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Financial Frauds on Payment Cards: The Role of Financial Literacy and Financial Education

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A B S T R A C T

The growing number of payment cards issued around the world, and the growing number of transactions generated by those cards (even thanks to the e-commerce trend) have seen an increase in the relevance of financial frauds based on the use of payment cards. Negative consequences from payment card frauds do not affect only the card users, but involve sellers, financial intermediaries, and other players in the payments system. The aims of this study are (1) to assess how financial literacy can help individuals to identify and avoid financial frauds related to the use of payment cards, and (2) to assess the effectiveness of a one-shot financial education seminar to increase the ability to identify and avoid a financial scam ("fraud literacy"). Data from a sample of college students was collected in 2019 and used to address both research questions. Results support the hypothesis that financial literacy can help financial consumers to avoid being a victim of a financial fraud, even if further analysis are required. Additional results show how financial literacy is related to financial confidence, with a risk of a potential "over-confidence" effect. Results from a diff-in-diff estimation suggest that a single seminar does not improve the ability to detect financial frauds.

Keywords: Payment cards, Credit cards, Debit Cards, Financial Literacy, Financial Education, Financial Frauds, Financial Scams, Over-confidence

Ⅰ. Introduction

In the payment cards industry a financial fraud refers to the unauthorized use of a card by a third party (not the accountholder or cardholder) with the intent to deceive for personal gain (FED 2018). Financial frauds related to the (mis)use of payments cards tend to be an historical and persistent phenomenon. Advances in technology, such as the switch from magnetic stripe cards to chip cards, the use of PIN cards, and more recent innovations in the identification systems of payments cards, try to contrast the unauthorized use of issued cards and other card related frauds but (1) the growing number of cards in the payment system, (2) the increase in the use of those cards, and (3) the relevance of international trades (e.g. e-commerce), represent strong incentives for fraudsters to foster their activities.

The number of payment cards in the payment systems is growing. According to the American Banking Association (ABA 2020), at the end of 2019-Q3 there were (around) 375 million open credit card accounts in the US;[1] an increase of seven millions credit card issued in the last

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1 Super-Prime holders were 196 Mln, Prime were 103 Mln, Sub Primee 76 Mln.

year (2018-Q3 368 million), and a growth of 71 million cards in five years (2014-Q3 304 million), which represents a 23.3% increase. Including other card types (e.g. debit cards, pre-paid cards, etc.) the Bank of International Settlement (BIS 2019) estimates that 2.3 billion cards were used in the US in 2017, compared with 2.1 billion in 2014 (9.5%). Data from the European Central Bank (ECB 2019) confirms a growing trend in the EU, with approximately a total of 812 million cards (credit cards, debit cards, pre-paid cards) in the 28 countries of the EU at the end of 2017, with an increase of around 8 million cards (1%) from 2016 (804 million), and plus 74 million cards (10.0%) from 2012 (738 million). The Bank of International Settlement (BIS 2020) estimates 7.5 billion cards (credit cards. debit cards, and prepaid cards) in China in 2018, which compared with the 6.6 billion cards in 2017 involves a year-to-year growth of 900 million cards (+13.6%). A comparison of 2018 data with data from 2014 (4.9 billion cards) shows that the Chinese market has grown by 53% in five years. The positive trend for the payment cards' market is confirmed even in Japan, where the BIS data (BIS 2019) estimates 1.45 billion cards (credit and debit cards) in 2018, 1.42 billion cards in 2017 (2.11%), and 1.28 billion cards in 2014 (21.87%).

The number of transactions and the total values of transactions by payment cards is also growing. According to the 2019 Federal Reserve Payment Study (Fed 2019) the total number of transactions by payments cards (credit, debit, pre-paid) in the US in 2018 was 131.2 billion: 29.3% more than in 2015 (101.5 billion), and 57.3% more than in 2012 (83.4 billion). At the same time, the dollar value of those transactions has grown. In 2012 the total value of payment card transactions was 4.65 US$ trillion, becoming 5.52 US$ trillion in 2015, and 7.08 US$ trillion in 2018. Data from the European Central Bank (ECB 2019[2]) estimates 69.2 billion transactions by payment cards (credit, debit, pre-paid) in 2017: 30.5% more than in 2015 (53.0 billion), and 73.9% more than in 2012 (39.8 billion)[3]. The total value of those transactions was equal to 39.8€ billion in 2012, 53.0€ billion in 2015, and 69.2 billion in 2017. According to the People's Bank of China (PBOC 2019)[4], there were 210.3 trillion transactions by bank cards in 2018 in China, with a total value of 113.61 US$ trillion. The number of transactions in 2017 was 149.4 trillion, with a total value of US$ 100.37 trillion. This means a year-to-year growth rate of 40.77% on the number of transactions, and 13.19% in their total value.

Thanks to e-commerce, international trade related to business-to-consumer (B2C) transactions is growing. As reported by the United Nations (UNCTAD 2019[5]), global e-commerce sales grew 13% in 2017 (total value estimated US$ 29 trillion) and a similar surge was seen in the number of online shoppers, which jumped by 12% and stood at 1.3 billion people. The share of those buying from abroad rose from 15% in 2015 to 21% in 2017. The growth was driven mainly by an increase in the United States. As a result, cross-border B2C sales reached an estimated US$ 412 billion, accounting for almost 11% of total B2C e-commerce (a 4% hike on the previous year's numbers).

With a growing market for payment cards, a growing number of frauds on payment cards is an easy guess. The Federal Reserve (FED 2018[6]) reports that the number of fraudulent credit card payments rose from 14.0 million in 2012 to 30.4 million in 2015, while the number of fraudulent debit card payments rose from 13.7 million to 28.7 million. In the meantime, the share of card frauds of total payments frauds - including cheques and other payment tools - increased from 64.6% (2012) to 77.5% (2015). Within the card frauds, frauds on credit cards are the most prevalent in term of dollar values, representing 60.2% of the card payment frauds in 2015 (57.4% in 2012), while debit card frauds were 34.3% in 2015 (36.1% in 2012), and ATM withdrawals frauds were 5.5% in 2015 (6.5% in 2012%). The number of frauds confirms credit cards as the most defrauded, with 50.3% of the total frauds in 2015 (48.3% in 2012), with debit card frauds representing 47.5% of cases (48.3% in 2012), and ATM withdrawals 2.2% (4.4% in 2012). The total value of credit card frauds in the US in 2015 was $3.89 billion ($2.26 billion in 2012). The same value for debit cards was $2.22 billion in 2015 ($1.43 billion in 2012). In relative terms the dollar value of credit card frauds accounted for 0.173% of the total value of credit cards

2 European Central Bank - Payment Statistics

3 Data from European Central Bank - Statistical Data Warehouse.

4 http://www.chinabankingnews.com/2019/03/19/per-capita-credit-card-ownership-in-china-hit-5-46-in-2018-average-card-spending-at-12200-yuan/

5 United Nation Conference on Trade and Development (https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=505)

6 Changes in U.S. Payments Fraud from 2012 to 2016: Evidence from the Federal Reserve Payments Study October 2018 (https://www.federalreserve.gov/publications/files/changes-in-us-payments-fraud-from-2012-to-2016-20181016.pdf)

transactions in the US in 2016, while the similar frauds-to-total-value-transaction ratio is 0.0915% for debit cards.

Data from the European Central Bank (ECB 2019) reports the total value of fraudulent transactions conducted using cards issued within the Single European Payment Area (SEPA[7]) amounted to €1.8 billion in 2016. The total value of card transactions using cards issued in SEPA amounted to €4.38 trillion in 2016. In relative terms the value of credit card frauds represented 0.11% of the total value of transactions by credit cards in 2016. In the same year debit card frauds accounted for 0.02% of the total value of transactions by debit card. With respect to the composition of card frauds in 2016, 73% of the value of card frauds resulted from card-not-present (CNP) payments, i.e. payments via the internet, post or telephone, 19% from transactions at point-of-sale (POS) terminals and 8% from transactions at automated teller machines (ATMs). With €1.32 billion in fraud losses in 2016, CNP fraud was not only the largest category of fraud in absolute value but, unlike ATM and POS fraud, it was also the only one to record an increase (of 2.1%) compared with the previous year. For debit cards and credit cards, CNP fraud was the most common type of fraud in 2016, accounting for 76% of the total value, followed by fraud occurring at POS terminals (20%) and ATMs (4%). From a geographical perspective, domestic transactions accounted for 90% of all transactions, but only 35% of fraudulent transactions. Cross-border transactions within SEPA made up for 8% of all transactions, but 43% of fraudulent transactions.[8]

The payment cards' market size, its trends, and the statistics on payment card frauds can be impressive, but could not be enough to stimulate a research interest. What increases the interest on payment card frauds and the possible strategies to prevent them is the evidence that a market populated by fraudsters negatively affects not only the card users, but the entire industry and beyond.

As noted by Reurink (2016) in a study on identity scams, financial frauds involve three separate groups of victims who suffer from both direct and indirect costs as a result of the fraud. Consumers are the first group of victims. Beyond the money theft, the costs suffered by consumers include having to spend time and money in sorting out the fraud and re-establishing the victim's identity and credit standing, a loss of access to credit due to credit score deteriorations, and psychological and emotional consequences. The second group consists of the merchants and credit providers who have been tricked by the operators of financial scams into delivering money or goods based on fraudulent payments. These companies generally suffer from direct and quantifiable fraud losses; costs resulting from investments in fraud detection technologies; and the forgoing of additional potential revenue due to the refusal to accept valid transactions because they look suspicious and due to growing consumer reluctance to engage in e-commerce. The third group of victims consists of banks, credit card companies, and e-retailers whose brand names are hijacked, for instance, by phishing schemes. These companies may suffer from costs associated with (1) deactivating scam sites, resetting passwords, and other such protective steps; (2) costs associated with increased surveillance and prevention; (3) and the negative effects on stock prices and trading volume. Hence, in preventing frauds there are benefits that go beyond the monetary value of the fraud.

Zunzunegui et al. (2017) analyzed investment frauds in Spain, finding that victims of financial fraud had poorer health, more mental health and sleeping problems, and poorer quality of life than comparable populations of a similar age. About the relationship between the monetary loss and the health status, the authors find that those who had recovered at least a part of the fraud losses had better health and quality of life than those who had not. Another study on the psychological consequence of being victimized is the one of Brenner et al. (2020). The authors use a panel of US household victims of financial frauds that involved misrepresentation of information as well as misusage of money by third parties and assessed the effect of those frauds on the perceived financial well-being. Results support the hypothesis that multiple channels through which victimization might reduce perceived financial well-being exist: psychological consequences (loss of confidence in financial matters) and economic consequences (decrease in

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7 The Single Euro Payments Area (SEPA) is a payment-integration initiative of the European Union for simplification of bank transfers denominated in Euro. As of 2020, there were 36 members in SEPA, consisting of the 27 member states of the European Union, the four member states of the European Free Trade Association (Iceland, Liechtenstein, Norway and Switzerland), and the United Kingdom. Some countries participate in the technical schemes: Andorra, Monaco, San Marino, and Vatican City.

8 A lack of official statistics from China does not allow to complete the big picture, but there are no reasons to assume big differences with other developed countries. Unofficial sources - http://www.xinhuanet.com//english/2017-10/05/c_136660592.htm - cite statistics from the Chinese Ministry of Public Security, reporting that in 2016 credit card crime has surged in China, with more than 63,000 cases, accounting for one-third of the country's total financial crime.

net wealth). The authors show that fraud is more negatively associated with a loss in individuals' confidence in financial matters than with declines in their net worth. People tend to doubt their abilities to handle financial matters after having fallen prey to fraud, which in turn carries major implications for subsequent financial decision making.

The relationship between fraud victimization, psychology, and health is confirmed by FINRA (2015), which studied the non-traditional cost of financial frauds using data from a nationally distributed online survey of 600 self-reported fraud victims. The study highlights how victims report being stressed (50% of the cases), anxious (44%), having difficulty sleeping (38%), loss of personal confidence (38%), depression (35%), physical health problem (24%), and negative relationship consequences as divorce or separation (21%). Additional behavioral biases from financial frauds are reported by Gurun et al. (2018), who studied investment frauds and found that individuals living in areas with higher concentration of victims from a large Ponzi scheme withdraw assets from independent financial advisors and increase savings at banks in safe assets. These change in asset allocation by individuals that were not directly victimized by a fraud suggests a spill-over effect that should be added to the indirect cost of financial frauds.

Hence, the motivations of this study are based on (1) the relevance of payment card frauds for the payment card market, (2) the relevance for the victimized users (including the direct- and indirect-monetary cost, the additional personal consequences related to psychological issues, health issues, and other social consequences), (3) and the evidence that the negative consequences of payment card frauds goes far beyond the card users and involves even third parties (e.g. payment card issuers and the all companies of the industry).

The study has three different aims. The first is to identify how much people are able to identify (and avoid) a fraud. If the prevention of fraud can be done by improving the quality and the effectiveness of security systems, and other technology based solution, the ability to identify a scam or a fraud represents a pivotal defence line against fraudsters. The second aim is to assess the effect of financial literacy (basic financial principles and the functioning of payment cards) on preventing victimization of financial frauds on payment cards. The assumption is that an individual who knows more about finance and the functioning of payment cards is more able to identify and avoid a financial fraud. The third aim is to test how much a single one-shot financial education event can improve the ability to identify financial frauds.

This study shares the same conceptual framework of several previous studies in consumer finance. Financial literacy - referred as the mix of knowledge, skills, and attitudes to take effective financial decisions (OECD 2012 pp. 13) - is supposed to positively affect consumers' financial decisions and behaviors. People who know more about finance, the functioning of financial products, and the functioning of the whole financial system, are supposed to be more likely to take effective financial decisions and to plan for the future (van Rooij, Lusardi, and Alessie 2007; Robb 2011; Fornero and Monticone 2011). At the same time the concept of financial education - as any process (e.g. seminars, curricula, counselling, etc.) by which financial consumers improve their financial literacy or improve one of its components (knowledge, skills, attitude) (OECD 2005) - is linked to financial literacy, under the assumption that good financial education increases financial literacy that then facilitates good financial decisions and responsible financial behaviors, helping people to achieve a financial well-being[9]. This study uses this conceptual framework to test several hypotheses in the case of frauds on payments cards.

Ⅱ. Literature review

A fraud can be defined as "*the deliberate deception or intention of deception of an individual with the promise of goods, services or other financial benefits that are actually nonexistent, were never intended to be provided, or were grossly misrepresented*" (Titus and Gover 2013 pp.134). However, an analysis of the literature on payment card financial frauds requires a clear definition of what is a financial fraud and what are the differences with a payment card fraud. The "*financial frauds (or scams, cons, or swindles) are deceptive and fully fraudulent schemes in which fraudsters, often assuming a false identity or exhibiting a misplaced aura of trustworthiness, convince,*

[9] Financial well-being is defined by the Consumer Protection Financial Bureau (CFPB 215) as "*a condition wherein a person can fully meet current and ongoing financial obligations, can feel secure in their financial future, and is able to make choices that allow them to enjoy life*" (pp.18). The analysis of the concept of financial well-being goes beyond the aim of this study, but it represents the final and pivotal concept of the conceptual framework of the study.

mislead, or induce people to voluntarily interact with the fraudster and, ultimately, to willingly hand over money or sensitive information related to their personal finances" (Reurink 2018 pp. 1292). So what a financial fraud shares with other frauds is the deception related to the abuse of trust, and differs from other frauds for being related to money or sensitive information about money. A payment fraud is "*a cleared and settled transaction that a third party initiated without the authorization, agreement, or voluntary assistance of the authorized user (the accountholder or cardholder) with the intent to deceive for personal gain*" (FED 2018 pp.6). Hence, payment fraud is a financial fraud - as investment fraud or insurance fraud - that involves a monetary loss, but differs from other financial fraud for being related to payment tools such as cheques and payment cards.

Beyond the technicalities of the frauds related with the presence of a card, payment card frauds differ from other frauds for the amount of the single transaction (i.e. usually lower than an investment business), the frequency of the card use, and the instrumental use of the card to complete another transaction (i.e. the purchase of the good or service, the withdraw of cash, etc.). So, while in investment frauds the attention of the victim is on the investment, in card frauds the main attention is not on the card but on the good or service related with the purchase. It is important to stress those differences because most of the literature on financial frauds concerns investment frauds, making payment card frauds a less explored research field. The existing literature on card frauds is mainly focused on card technology and security systems to prevent fraud, taking the card issuer point of view, and not representing financial studies.

If differences between card frauds and investment frauds exist, those types of fraud share some similarities (e.g. key role of trust in the transaction, the monetary loss, etc.). It follows that even a study on payment card frauds can take benefits from studies on investment frauds. Shadel and Pak (2007) administrated a 72 questions survey to 80 victims of investment frauds and used a control group of non-victims. Their result is that investment fraud victims demonstrated a better understanding of basic financial literacy than non-victims. Lokanan (2014) analyzed the Investment Dealers Association's tribunal cases in Canada between 1984 to 2008 to examine the demographic characteristics of investors who have been victims of investment frauds. The findings indicate that the victims were not particularly rich and a significant proportion borrowed money and opened margin accounts to invest. Those most vulnerable were investors who were retired and had limited investment knowledge. Many also dipped into their savings to fund their future retirement needs.

Kiefer and Mottola (2017) examined the demographic and psychological patterns associated with investment fraud victimization using data from the US, and estimate that one in ten investors will be victimized by investment fraud over the course of their lives. Older people are targeted for investment fraud more frequently than younger people, but after controlling for the effects of targeting, older people are not more likely than younger to be victimized by investment fraud. The study highlights that psychological variables associated with fraud victimization are risk tolerance, perception of debt, impulsiveness, and financial literacy. Higher levels of risk tolerance and engagement in risky behaviors are associated with a higher probability of fraud victimization, as are higher level of debt. The authors cite even evidence that victims and non-victims differ in term of impulsiveness. Victims reported higher impulsiveness and demonstrated less cognitive flexibility. A counter-intuitive evidence is that higher levels of financial literacy is associated with an increased probability of investment fraud victimization. The authors argue this effect can be related to over-confidence.

Panayiotis and Philip (2018) address the role of financial literacy on fraud victimization as well. The authors use data from 881 Cypriot students in five universities to assess the risk of university students to be victims of personal debt and fraudulent investments. In this case, results support the hypothesis that higher levels of financial literacy influence the students' ability to deter themselves from fraudulent investments. Williams, Strauch, and Duncan (2018) studied the connection between financial literacy and investment frauds in the case of Ponzi schemes, looking at their warning signs and how best to avoid them. Using data from a survey of college students in the US, they find that financial literacy helps people to identify Ponzi schemes and avoid financial frauds. Those results are consistent with Chariri (2018), who analyzes the effect of age, education and financial literacy on the ability to detect investment scams. Using a questionnaire survey in Indonesia, the author applies both a factor analysis and a regression model finding that the level of individual financial literacy positively affects the ability to detect investment scams, while there are no effects of age and education.

Engels, Kumar, and Philip (2019) use data from the National Financial Well-Being Survey (NFWBS), fielded in 2016 by the Consumer Financial Protection Bureau (CFPB), to test if more financially knowledgeable individuals have a higher propensity to detect fraud. The conclusion of the study is that financial literacy is relevant in predicting the ability of individuals to detect financial frauds. DeLiema et al. (2020) analyzed a sample of 214 investment fraud victims in the US, looking for similarities in order to define a victim profile. Results suggest that, in addition to being older and male, victims were more materialistic than general investors, were more frequent stock traders, and purchased more investments sold through unsolicited calls, emails, television advertisements, or "free lunch" seminars, but were less likely to invest based on a social network member's recommendation.

Evidence from China confirms the hypothesis that financial literacy can help to prevent investment frauds. Gui, Huang and Zhao (2018) study how investors are exploited by fraudulent financial products. Using data from experiments and a survey in China (Shenzen), the authors tested the effect of an "eye-opening financial education program", finding for the participants a significant reduction in the tendency to invest in fraudulent products, especially among the most risk-averse individuals.

The emphasis in the financial fraud literature on investment frauds is clear even when studies pay attention to financial frauds that target specific groups, like the elderly. DeLiema (2017) tries to identify older adults' specific attitudes and characteristics that may increase the risk of victimization. Using data from a telephone survey in the US, 700 victims of financial frauds (verified by the FBI) were studied and compared with a random sample from the general investor population. Compared to non-victims, investment fraud victims would have more positive attitudes toward risky investment opportunities, would be more open to investment solicitations, and be more likely to have experienced negative life events prior to making the investment. DeLiema, Deevy, Lusardi, and Mitchell (2018) used data from the Health and Retirement Study (HRS) to evaluate the incidence and risk factors for investment frauds among older Americans. In their conclusions the authors state that a fraud is a complex phenomenon and no single factor uniquely predicts victimization.

If we put aside financial frauds and we pay attention to the relationship between credit cards and financial literacy, we find some papers that tried to connect the use of payment cards with financial knowledge and financial literacy. Allgood and Walstad (2016) used data from the US (FINRA National Financial Capability Study), but in their conclusions they say they are unable to identify a causal relationship between financial literacy and credit card behaviors. However, the results from the probit analysis show that both actual and perceived financial literacy appear to influence financial behaviors and that perceived financial literacy may be as important as actual financial literacy.

Robb (2011) examined the relationship between financial knowledge and credit card behavior of college students. Using a sample of 1,354 students from a major south-eastern university in the US, the author suggests that financial knowledge is a significant factor in the credit card decisions of college students. Students with higher scores on a measure of personal financial knowledge are more likely to engage in more responsible credit card use. Robb and Sharpe (2009) analyzed data from 6,520 college students from a large Midwestern University. Results confirm the significance of financial knowledge in explaining the credit card decisions of college students. What is surprising - and somehow counter-intuitive - is that those with higher levels of financial knowledge had higher credit card balances. The authors conclude that this is evidence of the complex nature of the relationship between personal financial knowledge and credit card behavior, but another possible reading of this result is that financial literacy could be linked to higher credit card balances by the overconfidence generated by the financial knowledge.[10]

This paper started from the evidence that the literature on financial frauds is mostly related to investment frauds and still limited on payment card frauds, and the literature on payment cards and financial literacy mainly referred to card users' behavior (e.g. balance on credit cards, late fees, etc.), but did not account for the risk of victimization in financial fraud. Hence, the intention of the study is to fill this gap in the literature and investigate the role of financial literacy in preventing financial frauds that involve the use of payment cards. The assessment of people's ability to identify (and avoid) a fraud will be useful to estimate the risk of victimization. The assessment of the effect of financial literacy (basic financial principles and the functioning of payment cards) on preventing victimization of financial frauds on payment cards will

[10] See Williams et al. (2018) and Xiao et al. (2010) for additional studies using college students.

shed light on the chance to support financial consumers by financial education. Finally a quasi-experiment will help to figure out the effectiveness of a single-event financial education initiative to improve the ability to identify financial frauds.

Ⅲ. Data and Methodology

A. Study Design

The study is based on an experimental approach. A sample of 387 senior students from a faculty of economics of one of the main universities in central Italy was used to analyze the relationship between financial literacy and financial frauds and to test the effectiveness of a financial education curriculum, based on a single two-hours-long seminar. As reported in the previous section of this study, the use of college students to address financial frauds and the use of financial product is not new. Several previous studies referred to college students samples and motivated their decision. For the present study the use of college students, and the restriction to a faculty of economics have specific motivations too. Senior college students should have enough experiences with the use of payment cards to be aware of their functioning. The young age compared with the rest of the population should guarantee more confidence with technology and the use of payment cards on line (e.g. e-commerce). The fact that all the students belong to a faculty of economics and addressed financial topics in different courses guarantees (1) previous exposure to (at least) general financial management education, and (2) bigger interest about finance than students from other faculties or other young adults not attending any college. In that manner the average financial literacy of the sample should be higher than the average population. It gives the chance to test something more than the "average" risk of victimization of a population. Such "elite group" allows to test if financial fraud sophistication and the scam techniques are so developed to put at risk even individuals that should be more prepared than the average in dealing with financial topics and in identifying financial scams. This analysis can make a step forward from the identification of groups of individuals that are more at risk of victimization, testing if there are groups that can be considered completely safe or at least more prepared in dealing with scams.

A first questionnaire was administered to all the participants and served as a baseline. That questionnaire had the aim to assess the initial level of financial literacy - assessing (1) basic principles and (2) financial knowledge on payment cards - and to assess the ability to recognize and avoid financial frauds. Some additional socio-demographic variables were added to analyze if the most fragile individuals (those who failed the most to identify financial frauds) show some similarities. After the first questionnaire students were randomly assigned to two different groups. The first group attended the financial education seminar. The second group did not and was used as control group. A few days after the seminar a second questionnaire tested one more time the knowledge and the skills of the participants on payment cards and financial frauds.

Data were collected in October 2019. All of the questionnaires in the pre-test and post-test phases were collected on line for both the treatment group and the control group. The participation for students was voluntary and all the participants who completed the experiment were rewarded with extra-curriculum credits. The dedicated website used to administer the questionnaire guaranteed the anonymity of the participants.

B. Sample Characteristics

1. Socio-demographics

The study included socio-demographic data - as control variables - assuming that that some of these factors may affect financial literacy and the likelihood of financial fraud victimization. The descriptive statistics of socio-demographic characteristics of the sample are listed in Table 1. Being a sample of college students, the age of the participants is in around the 90% of the cases between 21 and 24 years old. What is relevant is that the group that attended the financial education seminar (treatment group) and the other participants (the control group) do not significantly differ in term of age. Males are around 55% of the sample (214 on 388), and most of the students are full time students (68% as 264 on 388).

The majority of the sample (87.1%, 338 on 388) still live with parents. This may be an important variable that can help to explain the students' ability to deal with frauds because those who do not live with parents should make more financial experiences, specially about payments and payment cards. At the same time students from foreign countries should be more financially literate about budgeting because they have to take care of their own personal budget.[11]

The inclusion of a variable about the parents' education of participants allows for the possibility that an intergenerational learning effect can help to explain the students' ability to deal with financial frauds, if education is a proxy for parents' financial literacy. It is interesting how the sample is almost

Table 1. Socio-demographic characteristics of the sample

Variables	Values	All	Treatment group	Control group
Age (in years)	21	27	12	15
	22	208	110	98
	23	88	42	46
	24	28	14	14
	25+	37	17	20
	Total	**388**	**195**	**193**
Gender-Male	1=Male	214	106	108
	0=Female	174	89	85
	Total	**388**	**195**	**193**
Job status 1	1=Full time student	264	128	136
	2=Part-time student	8	3	5
	3=Study and Work (part-time)	79	46	33
	4=Study and Work (full-time)	5	2	3
	5=Study and Work (freelance)	16	8	8
	6=Other	0	0	0
	99=Not Available	16	8	8
		388	**195**	**193**
Job status 2	1=Full time student	264	128	136
	0=Other (part-time student, study and work, etc.)	124	67	57
	Total	**388**	**195**	**193**
Highest education of parents (it compares the education level of the parents and considers the highest)	1=Primary school	1	0	1
	2=Middle school	37	21	16
	3=High school	159	78	81
	4=Some college (without degree)	35	15	20
	5=University (degree)	100	52	48
	6=Post-graduate (Master or PhD)	40	19	21
	N.A.	16	10	6
	Total	**388**	**195**	**193**
Housing	1=With parents	338	168	170
	0=Other	50	27	23
	Total	**388**	**195**	**193**
Foreigner (Student with a different citizenship than the local one)	1=Yes	22	10	12
	0=No	366	185	181
	Total	**388**	**195**	**193**

[11] However the small percentage of foreign students (22 on 388) and the chance that even Italian students had to move far from home to attend college can jeopardize the test of this hypothesis.

Variables	Values	All	Treatment group	Control group
GPA (Grades in the Italian system are based on a range from 18 to 30. 18 is the minimum to pass the exam)	Mean	24.755	24.734	24.777
	Std.Dev.	2.04	2.06	2.02
	Min	19	19	19.5
	Max	30	30	29.3
	18-21	9	5	4
	>21-24	112	57	55
	>24-27	201	100	101
	>27-30	66	33	33
	Total	**388**	**195**	**193**
Fraud victim (To have been victim of a financial fraud)	1=Yes	51	28	23
	0=No	331	163	168
	N.A.	6	4	2
	Total	**388**	**195**	**193**

equally split in two, with half of the sample of first generation of college attendants (197 on 388) and another half (175 on 388) coming from families where at least one of the parents graduated or attended some college.

Students' GPA is used as an additional control variable.

The variable "fraud victim" control for the chance that individuals developed their knowledge about financial frauds even from previous direct experiences (being victim of a fraud in the past). The variable is equal to one if the respondent says to have ever been victim of a financial frauds. No information about the type of frauds or the timing of the victimization are available. Around 13% of the respondents declare to have been victim of a financial fraud. In this case the inclusion of the variable represents an explorative variable.

2. Financial Literacy and Use of Payment Tools

A second group of control variables measure the availability of payment tools (see Table 2). Those who have access to payment cards and other payment tools could develop more knowledge about the functioning of those systems, being more ready to deal with the risk of scams. The majority of the respondents is unbanked (56.7%, 220 of 388), and prepaid cards are the most frequently owned payment card (74.5%, 289 of 388). Debit cards are available for 47.1% of the participants (183 of 388), while only 15.7% own a credit card. The low rate among college students in the use of credit cards is related with at least two phenomena. The first one is student loans. The practice to borrow in order to pay college tuitions

Table 2. Availability of payment tools

Variables	Values	All	Treatment group	Control group
Payment-Bank Account (If the student has or not)	Yes	220	111	109
	No	168	84	84
	Total	**388**	**195**	**193**
Payment-Credit card (If the student has or not)	Yes	61	31	30
	No	327	164	163
	Total	**388**	**195**	**193**
Payment-Debit card (If the student has or not)	Yes	183	91	92
	No	205	104	101
	Total	**388**	**195**	**193**
Payment-Prepaid card (If the student has or not)	Yes	289	147	142
	No	99	48	51
	Total	**388**	**195**	**193**
Payment-PayPal (If the student has or not)	Yes	119	60	59
	No	269	135	134
	Total	**388**	**195**	**193**
Payment-SatisPay (If the student has or not)	Yes	4	3	1
	No	384	192	192
	Total	**388**	**195**	**193**
Payment-ApplePay (If the student has or not)	Yes	24	15	9
	No	364	180	184
	Total	**388**	**195**	**193**
Payment-GooglePay (If the student has or not)	Yes	13	5	8
	No	375	190	185
	Total	**388**	**195**	**193**

and other college related expenses is quite common in some countries (e.g. the US) but is almost completely absent in Italy. The low cost of education in Italy compared with other countries and the lack of student loan products from the industry inhibit the development of a student loan market, and by consequence the use of credit cards as a borrowing facility.

The second reason is that in Italy credit cards are linked to bank accounts, so the evidence that half of the sample is unbanked reduces the chance for participants to submit a credit card application. Another characteristic of the Italian credit card market is the practice to use credit cards as deferred payment tools more than a real credit line. The typical credit card user pays in full the balance of the card at the end of each month, never paying by installments. Hence, if college students do not have to borrow and do not refer to credit cards as borrowing tools, they tend to use other type of payment cards, specially when they are unbanked. Payment solutions that are not card-based are less popular and mainly referred to PayPal (30.7% of the sample), while other payment options like ApplePay (6.2%), GooglePay (3.3%), and SatisPay[12] (1.0%) are mentioned only in a few cases. Of course, the data of single payment tools does not provide the big picture about the payment behaviors of the respondents. They could own a single card but be quite active in its use, completing a lot of transactions every day, or a single individual could own more types of cards and to have access to different payment solutions at the same time, while others could rely simply to cash. However, a detailed analysis of the students' payment behaviors is beyond the aim of this study.

To address the role of financial literacy in preventing victimization in financial frauds, three different measures of financial literacy have been included in the study to test the main hypothesis that the more a person knows about finance (so, the higher is financial literacy), the lower is the chance to be victim of a financial fraud. The first measure of financial literacy is the sum of correct answers to five questions widely used in the literature on financial literacy and referred as the “big five” questions or “Lusardi-Mitchell questions”. The original set of three questions was developed by Lusardi and Mitchell in 2004[13] and then replicated in several other studies. These questions address general financial principles like inflation, compound interest, and stocks. This set of questions was extended with additional two questions on mortgages, and bond pricing, completing the set of five[14]. These questions were included in the present study to use a financial literacy measure based on general principles and to guarantee the comparability of the results with previous studies. The assumption is that even referring to very basic financial concepts, this knowledge is enough to discriminate between individuals that are more or less at risk of victimization.

Descriptive statistics on this Lusardi-Mitchell score of financial literacy are reported in Table 3. Details about each of the five questions and their descriptive statistics are available in the appendix. The average number of correct answers to the five questions is 3.57, with a small difference between the treatment group (3.68) and the control group (3.46). Compared with previous studies the scores tend to be pretty good, confirming the hypothesis that the sample of the study represents a subgroup of the population that should be more knowledgeable than the average, thanks to their attitude about finance (they have chosen to be enrolled in curricula in finance), their exposure to financial education (students already attended courses in economics, finance, and statistics) and their personal characteristics (young, attending college, etc.).

The second measure of financial literacy addresses knowledge on payment cards. It is based on a score that sums the number of correct answers to five questions on the main characteristics of credit cards, pre-paid cards, and debit cards[15]. This second measure replicates the structure of the Lusardi-Mitchell score, and it is based on the same number of items. In that manner the values of the two indices are immediately comparables because they share the same range of values and the same metrics. The use of a measure of financial literacy directly related to knowledge about payment cards allows to directly

[12] Satisfy is a free mobile app for paying in stores, exchanging money with friends, and buying services. It does not need to be linked to a bank account.

[13] Questions were introduced in the 2004 wave of the Health and Retirement Study (HRS). The HRS is a longitudinal project sponsored by the National Institute on Aging and the Social Security Administration (USA). The study is managed by the Survey Research Center at the University of Michigan (Ann Arbor, MI USA).

[14] The addition of the two questions on mortgages and bond pricing to the three question on inflation, compound interest, and stocks was proposed by FINRA in the National Financial Capability Survey (NFCS) in 2012, and then adopted by several other surveys.

[15] For details about the five questions and their descriptive statistics, please see the appendix.

test the hypothesis that those who know more about the functioning of payment cards tend to be more ready to identify a scam. For instance, being aware that data from a card allows to spend money even without the physical presence of a card should inhibit individuals from sharing this information by email or giving it to strangers. The average number of correct answers to these five questions on payment cards for the whole sample is 1.41[16]. The

Table 3. Financial Literacy

Variables	Values	All	Treatment group	Control group
Lusardi-Mitchell score *(Sum of the correct answers to the five questions on (1) Inflation, (2) Compound interest, (3) Stock (4) Bond pricing, (5) Mortgage)*	(0 | 1 | 2 | 3 | 4 | 5)			
	0	3	1	2
	1	17	7	10
	2	54	27	27
	3	92	38	54
	4	124	67	57
	5	98	55	43
	Total	**388**	**195**	**193**
	Mean	3.57	3.68	3.46
	St.Dev.	1.17	1.15	1.19
Card score *(Sum of correct answers to five questions on payment cards)*	(0 | 1 | 2 | 3 | 4 | 5)			
	0	4	1	3
	1	31	15	16
	2	110	59	51
	3	138	69	69
	4	95	46	49
	5	10	5	5
	Total	**388**	**195**	**193**
	Mean	1.41	1.41	1.41
	St.Dev.	1.58	1.57	1.59
Financial Literacy self-assessed *(Self-assessment of financial literacy on a 1-Low to 7-High Likert scale)*	(0 | 1 | 2 | 3 | 4 | 5 | 6 | 7)			
	1	2	1	1
	2	21	14	7
	3	90	44	46
	4	124	58	66
	5	99	53	46
	6	30	14	16
	7	3	1	2
	N.A.	19	10	9
	Total	**388**	**195**	**193**
	Mean	4.34	4.42	4.27
	St.Dev.	1.10	1.12	1.08

16 Values for the treatment group and the control group are the same.

comparison between the Lusardi-Mitchell score on general financial principles (mean 3.57) and the payment card score (mean 1.41) highlights that when addressing specific topics the difficulty of the questions tend to increase. At the same time, the low correlation between the two indices (.08) recommends to test the effect of financial literacy in preventing financial frauds using both of them.

The third measure of financial literacy is a self-assessed measure where participants were invited to judge their financial literacy using a Likert scale from one (low literacy) to seven (high literacy). The inclusion of this measure in the study is supported by previous studies that show how sometimes there is a gap between what people think they know about finance and what they really do (Muller and Weber 2010, Sekita 2011, Klapper et al. 2013). The average value of the self-assessed financial literacy score is 4.34, with most of the respondents (313 of 388) positioning themselves in between 3 and 5. The correlation between this subjective financial literacy measure and the other objective measures is pretty low (.21 with Lusardi Mitchell score; .07 with card score).

3. Financial Fraud Literacy

A last set of items was used to assess the ability to identify financial frauds (so called "fraud literacy"). Respondents were asked to assess 20 different scenarios and, for each of them, to say if a risk to be a victim of a financial fraud exists or does not. Some of the 20 scenarios were typical financial scam schemes systematically proposed by fraudsters in the last years (e.g. email with an inheritance that requires a payment to be unlocked, emails from a fake e-commerce website that requests to confirm the credit card number, etc.) and widely experienced by people around the world, other scenarios where designed in order to appear to be a safe scenario or to sound just a bit suspicious, not being related with any scam[17]. The full list of scenarios and some descriptive statistics about the response rate of the participants are reported in the Appendix. The set of available options to answer each question was quite standard (e.g. "Yes, it is a fraud", "No, it is a safe scenario"). In that manner it should be avoided any implicit suggestion or bias in the answers. A third option "In this case I do not know what to do" was always included and gave respondents the chance to express their doubts if the case was a fraud or not. The presence of this neutral option should reduce the risk that who is not sure about the answer will simply guess, with the risk to interpret a correct answer as result of knowledge, when it is simply luck.

Starting from those 20 items, three measures of fraud literacy were developed. The first one (score1) is based on the number of right answers to each of the 20 questions/scenarios. Correct answers are considered the ones where the respondent identifies a fraud in a fraudulent scenario, and the ones where the respondent considers as a safe scenario one that is not related with frauds. In that manner it is not only the ability to avoid a fraud that matters, but even the ability to act when a scenario is safe. Doing so the score accounts the attitude of the individual to not be inhibited in the use of his/her payment card. In fact, one possible negative consequence of the risk of fraud is the chance that individuals quit to use their payment cards for the risk to be victimized. This effect should be measured by the "do not know" option, that will not be accounted as a positive answer and will not contribute to this score. From the distribution of the number of correct answers a dummy variable representing the score of fraud literacy identifies those who are above the median of the distribution. In that manner a value equal to one is related to who was more able to identify frauds and to recognize safe scenarios. The decision to dichotomize the score in a dummy variable is related to the will to do not stress the relevance of the single question/scenario and to refer to the ability to deal with financial frauds looking at the big picture of the study. The same dichotomization process has been used for all the other measures developed from the financial frauds questions.

The second fraud literacy measure (score2) starts from the 20 items on financial frauds and sums the number of points related to each option selected in the answers. A correct answer adds points to the respondent's score, a wrong answer subtracts points. Respect to the previous score, in this case the negative effect of a wrong answer is not only related with the opportunity cost of a missing right answer (that will not contribute to the score), but the respondent is penalized with an additional negative effect due to the points subtracted from the score. This additional effect is not a simple parallel shift of the score because different options in a question could be related with different points[18].

[17] All the twenty items were tested on a small group of students before the experiment to test their difficulty.

The third measure (score3) counts the number of questions where the respondent said to do not know if there is a risk of fraud or not in the proposed scenario. The number of "Do Not Know" answers represents a measure of the confidence an individual has in dealing with potential frauds. The descriptive statistics of these three indices are listed in Table 4, while details of the 20 items are described in the appendix.

C. Empirical Methods

The analysis of the data required the application of two different methodologies to address the two different aims of the study. To assess the role of financial literacy in preventing financial frauds that involves the use of payment cards, different multivariate regression models were applied. Each of the scores was used as a measure of the ability to identify and avoid financial frauds (score1 and score2) or as a measure of financial confidence (score3). Being all the variables are 0-1 indicators or "dummy variables", a logistic regression model was used. The explanatory variables of the model include the three measures of financial literacy (Lusardi Mitchell, card score, self-assessed financial literacy) that should shed light on the role of financial literacy in preventing financial fraud. Other independent variables are the socio-demographic variables (gender-male, job status2, highest education of parents,

Table 4. Financial Fraud detection skills

Variables	Values	Pre-test			Post-test		
		All	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
Score1 (0 | 1) **Number of right answers*** to the 20 financial fraud questions	0	158	83	75	198	102	96
**A right answer is when the respondent identifies a fraud when the question involved a fraud, and when the respondent identifies as safe a safe scenario that does NOT involved a fraud*	1	230	112	118	190	93	97
	Total	**388**	**195**	**193**	**388**	**195**	**193**
The variable is equal to 1 if the score is below the median (=13), and zero otherwise: hence a value of **1 is for a high risk of victimization**	Mean	0.59	0.57	0.61	0.49	0.47	0.50
	Std.Dev.	0.49	0.50	0.49	0.50	0.50	0.50
Score2 (0 | 1) **Sum of points (gained or lost*)** from the answers of the 20 financial fraud questions.	0	158	83	75	198	102	96
**A correct answer (e.g. the respondent identifies a fraud when the scenario of the question was a fraud, and identifies a safe scenario when it was safe) add points to the score, while a wrong answer (e.g. the respondent fails to identify a fraud or think there is a fraud in a safe scenario) subtract points to the score.*	1	230	112	118	190	93	97
	Total	**388**	**195**	**193**	**388**	**195**	**193**
	Mean	0.59	0.57	0.61	0.49	0.47	0.50
The variable is equal to 1 if the score is below the median (=7), and zero otherwise: hence a value of **1 is for a high risk of victimization**	Std.Dev.	0.49	0.50	0.49	0.50	0.50	0.50
Score3 (0 | 1) Number of "Do not know what to do" in the 20 financial fraud questions **(Confidence index)**	0	180	87	93	188	104	84
	1	208	108	100	200	91	109
The variable is equal to 1 if the score is above the median, and zero otherwise: hence a value of **1 is for the less confident respondents** (that used the Do Not Know option more than others)	**Total**	**388**	**195**	**193**	**388**	**195**	**193**
	Mean	0.54	0.55	0.52	0.51	0.46	0.56
	Std.Dev.	0.50	0.50	0.50	0.50	0.50	0.50

[18] A wrong answer can be wrong because the respondent did not choose option A (right option) but option B, or option C. If both options B and C are wrong, option C can be considered "more wrong" than option B and such difference is accounted with a ""-1" point for option B and a "-2" points for option C.

housing, foreigner, GPA), an indicator of previous victimization, and the available payment options (credit cards, debit cards, pre-paid cards). Those variables were included to check the above mentioned hypothesis and to check if they can help to explain the ability to avoid frauds, according with previous studies and the above mentioned assumptions about the logic connections with financial fraud knowledge. The expected result, as reported in the previous declaration of the hypothesis, is a positive correlation between financial literacy and the ability to identify financial frauds. At the same time the ownership of payment cards is expected to be positively related with the ability to avoid scams.

The second methodology is a difference-in-difference approach and addresses the effectiveness of the financial education seminar offered between the two waves of the survey (pre-test and post-test). Using this methodology the difference between the average financial fraud literacy before and after the seminar was assessed in the treatment group (those who attended the seminar) using each of the available measures of fraud literacy (score1, score2, and score3). In the meantime the same differences were measured in the control group (those who did not participate to the seminar), and the differences between those means were tested by a T-test. The expected result is a positive effect of financial education on financial fraud literacy with an increase in the fraud literacy that should be bigger for the participants that attended the seminar (financial education) compared to the others.

Ⅳ. Results

A. Risk of Victimization

Table 5 shows the output of the logistic regression analysis used to explain the risk of victimization in financial frauds, measured by the number of correct answers at the 20 items on financial frauds (score1). The coding of the dummy variable is 1 for a high risk of victimization (score below the median) and 0 for low risk (score above the median). Estimates are reported as odds ratios.

Table 5. Results of logistic regression on risk of victimization - Score 1 (# correct answers to fraud literacy questions)

Score1 (# correct answers)	**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**	
studyonly	1.23	0.345		1.34	0.215		1.38	0.177		1.32	0.272		1.33	0.265	
withparents	0.71	0.290		0.71	0.298		0.73	0.359		0.61	0.177		0.61	0.169	
foreigner	0.89	0.803		0.58	0.277		0.63	0.360		0.49	0.172		0.49	0.176	
male	0.74	0.164		0.81	0.340		0.86	0.512		1.09	0.743		1.09	0.734	
gpa				0.95	0.310		0.95	0.310		1.01	0.818		1.02	0.780	
parenteduMAX				0.98	0.787		0.97	0.709		0.97	0.789		0.98	0.863	
Payment-Credit card							1.50	0.198		**2.10**	**0.034**	**	**2.10**	**0.034**	**
Payment-Debit card							1.05	0.827		1.02	0.947		1.01	0.960	
Payment-Prepaid card							0.90	0.685		0.88	0.655		0.91	0.753	
Payment-PayPal							0.77	0.296		0.74	0.249		0.77	0.332	
Payment-SatisPay							0.96	0.967		1.37	0.773		1.34	0.791	
Payment-ApplePay							0.89	0.788		0.89	0.809		0.76	0.590	
Payment-GooglePay							1.07	0.919		1.27	0.707		1.22	0.757	
LMscore										**0.72**	**0.003**	**	**0.71**	**0.002**	**
cardscore										**0.77**	**0.028**	**	**0.77**	**0.034**	**
selfassess										0.98	0.881		0.99	0.949	
fraudvictim													1.00	0.751	
Obs		388			372			372			353			351	
Pseudo R-squared		0.0095			0.0121			0.0189			0.0556			0.0544	

**p-value<.10; **p-value<.05; ***p-value<.01.*

The hypothesis that those with higher financial literacy tend to be less victimized in financial frauds is confirmed. In the final step of the analysis, both of the objective measures of financial literacy are statistically significant. The odds of the LMscore (.71) and the cardscore (.77) suggest that each correct answer to one of the five questions of those scores reduces the risk of victimization by almost 30%. The third measure - based on the self-assessment of the respondent about his/her financial literacy - is not related with the risk of victimization. The hypothesis that those who have more access to payment cards and other payment tools are more ready to deal with the risk of scams is not confirmed by the empirical results. Six out of seven of the variables related to the ownership of payment types are not statistically significant, while the seventh variable suggests that those who have a credit card are twice as likely to be at high risk of victimization. If that result seems to be counterintuitive, it can be interpreted as a measure of overconfidence. The use of the credit card can make people feel more confident about their financial behaviors, paying less attention in scenarios that involve a risk of financial fraud. To have been victimized in the past does not help to identify financial frauds. The lack of significance can be the evidence that people struggle to learn from previous mistakes, but it can be related with the fact that an individual could have been the victim of only one of the frauds proposed in the 20 items used to assess the fraud literacy, or the fraud he/she was victim of could be out of that list. The socio-demographic variables (e.g. to be male, to be a full time student, to live with parents, parents' education, etc.) show no evidence of a clear correlation with the risk of victimization an do not support the related hypothesis.

The same analysis was repeated using the second measure of fraud literacy (score2) based on the "points" gained or lost answering the 20 questions on financial frauds. Like the other indices of financial fraud victimization, the value 1 is for the individuals with the high risk of victimization (measured by being below the median of the distribution based on the total points from the answers). Results are summarized in Table 6, with estimates reported as odds ratios.

In this case financial literacy is unrelated to the risk of victimization. All the three measures (LMscore, card-

Table 6. Results of logistic regression on risk of victimization - Score 2 (# points related to answer to fraud literacy questions)

Score 2 (# points)	**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**	
studyonly	**0.64**	**0.051**	*	0.73	0.184		0.69	0.135		0.73	0.217		0.73	0.214	
withparents	**0.58**	**0.099**	*	**0.57**	**0.095**	*	**0.55**	**0.082**	*	**0.51**	**0.065**	*	**0.52**	**0.076**	*
foreigner	0.80	0.623		0.51	0.173		0.47	0.148		**0.42**	**0.094**	*	0.43	0.102	
male	1.00	0.983		1.08	0.729		1.08	0.745		1.16	0.559		1.16	0.555	
gpa				0.94	0.229		0.94	0.247		0.97	0.596		0.98	0.671	
parenteduMAX				0.97	0.718		0.97	0.705		0.92	0.402		0.93	0.465	
Payment-Credit card							0.90	0.741		0.95	0.877		0.94	0.845	
Payment-Debit card							1.13	0.591		0.98	0.944		0.99	0.977	
Payment-Prepaid card							0.65	0.109		**0.58**	**0.052**	*	**0.60**	**0.079**	*
Payment-PayPal							1.25	0.376		1.28	0.350		1.33	0.290	
Payment-SatisPay							2.18	0.537		2.05	0.567		2.01	0.576	
Payment-ApplePay							0.53	0.157		**0.44**	**0.090**	*	**0.37**	**0.054**	*
Payment-GooglePay							1.01	0.985		1.01	0.984		0.98	0.977	
LMscore										0.86	0.173		0.86	0.171	
cardscore										0.98	0.865		0.99	0.933	
selfassess										1.13	0.267		1.13	0.272	
fraudvictim													1.00	0.761	
Obs		388			372			372			391			351	
Pseudo R-squared		0.0119			0.017			0.0317			0.0396			0.04	

**p-value<.10; **p-value<.05; ***p-value<.01.*

score, selfassess) are not statistically significant. On the other hand, there is some evidence that the ownership of payment tools is correlated with the risk of victimization. Pre-paid cards (odd .60) and Apple Pay (odd .37) strongly decrease the chance to be at high risk of victimization. Results for the other cards/services (credit cards, debit cards, PayPal, etc.) do not confirm the same hypothesis. The socio-demographic variables are not significant even in this case, with the only exception of the variable that identifies those who live with parents (withparents, odd .52). In this case the results suggest that to live at home with parents decreases the chance to be victim of a financial fraud. However the significance at only 10% does not allow additional comments.

Thus we can conclude that those who are more financially literate are more able to judge if there is or not a risk of fraud but, at the same time, when their performance is not strictly related to the number of times they succeed (score1) but account even for the number of times they fail (score2) this positive relationship tend to fade. That difference suggests that those with more financial literacy tend to be more active (to take more decisions and to answer more questions) even if they do not always do the right thing. The chance that this hyper-activity could be the consequence of an over-confidence generated by financial literacy can be directly addressed by replacing the dependent variable of the regression models with the third score (score3) based on the number of Do Not Know answers. While score1 and score2 address the likelihood to fail the answers related to the 20 items on financial fraud, the score3 addresses the likelihood to do not really answer, choosing the option “Do Not Know”. Hence, this index assesses the lack of confidence in the judgement of a certain scenario and provides a different perspective. As the other indices, it is a dummy variable where the value 1 means that the respondent belongs to the group of those used the Do Not Answer the most (above the median), showing a low confidence in dealing with financial frauds. The results are listed in Table 7. Estimates are reported as odds ratios.

The odds of the three variables on financial literacy - LMscore (odd .98), cardscore (odd .59), selfassess (.63) - support the hypothesis that the higher is the financial literacy, the higher is financial confidence (so lower is the

Table 7. Results of logistic regression on risk of victimization - Score 3 (# Do Not Know to fraud literacy questions)

Score 3 (# Do Not Know)	Odds	P-value		Odds	P-value		Odds	P-value		Odds	P-value		Odds	P-value	
studyonly	1.49	0.074		1.44	0.118		1.48	0.106		1.25	0.401		1.25	0.396	
withparents	0.84	0.584		0.80	0.497		0.81	0.534		0.74	0.399		0.75	0.431	
foreigner	0.61	0.278		0.47	0.133		0.53	0.220		0.42	0.122		0.43	0.137	
male	**0.63**	**0.027**	**	0.71	0.117		0.76	0.216		0.76	0.290		0.75	0.267	
gpa				1.06	0.284		1.06	0.306		**1.11**	**0.077**	*	**1.12**	**0.050**	**
parenteduMAX				0.95	0.587		0.96	0.618		1.02	0.873		1.03	0.785	
Payment-Credit card							1.40	0.266		**2.08**	**0.031**	**	**2.10**	**0.029**	**
Payment-Debit card							0.82	0.373		0.95	0.839		0.95	0.846	
Payment-Prepaid card							0.94	0.823		0.95	0.872		1.00	0.988	
Payment-PayPal							0.87	0.578		0.80	0.404		0.81	0.433	
Payment-SatisPay							-	-		-	-		-	-	
Payment-ApplePay							0.86	0.741		1.22	0.697		1.07	0.901	
Payment-GooglePay							0.60	0.455		0.88	0.852		0.89	0.869	
LMscore										0.98	0.849		0.98	0.851	
cardscore										**0.59**	**0.000**	***	**0.59**	**0.000**	***
selfassess										**0.64**	**0.000**	***	**0.63**	**0.000**	***
fraudvictim													1.01	0.221	
Obs		388			372			368			349			347	
Pseudo R-squared		0.0197			0.0209			0.0272			0.1031			0.1057	

**p-value<.10; **p-value<.05; ***p-value<.01.*

chance of belonging to the low confidence group). Within the objective measures of financial literacy, the index based on the knowledge on payment cards (cardscore) is the one statistically significant, while the index based on the Lusardi-Mitchell questions is not. The self-assessed variable - that measures the financial literacy by a self-assessment of the respondent - is statistically significant and its odd below one shows that the more the respondent feels knowledgeable in finance, the lower is the chance they use the Do Not Know option. Thus, if results from the previous analysis of this study do not always confirm a relationship between financial literacy and the ability to prevent financial frauds, it seems clear how financial literacy is able to make the respondent feel more confident in taking financial decisions.

The awareness that different kind of scams exist and individuals could be ready to deal with some of them, but not with others, suggested to replicate the analysis replacing the fraud literacy scores - one by one - with each of the 20 variables accounting for the 20 items separately. To preserve the readability of the paper the outputs of the 20 logistic regressions models are not discussed here but are available in the appendix.

Table 8. Results of diff-in-diff analysis of the effectiveness of financial education seminar

Panel A:	Before	After		
Control	**193**	**193**	386	
Treated	**195**	**194**	389	
	388	387		
Outcome var.	**# of correct answers (0 | 20)**	Std. Err.	|t|	P>|t|
Before				
Control	12.788			
Treated	12.887			
Diff (Treated - Control)	0.100	0.239	0.42	0.676
After				
Control	13.171			
Treated	13.459			
Diff (Treated - Control)	0.288	0.239	1.2	0.229
Diff-in-Diff (N=775)	0.188	0.388	0.56	0.577
R-squared:	0.01			
Panel B:	Before	After		
Control	**193**	**193**	386	
Treated	**195**	**194**	389	
	388	387		
Outcome var.	**# of points (-27 | 20)**	Std. Err.	|t|	P>|t|
Before				
Control	6.347			
Treated	6.559			
Diff (Treated - Control)	0.212	0.416	0.51	0.611
After				
Control	5.627			
Treated	5.603			
Diff (Treated - Control)	-0.024	0.417	0.06	0.954
Diff-in-Diff (N=775)	-0.236	0.589	0.40	0.689
R-squared:	0.01			

Panel C:	Before	After		
Control	**193**	**193**	386	
Treated	**195**	**194**	389	
	388	387		
Outcome var.	**# of Do Not Know (0 | 20)**	Std. Err.	|t|	P>|t|
Before				
Control	2.135			
Treated	2.195			
Diff (Treated - Control)	0.060	0.206	0.29	0.77
After				
Control	1.352			
Treated	1.000			
Diff (Treated - Control)	**-0.352**	0.206	1.71	**0.088***
Diff-in-Diff (N=775)	-0.412	0.291	1.42	0.157
R-squared:	0.06			

B. Effects of a Financial Education Seminar

The second part of the study tried to assess the effectiveness of a financial education program based on a single-event in improving the ability to identify financial frauds. The analysis was based on a difference-in-difference approach. Results of the analysis are in Table 8.

Results do not confirm the hypothesis that a single financial education seminar can improve the ability of individuals to identify a financial fraud related with payment cards. The first attempt used the number of correct answers to the 20 items on financial frauds (score1). The comparison between the pre-test (questionnaire filled before the seminar) and the post-test (data collected after the seminar) shows an increase in the average number of correct answers for both the participants to the seminar (treatment group) and the others (control group). The statistical analysis rejects the hypothesis that the participants to the seminar (thanks to their attendance) improved their financial frauds knowledge more than the others.

A second attempt replaced the measure of financial fraud literacy, switching from the number of correct answers to the number of points gained or lost with the answers to the financial fraud questions (score2). In this case the comparison between the pre-test and the post-test shows a score in the post-test that decreases from the pre-test. This result is for both the treatment and the control group. A possible interpretation is that participants used the Do Not Know options in the pre-test more frequently than the post-test, but the additional answers were related to negative points (wrong answers) with a final result of a diminishing average score in the post-test. Regardless the trend of the score between the pre-test and the post-test, what is relevant is that even in this case there is not a statistically significant difference between who was exposed to the financial education seminar and who did not.

In the third case the diff-in-diff approach analyzed the number of Do Not Know answers (score3). In this case there is a statistical significant result and it is about the post-test. Results suggest that who participated to the seminar used the Do Not Know option less than the control group. This result can be interpreted as the evidence that a single seminar on financial fraud - if it is not able to increase the real knowledge on financial fraud - at least can raise the confidence of the participants that become more active when they have to deal with a potential financial fraud. However the final result of the diff-in-diff analysis does not allow to fully support this hypothesis.

V. Conclusions

This study analyzed the role of financial literacy in preventing financial frauds related to the use of payment cards. The lack of literature on this topic represented the main motivation of the study, together with the relevance and the possible negative consequences of financial scams for different subjects (e.g. consumers, financial intermediaries, producers and sellers). The analysis used recent data from a survey on college students from a faculty of economics to assess the ability to identify and avoid financial frauds, and to assess the financial literacy of the respondents. Different measure of "fraud literacy" and different measures of financial literacy have been used in statistical analysis based on logistic regression models, where the fraud literacy was the dependent variable and financial literacy was one of the explanatory variables, together with variables addressing the ownership of payment cards, previous victimization experiences, and socio-demographic characteristics (e.g. gender, housing, job status, etc.).

Results confirm a positive effect of financial literacy on the ability to identify a financial fraud in one of the two cases. When the "fraud literacy" is assessed as the number of time the respondent was able to identify a fraudulent scenario as a fraud and when recognized as safe a scenario not related with a scam (score1), both the objective measures of financial literacy - one replicating the Lusardi-Mitchell questions, the other focused on the knowledge about the functioning of payment cards - were able to decrease the risk of victimization. Those variables were not statistically significant anymore when the "fraud literacy" was measured accounting positive or negative points in case of right or wrong answers (score2). Regardless the methodology applied to measure the ability to identify a financial fraud, the self-assessed measure of financial literacy was not relevant on a statistic point of view. This result is coherent with results from previous studies that shown how the perception of people about their financial literacy often differs from the real knowledge and skills they have in finance.

What is interesting is that when financial literacy was a statistically significant variable, it was the only variable - together with the ownership of credit cards - correlated with the fraud literacy. The fact that other variables did not contribute to explain the volatility of the fraud literacy can be interpreted as the difficulty to identify the drivers of the decision making process of individuals that deal with financial frauds, and - at the same time - the key role of financial literacy in that process.

The fact that the median of the number of correct answers to the 20 questions on financial frauds (used in the score1) was 13 shows how even in a sample of individuals that should be more prepared than the general population in dealing with financial frauds (thanks to their studies in economics and finance, their attitude to deal with emails and internet where several frauds happens, etc.) half of the respondents risks to be victimized in around 50% of the cases. This result should be a warning about the risk of victimization for more weak groups of the population.

A third analysis paid attention to the confidence that individuals have in dealing with a possible financial fraud. Counting the number of "Do Not Know" answers (score3), where individuals admit to do not know if the scenario of the question was a fraud or not, this measure was used as dependent variable in a last regression model. Results shows how in this case two of the three measures of financial literacy are statistically significant. The knowledge on the functioning of payment cards (cardscore) has a odd .59. So higher is the knowledge on payment cards lower is the chance to use a lot the option "Do Not Know". In the meantime, more a respondent self-assesses his/her financial literacy as high, lower is the use of the "Do Not Know" option. These results can be interpreted as a positive effect of financial literacy on financial confidence. People with more financial knowledge, or people that simply think to be more knowledgeable, tend to be more active and to be more prone to take decisions when they use their payment cards, even when those decisions involve a risk to be victim of a fraud. If to be confident in finance is important, because increase the likelihood to participate to the financial system and take benefit from that, the evidence that financial literacy is not always correlated with the ability to identify and avoid a financial fraud requires to be wary about the positive correlation between financial literacy and financial confidence, because there is the chance that financial literacy could generate more confidence than abilities, with a final "overconfidence" effect that could increase the risk of victimization in financial frauds.

The second part of the study assessed the effect of financial education on fraud literacy. The main interest was to test if a "one shot" event, represented by a two hours seminar on financial frauds related with payment cards, was able to improve the ability of individuals to deal with financial frauds. Using a diff-in-diff approach the same questionnaire was administered to two groups of individuals. Then the first group attended the seminar, while the other did not. A second wave of the questionnaire was administered few days after the seminar to both groups. Results suggest that the one-shot approach does not work. Using two different measures of fraud literacy, no difference in the pre- and post-tests results' differences are statistically significant. It follows that any difference in the ability to identify a fraud between the two points in time (before and after the seminar) can not be proved to be due by the seminar. If the lack of evidence about the effectiveness of the seminar can be related to some seminar's issues, as the structure of the seminar, the contents of the seminars, the attention paid by the participants, and many other possible explanations, the doubts about the chance to empower financial consumers with single events of financial education still remains. The only effect that the seminar seems to produce is an increase in financial confidence. The application of the diff-in-diff approach on the variable that counts the number of "Do Not Know"s shows how in the second wave of the survey (the post-test) there is a statistically significant difference between the treatment group (seminar attendants) and the control group, with the former less prone to use the "Do Not Know" option than the latter. However, the overall result of the diff-in-diff does not confirm the general validity of this hypothesis.

We can conclude that, even if further studies on the effectiveness of financial literacy to reduce the risk of victimization in financial frauds that involve the use of payment cards are necessary, results of this study suggest a positive relationship between financial literacy and the ability to avoid that kind of scams. Those results are coherent with results of previous studies where financial literacy was proven to be relevant in promoting positive financial behaviors and to avoid investment scams.

About the chance to adopt financial education strategies based on single and short events to increase financial literacy, this study does not support the effectiveness of this approach. However the chance that a lack of empirical evidence on the effectiveness of financial education could be explained by the different issues does not allow to conclude that financial education is worthless or that short seminars are never useful, while additional studies that compare the effectiveness of financial education programs that differ in terms of contents, teaching methodology, and target of recipients can help to shed light on the big question about the effectiveness of financial education and the opportunity to invest on it to improve the consumer financial literacy.

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Appendix

Table A1. Details of the financial literacy items used for the financial literacy indices

Variables	Values	All	Treatment group	Control group
Lusardi-Mitchell Compound interest	Suppose you had 100€ in a savings account (without cost) and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?			
	1=More than 102€ (RIGHT ANSWER)	341	176	165
	2=Exactly 102€	6	2	4
	3=Less than 102€	37	16	21
	98=Do not know	1	0	1
	99= Prefer not to say	1	1	2
	N.A.	2	0	0
	Total	**388**	**195**	**193**
	Correct Answer %	**87.9%**	**90.3%**	**85.5%**
Lusardi-Mitchell Inflation	Suppose that the interest rate on your savings account was 1% per year and inflation was 2% per year. After 1 year, how much would you be able to buy with the money in this account?			
	1=More than today	14	7	7
	2=Exactly the same amount of today	25	12	13
	3=Less than today	319	164	155
	98=Do not know	26	10	16
	99= Prefer not to say	1	1	0
	N.A.	3	1	2
	Total	**388**	**195**	**193**
	Correct Answer %	**82.2%**	**84.1%**	**80.3%**
Lusardi-Mitchell Mortgage	A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less.			
	1 = True (RIGHT ANSWER)	249	127	122
	2 = False	112	60	52
	98=Do not know	25	8	17
	99= Prefer not to say	1	0	1
	N.A.	1	0	1
	Total	**388**	**195**	**193**
	Correct Answer %	**64.2%**	**65.1%**	**63.2%**
Lusardi-Mitchell Stock	Buying a single company's stock usually provides a safer return than a stock mutual fund.			
	1=True	29	12	17
	2=False (RIGHT ANSWER)	265	133	132
	98=Do not know	90	49	41
	99= Prefer not to say	3	1	2
	N.A.	1	0	1
	Total	**388**	**195**	**193**
	Correct Answer %	**68.3%**	**68.2%**	**68.4%**

Variables	Values	All	Treatment group	Control group
Lusardi-Mitchell Bond pricing	If interest rates rise, what will typically happen to bond prices?			
	1=They will grow	95	46	49
	2=They will fall (RIGHT ANSWER)	213	118	95
	3=They will stay the same	10	3	7
	4=There is no relationship between bond prices and the interest rate	23	10	13
	98=Do not know	40	15	25
	99= Prefer not to say	5	2	3
	N.A.	2	1	1
	Total	**388**	**195**	**193**
	Correct Answer %	**54.9%**	**60.5%**	**49.2%**
Card 1	What type of payment card does allows to buy now a good and pay for it in the future?			
	1=Debit card	46	19	27
	2=Credit card (RIGHT ANSWER)	339	174	165
	3=Pre-paid card	1	1	0
	98=Do not know	2	1	1
	99= Prefer not to say	0	0	0
	N.A.	0	0	0
	Total	**388**	**195**	**193**
	Correct Answer %	**87.4%**	**89.2%**	**85.5%**
Card 2	If you do not have money in your bank account (and you can not overdraft), which of the following is an available option to buy a good in a shop?			
	1=Cheque	74	41	33
	2=Debit card	43	19	24
	3=Pre-paid card (RIGHT ANSWER)	246	122	124
	98=Do not know	24	13	11
	99= Prefer not to say	1	0	1
	N.A.	0	0	0
	Total	**388**	**195**	**193**
	Correct Answer %	**63.4%**	**62.6%**	**64.2%**
Card 3	Which is the payment option in the following list that - if used - affects the balance ofyour bank account?			
	1=Cash	12	6	6
	2=Pre-paid card	27	13	14
	3=Debit card (RIGHT ANSWER)	346	176	170
	98=Do not know	2	0	2
	99= Prefer not to say	1	0	1
	N.A.	0	0	0
	Total	**388**	**195**	**193**
	Correct Answer %	**89.2%**	**90.3%**	**88.1%**

Variables	Values	All	Treatment group	Control group
Card 4	If you receive the balance of your credit card and you immediately pay in full for it, do you pay any interest? *Interest do not refer to withdraw fees or other commission			
	1=Yes	119	61	58
	2=No (RIGHT ANSWER)	188	90	98
	3=Only if you used your credit card abroad	21	13	8
	98=Do not know	55	28	27
	99= Prefer not to say	4	2	2
	N.A.	1	1	0
	Total	**388**	**195**	**193**
	Correct Answer %	**48.5%**	**46.2%**	**50.8%**
Card 5	Can you withdraw money in a ATM using your credit card?			
	1=No, ATM works only with debit cards, not even with credit cards	56	27	29
	2=Yes, but you will be charged with commissions/fees (RIGHT ANSWER)	269	142	127
	3=Yes, and it is free of charge	37	17	20
	98=Do not know	24	8	16
	99= Prefer not to say	1	0	1
	N.A.	1	1	0
	Total	**388**	**195**	**193**
	Correct Answer %	**69.3%**	**72.8%**	**65.8%**

Table A2. Details of the fraud literacy items used for the fraud literacy indices

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit01	Your credit card is a magnetic band card and it is in your wallet in your pants' pocket. Riding the metro you see a man approaching passengers with a device in his hand similar to a wireless point-on-sale machine⋯		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-1	A) You have to take distance because approaching you he could connect the wireless device to your credit card and withdraw money from your account	192	100	92	227	91	136
	-2	B) You just need to put a hand in your pocket and cover your wallet to avoid that the wireless reader will stole your data from the card and use it to withdraw money from your account.	41	23	18	24	10	14
	1	C) You do not have to worry because he can not withdraw money from your account even if he has a wireless POS machine	98	43	55	128	92	36
	0	D) (In this case I do not know what to do)	51	27	24	5	0	5
		99 Prefer not to say	4	1	3	3	1	2
		N.A.	2	1	1	0	0	0
		Correct Answers %	**50.0%**	**45.3%**	**54.5%**	**80.0%**	**89.3%**	**63.2%**
FraudLit02	You are at the hotel desk to check in and the concierge asks you two ID documents, your ID card and your SSN, telling you that you do not need to wait and you can enjoy your room. You can come back later to take them back⋯		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-1	A) There is no problem: it is usual to present your ID card when you check in in hotels	100	50	50	170	80	90
	1	B) There is the risk of an identity theft	72	37	35	153	87	66
	-2	C) You ask the concierge will complete the procedure in front of you so you avoid to leave your documents	197	96	101	49	20	29
	0	D) (In this case I do not know what to do)	16	10	6	13	7	6
		99 Prefer not to say	1	1	0	1	0	1
		N.A.	2	1	1	1	0	1
		Correct Answers %	**18.6%**	**19.0%**	**18.1%**	**39.5%**	**44.8%**	**34.2%**
FraudLit03	You are at the hotel desk to check in and the concierge asks you an ID card (e.g. your ID card, a passport, a driving license...), telling you that you do not need to wait and you can enjoy your room. You can come back later to take it back⋯		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is no problem: it is usual to present your ID card when you check in in hotels	140	75	65	197	94	103
	-1	B) There is the risk of an identity theft	58	23	35	85	45	40
	-2	C) You ask the concierge will complete the procedure in front of you so you avoid to leave your document	182	92	90	94	50	44
	0	D) (In this case I do not know what to do)	7	4	3	9	5	4
		99 Prefer not to say	1	1	0	2	0	2
		N.A.	0	0	0	0	0	0
		Correct Answers %	**36.1%**	**38.5%**	**33.7%**	**50.9%**	**48.5%**	**53.4%**

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit04	You are at the hotel desk to check in and the concierge asks you to leave your ID card and your credit card - that will be used to authorize a 300€ lock (as a collateral in case of damages) ⋯		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-2	A) It is ok, there is no risk of fraud	45	26	19	17	6	11
	1	B) There is a risk of fraud	307	150	157	349	177	172
	0	C) (In this case I do not know what to do)	32	16	16	18	9	9
		99 Prefer not to say	3	2	1	1	1	0
		N.A.	1	1	0	2	1	1
		Correct Answers %	**79.1%**	**76.9%**	**81.3%**	**90.2%**	**91.2%**	**89.1%**
FraudLit05	You are at the restaurant with your family, at the end of the dinner you asked to pay by credit card and the waitress gives you the bill in a booklet case, with the invitation to leave your credit card		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) In some countries it can happen, because it is a standard procedure. If you are in one of those countries there is no need to worry, even if you are aware there is the risk that the data of your card can be stolen	292	143	149	302	152	150
	-1	B) It is 100% a fraud, hence you deny to leave your card	62	32	30	69	36	33
	0	C) (In this case I do not know what to do)	29	18	11	11	3	8
		99 Prefer not to say	5	2	3	4	2	2
		N.A.	0	0	0	1	1	0
		Correct Answers %	**75.3%**	**73.3%**	**77.2%**	**78.0%**	**78.4%**	**77.7%**
FraudLit06	You receive a package with an item you bought on line. When you did your purchase you filled the data of your credit card on the e-commerce platform, but the delivery man ask you to take a picture of your credit card - front and rear sides - using a device similar to a smartphone. He tells you it is necessary to check your data and complete the transaction.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	345	172	173	372	188	184
	-1	B) It is ok there is no risk of fraud	13	7	6	7	3	4
	0	C) (In this case I do not know what to do)	23	11	12	5	1	4
		99 Prefer not to say	6	4	2	4	2	2
		N.A.	1	1	0	0	0	0
		Correct Answers %	**88.9%**	**88.2%**	**89.6%**	**95.9%**	**96.9%**	**94.8%**
FraudLit07	You receive a call from a utility company (e.g. electricity) asking you to confirm your residence address, that matches with your current residence address. You are asked to confirm your first name and last name (that are right). After this identification process the employee of the company tells you that the call is to check the payment information used to charge their services, and he invites you to give the number of your credit card, the expiration date and the three digits on the rear of the card..		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	366	186	180	359	187	172
	-1	B) It is ok there is no risk of fraud	6	0	6	14	5	9
	0	C) (In this case I do not know what to do)	12	7	5	12	2	10
		99 Prefer not to say	2	1	1	2	0	2
		N.A.	2	1	1	0	0	0
		Correct Answers %	**94.3%**	**95.4%**	**93.3%**	**92.8%**	**96.4%**	**89.1%**

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit08	You posted a sell announcement on line to sell your bike. You receive a call from the phone number you provided in your announcement and the buyer ask you to pay by ATM. He gives you a code and invite you to go to the ATM of his bank where you can insert your credit or debit card, insert the code and receive the payment with a recharge of your card.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	188	97	91	258	134	124
	-1	B) It is ok there is no risk of fraud	77	38	39	74	35	39
	0	C) (In this case I do not know what to do)	116	56	60	48	21	27
		99 Prefer not to say	5	4	1	7	4	3
		N.A.	2	0	2	0	0	0
		Correct Answers %	**48.5%**	**49.7%**	**47.2%**	**66.7%**	**69.1%**	**64.2%**
FraudLit09	You are visiting a foreign country and you are at a bank to withdraw money in local currency (that it is not your home country currency) using your credit card. The employee at the bank desk recommends to do not use the credit card to avoid an exchange rate that is not be cheap, and he recommends to exchange cash.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-1	A) There is a risk of fraud. There is no reason to give such advice by the employee	37	18	19	149	78	71
	1	B) It is ok, there is no risk of fraud (exchange rates used by credit card issuers are never cheap)	279	140	139	192	94	98
	0	C) (In this case I do not know what to do)	64	33	31	31	0	31
		99 Prefer not to say	6	3	3	14	15	-1
		N.A.	2	1	1	1	7	-6
		Correct Answers %	**71.9%**	**71.8%**	**72.0%**	**49.6%**	**48.5%**	**50.8%**
FraudLit10	You are visiting a foreign country and you are in line to use and ATM, waiting that who is currently using the ATM will have done. From the main entrance of the bank a man exits and approaches you introducing himself as a bank employee. He recommend to not use the ATM to withdraw money and he offers to gives you cash in local currency at the official exchange rate - listed on the bank screen - without doing the transaction with the bank in order to avoid the bank commissions.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	311	159	152	119	55	64
	-1	B) It is ok there is no risk of fraud	30	12	18	237	125	112
	0	C) (In this case I do not know what to do)	39	20	19	26	12	14
		99 Prefer not to say	5	2	3	3	2	1
		N.A.	3	2	1	2	0	2
		Correct Answers %	**80.2%**	**81.5%**	**78.8%**	**30.7%**	**28.4%**	**33.2%**
FraudLit11	You receive an email from a lawyer - Mr John Smith - (from an email address smithlawfirm@lawandjustice.com) with a legal notice related to a tax evasion issue described in the attachment.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	164	77	87	226	132	94
	-1	B) It is ok there is no risk of fraud	127	70	57	111	52	59
	0	C) (In this case I do not know what to do)	86	44	42	33	8	25
		99 Prefer not to say	11	4	7	6	1	5
		N.A.	0	0	0	1	1	0
		Correct Answers %	**42.3%**	**39.5%**	**45.1%**	**59.9%**	**68.0%**	**51.4%**

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit12		You receive an email from a lawyer of a foreign country. The email notices you that one of your relatives passed away and you are the only heir. In order to start the legal procedure required to transfer the inheritance the lawyer asks you to do a wire transfer (and includes in the email he bank information numbers to do it).	**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	359	180	179	356	182	174
	-1	B) It is ok there is no risk of fraud	11	9	2	12	5	7
	0	C) (In this case I do not know what to do)	14	6	8	14	6	8
		99 Prefer not to say	4	0	4	4	1	3
		N.A.	0	0	0	1	0	1
		Correct Answers %	**92.5%**	**92.3%**	**92.7%**	**92.0%**	**93.8%**	**90.2%**
FraudLit13		You receive an email from noreply@amazon.com with a promo code that you can use going to the Amazon website, which link is reported for convenience in the email (www.amazon.com)	**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-1	A) There is a risk of fraud	65	39	26	72	39	33
	1	B) It is ok there is no risk of fraud	302	157	145	301	149	152
	0	C) (In this case I do not know what to do)	19	9	10	9	4	5
		99 Prefer not to say	2	0	2	5	2	3
		N.A.	0	0	0	0	0	0
		Correct Answers %	**77.8%**	**76.6%**	**79.2%**	**77.8%**	**76.8%**	**78.8%**
FraudLit14		You receive an email from noreply@amazon.bfriday.com with a promo code that you can use going to the Amazon website, which link is reported for convenience in the email (www.amazon.bfriday.com)	**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	230	109	121	242	127	115
	-1	B) It is ok there is no risk of fraud	131	74	57	130	61	69
	0	C) (In this case I do not know what to do)	22	10	12	9	5	4
		99 Prefer not to say	4	2	2	4	1	3
		N.A.	1	0	1	2	0	2
		Correct Answers %	**59.3%**	**55.9%**	**62.7%**	**62.5%**	**65.5%**	**59.6%**
FraudLit15		You receive an email about an unauthorized attempt to use your credit card, that has been locked to prevent further issues. In the same email you find a link to a webpage where you can unlock your card by filling the following information: first name, last name, credit card number, expiration date, security code.	**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	349	180	169	231	115	116
	-2	B) It is ok there is no risk of fraud	23	7	16	131	70	61
	0	C) (In this case I do not know what to do)	13	6	7	18	8	10
		99 Prefer not to say	2	2	0	3	1	3
		N.A.	1	0	1	4	1	3
		Correct Answers %	**89.9%**	**92.3%**	**87.6%**	**59.7%**	**59.0%**	**60.1%**

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit16	You receive an email from the email address of a friend of yours with the following message "Hi, I am abroad and my credit card does not work because has been cloned. I need to pay for my hotel and then run to the airport to do not miss my flight. Can you send me the info of your credit card? When I will be back I will tell you what happened in details"		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) It is a fraud: I do not reply	293	149	144	330	171	159
	-2	B) It is my friend email account, I know him, hence I immediately reply sending my credit card infos	35	13	22	23	10	13
	0	C) (In this case I do not know what to do)	41	21	20	27	11	16
		99 Prefer not to say	19	12	7	6	2	4
		N.A.	0	0	0	1	0	1
		Correct Answers %	**75.5%**	**76.4%**	**74.6%**	**85.3%**	**88.1%**	**82.4%**
FraudLit17	While you insert your debit card in an ATM you notice that the keyboard is above the rest of the machine.		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	219	108	111	98	61	37
	-1	B) It is ok there is no risk of fraud	65	37	28	219	101	118
	0	C) (In this case I do not know what to do)	98	47	51	58	27	31
		99 Prefer not to say	4	3	1	9	4	5
		N.A.	2	0	2	3	1	2
		Correct Answer %	**56.4%**	**55.4%**	**57.5%**	**25.3%**	**31.4%**	**19.2%**
FraudLit18	It is 7.00pm. You inserted your debit card in an ATM and inserted your PIN but the monitor of the machine showing the logo of the bank turn black and the following message appear "Error 404...system error. ATM is locked. If your card is in the machine it will be retained for security issues. Please go to the bank offices to have it back."		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	1	A) There is a risk of fraud	76	38	38	76	44	32
	-2	B) It is ok there is no risk of fraud	224	109	115	271	133	138
	0	C) (In this case I do not know what to do)	83	47	36	32	14	18
		99 Prefer not to say	4	1	3	7	3	4
		N.A.	1	0	1	1	0	1
		Correct Answers %	**19.6%**	**19.5%**	**19.7%**	**19.6%**	**22.7%**	**16.6%**
FraudLit19	You are trying to insert your PIN at the ATM, but the digit "9" of the keyboard does not work (and that digit is part of your PIN). After the third failed attempt the following message appears on the screen "Your available attempts are over. Your card will be retained for security issues. Please go to the bank offices to have it back."		**All**	**Treatment group**	**Control group**	**All**	**Treatment group**	**Control group**
	-1	A) There is a risk of fraud	66	24	42	109	59	50
	1	B) It is ok there is no risk of fraud	265	143	122	237	115	122
	0	C) (In this case I do not know what to do)	53	26	27	39	19	20
		99 Prefer not to say	4	2	2	2	1	1
		N.A.	0	0	0	0	0	0
		Correct Answers %	**68.3%**	**73.3%**	**63.2%**	**61.2%**	**59.3%**	**63.2%**

Variables	Points	Questions and options	Pre-Test			Post-Test		
FraudLit20		You have just inserted your debit card in an ATM to withdraw cash, but even before to chose an option from the ones listed on the menu, the following message appears on the screen "your bank could charge a fee for this transaction".	All	Treatment group	Control group	All	Treatment group	Control group
	-1	A) There is a risk of fraud	36	14	22	80	42	38
	1	B) It is ok there is no risk of fraud	326	170	156	256	129	127
	0	C) (In this case I do not know what to do)	22	10	12	38	17	21
		99 Prefer not to say	4	1	3	13	6	7
		N.A.	84.0%	87.2%	80.8%	66.1%	66.5%	65.8%
		Correct Answers %						

Table A3. Results of the logistic regression on each of the 20 financial fraud questions.
The dependent variable is equal to 1 if the respondent answered correctly, and zero otherwise.

	1		2		3		4		5	
Fraud Literacy - Question #...	**Odds**	**P-value**	**Odds**	**P-value**	**Odds**	**P-value**	**Odds**	**P-value**	**Odds**	**P-value**
studyonly	**0.62**	**0.099** *	1.36	0.367	1.79	0.031 **	1.93	0.029 **	0.72	0.286
withparents	0.60	0.164	0.96	0.933	1.52	0.255	0.90	0.795	**1.91**	**0.073** *
foreigner	1.49	0.470	**2.75**	**0.070** *	0.78	0.665	1.32	0.681	1.51	0.503
male	0.87	0.631	1.10	0.773	0.83	0.461	1.15	0.656	0.97	0.907
gpa	1.07	0.306	1.07	0.379	0.96	0.444	1.08	0.277	1.08	0.262
parenteduMAX	0.93	0.502	0.96	0.724	1.06	0.546	1.03	0.824	1.17	0.177
Payment-Credit card	1.46	0.299	0.51	0.163	1.30	0.426	1.61	0.256	1.17	0.687
Payment-Debit card	1.30	0.342	1.50	0.199	0.89	0.633	**0.49**	**0.017** **	0.69	0.192
Payment-Prepaid card	**1.80**	**0.078** *	1.11	0.771	1.04	0.879	1.11	0.755	0.99	0.964
Payment-PayPal	0.97	0.930	0.98	0.952	1.00	0.987	0.90	0.740	1.65	0.115
Payment-SatisPay	2.54	0.474	1.13	0.927	-	-	-	-	0.61	0.702
Payment-ApplePay	0.73	0.586	2.34	0.137	1.58	0.371	1.52	0.507	0.94	0.916
Payment-GooglePay	**0.14**	**0.086** *	0.64	0.618	1.04	0.958	0.94	0.939	0.90	0.895
LMscore	0.98	0.836	1.17	0.261	**1.21**	**0.091** *	0.97	0.831	1.08	0.510
cardscore	0.89	0.387	**1.35**	**0.058** *	0.88	0.294	1.23	0.144	1.03	0.805
selfassess	1.08	0.561	0.93	0.608	0.92	0.470	1.02	0.914	0.91	0.455
fraudvictim	**0.87**	**0.008** **	0.99	0.630	0.97	0.239	**0.97**	**0.036** **	1.04	0.242
Obs	347		347		347		347		347	
Pseudo R-squared	0.06		0.05		0.03		0.07		0.05	

**p-value<.10; **p-value<.05; ***p-value<.01.*

	6			7			8			9			10		
Fraud Literacy - Question #...	**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**	
studyonly	1.074	0.860		0.78	0.663		0.83	0.462		0.83	0.503		**0.57**	**0.095**	*
withparents	1.31	0.616		2.29	0.260		0.90	0.744		**2.45**	**0.013**	**	1.23	0.607	
foreigner	0.69	0.603		-	-		1.45	0.483		2.56	0.161		0.75	0.636	
male	**0.40**	**0.027**	**	0.54	0.284		**2.23**	**0.001**	**	**0.55**	**0.038**	**	1.02	0.960	
gpa	1.06	0.546		1.02	0.879		0.93	0.237		0.95	0.395		1.02	0.826	
parenteduMAX	1.04	0.812		0.72	0.112		0.95	0.586		1.13	0.270		0.94	0.591	
Payment-Credit card	0.81	0.685		1.35	0.714		**0.56**	**0.083**	*	1.40	0.392		0.56	0.130	
Payment-Debit card	0.56	0.131		0.93	0.901		1.02	0.948		1.34	0.284		1.07	0.829	
Payment-Prepaid card	1.09	0.840		1.25	0.722		0.97	0.922		1.10	0.760		**2.26**	**0.012**	**
Payment-PayPal	0.94	0.889		2.00	0.294		0.86	0.553		1.20	0.544		0.73	0.317	
Payment-SatisPay	0.34	0.414		**0.06**	**0.060**	*	1.43	0.779		-	-		-	-	
Payment-ApplePay	2.34	0.435		0.25	0.150		0.58	0.293		0.81	0.709		2.24	0.315	
Payment-GooglePay	0.70	0.711		0.51	0.636		3.28	0.102		1.10	0.914		1.79	0.599	
LMscore	1.21	0.246		1.32	0.226		1.02	0.880		1.11	0.364		**1.30**	**0.039**	**
cardscore	1.18	0.347		1.35	0.226		**1.31**	**0.021**	**	**1.24**	**0.094**	*	**1.41**	**0.017**	**
selfassess	**1.58**	**0.015**	**	1.37	0.204		0.97	0.766		1.13	0.316		0.97	0.834	
fraudvictim	1.04	0.419		1.03	0.574		1.00	0.781		1.01	0.659		1.00	0.776	
Obs	353			333			351			347			347		
Pseudo R-squared	0.08			0.11			0.05			0.05			0.08		

**p-value<.10; **p-value<.05; ***p-value<.01.*

	11			12			13			14			15		
Fraud Literacy - Question #...	**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**		**Odds**	**P-value**	
studyonly	**0.60**	**0.043**	**	1.04	0.939		1.04	0.896		1.25	0.369		1.70	0.198	
withparents	0.84	0.605		**5.33**	**0.001**	**	**2.23**	**0.031**	**	1.44	0.286		2.41	0.106	
foreigner	1.98	0.185		2.99	0.333		0.55	0.272		0.98	0.972		1.57	0.674	
male	1.04	0.879		1.25	0.641		0.74	0.313		0.80	0.377		0.62	0.253	
gpa	1.08	0.192		1.13	0.276		0.91	0.165		1.00	1.000		0.90	0.293	
parenteduMAX	0.96	0.673		0.96	0.840		0.98	0.852		1.04	0.702		0.84	0.270	
Payment-Credit card	1.07	0.840		0.90	0.870		1.05	0.900		1.32	0.400		**0.33**	**0.020**	**
Payment-Debit card	1.33	0.240		1.07	0.880		0.83	0.517		1.31	0.264		1.77	0.171	
Payment-Prepaid card	1.30	0.346		1.52	0.401		0.67	0.227		**1.99**	**0.013**	**	1.68	0.247	
Payment-PayPal	0.78	0.354		-	-		0.88	0.692		0.93	0.778		0.76	0.529	
Payment-SatisPay	5.92	0.156		**0.36**	**0.030**	**	0.56	0.655		0.62	0.662		-	-	
Payment-ApplePay	0.55	0.248		0.45	0.335		1.46	0.579		1.95	0.215		1.85	0.577	
Payment-GooglePay	0.48	0.269		-	-		3.52	0.266		1.52	0.542		**0.15**	**0.022**	**
LMscore	1.13	0.264		1.36	0.105		0.99	0.923		1.15	0.201		1.31	0.115	
cardscore	1.12	0.346		1.07	0.766		0.83	0.177		1.17	0.184		1.35	0.116	
selfassess	1.14	0.249		**1.48**	**0.062**	*	**1.45**	**0.007**	**	0.89	0.290		1.21	0.298	
fraudvictim	1.02	0.146		1.02	0.590		0.99	0.572		1.02	0.228		1.03	0.511	
Obs	351			336			351			351			347		
Pseudo R-squared	0.04			0.16			0.06			0.03			0.10		

**p-value<.10; **p-value<.05; ***p-value<.01.*

Fraud Literacy - Question #...	16 Odds	16 P-value	17 Odds	17 P-value	18 Odds	18 P-value	19 Odds	19 P-value	20 Odds	20 P-value
studyonly	**0.58**	**0.082** *	1.07	0.795	1.37	0.322	0.75	0.300	0.76	0.424
withparents	**2.74**	**0.006** **	**2.53**	**0.008** **	0.75	0.500	0.78	0.522	1.11	0.817
foreigner	3.29	0.139	1.85	0.271	0.36	0.205	1.25	0.698	1.98	0.382
male	0.71	0.241	0.98	0.945	1.35	0.346	0.75	0.287	1.43	0.266
gpa	1.09	0.228	0.95	0.404	0.92	0.273	0.99	0.920	1.06	0.426
parenteduMAX	1.00	0.975	1.02	0.841	0.94	0.581	0.98	0.839	1.15	0.272
Payment-Credit card	0.93	0.840	0.61	0.133	0.64	0.332	2.19	0.052 *	0.82	0.649
Payment-Debit card	0.99	0.958	0.84	0.476	0.77	0.385	0.71	0.189	1.83	0.062 *
Payment-Prepaid card	1.39	0.308	1.29	0.363	1.02	0.955	0.73	0.303	0.76	0.485
Payment-PayPal	1.05	0.864	-	-	1.18	0.612	1.00	0.989	1.06	0.862
Payment-SatisPay	1.66	0.712	1.33	0.292	3.37	0.286	-	-	-	-
Payment-ApplePay	1.89	0.355	0.79	0.644	1.71	0.340	0.64	0.397	0.60	0.422
Payment-GooglePay	**0.26**	**0.040** **	-	-	2.41	0.200	0.41	0.189	-	-
LMscore	1.06	0.661	1.00	0.972	1.05	0.724	1.06	0.587	0.93	0.621
cardscore	0.99	0.915	**1.32**	**0.020** **	0.88	0.392	1.17	0.202	1.12	0.433
selfassess	0.90	0.433	**1.21**	**0.098** *	1.04	0.790	1.12	0.344	1.17	0.270
fraudvictim	1.02	0.250	1.01	0.590	0.97	0.303	1.00	0.869	1.02	0.461
Obs	351		336		351		347		336	
Pseudo R-squared	0.06		0.05		0.05		0.04		0.04	

**p-value<.10; **p-value<.05; ***p-value<.01.*

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Financial Sector Growth and Annuitization: Evidence from the United States

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A B S T R A C T

We investigate a plausible explanation for the annuitization puzzle, whereby individuals do not annuitize their retirement savings even when rational choice theory suggests that annuitization is a sure way to address longevity risk. Our main purpose is to evaluate the role of a growing local financial sector in promoting annuitization. We assume that annuity benefit payments reflect the effort of the population to protect against longevity risk. Using a unique, U.S. state-level annual dataset for the years 1970-2013, we test whether the development of the financial sector is related to the aggregate decision of a state's population in the decision to annuitize. We find that there is a strong positive relationship between the share of compensation in a state's financial sector and the level of annuity payments in a state. The results are robust to four empirical specifications and support our suggestion that the development of a financial sector is a consideration in the state population's decision to annuitize.

Keywords: Annuities, Longevity Risk, Annuity Puzzle, Retirement, Financial Sector

Ⅰ. Introduction

As the population ages and life expectancy steadily increases, it is increasingly important for consumers to protect against longevity risk. For several decades, researchers have attempted to explain why annuity contracts are under-utilized, despite their ability to successfully aid in protecting against longevity risk.[1] Research on annuities recognizes a phenomenon commonly referred to as the "annuity puzzle", whereby individuals do not annuitize even when rational choice theory suggests that annuitization is a sure way to address the risk of outliving one's assets.[2] The annuity puzzle is typically addressed at the individual level where a variety of individual factors are shown to intervene in this decision (e.g., high fees, bequest motives). These behavioral factors, as well as institutional factors, influence both the savings patterns of individuals up to retirement and decisions regarding the allotment of wealth at the point of retirement.[3] Because annuitization plays a key role in the optimal retirement portfolio, a better understanding of these behaviors is especially important given the cost to individuals, and society as a whole, of suboptimal retirement planning.[4]

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1 "It is a well-known fact that annuity contracts, other than in the form of group insurance through pension systems, are extremely rare. Why this should be so is a subject of considerable current interest. It is still ill-understood" (Modigliani, 1986, p.307).

2 See Modigliani, 1986; Benartzi et al., 2011; Brown et al., 2008.

3 See Benartzi and Thaler, 2007.

4 See Milevsky, 2013. In this book, the author summarizes the research on life annuities, longevity insurance, and their role in optimizing retirement portfolios. It includes a comprehensive review of the scholarly literature on annuities.

In this paper, we investigate one plausible explanation for the annuitization phenomenon. We contend that greater financial awareness surrounding annuities is associated with both the likelihood to annuitize and the relative share of wealth allocated to retirement plans. Enhanced awareness of financial products, including the availability of partial annuitization, potentially allows the sales of annuities to be framed in such a way that consumers are less willing to reject them altogether as part of a complete retirement portfolio.[5] In addition, we conjecture that a better knowledge of financial products allows consumers to reduce the annuity protection gap, which we define as the difference between the "observed" and the "adequate" levels of annuitization. To explore and test these hypotheses, we use a unique, annual dataset covering all fifty U.S. states from 1970 to 2013. Using a proxy for financial awareness derived from a state's financial sector, the compensation of employees in the financial sector to total compensation in the state, we find evidence that enhanced growth in the financial sector in a state is associated with greater protection against longevity risk through an increase level of annuitization and the subsequent reduction in the annuity protection gap.

The paper proceeds as follows. In section 2, we cover a review of the existing literature on financial literacy, financial awareness, and optimal financial outcomes. In the third section, we introduce our theory about financial awareness and financial decision making and present our hypotheses with regards to financial literacy, financial awareness, financial decision-making, and the annuity protection gap. We describe the data used for our analysis in section 4. Our analytical methodology and results are presented in section five and a final section concludes.

[5] Brown et al. (2008) propose that limited annuity demand is an outcome of consumers using a narrow "investment frame" when evaluating annuity products, rather than consequences of the annuity for lifelong consumption. When comparing the investment frame to the consumption frame, the investment framework makes the life annuity unattractive to consumers by focusing the attention on intermediate results compared to the end result of how much can be spent over time. The way in which annuities are framed during the sales transaction may play an important role in the demand for such products.

Ⅱ. Background

A large literature has addressed the "annuity puzzle" using a variety of approaches. Theoretical papers, and several corresponding simulations, date back to the Yaari (1965) study of annuitization under the assumption of an uncertain lifetime. Related papers on the demand for annuities have evolved to consider a variety of assumptions, such as an individual's bequest motives (Lockwood, 2012), actuarially fair premiums (Mitchell et al., 1999; Davidoff et al., 2005), and individual health shocks (Ai et al., 2017; Sinclair and Smetters, 2004).[6]

Financial literacy refers to knowledge of basic economic and financial concepts and ideas. Hastings and Mitchell (2011) suggest that when individuals cannot carry out tasks such as calculating compound interest, they are more likely to make suboptimal financial decisions. For many years, US state and federal education policies have targeted financial literacy. The objective of such policies is to generate optimal financial outcomes through greater financial education. Better financial outcomes among a population, such as a population that has adequate retirement savings, are of interest as they reduce the burden on government safety net programs, such as Medicaid and Temporary Assistance for Needy Families. In the U.S., state governments started pushing for the mandatory inclusion of economics education in K-12 curriculum in the early 1950s (Brown et al. 2014). The avowed purpose of these policy initiatives was to increase financial education among the population that would lead to optimal financial decision-making by individuals throughout their life.[7] Despite this attention over time, there is a growing concern that many individuals are making poor financial decisions. A recent report by the Center for Financial

[6] There are also many empirical papers evaluating annuitization, which similarly take an individual perspective. For instance, Chalmers and Reuter (2012) find evidence that demand for life annuities is related to individual characteristics such as health, and to measures of investor sentiment such as equity returns. Brown et al. (2015) suggest consumers may find that the annuity product hard to value. In addition, many papers offer discussions on possibilities as to why demand for annuity products remain low (e.g., Ameriks (2002)).

[7] An underlying assumption of this relationship is that financial education generates financial literacy that allows consumers to accurately evaluate the need for various types of financial products. Over time, a number of states addressed the concern by requiring that high school students take a course in economics and/or personal finance.

Literacy notes that nearly a quarter of U.S. states have "virtually no requirements for teaching financial literacy at the high school level."[8]

The US experience is not unique. Many countries are facing the same challenge of increasing debt, aging populations, and concerns about the adequacy of retirement savings. Cross-country comparisons show varying levels of financial literacy (e.g., Nicolini, 2019) and a range of approaches to improve household financial decision making (Lusardi and Mitchell, 2011; Atkinson and Messy, 2011). Cordero et al. (2020) note that Australia has had a financial education mandate since 2011, but only a few other countries have developed frameworks to introduce financial education in school curricula. Yoshikuni (2018) highlights the role of the Central Council for Financial Services Information in Japan, which is collaborating with financial institutions and local governments to strengthen financial literacy in the country. Tennyson (2016) notes that some countries have considered strengthening the regulations that certify financial advisors.

Existing research generally concurs that financial and economic education can generate financial literacy. Financial literacy is related to financial awareness, which we define as the generalized exposure to, and understanding of, financial-related products available for purchase, such as annuities. While financial literacy is typically acquired through education and over time, financial awareness, in our context, is propagated by the financial institutions themselves and the people they employ. Bank branches and insurance company headquarters, and the employees of such institutions, bring financial awareness to a population within a given state. We propose that financial awareness does not necessarily require financial literacy. The consumer's decision to annuitize, for example, and the relative share of wealth to annuitize, does not require financial literacy, and is influenced by many factors. For instance, the transaction costs associated with obtaining the necessary information to make this decision may be too high and the knowledge of the suite of available products may not exist. Employees in the financial sector play a key role as financial intermediaries in mitigating transaction costs (Boyd and Prescott, 1986). As such, we equate growth in the financial sector to an increase in financial awareness of the population served by that sector.

Across the U.S., state financial sectors vary in size, even after controlling for population. Further, they have evolved at different rates over time. While it is not our goal to evaluate the drivers of financial sector growth, the development economics literature offers some explanations for this state-level variation. There is substantial literature in the development economics field that addresses the relationship between finance and growth (e.g., Demirgüç-Kunt and Levine, 2008). Most of this research compares the economic development across countries. These studies posit that three major factors affect economic development: endowments of natural resources, location, and accumulated human and physical capital. Research on state-level variation has explored several additional explanations and outcomes for inequalities in economic development, including variations in amenities (Roback, 1982) and the location decisions of firms and households (Wu and Gopinath, 2008). Historically, large financial sectors exist in metropolitan areas such as New York City and Chicago. Charlotte, North Carolina, more recently became a prominent financial market in the 1980s under the direction of financier Hugh McColl. Through aggressive acquisitions, McColl grew the relatively small North Carolina National Bank into Bank of America. Today, Charlotte ranks second only to New York City in headquarters of banking firms.[9] In North Carolina, as of 2016, finance was the second largest economic sector for employment compensation, indicating continued growth in the financial sector.[10]

In the spirit of this research, our analysis begins with an examination of the variation in the development of the financial sector across states in the U.S. and how it relates to annuity benefit payments, recognizing that many factors may explain why some state financial sectors have grown more than others. If growth of the financial sector leads to a more financially aware population, we propose that

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8 2015 National Report Card on State Efforts to Improve Financial Literacy in High Schools, Center for Financial Literacy. Further, the U.S. Council for Economic Education, which reviews the state of K-12 economic and financial education in the U.S. notes that there has been no improvement in economic education in recent years, and only slow growth in personal finance education. A study in 2012 involving students in 18 countries found that the mean performance of students in the U.S. was below the average in an assessment for proficiency in financial literacy (OECD (2014)).

9 https://qz.com/1545417/charlotte-becomes-major-banking-hub-due-to-bbt-suntrust-merger/ (Last accessed March 11, 2021).

10 North Carolina Annual Economic Report, 2016. https://files.nc.gov/nccommerce/documents/LEAD/Annual-Economic-Report/NC-2016-Economic-Report.pdf (Last accessed March 11, 2021).

states with more developed financial sectors - which we proxy with the share of compensation to employees in the financial sector - will have higher rates of annuitization. The second question we address is whether the rates of annuitization themselves are adequate, a question motivated by research that largely concludes that individuals are not annuitizing to the extent that they should. We create two measures of the annuity protection gap, derived from a needs-based approach, and explore the extent to which our measure of financial awareness can explain variations in this gap across states.

Our contribution to the literature on annuitization is twofold. First, we take an aggregate view of the relationship between financial awareness and annuitization. Most research has evaluated individual behaviors in attempts to relate financial education and/or financial literacy with financial outcomes, such as the decision to annuitize. This type of research may not be able to capture important spillover effects of attribute learning and priming over a person's life, e.g., from interactions with financial intermediaries.[11] Second, we depart from existing literature by analyzing state-level measures. We propose that variation in financial outcomes across states may be driven by state-level differences in the development of an environment that may encourage better financial awareness. Using a dataset that spans 64 years, we exploit state variation to explain the link between this awareness and one specific financial outcome - the decision to annuitize.

Ⅲ. Hypotheses

Unlike credit cards, mortgages, and other financial products, annuities work well for our evaluation of financial awareness because they are generally a 'one-shot' financial product. An individual will use multiple credit cards over their lifetime, learning from the usage of each one of these. The decision to annuitize or not, does not generally benefit from any prior personal experience. Also, since one considers purchasing an annuity to protect against one's own longevity risk, others' experiences provide limited insight.

In this study, we propose that state level annuity benefit payments reflect the effort of the population to protect against longevity risk. We test whether the development of the financial sector - our proxy for financial awareness - is related to the aggregate decision of a state population in the decision to annuitize. Based on previous research described above, we expect a positive correlation between financial awareness and the decision to annuitize. Therefore, we test:

H1: *Financial awareness is positively associated with state-level annuitization.*

As noted, we proxy for the protection against longevity risk with the decision to annuitize. We proxy for financial awareness using the share of the state compensation earned in the financial sector. This measure, and our other control variables are described further below. Since a higher level of annuitization, consequently, has implications for the growth of the financial sector, our analysis below accounts for potential endogeneity.

Next, we turn our focus to the annuity protection gap. In the previous analysis, we can document whether growth in the financial sector is related to annuitization at the state level, but the results do not inform us as to whether the financial sector encourages a level of annuitization that is "optimal." While we can identify states with higher or lower annuitization, on average, we cannot say whether the annuitization level in any particular state is any more adequate than in another state. Thus, in our second stage of analysis, we simulate values which we refer to as "adequate" annuitization and assess the role of the financial sector in minimizing this annuity protection gap.

We create two measures of adequate annuitization and, consequently, derive two measures of the annuity protection gap following a needs-based approach. Our "consumption needs" gap (*CNGap*) is defined as the difference between the contemporaneous state average aggregate consumption per capita and the annuitization per population over 65. We propose that this gap captures the adequacy of the annuity payments in meeting retirees' current consumption needs. While we believe this is the more reasonable measure for our focus, the analysis of how this gap is related to financial awareness, proxied as growth in the financial sector, is limited to the period 1997-2013 due to data availability.

Our alternative measure, the "income replacement" gap (*IRGap*), is the difference between the contemporaneous state

[11] We do not delve into the specifics of priming effects or attribute-learning in this paper, as those theories are best left for lab-based experiments that can control for a multitude of confounding factors.

average aggregate income per capita and the annuitization per population over 65. This gap reflects the shortfall between the amounts received by those who are annuitizing (e.g., retirees) and current employees. Prior literature leads us to expect that the gap will be positive, but we further expect that this gap will be large because retirees are in a liquidation phase, and therefore do not need to "earn" as much as current employees who are still accumulating funds for retirement.

Since there are other ways for consumers to address longevity risk (e.g., relying on children for support in later years), we do not expect either gap to be close to zero. Nonetheless, we believe that if financial awareness, through growth in the state-level financial sector, is encouraging annuitization, these gap measures will be smaller in states with a higher proportion of compensation in the financial sector. Specifically, we test the following hypotheses:

H2: Financial awareness is negatively associated with the "income replacement" gap.

H3: Financial awareness is negatively associated with the "consumption needs" gap.

Again, we proxy for financial awareness using the share of state compensation earned in the financial sector, and we test the hypothesis for both measures of our annuity protection gap.[12]

Ⅳ. Data

The data for this analysis come from several sources. State-level annuity payments (*Ann*) made to annuitants and life insurance benefit payments (*Life*) made to beneficiaries were hand-collected from the American Council of Life Insurers (ACLI) Fact Books.[13] The annuity payments information is used to construct our key dependent variable, annuity payments per population over 65, which is also adjusted for inflation.[14] We combine the annuity payments data with state-level data on state population, per capita income (*PCIncome*), and the unionization rate (*Union*), all of which is obtained from the U.S. Census Bureau.[15]

Our proxy for financial awareness, *FinSector*, was compiled using data from the US Bureau of Economic Analysis (BEA).[16] The proxy measure is calculated as the share of compensation in the financial sector - financial services, real estate, and insurance - to the total compensation in the state.[17] A larger share of state compensation in the financial services sector indicates not only that a larger share of the population may be employed in financial firms, but also an increased likelihood that the state population is aware of the existence of financial institutions and the products they offer, when compared to states with a smaller share. We propose that *FinSector* captures the essence of what we consider relevant for financial awareness. Similarly, we obtain the share of compensation in the manufacturing sector, *ManSector*, which we use an instrumental variable for *FinSector*. Additionally, to construct our gap measures, *IRGap* and *CNGap*, we obtain data from the BEA on state aggregate income and state aggregate consumption expenditures.[18]

We include, as controls, several variables that may help to explain state differences in annuity payments.

[12] In the ensuing analysis, both gaps are expressed relative to the relevant adequacy measure (i.e., income or consumption) to show how the annuitization relates, in percentage terms, to the adequate level. Qualitative results do not change if the absolute version of the gaps are used.

[13] 1970-2013. The table within the Fact Book used to collect this information is in the chapter "In the States" where death payments and annuity payments are listed by state. With this information, we are unable to further distinguish the types of annuity products that are purchased at the state level. Due to a reporting change, there is no information available for the year 1969. There is no data available for Alaska and Hawaii from 1950-1960.

[14] Inflation adjusted using the Consumer Price Index in 2014 dollars. We use population over 65 instead of total population because a majority of those receiving annuity benefits will be retirees who have annuitized their retirement income. Additionally, we recognize that the timing of the decision to annuitize will vary across individuals: most will make this decision at retirement, when they convert retirement savings into a monthly benefit payment. Thus, total state annuity benefit payments capture decisions that were made in the past, though likely not more than about 10 years ago, on average, if one were to assume a constant flow of annuitants in the pool and given retirement age of 65 and current average life expectancy (male and female) of almost 85 years. We acknowledge that gradual retirement is becoming increasingly common (Delsen and Reday-Mulvey, 1996).

[15] This data is available by decade from 1950-2000. It is available yearly post-2000.

[16] For the period 1960-2013. Reporting changed for this data in 2001.

[17] Of all non-farm employees.

[18] These measures are also adjusted for inflation ($2014) and divided by state population to obtain per capita measures.

First, we expect that *PCIncome* will be positively associated with *Ann* as it reflects a higher amount of earnings over time with which to create an annuity for retirement and negatively related to both *IRGap* and *CNGap*. Second, we include *Union* as the rate of unionization of the state workforce. We use *Union* to proxy for the share of the state population that may be covered by employer-provided pension plans.[19] We expect that *Union* will be negatively related to *Ann* since the larger the share of unionization in a population, the more likely the state has a larger share of the population covered by an employer-sponsored pension. Thus, that share of the population would be less likely to purchase an annuity. For the same reason, we expect a positive relation between *Union* and both the *IRGap* and the *CNGap*. Table 1 provides the summary statistics of the main variables used in our analysis.[20]

Table 1. Summary Statistics, 1970-2013[21] (N=2244)

Variable	Mean	Std. Dev.	Min	Max
Ann	1647.88	1424.49	114.61	21569.05
FinSector	5.51	2.56	1.77	21.36
PCIncome	34.40	8.65	16.21	77.97
Union	16.00	7.93	2.30	42.40
ManSector	19.15	9.39	1.33	45.58
Life	1725.13	718.93	145.32	14414.34
IRGap	95.55	2.91	51.43	99.38
CNGap (N=863)	92.96	4.45	44.83	99.21

V. Methodology and Results

Due to the potential endogeneity problem, we use instrumental variable methods to unveil a plausible channel through which the annuity puzzle can be explained. The idea is to identify and isolate an exogenous source of variation in the financial sector that can explain the annuity payments per capita. Specifically, our main structural specification is shown in equation (1).

$$\begin{aligned} Ann_{i,t} &= \beta_0 + \beta_1 FinSector_{i,t} + \beta_2 X_{i,t} \\ &\quad + \mu_i + \delta_t + \epsilon_{i,t}, \end{aligned} \tag{1}$$

where $Ann_{i,t}$ is the real annuity payment per population over 65 in state i and year t, and $FinSector_{i,t}$ is the share of financial compensation to total compensation of employees in state i and year t, our proxy for financial awareness. We are specifically interested in the estimated coefficient on $FinSector_{i,t}$, β_1. The terms μ_i are time invariant state-specific effects that control for unobserved heterogeneity. The dummies δ_t control for time-specific effects. The vector $X_{i,t}$ contains other control variables, including *PCIncome* and *Union*. Finally, the term $\epsilon_{i,t}$ is an idiosyncratic random error term that captures the remaining, unexplained, variation in $Ann_{i,t}$.[22]

The crucial assumption to consistently estimate β_1 is that $Cov(FinSector, \epsilon \mid X, \mu, \delta) = 0$. This assumption might be violated, for example, if equation (1) omits a variable correlated with the financial compensation share. In that case, the omitted variable would be captured by ϵ and the assumption would be violated, with the practical consequence that the estimated coefficient of *FinSector* would be biased because part of the effect of the omitted variable would be incorrectly attributed to *FinSector*. The assumption might also be violated if there are measurement errors in the variables or if there is reverse causality.

To reduce the potential biases that arise due to these problems, we estimate the following first stage, reduced form equation:

$$\begin{aligned} FinSector_{i,t} &= \gamma_0 + \gamma_1 ManSector_{i,t} + \gamma_2 Life_{i,t} \\ &\quad + \gamma_3 X_{i,t} + \theta_i + \psi_t + \nu_{i,t} \end{aligned} \tag{2}$$

where $ManSector_{i,t}$ is the manufacturing compensation to total compensation share of employees in state i and

[19] While employers have been seeking to transform retirement plans from defined benefit schemes to defined contribution schemes, unions have successfully fought to retain pensions.

[20] All dollar values are adjusted for inflation ($ 2014).

[21] We dropped the Annuity payments in Alaska in 2006; and South Dakota in 2000, 2001 and 2002. For instance, the annuity payments figure in South Dakota in 2001 was negative, as reflected in the books. The results and conclusion of this paper are qualitatively the same whether these extreme observations are included or not.

[22] One consideration in this empirical analysis is that our proxies for financial awareness and annuitization may be correlated contemporaneously, but our theory suggests a development of awareness over time. While evaluating the dynamic nature of this relationship is beyond the scope of this paper, analysis of the relationship incorporating a range of leads of the *Ann* variable yields qualitatively similar results.

year t, and $Life_{i,t}$ is the real per capita life insurance payments made to beneficiaries in state i and year t. The vector $X_{i,t}$ is the same vector of control variables included in (1), and θ_i and ψ_t account for state fixed and time effects in the financial compensation sector, respectively.

The crucial identifying assumptions are now $Cov(Z_{it}, \epsilon | X, \mu, \delta) = 0$ (validity condition) and $Cov(Z_{it}, FinSector_{i,t} | X, \mu, \delta) \neq 0$ (strength condition), where the vector $Z_{it} = (ManSector_{i,t}, Life_{i,t})$ contains the instrumental variables excluded from equation (1). These assumptions are easier to justify both theoretically and empirically. In theory, consider both conditions for both instruments.[23] It is plausible that the manufacturing share and the financial share are correlated, and that the life insurance payments and the financial compensation share are correlated. In fact, in the case of *FinSector* and *ManSector*, since both are shares of the total compensation to employees, it is expected that their correlation will be negative. This satisfies the strength condition. At the same time, it is unlikely that *FinSecto*r or *Life* will be correlated with *Ann* beyond the effect they might have, indirectly, through *FinSector*.[24]

In Table 2 we show the estimated equation (1) using several econometric techniques. Overall, the estimated coefficient associated with the financial compensation share is positive and statistically significant at the 1% level in all specifications. The coefficient estimate increases from 199.01 using the pooled OLS estimator (column 1) to 418.08 using the Fixed Effects model with time dummies (column 3). This is consistent with attenuation bias in the pooled OLS estimator due to the omission of the unobserved heterogeneity and other potential biases endogeneity biases including measurement error. The coefficient of 364.37 in column 4 implies that, all else equal, a 1% increase in the financial compensation share is associated with an average increase of 364.37 real dollars per population over 65 in annuity payments per year. An increase of 2.82% (which is one standard deviation) in the financial compensation share, is therefore associated with an increase of 1027.52 real dollars per population over 65 in annuity payments per year, on average.

Table 3 runs parallel to Table 2 except that the dependent variables are *CNGap* (Panel A) and *IRGap*

Table 2. Regression results. Dependent Variable is *Ann*

	(1) **Pooled OLS**	(2) **FE**	(3) **FE**	(4) **FE/IV**
FinSector	199.01***	404.30***	418.08***	364.37***
	[38.73]	[118.89]	[107.38]	[44.13]
PC Income	59.15***	-3.44	9.57	7.64
	[6.36]	[27.63]	[14.31]	[9.04]
Union	7.82***	-2.64	-35.04**	0.46
	[2.70]	[12.77]	[15.84]	[7.46]
_cons	-1888.24***	-899.20	-423.99	-906.39***
	[134.28]	[805.37]	[741.57]	[349.18]
Time Dummy	YES	NO	YES	YES
Observations	2240	2240	2240	2238
IVs				*ManSector, Life*

* p<0.10, ** p<0.05, *** p<.01. Robust standard errors in brackets.

23

24 In practice, the strength condition can be tested with the usual F-test of excluded instruments using the Stock-Yogo weak identification statistic. The validity condition can be tested, conditionally, using over identifying restriction tests, semi-reduced form regressions and falsification tests. The main advantage of having two instrumental variables is that we can perform over identification tests to evaluate empirically the conditional validity of the instruments at hand. We do not find evidence suggesting invalidity of our instruments.

(Panel B). The estimated equation is similar to equation (1) except that *Ann* is replaced by either *CNGap* or *IRGap*. In both panels, *FinSector* and *PC Income* signs are as expected. *FinSector* enters negative and significant, and *PC Income* enters positive and significant. In column 4, which corrects for endogeneity including attenuation biases due to measurement error, *Union* enters insignificant, and *PC Income* and *FinSector* enter statistically significant. A one standard deviation increase in *FinSector* is associated with an average 7.5 percent decrease in *CNGap* and an average 2 percent decrease in *IRGap*. These effects are large in magnitude suggesting that *FinSector* has not only a statistically significant impact on reducing the protection annuity gap, but the effect is large and economically meaningful.

VI. Conclusion

Using a unique approach with U.S. state-level data extending over 50 years, we provide evidence that growth in the state-level financial sector is associated with higher levels of annuitization among an aggregate state population. We document a significant relationship that underscores the potential role of a state's financial sector on financial outcomes within that state population. We show that variations across states and over time in the share of the population working in financial services is significantly related to variations across states and across time in annuity payments.[25] These results confirm our assumption that the financial sector promotes a more financially aware

Table 3. Regression results

• ***Panel A*** - Dependent variable is *CNGap*

	(1) Pooled OLS	(2) FE	(3) FE	(4) FE/IV
FinSector	-0.65***	-0.48*	-0.09	-2.93***
	[0.13]	[0.24]	[0.28]	[0.96]
PCIncome	-0.04*	0.15**	0.30***	0.16**
	[0.02]	[0.05]	[0.05]	[0.07]
Union	-0.00	0.06	-0.16*	0.17
	[0.02]	[0.10]	[0.09]	[0.11]
_cons	101.01***	88.98***	83.12***	106.04***
	[1.00]	[2.25]	[2.71]	[4.56]
Time Dummy	YES	NO	YES	YES
Observations	863	863	863	861

• ***Panel B*** - Dependent variable is *IRGap*

	(1) Pooled OLS	(2) FE	(3) FE	(4) FE/IV
FinSector	-0.40***	-0.80***	-0.86***	-0.78***
	[0.08]	[0.28]	[0.24]	[0.10]
PCIncome	-0.03**	0.13**	0.07**	0.11***
	[0.01]	[0.06]	[0.03]	[0.02]
Union	-0.04***	0.01	0.16***	-0.01
	[0.01]	[0.03]	[0.03]	[0.02]
_cons	101.32***	95.11***	95.24***	96.19***
	[0.27]	[2.11]	[1.49]	[0.76]
Time Dummy	YES	NO	YES	YES
Observations	2240	2240	2240	2238

* $p<0.10$, ** $p<0.05$, *** $p<.01$. Robust standard errors in brackets.

[25] Results using annuity benefit payments per capita are qualitatively the same.

population which is more capable of assessing complex financial products. By taking an aggregate view, we capture the spillover effects associated with increased financial awareness that will not necessarily be revealed in individual-level studies.

Our results have important implications for efforts to promote adequate protection against longevity risk. States can promote the development of a larger financial sector - e.g., by providing incentives for financial services firms to locate in the state. This may increase financial awareness in the population and thus lead to better financial decisions. A population that is protected against longevity risk may consequently reduce the need for public support to the retiree population.

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The Role of Fintech Development in Financial Inclusion in Asia*

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A B S T R A C T

Over the past years, financial technology (Fintech) has been known as an industry that uses technology to provide financial services and make financial systems more efficient. Fintech plays an important role in improving access to financial services for all, at the same time, promoting financial inclusion. Financial inclusion represent for availability of financial system which is straightforward to access to useful financial products and services by everyone at reasonable prices. The study examined the relationship between Fintech development and financial inclusion in 45 Asian countries. Using the GMM regression technique, the paper confirms the correlation between Fintech development and financial inclusion through the enhancement of Fintech infrastructure and Fintech ecosystems to facilitate improved financial inclusion.

Keywords: Fintech, Fintech development, financial inclusion, Asia

Ⅰ. Introduction

In the context of the boom of the 4.0 Industrial Revolution with the strong development of advanced technology, this is a strategic time for banks to apply digital transformation to improve their service to individuals, industries and public services while increasing the chances of financial inclusion for the majority of the population. According to data from the World Bank, estimated from 2011 to 2014, the proportion of people using formal financial services reached nearly 60%. Yet it is estimated that more than 1.7 billion adults cannot access financial services. Increasing income per capita requires financial services to be provided for individuals at better quality and reduced cost. Digital finance has been acknowledged by international organizations as a comprehensive means to promote financial inclusion by reducing the cost of providing financial services (Wyman, 2017). The expansion of digital payment platforms has created opportunities for connecting the poor with financial products suppliers such as savings, credit, and insurance (Radcliffe and Voorhies, 2012). Financial inclusion becomes more universal by using the connections made available by affordable devices such as smartphones, wearable devices and through all radio signals to provide financial services as fast as possible (FST Media, 2015). This is challenging and great opportunities for financial inclusion through the creation and integration of technology into social networks and cost reduction (Lee and Teo, 2015).

Financial inclusion is an issue promoted by countries all over the world, especially developing countries wanting to promote economic growth. According to the World Bank,

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financial inclusion means individuals and businesses have access to useful financial products and services at reasonable prices, meeting their needs - transactions, payments, savings, credit, and insurance - done in a responsible and sustainable way. Nowadays, accessing financial services is easier and faster due to technology; Fintech is a key solution for financial inclusion. The more technology has been developing, the more Fintech becomes important. Fintech has become a top concern of scholars, planners, banks and institutions to exploit the ability to provide new creative solutions for promoting financial inclusion. Fintech is an industry that uses technology to make smart financial systems and provide financial services more efficient. Fintech has played an increasingly important role in reshaping today's financial and banking landscape. This is an initiative to promote financial inclusion for those who cannot or do not access financial services. Therefore, Fintech is considered a driving force for promoting financial inclusion in many countries.

The paper aims at exploring and examining factors that influence financial inclusion through Fintech development in Asia using quantitative analysis. Based on the research results, the article provides recommendations for planners and Fintech companies to facilitate Fintech to develop and promote financial inclusion. Following this introduction, the second part of the paper focuses on literature review on financial inclusion and Fintech development. The third part describes the proposed methodology and data collection, and the research results and discussions are presented in the fourth part. The final part of the paper provides conclusions and suggests some recommendations to increase effectiveness of Fintech development to improve financial inclusion through innovative but simple approaches.

Ⅱ. Literature Review

Financial inclusion is becoming highly important for a large number of countries worldwide, especially in Asia. A growing literature has been evaluating its measurements, determinants, and effects. According to the research of Michelle (2016), financial innovations, access to financial services, intermediary efficiency and financial literacy are the important factors to improve financial inclusion. Achieving financial inclusion requires narrowing the cash gap and expanding digital payments (Dayadhar, 2015). In addition, it requires connecting customers to the digital payment system through instant money transfer at a low cost (Radcliffe and Voorhies, 2012). The relationship between financial technology and financial popularity begins with a large number of people who own mobile phones and want to be provided services being unable to get them. Mobile finance and related equipment can improve accessibility for this audience (World Bank, 2016). Research by Kim et al. (2016) analyzed the acceptance of Fintech's services based on the feasible calculation model of Petty and Cacioppo and the model of technology adoption. The study investigates the relationship between central and peripheral routes in accepting new technologies and services to determine the acceptance of Fintech for financial inclusion. Research by Ryoji Kashiwagi (2016) suggests that the more people use information technologies like mobile phones for searching, the greater its access to financial services at low-cost. In other words, Fintech is a key for financial inclusion. Leong et al (2017) mentions financial technology, or Fintech, affecting financial institutions, regulatory agencies, customers, and traders across many industries. Innovation, especially technology, is becoming a potential finance revolution by making it more inclusive, decentralized and egalitarian (Jame Guild, 2017). Ozili's research (2018) discusses digital finance and its implications for financial inclusion and financial stability. Digital finance through Fintech has a positive impact on financial dissemination in emerging and advanced economies. In addition, digital finance provides low-income and marginalized individuals a convenient and cheaper way to access to financing options. In the digital age, Fintech companies which is one of player in financial revolution, are taking emergence of “for-profit, mission-driven” to drive through greater financial inclusion (Anju Patwardhan et al, 2018).

Digital finance, which has substantial effects for financial inclusion, includes internet banking, mobile banking, wallets, credit cards and debit cards (Durai and Stella, 2019). A large part of the population that has difficulty accessing financial services owns mobile phones, and the provision of financial services through mobile phones and related devices can improve access to essential financial resources for this group (Sethy, 2016). High costs are one of the reasons that prevent customers from receiving the products or services they need, especially those with poor financial backgrounds who are excluded from receiving financial services. Fintech has significantly reduced costs by providing services through innovative but simple platforms. Digital finance has been viewed internationally as a means of providing adequate opportunities to promote financial dissemination through reduced costs of providing financial services (ADB, 2016). Improved financial inclusion through digital inclusion is the innovative way in the digital age (ING, 2016). Francis Agyekum et al. (2016) examine the relationship between increased access to digital financial services (DFS) and financial dissemination in low-income countries. Digital finance through Fintech startups significantly influences financial inclusion in emerging and advanced economies. When providing financial services to individuals with low and variable income, Fintech services are often more valuable compared to similar services of traditional banks (Ozili, 2018). Although research shows that financial inclusion can be improved by digital transformation in the finance industry, studies that measure the impacts of specific characteristics of digital finance are rarely seen. In the following section we develop a quantitative model to analyze the relationships and influences between Fintech development and financial inclusion.

Ⅲ. Data and Methodology

The goal of this empirical research is to find out the role of Fintech in financial inclusion in Asian countries. A multiple regression model is developed to regress measures of financial inclusion on indicators of Fintech development for each country.

A. Variables

The variables used as dependent variables were chosen based on past research and can reflect the financial inclusion in Asian countries. Three alternative dependent variables are examined. Two are mentioned in the research of Sarma (2008), who measures financial inclusion by the number of bank accounts per 1000 adults ($ACC_{i,t}$) and by the number of ATMs per 100,000 adults ($ATM_{i,t}$), based on some of the studies discussed above. However, these measures have many limitations, such as geographic data (living areas) and gender that can determine the level of financial inclusion but are not accounted for. Moreover, these variables do not account for distinctions between the native people of the area and the international people living in that country. Therefore, this study uses an additional dependent variable to measure the financial inclusion: total private domestic credit divided by GDP ($CRED_{i,t}$) (Okoye et al., 2017).

Explanatory variables are adopted from indexes developed in research by ING Group[1], which is a global bank with a strong European base, on the development of Fintech companies around the world. Using ING's research, the study measures Fintech development by two sub-indices: Fintech infrastructure and Fintech ecosystem. The Fintech infrastructure indicators reflect prerequisite conditions for Fintech development in a country. The Fintech infrastructure indicators consist of three representative data variables:

Table 1. Summary of Variables and Hypotheses

No.	Factor	Variables	Hypothetical impact (ACC)	Hypothetical impact (ATM)	Hypothetical impact (CRED)
1	The number of bank accounts per 1000 adults	$ACC_{i,t}$			
2	The number of ATMs per 100,000 adults	$ATM_{i,t}$			
3	Total private domestic credit over GDP	$CRED_{i,t}$			
4	Mobile subscriptions density	$MOBI_{i,t}$	Positive	Positive	Positive
5	Internet density	$INT_{i,t}$	Positive	Positive	Positive
6	Electricity coverage	$ELEC_{i,t}$	Positive	Positive	Positive
7	Start-up attractiveness	$STA_{i,t}$	Negative	Negative	Negative
8	Innovation	$INNO_{i,t}$	Negative	Negative	Positive

[1] https://www.ing.com/

the density of mobile subscribers, the percentage of internet users and the percentage of the population accessing the electricity network. The mobile subscription density reflects subscriptions per 100 inhabitants ($MOBI_{i,t}$), electricity coverage reflects share of population connected to the electricity grid ($ELEC_{i,t}$), and internet users reflects the percentage of the population in the internet network ($INT_{i,t}$). Increasing mobile phone and the Internet coverage is an essential opportunity to promote financial inclusion. Kpodar and Andrianaivo (2011b) also found a correlation between financial inclusion and the penetration of mobile phones. They found that the penetration of mobile phones strengthens the process of credit allocation, leading to wider financial inclusion in the financial system. Agyekum et al. (2016) also shows the positive impact of Information and communications technology, including the number of mobile and Internet subscribers, on financial inclusion. Research of World Bank (2016) implies that mobile phones connected to the Internet are affordable for digital technology finance which is best way to reach previously financially excluded persons.

The Fintech ecosystem indicators reflect the business environment for Fintech companies in a country. The Start-up attractiveness index, measured as the average time of starting a business, is representative of a nation's Fintech investment ecosystem ($STA_{i,t}$). At the same time, the Innovation index, measured as the multi-dimensional facets of innovation, reflects the overall development environment for a Fintech ecosystem $\left(INNO_{i,t}\right)$. According to Kama and Adigun (2013) who study financial inclusion in Nigeria, it can be seen that there are a lack and waste of innovation in Nigeria; it causes limited the completion of an important extension of a suitable combined budget. In addition, innovation is an important platform for Fintech.

The data used in this study include 40 countries in Asia in period from 2010 to 2017. The data for the eight variables examined in this study was published online in the Financial Development Report (World Bank). The summary of all the collected data can be found in Table 2.

B. Methodology

The research will estimate models to find out whether Fintech development has an impact on financial inclusion and the level of that impact for countries in Asia. From the discussion above, the research proposes a six-variable linear regression model to evaluate the impact of Fintech development on financial inclusion. The regression equations take the following form:

$$\begin{aligned} ACC_{i,t} = {} & \alpha ACC_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t} \\ & + \beta_3 \ln\left(ELEC_{i,t}\right) + \beta_4 STA_{i,t} \\ & + \beta_5 \in NO_{i,t} + \ e_{i,t} \end{aligned} \tag{1}$$

$$\begin{aligned} ATM_{i,t} = {} & \alpha ATM_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t} \\ & + \beta_3 \ln\left(ELEC_{i,t}\right) + \beta_4 STA_{i,t} \\ & + \beta_5 \in NO_{i,t} + \ e_{i,t} \end{aligned} \tag{2}$$

Table 2. Descriptive Data

Variables	Number of observations	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
Country					
Year	320	2013.5	2.294876	2010	2017
Dependent Variables					
ACC	200	1053.63	1235.626	10.2454	8114.603
ATM	320	50.9127	50.56411	.0913772	288.6319
CRED	312	65.8101	48.48711	4.645404	253.2622
Independent Variables					
MOBI	320	111.1021	35.70623	1.184307	214.7349
INT	320	45.66378	26.62387	.25	99.4
ELEC	320	92.84814	13.70016	31.1	100
STA	320	25.84716	28.46019	2	187
INNO	320	35.65812	10.52678	4.6	66.42857

$$CRED_{i,t} = \alpha CRED_{i,t-1} + \beta_1 MOBI_{i,t} + \beta_2 INT_{i,t} + \beta_3 \ln(ELEC_{i,t}) + \beta_4 STA_{i,t} + \beta_5 \in NO_{i,t} + e_{i,t} \quad (3)$$

where the index i represents each country, index t represents the year of observation.

The OLS regression model considers countries to be homogeneous and this often does not reflect the true situation because each country is a completely different separate entity that can affect financial universalization. As such, the OLS model can lead to biased estimates when this particular impact cannot be controlled. With the FEM fixed-effects model or the REM random effects, these individuals dramatically can be controlled. In order to choose between OLS and REM, the LM test (Breusch-Pagan Lagrange Multiplier) is used, and to choose between REM and FEM, the Hausman test is used. However, one of the weaknesses of the OLS, FEM, and REM models is that it has not been able to address the potential endogeneity (Getzmann et al., 2010).

GMM method for dynamic panel data uses the appropriate delay of instrumented variables - which is a third variable, used in regression analysis which has endogenous variables that are influenced by other variables in the model. This is a dynamic panel data model with time parameters, country and delay variables. In addition, it also exploits the combined data of the table and does not bound the time series of table units in panel data. This allows the use of an appropriate structure to exploit the dynamics of data. The GMM model allows the independent variables of Fintech to impact financial inclusion but to adjust over time towards its long run equilibrium.

Ⅳ. Research Results and Discussion

A. Regression Results

For dynamic estimation models, according to GMM, Hansen's test results accept the hypothesis H0, the instruments used are reasonable. The testing of correlation also shows that there is no second-order correlation. Therefore, it can be confirmed that the use of GMM is appropriate. Results in dynamic models differ significantly from those in static models. When the study only uses the static model, the conclusions can be skewed both in terms of impact and significance.

Dynamic and static models only have similar conclusions about the impact of the percentage of Internet users (INT) affecting all and the mobile subscription density impacts on the numbers of ATM. Meanwhile, the dynamic model further shows the effect of the mobile subscription density and Start-up attractiveness on the number of accounts; the mobile density also impacts on the rate of private domestic credit; the innovation index impacts to the number of ATMs.

Comparing the results of the static models OLS, REM, FEM, to the GMM dynamic model showed the difference in results. Combining the analysis of the optimization of each method, this study selects the dynamic estimation model GMM as the most optimal model for analyzing experimental results. A preliminary evaluation of the influence of Fintech on financial inclusion performance is shown in Table 3.

With 99% reliability, the model obtained is statistically significant, accepting the initial hypothesis that the percentage of the population accessing the internet has a positive effect on the number of bank accounts and the number of ATMs; the innovation index affects significantly to the figure of ATMs with a positive impact; as well as the number of ATMs also witnesses a positive effect of electronic coverage; the mobile subscription density impacts on the rate of private domestic credit positively. With 95% reliability, the model accepts the hypothesis that density of people that using mobile subscription affects the number of bank accounts. With 90% reliability, the model accepts more 1 hypothesis that a positive impact on the figure of domestic credit of internet coverage. It is believed that the financial technology revolution is driving the cashless habit instead of dispensing cash to use by ATM. In addition, the development of telecommunications has supported people to have credit to become easier. The model demonstrates the impact of Fintech development on financial inclusion by explaining the phenomenon of research.

B. Discussion

The purpose of this article is to fill the gap of the lack of studies in this particular discipline. In the previous studies, researchers found no evidence of the link between

Table 3. Regression Results for ACC Variable

	Static model			Dynamic model
	OLS	**REM**	**FEM**	**GMM**
$ACC_{i,t-1}$				.6666543***
$MOBI_{i,t}$	-2.477135	-2.477135	-5.295503	1.055763**
$INT_{i,t}$	22.76353***	22.76353***	31.01652***	7.418927***
$\ln(ELEC_{i,t})$	8.321913	8.321913	33.39664	9.355102
$STA_{i,t}$	-1.786465	-1.786465	-.3245158	-2.263244***
$INNO_{i,t}$	-15.29103	-15.29103	-4.015273	-6.103878
LM		62.06***		
Wald ($\chi 2$)				
Hausman ($\chi 2$)		6.89***		
Hansen				15.17***
AR (2)				1.12***

Notes: Confidence Interval *** 1%, ** 5%, * 10%

Table 4. Regression Results for ATM Variable

	Static model			Dynamic model
	OLS	**REM**	**FEM**	**GMM**
$ATM_{i,t-1}$				.7509137***
$MOBI_{i,t}$	.0904459**	.0904459**	.0889689**	2.18e-06
$INT_{i,t}$	.5422845***	.5422845***	.508058***	.0472776***
$\ln(ELEC_{i,t})$	.1459694	.1459694	.1031551	6.139503***
$STA_{i,t}$	.0969495**	.0969495**	.0976765**	.0077042
$INNO_{i,t}$	.3650869***	.3650869***	.2437693*	.1414197***
LM		933.17***		
Wald ($\chi 2$)				
Hausman ($\chi 2$)		10.30***		
Hansen				31.73***
AR (2)				1.41***

Notes: Confidence Interval *** 1%, ** 5%, * 10%

Table 5. Regression Result for CRED Variable

	Static model			Dynamic model
	OLS	**REM**	**FEM**	**GMM**
$CRED_{i,t-1}$				.9160633***
$MOBI_{i,t}$	.0336384	.0336384	.0321176	.0451389***
$INT_{i,t}$	.5336962***	.5336962***	.5102129***	.0235883*
$\ln(ELEC_{i,t})$	.200124	.200124	.1858849	-3.525794
$STA_{i,t}$	.009168	.009168	.0104296	-.0060418
$INNO_{i,t}$	.2648008*	.2648008**	.1543461	.0417422
LM				
Wald ($\chi 2$)			22314.35***	
Hausman ($\chi 2$)			12.48***	
Hansen				28.94***
AR (2)				-1.03***

Notes: Confidence Interval *** 1%, ** 5%, * 10%

Fintech and financial inclusion with two-year time lag in Asia. This article results are consistent with previous studies, suggesting that internet density improves financial inclusion. These effects are gradually, becoming significant three years after the adoption of Fintech. Empirical evidence shows that the Internet use has a substantial positive relationship with financial inclusion, which means that the growth in the Internet use is related to the increase in the use of finance (Olaniyi Evans, 2018). In this research, internet access is significantly related to the number of the account holders. There is no doubt that potential development of Fintech has an impact on financial inclusion in Asia. This continent is young and hyper-connected. It possesses an impressive Internet penetration rate along with the nationwide usage of mobile phone.

The scale of the impact on the number of accounts is significant (64% increase after three years of using Internet). This impact is the result of reduction in the asymmetry of information and transaction costs (Agyekum, 2016). With a unique platform on mobile devices provided with the access to the Internet, bill payment, charge, money transfer (in and across borders) and other financial services can all be easily implemented (Donovan, 2012). In fact, in India with more than 220 million smartphone users, lending is made easier through the application of high technology accessed through the Internet, as it helps reach a wider audience when compared to other approaches. In Korea, 4G-LTE networks are covered up to 97% of population, the number of Internet users is nearly 44 million, making it one of the most connected online markets. Due to the advantages of technology - electronics, Korea has a large e-commerce market where payment methods are also diversified and popular among people. Credit cards are the most favorite means of payment among Koreans. According to Findex report 2017, 95% of adults aged 15 and older own bank accounts. Korea has 146.5 million active Internet banking accounts recorded at the end of 2018. Empirical evidence also shows that increasing flow of information in the Internet makes it easy for Fintech to reach customers and improve financial literacy for people, which indirectly promotes financial inclusion. Having the internet access and educational program over the Fintech platforms certainly will improve the knowledge and demand of financial products (Yoshino, Morgan & Wignaraja, 2015). In addition, having internet access with financial education programs could improve the financial position and status of individuals (Atkinson, & Messy, 2013).

While some policymakers are still considering the challenges and barriers, Fintech startups are finding innovative solutions to the benefit of all. The beauty of this new wave of innovation is that the mobile technology is a given and the use of data is front of mind. Innovation in digital channels provides convenience for clients at a lower cost for banks and has been instrumental in helping suppliers overcome challenges related to infrastructure and geography. The regression results show that startups and innovation system can impact significantly on the domestic credit taken up in the country. Financial inclusion also means access to financial services for Micro, Small, and Medium Enterprises (MSMEs) and startups. This is a sector that has not been provided credit in the form of organized business, but can only provide credit under a personalized method. “The absence of traditional credit data for financially excluded individuals and MSMEs is a major barrier to accessing financing” (EY, 2018). This is an obstacle to financial inclusion for small and super small business entities. If the governments improve the innovation environment and build an ecosystem for startups and MSMEs to develop, the domestic credit or financial inclusion in the country can be improved. The model results also showed that innovation is a key of Fintech to enhance financial inclusion.

V. Conclusions and Policy Implications

A. Conclusions

The Fintech industry is newly developed in recent years and has limited available data. Therefore, this research focuses on a narrow view of the development of Fintech industry by measuring the infrastructure and the ecosystem to support Fintech companies to develop. The research confirms the important role of Fintech in promoting financial inclusion. While providing finance to those who find it difficult to access finance or do not use financial services, Fintech through mobile expansion and Internet usage plays an essential to reduce costs and symmetric information, even for the poor. The benefit of lowering the cost of providing services through the expansion of Fintech assists financial service providers and people who use financial services. Industry policymakers and sponsors need Fintech to develop to achieve a more-inclusive financial system. In order to support the development of the Fintech sector, the results show that the infrastructure and the ecosystem play critical roles. Specifically, the internet connection and innovation environment are significantly related to the financial inclusion measures within countries in Asia.

B. Policy Discussion

The important role of governments in developing Fintech is undeniable. Legislators play the role of the guarantees in the development of Fintech, keeping its related risks under control, as well as securing the appropriate ecosystem infrastructure to promote financial inclusion. Through research results, a complete financial system and better financial inclusion is due to policymakers create a technology environment for Fintech. Investing in mobile infrastructure and the Internet is the cornerstone of Fintech's digital development. From the experience of China and Singapore, Fintech's infrastructure needs to focus on international technology and networks. For example, most Fintech services require customers to have smartphones connected to the Internet. In addition, the research results showed that internet access and innovation environment can significantly impact financial inclusion. Therefore, the limits of traditional banking infrastructure create an opportunity for Fintech companies to partner with banks to innovate digital banking services. China proved this with the growth of online banking customers and increased online payments. These platforms are the driving force for online banking services such as Mobile banking and Internet Banking as one of the positive drivers of financial inclusion. Governments need to encourage commercial banks to collaborate with telecommunications providers to enhance the use of mobile banking. Online banking will not have a positive impact on financial inclusion without government's investment in international Internet connection to increase financial inclusion. Governments of Asian countries can boost the Fintech development and consequently improve financial inclusion by some policies and programs to:

- Promote a digital approach for financial inclusion such as commitment to effective coordination between policy makers, central banks, financial institutions; maintain active dialogue among key stakeholders; encourage industry and work with other national authorities to remove barriers.
- Expand the digital financial infrastructure: improve and modernize the current financial systems, ensure the basic infrastructure.
- Enhance the internet penetration and its quality.
- Strengthen digital and financial literacy: raise awareness among Small and Medium Enterprises (SME) about the advantages of using Fintech; encourage the consumers to choose the new technology; aid them in understanding the benefits and risks of Fintech. In addition to simplifying business procedures, Fintech startups will be easier to develop, to provide services that are subject to financial exclusion without the current financial system providing service for this object.

As regards the role of Fintech companies, in developing countries, from the experiences of Singapore, Hong Kong, and China, it can be seen that it is necessary for Fintech companies to understand the digital infrastructure, development, and research of the Financial technology sector in developing countries. The application of technology and its regular use will open financial online products, especially mobile payments through mobile and Internet platforms. Experience from China shows that mobile payments tend to be popular for small transactions, therefore the use of e-wallets has grown among a number of big companies like Alipay, Penpay, etc. Besides, SMEs capital needs or MSME lead to increase in credit trends of businesses without having to apply strict regulations of traditional banks and institutions.

In addition, from analyzing the status of Asian countries, it can be seen that Asian Fintech companies in general, and developing countries in Asia in particular, need to consider the following factors before joining the Fintech industry:

- Understand the market limits: in these case studies, not all aspects of Fintech are attractive to users due to a number of reasons from artificial intelligence to local technology limitations in the country. Startups in developing countries need to investigate and allocate resources to research on aspects of Fintech that can be developed.
- Understand demographics: Every country has a prominent demographic of that country. Because Fintech is digital-based and access to it exceeds

the boundaries, Fintech startups in developing countries need to understand the potential development of each country based on population, digital covered ratio and the effectiveness of digital technology in people like time for equipment digital.

- Investigation of human tendency: depending on the needs of people, Fintech invests its resources. For example, while China uses these payments, India does not. Trends in each country are not the same as in other countries.
- Select attractive industry: one of the most important factors related to starting a business is capital. Startups should consider that operating in a certain area may also be an attractive belief for investors.

With active Fintech, providing digital financial services to people will reduce costs of using the service. According to Michelle's study (2016), the provision of digital financial services will not promote financial inclusion when those services charge only for the sake of simplifying operations and reducing operating costs for banks. This is an opportunity for Fintech to dominate the digital financial technology market or to work with banks to provide efficient financial services and reduce costs.

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Where is the limit of *Mis-selling*?

Zofia Maria Mazur†

A B S T R A C T

Financial services are complex and sometimes can be difficult for even the most knowledgeable investors to understand, thus consumers are particularly susceptible to purchase the improper products which are often unethically offered by professionals. Consequently, should be avoided the situation in which professionals benefit from their inappropriate business behaviors. The serious cases of unfair conducts of financial market players have introduced and developed, for the first time in the United Kingdom, a new notion - Mis-selling, consisting of marketing and sales of financial, insurance, pension products and services to customers that do not meet their needs and financial profile. Gradually, such issue and the related legal regime was expanded and further developed in other countries. Mis-selling happens for several reasons, refers to every adult, assumes many forms, and as we could see, the financial crisis has exposed the failure of financial market regulators to identify and monitor systemic risk. The purposes of the paper are therefore to illustrate some of the professional misbehaviors, to present and compare different regulations on mis-selling and enforcement framework in Italy and in Poland and to assess their effectiveness.

Keywords: Financial Consumer Protection, Mis-selling, EU Polish and Italian legislations, investor protection

Ⅰ. Introduction

"It is impossible to buy a toaster that has a one-in-five chance of bursting into flames and burning down your house. But it is possible to refinance your home with a mortgage that has the same one-in-five chance of putting your family out on the street - and the mortgage would not even carry a disclosure of that fact. Similarly, it is impossible for the seller to change the price on a toaster once the customer has purchased it. But long after the credit card slip has been signed, the credit card company can triple the price of the credit used to finance your purchase." (Warren 2008, p. 452).

From bank accounts to mortgages, payday or long-term loans, credit/debit cards, financial investments, pensions and life insurances, in practice almost every adult, in some way, is a customer of financial services. Consumers are faced with a wide range of options and even more responsibilities about their savings, since the decisions they make have a great impact on their financial well-being. Access to information on the financial market becomes even more relevant for customers in the case of long-terms financial services (e.g., mortgage loans). Thus, fair treatment, clear and precise information about the product and service are fundamental to enabling consumers to make a conscious and informed choice. There are many reasons why consumers should be well-informed as there are many legal provisions governing this particular aspect. Unfortunately, a high number of different regulations lead to a very complex and confusing legislative architecture.

Almost every single relationship between a consumer

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and a professional is covered by the rules concerning transparency and disclosure. But does quantity also mean a good quality of those regulations? Have the institutions responsible for financial consumer protection fulfilled their obligations to act against unfair professional practices? Are these measures and supervision efficient and effective? These and other questions are posed by the author who tries to reassess the problem of mis-selling which occurs almost every single day and affects several commercial relationships.

Recent and less recent series of scandals, abuses and frauds have shown that, despite a huge number of various legislations, there is always room for some misbehaviors and unlawful practices. Such events significantly reduce investor's trust in this market, its regulators and financial institutions. It seems that the time when financial entities were treated as institutions of social trust has already passed away. As was noted by OECD, "the global financial crisis highlighted the need for more effective financial consumer protection measures as consumers face more sophisticated and complex financial markets. The availability of information has grown both in quantity and complexity and the pace of change, in terms of new products developments, product innovation, and technological advance, has increased dramatically".[1]

The phenomenon of mis-selling on the financial market, consisting of market abuse, frauds, aggressive and predatory selling techniques of inadequate products, biased advice, unequal practices and so on, has occurred repeatedly over the last decade. These systematic and widespread breaches of conduct by banks, brokers and non-financial institutions are taking place in many countries. Therefore, the problem is not new, but it is still present on the financial marketplaces, despite the existence of a huge number of EU and domestic legislations and regulations.

The issue becomes even more relevant when we take into consideration the ever-increasing number of new distribution methods, compared to the traditional ones, of financial, insurance and pension products and services, such as on-line or by telephone sales, trading on-line platforms, digital financial services[2], or robo-advisors[3], as well as the current critical situation due to the spread of COVID-19. In some cases, the aforementioned behaviors may seem like simple "misconduct" of a bank; however, an inadequate financial product could lead to wiped-out savings, over-indebtedness, lost homes, unexpected costs, anxiety, families' troubles and broken lives.

In order to anticipate possible problems, help consumers make sound investment decisions, and to avoid a dangerous spiral from which individuals may never recover, the author investigates whether existing regulations are sufficiently effective in banning professional misbehaviors that pose unreasonable risks detrimental to consumers and investors. In particular, the author attempts to identify and analyze the problem of mis-selling of financial and insurance products to retail and professional customers, and suggests some possible measures to prevent professional misconduct and remedies for violations of national and European legislation regarding the inappropriate sale and cross-selling of the mentioned products. Addressing the issue is not as easy as it may seem, because different kinds of products fall under different regulations, requiring different measures and levels of transparency and disclosure.

Therefore, the paper is divided into three parts, focusing on the following points: definitions and examples of mis-selling in the financial, banking and insurance sectors; analysis of European, Polish and Italian regulations and existing measures concerning the private and public enforcements provided by national competent authorities; and proposal (or re-proposal) of some new-old remedies.

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1 https://www.oecd.org/daf/fin/financial-markets/financialconsumerprotection.html.

2 "Digital financial services (DFS) can be defined as financial operations using digital technology including electronic money, mobile financial services, online financial services, i-teller and branchless banking, whether through bank or non-bank institutions. DFS can encompass various monetary transactions such as depositing, withdrawing, sending and receiving money, as well as other financial products and services including payment, credit, saving, pensions and insurance. DFS can also include non-transactional services, such as viewing personal financial information though digital devices." (OECD 2019a, p. 4).

3 As defined by ESMA Guidelines on certain aspects of the MiFID II suitability requirements "robo-advise means the provision of investment advice or portfolio management services (in whole or in part) through an automated or semi-automated system used as a client-facing tool". For more detailed information *see* European Commission (2018), *Distribution system of retail investment products across the European Union.*

Ⅱ. The mis-selling definition

There is still no uniform definition of the term "mis-selling". Thus, the following notes present existing and possible meanings, and provide some examples of the phenomenon.

A. Definitions of Mis-selling

Most authors define mis-selling as the sale of unsuitable, inappropriate products and/or services. E. Wierzbicka[4] considers mis-selling as dangerous conducts for consumers, which means unfair sale questionable from a legal point of view or the use of unethical practices, such as intentional misleading. In the United Kingdom "mis-selling has been defined by the former Financial Services Authority as a «failure to deliver fair outcomes for consumers». This can include providing customers with misleading information or recommending that they purchase unsuitable products.".[5] According to Poland's amended Act on Competition and Consumer Protection[6] mis-selling is considered as a practice aimed at suggesting to consumers the purchase of financial services that do not meet their needs, taking into account the information available to professionals on the characteristics of the products, or aimed at proposing in inadequate manner the purchase of these services.[7] The author of this contribution shares all the definitions presented above. For the purpose of the paper, the mis-selling practices are consider as unethical and predatory selling of inappropriate and unsuitable financial products and services. More specifically, mis-selling may consist of:

- Inappropriate, unethical, unlawful behavior (e.g., requiring disproportionate collaterals for loan repayment, cash loans with very high interest rates such as small-dollar loans;
- High-pressure sales, especially of risky or questionable investments;
- Sale of products unsuited to consumers' needs[8] (i.e., credit or revolving cards, mixed funds);
- Unsecured investments or complex and/or unclear investment strategies;
- Inappropriate supply of financial products and services in terms of knowledge, experience in the investment field and the possibility to support the loss (risk) to the client of potential client (e.g., sales of very long-term obligations to older consumers, unnecessary insurance);
- Missing, unfair, unclear and/or misleading information for example about available alternatives, additional costs, the risks, the amount of the insurance premium, the specific coverages, the staring (or ending) date of the guarantee, the proportionate reduction of insurance costs in case of early repayment of a loan, instructions for withdrawal, etc.;
- Aggressive marketing;
- Predatory lending;[9]
- Slamming, an extreme and criminal form of mis-selling which "consists in forging a consumers' signature in order to conclude a contract or drawing up a contract in the form of an information questionnaire with a view to deceitfully obtaining a consumers' signature" (Czechowska & Waliszewski 2018, p. 23).

Mis-selling occurs frequently also by the combination of two (or more) products/services (so-called *cross-selling*)[10], such as combination of financial services and insurance (so-called insurance-linked investment products, i.e., the "Wells Fargo" account fraud scandal in the U.S.) or pension products offered by banks, insurance companies, brokers, car dealers, sellers of household appliances and electronics. This may also include their representation which induces a consumer to believe that the tied product is essential, mandatory or that it has some characteristics that it does

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4 In: „Misselling barierą rozwoju ubezpieczeń w Polsce", *Zeszyty Naukowe Wyższej Szkoły Humanitas. Zarządzanie*, n. 2, 2016.

5 https://www.nao.org.uk/report/financial-services-mis-selling-regulation-and-redress/.

6 Dz. U. z 2017 r., poz. 229.

7 "(…) proponowanie konsumentom nabycia usług finansowych w sposób nieadekwatny do ich charakteru".

8 Article 24 para. 2 point 4 of Act of 5th August 2015.

9 For more detailed information *see* Mazur Z. M. (2021). The Consumer Lending Protection. How to prevent the predatory lending and "debt slavery" on the small-dollar lending market during and after the COVID-19 emergency, manuscript submitted for publication.

10 According to the *EBA Consumer Trends Report 2017*, p. 22 - Cross-selling has been considered as a problematic selling practice in many European countries. For further information *see* Colaert, Veerle A. (2016), MiFID II in Relation to Other Investor Protection Regulation: Picking Up the Crumbs of a Piecemeal Approach, in D. Busch & G. Ferrarini, *Regulation of the EU Financial Markets: MiFID II and MiFIR,* Oxford University Press.

not actually have (e.g., granting loans together with a mortgage). They might be defined as operations of "financial engineering" that require a plurality of different contracts in order to maintain their structure. These practices consist of tying, "where two or more financial services are sold together in a package and at least one of those services is not available separately" (i.e., the obligatory opening of current account when a mortgage loan is provided); and bundling, "where two or more financial services are sold together in a package, but each of the services can also be purchased separately".[11]

B. Examples of Mis-selling

1. Examples of Mis-selling in Poland

In Poland, in 2010 through 2016 there were numerous cases of fraud, which consisted in transferring the borrower's property to the lender simultaneously with the conclusion of a consumer credit agreement, because such agreement contained provisions on the right to repurchase the property.[12] The transfer of the property was a condition for obtaining a loan.

Another very important and recent case was the "GetBack" case conducted by the Office of Competition and Consumers Protection (UOKiK) against the bank *Idea Bank*. The misconducts and infringements that violated the collective consumer interests consisted of misleading marketing and distribution of GetBack's corporate bonds by disseminating false information; and deceiving clients and potential clients about the safety level of the bonds and their relative profits by presenting false documents regarding the stable and guaranteed growth of interest rates. The products that had been sold to clients, were high-risk and unsuitable as many of them had lost their savings. Consumers had not been made aware of the detailed and additional costs involved. And obviously, the professional was not acting in the best interests of investors.

After a partial decision issued by the Office in August 2019, the Authority has recently confirmed further charges. The President of UOKiK said that "Corporate bonds were offered even to those clients who had never dealt with investment products and were not interested in them and kept their savings on bank deposits".[13] The decision imposes on the bank the obligation to compensate partially the damages suffered by the clients (20% of the invested funds). Such decision will help investors to pursue civil claims and demand repayment of all invested funds, because "the Authority's findings as to the use of the practice are binding on common courts when they consider individual cases involving consumers and practices questioned in the decision".[14]

In July 2020, the President of UOKiK issued four additional decisions against *Idea Bank*. "Three of them concern the violation of consumer rights in offering complex financial products: investment certificates, structured deposits and unit-linked life insurance plans (ufk). In his fourth decision, the President of UOKiK stated that the company had applied the clauses that are abusive and prohibited in bank agreements with respect to modification clauses".[15]

Despite some very serious and evident violations, many practices of mis-selling are "borderline', rather than real unlawful conduct. One of the most recent examples is the "warning communication" issued by the President of the Polish Competition Authority, who decided to issue a warning and file charges against the Yanko Mortgage Fund. The trader is accused of misleading consumers about the level of risk of the products offered, the safety of their invested money and the guarantee of profits.[16]

In conclusion, the main issue regarding the practices of mis-selling in Poland concerns the sale of financial products that are inappropriate and unsuitable to the consumers' needs. Such circumstances might be due to the still low level of financial literacy of Polish citizens.[17]

2. Examples of Mis-selling in Italy

In Italy, in recent years, there have been some relevant cases of the sale of the long-term loans for the immediate

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[11] Recital 81 of MiFID II.

[12] https://pk.gov.pl/aktualnosci-prokuratury-krajowej/prokuratorskie-zarzuty-w-sprawie-tzw-mafii- mieszkaniowej.html#.WmXyjajiaUk.

[13] https://www.uokik.gov.pl/koncentracje.php?news_id=16203.

[14] https://www.uokik.gov.pl/news.php?news_id=16203.

[15] https://www.uokik.gov.pl/news.php?news_id=16620.

[16] For more detailed information *see* https://www.uokik.gov.pl/news.php?news_id=16647.

[17] For a recent and comprehensive report *see* Cwynar A. (2021), *Alfabetyzm finansowy na świecie i w Polsce*, Warszawa, PWE Polskie wydawnictwo Ekonomiczne.

purchase of some other financial instruments managed or issued by the same bank or its subsidiaries.[18] In the "My Way" and "4 You" cases, the banks and intermediaries used three different and apparently separate contracts with their clients, such as (i) an order for the purchase of financial products, generally self-placed (called "My Way", "4 You" and "Piano visione Europa"), (ii) a mortgage contract and, (iii) a pledge in relation to the financial products acquired. Such a bundle of financial transactions was presented as something completely different; the contracts were supposed to have a social security function which in fact they did not have. Moreover, the structure of these financial products and the related agreements were designed to secure profits only for their issuers.

The Italian judges qualified the contracts in question as the result of a single economic transaction, finding that there was a unique contractual consideration common to all the agreements. They were considered to be aimed at pursuing interests that were not worthy of protection, *ex* Article 1322 (2) of the Italian Civil Code, as they were incompatible with their social security purposes. Consequently, the contracts in question were considered void.

Ⅲ. Review of the Main Regulations of European, Polish and Italian Legal Orders

The purpose of regulations on mis-selling is to prevent unethical practices and misbehaviors of financial institutions that want to take advantage of consumer illiteracy and vulnerability to enforce the execution of a financial transaction which could be detrimental to the investor's interests. Nevertheless, "regulation does not operate in a vacuum; it must be operationalized through supervision, which is a «hands on» business" (Moloney 2014, p. 944).

In 2012 the European System of Financial Supervision was established, creating the three European Supervisory institutions: the European Securities and Markets Authority (ESMA), the European Banking Authority (EBA), and the European Insurance and Occupational Pensions Authority (EIOPA). However, the System includes also the European Systemic Risk Board (ESRB), the European Central Bank (ECB) and the National Competent Authorities (NCAs). ESMA plays a key role in the communication and imposition of strong supervisory practices and in urging national competent authorities to adopt a strong supervision and enforcement (Moloney 2014). In order to ensure the effective and efficient supervisory activities and the uniform application of EU law, ESMA adopts guidelines and recommendations. These documents prescribe that the domestic competent Authorities and market's participants shall respect them and the financial market actors shall report, in a comprehensive and detailed manner, whether they comply with that guideline. Similarly, other European Supervision Agencies elaborate and provide many technical standards and guidelines to complement European legislation and ensure uniform interpretation and implementation across all member States.

The present article discusses the most important regulations affecting professional misconduct in the banking and insurance sectors.

A. European Union Regulations

1. Market and Financial Instruments Directive - MiFID II[19]

The MiFID II is a revised Directive of MiFID, which lays down provisions regarding investment services in financial instruments by banks and investment firms. It has improved the transparency and oversight of financial markets and enhanced investor protection by introducing requirements on the organization and conduct of financial actors. For the purpose of the present contribution the author focuses on specific aspects of the Directive regarding potential practices of mis-selling.

One of the most relevant issues regulated by MiFID II is product distribution through investment advice and execution-only channels. Recital 71 states that financial instruments should be manufactured to meet the needs of investors or potential investors. Investment firms should provide assessment of appropriateness or suitability of

[18] *see* "*My Way*", "*For You*" and "*Piano visione Europa*" Cases - M. Franzoni, *La causa e l'interesse meritevole di tutela secondo l'ordinamento giuridico*, in *Juscivile*, 2017, 5, pp. 414; https://blog.ilcaso.it/news_586/04-07-16/«My_way» _ «For_you»_«Piano_visione_Europa»_e_Corte_di_Cassazione.

[19] Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014.

their offered or recommended products. This assessment must be carried out over the lifetime of the contract on the basis of the personal needs, characteristics, and objectives of clients and they are performed to avoid mis-buying or mis-selling risks. The assessment of suitability is a particularly relevant requirement for investor protection under the MiFID II framework. It is applicable to any kind of investment advice and portfolio management. Financial firms should know their clients' preferences and take them into consideration when recommending their services.[20] Furthermore, a suitability report must be provided to a retail client when that client has transaction.[21] Additionally, it shall be provided even if the given advice is not to buy, hold or sell a financial instrument (Recital 87 of the MiFID II Delegated Regulation).

When professionals provide investment advice[22], they should explain the reason of this practice to clients in a written statement. Unfortunately, many investors do not even understand the difference between independent and non-independent advice. They do not comprehend the potential benefits and risks of the different types of investment advice. The ability to make this particular distinction depends on the financial literacy of the individual consumer. When an investment firm acts only as an executor of client orders[23], it is prohibited from joining the service with ancillary ones that could make the desired transaction more complex and the understanding of the associated risk more difficult.

As noted in Recital 81[24], the practices of cross-selling are very common which may "provide benefits to retail clients but can also represent practices where the interest of the client is not adequately considered". The consumer should be given sufficient time before the conclusion of the contract to read and understand all the information "on a complex or unfamiliar product or service, or a product or service a client has no experience with that a client considering a simpler or more familiar product or service" (Recital 83 of MiFID II).

Section 2 of the Directive lays down provisions to ensure investor protection. This Chapter provides some relevant measures, such as specific behavioral requirements and disclosure norms imposed on investment firms, rules on product development and usage, renumeration policy of employees. Article 24 states that investment firms shall act honestly, fairly and professionally[25] in order to reach the best result for their clients. Financial instruments should fulfill the customers' needs and should only be offered or recommended when it is in the clients' best interest (the so-called "know your customer rule"). All information must be clear, fair and not misleading. Therefore, the intermediary shall act with the specific professional diligence to ensure correct, complete and constant information, that is essential for investors to make sound and informed decisions about their savings. Article 25 concerns in detail the so-called "product governance" and prescribes further obligations incumbent on the professional regarding the assessment of the suitability and appropriateness of the financial instruments offered or demanded.

The disclosure system in relation to the distribution of financial instruments is quite fragmented. As noted in the study of the European Parliament, MiFID II "does not address standardization or format, or how retail-oriented summary disclosures should be designed" (European Parliament 2018, p. 20). And on the other side the same directive "uses too many rules and too many instruments to achieve identical goals and thereby generates excessive compliance costs. High compliance costs and low revenues would drive banks out of some segments of retail business" (Franke, Mosk & Schnebel 2016, p. 1). Despite some critics, the directive has become applicable in all Member States from January 2018, as well as ESMA Guidelines especially those on cross-selling practices[26] and on certain aspects of the MiFID II suitability requirements.[27]

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20 For more detailed information, *see* ESMA Guidelines on certain aspects of the MIFID II Suitability Requirements.

21 https://www.esma.europa.eu/sites/default/files/library/esma35-43-349_mifid_ii_qas_on_investor_protection_topics.pdf.

22 Investment advice is defined as "the provision of personal recommendations to a client, either upon its request or at the initiative of the investment firm, in respect of one or more transactions relating to financial instruments" (art. 4 (1) (4)) MiFID II.

23 "Execution of orders on behalf of clients means acting to conclude agreements to buy or sell one or more financial instruments on behalf of clients and includes the conclusion of agreements to sell financial instruments issued by an investment firm or a credit institution at the moment of their issuance" (art. 4 (1) (5)) MiFID II.

24 In the same meaning Recital 53 of IDD.

25 See also Article 21 of Legislative Decree of 24 February 1998, n. 58 - "*Testo Unico della Finanza*".

26 https://www.esma.europa.eu/sites/default/files/library/2016-574_en_guidelines_on_cross-selling_practices.pdf.

27 https://www.esma.europa.eu/sites/default/files/library/esma35-43-1163_guidelines_on_certain_aspects_of_mifid_ii_suitability_requiremen

2. Insurance Distribution Directive - 2016/97

The Directive applies to professionals that advise on, or sell insurance policies, insurance-based investment products to retail customers, such as agents, brokers, bancassurance operators, insurance undertakings, travel agents, car rental companies. In the meaning of this European directive, consumers should benefit from the same level of protection despite the differences between distribution channels of insurance and reinsurance products (Recital 6).

All insurance market actors should "possess an appropriate level of knowledge and competence in relation to the distribution activity. The appropriateness of the level of knowledge and competence should be assured by the application of specific knowledge and professional requirements to those persons"[28] (so-called "know your merchandise rule"). In other words, the staff should have the right combination of capabilities and skills to identify and understand potential risks that may arise from the design and distribution of financial and insurance products. The financial illiteracy of investors and lack of appropriate level of competence of professionals can lead to dangerous and highly detrimental situations for a weaker contractual party.

Recital 44 of the Directive stresses that "in order to avoid cases of mis-selling, the sale of insurance products should always be accompanied by a demands-and-needs test on the basis of information obtained from the customer. Any insurance products proposed to the customer should always be consistent with the customers' demands and needs and be presented in a comprehensible form to allow the customer to make an informed decision". For this reason, Article 30 contains specific rules on the assessment of suitability and appropriateness of the offered products and services.

Article 20 provides standards on advice, and for sales where no advice is given. "Prior to the conclusion of an insurance contract, the insurance distributor shall specify, on the basis of information obtained from the customer, the demands and the needs of that customers and shall provide the customers with objective information about the insurance product in a comprehensible form to allow that customer to make an informed decision. Any contract proposed shall be consistent with the customer's insurance demands and needs. Where advice is provided prior to the conclusion of any specific contract, the insurance distributor shall provide the customer with a personalized recommendation explaining why a particular product would best meet the customer's demands and needs".

Article 23 of the Directive lays down detailed rules on cross-selling of insurance products. One of the biggest problems is "a tying practice of selling a financial product together with an insurance policy, often payment protection insurance (PPI). Other products tied very often to a credit product are car insurance and life insurance. In many cases, consumers do not need them or they are obliged to accept them in order to obtain a loan or to receive it under good conditions. There are very few financial products that require obligatory insurance; however, consumers are not aware of this important fact. Investors are forced or induced by professionals to purchase an insurance policy, or they may not even know that they have purchased an insurance product. Article 23 has introduced a more effective and simplified system for the management of registers and for the supervision of companies and intermediaries, strengthening the level of consumer protection and consolidating the rules and principles already existing in domestic legal systems.

3. Regulation n. 1286/2014 on Key Information Documents for Packaged Retail and Insurance-Based Investment Products (PRIIPs)

In order to improve the transparency of PRIIPs offered to retail investors and to ensure common standards among Member States, the EU has introduced a specific instrument for disclosure, the so-called Key Information Documents (KIDs)[29] that shall accompany the sale of the products in question. Such a document should be drawn up in a standardized format, consist of maximum 3 pages and provide clear and detailed information about investment products and their distributors, with particular attention to the vocabulary used and the style of writing. In addition, the KID must be visibly separated and distinguishable from any other document. This is an important measure, as insurance-based investment products expose retail investors to the risk of capital loss because of the market

ts_0.pdf.

28 Recital 31 of Directive 2016/97.

29 See also the recent Consumer Testing Study, available at https://ec.europa.eu/info/publications/200227-study-key-information-document-priips_en.

fluctuations. In this context, Recital 22 states that every single retail investor should have an effective right to redress and the same right to seek compensation for damages. This Regulation is complementary to measures on distribution in MiFID II and those taken on the distribution of insurance products in IDD (Recital 5).

When it comes to national legal orders, we should take into consideration some specific domestic norms, including the regulations of National Competent Authorities.

B. Polish Regulations and Regulatory Actions

In Poland, the key regulation to combat misconduct of professionals is the Act on Competition and Consumer Protection[30] and, in particular its Section IV concerning prohibition of practices that violate collective consumer interests. The latest amendment to this regulation entered into force on 17 April 2016. The new provision concerns the prohibition of offering services and products that are inadequate to their nature. In other words, the intention of the provision is to prevent the distribution of complex financial products difficult to understand by customers and that do not meet their needs. Consequently, in the Polish legal order mis-selling is considered as a practice which harms collective interests of consumers and it is regulated and sanctioned by Article 24 (2) of the amended Act on Competition and Consumer Protection.[31] The amendments refer to high-risk investment financial instruments such as life insurance and endowment insurance with insurance capital fund, mortgage loans in foreign currency and payday loans.

As specified by the cited act, the products offered by professionals should be appropriate for consumers and should meet their needs. Therefore, lenders must take into account all the relevant personal information of their clients, such as financial situation, age, health, (financial) experience, literacy, risk tolerance and ability to bear losses. Nonetheless, the mentioned norms which shall essentially eliminate unfair commercial practices of mis-selling of financial instruments, seem to be formulated in too general terms, leaving room for free interpretation (Cichorska 2017). The professional should know the expectations of customers, by delineating their characteristics and investment purpose. Subsequently, the seller must select not only the most suitable product, but also the best form of its distribution in accordance with good commercial practices.

There are many other national legislative regulations, including The Act on Out-of-court settlement of consumer disputes[32], The Act on Insurance and pension supervision[33], The Act on Insurance activity[34], and The Act on Compulsory Insurance.[35] Through this set of legal rules, the Polish legislature has provided for several measures to combat unethical financial conducts consisting in mis-selling. One of them is the administrative proceeding carried out by the Office of Competition and Consumer Protection *Urząd Ochrony Konkurencji i Konsumentów* - UOKiK).[36] The President of the Office can issue the so-called provisional decisions that oblige the professionals to remove abusive clauses (if present) and their negative effects and inhibit the use of harmful malpractices. The administrative procedure can be initiated *ex officio* or can follow complaints submitted by consumers, the Consumer Ombudsman, the Financial Ombudsman (*Rzecznik Finansowy*) or a consumer organization. The decision of the President of the UOKiK may be appealed before the Court of the UOKiK.[37] In order to prove the professional's guilt, the President can conduct inspections, investigations, and make use of a so-called "mystery shopper".

From the beginning of 2014 to September 2018, the Office of the UOKiK conducted 35 proceedings regarding practices infringing collective consumer interests on the insurance market. The President of the Authority, in accordance with Art. 26, para. 1 and Art. 27, para. 1 and 2 in conjunction with Art. 24 of the Act on Competition and Consumer Protection, issued 10 decisions recognizing the practices violating the collective interests of consumers. These conducts consisted of misleading information, unilateral modification of contractual conditions, the use

30 Ustawa z dnia 16 lutego 2007 r. o ochronie konkurencji i konsumentów, https://www.uokik.gov.pl/competition_protection.php.

31 Law of 5.08.2015, 2015, Dz. U. z 2015, poz. 1634.

32 Ustawa z dnia 23 września 2016 r. o pozasądowym rozwiazywaniu sporów konsumenckich (Dz. U. 2016 poz. 1823).

33 Ustawa z dnia 22 maja 2003 r., o nadzorze ubezpieczeniowym i emerytalnym (Dz. U. Z 2019 r. poz. 207).

34 Ustawa z dnia 11 września 2015 r. o działalności ubezpieczeniowej i reasekuracyjnej (Dz. U. Z 2019 r. poz. 381 ze zm.).

35 Ustawa z dnia 22 maja 2003 r. o ubezpieczeniach obowiązkowych, Ubezpieczeniowym Funduszu Gwarancyjnym i Polskim Biurze Ubezpieczycieli Komunikacyjnych (Dz. U. Z 2018 r. poz. 473, ze zm.).

36 Urząd Ochrony Konkurencji i Konsumenta.

37 Sąd Ochrony Konkurencji i Konsumenta (SOKiK).

of abusive clauses, lack of relevant information on professional, additional fees and/or possibilities of withdrawal.

The Polish Financial Ombudsman has published in recent years some special reports concerning financial education[38] (May 2020), consumer loans[39] (December 2018), "Forex Market"[40] (March 2018), corporate bonds[41] (November 2017), life insurance with an insurance capital fund[42] (March 2016), and other topics. The Ombudsman's annual report of 2018 showed that there were over 1.8 million complaints from consumers regarding irregularities in the financial market in that year, of which approximately 1.4 million were related to the banking and capital market and over 370 thousand related to the insurance and pension market.

Supervision of the financial and insurance market is also exercised by the Polish Financial Supervision Authority (KNF)[43] and the Financial Ombudsman. However, as noted in the report of NIK[44], the supervisors have never created any formal, comprehensive regulation to monitor the unfair practices that violate the interests of consumers in the insurance market. Moreover, the institutions have not cooperated sufficiently with each other. The proactive initiatives of the Competition Authority in relation to the activities of insurance companies in terms of violation of collective interests of consumers have been very limited. The supervision of the Antitrust Authority focused mainly on the practices concerning the conclusion and execution of unit-linked life insurance contracts. In other sectors, the UOKiK activities were undertaken primarily in response to signals received from consumers, the Financial Ombudsman and from the Polish Financial Supervision Authority (*Urząd Komisji Nadzoru Finansowego* - UKNF). Only professionals who were reported by these subjects have been sanctioned for violations which has reduced the effectiveness of investor protection on the insurance market.

With respect to the other categories of insurance, UOKiK has not carried out extensive monitoring activities. The Authority has assumed that information on potential irregularities must be obtained mainly from other supervisory authorities. However, this approach can be dangerous and lead to inertia of the UOKiK if other institutions fail to identify and/or report the violations.

Problems with the cooperation between the Office of the KNF, the Competition Authority and the Financial Ombudsman also depend on the access of these entities to information and documents which are indispensable for the conducts of their statutory duties, as the materials are protected and subject to Article 372 of the Act on Insurance and Reinsurance - Professional Secrecy of the members of the KNF and employees of the Office of the KNF *ex* art. 10a of the Banking Law. Therefore, the Office has provided limited information to the Financial Ombudsman on how to react to possible misconducts of the insurance companies. Furthermore, in Poland there is no legal provision that obliges insurance companies to prefer a pre-trial dispute resolution before appealing a court.

These specific rules (especially on professional secrecy) should be changed as soon as possible. As we know, the insured is in a weaker position than the insurance firms, and by taking advantage of this situation, they often do not accept any amicable settlement of the dispute forcing the consumers to pursue their claims in court. In this respect, it would be reasonable to increase the competences of e.g., Financial Ombudsman, which would be able to resolve minor cases (i.e., up to a certain amount) in a binding manner, as it occurs through the Arbiter Bankowy and the Italian Banking and Financial Ombudsman (ABF)[45] and ACF[46] proceedings.

It is worth mentioning that recently (on 18 July 2020) one of the consumer organizations in Warsaw won a 10-year collective proceeding against mBank regarding interest rates in foreign currency loans. After 10 years mBank admitted that it has violated the collective interests of consumers by charging loan installments which were based on an abusive clause. This victory is particularly important as it was the first Polish class action (consisting of

38 https://rf.gov.pl/wp-content/uploads/2020/05/Kierunki_Edukacji_Finansowej_Rzecznik_Finansowy_maj2020.pdf, which is inspirited on *Smarter Financial Education: Key Lessons from Behavioral Insights for Financial Literacy Initiatives*, OECD, 2019.

39 https://rf.gov.pl/wp-content/uploads/2020/05/Kredyty_konsumenckie_raport_2018.pdf.

40 https://rf.gov.pl/wp-content/uploads/2020/05/Forex_raport_RF_2018.pdf.

41 https://rf.gov.pl/wp-content/uploads/2020/05/obligacje_korporacyjne_analiza_RF_2017.pdf.

42 https://rf.gov.pl/wp-content/uploads/2020/05/UFK_raport_2016.pdf.

43 https://www.knf.gov.pl/en/.

44 https://www.nik.gov.pl/plik/id,21513,vp,24159.pdf.

45 https://www.arbitrobancariofinanziario.it.

46 https://www.acf.consob.it.

1247 consumers) to be won by a Consumer Organization.[47] However, another important problem of mis-selling in Poland concerns the distribution of saving insurance policies (*polisolokaty*) and the extremely unfavorable terms on which they were offered to consumers. The allocation of these products by their sellers often seems very questionable in legal and ethical terms. The dangerousness of the product lay in the methods of its marketing and distribution, the complex design, the misleading description, the unfair clauses and the unequal distribution of responsibility between the parties. Customers are not informed about the high management and administrative fees, the high penalties in the event of withdrawal, the long-term period with regular premium and the great possibilities of losing their funds.

C. Italian Regulations and Regulatory Actions

The Italian Securities and Financial Ombudsman (AC F)[48], in its decision n. 2658 of June 2020, has also highlighted that the appropriateness assessment represents one of the guarantees concerning the client's awareness of the investment choice. Therefore, it is indispensable and must be carried out before any financial transaction. Moreover, in the case in question, the questionnaire completed by the consumer and related to the level of his financial experience, was prepared using the self-assessment method, which is contrary to the ESMA guidelines. In conclusion, the Securities and Financial Ombudsman obliged the professional to compensate the damage caused to their client.

The Companies and Exchange Commission (CONSOB)[49] implements the Consolidated Law on Finance (T.U.F.)[50] which is the Italian fundamental law governing the financial markets. Then, there are also Regulation of CONSOB n. 20307/2018, which implements the provisions on intermediaries of T.U.F., and Regulation n. 20249/2018 implementing the provisions on markets of T.U.F. Furthermore, in order to combat misconducts in financial market CONSOB has introduced the internet system (DEPROF)[51] on share class level to handle passporting notification filings to allow the distribution of UCITS investment funds to retail investors, which adds considerable complexity and effort to what is a relatively straightforward process.[52]

The Italian Competition Authority - *Autorità Garante della Concorrenza e del Mercato* (AGCM) - very often takes action against misconducts in the financial market. Its competencies are defined by the Consumer Code. The recent cases published in March 2020[53] concerned unfair commercial practices throughout cross-selling of financial-insurance products. In February 2020, the Authority imposed fines on the four major Italian banks: Intesa Sanpaolo S.p.A., BNL S.p.A., UBI Banca S.p.A, Unicredit S.p.A., due to violations of Articles 20, 21 (3-*bis*), 24 and 25 of the Italian Consumer Code.

The Bank of Italy - *Banca d'Italia*[54] - implements the key banking and credit law in Italy constituted by the Consolidated Law on Banking (T.U.B.).[55] Tthe Insurance Supervisory Authority - *Istituto per la Vigilanza sulle Assicurazioni* (IVASS)[56] - enforces the Legislative Decree n. 209/2005 - The Code of Private Insurance.[57] The Code is a framework of principles and powers that establishes the fundamental rules and defines the competences of the IVASS. It regulates the power of IVASS to issue secondary legislation and adopt prudential measures. For the purposes of this paper, Chapter III of the Code becomes particularly relevant. Legal acts adopted by this Authority aim to achieve clear, informed and transparent regulatory interventions in the insurance sector. The most important IVASS Regulations regarding the subject in question are Reg. n. 40/2018[58] and Reg. n. 41/2018.[59]

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47 https://konsument.um.warszawa.pl/aktualnosci/wygrana-konsument-w-w-pozwie-grupowym-z-mbankiem.

48 Arbitro per le Controversie Finanziarie (ACF).

49 It is a public authority responsible for regulating the Italian financial markets.

50 The Italian Legislative Decree of 24 February 1998, n. 58.

51 For further information *see* https://www.consob.it/documents/46180/46181/ManualeDeprof_EN_GEN+2021.pdf/73dcf3fd-ef55-4c3a-86eb-619687ea13a9.

52 European Commission (2018, p. 110).

53 https://www.agcm.it/dotcmsdoc/bollettini/2020/11-20.pdf.

54 For more details see https://www.bancaditalia.it/compiti/vigilanza/normativa/index.html?com.dotmarketing.htmlpage.language=1

55 Testo Unico Bancario, Legislative Decree 385/1993 (as amended) https://www.bancaditalia.it/compiti/vigilanza/intermediari/Testo-Unico-Bancario.pdf.

56 https://www.ivass.it/chi-siamo/index.html.

57 https://www.ivass.it/normativa/nazionale/primaria/CAP_EN.pdf?language_id=3.

58 https://www.ivass.it/normativa/nazionale/secondaria-ivass/regolamenti/2018/n40/Regolamento_IVASS_40_2018.pdf.

59 https://www.ivass.it/normativa/nazionale/secondaria-ivass/regolamenti/2018/n41/Regolamento_IVASS_41_2018_en.pdf?language_id=3.

The number of regulations is impressive and dispersive. It should not be surprising the confusion and uncertainty among consumers related to the applicable regulation and its relative competent body. “Differential treatment of substitutable products also generates incentives for products providers to design products which respond to arbitrage possibilities rather than to investor needs” (Moloney 2014, p. 780). The Bank of Italy has also rightly noted that “sectoriality is a further element of complication, and inevitably produces fragmentation and lack of coordination.” (Banca d’Italia 2020, p. 56).

Ⅳ. Some Critiques and Possible Remedies

As we can see, there are many types of mis-selling in the financial and insurance sectors. The predatory, aggressive and unethical conduct of professionals should be monitored and punished. Supervisors should take into account the numerous guidelines provided by the European agencies to strengthen preventive tools, properly introduce or encourage whistleblowing, and apply suitability and appropriateness tests. All these elements are particularly relevant in order to ensure an effective enforcement regime.

A. Public Enforcement and Administrative Sanctions

In many cases, when mis-selling is revealed, the competent authorities impose administrative sanctions on[60] the financial and insurance institutions. Administrative provisions constitute very useful instrument for (individual and groups of) investors, as they provide many detailed information about infringements which can be used in the courts to claim damages. In some cases, the decisions of the authorities are binding for the civil judge. Some National Authorities try to eliminate unsuitable investment products. Belgium, France, the United Kingdom and the Netherlands have introduced laws “to limit the products that they have classified as toxic” (European Commission 2018, p. 113). In Denmark a particular system of product labeling has been introduced, which uses a traffic light technique and labels each financial product with a red, yellow or green color depending on its complexity or risk level.[61]

However, as we can see, there are many (if not too many) institutions engaged in the supervision of financial consumer protection. All these entities are usually independent with different competencies, cooperating on the basis of inter-institutional agreements (it. *Protocolli d’Intesa*), sometimes on a partnership basis. Therefore, their activities are partly ineffective and the results often unsatisfactory. This situation, a segmentation of financial legislation, is susceptible to creating confusion and legal uncertainty. It would be desirable to create a distinct and independent body responsible for the protection of consumers in the financial and insurance markets that adopts a risk-based approach focused on areas of the highest risk to consumers and invested with specific powers. These may include, for instance, *ex ante* supervision of contracts, inspections, and mystery shopping.

Some recommendations for existing supervisors should be to cooperate when developing and applying the legal, supervisory and regulatory frameworks in order to promote common supervisory approaches and practices. They should also interact with consumers and their representatives to ensure an adequate understanding of the issues and experiences from the consumer’s point of view, and report publicly and regularly on the effectiveness of their actions in preventing, detecting and responding to mis-selling in the financial marketplace. The OECD has also proposed international cooperation between oversight bodies by paying specific attention “for consumer protection issues arising from international transactions and cross-border marketing and sales” (OECD 2019, p. 21).[62]

60 i.e., Decision of CONSOB n. 19935, March 30, 2017 (*Banco Popolare di Vicenza S.p.A.*); Provvedimento n. 12437 *MPS Banca* - “My Way”; n. 26168 *Banca Popolare di Vicenza*; n. 26612 *Veneto Banca*; n. 28011 *Compass - Polizze Abbinate*, and others.

61 For more detailed information *see* https://www.danskebank.dk/PDF/PRISER-VILKAAR-FAKTAARK/Homepage-UK/Privat/Investment/ExecutiveOrderRiskLabelling-InvestmentProducts.pdf.

62 In the same meaning the Directive (EU) 2016/97 and Article 13 of IDD “the competent authorities of different Member States shall cooperate among themselves and exchange any relevant information on insurance and reinsurance distributors in order to ensure the proper application of this Directive”.

B. Private enforcement - Extra-judicial Organs[63]

Arbitro Bancario Finanziario (ABF) - the Banking and Financial Ombudsman - is an independent and impartial organ instituted in 2009 by the Bank of Italy, which decides disputes raised between consumers and banks, intermediaries and other financial institutions. The decisions taken are based exclusively upon the documents and other proof provided by the litigants. The parties do not need the legal assistance of a lawyer. The final decision is issued by the panel composed of five members, and is not legally binding; however, the professional's non-compliance may be rendered public on the ABF's and intermediary's websites. If a party is not satisfied with the Ombudsman's decision, there is a possibility to submit that decision to the civil courts.

Arbitro per le Controversie Finanziarie (ACF)[64] - the Securities and Financial Ombudsman in Italy - is an arbitration system within the CONSOB, active since January 2017, which decides disputes concerning mainly investment services and activities. The competence of the ACF is limited to no more than EURO 500.000. The access to the ACF is free of charge for the investor. The final decision is based on the documentation submitted by the parties, is issued by the panel composed of five members, and is not legally binding. The non-fulfilment with the ACF's decision may be publicized on the ACF's and intermediary's website. The final decision may be appealed to the civil courts.

Rzecznik Finansowy[65] is the Financial Ombudsman in Poland. For the access to the Ombudsman are charged about EURO 12. The final decision, issued in form of a recommendation, is not legally binding and there is no measure which encourages the financial institutions to comply with the Ombudsman's decision. The organ is entitled to analyze and call evidence from both parties.

Sąd Polubowny przy Komisji Nadzoru Finansowego[66] is the Arbitration Court at the Polish Financial Authority. It is a stable and independent Arbitration Court established in 2006 which decides disputes raised between the actors of financial market. There are two different paths of dispute resolution: the first consist of Mediation which purpose is to reach a negotiated settlement between the parties; the secondo constitutes a form of arbitration proceedings. The final decisions have a binding effect on both the financial institution and the consumer.

Bankowy Arbitraż Konsumencki[67] is the Banking Ombudsman in Polan. The cases brought before the Ombudsman must involve individual consumers and members of the Polish Bank Association or other financial institution that provided voluntary submit to this model of dispute resolution. The final decision is binding only for the financial institution. If the decision does not satisfy a party, he/she may take an action before the state court.

Other organizations include consumer protection organizations[68]; the Polish free legal aid system for a particular group of individuals[69]; and FIN-NET[70], the financial dispute resolution network set up by the European Commission in 2001. All the above-mentioned bodies provide support to consumers in individual cases. In general, their actions are more efficient, quicker and more economical than traditional judicial trials. Moreover, Article 128-*bis* of T.U.B. (and Article 40 of Italian Legislative Decree n. 11/2010) oblige the banks and financial intermediaries to adhere to systems of extra-judiciary dispute resolution (ADR). Failure to adhere represents a source of administrative sanctions *ex* art. 144 (4) of T.U.B. (Cavalli & Callegari 2019, p. 84). As noted by M. Callegari (2019, p. 85) the ADRs have reached considerable success in the banking-financial sector consisting of valid instruments in order to prevent many judicial actions.[71]

63 For more detailed information about Polish paralegal organs *see* https://www.uokik.gov.pl/sprawy_indywidualne.php.

64 Decisions regarding Mis-selling: n. 2144/2020; n. 1857/2019.

65 www.rf.gov.pl/polubowne.

66 www.knf.gov.pl/dla_konsumenta/sad_polubowny.

67 called also "Związek Banków Polskich Bankowy Arbitraż Konsumencki", https://zbp.pl/dla-klientow/arbiter-bankowy.

68 In accordance with Article 32-bis of T.U.F. "Consumer associations entered on the list pursuant to Article 137 of L. Decree no. 206 of 2005 shall be entitled to protect investors' collective undertakings, relating to the provision of investment services and activities, accessory services and collective asset management services, in the forms pursuant to Article 139 and 140 of the aforementioned Legislative Decree".

69 Ustawa z dnia 5 sierpnia 2015 r. o nieodpłatnej pomocy prawnej oraz edukacji prawnej (Dz. U. Z 2015 r., poz. 1255 z poz. zm.).

70 https://ec.europa.eu/info/fin-net.

71 There is about 1% of cases in which the question, already decided by an organ of ADR, are re-proposed before a civil court (Cavalli & Callegari 2019, p. 86).

C. Private enforcement - Judicial Actions

In accordance with Article 69 of MiFID II "The Member States shall ensure that mechanisms are in place to ensure that compensation may be paid, or other remedial action be taken in accordance with national law for any financial loss or damage suffered as a result of an infringement of this Directive". Actions may include damages or judicial review of the contract - adjust /correct the contract by virtue of the principles of good faith and fairness (*buona fede e equità*).

As has been suggested by Better Finance, there might be a possibility for creating a "Pan-European collective redress mechanism, modelled on the best practices in Europe as individuals are not equipped to assess their own detriment, and even less equipped to obtain redress in court on their own" (European Commission 2018, p. 118), because, in general, a judicial process is slow and very often disproportionally expensive.

D. Contractual remedies - Civil Law Provisions

To understand a possible fate of the contract affected by the mis-selling practice, we should suppose an application of provisions of the national civil and consumer codes and other legislative provisions. As mentioned previously, banking contracts are usually pre-formulated standard contracts with standardized terms and conditions, drafted in advance by the professional or its trade association, consequently the consumer is able only to accept or not the proposed contract, without the possibility of negotiating its clauses. In such a situation, the agreement in question could be subject to the regulatory framework regarding unfair terms in consumer contracts[72] and to the general provisions on standard contracts.[73]

Another useful part of legislation could be the norms on distance marketing of consumer financial services.[74] In addition to sectoral rules governing specific relationships, such as those between intermediaries and clients, especially "non-professional" ones, we could think of the general rules of national civil codes.

The common factors that may affect the contract or its validity are described in Articles 1427 *et seq*. of the Italian civil code (c.c.), and in Articles 82 *et seq*. of the Polish civil code (k.c.). They are: mistake, duress, negligence, fraud, misrepresentation, lack of mutual assent or other essential elements of the agreement and illegality (contrary to mandatory rules, public order or morality). The remedies available depend on the vitiating factor and the circumstances, which may be: termination of the contract and/or monetary damages or restitution; mutual dissent of the parties; withdrawal within 14 days from the date of conclusion of the contract; rescission of the contract under Articles 1447 and 1448 of the Italian c.c. (*rescissione*); correction-modification of the contract by the judge (*reductio ad aequitatem ex* Art. 1450 it. c.c.); or application of Article 1322 (2) c.c.[75] ("*meritevolezza degli interessi*").

There are also provisions that impose specific requirements for the validity of contracts. Art. 116 of Italian Consolidated Law on Banking (TUB) states that the bank and intermediaries should present all the relevant information to their clients in a clear and comprehensible manner.[76] Article 117 requires the written form of the contracts concluded with the clients[77], otherwise they are considered void.

In accordance with Article 720 (2) of the Polish Civil Code (k.c.) a loan agreement which exceeds 1000 PLN must be in a documentary form.[78] However, this specific new form of contract is required *ad probationem*. Article 806 k.c. affirms that the insurance contract is invalid if the accident described in the agreement is impossible. Article 45 of the Polish Consumer Credit Act[79] provides

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72 In accordance with the Council Directive 93/13/EEC; artt. 33 ff. of Italian Consumer Code; art. 385 Polish k.c.; artt. 23a, 23b and 23d of u.o.k.i.k.

73 In accordance with artt. 1341 and 1342 Italian c.c., and artt. 384 and 385 of Polish k.c.

74 *see* the Directive 2002/65/EC; artt. 67 *bis* ff. of Italian Consumer Code; artt. 39 ff. of the Polish Act of 30 May 2014 on Consumer Rights.

75 For more details *see* G.B. Ferri, Meritevolezza dell'interesse e utilità sociale, *Riv. dir. comm.* 1971, II, 81; Id., Ancora in tema di meritevolezza dell'interesse, *Riv. dir. comm*. 1979, I, p. 1 ss.; A. Guarnieri, Meritevolezza dell'interesse, (voce) in *Digesto delle disc. priv., Sez. Civ*., XI, Torino, 1994, p. 332; id., Meritevolezza dell'interesse e utilità sociale, *Riv. dir. civ*., 1994, p. 799 ss.; Supreme Court n. 22950 of 10.11.2015; n. 19559 of 30.09.2015; and n. 7776 of 3.04.2014.

76 *see also* artt. 123 and 124 T.U.B.

77 *see also* art. 125 *bis* T.U.B.

78 *see* artt. 77^2 and 77^3 k.c.

79 http://isap.sejm.gov.pl/isap.nsf/download.xsp/WDU20111260715/U/D20110715Lj.pdf.

a so-called "free credit" sanction in relation to certain types of the financial contracts concluded with consumers. In case of the violation of specific norms regarding transparency and disclosure by lenders, consumers may repay the loan without interests and other costs. This particular sanction has been introduced in accordance with Art. 23 of the Directive 2008/48/EC.

Article 117 (8)[80] of the T.U.B. has strengthened the powers of the Bank of Italy to monitor, limit and restrict the distribution of some complex financial products offered to retail clients. Article 128-*ter* T.U.B. is about the power of the Bank of Italy to prohibit the unfair behaviors and to order the restitution of funds that professionals have unduly obtained. It should be emphasized, however, that in Italy the violation of rules of conduct concerning the principles of good faith does not usually lead to the automatic invalidity of the contract in question, but represents only a source of pre-contractual responsibility with compensatory consequences *ex* Art. 1337 c.c.[81]

E. Other Possible Solutions

The creation of a special reimbursed fund may be considered, as proposed by Conac (2018, p. 46). "When the compensation was not done by the acquiring bank (because it only acquired the assets of the falling bank) or the bank responsible for the mis-selling (because it has been resolved), Member States should be encouraged to establish funds to reimburse retail investors. These funds could be finances by a fee on the banking sector. Alternatively, the money could be paid by the deposit protection funds, like it occurred in Italy, or the resolution fund, like it occurred in Portugal".[82] In Italy this reimbursed fund is provided by the Ministry of Economy and Finance.[83]

Another possibility to regulate the financial market could be to implement solutions that already exist in other industries, such as an official certification of the quality of the products and serving process, which might be renewed regularly (Franke, Mosk & Schnebel 2016, p. 17). If products or services appear potentially dangerous to customers, leading to disproportionate risks, supervisors might prohibit its distribution. Similarly, damages caused by dangerous credit products could be considered, such as the Regulation on Liability for Dangerous Product. If we have a clear regulation on Liability for Dangerous Product, why can we not also have a regulation on dangerous credit products?

F. Financial Education

As discussed above, lack of financial literacy has, undoubtedly, a harmful impact on the rationality of the customer decisions. However, negative consequences may also affect the long-term stability of the financial and economic system. The results are both a lack of understanding of the offered products or services and the inability to recognize and enforcement investors' rights, which facilitates the use of unfair practices by the financial and non-financial institutions.

The mis-selling becomes particularly acute in relation to certain groups of customers, such as young people as well as the older ones and those who are less able to make informed decisions. Many consumers are not aware of their right to complain to the national Ombudsman, or that making a claim is straightforward and very often free. To increase the awareness of consumers and their ability to improve financial decision-making and selecting financial products that match their needs, financial education remains one of the most important elements (NIK 2019).

In its 2005 report on Improving Financial Literacy the OECD defines financial education as "the process by which financial consumers/investors improve their understanding of financial products and concepts and, through information, instruction and/or objective advice, develop the skills and confidence to become more aware of financial risks and opportunities, to make informed choices, to know where to go for help, and to take other effective actions to improve their financial well-being." (OECD 2005, p. 26). Both Poland and Italy share this definition.

80 Article 117 (8) of Legislative Decree 385/1993 "La Banca d'Italia può prescrivere che determinati contratti, individuati attraverso una particolare denominazione o sulla base di specifici criteri qualificativi, abbiano un contenuto tipico determinato. I contratti difformi sono nulli. Resta ferma la responsabilità della banca o dell'intermediario finanziario per la violazione delle prescrizioni della Banca d'Italia".

81 For more details *see* the decisions of Italian Supreme Court n. 26724 of 19 December 2007 and n. 10568 of 7 May 2013.

82 *see* the cases of Veneto Banca, Banca Popolare di Vicenza, Banca Etruria, ecc.

83 For more details *see* http://www.dt.mef.gov.it/it/attivita_istituzionali/sistema_bancario_finanziario/fondo_indennizzo_risparmiatori/.

Despite many advertising and education campaigns[84], the NIK highlighted in its report of 2019 that the low financial competencies of Poles have an impact on financial decisions. According to OECD data, Poland has been included in the group of countries that have not yet fully implemented their national financial education strategy. To promote public understanding of the consumer financial service law through education, the Italian Ministry of Economy and Finance has announced October 2020 as the month of financial education in Italy. The 2020 edition of this initiative was focused on financial choices in the time of Covid-19.

The OECD recommends that "policy makers should monitor market trends and changes brought in retail financial services by digitalization with a view to ensure the legal and regulatory framework is up-to-date and appropriately protects consumers. Particular attention should be paid at looking at how changes in the market are impacting consumers' behavior." (OECD 2019, p. 8).

The severe behavioral risks to which retail investors are exposed in many sectors are generated by many different elements, such as:

- Misrepresentation of the products;
- Lack or insufficient disclosure related to a product, its marketing and distribution process;
- Self-placement of financial instruments;
- Trust in professional market actors and investment advice;
- Vulnerability and financial illiteracy of investors, which unfortunately does not seem to be improving over time in many countries;
- Limited decision-making skills;
- Poor or too complex design of products or services[85];
- Standardized or non-independent investment advices;
- Incomprehensible or misleading contractual provisions;
- Imbalance of bargain power;
- Information asymmetry;
- Conflicts of interests;
- Arduous (temporary) financial situation of (potential) investors.

Not infrequently, the clients are overwhelmed and confused about the typology of the product, its non-mandatory character and the associated risk. Some of them are induced to believe that they are buying non-risky investment product, which actually reveals high-risk corporate bonds. Very often, clients or potential clients are not warned about the inappropriateness of the product to their needs or investment profile. In most cases, the benefits of the acquisition of financial products are unclear or even disastrous.

The issue is becoming increasingly relevant, as highlighted in the Report of the European Banking Authority, which states that "consumer lending at EU level has been increasing in volume since September 2015. The growth rates reported are significantly higher than those for mortgage and household lending. Between September 2015 and September 2019, consumer lending grew by 14.1%". The growing appetite of banks to increase their incomes has been confirmed by the research of European Commission (2018) provided by experts, which showed that the vast majority of banks propose their own in-house actively-managed investment funds to their clients.

In collecting savings and in carrying out financial transactions, a professional may take advantage of the disparity in bargaining power and especially the inexperience of the consumer worried about social security issues. Another problem is widespread conflicts of interest within financial institutions and insurance companies, which lead to the violation of the general clause of "fairness in relationships with customers". EBA in its report in 2017[86] highlighted that sales incentives, both commission and remuneration in sales department, constitute still a serious problem in many European countries. Methods of allocation of products and services influence directly consumers' actions.

In this regard, the Authority in 2016 published guidelines on remuneration policy and sales practices in retail banking[87], "with a view to protecting consumers from undesirable detriment arising from the remuneration of sales staff". These policies and practices should ensure honest, fair, transparent and professional conducts, taking into account the rights and interests of consumers. According to the art. 1.6 "Institutions should not design remuneration policies and practices that: (a) solely link remuneration

[84] *See* for instance, https://www.zanim-podpiszesz.pl which informs consumers about every relevant information regarding financial products.

[85] As well as information overload, which can prevent the individual from making an evaluation and taking a good and sound decision.

[86] European Banking Authority (2017), *Consumer Trends Report 2017*.

[87] European Banking Authority (2016), Final report, Guidelines on remuneration policies and practices related to the sale and provision of retail banking products and services.

to a quantitative target for the offer or provision of banking products and services; or (b) promote the offer or provision of a specific product or category of products over other products, such as products which are more profitable for the institutions or for a relevant person, to the detriment of the consumer".

In Poland this specific issue is regulated by a regulation enacted by the Minister of Finance and Economic Development of 2017[88], which has implemented the Directive CRD IV[89] of 2013. And in Italy the IVASS Regulation n. 40/2018[90], in particular art. 55, and art 21, para. 3-*bis* of Consumer Code.

I. Conclusion

There are many different legal rules and principles associated with mis-selling of financial products. Their fragmentation and dispersion may lead to serious confusion, omission and a consequent lack of adequate protection. Moreover, some measures taken by the competent national authorities seem to be partially ineffective and the final results are often unsatisfactory. Such obstacles are susceptible to create confusion and legal uncertainty. It would be desirable to create a distinct and independent body responsible for consumer protection in the financial and insurance market that adopts a risk-based approach focused on the areas of the highest risk for consumers. For this reason, a unique and comprehensive regulation should be created.[91]

During the ongoing pandemic due to the spread of COVID-19, the already serious problem becomes even more serious. There is and there will be a growing trend in relation to the requests for personal loans, consumer credit, mortgages, and reverse mortgages due to loss of jobs or commissions, delays or reductions of wages and/or turnover as a result of forced closures of many companies. The critical issues may arise both in relation to the contractual terms and the methods of the presentation and distributions of the products and services (lack of transparency, rush, ambiguity, incomprehensibility, apparent lack of alternatives, and so forth). As a result of the impossibility or greater difficulties of visiting the bank or insurance company, professionals make frequent use of distance communication technology (i.e., telephone, e-mails) to present various offers and/or modifications to the conditions of the contracts in force. This situation may trigger inconsistencies between the terms of contracts offered verbally and accepted by the customer during a phone-call and those communicated via e-mail or regular mail. As regard to the traditional letters, a further problem may arise, that is, the non-delivery of the contract or its significant delay, which may preclude the exercise of the right of withdrawal. Consequently, it will be necessary to prevent unfair, abusive practices and misconducts which take advantage of the serious and difficult situation faced by many current and future consumers. Fortunately, many countries have already introduced some important measures, such as the postponement of tax duties, mandatory insurance, pension security payments, suspension of loan installments.[92]

Naturally we should be aware that mis-selling could never be eliminated completely, however it should be minimized as much as possible through effective public and private enforcement, regulatory penalties for misconducts and appropriate redress for consumers. The task is not easy, but the struggle is definitely worth it.

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[88] Rozporządzenie Ministra Rozwoju i Finansów z dnia 6 marca 2017 r. w sprawie systemu zarządzania ryzykiem i systemu kontroli wewnętrznej, polityki wynagrodzeń oraz szczegółowego sposobu szacowania kapitału wewnętrznego w banku", Dz. U. RP., poz. 637.

[89] Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms.

[90] Regulation laying down provisions on insurance and reinsurance distribution, G.U. n. 218 del 19 settembre 2018.

[91] Such as the Korean model described by Dong Won Ko in Policy Framework for Financial Consumer Protection in Korea: Focusing on the Financial Consumer Protection Act of 2020, *The International Review of Financial Consumers*, Vol. 5, Issue 2, 2020, pp. 1-10.

[92] For more details *see* the Italian Report available at https://rf.gov.pl/pdf/Italian%20Report_Consumer%20loans%20and%20Coronavirus.pdf; and he Polish Report available at https://rf.gov.pl/wp-content/uploads/2020/05/Odroczenie_rat_07maja.pdf.

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Editorial Principles

1. Mission

The International Review of Financial Consumers (IRFC) aims to offer a communication platform for scholars, regulators, and practitioners to share their latest academic research on financial consumers and related public policy issues in both advanced economies and emerging market countries. All theoretical, empirical, and policy papers of relevancy are welcome, with the following as the topics to cover:
① protection for financial consumers
② business ethics of financial institutions
③ market discipline of financial industries
④ corporate social responsibility of financial institutions
⑤ renovation or innovation of law and regulations related to financial consumption
⑥ public policies for financial consumption
⑦ fair trading of financial products
⑧ dispute resolution for financial consumption
⑨ case studies of best practices for financial consumption
⑩ international comparison on any of the above topics

2. Publication schedule and contents

IRFC, the affiliated journal of the International Academy of Financial Consumers (IAFICO), will be published twice a year - April and October each year - and will pursue to be the first international academic journal focusing on the research related to financial consumers. As the contribution of financial consumption becomes increasingly important to the national economy for most countries, how to maintain an efficient and equitable financial market is an imminent issue for research. The trend of globalization and liberalization policies has reinforced the challenges in financial markets. Not only the financial instruments become more complicated and hard to understand by the public, but also the frequent changes in regulations and business practices cause confusions to the financial consumers. Consumption disputes regarding the financial products have drawn attention by the media in recent years. IRFC attempts to serve as a forum to publish and share original and innovative research, both academic and policy-oriented, on all the above issues.

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etc. It is as follows.

1) “Fabrication” is the intentional misrepresentation of research results by making up data or research result.

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7) Action which is out range of usually acceptable in the course of the research.

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1. Protection for financial consumers
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3. Market discipline of financial industries
4. Corporate social responsibility of financial institutions
5. Renovation or innovation of law and regulations related to financial consumption
6. Public policies for financial consumption
7. Innovation or fair trading of financial products
8. Dispute resolution for financial consumption
9. Case studies of best practices for financial services or their consumption
10. International comparison of protection for financial consumers.

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   - Results
   - Discussion
   - References
   - Appendices and supplemental materials.

2. Manuscripts should be written as concisely as possible without sacrificing meaningfulness and clarity. They should be no longer than 40 double-spaced pages with one-inch margins and Times New Roman 12-point font, including references, tables, figures and appendixes.

3. Submitted papers should be in English, with grammar, spelling and punctuation thoroughly checked.

4. Make sure lettering and sizing of your manuscript, as well as bullet points and numerals are uniform.

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6. Please provide author name(s) contact information in a separate page.

7. Sections, including introduction, should be numbered in Roman numerals. Subsection headings should be in letters, e.g. A, B, C.

8. Tables must be typewritten, not in the form of pictures, and given Arabic numerals. They should have a descriptive name following the table number. Tables can be placed either after the text in the paper or in appendix section, if too detailed.

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Leonidou, L. (Eds.). (2018). Advances in global marketing: A research anthology.

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  When a manuscript is first received, the editor makes a preliminary screening of a manuscript to assess whether it fits the criteria of IRFC's mission and publication principles.

- Normal review process
  For each manuscript that passes the initial review stage, the editor assigns one qualified reviewer from the IRFC's Editorial Board and one other qualified reviewer. All submissions will be blind reviewed.

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We are committed to publishing only high quality research. Our policy on research ethics is based on recommendations of the Committee on Publication Ethics (COPE). COPE is an internationally recognized non-profit organization, dedicated to educating editors and publishers in publication ethics. Hence, authors are encouraged to study the IRFC's ethics principles and abide by them.

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Authorship misconducts (or "misconducts") may include fabrication, falsification, plagiarism, unfair representation of some authors. Misconduct may occur during research proposal, research performing, and research report and research presentation. By submitting their manuscript, authors confirm they are not engaged in any of these actions:

1) Fabrication is the intentional misrepresentation of research results by making up data or research result.
2) Falsification is the distortion of research contents or results by manipulating research materials, equipment and processes, or changing or omitting data or results.
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4) Self-plagiarism is the reusing of a large portion of author's own previously written research.

Other misconducts include:

5) Indicating as authors those who did not contribute but are credited ("guest", or "gift" authorships), and those who contributed but are not credited ("ghost" authors).
6) Obstructing investigation of their own or other authors' misconducts.
7) Pressure on, suggestion or threat to others to do the above things.
8) Any other action which is usually unacceptable in the course of research.

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If an author identifies any significant error in their paper after its publication, it is the author's responsibility to notify the Editorial Board promptly. Authors should provide their assistance in implementing retractions or corrections of the paper. We also encourage readers to notify the Board should they identify any errors in the published materials.

Bylaws of the International Academy of Financial Consumers (IAFICO)

March 31, 2015
First revision on April 19, 2016
Second revision on September 30, 2019

Section 1 General Provisions

Article 1 (Official Name)

The official name of this academic society shall be the “International Academy of Financial Consumers (IAFICO hereafter)”.

Article 2 (Registered office and Branch offices)

The registered office is to be in Seoul, South Korea. Branch offices may be established in provincial cities in Korea or overseas should the need arise.

Section 2 Objectives and Undertakings

Article 3 (Objectives)

*Pending
The IAFICO is a non-profit association aiming at promoting and developing at an international level collaboration among its members for the study of various issues relating to financial consumers, including its education, legislation, creation of best practices, supervision, and policy advancement to contribute to the development of the global economy and financial market, through investigation or research into financial consumers, and other academic activities.

Article 4 (Undertakings)

The following activities shall be carried out in order to achieve the objectives of the IAFICO.

1. Publication of journal and other literature
2. Hosting of academic conferences
3. Additional undertakings corresponding to the objectives of the academic society which are deemed necessary at the board of directors meeting or the general meeting

Section 3 Membership

Article 5 (Requirements and Categories)

The IAFICO shall have following categories of membership:

① Individual member

Individual members are categorized further into a regular member or an associate member.

1. Regular member shall be a specialist in the area such as finance, consumer studies, economics, management, law, or education etc, and must be a full-time instructor at a domestic or overseas university, a researcher at a research institute with equivalent experience, or should hold equal credentials to those mentioned previously, and shall become its member by the approval of the board of directors. Regular members attend general meetings and may participate in discussions, hold the right to vote, and are eligible to be elected to a director or other status of the IAFICO.
2. Associate members shall be divided into either a student member, who is a current domestic or overseas graduate school student, or an ordinary member, who works for a financial institution or a related organization. Associate members do not hold the right to vote and are not eligible to be elected to a director or other status of IAFICO.
3. Both regular member and associate member must pay the membership fee to the IAFICO every year.
4. In the case that a decision is made by the Board of Directors to expel a member due to a violation of the objective of the society, or demeaning the society, or in the case that a member fails to pay the membership fees for two years continuously without prior notice, their membership shall be revoked.

② Institutional member

1. Institutional member shall be organizations related to financial consumers who do not damage the impartiality of the IAFICO subject to approval of the Board of Directors. Institutional members do not hold the right to vote and are not eligible for election.
2. Institutional member must pay its membership fee to the IAFICO every year.

Section 4 Organization

Article 6 (Designation of Board of Director)

The following Directors are designated to constitute the Board of Directors to run the IAFICO.

1. Chairperson
2. Vice-Chairperson
3. President
4. Vice-President
5. ordinary Directors
6. Auditor

Article 7 (Election of Board Members and Director)

① The Chairperson, Directors, and Auditors shall be elected or dismissed at the general meeting.
② Appointment of the Directors may be entrusted to the Chairperson pursuant to the resolution of the general meeting.
③ The Vice-Chairperson, President, and Vice-President shall be appointed and dismissed by the Board of Directors.

Article 8 (General Meetings)

① General meeting shall decide following matters relating to the activities of the IAFICO.
1. Amendments to the Bylaws
2. Approval of the budget and settlement of accounts
3. Election or Dismissal of the Chairman
4. Election or dismissal of Auditors
5. Regulations concerning the duty and rights of members
6. Resolutions regarding items submitted by the President or Board of Directors
7. Other important matters

② The Chairperson must call a regular general meeting at least once a year and report on the undertakings of the IAFICO. Provisional general meetings may also be held by the call of the Chairperson, or at the request of at least a quarter of current regular members, or according to the resolution of the Board of Directors.
③ At a general meeting, a quorum is formed by one third of regular members. However, regular members who are not able to participate in the general meeting in person may be represented by proxy, by entrusting a specific regular member attending the general meeting with their attendance or voting right. In this case the letter of proxy is included in the number of attendees.
④ Resolutions at the general meeting will be made according to the majority vote of the attending members who hold the right to vote.
⑤ In principle, the general meeting shall be held with face-to-face meeting, however, it may be held web-based meeting when needed.

Article 9 (Auditors)

① The auditors shall audit financial affairs, accounts and other transactions of IAFICO, shall participate in, and may speak at board meeting, and must present an auditor’s report at the regular general meeting.
② There shall be two appointed auditors.
③ Auditors are elected at the general meeting.
④ An auditor shall serve a term of two years and may be reappointed.

Article 10 (Board of Directors)

① The Board of directors shall be made up of chairperson and fewer than 80 directors.
② The Board of Directors shall decide a plan of operation and establish the budget, in addition to matters on the running of IAFICO.
③ Board meeting requires a quorum of at least one third of current board members. Resolutions at the Board meeting will be made according to the majority vote of the attending members. However, board members

who are not able to participate in the board meeting in person may be represented by proxy, by entrusting another specific board member attending the board meeting with their attendance or voting right.
④ A board member shall serve a term of two years, with a possibility of serving consecutive terms.
⑤ A number of sub-committees or branches in each country or region may be set up under the Board of Directors to support the running of the IAFICO.

Article 11 (Steering Committee)

① The Board of Directors may entrust some decisions relating to the conducting of business to the Steering Committee.
② The Steering Committee shall be comprised of the Chairperson, Vice-Chairperson, President, and the heads of each subcommittee.
③ Temporary task forces may be established by the Steering Committee when necessary to run the business of the Steering Committee.

Article 12 (Chairperson)

① The Chairperson shall represent the IAFICO and chair its general meeting and board meeting.
② There shall be one appointed Chairperson who serves a term of three years.
③ In the case of an accident involving the Chairperson, the Vice-Chairperson shall complete the remaining term of office of less than one year. If it lasts longer than one year, a new Chairperson shall be elected at the general meeting.
④ A new Chairperson should be elected at the general meeting one year prior to the end of the current Chairperson's term of office.
⑤ Should it be judged that it is difficult for the Chairperson to carry out their duty any longer, he or she may be dismissed from their post by the decision of the Board of Directors and general meeting.

Article 13 (Vice-Chairperson)

① The Vice-Chairperson shall assist the Chairperson, and serve as a member of the Board of Directors.
② The Vice-Chairperson shall serve a term of two years, or the remaining term of office of the Chairperson, whichever is shortest.
③ The Vice-Chairperson shall be elected from one of the regular members at a meeting of the Board of Directors, according to the recommendation of the Chairperson.
④ The Vice-Chairperson may be reappointed.

Article 14 (President)

① During its term of office, the President shall become the head of the organizing committee supervising international conferences, and serves for a term of one year. The President shall attend the board meeting as a member of the Board of Directors.
② The succeeding President shall be elected by the Board of Directors after considering their ability to organize and host the following year's conferences. The succeeding President shall also attend board meeting as a member

of the Board of Directors.
③ The Board of Directors may elect the next succeeding President should the need arise. The next succeeding President shall also attend board meeting as a member of the Board of Directors.
④ The President, succeeding President, and the following President may appoint a Vice- President respectively by obtaining approval of the Board of Directors.
⑤ The appointment and dismissal of the President is decided at the board meeting.

Article 15 (Vice-President)

① A Vice-President is a member of the Board of Directors and shall assist the President, supervise applicable international conferences.
② A Vice-President is recommended by the President and shall be approved by the Board of Directors.
③ Multiple Vice-Presidents may be appointed.
④ A vice-President shall serve a term of one year, the same as the term of President.
⑤ In the event of an accident involving the President, a Vice-President shall fulfil the President's duties during the remaining term of office.

Article 16 (Editorial Board)

① The Editorial Board shall be responsible for editing of journals and other materials to be published by the IAFICO.
② The head of the Editorial Board shall be appointed by the Board of Directors, and shall serve a term of office decided by the Board of Directors.
③ The head of the Editorial Board shall be a member of the Board of Directors.
④ Additional matters concerning the running of the editorial board shall be decided separately by the Board of Directors.

Article 17 (Advisory Board and Consultants)

① The Chairperson may select individuals who could make a large contribution to the development of the IAFICO, and appoint them as advisors subject to the approval of the Board of Directors.
② The Chairperson may appoint consultants subject to the approval of the Board of Directors in order to receive advice relating to all business matters of the IAFICO, such as development strategies, conferences, research plans, and research projects etc.
③ Advisors and consultants shall serve terms of one year and may be reappointed.

Section 5 Financial Affairs

Article 18 (Accounting and Revenue)

① The fiscal year of the IAFICO shall run from the 1st of January to the 31st of December each year.

② The finance required to operate the IAFICO shall be sourced from membership fees, member contributions, society participation fees, and other incomes. Related matters shall be decided by the Board of Directors or the Steering Committee.
③ Should the need arise, the IAFICO may accept sponsored research, donations or financial support from external parties in order to support the business performance of the IAFICO. The Chairperson shall report the details of these at the board meeting.
④ Chairperson should report all the donation from outside and their usage of the year at the IAFICO homepage by the end of March of the next accounting year.

Section 6 Supplementary Rules

Article 19 (Revision of the Bylaws)

① Any other matters not stipulated by this Bylaws shall be resolved by the Board of Directors.
② Revision of the Bylaws shall be carried out, by the proposition of the Board of Directors, or at least one-tenth of regular members, at a general meeting where at least one-third of the total regular members are in attendance, or at a provisional general meeting, with the agreement of at least two-thirds of current members.

Article 20 (Dissolution)

Should the IAFICO intend to be dissolved, it must be decided upon at a general meeting with the agreement of at least two-thirds of current members, and permission must also be received from the Fair Trade Commission. Except for bankruptcy, the dissolution must be registered and reported to the Ministry of Strategy and Finance within three weeks, accompanied by a certified copy of register.

Article 21 (Residual Property upon Dissolution)

Should the IAFC be dissolved, according to article 77 of the Korean civil law, all remaining assets of IAFICO shall belong to the state, local government, or other non-profit corporations carrying similar objectives.

Additional Clause

These Bylaws shall become effective from the 1st April 2015

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