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ANALYZING THE EFFECTS OF FINANCIAL EDUCATION ON FINANCIAL LITERACY AND FINANCIAL BEHAVIOUR: A RANDOMIZED FIELD EXPERIMENT IN CROATIA

Jasena Torma, Dajana Barbić, Marijana Ivanov

Abstract

In this paper, we examined the financial attitude and financial behavior of students and determined their level of financial literacy through a survey. We found that female students report less interest in finance, have less confidence in their financial abilities, and have a lower financial literacy score than male students. On average, we can conclude that students have a low level of financial literacy. In this study we found factors that influence financial literacy which are age, student's GPA, whether they already took some form of personal finance course, a proxy for numeracy, and place of birth in terms of a capital city. Furthermore, based on controlled experimental field research, we conducted financial training, and investigated causal evidence of the effectiveness of financial education. A training intervention to increase financial literacy was effective and improved financial attitude but increasing financial literacy through means of education was insufficient for making better financial decisions since students did not report a lower frequency of impulsive buying or a higher hypothetical savings rate. We found no evidence that female students were affected by this training any differently than male students.

Keywords: *Behavioral Finance, Field Experiment, Financial Literacy, Analysis of Education, Personal Finance, Croatia.*

JEL code: *C93, D14, G40, G53, I21, 052.*

Jasena Torma, PhD Candidate
(corresponding author)
University of Rijeka, Faculty of Economics and Business
Ivana Filipovića 4, 51 000 Rijeka, Croatia
E-mail: jtormaefri.hr
ORCID: 0000-0003-4679-1453

Dajana Barbić, PhD
Associate Professor
University of Zagreb, Faculty of Economics and Business
J.F.Kennedy 6 10000 Zagreb, Croatia
E-mail: dbarbic@efzg.hr
ORCID: 0000-0003-2580-0269

Marijana Ivanov, PhD
Full Professor
University of Zagreb, Faculty of Economics and Business
J.F.Kennedy 6 10000 Zagreb, Croatia
E-mail: mivanov@efzg.hr
ORCID: 0000-0002-2631-6586

1. Introduction

In the last decade, financial education has become much more important due to innovations, globalization, and the expansion of available financial products and services. Technological and technical development, new channels of distribution, and processes of financial integration have expanded the range of offered financial products and services as well as the ways they are made available to the final consumers. In the context of the increasing complexity and the availability of a large basket full of a broad range of financial products and services, the chore of managing money has become

even more difficult, particularly for the young. Surveys conducted in many countries have found that a significant proportion of consumers fail basic financial literacy tests (Lusardi and Mitchell 2008), with financial literacy being particularly low among young adults (Garg and Singh 2018; OECD 2020). Lusardi et al. (2010) found that two-thirds of young adults have inadequate knowledge about interest rates, inflation, and risk diversification. This makes their current, but also future capacity to make optimal decisions about savings and investments questionable, as well as their understanding of the fundamental economic relations, such as the real value of money and financial risks. Similarly, OECD/INFE (2020) research concluded that financial consumers have a low level of financial literacy and a significant deficit of knowledge, especially in terms of savings and pensions (Nieri 2007; Austin and Arnott-Hill 2014). Garg and Singh (2018) found that *„financial literacy level among the youth is low across the most part of the world"*.

The literature documents robust evidence on the influence of various socio-demographic, environmental, economic factors, and psychological variables on the level of acquired financial literacy such as age, gender, level of income, experience, etc. Strough et al. (2019) suggest that age and previous experience may be important factors affecting both financial literacy and financial behavior. They claim that older people have accumulated more knowledge about the importance of maximizing the present value of funds through their life experiences and therefore have higher levels of financial literacy and better money management skills.

The findings of other relevant studies point to a gender gap in financial literacy in favor of men, meaning that women in general show lower levels of financial literacy than men (OECD 2013; Bucher-Koenen et al. 2016; Mahdavi and Horton 2014). According to Bernheim (1998), males outperform females on both financial and macroeconomic concerns. Risk-taking and confidence have been connected to gender variations in financial literacy (Chen and Volpe 2002) where women were more risk-averse than men (Bajtesmit and Bernasek 1996; Powell and Ansic 1997). Specifically, Chen and Volpe (2002) found that female college students are less confident and enthusiastic about financial themes in the context of financial knowledge. According to Webster and Ellis (1996), even among financial experts, women have lower self-confidence in financial evaluations than males. Male and female variations in financial issues such as attitude, knowledge, and overall behavior are attributable to different financial socialization during childhood, according to a gender viewpoint (Lim et al. 2003). For example, in most societies, boys have grown up expecting to be the family earner, whilst girls have grown up expecting to be the carer (Wilhelm et al. 1993). As a result, gender role expectations vary, resulting in distinct financial socialization tactics for boys and girls, as well as different levels of financial awareness among them (Falahati and Paim 2011).

Environmental factors such as parents' educational levels, and financial education sources can all have an impact on a person's ability to learn, and thus the amount of knowledge and financial literacy they acquire. According to Mandell (2008), children of college graduates perform better on numeracy tests. Dahlia et al. (2009) found that the level of financial knowledge varies depending on the mother's educational degree.

Some studies have shown that financial education has a strong and positive impact on the financial knowledge and skills of individuals included in the program thus affecting the level of individuals' financial literacy (Danes et al. 1999; Mandell and Klein 2007; Gale and Levine 2010; Borden et al. 2008; Walstad et al. 2010; Batty et al. 2015; Kalwij et al. 2019). Financial education may be obtained in different forms; formal, and non-formal; with a very wide range of possible instruments; from institutionalized education in classrooms, the Internet, educational games, scientific and expert books, to newspapers, TV, mobile apps, and personal experiences. Educational programs may vary in terms of their content, and target population. These factors in the end significantly affect the level of acquired knowledge and skills of those included in the program. Financial education's ultimate purpose is to empower and encourage people to acquire new knowledge and skills and ultimately modify their financial behaviors, such as making well-informed financial decisions. The effectiveness of financial education should be examined in the context of improving financial literacy (financial knowledge and skills) and more importantly, in the context of improving financial behavior. According to (Johnson and Sheradden 2007), the main goal of financial education is to develop financial literacy and to help the young in making sound financial decisions. (Lučić et al. 2020) research studies the effectiveness of financial education programs. They reported that financial interventions based on systematized financial literacy literature contribute to the level of acquired financial knowledge among the youth. Other studies investigated the effectiveness of financial education on financial behavior. Boyce et al. (1998) confirmed the existence of a positive relationship between attending a seminar in the field of personal finance and the tendency

to save. Hilgert et al. (2003) and Sayingoza et al. (2016) provided some evidence of a relationship between financial knowledge and better financial practices. They concluded that greater knowledge of credit, saving, and investment practices is correlated with the corresponding index score behaviors. Lusardi et al. (2020) found that financial knowledge can help limit debt in retirement. Similarly, according to Brown et al. (2014), young people who participated in financial education programs had higher relative credit scores than those who did not. Less impulsive purchases were identified by Lührmann et al. (2015) as a beneficial effect of a financial education program.

On the other hand, some authors disagree with this thesis and have concluded that the effectiveness of financial education is very questionable (see for example Mandell 2008). The findings of two meta-analyses that focused solely on financial education efforts reveal that financial education has little impact on financial behavior (Fernandes et al. 2014, Miller et al. 2014). Drexler et al. (2014) examined the effect of two different financial programs to assess the impact of financial education. One group of respondents participated in a standardized training program based on economic and accounting principles, while the other group took part in a much simpler program that was focused on the use of the rule of thumb. The authors found that participants with lower skills or poor initial practices benefited significantly more from the simplified training program. In addition, they found no evidence of a statistically significant effect of financial education on improving financial behavior. Moreover, Gale and Levine (2010) found no evidence of a positive effect of financial education on improving financial literacy levels, even when traditional education methods are used. So far, there is no consensus in the existing literature regarding the effectiveness of financial education which uses rigorous evidence (Batty et al. 2015). However, one of the most recent and comprehensive studies investigating the effectiveness of financial literacy education programs conducted by Amagir et al. (2018), found some interesting conclusions. They included 60 articles in the study and examined programs in elementary and secondary schools as well as colleges. Their research found that most college financial education programs consist of stand-alone sessions such as short courses, seminars, or presentations. They concluded that financial education programs may improve the financial knowledge and attitudes of the youth. They reported that financial education programs in college, in particular, showed positive effects on students' understanding of concepts as well as their intentions to use credit cards responsibly, budget more effectively, and make fewer compulsive spending decisions, as well as developing more positive attitudes in these areas. According to their findings, the retention outcomes were tiny, and the research only examined short-term effects. Positive effects were also reported in studies that assessed intention to practice good behavior and in studies based on self-reported behaviors. They concluded that the evidence indicated that financial education programs in colleges could help close the gender gap. Furthermore, Amagir et al. (2018) emphasized that drawing inferences about the evaluated actual behavior of college students should be done with caution, because most of the studies rely solely on self-reported data concerning purpose and attitudes to engage in successful financial behavior, and they mainly used small non-randomized groups with no control groups.

In our study, we conducted controlled experimental field research with a training program for students in the field of financial literacy in Croatia. The purpose of this paper is three-fold; (1) to determine the level of financial literacy and financial habits of students; (2) to investigate the effectiveness of financial education based on experimental field research; (3) to provide recommendations for the educational policymakers regarding the future development of financial education programs intended for students, based on evidence-based policies and programs (Gertler 2016). Experimental studies in the field of financial literacy are relatively scarce even though they are the best measures of the effectiveness of financial literacy programs. Also, there is no consensus regarding the effectiveness of financial education in terms of responsible financial behavior. Understanding how financial literacy and capability are created is crucial for the creation of financially responsible citizens. To the best of our knowledge, this paper is the first experimental study in the field of financial literacy conducted in Croatia on a sample of students. Becchetti et al. (2013) and Lührmann et al. (2015) studies are the most similar to our field experiment, but they measured the effect of financial literacy training on the investment attitudes of high school students. In our research, participants in the financial training were students from the University of Zagreb. Brugiavini et al. (2015) and Barua et al. (2017) are two papers that use university students in a randomized treatment setting. Students as a subjective pool were chosen for the following reasons. First of all, unless current students had attended a vocational school that specialized in economics, none of the students ever received any instructions about personal finance during their secondary education. Secondly, the financial training program, as well

as the survey questions (pre and post-survey were the same) were specially structured for students because there is evidence that financial training programs which are the same for all groups (depending on age and occupation) do not suit everyone (Lusardi and Mitchell 2008). Thirdly, most Croatian university students have little exposure to most financial services. In other words, they are supported by their parents from their earnings (pocket money). Despite all of that, students make choices about mobile phone contracts, debit card use, food, and clothing purchases, so providing them with financial training can have a significant impact on their financial behavior. Finally, university students are a homogeneous group according to certain relevant factors, such as their year of birth, self-selection to attend a university program, and so on.

Jappelli (2010) examined economic literacy by using international data on 55 countries. Research showed that economic literacy varies substantially across countries: from the lowest scores in some Latin American and former socialist countries to very high scores in the Scandinavian countries and East Asia. Croatia was placed at the very bottom, taking the 51st place. Similarly, the OECD-PISA survey in 2013 (which included questions to measure financial literacy for the first time showed that Croatian high-school 15-year-old students were placed at the bottom, taking the 14th place out of 18 countries in the sample (OECD, 2014). Another wave of PISA in 2018 showed that Croatian high schools took 36th place out of 77 countries in science literacy, 29th place in reading literacy, and 40th in mathematics (PISA, 2018).

Lučić et al. (2020) emphasized that a comprehensive financial literacy campaign has never been conducted in Croatia. This means that there were no previous policy interventions aimed at increasing financial literacy - except published brochures and occasional public lectures by institutions like the Faculty of Economics and Business Zagreb, Croatian National Bank (CNB), Croatian Financial Services Supervisory Agency (HANFA), Association of Croatian Pension Funds Management Companies and Pension Insurance Companies (UMFO), Croatian Banking Union (HUB), some non-profit organizations, etc. The first institutional measuring of financial literacy in Croatia was conducted by the Croatian National Bank (CNB 2016); although several scientific types of research on financial literacy in Croatia were conducted earlier. Cvrlje et al. (2015) investigated the relationship between financial education and financial behavior and concluded that higher financial education is related to better investment behavior. Vehovec et al. (2015) analyzed regional differences in financial literacy among Croatian citizens concluding that socioeconomic variables significantly defined the financially literate population. Vukava et al. (2017) and Pavković et al. (2018) examined ned financial literacy of university students in Croatia. Pavković et al. (2018) concluded that students who have taken some financial education had higher levels of financial literacy. One of the most important studies of the financial literacy of the student population in Croatia was conducted by the Catholic University of Croatia in 2019. It included 7 Croatian universities and 1.700 students. The findings of this research showed that more than 70% of students stated that they were „rarely "or „almost never "informed about finances and two-thirds of the respondents stated they are unfamiliar with the concept of financial literacy. The survey showed that the level of financial literacy among the student population in Croatia is moderately low, where the lowest level of financial knowledge is reported on investments and credits (Catholic University of Croatia 2019).

In this study, we determined the level of financial literacy and examined the financial habits of Croatian students using a survey. Next, we examined which socio-economic factors influence financial literacy. Further, using a randomized field experiment we conducted a financial training where we investigated casual evidence of the effectiveness of financial education.

The remainder of this study is structured as follows. In the next section, we briefly explain the experimental design. Then, in section 3 we present the methodology. Results are discussed in section 4. The last section is the conclusion.

2. Experimental design

This section gives experimental design details and a test-based measure of financial literacy. We also describe and summarize variables that we obtained from the survey. Next, we provided a test of random assignment to the treatment group where we showed the treatment and control groups consisted of similar groups of students at the baseline.

2.1. Survey Construction and Financial Literacy Intervention

We conducted a randomized field experiment in the spring/summer semesters of 2016 and 2017 which was organized by the Faculty of Economics and Business, University of Zagreb. Students from the University of Zagreb were invited to participate in the

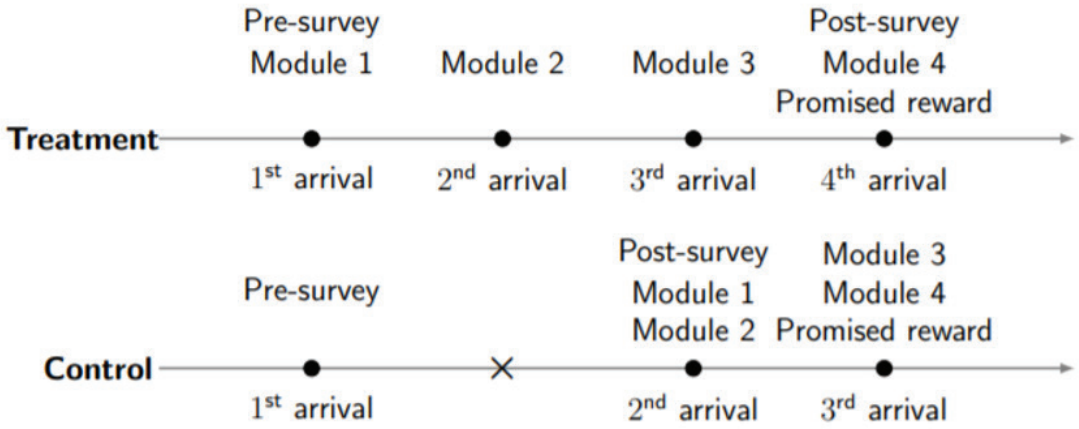
field experiment, meaning that all of them had the same motivation to participate. In our social media invitation, we included a detailed description of our research and stated that for a scientific purpose, we needed students who were willing to participate four times every other week. As a reward, we offered them four financial training lectures, two cinema tickets, and a certificate of completion.

Before students came into the classroom, we gave them a closed envelope so that we could randomly divide them into two groups. Those who got an envelope with number 1 were asked to stay in the classroom, and those who got number 2 in the envelope were asked to switch to another classroom. Students with number 1 were chosen as the treatment group, meaning that we measured the effect of the financial training, while students with number 2 were chosen to be the control group. At any moment, none of the students knew that they were in the treatment or the control group. Students from both groups received the same baseline survey to fill out. The survey was completely anonymous and no one was allowed to access other sources of information, for example, colleagues, books or to use a mobile phone. Each respondent got a unique key identifier so that we were able to match their answers from the beginning of the experiment and with later results.

This survey was constructed for this experiment, taking into account the characteristics of Croatian society. The survey included questions that measured the socio-economic status of the students but also contained questions on how students spent their hypothetical budget. The financial literacy test included ten questions and each correct answer was graded with one point. All questions were multiple choice questions (four possible answers given), except for the last question. The first three questions were standardized questions borrowed from Lussardi and Mitchell 2008 survey so that we could compare results internationally. The first two questions, which we refer to as Interest Rate and Inflation, helped us evaluate whether students had the basic knowledge of fundamental economic concepts and basic numeracy. The third question, which we refer to as Risk Diversification, evaluated students' knowledge of risk diversification. To supplement the findings from these three questions, we added more sophisticated concepts that we examined. The fourth question we refer to as Capital Market, where students were asked to name the most significant stock market indices on the Zagreb Stock Exchange. This question evaluated whether students had a basic knowledge of the stock market. The fifth question and the seventh question we refer to as Currency Exchange Risk, since we asked students to rank the risk of an average Croatian debtor in relation to different currencies, such as the Croatian kuna, American dollar, Swiss franc, and euro. With these two questions, we evaluated whether students differentiated foreign exchange market risks. The sixth question we refer to as Advanced Knowledge of Inflation, since we searched in specific circumstances, where participants were at least exposed to the risk of inflation. The eighth question we refer to as Consumer's Banking Rights because we checked whether they knew the role of the Croatian Deposit Insurance Agency. The ninth question was Credit Cards Knowledge, which was used to check whether they knew which banking cards were categorized as credit cards. The tenth question consisted of a table that represented an imaginary currency exchange list.

After completing the baseline survey, students from the training group received the first lecture, which we called Module 1. Treatment groups were small; between 35 and 45 students per class, and each module was organized approximately two weeks apart. Students from the control group did not receive any lectures in the first week. We apologized to them that due to technical reasons, we were not able to deliver a lecture and that next time we would cover both Module 1 and Module 2 on the same day. We illustrated the phases of our experimental design in Figure 1.

Figure 1. Phases of the experimental design



As evident in Figure 1, in the control group, surveys were conducted with approximately the same frequency. The total number of students who took the survey is illustrated in more detail in Table 1.

Over approximately the next six weeks, we held the two next modules (Module 2 and Module 3) for the same group of students. After approximately two months, students completed the follow-up survey (the same as the baseline survey) and were provided with Module 4. There are two reasons why the follow-up survey took place after approximately two months from training; (1) for students who were in the treatment group to have enough time to go over lectures and materials from the financial training and (2) so individuals from the baseline survey, after the survey was conducted, could not memorize the correct answers by discussing them with peers i.e., to avoid the survey effect. The financial literacy training modules (called FLiP or Financial Literacy in practice) were organized four times for 90 minutes. Each researcher was a lecturer at one of the modules so that we could control consistency and the quality of teaching in terms of content coverage and financial education. It included four modules, which were specially designed for this field experiment.

We measured the joint impact of financial training after exposure to the first three modules that were provided to the treatment group. Before the start of the fourth module, we gave students the follow-up survey.

In Table 2 we describe the outcome and control variables that we used in this research. The first set of dependent variables included financial interest, self-assessed financial knowledge, and the number of financial literacy questions that students answered correctly. The next set of dependent variables includes whether students saved (Y/N answer) and saving amount, saving motives (possible answers were: to buy something, for emergencies, for future), and a question are they in debt. The final dependent variable was whether students were impulsive buyers. Lührmann et al. (2015) use the same set of variables to measure students' financial behavior.

Table 1. Sample size by group and time period

	Treatment	Control	
Before training period ("pre")	266	234	500
After training period ("post")	217	173	390
Total			890

Source: Author's calculation

Table 2. Description of the variables

Outcome variable	**Description**
financial interest	I am . . . interested in finance. Answers are given on the Likert scale (1 = not at all, 5 = very much).
self-assessed financial knowledge	I know about money and finances. Answers are given on the Likert scale (1 = not at all, 5 = very much)
financial literacy (FL)	Measured by ten multiple-choice questions that assessed financial knowledge
savings	Do you save money? Y/N Dummy, =1 if "yes", =0 if "no"
saving motives	Why do you save? To buy something & Dummy, =1 if "to buy something", =0 otherwise For emergencies & Dummy, =1 if "for emergencies", =0 otherwise For future & Dummy, =1 if "for the future", =0 otherwise
debt	Are you in debt? Y/N Dummy, =1 if "yes", =0 if "no"
buyer type (impulsive buyer)	I am an impulsive buyer. Answers given on the Likert scale (1 = strongly disagree, 5 = strongly agree)
hypothetical savings	% saved in hypothetical savings tasks
Control variables	**Description**
pocket money	Amount of pocket money, monthly average
female	Dummy, = 1 if "female", =0 "male"
low math grade	Dummy, =1 if "if average mathematics grade in high school is 2 or 3"
	=0 if grade is 4 or 5 (the worst passing grade is 2)
GPA	Student's current GPA during his/her studies
age	student's age
personal finance course	Dummy, =1 if "student took any financial education class", =0 otherwise
capital city	Dummy, =1 if "student was born in Zagreb", =0 otherwise
financial responsibility	Dummy, =1 if "student is in charge of household finance, =0 otherwise
household size	numbers of household members
faculty	faculty type for each student
treatment	Dummy, = 1 if "student is randomly selected in the treatment group", =0 otherwise
high school (general)	Dummy, = 1 if student went to high school (general specialization), = 0 otherwise
vocational school	Dummy, = 1 if student went to vocational school (only economics specialization), =0 otherwise
educated mother	Dummy, = 1 if "student's mother has a college/university degree", = 0 otherwise
educated father	Dummy, = 1 if "student's father has a college/university degree", = 0 otherwise

2.2. Students' characteristics and balance check

As a part of our experiment, in the baseline survey, we received 500 students' responses from our survey. In Table 3 we report that on average financial interest is high; the average is 3.7 out of 5. When it comes to self-assessment of financial knowledge/level of confidence in their financial abilities, students report low enthusiasm - on average 2.7 out of 5. Next, we constructed a test-based measure of financial literacy. Students were given ten multiple-choice questions and on average they responded with 5 correct answers. Regarding their saving activity, 44% of students report that they save and 14% of them are indebted. About impulsive buying (i.e., buyer type variable), students report 2.9 out of 5, where 4 or 5 means that they never impulsively buy something. Next, in Table 3 we report that 72% of students before enrolling at the University of Zagreb completed a high school and 16% of them completed a vocational school specializing in economics. 14% of students report that they are in charge of household finance (i.e., financial responsibility variable). Next, we show results from a simple balance test on a range of observable variables. The treatment and the control group are balanced for the full set of observables except for the variable age and GPA. This led us to include those two variables in every model as the control variable in order to minimize these unbalanced characteristics.

Table 3. Background characteristics and balance test – mean and differences between groups from baseline survey, selected variables

Variables	Treatment (1)	Control (2)	Difference (3)	p-value (4)	N
Financial Interest	3.68	3.79	-0.11	0.21	500
Self-assessed financial knowledge	2.72	2.79	0.06	0.33	500
Financial literacy score	4.93	5.15	0.22	0.18	500
Savings	0.42	0.46	0.03	0.41	500
Savings amount	221.05	292.20	71.15	0.20	477
Saving motive: to buy something	0.30	0.25	0.05	0.25	499
Saving motive: for emergencies	0.43	0.37	0.06	0.11	499
Saving motive: for future	0.30	0.29	0.01	0.86	499
Debt	0.13	0.13	0.00	0.83	500
Buyer type	2.97	2.86	-0.11	0.23	500
Pocket money	747.18	730.97	-16.21	0.83	482
Gender	0.66	0.62	-0.05	0.25	500
Age	23.04	22.56	-0.48	0.013**	500
Personal Finance	0.13	0.13	0.00	0.86	500
Financial responsibility	0.14	0.17	0.03	0.26	500
Low math grade	0.37	0.42	0.04	0.24	500
Born in the capital city	0.55	0.62	0.07	0.13	500
High school (general specialization)	0.72	0.72	0.00	0.84	500
Vocational school (economics specialization)	0.17	0.15	0.02	0.64	500
GPA	3.66	3.53	-0.13	0.029**	500
Household size	4.17	4.13	-0.03	0.77	500

Source: Author's calculation

Note: In this table, we report on the test of random assignment to the treatment group before any financial training. Columns (1) and (2) report means for 17 dependent and independent variables for the treatment and the control group, respectively. The test for the difference between the means of the treatment group and the control group is given by the p-value in column (4). In parentheses, we report standard deviation. ***p<0.01, **p<0.05, *p<0.1.

3. Empirical methodology

We start with the analysis of the determinants of financial interest, self-assessed financial knowledge, and measured financial literacy in the baseline survey, i.e., before any training took place. Using the OLS estimator we performed the following econometric specification:

$$y_i = \alpha + \sum_k \beta_k z_{ki} + \sum_j \beta_j x_{ji} + \gamma T_i + \epsilon_i \qquad (1)$$

where outcome y of student i in the baseline survey depends on a set of k individual characteristics z, and on a set of j faculty characteristics x. We also include a dummy for the treatment T_i to control for possible differences between the treatment and the control group in the baseline survey. We controlled for the following individual characteristics z: gender, log of household size, a dummy whether the student's mother has a college/university degree, a dummy whether the student's father has a college/university degree, a dummy whether the student was born in the capital city, a dummy for a low mathematics grade during their high school education (numeracy) and the student's age. With dummy variables, we also controlled if students stated in the survey that they had attended any kind of personal finance education, and also a dummy variable if they claimed that they were financially responsible.

Using the same equation (1) and the same econometric model we have estimated using the different outcome variables (dummy variable for savings, saving amount, different saving motives, debt, and buyer type) whether there is a systematic difference in financial behavior among students.

Further, to quantitatively measure the effects of financial literacy training, we estimated our model with a classical difference-in-difference (DiD) estimator, comparing the change in outcomes between the baseline and follow-up survey across the control and the treatment group. We controlled for individual, faculty, and student characteristics. Specifically, we estimated the following model:

$$y_{it} = \alpha + \beta_1[\text{Post}_t] + \beta_2 T_i + \beta_3[\text{Post}_t]T_i + \sum_k \beta_k z_{kit} + \sum_j \beta_j x_{jit} + \epsilon_{it} \qquad (2)$$

where outcome y depended on individual characteristics z, faculty characteristics x, as in section equation (1), and the exposure to the financial literacy training T. The post is a dummy which takes the value zero for the baseline survey and 1 for the follow-up.

The validity of these DiD estimates hinges on reliable measurement of the control group's behavior and exposure to the treatment and the control groups. Since we observed small differences in the individual characteristics of students before the baseline survey, we also estimated the change in outcomes within the treatment group but added fixed effects to filter out any faculty-level heterogeneity. We clustered standard errors at the faculty level in all estimated specifications.

4. Results

4.1. Determinants of financial interest, self-assessed financial knowledge, and measured financial literacy

When it comes to financial interest, we found evidence that female students were different from male students (column 1 in Table 4). After controlling for numerous characteristics, female students' financial interest was about 10% lower than male students. This gender bias decreased when students were asked to assess their financial knowledge (column 2 in Table 4) where female students reported about 7% lower self-assessed financial knowledge than male students. These results correspond to (Barber and Odean 2013) where authors found that in the finance area, men are more overconfident than women. When we asked students about their financial interest and financial knowledge, we expected that on average those who finished a vocational school with an economics specialization would show higher financial interest and self-assessed financial knowledge, but these results show that school background (the type of school) is surprisingly irrelevant. Next, we examined whether performance on the financial literacy test tells us if gender difference is present and which factors define financial literacy. Our survey reports that female students performed much worse on financial literacy tests than male students (Column 3 in Table 4). Female students' financial literacy is about 21% lower than that of male students. This difference has been confirmed in many studies around the world (Lusardi and Mitchell 2008). Also, what we found is that a low mathematics grade from high school which we used as a proxy for mathematics literacy and numeracy, was one of the essential components explaining the level of financial literacy. Having a low mathematics grade is found to be linked with a lower financial literacy

level (de Bassa Scheresberg 2013; Japelli and Padula 2013; Sole 2014). Lusardi (2012) also found that numeracy affects financial decisions. Older students and those students who had previously undergone training in personal finance had better scores on the financial literacy test, as well as those whose GPA was higher. Family background measured as a dummy variable for both an educated mother and an educated father did not significantly affect in determining the level of financial literacy, as well as the number of household members. Surprisingly, those students who are in charge of their household finances (measured as a proxy for financial responsibility) do not report better results on financial literacy tests.

Table 4. Financial interest, self-assessed financial knowledge, and measured FL, baseline survey

	Financial Interest	Self-assessed knowledge	Measured Financial Literacy
	(1)	(2)	(3)
Female	-0.27** (-2.63)	-0.26*** (3.65)	-0.91*** (-4.28)
Low math grade	-0.08 (-1.09)	-0.17** (-2.21)	-0.33** (-2.08)
GPA	0.14** (2.07)	-0.00 (-0.07)	0.27** (2.14)
Age	-0.00 (-0.00)	0.04** (2.41)	0.15*** (3.59)
Personal Finance	0.15 (1.02)	0.32*** (3.51)	0.64** (2.11)
Capital city	-0.11 (-1.05)	-0.00 (-0.19)	-0.39** (-2.62)
Financial responsibility	0.26** (2.08)	0.27*** (3.40)	0.03 (0.09)
High school (general)	-0.00 (-0.01)	-0.05 (-0.43)	-0.21 (-0.61)
Vocational school (economics specialization)	0.00 (0.02)	0.18 (0.98)	0.08 (0.27)
Educated mother	0.04 (0.52)	-0.05 (-0.63)	0.22 (1.39)
Educated father	-0.01 (-0.23)	-0.01 (-0.02)	-0.01 (-0.09)
Household size	0.20 (1.29)	0.22** (2.40)	0.19 (0.99)
Treatment	0.09 (0.83)	(-0.09) (-1.08)	-0.34* (-1.81)
N	500	500	500
R-squared	0.20	0.26	0.24

Source: Author's calculation

Note: We used individual controls for gender, low mathematics grade, GPA, college/university-educated mother, college/university-educated father, log of household size, born in the capital city, age, personal finance, financial responsibility, a dummy variable whether the student attended general high school or a vocational school with economics specialization and for each faculty type fixed effects (FE). OLS Standard errors are clustered at the faculty level. T-statistics in parentheses and ***p<0.01, **p<0.05, *p<0.1.

4.2. Determinants of financial behavior

We also wanted to test whether less financial interest by female students and their lower performance on the financial literacy test translates into systematic differences in financial behavior. Table 5 shows that there is no significant difference in saving activity between them (column 1) and most savings motives (column 3, 4 and 5) or in terms of indebtness (column 6). Female students purchased items more impulsively than male students; i.e., 7% more frequently (column 7). It is interesting to note when students' decisions to save are controlled for their pocket money, results show that it is irrelevant. This is contrary to many researches that found a positive link between saving and income (Céline 2019).

4.3. The effects of financial training on financial literacy

The effects of the financial literacy training on students' financial literacy questions, as compared to before and after the training, show an improvement in financial literacy in all ten questions. These survey questions were tailored to the financial training content but required some ability to transfer the training content into correct multiple-choice answers. Students both in the treatment and the control group after the baseline survey increased the number of correct answers, but the impact was much stronger for the treatment group. Kaiser et al. (2021) using a meta-analysis of randomized experiments also confirmed that financial education on average has a positive causal treatment effect on financial knowledge.

Table 5. Multiple financial behaviors: savings, saving motives, debt and impulsive buying, baseline survey

	Savings		Saving motives			Debt	Buyer type
	Y/N	savings	To buy something	For emergencies	For future	debt	Impulsive buyer
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
pocket money	0.00**	0.03	-0.00**	0.00	-0.00**	-0.00**	0.00
	(2.61)	(0.63)	(-2.13)	(0.42)	(-0.12)	(-2.58)	(084)
female	-0.05	-127.14*	-0.03	0.50	-0.05	-0.03	0.48***
	(-0.92)	(-1.96)	(-0.67)	(0.96)	(-0.92)	(-0.80)	(6.49)
personal finance	0.14	-83.91*	-0.15*	0.41	0.14	-0.04	0.25
	(0.25)	(2.06)	(-1.87)	(0.75)	(0.25)	(-0.88)	(1.98)
financial responsibility	0.13**	151.89**	-0.10	0.39	0.13**	0.05	-0.05
	(2.29)	(2.26)	(-1.63)	(0.48)	(2.29)	(0.73)	(-0.39)
treatment	-0.04	-80.93	-0.06	0.94**	-0.04	-0.00	0.08
	(-0.94)	(-1.05)	(-1.11)	(2.60)	(-0.94)	(-0.06)	(0.86)
N	482	466	481	481	481	482	482
R-squared	0.14	0.17	0.10	0.12	0.13	0.10	0.14

Source: Author's calculation

Note: We used individual controls for pocket money, gender, low mathematics grade, GPA, college/university-educated mother, college/university-educated father, log of household size, born in the capital city, age, personal finance, financial responsibility, a dummy variable whether the student attended general high school or a vocational school with economics specialization and for each faculty type fixed effects (FE). OLS Standard errors are clustered at the faculty level. T-statistics in parentheses and ***p<0.01, **p<0.05, *p<0.1.

The effects of financial training on students' financial literacy are reported in Table 6. Columns show the estimation results of the DiD using faculty fixed effects for the full sample and as a robust check for the sample without attrition (Hausmann and Wise 1979; Fitzgerald 1998). When we conditioned on individual and faculty characteristics, such as gender, numeracy, and socio-economic status, the strong effect of training was present. Based on empirical evidence, the point estimate from difference-in-difference estimates is 1.9 (column 1) or 2.1 (column 2). Overall, this corresponds to approximately a 25% increase in students' financial literacy through the training we provided. We found no evidence that female students were affected by the training any differently from male students since they started from a much lower level. Therefore, the lower score on financial literacy tests among female students reported in the baseline survey persisted after the financial training. Although there is a general agreement in the empirical literature that women have a lower level of financial literacy than men, the factors that contribute to these gender differences are less obvious. We found that having a low grade in mathematics in high school implicated a weaker improvement in financial literacy, while a higher GPA and age implicated a stronger improvement.

Table 6. Effects of financial training on students' financial literacy

Dependent variable: Measured FL	**Financial literacy intervention**	
	Full sample	Sample with no attrition
	(1)	(2)
tpost	1.96*** (7.51)	2.15*** (8.62)
post	0.30*** (4.26)	0.10 (1.34)
treatment	-0.34* (-1.89)	-0.53** (2.58)
female	-0.81*** (-4.26)	-0.72*** (-4.17)
low math grade	-0.35** (-2.44)	-0.36** (-2.34)
GPA	0.33** (2.73)	0.35** (2.71)
age	0.15*** (4.41)	0.14*** (3.69)
personal finance	0.29 (1.13)	0.22 (0.88)
capital city	-0.38*** (-3.06)	-0.46*** (-3.25)
financial responsibility	0.48 (0.16)	0.22 (0.88)
household size	0.11 (0.57)	0.10 (0.45)
N	0.36	0.34
R-squared	890	796

Source: Author's calculation

Note: We used individual controls for female, low math grade, GPA, age, capital city, personal finance course, financial responsibility, logarithm of household size, a dummy variable whether the student attended general high school or a vocational school with economics specialization, college/university educated mother, college/university educated father and for each faculty fixed effects (FE). OLS Standard errors are clustered at the faculty level. T-statistics are in parentheses and ***p<0.01, **p<0.05, *p<0.1.

4.4. The effects of financial training on hypothetical financial behavior and attitudes

One of the key issues in the economic literature is whether and how improved financial literacy translates into future consumer financial behavior. Since our financial training lasted for approximately two months, it was impossible to track real behavioral changes. In order to overcome these issues, we constructed a hypothetical financial decision-making task where we asked students to imagine having 10.000 Croatian kuna (approximately EUR 1.330) of available monthly budget and to allocate it to eight different categories. Those eight categories are (1) savings, (2) food and drinks, (3) leisure (going out, cinema, concerts, and so on), (4) clothes, shoes, and/or cosmetics, (5) magazines and books, (6) mobile phone, (7) traveling and (8) other. Using a DiD estimator and after constructing a hypothetical financial behavior, we wanted to check the effect of financial training on financial behavior and attitudes. Since in our survey we asked students the amount of savings and to rank their opinions on the Likert-type scale when it comes to impulsive buying, we used these two variables as proxies for some dimensions of financial behavior. For measuring the attitudes toward finance, we used again financial interest and self-assessed financial knowledge as dependent variables. In Table 7 we report that after intervention, once we controlled for various socioeconomic factors, financial interest and confidence in financial matters significantly increased (column 1 and column 2). However, in this experiment, financial education was insufficient for making better financial decisions (in line with Ambuehl et al. 2018) since we found no significant effect on decreasing impulsive buying and neither did hypothetical savings significantly increased.

Table 7. The effect of financial training on financial behavior and attitudes

	Financial interest	Self-assessed knowledge	Impulsive buyer	Hypothetical savings
	(1)	(2)	(3)	(4)
tpost	0.25** (2.91)	0.41*** (5.38)	-0.08 (-1.27)	488.11 (1.42)
post	-0.10** (2.68)	0.17*** (5.83)	-0.18*** (-3.22)	34.91 (0.15)
treatment	0.09 (0.86)	-0.08 (-1.09)	0.08 (0.81)	338.27 (1.33)
female	-0.29** (-2.55)	-0.28*** (-3.88)	0.47*** (7.29)	-239.35 (-0.86)
low math grade	-0.06 (-0.93)	-0.12** (-2.14)	0.09 (1.26)	109.75 (0.72)
personal finance	0.05 (0.51)	0.21** (2.28)	0.17 (1.52)	-278.27 (-0.95)
financial responsibility	0.22* (1.89)	0.25*** (3.04)	-0.05 (-0.50)	25.76 (0.10)
N	890	890	890	884
R-squared	0.18	0.26	0.14	0.11

Source: Author's calculation

Note: Each regression includes additional control variables as reported in Table 6. OLS Standard errors are clustered at the faculty level. T-statistics are in parentheses and ***p<0.01, **p<0.05, *p<0.1.

5. Conclusion

There is no universal formula for making financially literate consumers. Therefore, each country should work individually on creating an educational system that would provide adequate education, information, and counseling to every citizen. Despite the fact that some people will invest in their financial knowledge, it is socially optimal to achieve it early in life. Unlike developed countries that have a long tradition of financial education in secondary schools, the financial education of the youth in Croatia has started relatively recently i.e., the National strategy frame for financial literacy of consumers was developed in 2015, while the experimental introduction of several hours of financial education in high schools started in autumn of 2016. Consequently, most of today's generation over the age of 24 have never had the opportunity to acquire basic formal financial education. Exceptions are students involved in economic education programs, but those students involved in economic programs learn about finance from the position of entrepreneurs and/or bankers, rather than from a position of a citizen. There are several explanations why formal financial education in Croatia has been neglected for years. One of them is the belief that financial literacy is a concern of every individual, rather than the education system. The others are that the school and university programs are already overburdened by excessive professional content, and a part of the scientific community assumes that financial education has no significant influence on greater financial literacy.

Consistent with the evidence provided by Chen and Volpe (2002) and Webster and Ellis (1996), when it comes to financial interest, in this research we found evidence that female students were different from male students. After controlling for numerous socioeconomic characteristics, female students' financial interest was lower than male students. This gender bias decreased when students were asked to assess their financial knowledge where female students reported lower self-assessed financial knowledge than male students. Within the country context, different financial socialization during childhood could be a major factor for this difference (Falahati and Paim 2011, Lim et al. 2003, Wilhelm et al. 1993). When we asked students about their financial interest and financial knowledge, we expected that on average those who finished a vocational school with and economics specialization would show higher financial interest and self-assessed financial knowledge, but these results show that school background (the type of school) is surprisingly irrelevant.

Next in this paper we determined the level of financial literacy and examined which factors influence financial literacy. This study showed that Croatian students are not well-equipped to make complex financial decisions in the near future since they showed a low level of correct answers in the financial literacy questionnaire. Further investigation showed that measured financial literacy is significantly different across genders where female students performed worse than male students which is in line with findings of OECD (2013), Bucher-Koenen et al. (2014, 2016), Mahdavi and Horton (2014). In line with the results of de Bassa and Scheresberg (2013), Japelli and Padula (2013), Sole (2014), and Lusardi (2012), we found that a low mathematics grade from high school, which we used as a proxy for mathematics literacy and numeracy, was one of the essential components explaining the level of financial literacy. Furthermore, older students and those students who had previously undergone training in personal finance had better scores on the financial literacy test, as well as those whose GPA was higher, which confirms the findings of previous studies (Strough et al. 2019). Surprisingly, family background measured as a dummy variable for both an educated mother and an educated father did not significantly affect in determining the level of financial literacy.

Further in this study, we presented the results of a randomized intervention on students at the University of Zagreb to study how teaching financial literacy affects their financial knowledge and financial behavior. Our results suggest that the effectiveness of financial education in terms of strong evidence of the positive causal treatment effect of financial education on the level of financial literacy (these results support the findings of Boyce et al. (1998), Danes et al. (1999), Mandell and Klein (2007), Batty et al. (2015), Kalwij et al. (2019), Lučić et al. (2020) and others) and improved financial attitude in terms of financial interest and confidence in financial matters which has increased. Next, we found no evidence that female students were affected by the financial training any differently from male students since they started from a much lower level. Further, we discovered that after intervention students did not report less impulsive buying or higher hypothetical saving. Since as a result of taking part in financial education saving and consumption behavior did not improve, our findings suggest that financial education in the traditional form did not have a positive effect on financial habits of the students. In other words, increased financial literacy via traditional financial education is not sufficient to improve individual's financial behavior. This confirms the findings of Mandell (2008) and Drexler et al. (2014) and shows that traditional financial education, while important

for financial literacy, is no longer sufficient in today's society (Austin and Arnott-Hill 2014; Fernandes et al. 2014; Hastings et al. 2013; Miller et al. 2014; Mitchell and Lusardi 2015). Based on the conducted experimental study we may conclude that a focus on both internal capacities through financial education and external capabilities through the financial products and services available to individuals is required to enhance one's financial behavior. Furthermore, since educational programs did not reduce impulsive buying or increased hypothetical saving among respondents in the study, we strongly believe that future educational programs should include behavioral interventions intended to stimulate certain types of positive financial behaviors, i.e., discourage various forms of negative financial behavior.

There are certain limitations to this research. The survey was conducted in 2016 and 2017. However, this is experimental research which is usually not outdated for at least 5 years and presents a novel and relevant method that was not used in Croatia. Further, research on financial literacy from this period may still be relevant today for several reasons. First, fundamental concepts of financial literacy, such as budgeting, saving, investing, and managing debt, remain constant over time. These concepts are unlikely to change significantly over years, making older research still applicable. Second, while some aspects of financial literacy may change over time, certain long-term trends in financial literacy and behaviors may persist. For instance, understanding financial risk, making informed decisions, and planning are enduring concerns that transcend specific years. And lastly, comparing data from this research with more recent studies can provide valuable insights into how financial literacy levels have or did not change. However, it's essential to consider that the financial environment and technologies can change rapidly. While the core principles of financial literacy may remain relevant, some aspects, like fintech advancements, digital currencies, crypto, or other specific financial products and services, may have evolved significantly in the last couple of years. As a result, it would be beneficial to complement this research with a new research round which would be the same as this one, and add this innovation to gain a comprehensive understanding of the current financial landscape. Next, the research was limited to a single Croatian university and measured the short-term effects. As a result, the findings' generalizability may be compromised. The problem of common technique bias, which may have inflated the predictive connections, arises once again when all scales are captured using a single study questionnaire. Despite these flaws, this study in this journal and the financial literacy field in general contributes in the following way by (1) identifying the level of financial literacy of Croatian students, (2) recognizing some of the key variables that influence financial literacy among university students, and (3) evaluating the effectiveness of financial education in terms of both financial literacy, financial attitude, and financial behavior using a randomized field experiment. The literature on financial literacy is still growing. Consumer background differences in financial literacy and capability are still interesting topics. Therefore, future research could explore more dimensions of consumer backgrounds such as psychological, social, and cultural factors. International comparisons of financial literacy and capability are also important research topics to explore. Furthermore, future research could include the examination of financial education effectiveness in the case when some non-traditional educational methods are used (not only ex-cathedra lectures) such as psychological interventions or some forms of experiential learning intended at improving certain forms of financial behavior. Interventions including families, schools, and workplaces are also possible important topics for future research.

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Appendix

Financial management questionnaire

We are conducting a scientific study into students' financial knowledge and financial decisions and would like to ask you few questions on these topics.

For data protection reasons, we do not want to ask you for your name, i.e. this survey is anonymous. Thus, we use the following three questions to link your answers since we will ask you to participate in a survey again in few weeks.

Q1. What is the first letter of your mother's first name?
Q2. What is the first letter of your surname?
Q3. What is your street number? (Please fill in all digits, e.g. "6" or "122")

1	2	3

Study questionnaire

Please circle the item that represents your opinion best.

1. Generally, how would you describe your interest in finance?

I have no interest	1	2	3	4	5	I have great interest

2. How would you rate your knowledge about money and finances?

I have no knowledge	1	2	3	4	5	I have great knowledge

3. I often buy spontaneously, what I like to have.

never	1	2	3	4	5	always

4. Advertising intends to inform me about the best products.

strongly disagree	1	2	3	4	5	strongly agree

5. Advertising wants to show me what I need.

strongly disagree	1	2	3	4	5	strongly agree

6. When making financial decisions, I always think about potential consequences they might have.

strongly disagree	1	2	3	4	5	strongly agree

7. What is the source of your income/earnings? You may select several answers.

☐ Income from employment. What is your monthly salary in HRK? _____
☐ Income from part-time/seasonal jobs. What is your monthly income in HRK? _____
☐ Pocket money. What is your monthly pocket money in HRK? _____
☐ I have no sources of income.

8. Many people cannot make it to the end of the month with their monthly budget. On average, what was your previous month like regarding your budget?

☐ At the end of the month I had more money than I needed.
☐ By the end of the month I had exactly how much I needed.
☐ Before the end of the month I did not have enough money. Therefore, I:
  ☐ borrowed money
  ☐ stopped spending money
  ☐ used my savings

9. Are you currently in debt?

☐ Yes. How much? _____ HRK
☐ No.

10. Do you have a current and/or giro account?

☐ Yes.
☐ No.

11. I use credit cards:

☐ sometimes
☐ for every day shopping
☐ I do not have a credit card

12. Have you been saving money in recent months?

☐ Yes, _____ (average amount in HRK). What percentage of your income? _____%.
☐ No.

13. Why do you save? You may select several answers.

☐ I want to buy a specific item or a service.
☐ I want to put money aside for emergencies.
☐ I save for the future.
☐ I do not save money at all.

14. Image you receive 10,000 HRK next month. How would you allocate the money to the following? Please allocate the money so that you spend exactly 10,000 HRK.

Savings (in a bank, investment in shares etc.)	_____HRK
Food and drinks	_____ HRK
Leisure (going out, cinema, concerts)	_____ HRK
Clothes, shoes and/or cosmetics	_____ HRK
Magazines and books	_____ HRK
Mobile phones	_____ HRK
Travelling (for example, to some faraway lands or warmer places)	_____ HRK

15. During your study, have you taken any courses and/or workshops in the field of personal finance?

☐ Yes. Which ones? _____
☐ No.

16. I learn about finances from the following source (you may choose several answers):

☐ friends and family
☐ my workplace
☐ banks and other financial institutions
☐ I read expert and scientific literature.
☐ media (TV, radio, newspaper, Internet)
☐ I do not learn about it.

17. Let's assume you have 100 HRK in your savings account. With an annual interest rate of 2%, how much money will you have in your savings account in 5 years?

☐ more than 102 HRK
☐ exactly 102 HRK
☐ less than 102 HRK
☐ I do not know.

18. Imagine that the interest rate on your savings deposit is 1%, and inflation is 2% per year. After one year, you will have:

☐ more than today
☐ the same amount as today
☐ less than today
☐ I do not know.

19. Do you think the following statement is true? Buying a single company's stock usually provides a safer return than a stock mutual fund.

☐ Yes, always.
☐ No, never.
☐ Yes, depending on the portfolio diversification.
☐ I do not know.

20. Names of the most significant stock market indices on the Zagreb Stock Exchange are:

☐ Crobes/ZSE
☐ CroMoney/CroFund
☐ CroStock/Crobond
☐ Crobex/Crobis

21. Let's assume that banks give loans in HRK, euro and CHF with interest rates that are the same and fixed for the entire loan repayment period. Please order loan currencies so they would range from the lowest to the highest overall risk for an average Croatian debtor.

☐ euro, CHF, HRK
☐ CHF, euro, HRK
☐ HRK, euro, CHF
☐ There is no difference.

22. The least exposure to risk of inflation have:

☐ students receiving state scholarships
☐ workers with time deposits in banks
☐ retired people who are entitled to a fixed income
☐ There is no difference.

23. Does the interest rate for a time deposit of 300 CHF have to be equal to the interest rate for a time deposit of 300 GBP, if the term in both cases is three months?

☐ Yes, pursuant to the regulations of the Croatian National Bank.
☐ Yes, if the money is deposited in the same bank on the same day.
☐ No, since it is in different currencies.
☐ No, since banks are greedy.

24. The State Agency for Deposit Insurance and Bank Rehabilitation insures:

☐ deposits in banks and building societies, in the maximum amount of 100,000 euros owned by one depositor in a single credit institution
☐ deposits in banks and building societies, in the maximum amount of 100,000 euros owned by one individual in the entire banking system
☐ deposits in banks and credit unions, in the maximum amount of 100,000 euros owned by one depositor in a single institution
☐ since Croatia entered EU deposits in banks are fully insured

25. The category of credit cards includes:

☐ revolving credit cards and current account cards
☐ charge cards, debit cards and prepaid cards
☐ foreign currency account cards
☐ All answers are incorrect.

26. Please answer the following questions using data from the table 1. Exchange rate of the selected bank

Code	Currency	Unit	Buying rate for cash	Buying rate for foreign currency	Mean rate	Seeling rate for foreign currency	Selling rate for cash
756	CHF	1	6,194350	6,256919	6,355212	6,475911	6,566011
826	GBP	1	9,504812	9,649555	9,785744	9,987290	10,075101
840	USD	1	5,945923	6,005982	6,115699	6,216192	6,302678
978	EUR	1	7,620000	7,630000	7,659302	7,730000	7,740000

a) What amount will bank pay in HRK to a natural person selling 100 EUR from his/her foreign currency current account? _____
b) What amount in HRK will a bank charge a natural person buying 100 GBP and requiring payment of pounds in cash? _____

Please answer the following questions regarding your personal data.

27. Your year of birth? ☐☐☐☐

28. Your birth place? _____

29. What is your gender? female ☐ male ☐

30. How many people are in your household, including you (number)? ☐

31. Are you married? Yes ☐ No ☐

32. Are you responsible for managing your household finance?

☐ Yes, I am.
☐ No, I am not.
☐ I am equal to other household members

33. What is the professional qualification of your mother?

☐ unskilled worker
☐ high school diploma
☐ associate degree/university degree

34. What is the professional qualification of your father?

☐ unskilled worker
☐ high school diploma
☐ associate degree/university degree

35. Which high school have you completed?

☐ General high school.
☐ Art high school.
☐ Vocational high school. Which one? _____

36. What was your overall math grade in your high school?

2	3	4	5

37. How would you rate your financial literacy on a scale from 1 to 5? ☐

38. How would you rate financial literacy of the citizens of the Republic of Croatia on a scale from 1 to 5? ☐

39. What is your current year of study? What is your specialization?_____

1	2	3	4	5

40. What is your grade point average? ☐