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Regression Analysis of the Investors' Behavioral Biases with respect to the Investors' Personality

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Abstract: ***Each investor personality type of the Big Five model exhibits distinct behavioral biases based on the investor profile. With the help of survey data of 436 secondary equity investors residing in Chennai, significant associations between the behavioral biases and the personality dimensions of the Big Five model were drawn. The results were further narrowed down when the data was divided based on the age, annual income, stock market experience, investment knowledge and risk level of the respondents. The financial advisors could now provide customized financial advice and warn against the biases they are most likely to exhibit, based on the background data of each investor.***

Keywords: Mental Accounting, Anchoring, Gambler's fallacy, Availability, Loss aversion, Regret aversion, Representativeness, Overconfidence, Optimism, Big Five Personality

1. Introduction

Financial advice plays a pivotal role in guiding equity investors to invest wisely in the equity market. Emotions tend to drive the investors into making financial blunders in the market. The biases exhibited by the investors are the result of these emotions. These behavioral biases are unique to every personality type. Hence, by knowing the specific biases exhibited by each personality type, the financial advisors are in a better position to advice the investors about the biases they are most likely to exhibit. The huge number of investors could be broadly classified based on their demographic profile and financial profile. Hence, for every profile belonging to each personality type if the most likely biases to be exhibited are known, financial guidance becomes easier. This study aims to fulfil that objective.

The influence of personality on investor behaviour was studied by Pan and Statman in their research paper titled, "Investor Personality in Investor Questionnaires" in 2012. This research surveyed 2500 people and found associations between personality and life-satisfaction, attributing success to luck or skill, trust, regret, maximization, overconfidence and risk tolerance using regression tests. For the Indian context, this methodology was adapted and the biases studied in most Indian studies were tested against personality. The biases studied include

- Representativeness
- Overconfidence
- Loss Aversion
- Regret Aversion
- Availability
- Gambler's Fallacy and
- Anchoring

Using scenario based questions the biases were measured on a Likert scale via the questionnaire method. The Big Five model was used to identify the personality of the sample. The personality dimensions of the Big Five model include extraversion, agreeableness, conscientiousness, neuroticism and openness. Using regression tests, the regression coefficients of the personality dimensions were determined and hence their associations with the behavioral biases were found.

2. Objectives and Methodology

The main objectives of the study were to determine the behavioral biases closely associated with each personality dimension of the Big Five model. The study was further narrowed down by dividing the data based on the age, annual income, stock market experience, investment knowledge and risk level of the respondents in order to get a clearer picture of the associations with the personality dimensions. As a result, based on one's profile the behavioral biases most likely to be exhibited by the investors belonging to each personality type would be known. The study was an exploratory study as it intended to determine the relationship between the behavioral biases and the personality dimensions of the Big Five model. Questionnaire method was adopted to collect the data.

3. Population and Sample

The population for the study was the secondary equity investors residing in Chennai. The sample selected for the study were the members of the Tamil Nadu Investors Association (TIA) and the clients of a popular financial services company, Integrated. TIA was selected as it was the only formal body which allowed access to collect data from its members. During the Tamil Nadu Investors Association (TIA) meetings, 65 questionnaires were distributed. Out of these 65 questionnaires, only 61 were returned. 7 questionnaires were incomplete and hence could not be taken as valid. Among the rest of 54 completed questionnaires, all of the filled up questionnaires were taken as eligible.

Integrated was selected as it was the only company which allowed access to collect data from its clients. The clients of Integrated were met in person and 360 copies of the questionnaire were distributed. Among the 360

questionnaires distributed, 320 questionnaires were returned, among which 15 questionnaires were incomplete and hence invalid. Among the 305 completed questionnaires all the filled up questionnaires were taken as eligible. 77 questionnaires were completed through online questionnaires by investors selected via snow ball sampling techniques. Thereby a total of 436 valid questionnaires were collected.

4. Descriptive statistics of the Personality Dimensions

The descriptive statistics of the personality dimensions of the Big Five model given in Table1 shows the mean, standard deviation and Cronbach's alpha of each dimension. In accordance with the mean, the Openness dimension was ranked the highest followed by Agreeableness, Conscientiousness, Extraversion and Neuroticism. The Cronbach's alpha which indicates the reliability of the dimensions shows that the personality dimensions are reliable as the values are around 0.5.

Table 1: Descriptive statistics of the Personality dimensions

Personality Dimensions	Mean	S.D	Cronbach's alpha
Extraversion	26.48	3.925	0.495
Agreeableness	30.72	5.086	0.659
Conscientiousness	30.40	4.783	0.631
Neuroticism	23.57	4.049	0.449
Openness	33.30	4.507	0.512

5. Results and Analysis of Regression tests

Regression analysis was used with each of the behavioral biases, namely: Representativeness, Overconfidence, Loss Aversion, Regret Aversion, Availability, Gambler's Fallacy and Anchoring as the dependent variables and the personality dimensions of the Big Five model namely: Extraversion, Agreeableness, Conscientiousness, Neuroticism and Openness as the independent variables. Table 2 in the appendix shows the regression coefficients of each of the independent variables along with their significance. The significant regression coefficients are mentioned in bold. As a result of the regression tests, the significant associations (either positive or negative) between the behavioral biases and personality dimensions could be determined.

The interpretations of the associations between the behavioral biases and the personality dimensions derived from the regression results are as follows:

Representativeness varies by personality. Agreeableness, Conscientiousness and Neuroticism are associated with relatively high level of representativeness. However, Extraversion and Openness are not related to representativeness.

Overconfidence varies by personality. Extraversion and Conscientiousness are associated with relatively high level of overconfidence. However, Agreeableness, Neuroticism and Openness are not related to overconfidence.

Loss aversion varies by personality. Agreeableness, Conscientiousness and Neuroticism are associated with relatively high level of loss aversion. However, Extraversion and Openness are not related to loss aversion.

Regret aversion varies by personality. Agreeableness is associated with relatively high level of regret aversion. However, Extraversion, Conscientiousness, Neuroticism and Openness are not related to regret aversion.

Availability varies by personality. Agreeableness and Neuroticism are associated with relatively high level of availability. Openness is associated with relatively low level of availability. However, Extraversion and Conscientiousness are not related to availability.

Gambler's fallacy varies by personality. Extraversion and Neuroticism are associated with relatively high level of gambler's fallacy. Openness is associated with relatively low level of gambler's fallacy. However, Agreeableness and Conscientiousness are not related to gambler's fallacy.

Anchoring varies by personality. Agreeableness and Neuroticism are associated with relatively high level of anchoring. However, Extraversion, Conscientiousness and Openness are not related to anchoring.

The associations derived from the regression results are summarized in Table 3. For significant positive associations, "Higher" is mentioned in bold whereas for significant negative associations, "Lower" is mentioned in bold. For a broader picture of the associations between the personality and the biases, the data set was divided based on the age, annual income, stock market experience, investment knowledge and risk level of the respondents in order to get a clearer picture of the associations with the personality dimension.

5.1 Age-wise Regression Analysis

The data set of 436 samples was divided into 3 groups based on the age. The lower age group consisted of 168 samples where the age of the respondent fell either in the 25 and below age group or 26-35 age group. The middle age group consisted of 137 samples where the age of the respondent fell either in the 36-45 age group or 46-55 age group. The higher age group consisted of 131 samples where the age of the respondent fell in the above 55 age group. The results are tabulated in Table 4.

In the lower age group, Extraversion is associated with relatively high level of regret aversion. Agreeableness is associated with relatively high level of representativeness, regret aversion, availability and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence. Neuroticism is associated with relatively high level of loss aversion. Openness is associated with relatively low level of gambler's fallacy and anchoring.

In the middle age group, Extraversion has no significant association with any behavioral bias. Agreeableness is associated with relatively high level of regret aversion and

anchoring. Conscientiousness personality dimension is associated with relatively high level of representativeness, overconfidence and loss aversion. Neuroticism is associated with relatively high level of representativeness, availability, gambler's fallacy and anchoring. Openness is associated with relatively low level of loss aversion.

In the higher age group as well, Extraversion has no significant association with any behavioral bias. Agreeableness is associated with relatively high level of anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence. Neuroticism is associated with relatively high level of availability and anchoring. Openness is associated with relatively high level of representativeness, regret aversion and anchoring.

5.2 Annual income-wise Regression Analysis

The data set of 436 samples was divided into 3 groups based on the annual income. The lower annual income group consisted of 155 samples where the annual income of the respondent fell in the Rs. 2 lakhs and below range. The medium annual income group consisted of 167 samples where the annual income of the respondent fell either in the Rs. 2 to 4 lakhs range or Rs. 4 to 6 lakhs range. The higher annual income group consisted of 114 samples where the annual income of the respondent fell in either Rs. 6 to 8 lakhs range, or Rs. 8 to 10 lakhs range or more than Rs.10 lakhs. The results are tabulated in Table 5.

In the lower annual income group, Extraversion is associated with relatively high level of overconfidence. Agreeableness is associated with relatively high level of regret aversion, availability and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence. Neuroticism is associated with relatively high level of regret aversion and gambler's fallacy. Openness is associated with relatively low level of gambler's fallacy.

In the medium annual income group, Extraversion is associated with relatively low level of anchoring. Agreeableness has no significant association with any behavioral bias. Conscientiousness personality dimension is associated with relatively high level of overconfidence and loss aversion. Neuroticism is associated with relatively high level of representativeness and availability. Openness is associated with relatively high level of representativeness.

In the higher annual income group, Extraversion is associated with relatively high level of gambler's fallacy. Agreeableness is associated with relatively high level of regret aversion and anchoring. Conscientiousness personality dimension is associated with relatively high level of representativeness, overconfidence, loss aversion and regret aversion. Neuroticism is associated with relatively high level of availability. Openness is associated with relatively low level of representativeness, loss aversion, regret aversion, gambler's fallacy and anchoring.

5.3 Stock Market Experience-wise Regression analysis

The data set of 436 samples was divided into 3 groups based on the experience in the stock market. The lower stock market experience group consisted of 173 samples where the stock market experience of the respondent was in the less than 5 years range. The medium stock market experience group consisted of 120 samples where the stock market experience of the respondent fell in the 5 to 10 years range. The higher stock market experience group consisted of 143 samples where the stock market experience of the respondent fell in either 10 to 15 years range, or 15 to 20 years range or more than 20 years range. The results are tabulated in Table 6.

In the lower stock market experience group, Extraversion is associated with relatively high level of representativeness and overconfidence. Agreeableness is associated with relatively high level of loss aversion, regret aversion, availability and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence and gambler's fallacy. Neuroticism is associated with relatively high level of representativeness, loss aversion, gambler's fallacy and anchoring. Openness has no significant association with any behavioral bias.

In the medium stock market experience group, Extraversion is associated with relatively high level of gambler's fallacy. Agreeableness is associated with relatively high level of regret aversion and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence and loss aversion. Neuroticism is associated with relatively high level of availability. Openness has no significant association with any behavioral bias.

In the high stock market experience group, Extraversion is associated with relatively low level of availability. Agreeableness is associated with relatively high level of anchoring. Conscientiousness personality dimension is associated with relatively high level of representativeness, overconfidence and loss aversion. Neuroticism is associated with relatively high level of availability. Openness has no significant association with any behavioral bias.

5.4 Investment Knowledge-wise Regression analysis

The data set of 436 samples was divided into 3 groups based on the investment knowledge in the stock market. The lower investment knowledge group consisted of 108 samples where the investment knowledge of the respondent was in the very little knowledge range. The medium investment knowledge group consisted of 177 samples where the investment knowledge of the respondent fell in the some investment knowledge range. The higher investment knowledge group consisted of 151 samples where the investment knowledge of the respondent fell in either good investment knowledge range, or very good investment knowledge range or business investor. The results are tabulated in Table 7.

In the lower investment knowledge group, Extraversion is associated with relatively high level of overconfidence.

Agreeableness is associated with relatively high level of availability. Conscientiousness personality dimension has no significant association with any behavioral bias. Neuroticism is associated with relatively high level of availability. Openness has no significant association with any behavioral bias.
In the medium investment knowledge group, Extraversion is associated with relatively high level of overconfidence and gambler's fallacy. Agreeableness is associated with relatively high level of regret aversion, availability and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence and loss aversion. Neuroticism is associated with relatively high level of loss aversion. Openness has no significant association with any behavioral bias.

In the high investment knowledge group, Extraversion has no significant association with any behavioral bias. Agreeableness is associated with relatively high level of representativeness, regret aversion and anchoring. Conscientiousness personality dimension is associated with relatively high level of overconfidence and loss aversion. Neuroticism is associated with relatively high level of availability. Openness is associated with relatively low level of representativeness, loss aversion, regret aversion, availability and anchoring.

5.5 Risk level-wise Regression analysis

The data set of 436 samples was divided into 3 groups based on the risk level. The lower risk level group consisted of 141 samples where the risk level of the respondent was either in level 1 or level 2. The medium risk level group consisted of 169 samples where the risk level of the respondent fell in level 3. The higher risk level group consisted of 126 samples where the risk level of the respondent was in either level 4 or level 5. The results are tabulated in Table 8.

In the lower risk group, Extraversion has no significant association with any behavioral bias. Agreeableness is associated with relatively high level of representativeness, overconfidence, regret aversion and anchoring. Conscientiousness personality dimension is associated with relatively high level of loss aversion and regret aversion. Neuroticism is associated with relatively high level of regret aversion, availability and gambler's fallacy. Openness has no significant association with any behavioral bias.

In the medium risk group, Extraversion is associated with relatively high level of overconfidence and gambler's fallacy. Agreeableness is associated with relatively high level of loss aversion and anchoring. Conscientiousness personality dimension is associated with relatively high level of representativeness and overconfidence. Neuroticism is associated with relatively low level of overconfidence and gambler's fallacy and with relatively high level of loss aversion, availability and anchoring. Openness is associated with relatively low level of anchoring.

In the higher risk group, Extraversion has no significant association with any behavioral bias. Agreeableness is associated with relatively high level of representativeness, availability and anchoring and with relatively low level of overconfidence. Conscientiousness personality dimension is associated with relatively high level of overconfidence and with relatively low level of regret aversion and anchoring. Neuroticism is associated with relatively high level of gambler's fallacy. Openness is associated with relatively low level of availability.

6. Analysis of Cross-Referencing Between the Tables

Extraversion
Investors with the extraversion personality dimension are most likely to exhibit the **regret aversion** bias when they belong to the lower age group; **overconfidence** bias when they belong to the lower annual income group or lower stock market experience group or lower investment knowledge group; **gambler's fallacy** when they belong to the higher annual income group or medium stock market experience group; **representativeness** when they belong to the lower stock market experience group.

Agreeableness
Investors with the agreeableness personality dimension are most likely to exhibit the **representativeness** bias when they belong to the lower age group or higher investment knowledge group or lower/higher risk level group; **regret aversion** when they belong to the lower age group or lower/higher annual income group or lower stock market experience group or higher investment knowledge group or lower risk level group; **availability** when they belong to the lower age group or lower annual income group or lower stock market experience group or lower investment knowledge group or higher risk level group; **anchoring** when they belong to the lower/higher age group or lower/higher annual income group or lower/higher stock market experience group or higher investment knowledge group or lower/higher risk level group; **loss aversion** when they belong to the lower stock market experience group; **overconfidence** bias when they belong to the lower risk level group.

Conscientiousness
Investors with the conscientiousness personality dimension are most likely to exhibit the **overconfidence** bias when they belong to the lower/higher age group or lower/higher annual income group or lower/higher stock market experience group or higher investment knowledge group or higher risk level group; **representativeness** bias when they belong to the higher annual income group or higher stock market experience group; **loss aversion** when they belong to the higher annual income group or higher stock market experience group or higher investment knowledge group or lower risk level group; **regret aversion** when they belong to the higher annual income group or lower risk level group; **gambler's fallacy** when they belong to the lower stock market experience group.

Neuroticism
Investors with the neuroticism personality dimension are most likely to exhibit the **loss aversion** bias when they belong to the lower age group or lower stock market experience group; **availability** bias when they belong to the higher age group or higher annual income group or higher

stock market experience group or lower/higher investment knowledge group or lower risk level group; **anchoring** bias when they belong to the higher age group or lower stock market experience group; **regret aversion** bias when they belong to the lower annual income group or lower risk level group; **gambler's fallacy** when they belong to the lower annual income group or lower stock market experience group or lower/higher risk level group; **representativeness** bias when they belong to the lower stock market experience group.

Openness

Investors with the openness personality dimension are most likely to exhibit the representativeness bias, regret aversion bias and anchoring bias when they belong to the higher age group.

7. Conclusion

In this study, regression analysis was carried out keeping the behavioral bias as the dependent variable and the personality dimensions of the Big Five model as the independent variables. The regression coefficients hence determined were used to find the associations between the biases and the personality dimensions. The study was further deepened when information like age, annual income, stock market experience, investment knowledge, and risk level was used to categorize the data. Cross referencing was also done to determine the bias most likely to be exhibited by investors of a specific personality type belonging to a specific demographic and financial profile. Hence this in depth association links would be useful to financial advisors to cater specific guidance based on each one's demographic and financial profile and personality type.

Appendices

Table 2: Regression Models with the Big Five Personality Dimensions as the Independent Variables

Behavioral Biases (Dependent Variable)	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.
Representativeness	0.039	0.479	**0.101**	0.032	**0.112**	0.031	**0.115**	0.013	-0.031	0.514
Overconfidence	**0.117**	0.033	-0.004	0.929	**0.285**	0.000	0.011	0.817	0.040	0.391
Loss Aversion	0.024	0.655	**0.094**	0.040	**0.187**	0.000	**0.106**	0.018	-0.061	0.180
Regret Aversion	0.086	0.097	**0.206**	0.000	0.069	0.149	0.062	0.148	-0.080	0.067
Availability	-0.022	0.619	**0.143**	0.000	-0.013	0.748	**0.148**	0.000	**-0.081**	0.030
Gambler's Fallacy	**0.092**	0.027	0.006	0.867	0.031	0.422	**0.068**	0.050	**-0.071**	0.045
Anchoring	-0.031	0.576	**0.219**	0.000	-0.003	0.960	**0.155**	0.001	-0.090	0.059

Table 3: Summary of the Regression Results

Behavioral Biases	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
Representativeness	Higher	Lower	**Higher**	Lower	**Higher**	Lower	**Higher**	Lower	Higher	Lower
Overconfidence	**Higher**	Lower	Higher	Lower	**Higher**	Lower	Higher	Lower	Higher	Lower
Loss Aversion	Higher	Lower	**Higher**	Lower	**Higher**	Lower	**Higher**	Lower	Higher	Lower
Regret Aversion	Higher	Lower	**Higher**	Lower	Higher	Lower	Higher	Lower	Higher	Lower
Availability	Higher	Lower	**Higher**	Lower	Higher	Lower	**Higher**	Lower	Higher	**Lower**
Gambler's Fallacy	**Higher**	Lower	Higher	Lower	Higher	Lower	**Higher**	Lower	Higher	**Lower**
Anchoring	Higher	Lower	**Higher**	Lower	Higher	Lower	**Higher**	Lower	Higher	Lower

Table 4: Age-wise Regression analysis with the Big Five Personality Dimensions as the Independent Variables

Age Group	Biases	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
		Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.
Lower Age Group	Representativeness*	0.078	0.387	**0.231**	0.008	0.007	0.934	-0.054	0.545	-0.057	0.428
	Overconfidence*	0.126	0.121	0.028	0.721	**0.205**	0.011	-0.045	0.573	0.089	0.169
	Loss Aversion*	0.121	0.157	0.146	0.075	0.092	0.273	**0.207**	0.016	-0.033	0.633
	Regret Aversion*	**0.209**	0.009	**0.298**	0.000	0.025	0.747	0.040	0.611	-0.121	0.057
	Availability*	0.076	0.223	**0.227**	0.000	-0.045	0.465	0.120	0.055	-0.093	0.063
	Gambler's Fallacy*	0.135	0.050	-0.003	0.960	0.063	0.346	0.107	0.118	**-0.152**	0.006
	Anchoring*	0.119	0.161	**0.234**	0.004	-0.036	0.667	0.090	0.286	**-0.158**	0.020
Middle Age Group	Representativeness*	0.075	0.460	0.137	0.077	**0.225**	0.011	**0.222**	0.002	-0.089	0.272
	Overconfidence*	0.073	0.482	-0.028	0.719	**0.402**	0.000	0.090	0.221	0.066	0.428
	Loss Aversion*	0.089	0.385	0.036	0.643	**0.328**	0.000	0.056	0.444	**-0.213**	0.010
	Regret Aversion*	-0.041	0.682	**0.203**	0.008	0.128	0.135	0.038	0.593	-0.111	0.165
	Availability	-0.131	0.150	0.064	0.351	0.047	0.542	**0.149**	0.022	-0.053	0.468
	Gambler's Fallacy	0.116	0.130	-0.013	0.820	0.061	0.349	**0.120**	0.027	-0.061	0.320
	Anchoring*	-0.065	0.546	**0.190**	0.021	0.082	0.374	**0.172**	0.026	-0.151	0.082
Higher Age Group	Representativeness	-0.067	0.504	-0.140	0.110	0.086	0.324	0.055	0.504	**0.217**	0.040
	Overconfidence*	0.180	0.114	-0.117	0.236	**0.265**	0.008	-0.064	0.491	-0.031	0.797
	Loss Aversion*	-0.119	0.214	0.059	0.473	0.116	0.166	0.087	0.269	0.183	0.069
	Regret Aversion	0.023	0.807	0.008	0.922	0.032	0.698	0.026	0.742	**0.232**	0.021
	Availability	-0.101	0.219	0.116	0.104	-0.049	0.491	**0.160**	0.019	0.015	0.862
	Gambler's Fallacy	0.007	0.931	-0.048	0.482	-0.032	0.636	-0.049	0.444	0.114	0.167
	Anchoring*	-0.178	0.091	**0.180**	0.047	-0.070	0.438	**0.183**	0.034	**0.281**	0.011

*Regression models are significant

Table 5: Annual Income-wise Regression analysis with the Big Five Personality Dimensions as the Independent Variables

Annual Income Group	Biases	Extraversion		Agreeableness		Conscientiousness		Neuroticism		Openness	
		Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.	Regression Coefficient	Sig.
Lower Annual Income Group	Representativeness	0.041	0.679	0.103	0.159	0.018	0.834	0.085	0.302	-0.047	0.556
	Overconfidence*	**0.397**	0.000	-0.119	0.086	**0.364**	0.000	0.130	0.097	0.007	0.923
	Loss Aversion	-0.030	0.742	0.127	0.060	0.101	0.212	0.104	0.170	0.017	0.813
	Regret Aversion*	0.124	0.191	**0.234**	0.001	0.000	0.996	**0.188**	0.017	-0.052	0.488
	Availability*	-0.127	0.108	**0.235**	0.000	0.016	0.817	0.085	0.190	0.013	0.835
	Gambler's Fallacy	0.076	0.366	-0.010	0.877	0.045	0.543	**0.146**	0.035	**-0.148**	0.028
	Anchoring*	-0.093	0.371	**0.241**	0.002	-0.082	0.372	0.159	0.064	-0.043	0.605
Medium Annual Income Group	Representativeness*	-0.008	0.917	-0.004	0.952	0.040	0.568	**0.132**	0.036	**0.196**	0.005
	Overconfidence*	0.111	0.210	0.091	0.238	**0.165**	0.033	-0.004	0.957	0.001	0.994
	Loss Aversion*	-0.044	0.597	0.060	0.409	**0.154**	0.036	0.110	0.093	0.027	0.714
	Regret Aversion	0.080	0.329	0.049	0.490	0.000	0.999	-0.002	0.979	0.070	0.326
	Availability*	0.018	0.799	0.084	0.172	-0.068	0.266	**0.183**	0.001	-0.079	0.194
	Gambler's Fallacy	0.055	0.392	0.026	0.645	0.004	0.938	0.045	0.368	0.024	0.661

	Anchoring	**-0.176**	0.030	0.103	0.141	0.031	0.659	0.093	0.139	0.086	0.220
Higher Annual Income Group	**Representativeness***	0.104	0.318	0.137	0.205	**0.369**	0.002	0.045	0.631	**-0.277**	0.003
	Overconfidence*	-0.044	0.650	-0.036	0.725	**0.317**	0.005	-0.076	0.390	0.057	0.516
	Loss Aversion*	0.152	0.141	0.002	0.985	**0.447**	0.000	0.051	0.584	**-0.222**	0.016
	Regret Aversion*	0.097	0.258	**0.286**	0.002	**0.287**	0.004	-0.038	0.618	**-0.312**	0.000
	Availability*	-0.005	0.947	0.069	0.403	0.136	0.133	**0.158**	0.029	-0.135	0.058
	Gambler's Fallacy	**0.177**	0.015	-0.025	0.740	0.057	0.489	-0.014	0.826	**-0.129**	0.045
	Anchoring*	0.177	0.099	**0.280**	0.012	0.096	0.429	0.167	0.084	**-0.313**	0.001

*Regression models are significant

Table 6: Stock Market Experience-wise Regression analysis with the Big Five Personality Dimensions as the Independent Variables

Experience In Stock Market Group	**Biases**	**Extraversion**		**Agreeableness**		**Conscientiousness**		**Neuroticism**		**Openness**	
		Regression Coefficient	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**
Lower Experience Group	**Representativeness***	**0.178**	0.028	0.110	0.120	-0.026	0.742	**0.184**	0.006	-0.073	0.280
	Overconfidence*	**0.186**	0.021	0.033	0.633	**0.165**	0.039	0.071	0.282	0.055	0.408
	Loss Aversion*	0.098	0.183	**0.160**	0.013	0.064	0.379	**0.137**	0.024	-0.018	0.764
	Regret Aversion*	0.128	0.070	**0.286**	0.000	-0.050	0.473	0.082	0.156	-0.086	0.147
	Availability*	0.020	0.750	**0.169**	0.002	-0.071	0.257	0.092	0.075	-0.031	0.557
	Gambler's Fallacy*	0.096	0.162	-0.054	0.364	**0.139**	0.044	**0.117**	0.040	-0.087	0.131
	Anchoring*	0.075	0.370	**0.165**	0.025	0.020	0.812	**0.210**	0.003	-0.097	0.169
Medium Experience Group	**Representativeness***	-0.111	0.335	0.175	0.077	0.141	0.180	-0.013	0.904	0.165	0.132
	Overconfidence*	0.046	0.656	0.067	0.447	**0.260**	0.006	-0.022	0.813	0.078	0.422
	Loss Aversion*	0.047	0.670	0.109	0.242	**0.253**	0.012	-0.044	0.667	-0.078	0.449
	Regret Aversion*	0.175	0.112	**0.229**	0.016	0.138	0.168	0.040	0.697	-0.081	0.435
	Availability	0.045	0.607	0.100	0.177	0.040	0.609	**0.183**	0.024	-0.105	0.201
	Gambler's Fallacy	**0.176**	0.025	0.069	0.302	-0.075	0.289	0.047	0.517	-0.081	0.272
	Anchoring*	-0.038	0.720	**0.241**	0.010	0.027	0.778	0.102	0.303	-0.053	0.604
Higher Experience Group	**Representativeness***	-0.038	0.709	0.059	0.486	**0.207**	0.018	0.090	0.256	-0.131	0.109
	Overconfidence*	0.067	0.542	-0.163	0.075	**0.455**	0.000	-0.082	0.340	0.019	0.829
	Loss Aversion*	-0.182	0.087	-0.012	0.894	**0.270**	0.003	0.110	0.182	-0.118	0.165
	Regret Aversion	-0.143	0.146	0.046	0.575	0.134	0.110	-0.007	0.931	-0.040	0.615
	Availability*	**-0.173**	0.047	0.133	0.065	-0.006	0.930	**0.161**	0.018	-0.130	0.062
	Gambler's Fallacy	0.003	0.966	-0.004	0.946	0.015	0.808	0.017	0.763	-0.035	0.549
	Anchoring*	-0.208	0.057	**0.237**	0.009	-0.047	0.613	0.096	0.256	-0.116	0.183

*Regression models are significant

Table 7: Investment Knowledge-wise Regression analysis with the Big Five Personality Dimensions as the Independent Variables

Investment Knowledge Group	**Biases**	**Extraversion**		**Agreeableness**		**Conscientiousness**		**Neuroticism**		**Openness**	
		Regression Coefficient	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**
Lower Knowledge Group	**Representativeness**	0.077	0.434	0.027	0.755	-0.070	0.498	0.164	0.058	0.025	0.775
	Overconfidence*	**0.220**	0.033	-0.061	0.503	0.138	0.200	0.033	0.710	0.110	0.230
	Loss Aversion*	-0.010	0.907	0.123	0.118	0.151	0.102	0.080	0.296	-0.011	0.884
	Regret Aversion	0.090	0.323	0.041	0.613	-0.007	0.943	0.084	0.293	0.093	0.259
	Availability*	-0.010	0.897	**0.225**	0.002	-0.060	0.469	**0.143**	0.038	-0.042	0.554

	Gambler's Fallacy	0.097	0.246	-0.095	0.207	-0.018	0.835	0.114	0.123	-0.068	0.365
	Anchoring	-0.124	0.240	0.094	0.318	-0.011	0.923	0.179	0.053	0.090	0.341
Medium Knowledge Group	**Representativeness***	0.092	0.298	0.048	0.530	0.114	0.156	0.109	0.124	0.060	0.424
	Overconfidence*	**0.192**	0.027	0.003	0.964	**0.204**	0.009	-0.011	0.873	-0.018	0.801
	Loss Aversion*	0.076	0.376	0.031	0.676	**0.166**	0.033	**0.160**	0.021	0.054	0.458
	Regret Aversion*	0.123	0.133	**0.292**	0.000	-0.015	0.841	0.073	0.269	-0.032	0.638
	Availability	0.041	0.547	**0.142**	0.015	-0.080	0.194	0.095	0.082	-0.055	0.343
	Gambler's Fallacy*	**0.139**	0.031	0.069	0.211	-0.007	0.905	0.056	0.278	-0.060	0.267
	Anchoring*	-0.012	0.876	**0.255**	0.000	-0.008	0.913	0.095	0.133	-0.050	0.449
Higher Knowledge Group	**Representativeness***	0.049	0.638	**0.231**	0.006	0.151	0.098	0.070	0.418	**-0.174**	0.048
	Overconfidence*	-0.045	0.653	-0.024	0.764	**0.454**	0.000	-0.040	0.634	0.068	0.421
	Loss Aversion*	0.040	0.706	0.164	0.053	**0.226**	0.015	0.065	0.461	**-0.268**	0.003
	Regret Aversion*	0.113	0.250	**0.257**	0.001	0.146	0.086	0.041	0.608	**-0.269**	0.001
	Availability*	-0.075	0.382	0.066	0.327	0.084	0.258	**0.198**	0.006	**-0.148**	0.040
	Gambler's Fallacy	0.037	0.623	0.027	0.658	0.047	0.476	0.052	0.405	-0.088	0.165
	Anchoring*	0.022	0.846	**0.252**	0.006	0.013	0.892	0.177	0.062	**-0.237**	0.014

*Regression models are significant

Table 8: Risk level-wise Regression analysis with the Big Five Personality Dimensions as the Independent Variables

Risk Level Group	**Biases**	**Extraversion**		**Agreeableness**		**Conscientiousness**		**Neuroticism**		**Openness**	
		Regression Coefficient	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**	**Regression Coefficient**	**Sig.**
Lower Risk Group	**Representativeness***	0.067	0.483	**0.182**	0.026	0.093	0.261	0.042	0.652	-0.008	0.929
	Overconfidence*	-0.045	0.578	**0.262**	0.000	0.138	0.052	0.088	0.271	0.078	0.302
	Loss Aversion*	0.051	0.586	0.040	0.622	**0.250**	0.003	-0.021	0.821	0.047	0.593
	Regret Aversion*	0.057	0.511	**0.317**	0.000	**0.165**	0.030	**0.173**	0.043	-0.040	0.621
	Availability*	0.014	0.840	0.107	0.071	0.012	0.836	**0.165**	0.015	-0.024	0.702
	Gambler's Fallacy	0.100	0.166	-0.051	0.409	0.109	0.081	**0.196**	0.006	-0.071	0.290
	Anchoring*	-0.020	0.826	**0.173**	0.025	0.063	0.416	0.125	0.156	0.021	0.796
Medium Risk Group	**Representativeness**	-0.071	0.403	-0.096	0.233	**0.223**	0.010	0.118	0.111	0.021	0.783
	Overconfidence*	**0.210**	0.016	-0.130	0.112	**0.263**	0.003	**-0.160**	0.033	-0.035	0.654
	Loss Aversion*	-0.052	0.514	**0.160**	0.037	0.134	0.099	**0.191**	0.007	-0.103	0.161
	Regret Aversion*	0.083	0.286	0.093	0.206	0.120	0.128	0.002	0.982	-0.109	0.127
	Availability	-0.072	0.306	0.078	0.243	0.042	0.553	**0.177**	0.004	-0.060	0.353
	Gambler's Fallacy*	**0.225**	0.001	-0.110	0.081	0.037	0.575	**-0.137**	0.019	-0.107	0.079
	Anchoring*	-0.046	0.562	**0.180**	0.018	0.077	0.339	**0.188**	0.007	**-0.155**	0.035
Higher Risk Group	**Representativeness**	0.172	0.157	**0.193**	0.030	-0.051	0.648	0.121	0.136	-0.106	0.213
	Overconfidence*	0.122	0.331	**-0.187**	0.043	**0.447**	0.000	0.036	0.665	0.030	0.732
	Loss Aversion	0.094	0.417	0.062	0.465	0.083	0.439	0.119	0.126	-0.067	0.409
	Regret Aversion	0.201	0.063	0.111	0.161	**-0.201**	0.044	0.007	0.926	-0.058	0.445
	Availability*	0.039	0.693	**0.227**	0.002	-0.116	0.209	0.109	0.104	**-0.141**	0.045
	Gambler's Fallacy*	-0.059	0.464	0.104	0.081	-0.006	0.938	**0.177**	0.001	-0.055	0.330
	Anchoring	0.008	0.949	**0.253**	0.010	**-0.247**	0.047	0.144	0.109	-0.068	0.470

*Regression models are significant