

A Work Project presented as part of the requirements for the Award of a Master's Degree in Finance from the NOVA – School of Business and Economics:



**Testing social and psychological explanations on financial risk-taking in
emerging adults in Portugal**

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January 2020

Abstract

Literature defends that financial risk-taking depends on psychological and social factors, and that emerging adults are more willing to participate in risk-taking behaviors. In this research we measured the financial risk-taking of emerging adults in Portugal with the intent to identify separately and in an interrelated way the relevance of acknowledge psychological and social factors. A survey was given to 351 emerging adults in Portugal. Results of statistical analysis displayed that emerging adults' financial risk-level was related to gender, ethnicity and academic degree. Although, feeling of social discrimination, expected future financial situation, and self-esteem were not related to financial risk-taking.

Keywords

Behavioral finance | Choice under uncertainty | Financial risk-taking | Decision-making

Acknowledgments

The development of this thesis was one of the biggest challenges of my academic course, and it was only concluded with the help and support of a group of people that I cannot leave without expressing a word of gratitude.

I want to leave a special acknowledgment to my father and mother for the unconditional support, throughout my academic course and life.

To my supervisor, Professor Melissa Porras Prado, for the orientation and for the help answering all my doubts and uncertainties.

To Professor Alexander Coutts for providing me with knowledge and insights about a new dimension of this area with charisma and good vibes.

Tables and Figures

Table 1– Descriptive statistics of the risk-taking level.

Table 2 – Social model - fitting information.

Table 3 – Social model - Goodness-of-Fit information.

Table 4 – Social model - Pseudo R-Square.

Table 5 – Psychological model - fitting information.

Table 6 – Psychological model - Goodness-of-Fit information.

Table 7 – Psychological model - Pseudo R-square.

Table 8 – Full model - fitting information.

Table 9 – Full model - Goodness-of-Fit information.

Table 10 – Full model - Pseudo R-square.

Table 11 – Full Model – Likelihood Ratio Tests.

Table of Content

Abstract	2
Keywords	2
Tables and Figures	3
1. Introduction	5
2. Psychological and social explanations of financial risk-taking - Literature review	5
2.1. Social factors	6
2.2. Psychological factors	8
3. A web survey on financial risk-taking – Questions and type of variables.....	10
3.1. Procedure	10
3.2. Measure	11
4. Statistical analysis - results	15
4.1. Characteristics of the respondents - Frequency analysis	15
4.2. Testing our hypothesis.....	16
4.2.1 Multinomial analysis	16
4.2.2 Bivariate analysis.....	21
5. Discussion and conclusion	24
6. References	299
7. Appendix A:.....	40

1. Introduction

Economic theory state that individuals have different levels of risk aversion. Nevertheless, most individuals are “risk-averse” (Kahneman and Tversky, 1979), and in the Report on Financial Literacy of the Portuguese Population, we also find that, on average, Portuguese people in 2015 were risk-averse when it comes to financial decisions (Banco de Portugal, 2016). Additionally, there is also theoretical consensus that financial risk-taking depends on psychological and social characteristics of individuals.

This thesis extends this work by testing social and psychological explanations of financial risk-taking behavior in Portugal.

There is no previous study with these characteristics, which inducts to say that this research model is an original input. On the second chapter we will approach the literature review relative to the different explanations and develop a hypothesis to each one. On the third chapter I explain the methodology as well as the measure used, and after I will present a multinomial and a bivariate analysis of the collected data. Finally, the conclusion indicates the most relevant results obtained from the analysis and will verify the hypothesis that are validated or not as well as the limitations and the future research clues.

2. Psychological and social explanations of financial risk-taking - Literature review

As we said, prior literature exhibits that different risk-taking choices depend on social and psychological characteristics (Roszkowski, 1999; Horvath & Zuckerman, 1993; MacCrimmon and Wehrung, 1986). Wallach and Kogan (1961), for instance, explore the bond between risk tolerance and age demonstrating that younger individuals tend to be more risk-tolerant than older. Other research also showed that emerging adults are further willing to participate in risk-taking behaviors compared to adults (Nelson and Barry, 2005; and Todesco, 2005).¹

¹ Arnett (1997, 1998, 2000, 2001, 2002) considers “emerging adults” as mainly being between 18 and 25 years.

This study will focus on these emerging adults and analyze differences in risk-taking according to social (gender, academic degree, and ethnicity) and psychological (expectations related to the future financial situation, feeling of social discrimination, and self-esteem) factors present in the literature. These variables were chosen, given that they were the most recognized by the literature review and interesting for further study. Gender is one of the variables most used in the analysis of the relationship with risk-taking. Academic degree is considered a crucial variable to the contemporary social sciences, explicitly, to analyse social inequality. Ethnicity is the one who is less denoted, but it refers to an actual theme nowadays. Moreover, the psychological factors were defined based on the literature review but also for personal interest. We will concentrate on the research on financial risk-taking. Given the difficulty in finding relevant research specifically about risk-taking behavior in emerging adults, the literature review will also include studies about risk-attitudes and diverse populations.

2.1. Social factors

Gender

There is a consensus that women are more risk-averse, particularly financially, in comparison to men (Morais, 2018; Worthy, 2010; Borghans, et al., 2008; Xin et al., 2008; Goldsmith and Goldsmith, 2006; Bernasek and Shwiff, 2001; Jianakoplos and Bernasek, 1998; Goldsmith et al., 1997; Powell and Ansic, 1997; Chow, 1992; Cohn et al., 1975).²

More precisely, Montford and Goldsmith (2016) exhibited that women tend to be also more risk-averse in investment decisions compared to men.³

Subsequently, it is plausible to expect that in our study females are less risk-taking than men within emerging adults (Hypothesis 1).

² Barber and Odean (2001) also stated that in general men trade more than women.

³ Miller (2001) explored into college students if the capability of early family background affects their financial behaviors. The outcomes exhibited that females and males were socialized differently. Social explanations demonstrate that gender socialization of males and females is the cause of divergences in risk tolerance (Slovic, 1966; O'Guinn and Faber, 1989; Eagly, 2009).

Academic degree

The individual's education also influences financial risk-tolerance (Morais, 2018; Huang et al. 2016; Sung and Hanna 1996) and it is considered one of the most explanatory variables of risk-taking (Huang et al., 2016).⁴

Huang et al. (2016), Sulaiman, (2012), Grable and Lytton (1998), Baker and Haslem (1974) comply that higher levels of formal education increase one's aptitude to assess risk and therefore engage a higher financial risk-tolerance and risk-taking.⁵

Moreover, Grable & Joo (2004) demonstrated that education is positively correlated with financial risk-tolerance, explicitly, those who have a bachelor's degree or higher level of education prove higher levels of financial risk tolerance.

Given this, we hypothesize that emerging adults that have a higher level of education will display more risk-taking than those who have lower degrees of education (Hypothesis 2).

Ethnicity

Culture and beliefs affect how individuals engage in economic and investment decisions (Beugelsdijk and Frijns, 2010; Chui et al., 2010; Huang, 2008; Hong et al., 2004; Guiso et al. 2006 and 2008). For instance, Rahman and Albaity (2012) found that race and religion influence risk-propensity in portfolios⁶. Sung and Hanna (1996) also found that ethnicity was significantly related to risk tolerance.

Yao et al. (2005) studied the relationship between financial risk-tolerance and ethnicity and concluded that "White" participants are significantly more likely to be willing to take some risk

⁴ The authors Mishra, Son Hing, and Lalumière (2015) displayed that individuals who benefit from the economic inequality experienced are less risk-taking in comparison to the victims of inequality. It can be concluded that individuals in social classes with higher resources, including higher education, are less risk-taking as opposed to social classes with lower resources and lower education. Supported by Worthy, Jonkman, and Blinn-Pike (2010) verifying that the participants who had less risky financial behavior were related to students from families with abundant financial resources.

⁵ Consistent with the hypothesis projected by Bertaut (1998) stating that higher levels of education conduct to financial competence to attain necessary information for market participation in stockholding.

⁶ Rahman et al. (2019) also determined the impact of ethnicity on behavioral tendencies and financial risk tolerance. The conclusions using ethnicity as a variable validated that it moderates the relationship between the propensity for regret and financial risk-tolerance, for trust and financial risk-tolerance, and between the propensity of social interaction and financial risk tolerance.

than “Blacks”. Although, “Blacks” are more likely to take some risk than “Hispanics”. On the other hand, outcomes are inverted for disposition to take a substantial risk. “Hispanics” are willing to take more substantial risk than “Blacks”, and “Blacks” are more willing to take substantial risk than “Whites”. Additionally, for high risk-taking decisions, “Whites” are more likely to be willing to take risks than the other two groups and “Hispanics” are as willing to take high risks as “Blacks”.

Furthermore, Guiso et al. (2008) demonstrated that there is a relationship between ethnic origin and risk-taking behavior.

However, some studies go against the significance of ethnicity. Widayanto and Wibowo (2014) stated that ethnicity and religion do not influence an investor’s risk-taking level, but this study mixed ethnicity and religion, which could induce a different significance.

So, there isn’t a clear indication if ethnicity influences financial risk-taking decisions. But in general, there is evidence to defend that there is some relationship between ethnicity and financial risk-taking within emergent adults (Hypothesis 3).

2.2. Psychological factors

Feeling of discrimination

A range of psychological traits have been associated with financial behavior (e.g., Tang et al., 2015; Brown and Taylor, 2014; Abreu and Mendes, 2012; Antonides et al., 2011). Duclos et al. (2012) evaluated how the feeling of social exclusion impact critical aspects into financial decision-making. The outcomes of the study showed that subjects who experienced social rejection displayed greater risk-taking tendencies than those who didn’t.⁷

Additionally, Peake et al. (2013) exhibited that adolescents with greater vulnerability to be influenced revealed more risk-taking decisions after being socially excluded by their peers.

⁷ Enduring feelings of social exclusion were also related with the subject’s risk decision in their own personal finances which persuaded them to be less keen to invest in low-risk schemes the more they felt socially excluded.

In accordance, Meng (2020) found that social exclusion significantly affects risk-taking behavior. More than that, the degree of risk-taking behavior of the socially excluded were significantly higher compared to the socially accepted individuals.

Considering the literature, and if we accept that social exclusion is equivalent to social discrimination, it is plausible to expect that emerging adults that perceive themselves experiencing feelings of social discrimination will also display greater risk-taking decisions.

(Hypothesis 4)

The expectation of future financial situation

Economic expectations are another psychological trait linked to financial behavior (Grable and Joo, 1997; Grable and Lytton, 1997; Sung and Hanna, 1996; Huang and Litzenberge, 1988).

Grable and Joo (2004), for instance, revealed that net worth and household income are positively correlated with risk tolerance. Explicitly, those who have a higher level of net worth and a higher household income demonstrate higher levels of financial risk tolerance.⁸

More directly, Huang et al. (2016) analyzed correlations between household expectations and their eagerness to take financial risks, finding that expectations for a better/moderate economy encourage households to take higher levels of average or above-average risks.

From this, it can be hypothesized that emerging adults with a better outlook of their expectation of future financial situation could also display higher degrees of risk-taking decisions (Hypothesis 5).

Self-esteem

Self-esteem is specified as an individual's belief towards themselves (Rosenberg, Schooler, Schoenbach, & Rosernberg, 1995) and it is assumed to be a significant psychological attribute

⁸ Individuals who benefit from inequality are less risk-taking in comparison to the victims of inequality, who are more risk-taking (Mishra, Son Hing, and Lalumière, 2015). It was also revealed that by decreasing the level of inequality the initial effects of risk-taking decisions might be reduced. This research validates the risk-sensitivity theory by illustrating that contractions in economic inequality conduct to diminished risk-taking in general.

in explaining risk-taking behavior (Judge and Bono 2001; Judge et al. 1998) and risk-tolerance behavior (Horvath & Zuckerman, 1993; Shelbecker & Roszkowski, 1993; Zuckerman, 1979).⁹ Additionally, Neymotin (2010) also proved a solid correlation between self-esteem and an individual's determination to participate in several schemes of financial planning.

Tang & Baker (2016) revealed that the effect of self-esteem is significant on saving, investment in risky assets, and credit management behaviors, however not significant on financial behavior concerning retirement savings.

Grable & Joo (2004) concluded that self-esteem is positively related to financial risk tolerance, explicitly, those who have higher self-esteem exhibit higher levels of financial risk tolerance.

Taken together, if we assume equivalence between risk-tolerance and risk-taking, we may hypothesize that emerging adults that perceive themselves as higher self-esteem individuals are also more risk-taking than lower self-esteem individuals (Hypothesis 6).

3. A web survey on financial risk-taking – Questions and type of variables

3.1. Procedure

In this research, we used an extensive methodology and the data was collected through a survey using a questionnaire. Considering the objectives of this study, our universe is emerging adults (18-30 years).¹⁰ Based on the literature review and in the hypothesis, a questionnaire was developed composed of one dependent variable, which is the risk-taking level of the individual, and six independent variables, three social and three psychological. This questionnaire was elaborated by being the most simple, direct, and straightforward to minimize the duration of

⁹ Subjects with high self-esteem persevere when challenged with difficult tasks or loss, whereas subjects with low self-esteem tend to let go and not contest themselves against rejection (Baumeister et al., 2003; Sommer and Baumeister, 2002). Also, subjects alleged as high self-esteem tend to know when persistence might be a poor strategy and when to let it go (Baumeister et al., 2003). Owen (1993) determined self-esteem as being involved in part by a person's level of self-confidence: explicitly, higher degrees of self-confidence correspond to greater perceived self-esteem.

¹⁰ As we said, Arnett (1997, 1998, 2000, 2001, 2002) considers "emerging adults" as mainly being between 18 and 25 years.

the response which consequently would determine a bigger response rate in a short period of time (guideline of the questionnaire - appendix A1).

To gather the data, it was developed a web survey based on Google Forms (questionnaire accessible in Google - appendix A2). In order to increase the number of responses and the attractiveness of the questionnaire, every participant would get a chance to know in the end at which level of risk-taking was incorporated. The survey consists of 14 single choice questions and 3 short answer questions which took approximately 3 minutes to complete.

Data collection took place during August/September 2020, gathering 361 responses, and it was then filtered to only 351 cases of emerging adults (18-30 years) to be analyzed.

The sample is not random given that the questionnaire was distributed namely over colleagues, friends, and social networks (Instagram, Facebook, WhatsApp), focusing on people broadly living in Portugal. But it is representative of the population between 18-30 years. Sampling was conducted to be as random and representative as possible. The main bias comes from the over-representation of respondents that are currently pursuing master's or graduation, and the exclusion of individuals that do not have either a computer or access to the Internet.

3.2. Measure

Risk-taking level

To measure the financial risk-taking level, I used a simulation of the lottery¹¹ with different switching points:

- 1) 50-50 lottery of €100-0 versus €60 certain. 2) 50-50 lottery of €100-0 versus €50 certain.
- 3) 50-50 lottery of €100-0 versus €40 certain. 4) 50-50 lottery of €100-0 versus €30 certain.
- 5) 50-50 lottery of €100-0 versus €20 certain. 6) 50-50 lottery of €100-0 versus €10 certain.

According to the general hypothesis that most individuals are risk-averse, most of the

¹¹ Comparable to “Thinking fast and slow” by Kahneman (2011).

respondents should choose the “certain amount” in (1) (and the “lottery” in (6))¹². While responding to the rest of the questions, at some point they will switch to the “lottery” instead of opting for the “certain amount”. This switching point is considered their “level of risk aversion”. If the respondent chooses to play the lottery in case 1) he is “risk-seeking”; if 2) he is “risk-neutral”; if 3) he is “low risk-averse”; if 4) he is “medium risk-averse”; if 5) he is “highly risk-averse”; if 6) he is “extremely risk-averse”; if the individual doesn’t play the lottery at all he is considered 7) “totally risk-averse”. However, we opt to recode this variable by aggregating 6) and 7). This recode makes sense given that the aggregated categories are very similar in terms of risk-taking behavior and the p-Pearson of the correlations with the explanatory variables are higher with the recoded variable.¹³ Moreover, Cronbach’s alpha test (Appendix A5) was run on the 6 question’s to check for reliability and to evaluate the correlation between the base variables to further develop the index for the risk-level variable. The results exhibited an $\alpha = 0,785$ which means it has robust reliability fulfilling the requirement ($>0,7$). Considering this, the risk-taking level may be classified as an ordinal variable.

Gender

To measure gender, we asked the respondents “What is your gender?”. The possible answers were “Female” or “Male”. Gender is a nominal variable.

Academic degree

The academic degree of the respondents was measured by asking individuals “What is your academic degree completed or currently frequenting?”. The respondent would have to choose between 4th grade or less, 9th grade, 11th or 12th grade, Graduation, or Masters. There were no

¹² Given that most individuals are “risk-averse” (Kahneman and Tversky, 1979), and considering the switching points theory Harisson et. al (2004); Holt & Laury (2002).

¹³ Even though it didn’t improve the cells with less than 5 cases.

respondents with 4th grade or less, so we eliminated it.¹⁴ The academic degree is an ordinal variable.

Ethnicity

We chose the nationality of the respondent and the father to develop an index of ethnicity¹⁵. Considering that the nationality of the respondents is in the majority of the cases the same as the nationality of their father and that the nationality of the father is more significant (appendix A14) in comparative terms, the latter was then selected as the main variable of ethnicity. This variable was then recoded into different categories, namely, African, Latin American, South Europeans, Central Europeans, and Northern and Eastern Europeans. Ethnicity is a nominal variable.

Feeling of Discrimination

The feeling of discrimination was measured through the question “How much do you feel discriminated in your life?”. A five-point Likert response scale ranging from “A lot of times” to “Never” was allocated to the question. We then recoded this variable and aggregated “A lot of times” and “Sometimes” given that they followed similar financial risk-taking behavior. Given this, the feeling of discrimination is an ordinal variable.

The expectation of future financial situation

The expected future financial situation was measured by the question “How do you think your financial situation will be in 10 years?”. A five-point Likert response scale ranging from “Much better” to “Worse” was assigned to the question. The expectation of future financial situation is an ordinal variable.

¹⁴ It was considered recoding and combining the 9th grade with the 11th and 12th grade given that there were very few cases of the 9th-grade respondents. However, it was verified that the behavior related to financial risk-taking between the 9th grade and the 11th grade and 12th grade were very different and consequently we opt to keep the categories separately.

¹⁵ Given that there were different variables attached (religion, race, language, nationality) that could be used to define ethnicity.

Self-esteem

Self-esteem was measured through 4 questions: how much the respondent (a) appreciates himself, (b) has a positive self-attitude, (c) feels useless, and (d) feels worthless. Replicated from the Rosenberg self-esteem blueprint that analyses individual self-esteem. In the original Rosenberg's model the explicit questions included were: (1) On the whole I am satisfied with myself. (2) At times I think I am no good at all. (3) I feel that I have several good qualities. (4) I can do things as well as most other people. (5) I feel I do not have much to be proud of. (6) I certainly feel useless at times. (7) I feel I am a person of worth, at least on an equal plane with others. (8) I wish I could have more respect for myself. (9) All in all, I am inclined to feel that I am a failure. (10) I take a positive attitude toward myself. To have representativeness of the consistency of the model, four questions were selected: (1) I like who I am, (2) I have a positive self-attitude, (3) I feel useless at times, and (4) I often feel worthless. A four-point Likert response scale ranging from "Strongly agree" to "Strongly disagree" was allocated to each question. We then computed the results into one variable based on the responses to the 4 questions above, using a probability tree diagram that defines individuals as having "extremely positive", "positive", "medium", "negative" and "extremely negative self-esteem".¹⁶ Cronbach's alpha test (Appendix A6) was run to check for the reliability and to evaluate the correlation between the 4 basic variables (a, b, c, and d) to further develop the index for "self-esteem". Results exhibited an $\alpha = 0,798 (>0,7)$ which means it has solid reliability fulfilling the requirement and displaying consistency. Self-esteem is considered an ordinal variable.

¹⁶ Individual self-report measures are frequently problematic and henceforth may not represent accurate self-esteem.

4. Statistical analysis - results

4.1. Characteristics of the respondents - Frequency analysis

The respondents in the sample ranged from 18 to 30 years old. We stretched the superior limit of the age of emerging adults to 30 years old to take advantage of several responses of individuals with more than 25 years old, extending the scope of the population considered “emerging adults”. Most of the respondents had 22-24 years old (appendix A7). In terms of social characterization, most of the respondents are female (53,0%). Participants are also characterized by academic degrees being 54,1% in a master’s degree, 33,9% in graduation, 10,3% with the 11th or 12th grade, and 1,7% of the 9th grade. The participants come from 17 different nationalities and their fathers from 21 nationalities, however, mostly were Portuguese (87,7% and 83,2%, correspondingly). When it comes to psychological characteristics, most of the respondents expect a “much better” or “reasonably better” financial situation in the future (46,4% and 37% respectively), and describe themselves as feeling “rarely” or “a few times” discriminated (39,3% and 29,1% correspondingly) (appendix A8). Furthermore, the majority perceive themselves as being extremely positive or positive when it comes to self-esteem (53,6% and 19,9% respectively) (appendix A8).¹⁷

	Risk-taking level		
	Frequency	Percent	Cumulative Percent
Extremely or Totally risk-averse	42	12,0	12,0
Highly risk-averse	41	11,7	23,6
Medium risk-averse	62	17,7	41,3
Low risk-averse	107	30,5	71,8
Risk-neutral	56	16,0	87,7
Risk-seeking	43	12,3	100,0
Total	351	100,0	

Table 1 – Descriptive statistics of the risk-taking level.

Most of the participants are low risk-averse (30,5%). Following this percentage, we have medium risk-averse participants (17,7%) and risk-neutral participants (16%). However, we also

¹⁷ This result refers to the recoded variable; the results of the original indicators are in the four basic questions (appendix 7).

see relevant weight among the extreme levels. In fact, 12,3% of participants are risk-seeking, 11,7% are highly risk-averse and the remaining 12% are extremely or totally risk-averse.¹⁸

4.2. Testing our hypothesis

To test our hypothesis, we performed multinomial linear regression (MLR) and bivariate analysis.¹⁹ Since we do not pretend to assess an explanatory model based on a group of variables, but rather the effect of psychological and social variables, the results related to the models are less important than the ones relative to each independent variable.

4.2.1 Multinomial analysis

We present the MLR outputs first as they allow for a more general analysis followed by a bivariate analysis which permits a more detailed breakdown of the relation between the variables²⁰. We tested the validity of the social model (with the gender, academic degree and ethnicity variables englobed) and the psychological model (with the feeling of discrimination, the expected future financial situation, and self-esteem perceived) first, and then the model that includes social and psychological variables (full model).

Social Model

Model	Model Fitting Information			
	Model Fitting Criteria -2 Log Likelihood	Chi-Square	Likelihood Ratio Tests Df	Sig.
Intercept Only	275,851			
Final	203,947	71,904	15	,000

Table 2 – Social Model - fitting information.

	Goodness-of-Fit		
	Chi-Square	Df	Sig.
Pearson	115,988	95	,071
Deviance	84,690	95	,767

Table 3 – Social Model - Goodness-of-Fit.

¹⁸ This result refers to the recoded variable; the results of the original indicators are in appendix A7.

¹⁹ Additionally, we tried the OLR test but it didn't validate the test of parallel lines or "Proportional odds assumption" which essentially states that the relationship between the independent variables and the dependent variable is constant, irrespective of which groups are being compared on the dependent variable (appendix A9).

²⁰ Initially the MLR was done separating the nominal and ordinal variables, inserting the first ones in factors and the second ones in covariates. However, this attempt gave an error on the test and it was verified that in some statistical analysis it is considerable to use either nominal or ordinal variables as covariates. Then I followed this solution.

Pseudo R-Square	
Cox and Snell	,185
Nagelkerke	,191
McFadden	,059

Table 4 – Social Model - Pseudo R-Square.

The MLR outputs of the social model display that there is statistical significance indicating that the social model represents a significant improvement in fit over the null model (with the constant only) indicating that there is at least one independent variable that influences risk-taking level ($X^2[15] = 71,904, p = 0,00 < 0,05$). Furthermore, there is also a good fit to the data as non-significant test results are indicators that the model fits the data well. Pearson's chi-square test indicates that the model do fit the data well ($X^2[95] = 115,988 ; p = 0,071 > 0,05$) which also is visible on the Deviance chi-square ($X^2[95] = 84,690 ; p = 0,767 > 0,05$) and so the null hypothesis that the model adjusts properly to the data is not rejected. Interpreting the result of the Nagelkerke test, the variables predicted 0,191 of the variances of risk-taking levels.

Psychological Model

Model Fitting Information				
Model	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	537,620			
Final	510,312	27,308	15	,026

Table 5 – Psychological Model - fitting information.

Goodness-of-Fit			
	Chi-Square	Df	Sig.
Pearson	299,269	300	,501
Deviance	292,435	300	,612

Table 6 – Psychological Model - Goodness-of-Fit.

Pseudo R-Square	
Cox and Snell	,075
Nagelkerke	,077
McFadden	,023

Table 7 – Psychological Model - Pseudo R-Square.

Besides that, the psychological model also displays that there is statistical significance, even though less significant in comparison to the social model. ($X^2[15] = 27,308, p = 0,026 < 0,05$). Moreover, there is also a good fit to the data. Pearson's chi-square test indicates that the model do fit the data well ($X^2[300] = 299,269 ; p = 0,501 > 0,05$) which also is visible on the Deviance chi-square ($X^2[300] = 292,435 ; p = 0,612 > 0,05$). Interpreting the result of the Nagelkerke test, the variables predicted 0,077 of the variances of risk-taking levels which is quite a poor job.

Full Model

Model Fitting Information						
Model	Model Fitting Criteria			Likelihood Ratio Tests		
	AIC	BIC	-2 Log Likelihood	Chi-Square	Df	Sig.
Intercept Only	969,307	988,611	959,307			
Final	935,215	1070,343	865,215	94,092	30	,000

Table 8 – Full Model - fitting information.

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	979,490	930	,126
Deviance	722,166	930	1,000

Table 9 – Full Model - Goodness-o-Fit.

Pseudo R-Square	
Cox and Snell	,235
Nagelkerke	,243
McFadden	,078

Table 10 – Full Model - Pseudo R-Square.

Effect	Likelihood Ratio Tests			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	961,881	1077,704	901,881	36,666	5	,000
Academic degree	958,760	1074,583	898,760	33,545	5	,000
Future economic situation	935,758	1051,582	875,758	10,543	5	,061
DiscriminationREC1	927,523	1043,347	867,523	2,308	5	,805
SelfesteemREC1	934,274	1050,098	874,274	9,059	5	,107
GenderRec	936,943	1052,767	876,943	11,728	5	,039
FNationalityREC2	945,232	1061,056	885,232	20,017	5	,001

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Table 11 – Full Model – Likelihood Ratio Tests.

Regarding the Full model with the independent variables altogether, the multinomial outputs from the “Model fitting Information” contain a Likelihood Ratio chi-square test, comparing the full model (i.e. containing all the predictors) against a null (or intercept only model; i.e., no

predictors). Statistical significance indicates that the full model represents a significant improvement in fit over the null model ($X^2[30] = 94,092, p = 0,00 < 0,05$). The “Goodness-of-Fit” table contains the Deviance and Pearson chi-square tests, which are useful for determining whether a model exhibits a good fit to the data. Non-significant test results are indicators that the model fits the data well. Pearson’s chi-square test indicates that the model do fit the data well ($X^2[930] = 979,490 ; p = 0,126 > 0,05$) which also is visible on the Deviance chi-square ($X^2[930] = 722,166 ; p = 1,000 > 0,05$).

Moving forward to the Pseudo R-Square it indicates the proportion of the total variability of the outcome that is accounted for by the model. Interpreting the result of the Nagelkerke test the variables predicted 0,243 of the variances of risk-taking level’s which is a good indicator and an upgrade in comparison to the social and psychological model individually.

Furthermore, the results of the “Likelihood Ratio Tests” table contain likelihood ratio tests of the overall contribution of each independent variable to the model. Using the conventional $\alpha = 0,05$ threshold, we see that “academic degree”, “gender”, and “ethnicity” were the only significant predictors of the model of the risk-taking level, although the future economic situation was “near significant” $p = 0,061$. Self-esteem was also medium significant considering $\alpha = 0,10, p = 0,107$.

Concerning the parameter’s estimates (appendix A12) it is crucial to select a reference category. A “reference” category is identified as the main category to be compared with the others regarding the dependent variable. We decided to select low-risk averse as our “reference” category²¹. The results display that for the risk-seeking level academic degree and gender are significative $p = 0,000$ and $p = 0,024$ respectively. As the academic degree increases people tend to be less risk-seeking in comparison to low risk-averse $\beta = -0,472$ and as we change

²¹ The “reference” category in this analysis was selected based on three approaches: using the normative category, given that in this case, the most logical or significant comparisons are to the most normative group; using the largest category, which corresponds to the category that has more weight on the study; finally, using the category whose mean is in the middle, or conversely, at one of the ends.

from the feminine gender to the masculine gender, individuals tend to be less risk-seeking in comparison to low-risk averse $\beta = -0,920$. Specifically, the chance of being risk-seeking relatively to being low-risk averse for the variable academic degree is 0,624. $Exp(\beta) = 0,624$ indicates that for one unit increase in the academic degree, the odds of an individual being risk-seeking instead of low risk-averse changed by a factor of 0,624, corresponding to a percentual variation of chances of $100\% \times (0,624 - 1) = -37,6\%$ a reduction for each one more unit of academic degree (in this case one more level of academic degree). This is also visible for the gender as the odds ratio $Exp(B) = 0,398$ indicates that when we shift from the feminine to masculine, the odds of an individual being risk-seeking instead of low risk-averse changed by a factor of 0,398. In other words, a percentual variation of chances of $100\% \times (0,398 - 1) = -60,2\%$, also a reduction.²² Moreover, regarding the outputs for risk-neutral individuals, it indicates that self-esteem and ethnicity²³ are significative $p = 0,012$ and $p = 0,004$ correspondingly. As the self-esteem of people increases, there is less association with risk-neutral level in comparison to low-risk averse. Explicitly, the odds ratio of $Exp(\beta) = 0,654$ it indicates that for one unit level increase in self-esteem, the odds of an individual being risk-neutral instead of low risk-averse changed by a factor of 0,654, equivalent to a percentual variation of chances of $100\% \times (0,654 - 1) = -34,6\%$. Finally, when it comes to the extremely or totally risk-averse level both gender and academic degree are significant $p = 0,000$ and $p = 0,008$ correspondingly. The results indicate that as the academic degree increases it decreases the association with extremely or totally risk-averse in comparison with low-risk averse $\beta = -0,449$. The odds ratio of $Exp(\beta) = 0,638$ indicates that for one unit increase on the academic degree, the odds of an individual being extremely or totally risk-averse instead of low risk-averse changed by a factor of 0,638, matching to a percentual

²² If we wanted to know the odds ratio of risk-seeking relatively to highly risk-averse on the gender, we would do $[E(\beta) = 0,398 / E(\beta) = 0,949] - 1 = 0,419 - 1 = -58,1\%$. The chances of being risk-seeking relatively to high-risk-averse reduce 58,1% when we shift gender.

²³ Given that this variable is nominal, it will be treated further on the bivariate analysis.

variation of chances of $100\% \times (0,638 - 1) = -36,2\%$. Regarding the gender, as we shift from the feminine to the masculine there is a decrease in the association with the extremely or total risk-averse level in comparison with the low-risk-averse $\beta = -1,105$, more precisely, a percentual variation of chances of $100\% \times (0,331 - 1) = -66,9\%$ also a reduction.

Classification							
Observed	Risk-seeking	Risk-neutral	Predicted			Extremely or Totally risk- averse	Percent Correct
			Low risk- averse	Medium risk- averse	Highly risk- averse		
Risk-seeking	13	0	20	3	0	7	30,2%
Risk-neutral	4	14	34	1	0	3	25,0%
Low risk-averse	6	7	82	3	0	9	76,6%
Medium risk-averse	7	2	41	4	2	6	6,5%
Highly risk-averse	2	0	35	0	1	3	2,4%
Extremely or Totally risk-averse	5	2	23	3	1	8	19,0%
Overall Percentage	10,5%	7,1%	67,0%	4,0%	1,1%	10,3%	34,8%

Furthermore, as it is visible on the classification table, the most correctly predicted level by the model is the low-risk averse with 76,6% cases. However, on the other risk categories, the model predicts way fewer cases. Globally, the adjusted model classifies correctly 34,8% the percentage of the cases.

4.2.2 Bivariate analysis

To analyze the results of crosstabs between a nominal variable and an ordinal variable we used a Chi-square test and analyze the magnitude of their relationship based on Eta. Chi-square it is analyzed through the normal significance threshold $\alpha = 0,05$ and for the eta higher values (tending towards -1 or 1) suggest the model has good predictive performance. When it comes to a crosstab of two ordinal variables, we used the Pearson-R test for correlation and measure the magnitude of the dependency based on Somer's d, Gamma, Kendall's, and Spearman. These types of test's are used to compare the predictive performance of models. Higher values (tending towards -1 or 1) suggest the model has good predictive performance (for the Pearson-R bigger than 0,3 is already a good correlation predictor). Smaller values (tending towards zero in either direction) specify that the model is a poor predictor. Kendall's Tau-a is always lower

than Somers' D and the Goodman-Kruskal Gamma statistic because those two statistics do not englobe sets with the same response value. Additionally, adjusted residuals (AR) are used on the output table to understand which categories have the biggest divergence between the expected counts and the actual counts relative to sample size.

Gender

There is a statistically medium significance of dependency between gender and risk-taking levels ($X^2 = 0,037$)²⁴ (appendix A13). But the Eta is insignificant meaning that the intensity of dependency of risk-taking from gender is very low ($E = 0,000$). Although considering the value of the adjusted residual (comparing female and male respondents), we observe significant relation between some categories of the two variables. Women either exhibit risk-seeking behaviors ($AR = 2$) or extremely/totally risk-averse behaviors ($AR = 1.9$). On the other hand, males mainly display low risk-averse behaviors ($AR = 2,5$).

Academic degree

When it comes to the academic degree, the values of Somer's d, Gamma, Kendall's, and Spearman are all negative and are very far to -1 which indicates that the intensity of the relationship between the variables is fragile and that they are inversely related. The Pearson's-R ($R = -0,085$) in absolute terms is less than 0,3 specifying that the correlation is insignificant (appendix A13). Anyway, we can see that for the 9th-grade the adjusted residuals are significant on extremely or totally risk-averse ($AR = 4,2$) and are relatively significant on highly risk-averse levels ($AR = 1,7$), which indicates that individuals with the 9th grade tend to have a positive association with extreme risk-averse levels. Furthermore, individuals who have 11th or 12th grade have a positive association with risk-seeking behaviors as their adjusted residuals are ($AR = 3,5$). When it comes to the graduation individuals the biggest adjusted residuals are

²⁴ Considering that $p \leq 0,01$ is very significant and $p \leq 0,05$ is relatively significant.

found on risk-seeking behavior with a value of ($AR = 1,9$) very close to the 2,0 measurement of positive association. Finally, individuals who are pursuing or completed masters tend to have a positive association with low risk-averse ($AR = 3,5$) and risk-neutral ($AR = 2,8$) behavior.

Ethnicity

There is a significant dependency between ethnicity and risk-taking levels ($X^2 = 0$). However, we must consider that 23 cells (76,7%) have an expected count of less than 5. And the intensity of the correlation between the variables is relatively low ($E = 0,140$) (appendix A13). In detail, it is observable that African individuals tend to have risk-seeking behaviors ($AR = 2,7$), South Europeans ($AR = 2,2$) exhibit highly risk-averse levels, and finally Central Europeans ($AR = 5,1$) display risk-neutral behaviours which also is visible by Northern and Eastern Europeans ($AR = 2$).

Feeling of discrimination

There is no significant correlation between the feeling of discrimination and risk-taking considering that Pearson's-R ($R = 0,016$) is lower than 0,3. Values of Somer's d, Gamma, Kendall's, and Spearman are all positive and are very distant to 1 which indicates that the intensity of the correlation between the variables is frail (appendix A13). However, it's observable that the individuals who perceive themselves as experiencing the feeling of discrimination in their lives "a lot of times" have a positive association with risk-seeking behaviors ($AR = 2,0$).

The expectation of future financial situation

There is no significant correlation between the expectation of future financial situations and risk-taking levels were found as the Pearson's-R ($R = 0,174$) is less than 0,3. Also, the indicators of correlation intensity are all positive but very far-off to 1 representing that the relationship between the variables is insignificant (appendix A13). Nevertheless, individuals who perceive themselves as having an "equal" expected financial situation display medium

risk-averse behavior ($AR = 1,9$). Most of the individuals perceiving themselves as expecting “a little better” financial situation exhibited extreme or totally risk-averse behaviors ($AR = 2,9$).

Self-esteem

The Pearson’s-R for self-esteem ($R = 0,033$) is less than 0,3 which implies that the correlation with risk-taking is insignificant. The values of the intensity of the correlation are positive and are very distant to 1 indicating low relationship intensity (appendixA13). Observing in detail, the individuals who perceive themselves having a “negative” self-esteem display medium risk-averse behaviors ($AR = 2,4$). On the other hand, those who perceive themselves as having “Positive” self-esteem tend to exhibit risk-seeking behaviors ($AR = 1,8$), and those who take themselves as “Extremely positive” show more risk-neutral levels of risk-taking ($AR = 2,9$).

5. Discussion and conclusion

It is now possible to argue that comparing the social model with the psychological model using the indicators I chose, the one that explains better financial risk-taking is the social model. However, and more importantly, when both psychological and social variables are combined in the full model, we have a better version, which outruns the social and psychological models individually, not only on statistical significance but also on how much the variables predicted the variances of risk-taking levels.

Regarding our hypothesis, the multinomial outputs on the full model indicated “academic degree”, “gender”, and “ethnicity” as the only significant predictors of risk-taking. On the other hand, the bivariate outputs displayed that only “gender” and “ethnicity” induced significant dependency on risk-taking. If we cross these two outputs, only “gender” and “ethnicity” showed conclusive results related to financial risk-taking.

Considering now the associations between categories of independent and dependent variables, multinomial analysis exhibit that females tend to be less risk-seeking in comparison to low-risk averse than men. In addition, as we shift from the feminine to the masculine there is a decrease

in the association with the extremely or total risk-averse level in comparison with the low-risk-averse. This goes in line with the bivariate analysis, as women either exhibit risk-seeking behaviors or extremely/totally risk-averse behaviors, and males mainly display low risk-averse behaviors. Despite these relevant results, our Hypothesis 1 predicting that females are less risk-taking than men within emerging adults is invalidated.

Considering the academic degree, the multinomial test indicated that as the academic degree increases people tend to be less risk-seeking in comparison to low risk-averse. Also, the results demonstrated that as the academic degree increases the association with extremely or totally risk-averse decreases in comparison with low-risk-averse. On the other side, bivariate analysis demonstrates that for the 9th-grade there is a positive association with extreme risk-averse levels as the adjusted residuals are significant on extremely or totally risk-averse, for the individuals who have 11th or 12th grade there is a positive association with risk-seeking behaviors, for graduation individuals, there is a positive association with risk-seeking behavior, and for individuals who are pursuing or completed masters tend to have a positive association with low risk-averse and risk-neutral behavior. The results from these two outputs show again important associations between categories, but our Hypothesis 2 forecasting that emerging adults that have a higher level of education will display more risk-taking than those who have lower degrees of education is invalidated.

When it comes to ethnicity, the outputs of the multinomial analysis reveal that for risk-neutral individuals, ethnicity is significant. The bivariate outputs show us that not only there is a significant dependency between risk-taking and ethnicity but also those different ethnicities differ on risk-taking levels. In detail, African individuals tend to have risk-seeking behaviors, South Europeans exhibit highly risk-averse levels, and finally Central, Northern, and Eastern Europeans display risk-neutral behaviors. Combining the results from the different outputs it is

possible to claim that the Hypothesis 3 estimating that there is some relationship between ethnicity and financial risk-taking within emergent adults is validated.

Shifting to the psychological variables, the multinomial analysis showed that the feeling of discrimination wasn't a significant predictor of risk-taking, in agreement with the bivariate analysis stating that there is no significant correlation between these variables. However, it's observable that the individuals experiencing the feeling of discrimination "a lot of times" have a positive association with risk-seeking behaviors. Considering both results from the outputs it is possible to defend that the Hypothesis 4 predicting that emerging adults that perceive themselves experiencing feelings of social discrimination will also display greater risk-taking decisions is validated (however we must take into account that the feeling of discrimination is not a significant predictor).

The multinomial analysis showed that the future economic situation was "almost significant" ($p = 0,061$). But as the expectation of future economic situation increases, the association with highly risk-averse also increases in comparison with low-risk averse ($\beta = 0,397$). The bivariate analysis also validates that there is no significant correlation between these variables; nevertheless, individuals who perceive themselves having an "equal" expected financial situation display medium risk-averse behavior, and those perceiving themselves as expecting "a little better" financial situation exhibited extreme or totally risk-averse behaviors. Merging these two outputs, it is clear to say that the Hypothesis 5 anticipating that emerging adults with a better outlook of their expectation of future financial situation could also display higher degrees of risk-taking decisions is invalidated. Anyway, there is some evidence to conclude that individuals tend to play very safely when they believe they will achieve greater financial wealth.

Finally, the multinomial analysis indicated that self-esteem was also averagely significant. But as self-esteem increases, there is less association with the risk-neutral level in comparison to

low-risk averse. The bivariate outputs indicate that the correlation of self-esteem with risk-taking is insignificant. Nevertheless, individuals who perceive themselves as having a “negative” self-esteem display medium risk-averse behaviors. On the other hand, those who perceive themselves as having “positive” self-esteem tend to exhibit risk-seeking behaviors, and those who take themselves as “extremely positive” show more risk-neutral levels of risk-taking. Considering the two outputs, Hypothesis 6 projecting that emerging adults who perceive themselves as higher self-esteem individuals are also more risk-taking than lower self-esteem individuals is validated (although those who perceive themselves as having “extremely positive” self-esteem tend to be less risk-seeking).

Younger people are normally comprehended as risk-seeking individuals, as was shown by previous studies. This research pursued the idea that this outlook should be further analyzed. More precisely it studies how different social and psychological variables would play a role in this group of individuals in terms of risk-taking levels. And in fact, it revealed that emerging adults have different risk-taking behavior according to their social and psychological characteristics. Most emerging adults are either students or/and workers, in all starting to build their life and important financial decisions. Given this, researchers, financial counselors, financial advisors, insurance companies, and banks need to consider the different social and psychological characteristics of emerging adults to better understand their financial expectancy and risk-tolerance. Different types of risk-taking level persons will need different types of financial support to protect and grow their financial wealth.

Given that this study involved making a bet under uncertainty as an important risk-behavior, testing if psychological are less or more important than social variables in terms of explaining risk-taking, and used a wide-ranging risk-level measure, it is considered unique within the investigation on financial risk-taking behavior of emerging adults in Portugal.

There were some contradictions between the conclusions reported in the study and some of the formerly stated research on risk-taking. This might be due to the use of different methodologies, differences in the variables admitted, and the underlying assumptions that directed the investigation.

It is recommended that future research on emerging adults risk-taking behaviors include a more diverse and representative sample mainly with different ethnic backgrounds, incorporate other psychological factors than those considered here, and use a comprehensive measure of financial risk-taking with switching points exploring if different stakes also play a role in distinct financial risk-taking behaviors.

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7. Appendix A:

Appendix A1 – Questionnaire Guideline

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

Imagine que está a participar no seguinte jogo, e diga qual das duas possibilidades escolhe: / IMAGINE THAT YOU ARE PARTICIPATING IN A GAME, AND YOU MUST CHOOSE BETWEEN TWO CHOICES: *

☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.

☐ Não precisar de lançar a moeda ao ar e receber garantidamente €60. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €60.

[Back](#) [Next](#)

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

E entre estas duas possibilidades, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK? *

- ☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- ☐ Não precisar de lançar a moeda ao ar e receber garantidamente €50. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €50.

Back

Next

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

E entre estas duas, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK? *

- ☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- ☐ Não precisar de lançar a moeda ao ar e receber garantidamente €40. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €40.

Back

Next

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

E entre estas duas, qual escolheria? / AND BETWEEN THESE TWO CHOICES WHICH ONE WOULD YOU PICK? *

- ☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- ☐ Não precisar de lançar a moeda ao ar e receber garantidamente €30. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €30.

Back

Next

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

E entre estas duas, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK? *

- ☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- ☐ Não precisar de lançar a moeda ao ar e receber garantidamente €20. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €20.

Back

Next

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

E finalmente entre estas duas possibilidades, qual escolheria? / FINALLY, BETWEEN THESE TWO CHOICES WHICH ONE WOULD YOU PICK ? *

- ☐ Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- ☐ Não precisar de lançar a moeda ao ar e receber garantidamente €10. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €10.

Back

Next

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

Diga agora qual é o seu gênero: / WHAT IS YOUR GENDER? *

- ☐ Masculino/MASCULINE
- ☐ Feminino/FEMININE

E diga a sua idade: / AND WHAT IS YOUR AGE? *

Your answer _____

Qual o Grau de Escolaridade que completou ou que está a frequentar? / WHAT IS YOUR ACADEMIC DEGREE COMPLETED OR CURRENTLY FREQUENTING? *

- ☐ 4º ano ou menos | 4th GRADE OR LESS
- ☐ 9º ano | 9th GRADE
- ☐ 11º ou 12º ano | 11th OR 12th GRADE
- ☐ Licenciatura | GRADUATION
- ☐ Mestrado | MASTER'S
- ☐ Doutoramento | DOCTORAL DEGREE

Qual é a sua Nacionalidade? / WHAT IS YOUR NATIONALITY? *

Your answer _____

Qual é a Nacionalidade do seu pai? / WHAT IS THE NATIONALITY OF YOUR FATHER? *

Your answer _____

[Back](#)

[Next](#)

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

* Required

Como acha que estará a sua condição económica daqui a 10 anos? / HOW DO YOU THINK YOUR FINANCIAL SITUATION WILL BE IN 10 YEARS? *

- ☐ Muito melhor / MUCH BETTER
- ☐ Razoavelmente melhor / REASONABLY BETTER
- ☐ Um pouco melhor / A LITTLE BIT BETTER
- ☐ Igual / EQUAL
- ☐ Pior / WORSE

Com que frequência se sentiu discriminado na sua vida? / BY HOW FREQUENTLY DID YOU FELT DISCRIMINATED IN YOUR LIFE? *

- ☐ Muitas vezes / A LOT OF TIMES
- ☐ Algumas vezes / SOMETIMES
- ☐ Poucas vezes / A FEW TIMES
- ☐ Raramente / RARELY
- ☐ Nunca / NEVER

Diga em que grau concorda com as seguintes afirmações (1- Concordo totalmente, 2- Concordo, 3- Discordo, 4- Discordo totalmente): / HOW MUCH DO YOU AGREE WITH THE FOLLOWING SENTENCES (1- STRONGLY AGREE, 2- AGREE, 3- DISAGREE, 4- STRONGLY DISAGREE):

Eu gosto de quem sou / I LIKE WHO I AM *

	1	2	3	4	
Concordo totalmente / STRONGLY AGREE	☐	☐	☐	☐	Discordo totalmente / STRONGLY DISAGREE

Eu tenho uma atitude positiva relativamente a mim próprio / I HAVE A POSITIVE SELF-ATTITUDE *

	1	2	3	4	
Concordo totalmente / STRONGLY AGREE	☐	☐	☐	☐	Discordo totalmente / STRONGLY DISAGREE

Eu sinto-me inútil por vezes / I FEEL USELESS AT TIMES *

	1	2	3	4	
Concordo totalmente / STRONGLY AGREE	☐	☐	☐	☐	Discordo totalmente / STRONGLY DISAGREE

Muitas vezes sinto que não tenho valor / I OFTEN FEEL WORTHLESS *

	1	2	3	4	
Concordo totalmente / STRONGLY AGREE	☐	☐	☐	☐	Discordo totalmente / STRONGLY DISAGREE

[Back](#)

[Next](#)

Você é avesso ao risco ou não? / ARE YOU RISK AVERSE OR NOT?

Não se esqueça de carregar no botão "submeter" ! / DON'T FORGET TO CLICK ON "SUBMETER" !

Muito obrigado pela participação ! / THANKS FOR PARTICIPATING !

Veja agora qual é a sua relação com o risco: / SEE NOW WHICH RELATION YOU HAVE WITH RISK:

Se você escolheu lançar a moeda contra: / IF YOU CHOSE TO FLIP THE COIN VERSUS:

- 1)€60 garantidos/GUARANTEED – Gosta de arriscar / YOU ARE RISK-SEEKING.
- 2)€50 garantidos/GUARANTEED – É neutro em termos de risco / YOU ARE RISK-NEUTRAL.
- 3)€40 garantidos/GUARANTEED – É um pouco avesso ao risco / YOU ARE LOW RISK-AVERSE.
- 4)€30 garantidos/GUARANTEED – É medianamente avesso ao risco / YOU ARE MEDIUM RISK-AVERSE.
- 5)€20 garantidos/GUARANTEED – É muito avesso ao risco / YOU ARE HIGHLY RISK-AVERSE.
- 6)€10 garantidos/GUARANTEED – É extremamente avesso ao risco / YOU ARE EXTREMELY RISK-AVERSE.

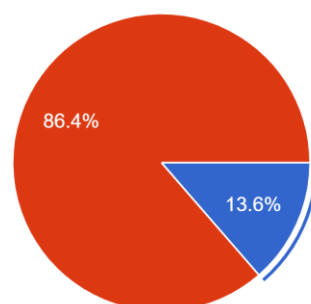
[Back](#) [Submit](#)

Appendix A2 – Questionnaire accessible on Google forms.

https://docs.google.com/forms/d/e/1FAIpQLSd75Wt_j5RKQmUrQZFxMD1QgACEhssDEed_o9XPvuCWe2IUuRA/viewform?usp=sf_link

Appendix A3 – Summary descriptive results of questionnaire and graphics.

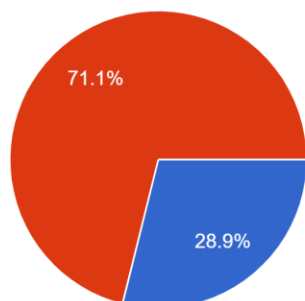
Imagine que está a participar no seguinte jogo, e diga qual das duas possibilidades escolhe: /
IMAGINE THAT YOU ARE PARTICIPATING IN A G...AND YOU MUST CHOOSE BETWEEN TWO CHOICES:
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €60. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €60.

E entre estas duas possibilidades, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK?

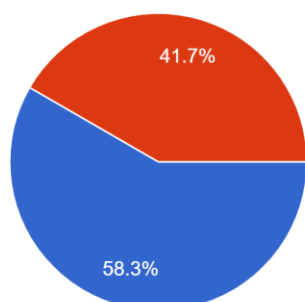
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €50. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €50.

E entre estas duas, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK ?

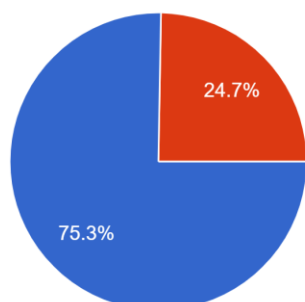
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €40. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €40.

E entre estas duas, qual escolheria? / AND BETWEEN THESE TWO CHOICES WHICH ONE WOULD YOU PICK?

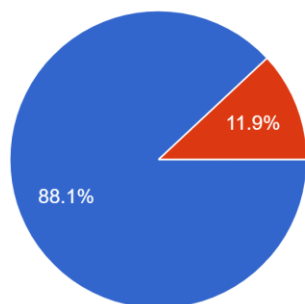
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €30. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €30.

E entre estas duas, qual escolhe? / AND BETWEEN THESE TWO CHOICES WHICH ONE DO YOU PICK?

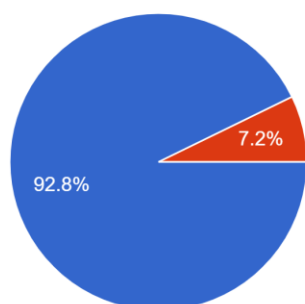
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €20. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €20.

E finalmente entre estas duas possibilidades, qual escolheria? / FINALLY, BETWEEN THESE TWO CHOICES WHICH ONE WOULD YOU PICK ?

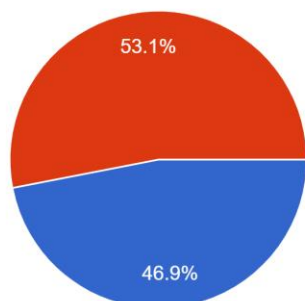
360 responses



- Lançar uma moeda ao ar, sabendo que receberá €100 se sair Cara ou €0 se sair Coroa. / FLIP A COIN, KNOWING THAT YOU WILL RECEIVE €100 IF IT COMES HEADS OR €0 IF IT COMES TAILS.
- Não precisar de lançar a moeda ao ar e receber garantidamente €10. / NOT FLIPPING A COIN AND RECEIVE FOR CERTAIN €10.

Diga agora qual é o seu género: / WHAT IS YOUR GENDER?

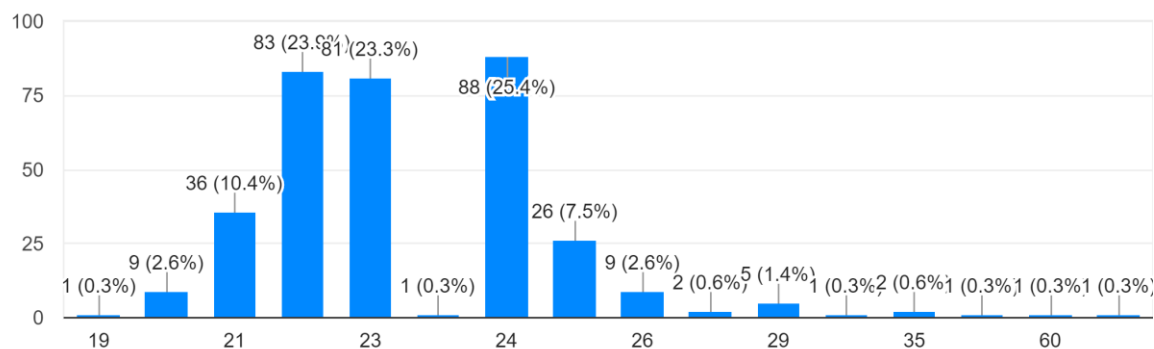
360 responses



- Masculino/MASCULINE
- Feminino/FEMININE

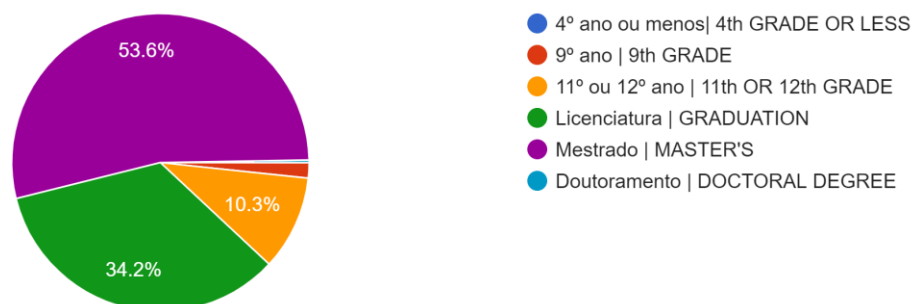
E diga a sua idade: / AND WHAT IS YOUR AGE?

347 responses



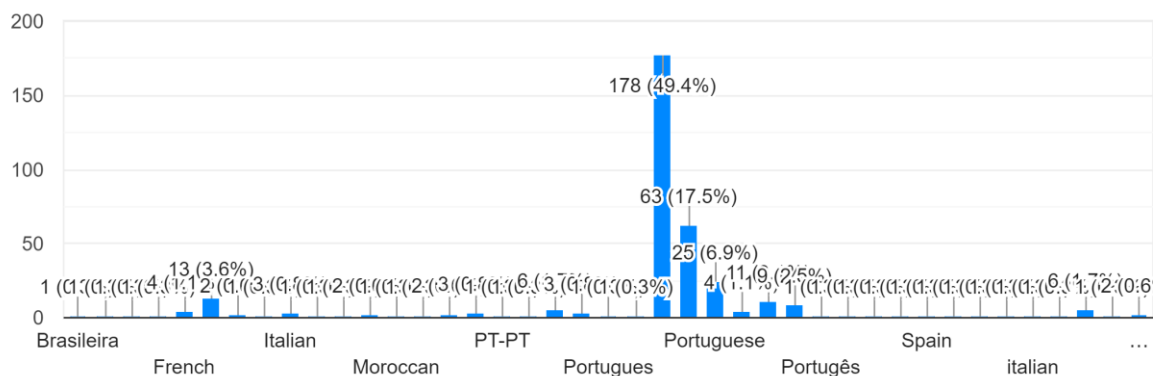
Qual o Grau de Escolaridade que completou ou que está a frequentar? / WHAT IS YOUR ACADEMIC DEGREE COMPLETED OR CURRENTLY FREQUENTING?

360 responses



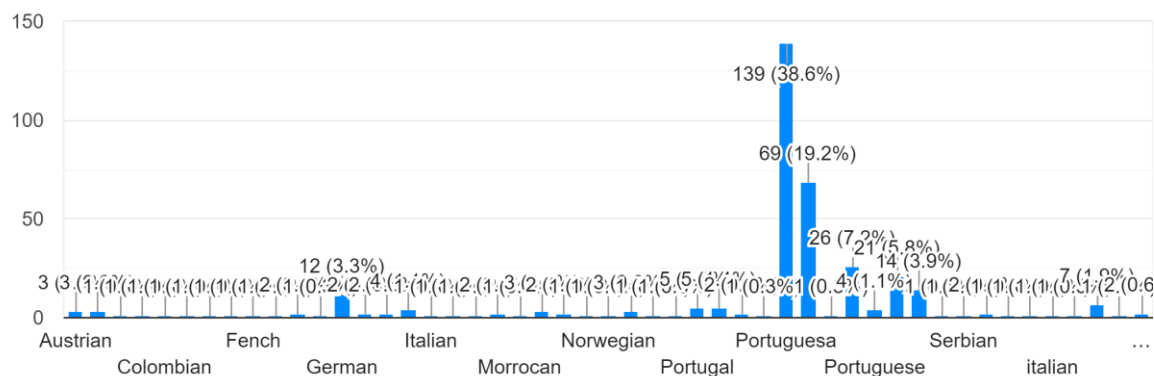
Qual é a sua Nacionalidade? / WHAT IS YOUR NATIONALITY?

360 responses



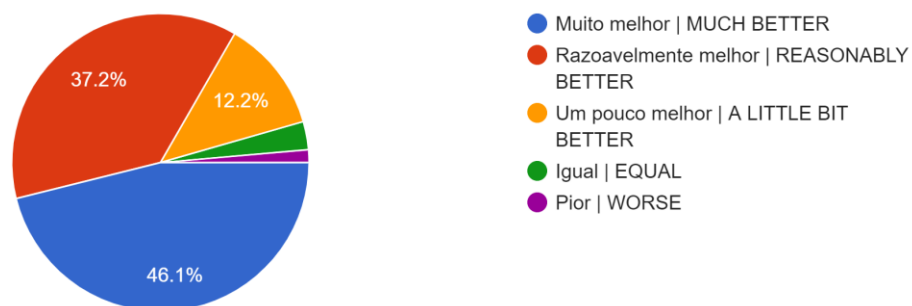
Qual é a Nacionalidade do seu pai? / WHAT IS THE NATIONALITY OF YOUR FATHER?

360 responses



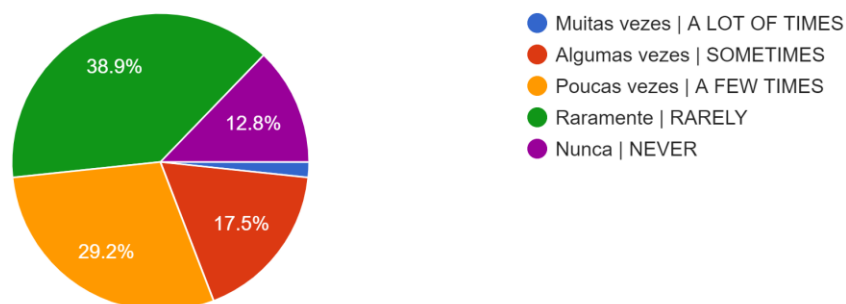
Como acha que estará a sua condição económica daqui a 10 anos? / HOW DO YOU THINK YOUR FINANCIAL SITUATION WILL BE IN 10 YEARS?

360 responses



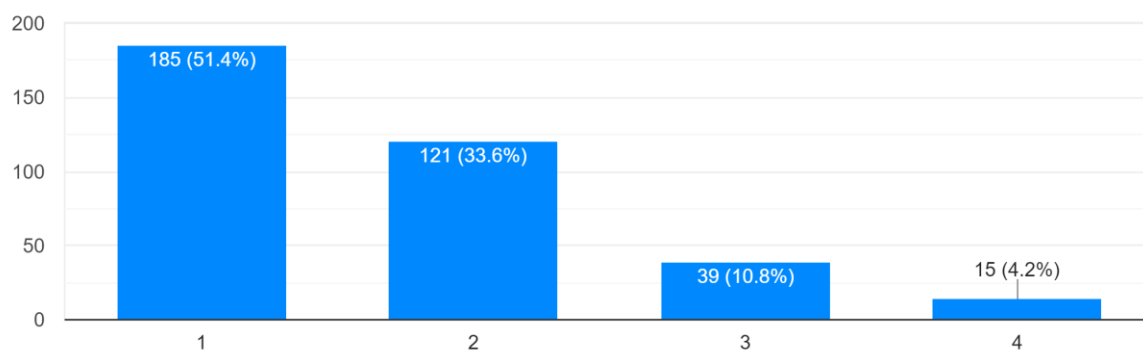
Com que frequência se sentiu discriminado na sua vida? / BY HOW FREQUENTLY DID YOU FELT DISCRIMINATED IN YOUR LIFE?

360 responses



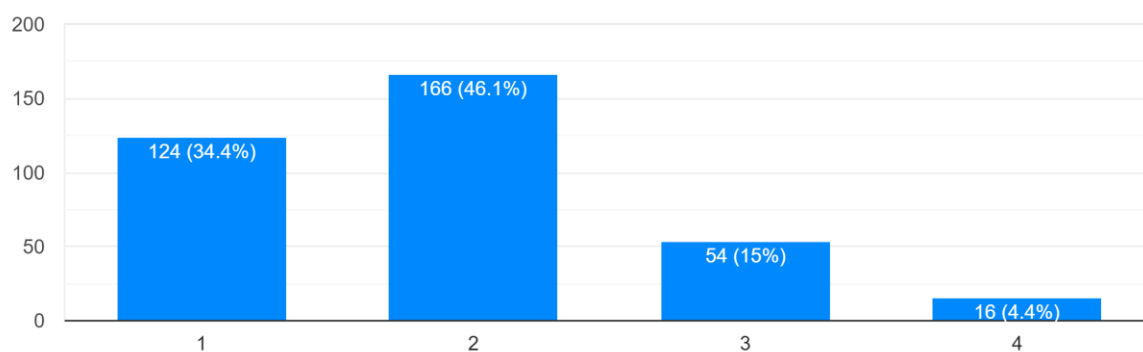
Eu gosto de quem sou / I LIKE WHO I AM

360 responses



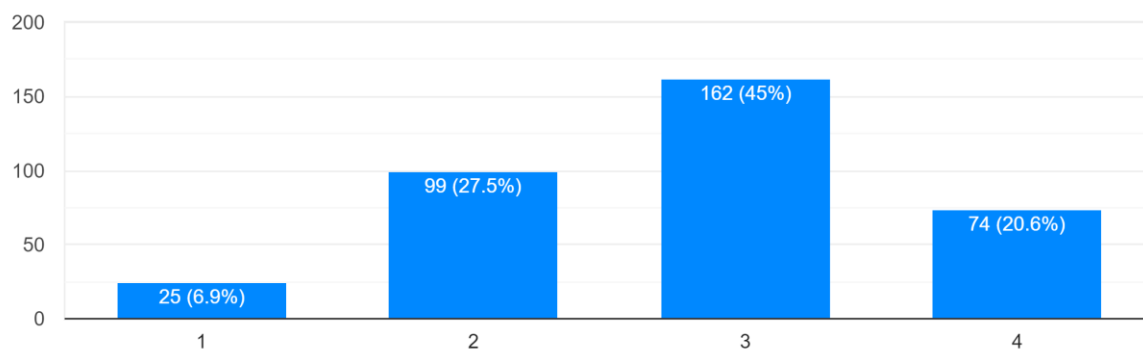
Eu tenho uma atitude positiva relativamente a mim próprio / I HAVE A POSITIVE SELF-ATTITUDE

360 responses



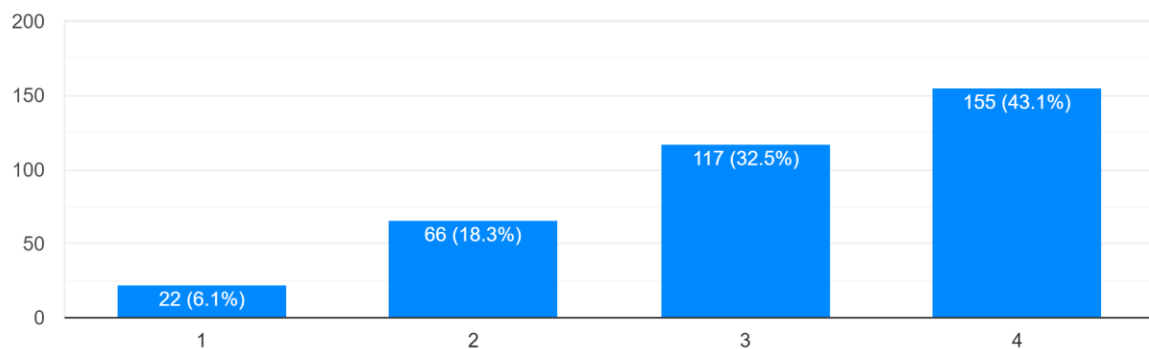
Eu sinto-me inútil por vezes / I FEEL USELESS AT TIMES

360 responses



Muitas vezes sinto que não tenho valor / I OFTEN FEEL WORTHLESS

360 responses



Appendix A4 – Normality test diagram of dependent variable.

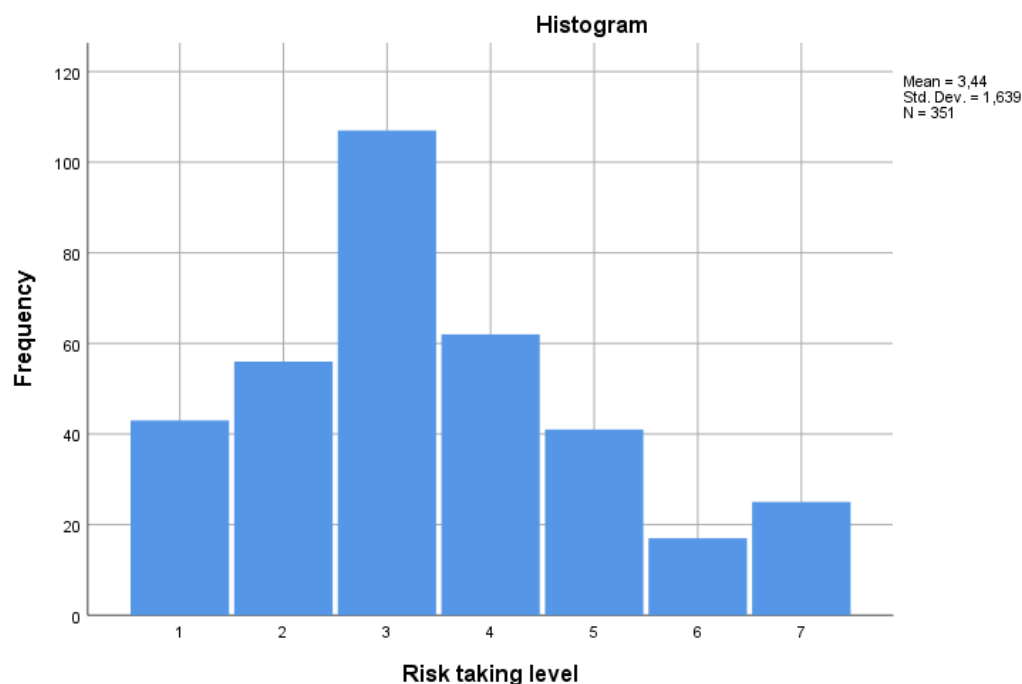
Descriptives

		Statistic	Std. Error
Risk taking level	Mean	3,44	,087
	95% Confidence Interval for Mean		
	Lower Bound	3,26	
	Upper Bound	3,61	
	5% Trimmed Mean	3,37	
	Median	3,00	
	Variance	2,687	
	Std. Deviation	1,639	
	Minimum	1	
	Maximum	7	
	Range	6	
	Interquartile Range	2	
	Skewness	,516	,130
	Kurtosis	-,297	,260

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Risk taking level	,192	351	,000	,925	351	,000

a. Lilliefors Significance Correction



Appendix A5 – Reliability test for Risk-taking level questions

Reliability Statistics		
	Cronbach's Alpha Based on Standardized Items	N of Items
Cronbach's Alpha	,785	6

Appendix A6 – Reliability test for Self-esteem questions.

		Correlations			
		"I like who i am"	"I have a positive self-attitude"	"I feel useless at times"	"I often feel worthless"
"I like who i am"	Pearson Correlation	1	,656**	,294**	,455**
	Sig. (2-tailed)		,000	,000	,000
	N	351	351	351	351
"I have a positive self-attitude"	Pearson Correlation	,656**	1	,422**	,540**
	Sig. (2-tailed)	,000		,000	,000
	N	351	351	351	351
"I feel useless at times"	Pearson Correlation	,294**	,422**	1	,615**
	Sig. (2-tailed)	,000	,000		,000
	N	351	351	351	351
"I often feel worthless"	Pearson Correlation	,455**	,540**	,615**	1
	Sig. (2-tailed)	,000	,000	,000	
	N	351	351	351	351

** . Correlation is significant at the 0.01 level (2-tailed).

Reliability Statistics		
Cronbach's Alpha Based on Standardized Items		
Cronbach's Alpha		N of Items
,798	,798	4

Appendix A7 – Descriptive statistics of independent variables and dependent variables.

Flip coin or receive €60

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	43	12,3	12,3	12,3
	Receive €60	308	87,7	87,7	100,0
	Total	351	100,0	100,0	

Flip coin or receive €50

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	98	27,9	27,9	27,9
	Receive €50	253	72,1	72,1	100,0
	Total	351	100,0	100,0	

Flip coin or receive €40

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	204	58,1	58,1	58,1
	Receive €40	147	41,9	41,9	100,0
	Total	351	100,0	100,0	

Flip coin or receive €30

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	264	75,2	75,2	75,2
	Receive €30	87	24,8	24,8	100,0
	Total	351	100,0	100,0	

Flip coin or receive €20

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	309	88,0	88,0	88,0
	Receive €20	42	12,0	12,0	100,0
	Total	351	100,0	100,0	

Flip coin or receive €10

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Flip coin	325	92,6	92,6	92,6
	Receive €10	26	7,4	7,4	100,0
	Total	351	100,0	100,0	

		Age			
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	19	3	,9	,9	,9
	20	14	4,0	4,0	4,8
	21	36	10,3	10,3	15,1
	22	86	24,5	24,5	39,6
	23	81	23,1	23,1	62,7
	24	88	25,1	25,1	87,7
	25	26	7,4	7,4	95,2
	26	9	2,6	2,6	97,7
	27	2	,6	,6	98,3
	29	5	1,4	1,4	99,7
	30	1	,3	,3	100,0
	Total	351	100,0	100,0	

		Gender			
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Female	186	53,0	53,0	53,0
	Male	165	47,0	47,0	100,0
	Total	351	100,0	100,0	

		Academic degree			
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	9th grade	6	1,7	1,7	1,7
	11th or 12th grade	36	10,3	10,3	12,0
	Graduation	119	33,9	33,9	45,9
	Masters	190	54,1	54,1	100,0
	Total	351	100,0	100,0	

		Nationality of the respondent			
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	BR	1	,3	,3	,3
	COL	1	,3	,3	,6
	DEN	1	,3	,3	,9
	FR	4	1,1	1,1	2,0
	GER	15	4,3	4,3	6,3
	ITL	7	2,0	2,0	8,3
	LITH	1	,3	,3	8,5
	MORO	3	,9	,9	9,4
	NETH	1	,3	,3	9,7
	NOR	3	,9	,9	10,5
	PL	1	,3	,3	10,8
	PT	308	87,7	87,7	98,6
	SPN	1	,3	,3	98,9
	SR	1	,3	,3	99,1
	SWDN	1	,3	,3	99,4
	UKR	1	,3	,3	99,7
	VENZ	1	,3	,3	100,0
	Total	351	100,0	100,0	

Nationality of the father					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	AUST	3	,9	,9	,9
	BR	5	1,4	1,4	2,3
	COL	1	,3	,3	2,6
	CV	1	,3	,3	2,8
	FR	4	1,1	1,1	4,0
	GER	14	4,0	4,0	8,0
	GRC	2	,6	,6	8,5
	ITL	8	2,3	2,3	10,8
	LITH	1	,3	,3	11,1
	MORO	3	,9	,9	12,0
	MOZ	5	1,4	1,4	13,4
	NETH	1	,3	,3	13,7
	NOR	2	,6	,6	14,2
	PL	1	,3	,3	14,5
	PT	292	83,2	83,2	97,7
	SCT	1	,3	,3	98,0
	SPN	3	,9	,9	98,9
	SR	1	,3	,3	99,1
	UKR	1	,3	,3	99,4
	VENZ	1	,3	,3	99,7
	ZA	1	,3	,3	100,0
	Total	351	100,0	100,0	

Future economic situation					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Much better	163	46,4	46,4	46,4
	Reasonably better	130	37,0	37,0	83,5
	A little bit better	43	12,3	12,3	95,7
	Equal	10	2,8	2,8	98,6
	Worse	5	1,4	1,4	100,0
	Total	351	100,0	100,0	

Feeling of discrimination					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	A lot of times	6	1,7	1,7	1,7
	Sometimes	61	17,4	17,4	19,1
	A few times	102	29,1	29,1	48,1
	Rarely	138	39,3	39,3	87,5
	Never	44	12,5	12,5	100,0
	Total	351	100,0	100,0	

"I like who i am"					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly agree	180	51,3	51,3	51,3
	Agree	118	33,6	33,6	84,9
	Disagree	38	10,8	10,8	95,7
	Strongly disagree	15	4,3	4,3	100,0
	Total	351	100,0	100,0	

"I have a positive self-attitude"					
		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly agree	120	34,2	34,2	34,2
	Agree	163	46,4	46,4	80,6
	Disagree	52	14,8	14,8	95,4
	Strongly disagree	16	4,6	4,6	100,0
	Total	351	100,0	100,0	

"I feel useless at times"

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly agree	25	7,1	7,1	7,1
	Agree	99	28,2	28,2	35,3
	Disagree	154	43,9	43,9	79,2
	Strongly disagree	73	20,8	20,8	100,0
	Total	351	100,0	100,0	

"I often feel worthless"

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly agree	22	6,3	6,3	6,3
	Agree	65	18,5	18,5	24,8
	Disagree	115	32,8	32,8	57,5
	Strongly disagree	149	42,5	42,5	100,0
	Total	351	100,0	100,0	

Risk taking level

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Risk-seeking	43	12,3	12,3	12,3
	Risk-neutral	56	16,0	16,0	28,2
	Low risk-averse	107	30,5	30,5	58,7
	Medium risk-averse	62	17,7	17,7	76,4
	Highly risk-averse	41	11,7	11,7	88,0
	Extremely risk-averse	17	4,8	4,8	92,9
	Totally risk-averse	25	7,1	7,1	100,0
	Total	351	100,0	100,0	

Descriptive statistic

	N	Minimum	Maximum	Mean	Std error
Flip coin or receive €60	351	1	2	1,88	,328
Flip coin or receive €50	351	1	2	1,72	,449
Flip coin or receive €40	351	1	2	1,42	,494
Flip coin or receive €30	351	1	2	1,25	,432
Flip coin or receive €20	351	1	2	1,12	,325
Flip coin or receive €10	351	1	2	1,07	,262
Age	351	19	30	23,00	1,637
Academic degree	351	9	17	15,67	1,806
Future economic situation	351	1	5	1,76	,879
Feeling of discrimination	351	1	5	3,44	,974
"I like who i am"	351	1	4	1,68	,832
"I have a positive self-attitude"	351	1	4	1,90	,815
"I feel useless at times"	351	1	4	2,78	,854
"I often feel worthless"	351	1	4	3,11	,922
Risk taking level	351	1	7	3,44	1,639
N válido (de lista)	351				

Appendix A8 - Descriptive statistics of independent variables already recoded.

		LevelRec1		Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	Risk-seeking	43	12,3	12,3	12,3
	Risk-neutral	56	16,0	16,0	28,2
	Low risk-averse	107	30,5	30,5	58,7
	Medium risk-averse	62	17,7	17,7	76,4
	Highly risk-averse	41	11,7	11,7	88,0
	Extremely or Totally risk-averse	42	12,0	12,0	100,0
	Total	351	100,0	100,0	

		SelfesteemREC1		Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	Extremely Positive	188	53,6	53,6	53,6
	Positive	70	19,9	19,9	73,5
	Medium	40	11,4	11,4	84,9
	Negative	30	8,5	8,5	93,4
	Extremely Negative	23	6,6	6,6	100,0
	Total	351	100,0	100,0	

		DiscriminationREC1		Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	A lot of times or Sometimes	67	19,1	19,1	19,1
	A few times	102	29,1	29,1	48,1
	Rarely	138	39,3	39,3	87,5
	Never	44	12,5	12,5	100,0
	Total	351	100,0	100,0	

		NationalityREC2		Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	African	3	,9	,9	,9
	Latin American	3	,9	,9	1,7
	South-European	316	90,0	90,0	91,7
	Central-European	21	6,0	6,0	97,7
	North and Eastern European	8	2,3	2,3	100,0
	Total	351	100,0	100,0	

		FNationalityREC2		Valid Percent	Cumulative Percent
		Frequency	Percent		
Valid	African	10	2,8	2,8	2,8
	Latin American	7	2,0	2,0	4,8
	South-European	305	86,9	86,9	91,7
	Central-European	22	6,3	6,3	98,0
	North and Eastern European	7	2,0	2,0	100,0
	Total	351	100,0	100,0	

Appendix A9 – OLR Full model test analysis.

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	959,307			
Final	941,023	18,284	9	,032

Link function: Logit.

Goodness-of-Fit			
	Chi-Square	Df	Sig.
Pearson	1024,397	951	,049
Deviance	797,975	951	1,000

Link function: Logit.

Pseudo R-Square	
Cox and Snell	,051
Nagelkerke	,052
McFadden	,015

Link function: Logit.

Parameter Estimates								
		Estimate	Std. Error	Wald	df	Sig.	95% Confidence Interval	
							Lower Bound	Upper Bound
Threshold	[LevelRec1 = 1,00]	-1,495	1,224	1,491	1	,222	-3,895	,905
	[LevelRec1 = 2,00]	-,435	1,220	,127	1	,721	-2,825	1,955
	[LevelRec1 = 3,00]	,915	1,220	,562	1	,454	-1,477	3,306
	[LevelRec1 = 4,00]	1,770	1,223	2,094	1	,148	-,627	4,167
	[LevelRec1 = 5,00]	2,611	1,229	4,517	1	,034	,203	5,020
Location	FutureFinance	,311	,117	7,123	1	,008	,083	,539
	DiscriminationREC1	,042	,107	,151	1	,698	-,168	,251
	SelfesteemREC1	,055	,077	,518	1	,472	-,096	,206
	Degree	-,019	,057	,112	1	,737	-,130	,092
	[FNationalityREC2=1,00]	-,593	,881	,453	1	,501	-2,320	1,135
	[FNationalityREC2=2,00]	,346	,956	,131	1	,717	-1,528	2,221
	[FNationalityREC2=3,00]	,216	,685	,099	1	,752	-1,127	1,559
	[FNationalityREC2=4,00]	-,609	,775	,617	1	,432	-2,127	,910
	[FNationalityREC2=5,00]	0 ^a	.	.	0	.	.	.
	[Gender=F]	-,085	,198	,186	1	,667	-,474	,303
	[Gender=M]	0 ^a	.	.	0	.	.	.

Link function: Logit.

a. This parameter is set to zero because it is redundant.

Test of Parallel Lines ^a				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	941,023			
General	777,435 ^b	163,588 ^c	36	,000

The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.

a. Link function: Logit.

b. The log-likelihood value cannot be further increased after maximum number of step-halving.

c. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.

Appendix A10 – MLR Test Social Model.

Likelihood Ratio Tests				
Effect	Model Fitting Criteria	Likelihood Ratio Tests		
	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	249,094	45,148	5	,000
Academic degree	237,922	33,975	5	,000
GenderRec	214,182	10,235	5	,069
FNationalityREC2	226,430	22,484	5	,000

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Parameter Estimates								
LevelRec1 ^a		B	Std. Error	Wald	Df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)
								Lower Bound
Risk-seeking	Intercept	8,927	2,040	19,153	1	,000		Upper Bound
	Academic degree	-,407	,106	14,792	1	,000	,665	,541
	GenderRec	-,921	,392	5,534	1	,019	,398	,185
	FNationalityREC2	-,741	,373	3,949	1	,047	,476	,229
Risk-neutral	Intercept	-3,642	2,227	2,674	1	,102		
	Academic degree	,023	,130	,032	1	,858	1,023	,793
	GenderRec	-,461	,340	1,837	1	,175	,631	,324
	FNationalityREC2	1,054	,346	9,306	1	,002	2,869	1,458
Medium risk-averse	Intercept	4,840	1,921	6,346	1	,012		
	Academic degree	-,230	,102	5,115	1	,024	,795	,651
	GenderRec	-,431	,325	1,762	1	,184	,650	,344
	FNationalityREC2	-,368	,352	1,091	1	,296	,692	,347
Highly risk-averse	Intercept	1,119	2,330	,231	1	,631		
	Academic degree	-,076	,126	,359	1	,549	,927	,724
	GenderRec	-,116	,370	,098	1	,754	,891	,431
	FNationalityREC2	-,228	,401	,323	1	,570	,796	,363
Extremely or Totally risk-averse	Intercept	6,510	2,090	9,702	1	,002		
	Academic degree	-,460	,105	19,305	1	,000	,631	,514
	GenderRec	-,991	,396	6,247	1	,012	,371	,171
	FNationalityREC2	,366	,460	,633	1	,426	1,442	,585

a. The reference category is: Low risk-averse.

Classification							
Observed	Predicted						Percent Correct
	Risk- seeking	Risk- neutral	Low risk- averse	Medium risk- averse	Highly risk- averse	Extremely or Totally risk- averse	
Risk-seeking	3	0	29	4	0	7	7,0%
Risk-neutral	1	15	37	1	0	2	26,8%
Low risk-averse	5	10	87	2	0	3	81,3%
Medium risk-averse	2	1	51	3	0	5	4,8%
Highly risk-averse	0	0	38	1	0	2	0,0%
Extremely or Totally risk-averse	1	2	29	2	0	8	19,0%
Overall Percentage	3,4%	8,0%	77,2%	3,7%	0,0%	7,7%	33,0%

Appendix A11 – MLR Test Psychological Model.

Likelihood Ratio Tests				
Effect	Model Fitting	Likelihood Ratio Tests		
	Criteria	Chi-Square	Df	Sig.
	-2 Log Likelihood of Reduced Model			
Intercept	518,101	7,789	5	,168
SelfesteemREC1	519,364	9,053	5	,107
DiscriminationREC1	515,310	4,998	5	,416
Future economic situation	522,075	11,763	5	,038

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

Parameter Estimates								
LevelRec1 ^a		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B) Lower Bound Upper Bound
Risk-seeking	Intercept	,125	,710	,031	1	,860		
	SelfesteemREC1	-,028	,143	,037	1	,847	,973	,734 1,289
	DiscriminationREC1	-,381	,197	3,738	1	,053	,683	,464 1,005
	Future economic situation	-,052	,235	,049	1	,825	,949	,600 1,503
Risk-neutral	Intercept	-,065	,696	,009	1	,926		
	SelfesteemREC1	-,398	,164	5,913	1	,015	,672	,487 ,926
	DiscriminationREC1	,070	,185	,144	1	,704	1,073	,746 1,543
	Future economic situation	-,042	,217	,037	1	,847	,959	,627 1,467
Medium risk-averse	Intercept	-,851	,628	1,836	1	,175		
	SelfesteemREC1	,043	,121	,124	1	,724	1,044	,823 1,324
	DiscriminationREC1	-,122	,172	,503	1	,478	,885	,633 1,239
	Future economic situation	,293	,186	2,482	1	,115	1,341	,931 1,932
Highly risk-averse	Intercept	-1,166	,732	2,538	1	,111		
	SelfesteemREC1	-,153	,154	,988	1	,320	,858	,634 1,160
	DiscriminationREC1	-,092	,200	,213	1	,645	,912	,615 1,350
	Future economic situation	,410	,206	3,978	1	,046	1,507	1,007 2,255
Extremely or Totally risk-averse	Intercept	-1,520	,727	4,370	1	,037		
	SelfesteemREC1	-,090	,147	,376	1	,540	,914	,684 1,220
	DiscriminationREC1	-,061	,198	,094	1	,759	,941	,638 1,388
	Future economic situation	,501	,199	6,304	1	,012	1,650	1,116 2,438

a. The reference category is: Low risk-averse.

Classification							
Observed	Predicted						Percent Correct
	Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
Risk-seeking	0	0	41	2	0	0	0,0%
Risk-neutral	0	0	55	0	0	1	0,0%
Low risk-averse	0	0	104	0	0	3	97,2%
Medium risk-averse	0	0	55	2	0	5	3,2%
Highly risk-averse	0	0	38	1	0	2	0,0%
Extremely or Totally risk-averse	0	0	40	1	0	1	2,4%
Overall Percentage	0,0%	0,0%	94,9%	1,7%	0,0%	3,4%	30,5%

Appendix A12 – MLR Test Full Model (Psychological and Social)

Effect	Likelihood Ratio Tests Model Fitting Criteria			Likelihood Ratio Tests		
	AIC of Reduced Model	BIC of Reduced Model	-2 Log Likelihood of Reduced Model	Chi-Square	df	Sig.
Intercept	961,881	1077,704	901,881	36,666	5	,000
Academic degree	958,760	1074,583	898,760	33,545	5	,000
Future economic situation	935,758	1051,582	875,758	10,543	5	,061
DiscriminationREC1	927,523	1043,347	867,523	2,308	5	,805
SelfesteemREC1	934,274	1050,098	874,274	9,059	5	,107
GenderRec	936,943	1052,767	876,943	11,728	5	,039
FNationalityREC2	945,232	1061,056	885,232	20,017	5	,001

The chi-square statistic is the difference in -2 log-likelihoods between the final model and a reduced model. The reduced model is formed by omitting an effect from the final model. The null hypothesis is that all parameters of that effect are 0.

		Parameter Estimates						95% Confidence Interval for Exp(B)	
Risk-taking level ^a		B	Std. Error	Wald	df	Sig.	Exp(B)	Lower Bound	Upper Bound
Risk-seeking	Intercept	10,855	2,347	21,389	1	,000			
	Academic degree	-,472	,117	16,363	1	,000	,624	,496	,784
	Future economic situation	-,434	,271	2,573	1	,109	,648	,381	1,101
	DiscriminationREC1	-,130	,213	,372	1	,542	,878	,579	1,332
	SelfesteemREC1	-,056	,153	,136	1	,712	,945	,701	1,275
	GenderRec	-,920	,408	5,097	1	,024	,398	,179	,886
	FNationalityREC2	-,674	,368	3,348	1	,067	,510	,248	1,049
Risk-neutral	Intercept	-2,279	2,456	,861	1	,353			
	Academic degree	,004	,135	,001	1	,974	1,004	,771	1,309
	Future economic situation	-,040	,227	,031	1	,861	,961	,615	1,501
	DiscriminationREC1	,087	,201	,186	1	,666	1,090	,736	1,616
	SelfesteemREC1	-,425	,170	6,249	1	,012	,654	,469	,912
	GenderRec	-,642	,361	3,165	1	,075	,526	,260	1,067
	FNationalityREC2	,990	,345	8,225	1	,004	2,691	1,368	5,293
Medium risk-averse	Intercept	3,997	2,103	3,612	1	,057			
	Academic degree	-,199	,107	3,449	1	,063	,820	,665	1,011
	Future economic situation	,173	,196	,780	1	,377	1,189	,810	1,746
	DiscriminationREC1	-,018	,179	,011	1	,918	,982	,692	1,394
	SelfesteemREC1	,027	,123	,047	1	,829	1,027	,807	1,307
	GenderRec	-,386	,338	1,298	1	,255	,680	,350	1,320
	FNationalityREC2	-,377	,354	1,137	1	,286	,686	,343	1,372
Highly risk-averse	Intercept	-,103	2,547	,002	1	,968			
	Academic degree	-,009	,131	,005	1	,944	,991	,766	1,282
	Future economic situation	,397	,211	3,547	1	,060	1,487	,984	2,248
	DiscriminationREC1	-,089	,207	,184	1	,668	,915	,609	1,374
	SelfesteemREC1	-,158	,155	1,042	1	,307	,854	,631	1,156
	GenderRec	-,053	,389	,018	1	,893	,949	,442	2,035
	FNationalityREC2	-,270	,415	,423	1	,516	,763	,338	1,723
Extremely or Totally risk-averse	Intercept	5,947	2,358	6,362	1	,012			
	Academic degree	-,449	,112	16,032	1	,000	,638	,512	,795
	Future economic situation	,191	,222	,740	1	,390	1,211	,783	1,873
	DiscriminationREC1	,204	,219	,866	1	,352	1,226	,798	1,882
	SelfesteemREC1	-,114	,156	,537	1	,463	,892	,658	1,210
	GenderRec	-1,105	,413	7,145	1	,008	,331	,147	,745
	FNationalityREC2	,340	,464	,535	1	,465	1,404	,565	3,490

a. The reference category is: Low risk-averse.

Classification							
Observed	Predicted						Percent Correct
	Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
Risk-seeking	13	0	20	3	0	7	30,2%
Risk-neutral	4	14	34	1	0	3	25,0%
Low risk-averse	6	7	82	3	0	9	76,6%
Medium risk-averse	7	2	41	4	2	6	6,5%
Highly risk-averse	2	0	35	0	1	3	2,4%
Extremely or Totally risk-averse	5	2	23	3	1	8	19,0%
Overall Percentage	10.5%	7.1%	67.0%	4.0%	1.1%	10.3%	34.8%

Appendix A13 – Dependency test crosstabs.

Risk-taking level * Gender Crosstabulation

			Gender		Total
			Female	Male	
Risk-taking level	Risk-seeking	Count	29	14	43
		Expected Count	22,8	20,2	43,0
		% within LevelRec1	67,4%	32,6%	100,0%
		% within Gender	15,6%	8,5%	12,3%
		Adjusted Residual	2,0	-2,0	
	Risk-neutral	Count	30	26	56
		Expected Count	29,7	26,3	56,0
		% within LevelRec1	53,6%	46,4%	100,0%
		% within Gender	16,1%	15,8%	16,0%
		Adjusted Residual	,1	-,1	
	Low risk-averse	Count	46	61	107
		Expected Count	56,7	50,3	107,0
		% within LevelRec1	43,0%	57,0%	100,0%
		% within Gender	24,7%	37,0%	30,5%
		Adjusted Residual	-2,5	2,5	
	Medium risk-averse	Count	34	28	62
		Expected Count	32,9	29,1	62,0
		% within LevelRec1	54,8%	45,2%	100,0%
		% within Gender	18,3%	17,0%	17,7%
		Adjusted Residual	,3	-,3	
	Highly risk-averse	Count	19	22	41
		Expected Count	21,7	19,3	41,0
		% within LevelRec1	46,3%	53,7%	100,0%
		% within Gender	10,2%	13,3%	11,7%
		Adjusted Residual	-,9	,9	
	Extremely or Totally risk-averse	Count	28	14	42
		Expected Count	22,3	19,7	42,0
		% within LevelRec1	66,7%	33,3%	100,0%
		% within Gender	15,1%	8,5%	12,0%
		Adjusted Residual	1,9	-1,9	
Total		Count	186	165	351
		Expected Count	186,0	165,0	351,0
		% within LevelRec1	53,0%	47,0%	100,0%
		% within Gender	100,0%	100,0%	100,0%

Chi-Square Tests

	Value	Df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11,874 ^a	5	,037
Likelihood Ratio	12,041	5	,034
N of Valid Cases	351		

a. 0 cells (.0%) have expected count less than 5. The minimum expected count is 19,27.

Directional Measures

		Value
Nominal by Interval	Eta	,000
	GenderRec Dependent	,184

Risk-taking level * Academic degree Crosstabulation

			Academic degree				Total
			9th grade	11th or 12th grade	Graduation	Masters	
Risk-taking level	Risk-seeking	Count	0	11	20	12	43
		Expected Count	,7	4,4	14,6	23,3	43,0
		% within LevelRec1	0,0%	25,6%	46,5%	27,9%	100,0%
		% within Academic degree	0,0%	30,6%	16,8%	6,3%	12,3%
		Adjusted Residual	-,9	3,5	1,9	-,3,7	
	Risk-neutral	Count	0	3	13	40	56
		Expected Count	1,0	5,7	19,0	30,3	56,0
		% within LevelRec1	0,0%	5,4%	23,2%	71,4%	100,0%
		% within Academic degree	0,0%	8,3%	10,9%	21,1%	16,0%
		Adjusted Residual	-,1,1	-,1,3	-,1,8	2,8	
	Low risk-averse	Count	0	6	32	69	107
		Expected Count	1,8	11,0	36,3	57,9	107,0
		% within LevelRec1	0,0%	5,6%	29,9%	64,5%	100,0%
		% within Academic degree	0,0%	16,7%	26,9%	36,3%	30,5%
		Adjusted Residual	-,1,6	-,1,9	-,1,0	2,6	
	Medium risk-averse	Count	0	8	26	28	62
		Expected Count	1,1	6,4	21,0	33,6	62,0
		% within LevelRec1	0,0%	12,9%	41,9%	45,2%	100,0%
		% within Academic degree	0,0%	22,2%	21,8%	14,7%	17,7%
		Adjusted Residual	-,1,1	,8	1,5	-,1,6	
	Highly risk-averse	Count	2	1	11	27	41
		Expected Count	,7	4,2	13,9	22,2	41,0
		% within LevelRec1	4,9%	2,4%	26,8%	65,9%	100,0%
		% within Academic degree	33,3%	2,8%	9,2%	14,2%	11,7%
		Adjusted Residual	1,7	-,1,8	-,1,0	1,6	
	Extremely or Totally risk-averse	Count	4	7	17	14	42
		Expected Count	,7	4,3	14,2	22,7	42,0
		% within LevelRec1	9,5%	16,7%	40,5%	33,3%	100,0%
		% within Academic degree	66,7%	19,4%	14,3%	7,4%	12,0%
		Adjusted Residual	4,2	1,5	1,0	-,2,9	
Total		Count	6	36	119	190	351
		Expected Count	6,0	36,0	119,0	190,0	351,0
		% within LevelRec1	1,7%	10,3%	33,9%	54,1%	100,0%
		% within Academic degree	100,0%	100,0%	100,0%	100,0%	100,0%
		Adjusted Residual					

Directional Measures

			Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Somers' d	Symmetric	-,041	,049	-,834	,404
		Risk-taking level Dependent	-,049	,058	-,834	,404
		Academic degree Dependent	-,035	,042	-,834	,404

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	-,041	,049	-,834	,404
	Kendall's tau-c	-,038	,045	-,834	,404
	Gamma	-,059	,071	-,834	,404
	Spearman Correlation	-,048	,058	-,904	,367 ^c
Interval by Interval	Pearson's R	-,085	,063	-1,586	,114 ^c
N of Valid Cases		351			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Risk-taking level * FathersNationalityREC2 Crosstabulation

		Cross-tabulation						
		FNationalityREC2						
		African	Latin American	South-European	Central-European	North and Eastern European	Total	
Risk-taking level	Risk-seeking	Count	4	0	39	0	0	43
		Expected Count	1,2	,9	37,4	2,7	,9	43,0
		% within LevelRec1	9,3%	0,0%	90,7%	0,0%	0,0%	100,0%
		% within FNationalityREC2	40,0%	0,0%	12,8%	0,0%	0,0%	12,3%
		Adjusted Residual	2,7	-1,0	,8	-1,8	-1,0	
	Risk-neutral	Count	0	1	40	12	3	56
		Expected Count	1,6	1,1	48,7	3,5	1,1	56,0
		% within LevelRec1	0,0%	1,8%	71,4%	21,4%	5,4%	100,0%
		% within FNationalityREC2	0,0%	14,3%	13,1%	54,5%	42,9%	16,0%
		Adjusted Residual	-1,4	-,1	-3,7	5,1	2,0	
	Low risk-averse	Count	3	3	91	8	2	107
		Expected Count	3,0	2,1	93,0	6,7	2,1	107,0
		% within LevelRec1	2,8%	2,8%	85,0%	7,5%	1,9%	100,0%
		% within FNationalityREC2	30,0%	42,9%	29,8%	36,4%	28,6%	30,5%
		Adjusted Residual	,0	,7	-,7	,6	-,1	
	Medium risk-averse	Count	2	2	57	0	1	62
		Expected Count	1,8	1,2	53,9	3,9	1,2	62,0
		% within LevelRec1	3,2%	3,2%	91,9%	0,0%	1,6%	100,0%
		% within FNationalityREC2	20,0%	28,6%	18,7%	0,0%	14,3%	17,7%
		Adjusted Residual	,2	,8	1,3	-2,2	-,2	
Highly risk-averse	Count	0	1	40	0	0	41	
	Expected Count	1,2	,8	35,6	2,6	,8	41,0	
	% within LevelRec1	0,0%	2,4%	97,6%	0,0%	0,0%	100,0%	
	% within FNationalityREC2	0,0%	14,3%	13,1%	0,0%	0,0%	11,7%	
	Adjusted Residual	-1,2	,2	2,2	-1,8	-1,0		
Extremely or Totally risk-averse	Count	1	0	38	2	1	42	
	Expected Count	1,2	,8	36,5	2,6	,8	42,0	
	% within LevelRec1	2,4%	0,0%	90,5%	4,8%	2,4%	100,0%	
	% within FNationalityREC2	10,0%	0,0%	12,5%	9,1%	14,3%	12,0%	
	Adjusted Residual	-,2	-1,0	,7	-,4	,2		
Total		Count	10	7	305	22	7	351
		Expected Count	10,0	7,0	305,0	22,0	7,0	351,0
		% within LevelRec1	2,8%	2,0%	86,9%	6,3%	2,0%	100,0%
		% within FNationalityREC2	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	49,144 ^a	20	,000
Likelihood Ratio	52,993	20	,000
Linear-by-Linear Association	,084	1	,771
N of Valid Cases	351		

a. 23 cells (76,7%) have expected count less than 5. The minimum expected count is ,82.

Directional Measures

		Value
Nominal by Interval	Eta	
	LevelRec1 Dependent	,140
	FNationalityREC2 Dependent	,267

Risk-taking level * Future economic situation Crosstabulation

			Future economic situation					Total
			Much better	Reasonably better	A little bit better	Equal	Worse	
Risk-taking level	Risk-seeking	Count	21	17	5	0	0	43
		Expected Count	20,0	15,9	5,3	1,2	,6	43,0
		% within LevelRec1	48,8%	39,5%	11,6%	0,0%	0,0%	100,0%
		% within Future economic situation	12,9%	13,1%	11,6%	0,0%	0,0%	12,3%
		Adjusted Residual	,3	,4	-,1	-1,2	-,8	
	Risk-neutral	Count	29	22	4	1	0	56
		Expected Count	26,0	20,7	6,9	1,6	,8	56,0
		% within LevelRec1	51,8%	39,3%	7,1%	1,8%	0,0%	100,0%
		% within Future economic situation	17,8%	16,9%	9,3%	10,0%	0,0%	16,0%
		Adjusted Residual	,9	,4	-1,3	-,5	-1,0	
	Low risk-averse	Count	53	43	8	2	1	107
		Expected Count	49,7	39,6	13,1	3,0	1,5	107,0
		% within LevelRec1	49,5%	40,2%	7,5%	1,9%	0,9%	100,0%
		% within Future economic situation	32,5%	33,1%	18,6%	20,0%	20,0%	30,5%
		Adjusted Residual	,8	,8	-1,8	-,7	-,5	
	Medium risk-averse	Count	30	18	8	4	2	62
		Expected Count	28,8	23,0	7,6	1,8	,9	62,0
		% within LevelRec1	48,4%	29,0%	12,9%	6,5%	3,2%	100,0%
		% within Future economic situation	18,4%	13,8%	18,6%	40,0%	40,0%	17,7%
		Adjusted Residual	,3	-1,4	,2	1,9	1,3	
	Highly risk-averse	Count	16	15	7	2	1	41
		Expected Count	19,0	15,2	5,0	1,2	,6	41,0
		% within LevelRec1	39,0%	36,6%	17,1%	4,9%	2,4%	100,0%
		% within Future economic situation	9,8%	11,5%	16,3%	20,0%	20,0%	11,7%
		Adjusted Residual	-1,0	-,1	1,0	,8	,6	
	Extremely or Totally risk-averse	Count	14	15	11	1	1	42
		Expected Count	19,5	15,6	5,1	1,2	,6	42,0
		% within LevelRec1	33,3%	35,7%	26,2%	2,4%	2,4%	100,0%
		% within Future economic situation	8,6%	11,5%	25,6%	10,0%	20,0%	12,0%
		Adjusted Residual	-1,8	-,2	2,9	-,2	,6	
Total	Count		163	130	43	10	5	351
	Expected Count		163,0	130,0	43,0	10,0	5,0	351,0
	% within LevelRec1		46,4%	37,0%	12,3%	2,8%	1,4%	100,0%
	% within Future economic situation		100,0%	100,0%	100,0%	100,0%	100,0%	100,0%
	Adjusted Residual							

Directional Measures

			Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Somers' d	Symmetric	,122	,044	2,751	,006
		LevelRec1 Dependent	,139	,050	2,751	,006
		Future economic situation Dependent	,109	,039	2,751	,006

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	,123	,044	2,751	,006
	Kendall's tau-c	,110	,040	2,751	,006
	Gamma	,171	,061	2,751	,006
	Spearman Correlation	,148	,053	2,804	,005 ^c
Interval by Interval	Pearson's R	,174	,049	3,293	,001 ^c
N of Valid Cases		351			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Risk-taking level * DiscriminationREC1 Crosstabulation

			DiscriminationREC1				Total
			A lot of times or Sometimes	A few times	Rarely	Never	
Risk-taking level	Risk-seeking	Count	13	13	13	4	43
		Expected Count	8,2	12,5	16,9	5,4	43,0
		% within LevelRec1	30,2%	30,2%	30,2%	9,3%	100,0%
		% within DiscriminationREC1	19,4%	12,7%	9,4%	9,1%	12,3%
		Adjusted Residual	2,0	,2	-1,3	-,7	
	Risk-neutral	Count	7	15	26	8	56
		Expected Count	10,7	16,3	22,0	7,0	56,0
		% within LevelRec1	12,5%	26,8%	46,4%	14,3%	100,0%
		% within DiscriminationREC1	10,4%	14,7%	18,8%	18,2%	16,0%
		Adjusted Residual	-1,4	-,4	1,2	,4	
	Low risk-averse	Count	17	36	36	18	107
		Expected Count	20,4	31,1	42,1	13,4	107,0
		% within LevelRec1	15,9%	33,6%	33,6%	16,8%	100,0%
		% within DiscriminationREC1	25,4%	35,3%	26,1%	40,9%	30,5%
		Adjusted Residual	-1,0	1,3	-1,4	1,6	
	Medium risk-averse	Count	13	17	27	5	62
		Expected Count	11,8	18,0	24,4	7,8	62,0
		% within LevelRec1	21,0%	27,4%	43,5%	8,1%	100,0%
		% within DiscriminationREC1	19,4%	16,7%	19,6%	11,4%	17,7%
		Adjusted Residual	,4	-,3	,8	-1,2	
	Highly risk-averse	Count	9	9	19	4	41
		Expected Count	7,8	11,9	16,1	5,1	41,0
		% within LevelRec1	22,0%	22,0%	46,3%	9,8%	100,0%
		% within DiscriminationREC1	13,4%	8,8%	13,8%	9,1%	11,7%
		Adjusted Residual	,5	-1,1	1,0	-,6	
	Extremely or Totally risk-averse	Count	8	12	17	5	42
		Expected Count	8,0	12,2	16,5	5,3	42,0
		% within LevelRec1	19,0%	28,6%	40,5%	11,9%	100,0%
		% within DiscriminationREC1	11,9%	11,8%	12,3%	11,4%	12,0%
		Adjusted Residual	,0	-,1	,2	-,1	
Total	Count		67	102	138	44	351
	Expected Count		67,0	102,0	138,0	44,0	351,0

	% within LevelRec1	19,1%	29,1%	39,3%	12,5%	100,0%
	% within DiscriminationREC1	100,0%	100,0%	100,0%	100,0%	100,0%

Directional Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Somers' d				
	Symmetric	,010	,044	,232	,816
	LevelRec1 Dependent	,011	,047	,232	,816
	DiscriminationREC1 Dependent	,010	,042	,232	,816

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	,010	,044	,232	,816
	Kendall's tau-c	,010	,045	,232	,816
	Gamma	,014	,059	,232	,816
	Spearman Correlation	,013	,054	,234	,815 ^c
Interval by Interval	Pearson's R	,016	,054	,304	,761 ^c
N of Valid Cases		351			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Risk-taking level * SelfesteemREC1 Crosstabulation

			SelfesteemREC1 Cross-tabulation					Total
			Extremely Positive	Positive	Medium	Negative	Extremely Negative	
Risk-taking level	Risk-seeking	Count	17	13	8	4	1	43
		Expected Count	23,0	8,6	4,9	3,7	2,8	43,0
		% within LevelRec1	39,5%	30,2%	18,6%	9,3%	2,3%	100,0%
		% within SelfesteemREC1	9,0%	18,6%	20,0%	13,3%	4,3%	12,3%
		Adjusted Residual	-2,0	1,8	1,6	,2	-1,2	
	Risk-neutral	Count	40	10	1	3	2	56
		Expected Count	30,0	11,2	6,4	4,8	3,7	56,0
		% within LevelRec1	71,4%	17,9%	1,8%	5,4%	3,6%	100,0%
		% within SelfesteemREC1	21,3%	14,3%	2,5%	10,0%	8,7%	16,0%
		Adjusted Residual	2,9	-,4	-2,5	-,9	-1,0	
	Low risk-averse	Count	55	19	16	8	9	107
		Expected Count	57,3	21,3	12,2	9,1	7,0	107,0
		% within LevelRec1	51,4%	17,8%	15,0%	7,5%	8,4%	100,0%
		% within SelfesteemREC1	29,3%	27,1%	40,0%	26,7%	39,1%	30,5%
		Adjusted Residual	-,5	-,7	1,4	-,5	,9	
	Medium risk-averse	Count	28	16	3	10	5	62
		Expected Count	33,2	12,4	7,1	5,3	4,1	62,0
		% within LevelRec1	45,2%	25,8%	4,8%	16,1%	8,1%	100,0%
		% within SelfesteemREC1	14,9%	22,9%	7,5%	33,3%	21,7%	17,7%
		Adjusted Residual	-1,5	1,3	-1,8	2,4	,5	
Highly risk-averse	Count	24	7	4	4	2	41	
	Expected Count	22,0	8,2	4,7	3,5	2,7	41,0	
	% within LevelRec1	58,5%	17,1%	9,8%	9,8%	4,9%	100,0%	
	% within SelfesteemREC1	12,8%	10,0%	10,0%	13,3%	8,7%	11,7%	
	Adjusted Residual	,7	-,5	-,4	,3	-,5		
Extremely or Totally risk-averse	Count	24	5	8	1	4	42	
	Expected Count	22,5	8,4	4,8	3,6	2,8	42,0	
	% within LevelRec1	57,1%	11,9%	19,0%	2,4%	9,5%	100,0%	
	% within SelfesteemREC1	12,8%	7,1%	20,0%	3,3%	17,4%	12,0%	
	Adjusted Residual	,5	-1,4	1,7	-1,5	,8		
Total		Count	188	70	40	30	23	351

Expected Count	188,0	70,0	40,0	30,0	23,0	351,0
% within LevelRec1	53,6%	19,9%	11,4%	8,5%	6,6%	100,0%
% within SelfesteemREC1	100,0%	100,0%	100,0%	100,0%	100,0%	100,0%

Directional Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Somers' d				
	Symmetric	,018	,043	,428	,668
	LevelRec1 Dependent	,021	,048	,428	,668
	SelfesteemREC1 Dependent	,017	,039	,428	,668

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Symmetric Measures

		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Ordinal by Ordinal	Kendall's tau-b	,018	,043	,428	,668
	Kendall's tau-c	,017	,039	,428	,668
	Gamma	,025	,059	,428	,668
	Spearman Correlation	,024	,053	,444	,658 ^c
Interval by Interval	Pearson's R	,033	,051	,621	,535 ^c
N of Valid Cases		351			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

Appendix A14 – Chi-square and Cramer's V crosstabs.**Crosstab**

Count

		Risk-taking level						
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	Total
NationalityREC2	African	1	0	1	1	0	0	3
	Latin American	0	0	2	1	0	0	3
	South-European	42	41	92	59	41	41	316
	Central-European	0	11	9	0	0	1	21
	North and Eastern European	0	4	3	1	0	0	8
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	46,197 ^a	20	,001
Likelihood Ratio	51,209	20	,000
Linear-by-Linear Association	3,651	1	,056
N of Valid Cases	351		

a. 23 cells (76,7%) have expected count less than 5. The minimum expected count is ,35.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,363	,001
	Cramer's V	,181	,001
N of Valid Cases		351	

Count

Crosstab

		Risk-taking level						Total
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
FathersNationalityREC2	African	4	0	3	2	0	1	10
	Latin American	0	1	3	2	1	0	7
	South-European	39	40	91	57	40	38	305
	Central-European	0	12	8	0	0	2	22
	North and Eastern European	0	3	2	1	0	1	7
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	49,144 ^a	20	,000
Likelihood Ratio	52,993	20	,000
Linear-by-Linear Association	,084	1	,771
N of Valid Cases	351		

a. 23 cells (76,7%) have expected count less than 5. The minimum expected count is ,82.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,374	,000
	Cramer's V	,187	,000
N of Valid Cases		351	

Crosstab

		Risk-taking level						Total
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
Gender	Female	29	30	46	34	19	28	186
	Male	14	26	61	28	22	14	165
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11,874 ^a	5	,037
Likelihood Ratio	12,041	5	,034
N of Valid Cases	351		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 19,27.

Symmetric Measures

		Value	Approximate Significance
Nominal by Nominal	Phi	,312	,026
	Cramer's V	,156	,026
N of Valid Cases		351	

Count

Crosstab

		Risk-taking level						Total
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
Academic degree	9th grade	0	0	0	0	2	4	6
	11th or 12th grade	11	3	6	8	1	7	36
	Graduation	20	13	32	26	11	17	119
	Masters	12	40	69	28	27	14	190
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	62,678 ^a	15	,000
Likelihood Ratio	58,506	15	,000
Linear-by-Linear Association	2,503	1	,114
N of Valid Cases	351		

a. 9 cells (37,5%) have expected count less than 5. The minimum expected count is ,70.

Symmetric Measures

	Value	Approximate Significance
Nominal by Nominal	Phi	,423
	Cramer's V	,244
N of Valid Cases	351	

Count

Crosstab

		Risk-taking level						Total
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	
Future economic situation	Much better	21	29	53	30	16	14	163
	Reasonably better	17	22	43	18	15	15	130
	A little bit better	5	4	8	8	7	11	43
	Equal	0	1	2	4	2	1	10
	Worse	0	0	1	2	1	1	5
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	23,723 ^a	20	,255
Likelihood Ratio	24,190	20	,234
Linear-by-Linear Association	10,547	1	,001
N of Valid Cases	351		

a. 12 cells (40,0%) have expected count less than 5. The minimum expected count is ,58.

Symmetric Measures

	Value	Approximate Significance
Nominal by Nominal	Phi	,260
	Cramer's V	,130
N of Valid Cases	351	

Count

Crosstab

		Risk-taking level						
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	Total
DiscriminationREC1	A lot of times or Sometimes	13	7	17	13	9	8	67
	A few times	13	15	36	17	9	12	102
	Rarely	13	26	36	27	19	17	138
	Never	4	8	18	5	4	5	44
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	13,233 ^a	15	,584
Likelihood Ratio	13,129	15	,592
Linear-by-Linear Association	,093	1	,761
N of Valid Cases	351		

a. 0 cells (,0%) have expected count less than 5. The minimum expected count is 5,14.

Symmetric Measures

	Value	Approximate Significance
Nominal by Nominal	Phi	,194
	Cramer's V	,112
N of Valid Cases	351	

Count

SelfesteemREC1 * Risk-taking level Crosstabulation

		LevelRec1						
		Risk-seeking	Risk-neutral	Low risk-averse	Medium risk-averse	Highly risk-averse	Extremely or Totally risk-averse	Total
SelfesteemREC1	Extremely Positive	17	40	55	28	24	24	188
	Positive	13	10	19	16	7	5	70
	Medium	8	1	16	3	4	8	40
	Negative	4	3	8	10	4	1	30
	Extremely Negative	1	2	9	5	2	4	23
Total		43	56	107	62	41	42	351

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	34,060 ^a	20	,026
Likelihood Ratio	36,590	20	,013
Linear-by-Linear Association	,387	1	,534
N of Valid Cases	351		

a. 12 cells (40,0%) have expected count less than 5. The minimum expected count is 2,69.

Symmetric Measures

	Value	Approximate Significance
Nominal by Nominal	Phi	,312
	Cramer's V	,156
N of Valid Cases	351	