Influence of Overconfidence, Optimism and Pessimism on the Rationality of the Individual Investors: An Empirical Analysis

Bashir Ahmad Joo
Professor
The Business School,
University of Kashmir, India

KokabDurri
Research Scholar
The Business School,
University of Kashmir, India

Abstract

Psychological traits of an individual have substantial impact on their investment decisions had it being stock market investment decision or other investment decisions. The researchers on the subject of behavioral finance have shown that number of such inherent psychological traits do have power to influence the investment decisions of individual investors. From the perusal of review of previous literature, few biases seems to have good influence on the rationality of investors, however, very less number of studies have focused on pessimism and mixture of overconfidence and optimize biases. It is against this backdrop that in present study a modest attempt has been made to analyze how these psychological traits deviates the individual investors from their rational behavior. In order to study the same primary data was collected through a well-structured questionnaire and in order to test the formulated hypotheses T-test and F-test were applied. Further, to evaluate the impact of these biases on individual investors' rationality regression analysis was used.

Keywords: Psychological Traits, Rationality, Overconfidence, Optimism, Pessimism.

Introduction

Normally human beings are taught to believe in their abilities and capabilities and are also instructed to be hopeful and have a positive approach towards life. This optimistic approach is carried forward to the decision making as well. While taking decisions we tend to be positive about the outcome and investment decisions are no exception to this phenomenon. These thoughts do help to take the risks inherent in the financial decision making but do not eradicate them. This optimistic approach makes investors overconfident about their abilities and they overestimate their ability of reasoning and judgment. These human traits show their impact on the various day to day decisions made by them. Contrary to optimism people sometimes tend to be pessimistic about their decisions. Pessimism makes a decision maker to perceive the worst outcome for a given situation and this makes investors apprehensive aboutthe outcome of any event.

These human traits that are bound to influence the financial decisions of the investors are too active to be ignored. This is because of these psychological biases that standard finance theory has been criticized by the behavioral scientists **(Statman, 1995)**. The models therein assume that human beings are always having rational thinking and

behavior, which in actual practice is missing **(Nofsinger, 2001)**.Hence, the models of standard finance theory ignores the psychological biases that influence the decision making process. There are a large number of such biasesthatresearchers have argued to influence the financial decision making process of an individual investors, however, in this paper an attempt has been made to study only impact of Overconfidence & Optimism and Pessimism on therationality of the individual investors. Overconfidence and Optimism have been grouped together as it is believed that optimism leads to overconfidence.

Objectives of the Study:

The study is pursued to achieve following objectives:

i. To analyze the impact of overconfidence and optimism on the rationality of an individual investors.

ii. To analyze the impact of pessimism on the rationality of an individual investors.

Literature Review:

People are generally optimistic in nature and always expect good to happen in the future. In equity market people invest with the positive hope and believethat their investments will increase their future consumption. This optimism in investment decisions may come out of overconfidence in ones' ability to predict returns. Researchers have even used overconfidence and optimism interchangeably. **Solt and Statman (1989)**made an attempt to explore overconfidence bias and results of their study show that analysts overestimate growth rates for growth companies. Not only this, analysts also tend to over emphasize good news and ignore negative news for these firms. Investors generally think they are smarter and have better information than they actually do **(Pompian, 2006; Shefrin, 2000).** Investors are positive about the likely performance of the shares that they own rather than the ones they don't own **(Hassan et al, 2013).** Investors exhibit behavioral biases and make poor trading decisions; experienced investors make more trading mistakes **(Chen et al, 2004).** A common trait among investors is a general over confidence of their ability when it comes to pricing stocks and to decide when to enter or exit a market. These tendencies were studied by **Odean (1998)**and it was found that traders conducting trades were average and had under performance compared to market. Further, psychologists have determined that over confidence causes people to overestimate their knowledge, under estimate risks and exaggerate their ability to control events. Studies reveal gender has an impact on overconfidence and generally men are more overconfident compared to females **(DeBondt, 1998 & Lin, 2011).** Sometimes investors disregard the reason that the price of the stocks has dropped while as the anchored higher price is mentally considered its "right price". The stock is therefore believed to bounce back over a certain time period **(Phung, 2008; Fagerstrom, 2008).**

Various other studies have been done in this regard, like **Odean (1998)**made an attempt to examine the effect of overconfidence of various investors and **Gervais and Odean (2001)**developed a model that demonstrated how success results in increasing overconfidence.

There is a close link between Optimism, Pessimism andoverconfidence. The overconfidence is the outer source of information like advice from others may imply pessimism in inner source like ones' own abilities **(Rabin, 2002),** while aspessimism is more prevalent in the risky situations, especially when ones' money is at stake. Optimism and Pessimism play a significant role in the outcome of any activity including judgment accuracy **(Lyubomirsky et al, 2005).**Hence, the discussion on review of literature reveals that overconfidence, optimism and pessimism are very significant psychological biases that effect investors psych.

Research Methodology:

Inthe present study, the impact of psychological biases like Overconfidence and Optimism and Pessimism on the Rationality of the individual investors of Jammu and Kashmir is examined.For the present study a sample of 303 investors is taken from the state of Jammu and Kashmir.The sample size has been ascertained using online calculator at 95 percent confidence level and 5 percent error margin and 2300 investors has been taken as population size. The 2300 investors are those investors who are actively involved in stock trading of different depositories functioning in the state of Jammu and Kashmir. The primary data is collected through a well-designed questionnaire. Further, in order to evaluate the influence of these biases on the rationality of investors and to test the formulated hypotheses T-test and ANOVA were used. In addition to these tests correlation analysis was used to study the degree of relationship between these variables.

The following null hypotheses were formulated to study the influence of the demographic variables on the above referred to biases ofindividual investors:

Influence of demographic variables on Overconfidence and Optimism Traits

$H_0$1: There is no significant influence of Gender on the behavioral trait of Overconfidence and Optimism.

Ho2: There is no significant influence of Age on the behavioral trait of Overconfidence and Optimism.

Ho3: There is no significant influence of Educational Qualification on the behavioral trait of Overconfidence and Optimism.

Ho4: There is no significant influence of Annual Income on the behavioral trait of Overconfidence and Optimism.

Ho5: There is no significant influence of Investing Experience on the behavioral trait of Overconfidence and Optimism.

Ho6: There is no significant influence of Occupation on the behavioral trait of Overconfidence and Optimism.

Ho7: There is no significant influence of Religion on the behavioral trait of Overconfidence and Optimism.

Influence of demographic variables on Pessimism Traits

Ho8: There is no significant influence on the basis of Gender in terms of the behavioral trait of Pessimism.

Ho9: There is no significant difference on the basis of Age in terms of the behavioral trait of Pessimism.

Ho10: There is no significant difference on the basis of Educational Qualification in terms of the behavioral trait of Pessimism.

Ho11: There is no significant difference on the basis of Annual Income in terms of the behavioral trait of Pessimism.

Ho12: There is no significant difference on the basis of Investing Experience in terms of the behavioral trait of Pessimism.

Ho13: There is no significant difference on the basis of Occupation in terms of the behavioral trait of Pessimism.

Ho14: There is no significant difference on the basis of Religion in terms of the behavioral trait of Pessimism.

Correlation Analysis

The test is carried out in order to test the following null hypothesis:

Ho15: There is no significant relationship between Overconfidence & Optimism and Rationality.

Ho16: There is no significant relationship between Pessimism and Rationality.

Data analysis and Interpretation:

Influence of Demographic Variables on behavioural Trait of "Overconfidence and Optimism"

The values depicted in table 1 shows t-vales and f-values of various demographic variables for Behavioral Bias 'Over Confidence & Optimism'. These values are obtained at a significance level of 5% and 1%. The t-value obtained for Gender is 2.53 and is significant at 1% level. The value indicates that there is significant difference among investors on the basis of gender in terms of "over-confidence and optimism". Therefore the formulated null hypothesis H_o1, i.e. "there is no significant influence of Gender on the behaviouraltrait Overconfidence and Optimism", is rejected. Further, the mean value obtained for male investors is higher compared to females, indicating males are more exposed to over confidence and optimism bias compared to females.The f-value obtained in case of age demographic variable is 2.15 but this is not statistically significant. Therefore, null hypothesis H_o2, i.e. "there is no significant influence of Age on the behaviouraltrait of Overconfidence and Optimism" is accepted. Further, the analysis indicated that the investors in the age group of 30-40 years have scored highest mean value of 3.42 and lowest mean score was witnessed for the investors falling in the age group of more than 5o years (i.e. 3.17). This reveals that investors' falling in lower age group has more tendencies to deviate from rational behavior.

For Educational Qualification, the f-value obtained is 3.56, which is significant at 1% level. So, hypothesis H_o3 i.e. "there is no significant influence of Educational Qualification on the behaviouraltrait of overconfidence and Optimism" is rejected. The mean scores reveal that the investors who are graduate show more over confidence and optimism in their investment decisions and such behavior is least witnessed among higher qualification investors.On the basis of the analysis f-value for the demographic variable of Annual Income is 1.43, which is not significant. Thus, the null hypothesis H_o4 i.e. "there is no significant influence of Annual Income on the behaviouraltrait of Overconfidence and Optimism" is accepted. The analysis also depicts that investors with higher income exhibit more overconfidence and optimism in the investment decisions compared to lower income investors as mean value is recorded highest in their case. Similar results are obtained for the hypothesisframed for investing experience demographic variable. Hence, null hypothesis H_o5 i.e. "there is no significant influence of Investing Experience on the behaviouraltrait of Overconfidence and Optimism" is also accepted.

Table 1 : Influence of Investors' demographics on Over Confidence & Optimism

Particulars	Categories	N	Mean	S.D.	f/t Values
Gender	Male	253	3.37	0.62	t=2.53* (p=.000)
	Female	50	3.14	0.38	

Age	Less than 30	61	3.31	0.56	f=2.15 (p=.095)
	30-40	130	3.42	0.69	
	40-50	76	3.28	0.43	
	More than 50	36	3.17	0.56	
Educational Qualification	Secondary	27	3.39	0.64	f=3.56* (p=.007)
	Undergraduate	69	3.35	0.73	
	Graduate	107	3.45	0.57	
	Post-graduate	80	3.21	0.48	
	Doctorate	20	3.02	0.40	
Annual Income	Upto 3,00,000	116	3.32	0.69	f=1.43 (p=.235)
	3,00,001-5,00,000	92	3.34	0.49	
	5,00,001-7,00,000	62	3.25	0.56	
	Above 7,00,001	33	3.51	0.53	
Investing Experience	0-3 years	115	3.31	0.61	f=1.45 (p=.229)
	3-5 years	74	3.25	0.53	
	5-10 years	79	3.37	0.56	
	More than 10 years	35	3.49	0.73	
Occupation	Self-Employed	123	3.43	0.66	f=5.92* (p=.000)
	Govt. Employee (Retired & Active)	64	3.42	0.54	
	Private Employee	53	3.06	0.47	
	Professors	18	3.00	0.48	
	Others	45	3.40	0.53	
Religion	Islam	267	3.35	0.61	t=1.79* (p=.004)
	Others	36	3.17	0.44	

Source: Primary data compiled by the scholar
***values significant at 1%**
****values significant at 5%**

The analysis presented in this table further reveals that depending upon the type of occupation; investors differ significantly with respect to the biasof over confidence and optimism, resulting in the rejection of null hypothesis Ho6, i.e. "there is no significant influence of Occupation on the behavioral trait of Overconfidence and Optimism". Further, analysis reveals that self-employed investors are more prone to overconfidence and optimism bias compared to other categories. The t-value value obtained for demographic variable of Religion is recorded at 1.76, but this is not significant. This confirms that religion plays no role in determining over confidence and optimistic nature of the investors. Hence, null hypothesis Ho7, i.e., "there is no significant influence of Religion on the behavioral trait of Overconfidence and Optimism" is accepted. However, investors who follow Islam as religion has scored higher mean and this manifests that such investor are more prone to this bias.

Influence of Demographic Variables on behavioral Trait of "Pessimism"

Table 2 depicts the results of t-test for variables analyzed to assess the influence of demographic variables on "Pessimism". The null hypothesis here is that the means are equal and the alternative hypothesis is that they are not equal. A big t, with p-value, means that the null hypothesis is rejected, and we would assert that the means are significantly different; while a small t, with a big p-value indicates that they are not significantly different. Similarly, the null hypothesis here is that the group means are all equal,

and the alternate hypothesis is that they are not. A big f-value, with a small p-value means that the null hypothesis is rejected, and we would assert that the means are significantly different, while a small f with a big p-value indicates that they are not significantly different.

Table 2 shows the t-vales and f-values of various demographic variable in relation to the behavioral bias of 'Pessimism'. These values are obtained at a significance level of 5% and 1%. The t-value obtained for Gender is 1.13 and it is statistically significant at 1% level. The value indicates that there is significant difference among the investors on the basis of gender in terms of the behavioral trait of "Pessimism". Therefore, null hypothesis Ho8, i.e., "there isno significant difference on the basis of Gender in terms of the behavioral trait of Pessimism" is discredited. Further, means reveal that males with higher mean score of 3.15 are more exposed to Pessimism while making investment decisions compared to females,who scored low mean scores. The f-value obtained in case of age demographic variable is

Table 2: Influence of Investors' demographics on Pessimism

Particulars	Categories	N	Mean	S.D.	f/t Values
Gender	Male	253	3.15	0.67	t=1.13* (p=.012)
	Female	50	3.03	0.53	
Age	Less than 30	61	3.04	0.74	f=1.45 (p=.229)
	30-40	130	3.14	0.64	
	40-50	76	3.24	0.61	
	More than 50	36	3.02	0.61	
Educational Qualification	Secondary	27	3.05	0.93	f=2.28 (p=.061)
	Undergraduate	69	3.22	0.58	
	Graduate	107	3.22	0.64	
	Post-graduate	80	3.00	0.62	
	Doctorate	20	2.92	0.53	
Annual Income	Upto 3,00,000	116	3.12	0.73	f=1.83 (p=.143)
	3,00,001-5,00,000	92	3.15	0.67	
	5,00,001-7,00,000	62	3.23	0.49	
	Above 7,00,001	33	2.91	0.52	
Investing Experience	0-3 years	115	3.28	0.60	f=4.63* (p=.004)
	3-5 years	74	3.13	0.70	
	5-10 years	79	3.03	0.59	
	More than 10 years	35	2.87	0.74	
Occupation	Self-Employed	123	3.17	0.69	f=3.06** (p=.017)
	Govt. Employee (Retired & Active)	64	3.14	0.70	
	Private Employee	53	3.08	0.54	
	Professors	18	2.65	0.66	
	Others	45	3.24	0.51	
Religion	Islam	267	3.13	0.65	t=-0.11 (p=.325)
	Others	36	3.14	0.65	

Source: Primary data compiled by the scholar
***values significant at 1%**
****values significant at 5%**

1.45 and it is not statistically significant. The value indicates that there is no significant difference among the investors on the basis of age in terms of the behavioral trait of "Pessimism". Therefore, null hypothesis Ho9, i.e. "no significant difference on the basis of Age in terms of the behavioral trait of Pessimism" is accepted.

The f-value obtained for Educational Qualification is 2.28, which is not statistically significant. The value shows that there is no significant difference among the investors in terms of the use of Pessimism for financial decision-making, on the basis of Educational Qualifications they possess. Hence, the formulated null hypothesis Ho10, i.e. "there is no significant difference on the basis of Educational Qualification in terms of the behavioral trait of Pessimism" is accepted. Similar results are obtained for the hypothesis framed for annual income demographic variable. Therefore, formulated null hypothesis Ho11 that says "there isno significant difference on the basis of Annual Income in terms of the behavioral trait of Pessimism" is accepted.

The f-value obtained for the demographic variable of investors' investing experience is 4.63 and it is statistically significant at 1% level. The value indicates that the investors show significant difference on the basis of their investing experience in terms of the presence of Pessimism in their financial decisions. Therefore, formulated hypothesis Ho12 that is "there isno significant difference on the basis of Investing Experience in terms of the behavioral trait of Pessimism" is discredited. Further, investors having least experience, i.e. upto 3 years have scored the highest mean of 3.28 and are more exposed to this bias and the investors having investing experience of more than 10 years are least expose to this bias, as they have scored low mean score of 2.87.

The results further reveal that depending upon the type of occupation; investors do differ significantly with respect to the Pessimism in financial decision making, resulting in the rejection of null hypothesis Ho13, i.e. "there isno significant difference on the basis of Occupation in terms of the behavioral trait of Pessimism". Further, professors have scored low mean score of 2.65, revealing that they are least exposed to this behavioral bias.The t-value value obtained for Religion is not statistically significant. This confirms that religion has no role to play in determining Pessimism among the investors. Hence, null hypothesis Ho14, that "thereis no significant difference on the basis of Religion in terms of the behavioral trait of Pessimism" is accepted.

Correlation Analysis:

The aim of this analysis is to determine whether there exists any relationship between the variables under study. Further it provides what kind of relation, if any, exists. The values of correlation can range from -1 to +1 depending upon the type of relationship between the variables under study. In order to determine the influence of the behavioural biases under study on investors' rationality, bi-variate correlation between the biases i.e. over confidence and optimism, Pessimism and Rationality of the individual investors has been attempted. The results are significant at 0.01 level and 2-tailed tailed test is carried out.

The result presented in table 3 depicts the relationship between various behavioral biases under study and the rationality of the investors. It is evident from the table that there exists a significant negative correlation between Overconfidence & Optimism and Rationality. The correlation measure of -.490 reveals that "over confidence & optimism"bias adversely affects the rationality of individual investor's investment decision to the tune of 49 per cent. Thus null hypothesis Ho15 "there is no significant relationship between over confidence & Optimism and Rationality" is rejected and the alternate one is accepted. Again,"Pessimism" and rationality are negatively correlated and the value of correlation is statistically significant. Thus, thenull hypothesis Ho16 i.e. "there is no significant relationship between Pessimism and Rationality" is rejected. The analysis depicts that out of the two biases under study "Overconfidence and Optimism" is stronger psychological trait influencing individual investors rationality compared to "Pessimism".

Table 3: Relationship between various Behavioral Biases under study and Rationality of the individual investors

	Overconfidence & Optimism	Pessimism
Rationality	-.490* P-value= .000	-.346* P-value= .000

Source: Primary data compiled by the scholar
***values significant at 1% (2-tailed)**

Conclusion:

People may vary in terms of the presence of psychological factors in their decision-making on the basis of various demographic variables, however, their influence on their rationality while they take investment decisions cannot be ruled out. One psychological factor may be significant with respect to one demographic variable while as other may or may not affect the same. In the present study, both the

psychological traits under study, i.e. "Overconfidence and Optimism" and "Pessimism" show different impact on the individual investors' when they are categories on the basis of gender and occupation. But for education qualification and religion investors' differ in terms of the presence of "Overconfidence and optimism "only and for investing experience they differ in terms of Pessimism only. For the other demographics under study, i.e. age and annual incomeinvestors' do not differ in terms of the presence of any psychological trait under study. Hence, it can deduced that the influence of these biases vary from person to person,while as in terms of impact it may differ , and as such these biases play a significant role and may influence the rationality of the investors while they take financial decisions. Lastly, correlation analysis revealsthat both "Overconfidence and Optimism" and "Pessimism" psychological traits of individual investors are negatively correlated with Rationality, although the degree of correlation is higher for former compared to later.

References

Chen, G. M., Kim, K. A., Nofsinger, J. R., & Rui, O. M. (2004, January). Behavior and Performance of Emerging Market Investors: Evidence from China. Retrieved December 29, 2014, from www.ccfr.org.cn:www.ccfr.org.cn/cicf2006/cicf2006paper/20060104133427.pdf

DeBondt, W. F. (1998). Behavioural Economics: A Portrait of the Individual Investor.Europian Economic Review, 42, 831-844.

Fagerstrom, S. (2008). Behavioral Finance: The Psychological Impact and Overcofidence in Financial Markets. Skovde: University of Skovde.

Gervais, S., &Odean, T. (2001). Learning to be overconfident. Review of Financial studies, 14(1), 1-27.

Hassan, E. U., Shahzed, F., Shaheen, M., Abbas, Q., Hameed, Z., & Hunjra, A. I. (2013). Impact of Affect Heuristic, Fear and Anger on the Decision Making of Individual Investor: A Conceptual Study. World Applied Sciences Journal, 23(4), 510-514.

Lin, H.-W. (2011, March 4). Elucidating Rational Investment Decisions and Behavioral Biases: Evidences from the Taiwanese Stock Market. African Journal of Business Management, 5(5), 1630-1641.

Lyubomirsky, S., King, L., &Diener, E. (2005). The benefits of frequent positive affect: does happiness lead to success?. Psychological bulletin, 131(6), 803.

Nofsinger, J. R. (2001). Investment Madness: How Psychology Affect Your Investing and What To Do About It.USA: Pearson Education.

Odean, T. (1998). Volume, Volatility, Price and Profit When All Traders Are Above Average. Journal of Finance, 53(6), 1887-1934.

Phung, A. (2008). investopedia.com/universitybehavioral_finance/behavioral4.asp.Retrieved 2013, from investopedia. com.

Pompian, M. M. (2006). Behavioral Finance and Wealth Management. USA: John Wiley and Sons.

Rabin, M. (2002). A perspective on psychology and economics. European economic review, 46(4), 657-685.

Shefrin, H. (2000). Beyond Greed and Fear: Understanding Behavioral Finance and The Psychology of Investors. New York: Oxford University Press.

Solt, M., & Statman, M. (1989). Good Companies, Bad Stocks. Journal of Portfolio Management., 15(4), 39-45.

Statman, M. (1995). Behavioral finance versus standard finance. AIMR Conference Proceedings.7, pp. 14-22. Association for Investment Management and Research.