago, he could tend to use a more recently determined reference point. The highest price the investor has perceived also becomes a reference point and an anchor. Health, Huddart & Lang (1999) noted that highest stock prices in the

previous year are often selected as a reference points. From the investors point of view the reference point determines the degree of profit and loss.

- *Conservatism* bias has a significant role and impact in investment decision. Conservatism states that individuals are slow to change their impression once their mind has been framed (Shefrin, 1948). Barberis et.al (1998) demonstrate that the investors' conservatism bias reflect systematic error in the investment decision making as they are normally prone to be slow in changing their beliefs. As a result, they react insufficiently for the new information. The evidence from Taiwanese emerging market indicates that investors who have conservatism bias under react to earning announcement (Chen, Chin & Liu 2009).
- *Regret Aversion* arises from the investors desire to avoid pain of regret from a poor investment decisions. Investors experience regret when their investments have a lower performance while taking the other alternative investments, it would produce a better outcomes (Michenaud & Solnik, 2008). Bad decisions made in the past and bad experience could serve as lessons to be learned by investors to avoid regrettable outcomes (Samuelson & Zeckhauser, 1988). Muermann and Volkman (2007) have suggested the regret theory and feeling of pride, which are the factors that cause the investors to realize gains more quickly than losses. Besides, investors regret when they sell winner stocks too early or holding on to losers (Shefrin, 2009).
- *Overconfidence* implies that individuals overvalue their knowledge or abilities. Sometimes the investors may overestimate their predictive skills or assuming more knowledge than they have. Overconfident investors are not going to learn from their mistakes because they do not see overconfidence as a bias or mistake affecting their decision making (Galant and Debbie 1995). Many investors have the tendency to believe that he or she perceives better than others. Shiller (1998) investors think of themselves to be above average and this basically results in overconfidence and an excessive trade activity affect the stock prices. Barber and Odean (2000) argued that investors were found to be involved in excessive trading because of their behavioral trait of overconfidence and ultimately resulted in diminished returns.

3. Objectives
The main objectives of the study are
- To study the determinants of Investor Behavior in Investment Decision Making.
- To study the interaction between Demographic variables and Behavioral bias in investment decision.

4. Methodology
The exploratory study was undertaken to examine the behavior of stock market investors. A questionnaire was designed and distributed to stock market investors. The study focused on investors who specifically trade stock in long and short term period. The data are collected from 110 investors based on convenient sampling. The target respondents were from different financial broking institutions and individual investors. The questionnaire consists of three sections. The first section pertains to the respondent's Demographic characteristics. The second section ascertains the respondent's Investment profile in the stock market. Third section consists of 15 questions capturing the investor's opinion or experiences that reflect their behavior. In order to ensure that each construct was measured its reliability. The data are collected through online survey and by distributing the forms personally through financial services companies and individual investors. Descriptive analysis, Factor analysis and Anova are the statistical tools used in the study.

5. Results and Discussions

Demographic Factors		No of Respondents	Percentage
Gender	Male	89	63.6
	Female	21	36.4
Age	>25	25	22.7
	26-35	46	41.8
	36-45	31	28.2
	46-55	6	5.5
	<56	2	1.8
Education	Diploma	13	11.8
	UG	23	20.9
	PG	63	57.3
	Others	11	10
Annual Income	>3 lakh	63	57.3
	3-5 lakh	35	31.8
	5-8 lakh	4	3.6
	8-10 lakh	4	3.6
	<10 lakh	4	3.6
Occupation	Private	55	50
	Business	25	22.7
	Professional	16	14.5

	Government	3	2.8
	Others	11	10

Table 1: Profile of the Respondents

Demographic variables such as Age, Gender, Education, Occupation and Annual Income are depicted in Table 1. Majority 63.6% of the respondents are Male. 41.8% belong to the Age group of 26-35 years. Majority (57.3%) have completed their Post-Graduation. Nearly 57.3% of the respondents earn less than 3 Lakhs annually. Almost 50% of the respondents are employed in Private organization.

Investment Details		No of respondents	Percentage
Experience in stock market	>5 years	65	59.1
	5-10 years	28	25.5
	10-15 years	12	10.9
	15-20 years	2	1.8
	<20 years	3	2.7
Sources of information	Professional investor	46	41.8
	News channel	16	14.5
	Family & Friends	7	6.4
	Magazines & Journal	6	5.5
	Websites	32	29.1
	Others	3	2.7
Objective of investment	Safety	17	15.5
	Liquidity	7	6.4
	Capital appreciation	15	13.6
	Good returns	60	54.5
	Tax benefits	9	8.2
	Others	2	1.8
Proportion of investment	>5%	52	47.3
	6-10%	42	38.2
	11-15%	7	6.4
	16-20%	7	6.4
	<20%	2	1.8
Type of investment	Short term	46	41.8
	Long term	64	58.2
Investment Horizon	>7days	21	19.1
	7 days – 1 month	2	1.8
	1-3 month	24	21.8
	3-6 month	24	21.8
	6month- 1 year	20	18.2
	<1year	19	17.3
Investment knowledge	Little knowledge	25	22.7
	Some knowledge	50	45.5
	Experienced investor	20	18.2
	Business investor	5	4.5
	Professional investor	10	9.1

Table 2: Investment Details of the Respondents

Investment Details of respondents such as Experience in stock market, sources of information, proportion of investment, objectives, time horizon, type of investment and investment knowledge are depicted in Table 2. 59.1% of the respondents have less than 5 years' experience in stock market. 41.8% of the respondents collect information from professional investors. The objective of investment is to get good returns (54.5%). 47.3% of respondents invest less than 5% as a proportion of investment. Mostly investors (58.2%) prefer long term investment and 45.5% of the respondents have some knowledge in stock market.

S.No	Opinion	Mean	Rank
1	I try to avoid investing in companies with history of poor earnings	3.92	4
2	I rely on past performance to buy stocks	3.95	3
3	I believe good stocks are firms with past performance	3.97	1
4	I believe that the position of 52 week high and low price determines the current price movement range	3.73	6
5	I am likely to sell my stock after prices hit recent 52 week high	3.62	9
6	I am unlikely to buy a stock if there is more variation in price in the past	3.70	7
7	I only invest in familiar shares	3.63	8
8	I believe the returns are higher for shares that I am familiar with	3.46	10
9	I would invest in the share when a company announces good earnings	3.42	11
10	I should buy the stock earlier at the lower price because now its price has risen	3.13	14
11	I should sell the stock earlier at a higher price before the price has dropped over the buying price	3.15	13
12	I would wait and sell only if the share price gets back to the price that I paid for it.	3.36	12
13	I am confident of my ability to do better than others in picking stocks	3.90	5
14	I am fully responsible for the results of my investment decisions	3.97	1
15	My past investment successes were due to my specific skills	3.96	2

Table 3: Behavioral Bias in Investor Decision Making

From the above table 3, to understand the investment decision of individuals, 15 statements are identified. Each statement describes one aspect of behavior bias of investors in decision making. The investors believe good stocks are firms with past performance and the investors are fully responsible for the investment decision (3.97) has the highest score.   The past investment success were due to their own specific skills (3.96), they rely on past performance to buy stocks shows the next highest score (3.95). The investors believe the returns are higher for shares that they are familiar with and they would invest in the shares when a company announces good earning shows moderate score. The investors should buy their shares earlier at a lower price because now the price has risen (3.13). They should sell their shares earlier at a higher price because now the price has reduced (3.15) shows the least mean scores.

S. No	Factor	No of items	Cronbach Alpha
1	Representativeness	3	0.7684
2	Price Anchoring	3	0.6420
3	Conservatism	3	0.6085
4	Regret Aversion	3	0.6123
5	Overconfidence	3	0.6956

Table 4: Factor and Reliability of the Constructs

To assess the reliability of the instruments and to identify the level of significance of factors in each group, the Cronbach alpha was used. It is the most widely used index for determining internal consistency (Kerlinger 1986). It has been generally accepted hypothesized measure of construct, reliabilities of 0.50 or higher are needed, the reliabilities should not be below 0.6 (Nunnally, 1978). In the current survey, all subscale alpha coefficients exceeds 0.5. The high alpha value (0.7684) in all five subscales confirms the homogeneity of the items comprising them, and indicates acceptable level of reliability. The above table 4 shows Cronbach alpha values, in which five factors were identified. Representativeness with three variables (0.76) and Price Anchoring with three variables (0.64). There are three variables under Conservatism with 0.60, three variables under Regret Aversion with 0.61 and three variables under Overconfidence with of 0.69.

Variable	Kaiser Meyer Oklin Measure of Sampling Adequacy	Bartlett's Test of Sphericity			Result
		Approx Chi-Square	Df	Sig	
Factors influencing Investor decision making	0.643	1124.659	105	0.000	Significant

Table 5: KMO and Bartlett's Test

The suitability of data for the purpose of factor analysis was tested using two analyses, namely KMO test and Bartlett's test of sphericity. The Kaiser-Maiyer-Oklin Measure of sampling adequacy is a statistic which indicates the proportion of variance in the variables caused by new factors. High values generally indicate that a factor analysis may be useful with the data. If the value is less than 0.50, the results of the factor analysis probably will not be very useful. The above table 5 shows the KMO 0.643 which signifies that the factor analysis is useful with the data and the significant value is 0.000 which is significant at more than 99 percent level of confidence.

S. No	Opinion	Factor Loading
	Representativeness	
1	I try to avoid investing in companies with history of poor earnings	0.797
2	I rely on past performance to buy stocks	0.891
3	I believe good stocks are firms with past performance	0.791
	Price Anchoring	
4	I believe that the position of 52 week high and low price determines the current price movement range	0.688
5	I am likely to sell my stock after prices hit recent 52 week high	0.811
6	I am unlikely to buy a stock if more price variation in the past	0.789
	Conservatism	
7	I only invest in familiar shares	0.724
8	I believe the returns are higher for shares that I am familiar with	0.814
9	I would invest in the share when a company announces good earnings	0.710
	Regret Aversion	
10	I should buy the stock earlier at the lower price because now its price has risen	0.734
11	I should sell the stock earlier at a higher price before the price has dropped over the buying price	0.764
12	I would wait and sell only if the share price gets back to the price that I paid for it.	0.753
	Overconfidence	
13	I am confident of my ability to do better than others in picking stocks	0.778
14	I control and fully responsible for the results of my investment decisions	0.861
15	My past investment successes were due to my specific skills	0.732

Table 6: Factor analysis

From the above table 6, depicts the results of Factor analysis of investor behavior in decision making. It is used to reduce variables by exploring common dimensions available among the variables. It is to be noted that factor loading for each item exceeded 0.60. The investors rely on past performance to buy stocks has highest value of 0.891.The investors is responsible for the results of investment decisions has the next value of 0.861. They invest in shares when the company announces good earning shows the least value of 0.710. The investors invest only in familiar shares shows the next least value 0 .724.

Factors		Sum of square	Df	Mean square	F	Sig
Representativeness	Between groups	46.835	26	1.801	3.255	0.000
	Within group	45.929	83	0.553		
	Total	92.764	109			
Price Anchoring	Between groups	48.747	40	1.219	1.910	0.009
	Within group	44.017	69	0.638		
	Total	92.764	109			
Conservatism	Between groups	47.843	45	1.063	1.515	0.063
	Within group	44.920	64	0.702		
	Total	92.764	109			
Regret Aversion	Between groups	49.536	44	1.126	1.693	0.26
	Within group	43.228	65	0.665		
	Total	92.764	109			
Overconfidence	Between groups	49.368	32	1.543	2.737	0.000
	Within group	43.395	77	0.564		
	Total	92.764	109			

Table 7: One Way Anova with regard to Age and Investor Behavior

Table 7 exhibits the results of One way Anova with regard to age of investors and behavioral factors influencing the investment decision making. There is a significant difference among the investors belonging to different age group with respect to the bias

related to Representativeness, Price anchoring and Overconfidence. In all other cases there is no significant difference in the behavior.

Factors		Sum of square	Df	Mean square	F	Sig
Representativeness	Between groups Within group Total	46.835 45.929 92.764	26 83 109	1.801 0.553	3.255	0.000
Price Anchoring	Between groups Within group Total	48.747 44.017 92.764	40 69 109	1.219 0.638	1.910	0.009
Conservatism	Between groups Within group Total	47.843 44.920 92.764	45 64 109	1.063 0.702	1.515	0.063
Regret Aversion	Between groups Within group Total	49.536 43.228 92.764	44 65 109	1.126 0.665	1.693	0.26
Overconfidence	Between groups Within group Total	32.306 40.567 78.873	32 77 109	1.010 0.527	1.916	0.11

Table 8: One way Anova with regard to Education and Investor Behavior

Table 8 exhibits the results of One way Anova with regard to Education of investors and behavioral factors influencing the investment decision making. There is a significant difference among the investors belonging to Education with respect to the bias related to Representativeness and Price anchoring. In all other cases there is no significant difference in the behavior.

Factors		Sum of square	Df	Mean square	F	Sig
Representativeness	Between groups Within group Total	68.821 113.179 182.000	26 83 109	2.647 1.364	1.941	0.12
Price Anchoring	Between groups Within group Total	88.529 93.471 182.000	40 69 109	2.213 1.355	1.634	0.036
Conservatism	Between groups Within group Total	118.830 63.170 182	45 64 109	2.641 0.987	2.675	0.000
Regret Aversion	Between groups Within group Total	74.748 107.252 182	44 65 109	1.699 1.650	1.030	0.451
Overconfidence	Between groups Within group Total	83.755 98.245 182	32 77 109	2.617 1.276	2.051	0.005

Table 9: One way Anova with regard to Occupation and Investor Behavior

Table 9 exhibits the results of One way Anova with regard to Occupation of investors and behavioral factors influencing the investment decision making. There is a significant difference among the investors belonging to Occupation with respect to the bias related to Price Anchoring, Conservatism and Overconfidence. In all other cases there is no significant difference in the behavior.

6. Conclusion
The research found that unlike the classical finance theory, individual investors do not always act rationally while making investment decisions. Individual investors suffer from several psychological and emotional biases. These biases play an integral role in an investor's decision making. In the study, professional investors were the main source of investment information for the investors. Majority of the investors choose long term investment and to earn good returns were their main objective of investment. The finding evidences that behavioral factors affects investors in their decision making. The analysis of the study reveals that respondents rely on past performance to buy shares; also they try to avoid investing in companies with poor earnings. The investors are fully responsible for their investment decisions and they believe gains are based on their own specific skills in investment decision making. The investors regret for buying their share at higher price and selling their shares at lower prices.

There is a significant difference between Age group with respect to investor behavior related to Representativeness, Price Anchoring and Overconfidence. In case of Education with respect to investor behavior, Representativeness and Price Anchoring are significant. Based on Occupation with respect to investor behavior, Price Anchoring, Conservatism and Overconfidence are significant. As the part of investors while taking investment decisions, they must consider these biases as risk factor associated with their investment portfolios. Through developing quantitative criteria like profitability, liquidity, growth, leverage etc for investment, investors can avoid influence of psychological biases that results in investing on emotions, rumor and stories etc. Setting investment criteria supported by investment objectives can help investors achieve their investing goals. Investment advisors and finance professionals must incorporate behavioral issues as a priority factor in order to formulate efficient investment strategies. This research will help Advisor and professionals to judge investors attitudes with a behavioral perspective and to adopt strategies to overcome the difficulty the investors face in decision making.

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