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## Relationship Between Personal Debt Arrears and Risk Attitude– Cross Country Evidence

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**Abstract:**

**Purpose:** The paper's objective is to compare differences between people from four European countries in terms of how often having or never having debt difficulty is related to risk attitude.

**Design/Methodology/Purpose:** This paper aims to check how often having or never having debt arrears is related to risk attitude. The hypothesis put forward is that independently of country, people who have never been in debt arrears are less risk-seeking than people who have ever had arrears; however, the differences in risk aversion between indebted and not indebted individuals are not equal among the nationalities examined.

**Findings:** The hypothesis advanced was confirmed. It can be observed that people who have never had debt arrears are more risk-averse in most cases. In each country, the group of respondents with problems repaying debt rated themselves higher in terms of being a risk-taker and more open to risk than other people. However, the ratings differed in their levels across the different countries. Moreover, in each country, people with debt arrears when asked to give someone advice on investment were more likely to choose the risky option, but the percentages differed among countries.

**Practical Implications:** Present and past debtors are not the same in terms of risk attitude, and sometimes even past debtors resemble more non-debtors in risky behavior

**Originality:** The article results from a large-scale survey (the smallest sample consisted of 802 subjects, the biggest of 1200) conducted in Spain, Italy, Poland, and Romania regarding the emergence of overdue debt.

**Keywords:** Overdue debt, personality traits, risk attitude, consumer attitudes and behaviour, international survey.

**JEL code:** D12, D14, G41.

**Paper type:** Research article.

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## 1. Introduction

Along with the country's changing economic situation, the financial situation of households may change as well. This is conditional, among other things, on the labor market situation, interest rates, wages. Depending on their needs and possibilities, households incur financial obligations, including credits and loans. If the household becomes over-indebted, it may face problems in repaying its financial obligations, but also it may fall into arrears on account of the household's ongoing expenses. On the one hand, the emerging arrears may be for objective reasons which are not dependent directly on the household (e.g., a job loss), yet, on the other hand, moving towards a situation of over-indebtedness may be brought about by personal, demographic and social characteristics. This can be exemplified by the existence of a relationship between financial optimism and propensity to incur debt (Brown and Taylor, 2014). The socio-demographic characteristics of households also play a significant role in incurring financial obligations. As one study shows, what distinguishes people who tend to have excessive debt is that, for example, they do not possess a house, have a large family, and are atheists (Lea *et al.* 1993).

A high level of debt may lead to problems in its repayment. Although the financial institutions assess borrowers' creditworthiness, the borrowers may fail to pay up their debt. The majority of the research that addresses borrowing money by individuals taking into account the borrowers' personality traits, tends to focus only on the relationship with the financial obligation level. The research subject is to test whether the level of risk aversion differentiates between people who do not have problems in paying up debt and those who do not or did not pay up their debt in the past. Therefore, the paper's objective is to compare differences between people from four European countries in terms of however having or never having debt difficulty is related to risk attitude. The objective formulated in this way leads to putting forward the following hypotheses:

*H1: independently of their country, people who have never been in debt arrears are less risk-seeking than people who have ever had arrears (hereinafter referred to as "debtors" or "indebted");*

*H2: the differences in risk aversion levels between indebted and not indebted individuals are not equal among the nationalities examined;*

*For hypothesis H1, detailed hypotheses were formulated, considering various risk attitude measures applied in the study;*

*H1a: the rating given to themselves by debtors as to whether they are risk-takers is higher than the rating which not indebted respondents assigned themselves;*

*H1b: the indebted see themselves as being more open to risk than other people compared to debt-free persons;*

*H1c: debtors are more likely than debt-free people to choose a more risky investment option;*

*H1d: debtors are less likely to take the amount borrowed as small as possible.*

The motive behind launching the present study was an offer of cooperation extended by Kruk S.A., a debt collection agency, which operates in numerous European countries such as, for example, Poland, Spain, Italy, and Romania. Drawing on the questionnaire devised by the authors, a survey was conducted in the abovementioned countries. The databases containing respondents' answers were transferred to the authors for research. As far as the authors are aware, there has not been any research on such a big scale in the past that would investigate the relationship between risk attitude and having debt arrears. Assuming that the culture, economic conditions, and money perception are different in each of these countries, data were analyzed separately.

The paper consists of five sections. Following this introductory part, section two provides a literature review showing the most important aspects associated with the appearance of debt, including a description of the research results in the analyzed area. Section three presents the research methods used in the study and descriptions of both: a conducted survey (including the selected questions from the questionnaire survey) and the statistical methods used in this research. Section 4 provides an overview of the results obtained for each country. The study was divided into two parts. Based on comparable data for all countries, a full sample analysis was carried out and described briefly. In Poland, Romania, and Spain, Kruk S.A. provided more detailed data, which allowed for additional analyzes with its results described in the second part. Conclusions and discussion of the results are provided in section five.

## **2. Research Methodology and Data**

In 2018, the present authors, together with Kruk S.A, a debt collection agency, prepared a survey whose objective was to identify the differences characterizing respondents assigned to one of two groups. The first group (called Group 1) included respondents who at the time of the survey or in the past had problems paying up debt (had debt arrears of any type), while the second group was comprised of those who had never had difficulty in paying debt, i.e., never had debt arrears (Group 2). The survey was carried out in 2018 in several European countries, including Spain, Italy, Romania, and Poland. In each country, a professional research company was commissioned to conduct the survey. Once it was completed, the pertinent statistical material was delivered to the authors in databases for each country.

The questionnaire consisted of a range of more than 30 single- and multiple-choice questions. Some of the questions included were to analyze respondents' attitudes towards risk. Table 1 presents the list of selected questions providing the basis for the analysis and the symbols and content of the questions, and the description and codes of individual answers.

**Table 1.** *The list of selected questions and their symbols*

Question's symbol	Questions and answers
Q27	What would you advise a colleague who wants to invest 30,000 EURO and has two options to choose from: The first: gives a 50% chance of a profit of 6,000 EURO after one year of investment and a 50% chance that the profit will equal 0 EURO The second gives a certain profit of 3 000 EURO after one year of investment
Q28_10	To what extent do you agree with the following statement? - I'm a risk taker [1 – I fully disagree, 5 – I fully agree]
Q28_11	To what extent do you agree with the following statement? - I am more open to risk than others [1 – I fully disagree, 5 – I fully agree]
Q28_15	To what extent do you agree with the following statement? - When borrowing, I try to make the loan amount as small as possible [1 – I fully disagree, 5 – I fully agree]

**Source:** KRUK questionnaire.

In questions Q28\_10 and Q28\_11, higher answers would suggest that subject was less risk-averse/more risk-loving. For question Q28\_15, we would interpret higher answers as being more risk-averse/less risk-seeking. For a risk-neutral person, options in question Q27 should be valued the same. When comparing groups, if one group were to select the first option more often than the other group, we could assume that the first group is more risk-loving or is more tolerant of risk than the other. The result analysis was conducted in two variants: basic - on a full sample and detailed on a narrower sample. The samples' characteristics are described in the individual parts of the article containing the results of the conducted research.

The data elicited were analyzed statistically by applying the relevant statistical tests such as the factorial ANOVA and post hoc Tukey's HSD tests (if necessary), tests for two means, and two proportions, as well as the Chi-Square tests of independence. The necessary calculations were carried out using Statistica and Microsoft Excel programs.

The reliability of the risk measures taken into consideration was assessed based on the values of Spearman's rank correlation coefficients between answers to questions Q28\_10, Q28\_11, and Q28\_15 calculated for each country separately and testing the independence of answers for question Q27 and answers to the rest of the questions. Between questions Q28\_10 and Q28\_11, a positive and statistically significant correlation was found. Question Q28\_15 was negatively and weakly but significantly correlated with the two other questions. The hypothesis of independence between answers to question Q27 and all other questions was rejected in all but one case (for Romania and question Q28\_15). Based on the above, it seems plausible to assume that answers were not given randomly, and applied measures are appropriate.

### 3. Results and Discussion

Depending on the country, the sample size ranged from 802 in Italy to 1200 participants in Poland. The surveyed were divided into two groups: Group 1 with people whoever had difficulty (at the time of the surveyor in the past) in paying up their debt promptly (i.e., whoever had debt arrears) and Group 2 consisting of people who never had such problems. The samples were selected in such a way as to make the percentage of respondents whoever had unpaid debt big enough to perform proper statistical inference. In no case should one estimate the proportion of such people in the entire population based on the entire sample? Respondents were over 18 years old; the average age ranged from 43,3 in Poland to 46,1 in Italy. The proportion of women in the samples was between 50% in Spain and Italy and 53% in Romania. All the information on the composition of the samples is presented in Table 2.

**Table 2.** Sample composition

Sample composition	Country			
	Poland	Spain	Romania	Italy
Sample size	1200	817	892	802
Debtors [Group 1]	600	212	292	402
Debt-free respondents [Group 2]	600	605	600	400
% of women	52	50	53	50
Age	18-78	18-80	18-78	18-74

**Source:** Own calculation based on survey results.

In order to test the hypothesis, H1 put forward at the beginning, which was then broken down into detailed hypotheses; for questions Q27, Q28\_10, Q28\_11, Q28\_15, the Chi-Square tests of independence were carried out to find whether the distributions of answers between debtors and debt-free respondents showed significant differences. The tests were conducted separately for each country, with the p-values for these tests included in Table 3.

**Table 3.** Chi-Square tests of independence results for questions Q27, Q28\_10, Q28\_11, Q28\_15

Question	Country			
	Poland	Spain	Romania	Italy
Q27	0.001352***	0.000216***	0.120092	0.0000***
Q28_10	0.00045***	0.002403***	0.146	0.0008***
Q28_11	0.0097***	0.039972**	0.118973	0.0011***
Q28_15	0.03154**	0.000432***	0.13378	0.02924**

**Source:** Authors' results. \* indicates significance at 0.10 level, \*\* indicates significance at 0.05 level, \*\*\* indicates significance at 0.01 level.

Also, seeking to verify both of the hypotheses, the relevant descriptive statistics were calculated for each of the questions listed. The percentage of respondents providing a particular answer was calculated for question Q27, while for questions

Q28\_10, Q28\_11, Q28\_15, the mean values of answers were calculated. It is known that when answers are given on the Likert scale, one should not analyze means, while to be able to describe the tested samples in some way, it was decided to provide mean values. However, statistical tests used to compare two populations were adapted to the available data and hence the use of the Mann Whitney U test. In the case of question Q27, p-values were calculated for the hypotheses on the equality of percentages in one-sided tests, adjusting the inequality direction in the alternative hypothesis to the sample results. For questions Q28\_10, Q28\_11, Q28\_15 Mann Whitney U tests were conducted to verify if there were significant differences between groups. The results of these calculations are included in Tables 4 and 5.

**Table 4.** The percentage of answers with a given number for question Q27 by group and country, and p-values in the test for equality of two proportions for one-sided hypothesis

Answer code	Country					
	Poland			Spain		
	% G1	% G2	p one-sided	% G1	% G2	p one-sided
1	19%	12%	0.0007***	24%	13%	0.0001***
2	81%	88%	0.0007***	76%	87%	0.0001***
Answer code	Country					
	Romania			Italy		
	% G1	% G2	p one-sided	% G1	% G2	p one-sided
1	18%	14%	0.06*	30.1%	15%	0.000***
2	82%	86%	0.06*	69.9%	85%	0.000***

**Source:** Authors' results. \* indicates significance at 0.10 level, \*\* indicates significance at 0.05 level, \*\*\* indicates significance at 0.01 level.

**Table 5.** The mean scores of answers to questions Q28\_10, Q28\_11, Q28\_15 by country and group, and p-values in the for Mann Whitney U test

Question	Country					
	Poland			Spain		
	Av. G1	Av. G2	p one-sided	Av. G1	Av. G2	p one-sided
Q28_10	2.57	2.37	0.0008***	2.8	2.6	0.0505*
Q28_11	2.43	2.25	0.0015***	2.918	2.69	0.0178**
Q28_15	3.92	3.99	0.0457**	3.32	3.75	0.0000***
Question	Country					
	Romania			Italy		
	Av. G1	Av. G2	p one-sided	Av. G1	Av. G2	p one-sided
Q28_10	2.82	2.68	0.0536*	2.56	2.18	0.0000***
Q28_11	3.01	2.82	0.0037***	2.5	2.14	0.0000***
Q28_15	4.05	3.94	0.0800*	3.7	3.84	0.0129**

**Source:** Authors' results. \* indicates significance at 0.10 level, \*\* indicates significance at 0.05 level, \*\*\* indicates significance at 0.01 level.

The hypothesis H1a says that the rating in which debtors give themselves to whether they are risk-takers is higher than the rating given to themselves by not indebted

respondents. The hypothesis was verified based on the analysis of answers to question q28\_10. The Chi-Square test (Table 3) showed that the distribution of answers given by respondents from the group involving persons who had ever been in debt arrears (Group 1) differed significantly from the distribution of answers given by respondents who had never had any problems in paying up their debt (Group 2) in Poland, Spain, and Italy. However, this difference was not found in Romania. This means that in most countries, respondents assessed themselves differently in terms of being a risk-taker depending on the group. Also, the data from Table 5 inform that respondents from Group 1 rated themselves higher (i.e., as being more prone to risk) than respondents from Group 2. This finding confirms the hypothesis of H1a.

Hypothesis H1b states that debtors assess themselves as more open to risk than debt-free respondents in comparison to other people. The hypothesis was verified based on the analysis of answers to question q28\_11. Not unlike in the case of question Q28\_10, the Chi-Square test (Table 3) showed that the distribution of answers given by respondents from Group 1 differed significantly from the distribution of answers given by respondents from group 2 in Poland, Spain, and Italy, with this difference being absent for Romania. This implies that respondents rated themselves differently in most countries in terms of their openness to risk than others, depending on the group. The data from Table 5 also show that respondents from Group 1 rated themselves higher (i.e., as being more open to risk) than respondents from Group 2. This finding confirms the hypothesis of H1b.

H1c says that debtors are more likely than debt-free persons to choose a more risky investment option. The hypothesis was verified based on the analysis of answers to question Q27. The Chi-Square test showed that the distributions of answers between the different groups differed in Poland, Spain, and Italy. Since one wished to avoid the scenario in which the respondents' financial situation could affect their answers, they were asked to advise somebody else on investment. Thus, one can assume that the answers produced directly demonstrate whether a given person is prone to risk. In all the countries in question, the percentage of respondents choosing the more risky investment was higher in Group 1 than in Group 2 (Table 4), which means that the hypothesis H1c has been confirmed.

The hypothesis H1d says that debtors are less likely to take the amount borrowed as small as possible. The hypothesis was verified, drawing on the analysis of the answers to question Q28\_15. Once again, the Chi-Square test revealed significant differences in the distributions of answers for Poland, Spain, and Italy, showing no difference for Romania. In Spain, Italy, and Poland, respondents from Group 2, on average, tried harder to make the amount to be borrowed as small as possible (Table 5), while in Romania, it was respondents from Group 1 who tried to reduce the borrowed amount. Hence, it seems that setting some limits to the amounts borrowed occurs to a varying degree among the indebted and not indebted respondents; however, the differences between the two groups vary in signs.

Summing up the conclusions drawn while testing the hypotheses, it is possible to suggest that, based on the majority of the analyzed questions, persons who have ever faced problems in repaying the debt on time are on average characterized by a greater propensity to risk than persons who have never had such difficulty, regardless of the country they come from.

In the next step, an attempt was made at verifying the hypothesis H2, which states that the differences in the levels of risk aversion between indebted and not indebted individuals are not equal among the nationalities examined. Firstly, the results outlined earlier were analyzed again, with the focus this time being on the differences between the countries. For most of the questions, except question Q28\_15, the direction of inequality between the percentages or means in the two groups (even if the inequality was insignificant) was the same for all the countries.

Moreover, if one were to compare the differences between the groups (subtracting from one another, the percentages or means for the two groups coming from the same country), these differences took on different values. For example, in Poland, in question Q27 (Table 4), the percentage of respondents choosing the risky option was at 19% in Group 1 and 12% in Group 2 (the difference of 7 percentage points), while in Italy it was 30% and 15%, respectively (the difference of 15 percentage points). To estimate the existence of an interaction between the country where the survey was conducted and classification in Group 1 or 2, the factorial ANOVA with multinomial ordered distribution and logit link function was carried out for Questions Q28\_10, Q28\_11, and Q28\_15. Results showed that for questions Q28\_10 and Q28\_11, the interaction was not statistically significant (p-value was equal to 0,1572, 0,3578, respectively). Statistically, a significant interaction was observed in the case of question Q28\_15 (p-value 0.000004).

For the question for which answers were non-measurable (Q27), in order to estimate the interaction between the country where the survey was conducted and the group (1 or 2) in terms of this affecting the answers, the module of Statistica generalized linear models was employed, using the factorial ANOVA function with a binomial distribution and logit link function. These analyses showed that there was no interaction between these factors (p=0.1233).

The analysis of the interactions between the country where the survey was conducted, and the group of respondents (1 or 2) showed that the attitude to risk measured using question Q28\_15 differed between groups 1 and 2 to a varying degree depending on the country. However, there was no finding suggesting that in the different countries, the attitude towards risk evaluated by questions Q28\_10, Q28\_11, and Q27 would differentiate between indebted and not indebted respondents to a varying degree. This may be caused by the fact that question Q28\_15 refers, to some extent, to one's caution when making decisions, being also the question that asks about respondents' real actions. On the other hand, in the remainder of the questions, one's self-assessment of risk attitude (which is a

subjective assessment) was taken into account, or, as for question Q27, a hypothetical investment was considered. Given the mixed results, it is difficult to claim that the second hypothesis H2 has been confirmed.

#### 4. Extended Analysis of Narrower Samples

For Poland, Romania, and Spain, the questionnaires were more detailed and allowed for an extended analysis. Subjects were divided into three groups according to the answer to the question, “Please tell me if you had any debt (problems with repaying your obligations, late repayments) to any institution?”. Group IA consisted of subjects who answered: “Yes, I am currently in debt,” Group IB consisted of subjects who answered, “Yes, I was in debt in the past,” Group II was made up of respondents who answered, “No, I have never had any debt” (Group II was the same set as Group 2). Moreover, subjects whose level of overdue debt was lower than their monthly income (and also subjects who refused to answer or did not remember the number of overdue payments) were excluded from the Group IA and Group IB. This way, only answers to serious debtors were taken into consideration. All the information on the composition of the new samples is presented in Table 6.

**Table 6.** Sample composition for extended analysis

Sample composition	Country		
	Poland	Spain	Romania
Yes, I am currently in debt (Group IA)	140	85	54
Yes, I was in debt in the past (Group IB)	142	71	96
No, I’ve never had any debt (Group II)	600	605	600

*Source:* Own calculation based on survey results.

Again, the Chi-Square tests of independence were carried out to find whether the distributions of answers between the groups showed significant differences. The tests were carried out separately for each country, with the p-values for these tests included in Table 7.

**Table 7.** Chi-Square tests of independence results for questions Q27, Q28\_10, Q28\_11, Q28\_15

Question	Country		
	Poland	Spain	Romania
Q27	0.010119**	0.000968***	0.527587
Q28_10	0.020939**	0.104735	0.065425*
Q28_11	0.015742**	0.066469*	0.283953
Q28_15	0.127808	0.011975**	0.778788

*Source:* Authors’ results. \* indicates significance at 0.10 level, \*\* indicates significance at 0.05 level, \*\*\* indicates significance at 0.01 level.

Once more, the percentage of respondents providing a particular answer was calculated for question Q27, while for questions Q28\_10, Q28\_11, Q28\_15, the mean values of answers were calculated. The results are given in Tables 8 and 9.

**Table 8.** The mean scores of answers to questions Q28\_10, Q28\_11, Q28\_15 by country and group

Question	Country								
	Poland			Spain			Romania		
	Av. GIA	Av. GIB	Av. GII	Av. GIA	Av. GIB	Av. GII	Av. GIA	Av. GIB	Av. GII
Q28_10	2.71	2.42	2.37	2.85	2.65	2.60	3.13	2.69	2.68
Q28_11	2.61	2.39	2.25	2.93	2.87	2.69	3.11	2.94	2.82
Q28_15	4.12	3.96	3.99	3.19	3.37	3.75	4.02	4.05	3.94

Source: Authors' results.

**Table 9.** The percentage of answers with a given number for question Q27 by group and country

Answer	Country								
	Poland			Spain			Romania		
	% GIA	% GIB	% GII	% GIA	% GIB	% GII	% GIA	% GIB	% GII
1	21.429	16.901	12.000	28.235	19.718	13.223	18.519	16.667	13.833
2	78.571	83.099	88.000	71.765	80.282	86.777	81.481	83.333	86.167

Source: Authors' results.

In Poland and Spain, the distributions of answers were different between Groups IA, IB, and II in all except one question (Q28\_15 in Poland and Q28\_10 in Spain). Completely different results were obtained for Romania, where there was only a difference found in the Q28\_10 question. In general, for questions Q28\_10 and Q28\_11, one can see that subjects from Group IA consider themselves more risk-loving than subjects from Group IB, and subjects from Group IB see themselves as more risk-loving than subjects from Group II. For question Q28\_15, there is an irregularity in the direction of inequality in the researched countries. In order to verify whether the differences between groups IA, IB, and II for questions Q28\_10, Q28\_11, and Q28\_15 were significant (considering each country separately) Kruskal - Wallis ANOVA tests and Median tests were conducted (and if necessary post hoc tests executed as multiple comparisons of mean ranks for all groups).

In Poland, significant differences between medians were found for questions Q28\_10 and Q28\_11 ( $p < 0.02$ ); in particular, only the medians between Group IA and Group II differed significantly for both questions. In Spain, on the other hand, the only significant difference was found in the case of the Q28\_15 question ( $p < 0.001$ ), again just between Group IA and Group II ( $p = 0.003$ ). In Romania, significant differences between medians were observed for questions Q28\_10 and Q28\_11 ( $p < 0.02$ ); however, post hoc tests showed only one significant difference for question Q28\_10 again between Group IA and Group II ( $p = 0.01594$ ). The results obtained show the tendency observed in the previous analysis performed on the entire sample when broken down into debtors and non-debtors. On the other hand, they strongly indicate that the difference between groups 1 and 2 is greater due to the differences between people who currently have problems with repayment of debt

and people who have never had such a problem. This may be because people who left their debts unpaid either learned from their mistakes or their attitude to risk results from their current situation.

In question Q27, the distributions of answers once again differed between groups in Poland and Spain. In each country, Group IA people were choosing the risky option more often than people from Group IB, and those were choosing the risky option more often than people from Group II. However, significant differences were only observed between Group II and Groups IA and IB in Poland and Spain ( $p < 0.1$ ).

For analyzing the interactions between country and group again, appropriate factorial ANOVA tests were conducted. The results are the same as in the case of the broader sample. For questions Q28\_10, Q28\_11, and Q27, there is no interaction between those two factors, and there appears to exist such interaction for question Q28\_15.

## **5. Conclusions**

Drawing on the data produced by the surveys conducted by Kruk S.A. in Poland, Italy, Romania, and Spain, an analysis was carried out to answer the following question: what is the attitude to the risk of people who have ever had debt and those who have never been indebted. The paper covers the gap in knowledge of how risk attitude is related to the possibility of having debt arrears. If it would be possible to state clearly that increased risk-loving behavior implicates a higher chance of having debt arrears risk attitude, measuring tools could be used while granting loans.

At the start, two research hypotheses were put forward. Hypothesis H1 assumed that people who had never been indebted were characterized by greater aversion to risk than those who had ever had difficulty repaying their financial obligations promptly. Hypothesis H2 stated that the way people differed in their attitudes to risk depended on the country under study; in other words, an interaction existed between belonging to a particular group and the country of origin in terms of the influence on one's attitude to risk. In the preceding sentence, the word "influence" was used.

However, it needs to be stressed that under no circumstances did the authors intend to explore whether one's risk attitude had an impact on whether or not an individual would become indebted, as the objective was merely to examine whether the attitude to risk was what differentiated between the indebted and debt-free persons. As the research shows (Rohrmann 2008), the attitude towards risk is not a constant for a particular individual and may change depending on time and circumstances. The fact itself that somebody is indebted can affect his more risky decision-making. Still, most of the studies suggest that people evincing a higher propensity to risk are more prone to incur financial obligations, and thus they are more likely to fall into debt arrears (e.g., Mendonça and Vieira 2014, Brown *et al.* 2013).

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The hypothesis H1 has been confirmed is that the indebted see themselves as people who are more inclined to take a risk, being also more likely to make a risky investment than the not-indebted. No clear answer was elicited for the question of whether respondents sought to borrow as small as the possible amount. The answers were strongly differentiated depending on the country where the survey had been conducted.

Based on the factorial ANOVA, the conclusion made was that for questions Q28\_10, Q28\_11 and Q27, there is no relationship between how belonging to the particular group affected one's attitude to risk and the country of the survey. For question Q28\_15, it was shown that there was an interaction between the country of the survey and the fact of belonging to the group in terms of how this affected one's attitude to risk. This implies that being assigned to a particular group on the attitude towards risk (measured by these questions) depends on how the survey was conducted. The authors are, therefore, unable to clearly state whether hypothesis H2 should be accepted or rejected.

Following the extended analysis of the narrower sample (after dividing the sample into three groups and excluding less serious debtors), a conclusion was drawn that present and past debtors are not the same in terms of risk attitude, and sometimes even past debtors resemble more non-debtors in risky behavior. This smaller difference between Groups IB and II might be caused by the change in attitudes on account of past experiences of subjects from Group IB, or, as it was mentioned before, the difference between Groups IA and IB can be caused by the different circumstances in which subjects are, with this difference, however, not observable between Group IB and Group II.

A limitation to interpreting the differences between the countries is the language, as the translation into local languages might have caused semantic differences, not noticeable to the researchers. We also realize that some differences between countries may exist owing to the diversity of laws in these countries. Another limitation is linked to the methodology of the study. In the survey, subjects only reported what their thoughts or actions were. Studies show, however, that despite hypothetical bias, questionnaire results are a good predictor of field behavior (Botelho and Pinto, 2002; Dohmen *et al.*, 2005).

What appears interesting is how the propensity to risk changes in incurring financial obligations leads to falling into arrears. To do that, a longitudinal study of subjects who have just incurred debt should be conducted. This would also allow one to verify whether it is a risk attitude that affects the propensity to fall into arrears or whether it is the situation of being in arrears that affect risk attitude. This issue will form the subject of subsequent future studies.

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