

A Study of the Determinance of the Type of Personality in Albanian Individual Investor Decision-Making

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ABSTRACT

Traditionally, classical finance theories have argued that investors are rational and not influenced by human factors when making financial decisions. Recent developments in the field of finance, such as the anomalies that occurred and occasional financial crises took place, raised skepticism among researchers changing their approach towards traditional theories, as these theories failed to explain or predict unexpected developments in the markets, thus not supporting the unrealistic assumption of rational man (*homo economicus*). The research work for this new field of finance belongs to the recent decades. More specifically, there are quite a few studies in Albania due to the presence of an underdeveloped financial market. In the multitude of different factors, which influence the financial behavior of the investor, most of the research in the field of financial behavior is dedicated to the study of psychological biases. The topic of this study focuses on the impact of the personality type of individual investors on their decisions to invest in financial assets offered in Albania. The study is composed in the same logic line as that of the purpose and the research question raised. Quantitative strategy is used to answer the research question and draw conclusions. Descriptive and regression analysis was used through R-programme to identify the significance of the type of personality in Albanian individual investor behavior. We use the questionnaire as an instrument to collect data. Big Five Personality Model is chosen as the measurement scale. Only coherent data that remained after the reliability test (Cronbach Alpha), will be further used in regression statistical analysis to examine their impact on investor behavior. The analysis shows that the type of personality affects individual investment decisions in financial assets. More specifically Extraversion, Conscientiousness, and Neuroticism affect the amount of money invested in the asset. 'Openness' and 'Neuroticism' affect the level of certainty investors perceive for the investment made in financial assets.

Keywords: Financial Behaviour, Personality Measurement Scale, Regression Statistical Analysis, Reliability Test, Type of Personality.

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I. INTRODUCTION

The object of the study was to analyze the impact of personality on the financial decision-making of individual investors in Albania.

More specifically, the research question is presented as follows:

Does the personality type of the individual investor influence his decision-making for investments in financial assets in Albania?

The literature recognizes through theoretical and empirical findings that investor personality traits affect investor financial decisions (Durand *et al.*, 2008). Knowing the type of personality investors belong to, helps them manage their irrational behavior better while taking their own financial decisions. Portfolio managers also provide financial advice on building portfolios and assets allocation according to the specific type of personality of the individual investor, using psychometric questionnaires.

The paper is organized as follows:

- i. In the Literature Review Section we present the Big Five Personality Model, where different types of personalities are explained taking an investor's approach. We also mention other studies which examine the relationship between personality and financial decisions, citing the respective sources.
- ii. We then explain in detail the methodology applied to answer the research question and thereafter the results taken from the analysis are presented.
- iii. Finally, we interpret the results and try to reach recommendations.

II. LITERATURE REVIEW

The individuals' personality can be assessed using different models such as: Personality Model Proposed by Rotter (1966); The BB & K model, proposed by Bailard *et al.* (1986), Myers-Briggs Type Index by Myers and McCaulley (1985), The Big Five Personality Features by Costa and McCrae (1992), etc. Studies in this field show that personality can be divided into five main features (Peterson, 2012).

The Five-Factor Model of Personality Traits ("Big Five") is the dominant personality search paradigm (McCrae, 2009) thus becoming one of the most common and most effective models in trait studies (McCrae, 2009). Its adaptability in all cultures was tested by McCrae and Costa Jr (1997). Using the five-factor model of personality traits as well as other personality-determining gauges, personality traits are linked to a wide range of decisions and investment outcomes (Durand *et al.*, 2008). Five Big Factors have been defined: *openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism* (Borghans *et al.*, 2008).

1. Openness to new experiences

This type of individual adopts himself easily and tends to have new ideas and unique values. They accept easily new social, political, and ethnic beliefs; prefer simplicity, and avoid uncertainty, (Sadi, 2011). They are curious and original; they are able to grasp quickly and have a vivid imagination and interesting ideas, (Pan & Statman, 2013).

2. Responsibility and conscientiousness

Individuals belonging to this type of personality are self-disciplined, competent, tidy, and complete their duties. They are responsible, trustworthy, stable, and organized (Sadi *et al.*, 2011). They are strict with schedules and pay attention to details (Pan & Statman, 2013). They tend to believe that their investments are better than those of other investors (Jamshidinavid *et al.*, 2012).

3. Extroversion

Extroverted individuals are easily influenced by external elements and have low self-control and low will. They are characterized by negligence, flexibility, sensitivity, good humor, enthusiasm, and lack of strong principles (Sadi *et al.*, 2011); they like hanging out, socializing, and talking a lot.

4. Agreeableness

Agreeable individuals are respectful and honest. They are modest, direct, and loyal. Flexibility and altruism are one of their traits (Sadi *et al.*, 2011). They like to make people feel good and try to understand other people's feelings. They are generous and grateful (Pan & Statman, 2013).

5. Neuroticism

This kind of personality includes impulsiveness, depression, anxiety, and anger. These individuals are unstable and tend to be anxious and irritated about anything very easily (Pan & Statman, 2013). These types of investors tend to be nervous, concerned, and emotionally unstable, (Jamshidinavid *et al.*, 2012).

A. The 5-Factor Model of Personality

1) Investor Personality and financial decision-making

The type of personality characterizing an investor is an important factor affecting his financial decision-making. Personality helps to identify who a person is and what motivates him (Soane & Chmiel, 2005). Knowing your own type of personality can help you act more rationally while taking financial decisions. As Graham¹ cites: "*The investor's chief problem – and even his worst enemy – is indeed to be himself.*" The moral is: try to control yourself, and not just let it go when it comes to financial decisions. Being yourself can be harmful at certain times.

Individuals who are more extroverted intend to engage in short-term investing, while those who are higher in neuroticism and/or risk aversion avoid this activity (Mayfield *et al.*, 2008). Cheng-Po Lai (2019) examines the big five personality taxonomies to investigate the effects of the personality traits of individual investors on stock investment intentions. The perceived behavioral control of individuals regarding stock investment is influenced by personality traits of agreeableness, extroversion, conscientiousness, and openness (Lai, 2019).

Ahmad, Hassan and Mahmood (2016) examine the relationship between investor personality types and investment behavior in the stock market of Pakistan using multivariate regression. Results reveal that investor personality types significantly influence the investment behavior of individuals (Ahmad *et al.*, 2016).

III. METHODOLOGY

The processing of the data collected for this study will be carried out in the function of the following research question:

Does the personality type of the individual investor influence his decision-making for investments in financial assets in Albania?

We use a quantitative strategy to answer the research question and draw conclusions. Structured interviews are used as a basis for data collection and quantitative processing. We chose the Big Five Personality Test as a measurement scale. Data gathered from personality measurement scales were submitted to the reliability test (Cronbach Alpha). Only data remaining after the reliability test will be further used in regression statistical analysis. The paper uses descriptive statistical analysis to analyze the data collected on the personality of the individual Albanian investor. Statistical regression analysis is also used where several statistical models are evaluated, with dependent variables "length of investment", "amount invested" and "perceived certainty" (used to measure financial behavior) whereas as independent variables, the five different types of personalities (E – Extraversion, A – Agreeableness, C – Conscientiousness, N – Neuroticism, O – Openness to experiences) are used.

The Personality Measurement Scale aims to make an assessment in quantitative (ranking) terms with ratings from 1 to 5 regarding 44 specific aspects of human personality represented in the paper by 44 specific questions. The data collected provide important information on the nature and personality types of Albanian investors as well as their impact on investment decisions. The Big Five Personality test will be used as a measurement scale to determine the Personality Traits of investors.

A. Descriptive Statistics Analysis Results

The following variables are constructed as the weighted mean of the respective variables.

E – Extraversion: 1, 6R 11, 16, 21R, 26, 31R, 36.

A – Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42.

C – Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R.

N – Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39.

¹Benjamin Graham, a well-known investor, professor of economy in USA.

O² – Openness:5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44.

1) Results of variables: E, A, C, N, O.

'Extraversion – e': The mean is 3; the corresponding minimum and maximum are 2.1 and 4.4. The first and third quartiles result in 2.4 and 3.6, respectively. The median is 2.75, a below mean value, which shows a slight asymmetry in the distribution. The lower and upper limits of the confidence interval for the mean are 2.9 and 3.1, respectively. The asymmetry index is positive, so positive asymmetry might be present in the distribution. The 'kurtosis' index is significantly different from the three, thus the distribution is not normal.

'Agreeableness': – a': The mean is 3.1; the corresponding minimum and maximum are 2.1 and 4.6. The first and third quartiles result in 2.3 dhe 3.8, respectively. The median turns out to be 3.1, a value close to the mean, which shows the presence of symmetry in the distribution. The lower and upper limits of the confidence interval for the mean are 3 and 3.2, respectively. The asymmetry index is positive, so there is a slight asymmetry in the distribution. The 'kurtosis' index is significantly different from the three, thus the distribution is not normal.

'Consciousness – c': The mean is 3.2; the corresponding minimum and maximum are 2.2 and 4.6. The first and third quartiles result in 3 dhe 3.7, respectively. The median turns out to be 3, a value lower than the mean, showing the presence of a slight asymmetry in the distribution. The lower and upper limits of the confidence interval for the mean are 3.1 and 3.3, respectively. The asymmetry index is positive, thus there is a positive asymmetry in the distribution. The 'kurtosis' index is significantly different from the three, thus the distribution is not normal.

'Neuroticism – n': The mean is about 3.3; the corresponding minimum and maximum are 1.6 and 4.5. The first and third quarters resulted in 2.75 and 4.25, respectively. The median turns out to be 3, a lower value than the mean, showing the presence of a slight asymmetry in the distribution. The lower

and upper limits of the confidence interval for the mean are 3.2 and 3.4, respectively. The asymmetry index is slightly positive, so a slight positive asymmetry in the distribution is noticed. The 'kurtosis' index is significantly different from the three, thus the distribution is not normal.

'Openness – o': The mean is about 3.1; the corresponding minimum and maximum are 2.1 and 4.5. The first and third quarters resulted in 3 and 3.2, respectively. The median turns out to be 3, a value lower than the mean, showing the presence of a slight asymmetry in the distribution. The lower and upper limits of the confidence interval for the mean are 3.1 and 3.2, respectively. The asymmetry index is positive, so positive asymmetry in the distribution is noticed. The 'kurtosis' index is significantly different from the three, thus the distribution is not normal.

The following graph presents the boxplots for all five variables. The variable 'Neuroticism – n' presents slightly higher values. The 'Consciousness – c', 'Neuroticism - n' and 'Openness – o' variables present great asymmetry as the corresponding graphs are also asymmetric. The other variables present moderate asymmetry.

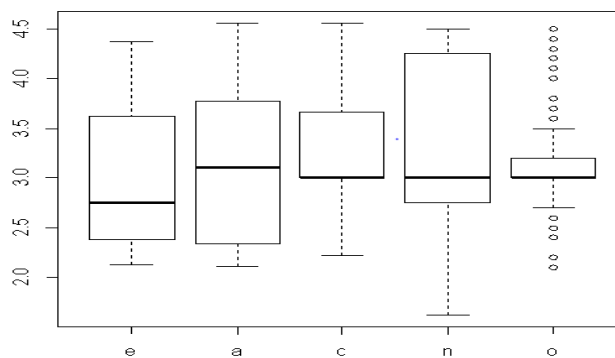


Fig. 1. 'Boxplots' for the 5 variables.

In the following figure, we present the histograms for the 5 variables whereby the above results are confirmed.

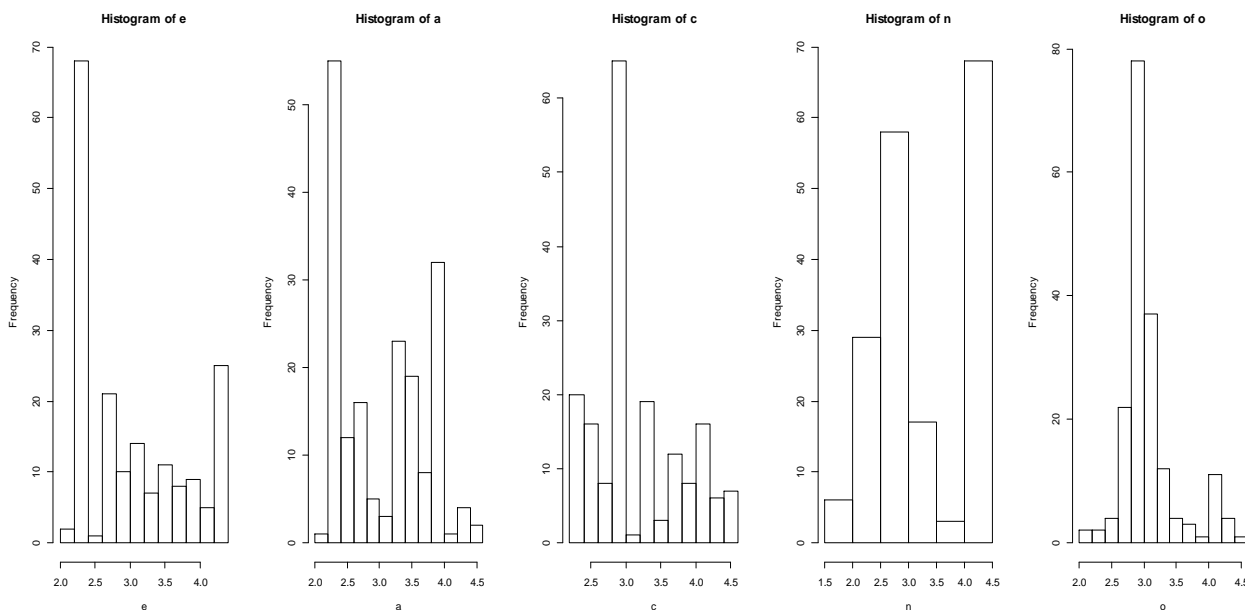


Fig. 2. Histograms for the 5 variables.

²E – Extraversion
A – Agreeableness
C – Consciousness

N – Neuroticism
O – Openness to experiences

Table I shows the names of the variables, useful for inferential analysis.

TABLE I: THE VARIABLES' NAMES AS A FUNCTION OF INFERENTIAL ANALYSIS

Section 1	"Type of asset"	"Time horizon"	"Amount invested"	"Perceived certainty"
Section 2	"e"	"a"	"c"	"n"

To analyze the relationship between variables in this part of the paper, we apply the concepts of regression and correlation.

Before we begin studying the relationship between the individual investor personality and his/her investment decisions, we perform the reliability test for the Personality Measurement Scale. Variables considered do not include questions eliminated based on Chronbach alpha reliability analysis, (Luong & Thu Ha, 2011). Only questions that will remain after the Cronbach Alpha test will be taken into consideration to be further analyzed to determine the importance of personality in decision making.

B. Cronbach Alpha Reliability Test for the Personality Measurement Scale

1) Cronbach alpha test

The test is commonly used in behavioral science studies to test the reliability of the internal consistency of Likert scale measurements (Liu, Wu & Zumbo, 2010). As such, since the research is on behavioral finance and as we used the 5-point Likert scale, the test is considered most appropriate for this study (Dervishaj & Khaferi, 2020). Criteria for statistical indicators:

- *Raw_alpha*: 'Cronbach α ' value- values greater than 0,6 or 0,7 show high reliability (Field, Miles& Field, 2012; Kline, 1999).
- *'Std.alpha'*: this value is usually similar to 'raw_alpha', so we can rely on the first value.
- *'G6'*: Guttman's Lambda (calculated by multiple correlation).
- *'Average_r'*: average correlation between variables (used to calculate 'std.alpha').
- *'Mean'*: the simple mathematical average of all individual means.
- *'Sd'*: standard deviation.

In the 'Reliability if an item is dropped' section, reliability is given if the relevant variable is eliminated. If the alpha value results in any case greater than the total alpha value, then the variable associated with it must be eliminated. The other columns include other statistics if the relevant variable is not considered.

In the 'Item statistics' section:

'Raw.r': the correlation between the variable and the total of answers.

'R.drop': the correlation between the variable and the total of 'corrected' responses by the variable itself. Low values (approximately less than 0.3) indicate that the relevant variable is not sufficiently correlated with the total estimate.

In this part of the analysis, we aim to eliminate section variables (questions) from further analysis. First, we need to have a total alpha value greater than 0.6. Second, we need to verify that all values of 'raw_alpha' in the 'Reliability if an item is dropped' table, are smaller than the general alpha value. Finally, in the 'Item statistics' section, values of 'r.drop' must be (approximately) greater than 0.3.

After the questions were converted according to literature guidelines (Field *et al.*, 2012; Kline, 1999), the following analysis was performed. If the responses do not follow the trend of the corresponding characteristic, the R- the software automatically converts the variable. The 'output' of the calculation of 'Cronbach - α ' for Extraversion, Conscientiousness, Neuroticism, 'Openness' and 'Neuroticism', is presented in the following paragraphs.

2) 'Cronbach's α calculation output for 'Extraversion' variable

We focus on the rules explained above: the value of the total alpha, in this case, is 0.88. This value is significantly higher than the standard value of 0.6, so this criterion is met. We need to check that all 'raw_alpha' values in the 'Reliability if an item is dropped' part of the table are lower (or equal) than the total alpha value. All variables meet this criterion, except for question 'P21' (corresponding value is 0.90). We should also have 'r.drop' values higher than 0.3 (approximately) in the 'Item statistics' part of the table. We see that even in this case the question 'P21' does not meet the criterion.

TABLE II: EXTRAVERSION: 1, 6R 11, 16, 21R, 26, 31R, 36

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.88	0.88	0.93	0.48	7.5	0.013	3	0.72	0.52
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P1	0.86	0.86	0.92	0.48	6.4	0.015	0.060	0.49
P6	0.85	0.86	0.90	0.46	6.0	0.016	0.057	0.49
P11	0.85	0.85	0.89	0.45	5.6	0.016	0.049	0.49
P16	0.86	0.86	0.90	0.47	6.1	0.015	0.050	0.51
P21	0.90	0.91	0.93	0.58	9.7	0.011	0.015	0.57
P26	0.87	0.87	0.92	0.50	7.0	0.015	0.039	0.52
P31	0.86	0.86	0.90	0.47	6.2	0.015	0.046	0.49
P36	0.86	0.86	0.91	0.47	6.2	0.015	0.057	0.51
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P1	180	0.76	0.76	0.70	0.68	2.8	0.89	
P6	180	0.84	0.82	0.81	0.76	2.0	1.06	
P11	180	0.86	0.87	0.89	0.81	3.6	0.89	
P16	180	0.79	0.80	0.80	0.72	3.6	0.96	
P21	180	0.39	0.40	0.32	0.24	2.9	0.92	
P26	180	0.69	0.68	0.65	0.60	3.7	0.890	
P31	180	0.81	0.79	0.78	0.71	2.4	1.27	
P36	180	0.79	0.79	0.76	0.71	3.5	0.89	

TABLE III: EXTRAVERSION AFTER OMITTING 'P21' VARIABLE

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.90	0.91	0.93	0.58	9.7	0.011	3.1	0.78	0.57
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P1	0.89	0.90	0.93	0.60	8.8	0.012	0.019	0.57
P6	0.89	0.89	0.92	0.58	8.2	0.013	0.017	0.57
P11	0.88	0.88	0.89	0.56	7.5	0.013	0.011	0.56
P16	0.89	0.89	0.90	0.58	8.1	0.012	0.012	0.57
P26	0.89	0.90	0.92	0.60	9.0	0.012	0.016	0.526
P31	0.89	0.589	0.90	0.57	7.69	0.013	0.016	0.56
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P1	180	0.75	0.76	0.69	0.67	2.8	0.89	
P6	180	0.82	0.81	0.78	0.74	2.0	1.06	
P11	180	0.85	0.86	0.87	0.80	3.6	0.89	
P16	180	0.80	0.81	0.81	0.72	3.6	0.96	
P26	180	0.75	0.75	0.70	0.67	3.7	0.80	
P31	180	0.85	0.83	0.81	0.76	2.4	1.27	
P36	180	0.77	0.78	0.74	0.69	3.5	0.89	

So, we perform the analysis again by omitting the question 'P21' and including all the other questions, according to the stated definition. In this case, the criteria are met. We continue the analysis with the other questions of the section.

3) 'Cronbach's α calculation output for 'Agreeableness' variable

Let's focus on the rules again: the total alpha value, in this case, is 0.84. This value is significantly higher than the standard value of 0.6, so this criterion is met. We need to check that all 'raw_alpha' values in the 'Reliability if an item

is dropped' part of the table are lower (or equal) than the total alpha value. All variables meet this criterion, except for question 'P37' (corresponding value is 0.85). We should also have 'r.drop' values higher than 0.3 (approximately) in the 'Item statistics' part of the table. We see that even in this case the question 'P37' does not meet the preset criterion.

So we perform the analysis again by eliminating the question 'P37' and including all the other questions, according to the stated definition. In this case, the criteria are met. We continue the analysis with the other questions of the section.

TABLE IV: AGREEABLENESS: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.84	0.84	0.692	0.347	5.3	0.017	3.1	0.66	0.42
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P2	0.79	0.80	0.90	0.34	4.0	0.023	0.068	0.39
P7	0.80	0.80	0.89	0.33	3.9	0.021	0.078	0.34
P12	0.81	0.82	0.90	0.36	4.5	0.020	0.066	0.43
P17	0.84	0.83	0.91	0.38	5.0	0.016	0.070	0.45
P22	0.84	0.83	0.91	0.38	4.9	0.017	0.068	0.45
P27	0.83	0.83	0.91	0.38	4.9	0.018	0.075	0.39
P32	0.84	0.84	0.961	0.39	5.1	0.017	0.069	0.42
P37	0.85	0.86	0.93	0.43	6.1	0.016	0.059	0.47
P42	0.79	0.80	0.90	0.33	3.9	0.022	0.071	0.39
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P2	180	0.86	0.82	0.82	0.79	2.5	1.30	
P7	180	0.84	0.85	0.84	0.78	3.6	0.91	
P12	180	0.77	0.69	0.69	0.65	2.4	1.32	
P17	180	0.49	0.59	0.56	0.39	3.2	0.76	
P22	180	0.49	0.60	0.58	0.40	3.2	0.67	
P27	180	0.67	0.62	0.56	0.53	2.3	1.21	
P32	180	0.51	0.57	0.53	0.41	3.5	0.76	
P37	180	0.39	0.37	0.28	0.25	3.0	0.93	
P42	180	0.88	0.86	0.85	0.83	4.0	0.90	

TABLE V: AGREEABLENESS AFTER OMITTING 'P37' VARIABLE

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.85	0.86	0.93	0.43	6.1	0.016	3.1	0.71	0.47
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P2	0.80	0.82	0.90	0.40	4.7	0.022	0.057	0.47
P7	0.82	0.82	0.90	0.40	4.7	0.19	0.069	0.45
P12	0.83	0.84	0.91	0.43	5.3	0.019	0.051	0.48
P17	0.85	0.85	0.92	0.46	5.9	0.015	0.054	0.48
P22	0.85	0.85	0.91	0.45	5.7	0.015	0.055	0.48
P27	0.85	0.86	0.96	0.47	6.2	0.016	0.053	0.50
P32	0.85	0.85	0.91	0.45	5.7	0.016	0.067	0.50
P42	0.81	0.82	0.90	0.39	4.4	0.021	0.062	0.45

TABLE V: AGREEABLENESS AFTER OMITTING 'P37' VARIABLE

Item statistics							
	n	raw.r	std.r	r.cor	r.drop	mean	sd
P2	180	0.88	0.83	0.83	0.81	2.5	1.30
P7	180	0.81	0.82	0.81	0.75	0.36	0.91
P12	180	0.79	0.71	0.70	0.67	2.4	1.32
P17	180	0.51	0.61	0.58	0.40	3.2	0.76
P22	180	0.52	0.64	0.61	0.43	3.2	0.67
P27	180	0.62	0.56	0.48	0.46	2.3	1.21
P32	180	0.58	0.64	0.60	0.418	3.5	0.76
P42	180	0.89	0.87	0.86	0.85	4.0	0.90

4) 'Cronbach's α calculation output for 'Consciousness' variable

According to the criteria: the value of the total alpha, in this case, is 0.87. This value is significantly higher than the standard value of 0.6, so this criterion is met. We need to check that all 'raw_alpha' values in the 'Reliability if an item is dropped' part of the table are lower (or equal) than the total alpha value. All variables meet this criterion, except for questions 'P23' and 'P38' (respective values are 0.88 in both

cases). We should also have 'r.drop' values higher than 0.3 (approximately) in the 'Item statistics' part of the table. We see that in this case, the questions meet the criterion because all values are higher than 0.3.

So we perform the analysis again by eliminating questions 'P23' and 'P38' and including all the other questions, according to the stated definition. In this case, the criteria are met. We continue the analysis with the other questions of the section.

TABLE VI: CONSCIOUSNESS: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.87	0.857	0.94	0.44	7	0.015	3.2	0.61	0.37
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P3	0.85	0.85	0.92	0.41	5.5	0.018	0.069	0.33
P8	0.86	0.87	0.92	0.45	6.5	0.016	0.060	0.39
P13	0.85	0.85	0.92	0.41	5.5	0.017	0.067	0.35
P18	0.86	0.86	0.92	0.44	6.2	0.016	0.065	0.36
P23	0.88	0.88	0.95	0.49	7.5	0.015	0.072	0.040
P28	0.85	0.85	0.92	0.41	5.6	0.017	0.066	0.37
P33	0.85	0.85	0.92	0.42	5.7	0.017	0.066	0.37
P38	0.88	0.88	0.94	0.48	7.3	0.014	0.058	0.37
P43	0.86	0.86	0.92	0.44	6.2	0.016	0.063	0.38
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P3	180	0.82	0.83	0.83	0.76	3.5	0.80	
P8	180	0.70	0.65	0.65	0.59	2.8	0.92	
P13	180	0.81	0.84	0.83	0.75	3.4	0.81	
P18	180	0.74	0.70	0.69	0.64	2.7	1.03	
P23	180	0.46	0.49	0.38	0.36	3.1	0.63	
P28	180	0.80	0.82	0.81	0.73	3.4	0.81	
P33	180	0.77	0.79	0.78	0.69	3.5	0.85	
P38	180	0.50	0.53	0.46	0.38	3.4	0.79	
P43	180	0.75	0.71	0.71	0.65	2.8	1.03	

TABLE VII: CONSCIOUSNESS AFTER OMITTING 'P23' AND 'P38' VARIABLES

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.89	0.89	0.95	0.54	8.2	0.014	3.2	0.69	0.4
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P3	0.87	0.87	0.94	0.52	6.5	0.017	0.068	0.36
P8	0.87	0.88	0.94	0.56	7.6	0.016	0.054	0.41
P13	0.87	0.87	0.94	0.53	6.8	0.016	0.063	0.40
P18	0.87	0.88	0.95	0.55	7.4	0.016	0.064	0.40
P28	0.87	0.87	0.94	0.54	6.9	0.016	0.060	0.40
P33	0.87	0.87	0.94	0.54	7.0	0.016	0.058	0.40
P43	0.87	0.88	0.93	0.55	7.2	0.016	0.059	0.41
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P3	180	0.81	0.84	0.82	0.74	3.5	0.80	
P8	180	0.76	0.72	0.71	0.66	2.8	0.92	
P13	180	0.78	0.80	0.78	0.69	3.4	0.81	
P18	180	0.78	0.75	0.72	0.68	2.7	1.03	
P28	180	0.76	0.79	0.77	0.67	3.4	0.81	
P33	180	0.75	0.78	0.76	0.66	3.5	0.85	
P43	180	0.80	0.76	0.76	0.70	2.8	1.03	

5) 'Cronbach's α calculation output for 'Neuroticism' variable

The value of total alpha, in this case, is 0.91. This value is significantly higher than the standard value of 0.6, so this criterion is met. We need to check that all 'raw_alpha' values in the 'Reliability if an item is dropped' part of the table are lower (or equal) than the total alpha value. All variables meet this criterion, except for questions 'P9', 'P24', and 'P34' (respective values are higher than 0.88). We should also have 'r.drop' values higher than 0.3 (approximately) in the 'Item statistics' part of the table. We see that in this case, the questions meet the criterion because all values are higher than 0.3.

So we perform the analysis again by eliminating questions 'P9', 'P24', and 'P34' and including all the other questions, according to the stated definition. In this case, the criteria are met. We continue the analysis with the other questions of the section.

6) Cronbach's α calculation output for "Openness" variable.

Let's focus on the rules again: the total alpha value in this case is 0.86. This value is significantly higher than the standard value of 0.6, so this condition is met. We need to check that all 'raw_alpha' values in the 'Reliability if an item is dropped' part of the table are lower (or equal) than the total alpha value. All variables meet this condition, except for

question 'P41' (the value is 0.87, i.e., higher). We should also have 'r.drop' values higher than 0.3 (approximately) in the 'Item statistics' part of the table. We notice some issues with questions 'P41' and 'P35'.

We perform the analysis again by eliminating questions 'P41' and 'P35' and including all other questions, according to the stated definition. We check again and conclude that questions that do not meet the requirement are 'P20' and 'P30'.

We perform the analysis again by eliminating the questions 'P20' and 'P30' which do not meet the requirement and by including the other questions, according to the stated definition. Finally, the criteria are met.

IV. REGRESSION ANALYSIS

At the end of the reliability test, the paper continues to try to find answers to the research question by not including questions/ variables that do not meet the consistency requirements associated with 'Cronbach's α ' analysis (Field *et al.*, 2012; Kline, 1999).

In the following, we evaluate some statistical models, with different dependent variables, respectively *time horizon* (length of investment), the *amount invested* in the financial asset, and the *perceived certainty*, while the independent variables include: 'e', 'a', 'c', 'n' and 'o' (the 5 types of personality).

TABLEVIII: NEUROTICISM: 4, 9R, 14, 19, 24R, 29, 34R, 39

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.91	0.9	0.93	0.52	8.6	0.0071	3.3	0.82	0.41
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P4	0.88	0.86	0.90	0.47	6.2	0.0102	0.072	0.37
P9	0.92	0.90	0.93	0.56	9.0	0.0066	0.089	0.40
P14	0.88	0.86	0.90	0.47	6.2	0.0102	0.071	0.37
P19	0.89	0.87	0.90	0.48	6.6	0.0092	0.074	0.40
P24	0.93	0.92	0.94	0.61	11.0	0.00653	0.071	0.58
P29	0.89	0.87	0.91	0.49	6.6	0.0091	0.086	0.37
P34	0.92	0.91	0.94	0.60	10.5	0.0067	0.078	0.528
P39	0.88	0.86	0.90	0.47	6.2	0.0096	0.079	0.32
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P4	180	0.95	0.93	0.95	0.93	3.5	1.24	
P9	180	0.61	0.61	0.56	0.51	2.6	0.92	
P14	180	0.96	0.94	0.96	0.94	3.6	1.23	
P19	180	0.960	0.88	0.90	0.86	3.7	1.06	
P24	180	0.36	0.45	0.32	0.30	2.8	0.66	
P29	180	0.89	0.88	0.587	0.84	3.7	1.30	
P34	180	0.42	0.148	0.37	0.34	2.8	0.58	
P39	180	0.93	0.93	0.94	0.91	3.7	1.13	

TABLEIX: NEUROTICISM AFTER OMITTING 'P9', 'P24', 'P34' VARIABLES

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.97	0.97	0.97	0.86	31	0.0039	3.6	1.1	0.89
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P4	0.95	0.95	0.95	0.84	21	0.0061	0.00565	0.85
P14	0.95	0.96	0.95	0.84	21	0.0059	0.00510	0.86
P19	0.96	0.96	0.95	0.86	25	0.0050	0.00332	0.86
P29	0.97	0.98	0.97	0.91	40	0.0030	0.00037	0.91
P39	0.96	0.96	0.96	0.86	24	0.0052	0.00644	0.88
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P4	180	0.97	0.97	0.97	0.95	3.5	1.2	
P14	180	0.97	0.97	0.97	0.95	3.6	1.2	
P19	180	0.94	0.94	0.94	0.91	3.7	1.1	
P29	180	0.89	0.88	0.84	0.82	3.7	1.3	
P39	180	0.84	0.95	0.93	0.91	3.7	1.1	

TABLE X: 'OPENNESS': 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.86	0.86	0.9	0.37	6	0.015	3.1	0.42	0.39
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P5	0.82	0.82	0.87	0.34	4.6	0.019	0.064	0.32
P10	0.84	0.84	0.88	0.37	5.2	0.017	0.059	0.36
P15	0.82	0.82	0.87	0.33	4.5	0.020	0.062	0.32
P20	0.84	0.84	0.89	0.37	5.3	0.17	0.082	0.32
P25	0.82	0.82	0.88	0.34	4.7	0.019	0.070	0.34
P30	0.86	0.86	0.90	0.41	6.2	0.015	0.076	0.46
P35	0.88	0.87	0.90	0.42	6.6	0.012	0.071	0.46
P40	0.83	0.83	0.89	0.36	5.0	0.018	0.064	0.34
P41	0.87	0.88	0.91	0.44	7.2	0.015	0.057	0.46
P44	0.83	0.83	0.88	0.35	4.9	0.018	0.070	0.32
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P5	180	0.84	0.84	0.86	0.749	3.2	0.63	
P10	180	0.70	0.70	0.69	0.62	3.1	0.60	
P15	180	0.88	0.89	0.91	0.83	3.2	0.67	
P20	180	0.70	0.67	0.62	0.59	3.4	0.73	
P25	180	0.83	0.83	0.82	0.76	3.1	0.70	
P30	180	0.43	0.47	0.41	0.34	3.0	0.43	
P35	180	0.45	0.40	0.31	0.26	3.0	0.87	
P40	180	0.75	0.74	0.73	0.67	3.1	0.63	
P41	180	0.24	0.28	0.147	0.15	3.1	0.43	
P44	180	0.76	0.78	0.76	0.69	3.1	0.56	

TABLE XI: 'OPENNESS' AFTER OMITTING P41', 'P35' VARIABLES

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.9	0.9	0.92	0.52	8.7	0.011	3.2	0.48	0.55
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P5	0.88	0.87	0.89	0.49	6.8	0.0132	0.041	0.51
P10	0.89	0.88	0.90	0.52	7.6	0.0121	0.036	0.51
P15	0.87	0.87	0.89	0.48	6.4	0.0141	0.040	0.51
P20	0.91	0.90	0.92	0.56	8.9	0.0697	0.047	0.65
P25	0.88	0.88	0.90	0.50	7.1	0.0130	0.046	0.65
P30	0.91	0.92	0.92	0.61	10.9	0.0100	0.016	0.65
P40	0.88	0.88	0.690	0.51	7.4	0.0125	0.041	0.51
P44	0.88	0.88	0.690	0.50	7.1	0.0123	0.051	0.51
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P5	180	0.87	0.87	0.87	0.82	3.2	0.63	
P10	180	0.78	0.77	0.76	0.71	3.1	0.60	
P15	180	0.91	0.91	0.92	0.87	3.2	0.67	
P20	180	0.66	0.64	0.55	0.53	3.4	0.73	
P25	180	0.84	0.83	0.81	0.77	3.1	0.70	
P30	180	0.42	0.46	0.38	0.32	3.0	0.43	
P40	180	0.81	0.80	0.77	0.74	3.1	0.63	
P44	180	0.81	0.82	0.79	0.75	3.1	0.56	

TABLE XII: OPENNESS AFTER OMITTING 'P20' AND 'P30' VARIABLES

raw_alpha	std.alpha	G6(smc)	mean_r	S/N	ase	mean	sd	median_r
0.93	0.93	0.93	0.68	13	0.0085	3.1	0.54	0.67
Reliability if an item is dropped								
raw_alpha	std.alpha	G6(smc)	mean_r	S/N	alpha	se	var.r	med.r
P5	0.90	0.91	0.90	0.66	9.6	0.0110	0.0045	0.67
P10	0.91	0.91	0.91	0.68	10.7	0.0099	0.0064	0.67
P15	0.90	0.90	0.589	0.65	9.1	0.0117	0.0035	0.66
P25	0.92	0.92	0.91	0.68	10.9	0.0097	0.0064	0.68
P40	0.92	0.92	0.91	0.69	10.9	0.0099	0.0068	0.66
P44	0.92	0.92	0.92	0.70	11.7	0.0094	0.0058	0.70
Item statistics								
	n	raw.r	std.r	r.cor	r.drop	mean	sd	
P5	180	0.89	0.89	0.88	0.84	3.2	0.63	
P10	180	0.84	0.84	0.81	0.77	3.1	0.60	
P15	180	0.92	0.91	0.91	0.87	3.2	0.67	
P25	180	0.85	0.84	0.80	0.76	3.1	0.70	
P40	180	0.84	0.84	0.79	0.76	3.1	0.63	
P44	180	0.80	0.81	0.74	0.72	3.1	0.56	

In Table XIII, we present the results of the model with *time horizon*- as a dependent variable and 'e', 'a', 'c', 'n', 'o' as independent ones. Let's focus again on the last column (Pr (> |t|)), which corresponds to the p-value of the corresponding coefficient. If this value is lower than the standard alpha value (5% or 10%), then the corresponding parameter is statistically significant. In this model, we note that none of the independent variables affect the dependent variable.

TABLE XIII: RESULTS OF THE 'TIME HORIZON' – DEPENDENT AND 'E', 'A', 'C', 'N', 'O' – INDEPENDENT VARIABLES MODEL

```
> fit <- glm (time horizon~e+a+c+n+o)
> summary(fit)
Call:
Glm (formula = time horizon ~ e + a + c + n + o)
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-4.2574 -1.5834  0.7196  1.6018  5.9656
Coefficients:
Estimate Std Error t value Pr(>|t|)
(Intercept) 3.9977    4.0995   0.975   0.331
e          0.1687    0.5726   0.295   0.769
a          0.1469    0.5668   0.259   0.796
c          0.1206    0.4057   0.297   0.767
n          0.1919    0.4465   0.430   0.668
o         -0.6481    0.4082  -1.588   0.114
```

(Dispersion parameter for gaussian family taken to be 4.515286).
Null deviance: 802.25 on 179 degrees of freedom.
Residual deviance: 785.66 on 174 degrees of freedom.
AIC: 790.06.
Number of Fisher Scoring iterations: 2.

In Table XIV, the results of the model with the *amount invested* as a dependent variable and 'e', 'a', 'c', 'n', 'o' as independent ones, are presented. Let's focus on the last column, (Pr (> |t|)) which corresponds to the p-value of the corresponding coefficient. If this value is lower than the standard alpha value (5% or 10%), then the corresponding parameter is statistically significant. The parameters of the variables 'e', 'c', and 'n' result are statistically significant. More specifically, 'e' affects the dependent variable positively, whereas 'c' and 'n' affect it negatively

TABLE XIV: THE RESULTS OF THE MODEL WITH 'VALUE' AS DEPENDENT VARIABLE AND 'E', 'A', 'C', 'N', 'O' AS INDEPENDENT VARIABLES

```
> fit <- glm (time horizon ~ e+a+c+n+o)
> summary(fit)
Call:
Glm (formula = time horizon ~ e + a + c + n + o)
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-2.1073 -0.5821 -0.2929  0.7600  1.8686
Coefficients:
Estimate Std Error t value Pr(>|t|)
(Intercept) 6.75820    1.96710   3.436 0.000739 ***
e          0.53744    0.27473   1.956 0.052040
a          0.04675    0.27199   0.172 0.863732
c          0.60583    0.19469  -3.112 0.002174 **
n         -0.46883    0.21423  -2.188 0.029971 *
o          0.29620    0.19587   1.512 0.132299
```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.
(Dispersion parameter for gaussian family taken to be 1.039604).
Null deviance: 198.33 on 179 degrees of freedom.
Residual deviance: 180.89 on 174 degrees of freedom.
AIC: 525.71.
Number of Fisher Scoring iterations: 2.

In Table XV, the results of the model with *'the perceived certainty'* as dependent variable and 'e', 'a', 'c', 'n', 'o' as independent ones, are presented. We note that the parameters of the variables 'o' and 'n' are statistically significant and

affect positively and negatively the dependent variable, respectively.

TABLE XV: RESULTS OF THE MODEL WITH 'THE PERCEIVED CERTAINTY' AS DEPENDENT VARIABLE AND 'E', 'A', 'C', 'N' AND 'O' AS INDEPENDENT VARIABLES

```
> fit <- glm (time horizon~e+a+c+n+o)
> summary(fit)
Call:
Glm (formula = time horizon ~ e + a + c + n + o)
Deviance Residuals:
    Min       1Q   Median       3Q      Max
-1.1759 -0.4378 -0.2883  0.5622  1.7011
Coefficients:
Estimate Std Error t value Pr(>|t|)
(Intercept) 2.4496    1.2821   1.911 0.05769
e          0.0186    0.1791   0.104 0.91739
a          0.1957    0.1396   1.402 0.16277
c         -0.1284    0.1269  -1.012 0.31294
n         -0.2895    0.1277  -2.268 0.02455 *
o          0.5426    0.1773   3.061 0.00256 **
```

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.
(Dispersion parameter for gaussian family taken to be 0.4416158).
Null deviance: 89.911 on 179 degrees of freedom.
Residual deviance: 76.841 on 174 degrees of freedom.
AIC: 371.6.
Number of Fisher Scoring iterations: 2.

The analysis shows that the type of investor personality influences investment decision-making in terms of the amount invested in the asset and in terms of their perceived certainty from investing in financial assets.

V. PERSONALITY MEASUREMENT SCALE

A. Descriptive Statistics for the Personality Measurement Scale

In the following, a summary of 'boxplots' for 5 types of personalities is presented. We notice higher values for the variable 'Neuroticism-n', followed by 'Agreeableness' – a; 'Extraversions' – e; 'Consciousness' – c, and finally the lowest values for 'Openness to Experience' – o.

The values show that most of the respondents are characterized by the first type of personality (characterized by lack of emotional stability) and much less by the last one (characterized by open-mindedness and smartness). The rest of the surveyed investors are more evenly distributed among other personality types.

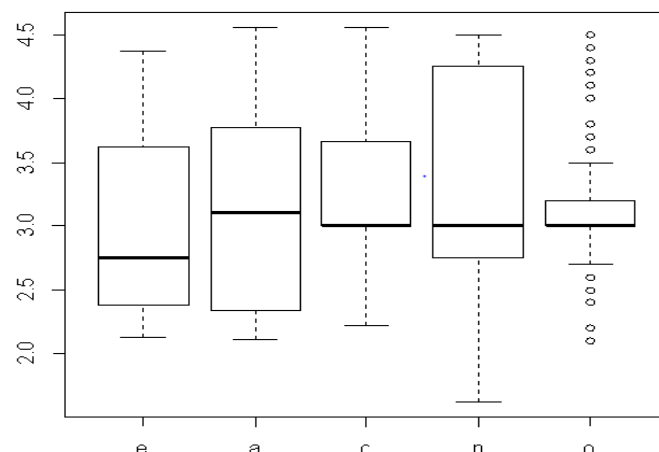


Fig. 3. Boxplots for all types of personalities.

Call: psych::alpha(x = y[, c(2, 7, 12, 17, 22, 27, 32, 42)], check.keys = TRUE)
 Call: psych::alpha(x = y[, c(3, 8, 13, 18, 23, 28, 33, 38, 43)], check.keys = TRUE)
 > psych::alpha(y[,c(3,8,13,18,28,33,43)],check.keys=TRUE)
 Call: psych::alpha(x = y[, c(3, 8, 13, 18, 28, 33, 43)], check.keys = TRUE)
 >psych::alpha(y[,c(4,9,14,19,24,29,34,39)],check.keys=TRUE)
 Call: psych::alpha(x = y[, c(4, 9, 14, 19, 24, 29, 34, 39)], check.keys = TRUE)
 > psych::alpha(y[,c(4,14,19,29,39)],check.keys=TRUE)
 Call: psych::alpha(x = y[, c(4, 14, 19, 29, 39)], check.keys = TRUE)
 >psych::alpha(y[,c(5,10,15,20,25,30,35,40,41,44)],check.keys=TRUE)
 >psych::alpha(y[,c(5,10,15,20,25,30,40,44)],check.keys=TRUE)
 > psych::alpha(y[,c(5,10,15,25,40,44)],check.keys=TRUE)
 Call: psych::alpha(x = y[, c(5, 10, 15, 25, 40, 44)], check.keys = TRUE)
 Call: psych::alpha(x = y[, c(5, 10, 15, 20, 25, 30, 40, 44)], check.keys = TRUE)
 Call: psych::alpha(x = y[, c(5, 10, 15, 20, 25, 30, 35, 40, 41, 44)], check.keys = TRUE)
 Call: psych::alpha(x = y[, c(5, 10, 15, 20, 25, 30, 35, 40, 41, 44)], check.keys = TRUE)

TABLE XVII: PERSONALITY MEASUREMENT SCALE

I am someone who...	1.totally disagree	2.disagree	3.not sure	4.agree	5.totally agree
1. I talk a lot	1	2	3	4	5
2. I tend to find fault in the others	1	2	3	4	5
3. I do the job correctly	1	2	3	4	5
4. I am pessimistic	1	2	3	4	5
5. I am original, full of new ideas	1	2	3	4	5
6. I am reserved	1	2	3	4	5
7. I am helpful and altruist to the others	1	2	3	4	5
8. I am somewhat careless	1	2	3	4	5
9. I am relaxed, manage stress well.	1	2	3	4	5
10. I am curious about many different things	1	2	3	4	5
11. I am full of energy	1	2	3	4	5
12. I usually begin quarrels with others	1	2	3	4	5
13. I am a reliable worker	1	2	3	4	5
14. I can easily get tensed	1	2	3	4	5
15. I am smart, a deep thinker	1	2	3	4	5
16. I am enthusiastic	1	2	3	4	5
17. I forgive easily	1	2	3	4	5
18. I tend to be a messy person	1	2	3	4	5
19. I get worried easily	1	2	3	4	5
20. I have vivid imagination	1	2	3	4	5
21. I tend to be a calm person	1	2	3	4	5
22. I trust in people	1	2	3	4	5
23. I am a bit lazy	1	2	3	4	5
24. I am emotionally stable, I do not get upset easily	1	2	3	4	5
25. I am creative	1	2	3	4	5
26. I am confident	1	2	3	4	5
27. I am cold and and restrained	1	2	3	4	5
28. I am persistent until the end of the task	1	2	3	4	5
29. I am a moody person	1	2	3	4	5
30. I appreciate artistic, aesthetic experiences	1	2	3	4	5
31. I am sometimes shy, contracted	1	2	3	4	5
32. I am attentive and polite to almost everyone	1	2	3	4	5
33. I do things efficiently	1	2	3	4	5
34. I stay calm in tense situations	1	2	3	4	5
35. I prefer routine work	1	2	3	4	5
36. I like to go out, I am sociable	1	2	3	4	5
37. Sometimes I am rude to others	1	2	3	4	5
38. I make plans and realize them	1	2	3	4	5
39. I get easily irritated	1	2	3	4	5
40. I like to reflect, to play with ideas	1	2	3	4	5
41. I am not interested in art	1	2	3	4	5
42. I like to collaborate with others	1	2	3	4	5
43. I get easily distracted	1	2	3	4	5
44. I have a fine taste in art, music, literature	1	2	3	4	5

C. Annex C. Descriptive Statistics

1) Investor Decision-making

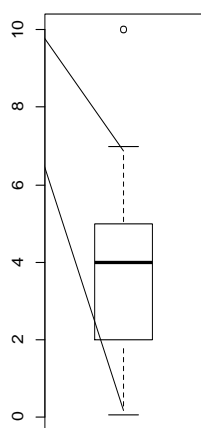
TABLE VIII: INVESTOR DECISION-MAKING

Variable	Simple Frequencies	Percentage	
Type of financial asset	Saving Deposit	68	27.09163
	Treasury Bills	10	3.98406
	Treasury Bonds	14	5.57768
	Pension Fund	6	2.39044
	Prestigi Investment Fund (ALL)	100	39.84064
	Invest Investment Fund (€)	42	16.73307
Amount of money invested in financial asset	Vision Investment Fund (ALL)	11	4.38247
	< 1 mil ALL	91	36.32479
	1 mil – 3 mil ALL	70	27.77778
	3 mil – 5 mil ALL	45	17.94872
> 5 million ALL	45	17.94872	

TABLE XIX: TIME HORIZON

> basic	Stats(koha)
nobs	251.000000
NAs	18.000000
Minimum	0.080000
Maximum	10.000000
1. Quartile	2.000000
3. Quartile	5.000000
Mean	3.808498
Median	4.000000
Sum	887.380000
SE Mean	0.130085
LCL Mean	3.552200
UCL Mean	4.064796
Variance	3.942826
Stdev	1.985655
Skewness	0.084248
Kurtosis	-0.684940

Boxplot of koha



Histogram of koha

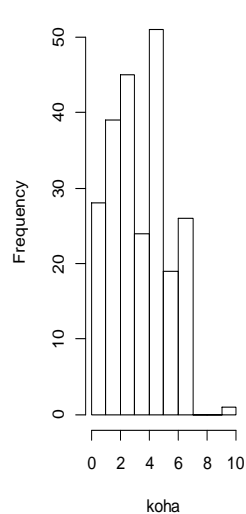
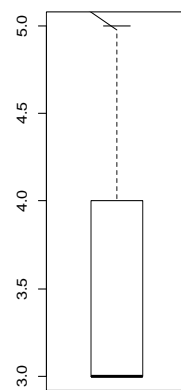


Fig. 4. Time horizon.

TABLE XX: PERCEIVED CERTAINTY

> basic	Stats (siguria)
nobs	251.000000
NAs	28.000000
Minimum	3.000000
Maximum	5.000000
1. Quartile	3.000000
3. Quartile	4.000000
Mean	3.511211
Median	3.000000
Sum	783.000000
SE Mean	0.045329
LCL Mean	3.421880
UCL Mean	3.600541
Variance	0.458207
Stdev	0.676910
Skewness	0.957158
Kurtosis	-0.311130

Boxplot of siguria



Histogram of siguria

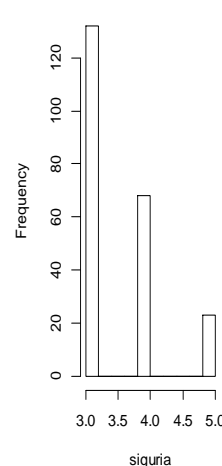


Fig. 5. Perceived certainty.

D. Annex D

1) Guide On Personality Measurement Scale

(John, O. P, Robins R. W., Pervin L. A. Handbook of personality)

To score the BFI, you'll first need to **reverse-score** all negatively-keyed items:

- Extraversion: 6, 21, 31;
- Agreeableness: 2, 12, 27, 37;
- Conscientiousness: 8, 18, 23, 43;
- Neuroticism: 9, 24, 34;
- Openness: 35, 41.

To recode these items, you should subtract your score for all reverse-scored items from 6. For example, if you gave yourself a 5, compute 6 minus 5 and your recoded score is 1. That is, a score of 1 becomes 5, 2 becomes 4, 3 remains 3, 4 becomes 2, and 5 becomes 1.

Next, you will create scale scores by **averaging** the following items for each B5 domain (where R indicates using the reverse-scored item).

- Extraversion: 1, 6R 11, 16, 21R, 26, 31R, 36
- Agreeableness: 2R, 7, 12R, 17, 22, 27R, 32, 37R, 42
- Conscientiousness: 3, 8R, 13, 18R, 23R, 28, 33, 38, 43R
- Neuroticism: 4, 9R, 14, 19, 24R, 29, 34R, 39
- Openness: 5, 10, 15, 20, 25, 30, 35R, 40, 41R, 44

SYNTAX

*** REVERSED ITEMS

RECODE

bfi2 bfi6 bfi8 bfi9 bfi12 bfi18 bfi21 bfi23 bfi24 bfi27 bfi31
bfi34 bfi35
bfi37 bfi41 bfi43
(1=5) (2=4) (3=3) (4=2) (5=1) INTO bfi2r bfi6r bfi8r bfi9r
bfi12r bfi18r bfi21r bfi23r bfi24r
bfi27r bfi31r bfi34r bfi35r bfi37r bfi41r bfi43r.
EXECUTE .

