Article

Financial Knowledge, Personality Traits, and Risky Borrowing Behaviors in Iranian Households

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Abstract: This article examines the influence of financial knowledge and personality traits on risky borrowing behaviors among Iranian respondents. A proprietary dataset was used in this study. Logistic regression results indicated that numeracy and knowledge of the time value of money were negatively associated with two of the three risky borrowing behaviors (borrowing more than $1500 USD and use of rent-to-own). Conscientiousness was negatively related to the same two borrowing behaviors. Neuroticism negatively influenced use of payday lending. The article concludes with financial education policy suggestions for Iran and directions for future research.

Keywords: financial knowledge; financial literacy; Iran; personality traits

1. Introduction

Previous research links a broad range of financial behaviors, including savings behaviors and portfolio choices, with financial literacy (see for example, [1,2]). This connection presumes, however, that households can and will use financial knowledge to make rational choices. Most of this research focuses on saving and investment behaviors, with almost no attention to credit behaviors. In addition, the role of personality as an influence on financial behaviors has recently attracted the attention of researchers as an important factor that explains financial behaviors [3].

The current paper examined the influence of both objective financial knowledge and personality traits on risky borrowing behaviors, defined in this research as borrowing relatively large amounts, using rent-to-own, and using payday loans. While rent-to-own is not technically credit, it mimics credit with its requirement of regular payments and costs greater than paying with cash.

The data were from a unique and proprietary sample of Iranian households. Iran is an Islamic country, and, as such, usury-based trading, which includes loans, is prohibited [4]. However, Islamic alternatives, such as various forms of deferred contracts of exchange in which the borrower pays extra as a profit margin for the seller, effectively provide credit options to Iranian households [4]. This makes Iran an interesting environment in which to pursue the research question.

2. Literature Review

For decades, researchers have documented inadequacies among individuals in their economic and financial knowledge [5]. A lack of financial knowledge (or financial illiteracy) affects financial well-being, as it is linked to borrowing, saving, and spending patterns. Mitchell and Lusardi [6] used three basic knowledge questions to demonstrate that financial literacy is low in many countries, including those with well-developed financial markets. Financial knowledge is especially low in some demographic groups, including women and the less educated. Bucher-Koenen et al. [7] argued that financial knowledge is perhaps more important for women than for men, but reported that, in their research, men are more financially knowledgeable. Lusardi [8] analyzed Programme for

International Student Assessment (PISA) data, which show an alarming lack of financial literacy among the 15-year-old students in the 18 countries and economies where the instrument was administered.

Only limited research has linked financial literacy to risky borrowing behaviors. Lusardi and Mitchell [9] reported that greater financial literacy is associated with better debt outcomes in the data that they analyzed. In previous research [10–12], those with lower financial literacy (or debt literacy in the Lusardi and Tufano [12] study) were more likely to engage in high-cost borrowing behaviors, including the young adults in the de Bassa Scheresberg [10] study.

Research about the role of personality traits and financial behaviors has produced important insights. Personality traits are defined in a variety of ways, but a common approach is to identify the Big Five personality traits (extroversion, agreeableness, conscientiousness, neuroticism (vs. emotional stability), and openness to experience (or intellect)) [13]. Researchers have established a relationship between the Big Five personality traits and financial well-being in general [14], as well as with saving and borrowing behaviors [3].

Several researchers have found a relationship between the personality trait extraversion and a positive attitude toward debt and/or risky borrowing behaviors. Brown and Taylor [15] reported that, among the Big Five personality traits, extraversion and openness to experience have larger (and positive) influences on household finances, in terms of holding unsecured debt and asset holdings, than conscientiousness and neuroticism. In Harrison and Chudry's [16] study among university students, extraversion was associated with borrowing behaviors, while neuroticism was not. Schaefer et al. [17] examined the relationship between the Big Five personality traits and overconfidence in general knowledge among undergraduate university students in an experiment. They found that Extraversion significantly predicted overconfidence, a relationship that the authors suggested could "turn their poor judgments into costly decisions" (p. 298), which could include risky borrowing behavior. Although their measure of personality was whether an individual is Type A, Jalilvand et al. [18] demonstrated that uninformed Iranian investors were more influenced by personality than informed investors were.

Previous literature suggested two important control variables in addition to selected demographic characteristics. One was financial help-seeking behaviors; Grable and Joo's [19] framework guided much of the research in this area. In general, previous research suggested that those more likely to seek help were younger and had fewer resources, including financial knowledge. However, financial help-seeking behaviors vary by population and the type of financial advice sought; both Britt et al. [20] and Lim et al. [21] described the unique characteristics of college students who seek financial counseling, a type of help seeking.

van Rooij et al. [22] demonstrated that sources of financial advice vary by financial literacy. Although 20% of the most financially literate respondents in their sample sought help from parents or friends, in general, those with the least financial knowledge were most likely to seek advice from informal sources. Those with more financial knowledge were more likely to seek advice from professional sources. Grable and Joo [23] indicated that individuals who chose not to seek financial advice or sought it from non-professionals (family and friends) may be more likely to engage in risky borrowing behaviors than their counterparts.

A second control variable is one's investment planning horizon. Veld-Merkoulova [24] reported that those with a longer investment planning horizon also held a greater share of risky financial investments. The tendency to take risks if one has a longer planning horizon also may apply to credit behaviors.

Finally, gender, age, marital status, education, monthly income, and employment were the demographic characteristics used as control variables in this research. Previous research to explain financial behaviors used some or all of these variables (see, for example, [25,26]).

Credit in Iranian Culture

As mentioned earlier, Islamic law prohibits usury-based trading. However, Islamic alternatives provide credit options to Iranian households through formal, informal, and semiformal intermediaries [27]. The Central Bank of Iran sets "profit rates" for lending and borrowing. In 2017, that rate was 18% per year; from 1973 to 2017, the average profit rate was 14.82% [28].

An alternative to a loan from a bank for Iranian households is using rent-to-own companies. In 2017, the Central Bank of Iran announced that rent-to-own companies would be permitted to operate in the housing market with a profit rate cap of 21% [29]. Prior to the announcement, Iranian rent-to-own leasing companies were either bank leasing companies or offered services in the auto industry.

A final borrowing option for Iranian households is an illegal loan against one's next payday. Although referred to as a payday loan in this article, the source for an Iranian payday loan is a relative, friend, or someone in the neighborhood known to offer such loans—not a commercial entity as in the U.S. Because they are illegal, the profit rate is unregulated. Thus, this borrowing behavior may be perceived by financial experts as the riskiest of the three. However, because they are loans from known individuals, Iranian borrowers may not perceive payday loans as risky.

Johan [30–34] and others [35–37] have investigated Islamic credit card use, use of Islamic personal financing through banks [38–40], and even Islamic pawnbroking [41] in a variety of countries. However, we found no academic work about rent-to-own or payday lending in Islamic culture.

3. Methodology

3.1. Instrument

The proprietary instrument was created by co-author Jamal Tavosi, who is an Iranian native. The instrument captured detailed information about the participants' objective financial literacy, their borrowing behaviors, and their demographic characteristics. Additionally, questions about the participants' personality traits, their investment horizon, and their approach to financial help-seeking behaviors were also included in the survey.

Financial knowledge was measured using five questions from Lusardi and Mitchell [2]; see the Appendix A for the questions. Personality was assessed using the well-established Big Five personality traits instrument [42]. More specifically, this research used the NEO-FFI (NEO Five-Factor Inventory), a 60-item instrument in which each of the five personality traits, is assessed based on 12 questions. A single question (based on Veld-Merkoulova [24]) measured investment horizon. The question to assess financial help-seeking behavior paralleled the approach in [22].

Tavosi constructed questions to assess three borrowing behaviors risky in the Iranian context—borrowing more than 75000 thousand Iranian rials ($1500 USD), using rent-to-own, and using payday loans. To put in perspective the impact of borrowing more than 75,000 thousand rials (the smallest loan made by Iranian banks) on Iranian households, the mean monthly income in 2016–2017 among urban Iranian households was 32,698 thousand rials, while mean expenditures were 32,750 thousand rials [43]. As explained earlier, rent-to-own and payday loans involve paying higher profit rates (rent-to-own) than an Iranian would encounter through a loan with a bank and unregulated profit rates (payday loans).

3.2. Sample

A convenience sample of 296 respondents who were investors in the Tehran Stock Exchange (TSE) was used in this study. Paper copies of the survey, which was written in Persian/Farsi, were distributed in the TSE during trading days (Saturdays through Wednesdays), primarily during non-trading hours between January 2016 and May 2017. The screening criteria limited respondents to those ages 20 to 80 years old who had more than one trade on the exchange.

3.3. Variables

The variables are described in Table 1. The dependent variables were constructed as binary variables where an indication that the respondent engaged in the specified behaviors was coded as 1 and as 0 otherwise.

The primary independent variables were objective financial knowledge and personality traits. A score of 1 for a correct response and 0 otherwise, including don't know responses and refusals, was assigned to respondents for each of the five financial knowledge variables.

The responses to the Big Five personality inventory were on a five-item Likert scale, ranging from "strongly disagree" (1) to "strongly agree" (5). The constructed measures for each personality trait could range from 12 to 60. The financial help-seeking variable was based on responses to three categories; the four respondents who indicated that they did not seek advice were removed from the sample for the regression analyses. Responses to the investment horizon variable were based on three categories (short-, medium-, and long-term).

The demographic variables are also described in Table 1. Gender and marital status were coded as binary variables.

Table 1. Variable Descriptions.

Variable	Description
	Binary
Borrowing behaviors	BB1: You usually borrow more than $1500 USD; BB2: You use rent-to-own; BB3: You use payday loans
Objective financial knowledge	Five knowledge questions (in Appendix A), each coded 1 if answered correctly, 0 otherwise
Personality traits	Neuroticism, Openness, Consciousness, Agreeableness, and Extraversion measured using 12-items each with responses on a five-level Likert scale ranging from ''strongly disagree" (1) to ''strongly agree" (5)
Financial help-seeking sources	Categorical: Parents and friends; Newspapers, media, and magazines; Financial professional advisors; Did not seek help
Investment horizon	Categorical: Short-term (daily and weekly), mid-term (monthly and quarterly), long-term (annually)
Gender	Binary = 1 for male, 0 for female
Age	Categorical: 18–30 years, 31–42, 46–60, 61 years or more
Marital status	Binary = 1 if married, 0 otherwise
Education	Categorical: High school diploma or lower, bachelor's degree, master's degree, doctorate or higher
Monthly income	Categorical: $300 or less, $300–600, $900–1500, more than $1500
Employment	Categorical: Public sector, private sector, student, other

Note: All "yes/no" responses were coded as 1 = Yes.

3.4. Statistical Methods

The empirical model for this study is shown below:

$$BB_i = f (FK, PT, CT, D) \tag{1}$$

where BB_i are binary variables for the three borrowing behaviors:

BB1 = Borrowing at least $1500 (1 = YES; 0 = Otherwise)
BB2 = Rent-to-own (1 = YES; 0 = Otherwise)
BB3 = Payday loans (1 = YES; 0 = Otherwise)
FK = Vector of the financial knowledge variables
PT = Vector of the personality variables
CT = Vector of control variables
D = Vector of demographic variables

Econometric Modeling

In the first part of the empirical analyses, determinants for the three binary dependent variables BB1, BB2, and BB3 were estimated. Given the discrete nature of these binary variables, logistic regression—a non-linear binary response model—was computed [44]. The likelihood of participating in a borrowing behavior is expressed as follows:

$$P(y=1 \mid x) = G (x\beta) \tag{2}$$

where, y represents borrowing behavior BBi, and x represents the vector of other control variables, such that:

$$x\beta = \beta_1 + \beta_2 x_2 + \ldots + \beta_n x_n \qquad (3)$$

Under the assumption of normality, G represents the cumulative distribution function (cdf) of the preference for borrowing behavior that is generated from an underlying latent variable, BBi in this study. The logistic regression model used in this study is a maximum likelihood estimation (MLE) technique that is modeled in Equation (4) below:

$$G(\phi) = \exp(\phi)/[1 + \exp(\phi)]^2 \qquad (4)$$

where G(ϕ) is assumed to be strictly between 0 and 1.

In the interaction models, we used a linear probability model (LPM), estimated using heteroskedastically robust standard errors. LPM was used as an approximation for the probability of engaging in a specific borrowing behavior (y~BBi). The fitted value of y P(y=1 |x) approximates the estimated partial effects of the control variables included in vector x near the center of the distribution. LPM was chosen to estimate the interaction models in the second part of the analyses, because in the presence of a greater number of binary control variables, LPM estimation is more efficient than the logit model described above [45].

4. Results

The demographic characteristics of the sample are described in Table 2. The majority of the sample sought financial advice from parents and friends (62.1%). Overall, they were least likely to report a mid-term investment planning horizon (24.8%). The sample included more males (63%) than females, were 45 years old or younger (79.5%), were married (61.1%), well-educated (86.5% had at least a bachelor's degree), earned incomes of $600 USD or less (59.4%), and were employed in the public sector (42.6%) or students (20.8%).

Just more than one half of the sample reported that they had borrowed more than $1500 USD; 43.6% and 45.3%, respectively, of the sample used rent-to-own and payday loans. Each of the three risky borrowing behaviors were reported by more than 55% of those who relied on parents and friends for financial advice. A greater proportion of men than women and married than single respondents engaged in each of three types of risky borrowing behaviors. A greater proportion of respondents who earned a monthly income of $300 USD to $600 USD participated in each of the three types of borrowing behaviors compared with the other income groups.

Table 2. Borrowing Behaviors Descriptive Statistics.

BB1 Borrow > $1500	BB2 Rent-to-Own		BB3 Payday Loans				Summary Statistics	
	Yes	No	Yes	No	Yes	No		
Variable	N = 150	N = 148	N = 130	N = 168	N = 135	N = 163	N = 298	%
Financial help-seeking sources								
Parents and friends	66.0	58.1	66.2	58.8	63.7	60.7	185	62.1
Newspapers, magazines, media	13.4	14.9	10.8	16.7	16.3	12.3	42	14.1
Professional financial advisor	18.0	23.0	20.0	24.2	17.0	27.0	67	22.6
Did not seek any advice	2.6	0.0	0.0	3.3	3.0	0.0	4	1.2
Investment horizon								
Short-term	41.3	36.5	33.1	43.5	41.5	36.8	116	38.9
Mid-term	19.3	30.4	23.8	25.6	19.3	29.4	74	24.8
Long-term	39.3	33.1	43.1	31.0	39.3	33.7	108	36.2
Gender								
Male	64.7	60.8	65.4	60.7	64.4	61.3	187	62.8
Female	35.3	39.2	34.6	39.3	35.6	38.7	111	37.2
Age								
18–30	40.0	34.5	44.6	31.5	35.6	38.7	111	37.2

31–45	44.0	40.5	37.7	45.8	49.6	36.2	126	42.3
46–60	8.0	18.2	10.0	15.5	8.9	16.6	39	13.1
61 or more	8.0	6.8	7.7	7.1	5.9	8.6	22	7.4
Marital status								
Single	39.3	38.5	42.3	36.3	35.6	41.7	116	38.9
Married	60.7	61.5	57.7	63.7	64.4	58.3	182	61.1
Education								
HS diploma or less	13.3	13.5	14.6	12.5	12.6	14.1	40	13.5
Bachelor's	67.3	56.1	64.6	59.5	60.7	62.6	184	61.7
Graduate	19.4	30.4	20.8	28.0	26.7	23.3	74	24.8
Monthly income (US $)								
<$300	26.1	23.0	22.1	26.5	24.4	24.7	68	23.8
$301–600	39.4	39.3	37.7	40.6	38.6	40.0	109	38.6
$601–1500	21.1	17.0	24.6	14.8	22.0	16.7	53	18.8
>$1500	13.4	20.7	15.6	18.1	15.0	18.7	47	17.8
Employment								
Public sector	41.3	43.9	45.4	40.5	43.7	41.7	127	42.6
Private sector	16.7	9.5	14.6	11.9	18.5	8.6	39	13.1
Student	21.3	20.3	24.6	17.9	14.8	25.8	62	20.8
Other	20.7	26.4	15.4	29.8	23.0	23.9	70	23.5

The descriptions for the personality traits are in Table 3. The results show that, on a scale of 0 to 66, the mean score for each of the five personality traits was relatively equal (35.61 for neuroticism to 37.34 for extraversion). The range in standard deviations was from 5.80 (agreeableness) to 7.06 (extraversion).

Table 3. Descriptive Statistics for Personality Traits.

Personality Traits	Mean	Std. Dev.	Min	Max
Neuroticism	35.61	5.97	17	54
Extraversion	37.34	7.06	17	66
Openness	35.98	5.96	18	66
Agreeableness	36.60	5.80	17	52
Conscientiousness	36.11	6.99	18	60

The binary correlations between personality traits and borrowing behaviors are shown in Table 4. There were significant correlations between Openness and engaging in each of the three types of borrowing behaviors. Rent-to-own participation was strongly correlated with each of the five personality traits, suggesting that different consumers may have different motivations for its use.

Table 4. Binary Correlations between Borrowing Behaviors and Personality Traits.

	Personality Traits				
Borrowing Behaviors	Neuroticism	Extraversion	Openness	Agreeableness	Conscientiousness
Borrow more than $1500 USD (BB1)	−0.008	0.012	0.067 *	0.012	0.002
Use rent-to-own (BB2)	0.094 **	0.105 **	0.131 ***	0.09 8 **	0.062 *
Use payday loans (BB3)	0.048	0.004	0.065 *	0.003	−0.03

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

The descriptive statistics for the responses to the five financial knowledge items are in Table 5. More than one half of the sample answered three (numeracy, inflation, and money illusion) of the five basic financial knowledge questions correctly (Shafir et al. [46] explained money illusion as "a tendency to think in terms of nominal rather than real monetary values" (p. 341)). Only 11.1% correctly answered the compound interest question and just 19.1% correctly answered the time value of money question. These results indicate that Iranian individuals are far less financially literate than the respondents in other studies that used these measures. Lusardi and Mitchell [2] reported mean scores of 77.2% or greater across the five questions in a sample of U.S. adults. Lusardi and Mitchell [2] also reported that the mean response to the compound interest question in the U.S. was 67.1%, and ranged

from 35.2% in Sweden to 86.0% in New Zealand among the 12 countries in which these questions have been asked. Iranians' low scores on both the compound interest and the time value of money questions may be attributed to the limitations on financial experiences created by the country's ban on usury-based lending.

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Table 5. Number and Percentage of Correct and Incorrect Responses to Financial Knowledge Questions.

	Correct		Incorrect	
	N	%	N	%
Numeracy	170	57.0	128	43.0
Compound interest	33	11.1	265	88.9
Inflation	164	55.0	134	45.0
Time value of money	57	19.1	241	80.9
Money illusion	152	51.0	146	49.0

In contrast, Iranians were more knowledgeable about inflation than some other populations. The mean response to the inflation question in the U.S. was 75.2%, and ranged from 31.8% in Romania to 81.0% in New Zealand. Inflation rates in Iran have been as high as 50% in recent years, and even higher (85.3% in 2019) for food, drink, and tobacco [47]. Thus, Iranians should be very aware of what inflation is.

4.1. Determinants of Risky Borrowing Behaviors

The logistic regression results are reported in Table 6. The pseudo R^2s ranged from 0.237 to 0.263 in the three logistic regressions. Several financial literacy variables were significant in the logistic regressions for borrowing more than $1500 USD and using rent-to-own. Those who answered the numeracy question correctly were 50% less likely to borrow more than $1500 USD (odds = 0.501; $p < 0.05$) and 36% less likely to use rent-to-own (odds = 0.644; $p < 0.10$). Knowledge of compound interest was also negatively associated with use of rent-own (odds = 0.771; $p < 0.10$). Knowledge of the time value of money was associated with significantly lower odds of borrowing more than $1500 USD (odds = 0.521; $p < 0.05$) and using rent-to-own (odds = 0.431; $p < 0.05$). Knowledge of money illusion was negatively associated with use of rent-to-own (odds = 0.542; $p < 0.10$).

The personality trait conscientiousness was significantly and negatively related with borrowing more than $1500 USD (odds = 0.971; $p < 0.05$) and using rent-to-own (odds = 0.978; $p < 0.1$). Neuroticism was significantly and negatively related to payday lending.
Seeking information from newspapers, magazines, and other media sources, relative to seeking advice from parents and friends, was associated with reduced odds of borrowing more than $1500 USD (odds = 0.323; $p < 0.1$) and using payday loans (odds = 0.467; $p < 0.05$). Additionally, seeking the advice of professional financial advisors was also negatively associated with accessing payday loans (odds = 0.305; $p < 0.05$). Having a mid-term investment horizon relative to a short-term horizon was

associated with reduced odds of borrowing more than $1500 USD, as well as reduced odds of using rent-to-own.

Table 6. Logistic Regressions of Borrowing Behaviors.

Borrow More than $1500 USD BB1			Use Rent-to-Own BB2			Use Payday Loans BB3		
	Coefficient	Rob. S.E	Odds Ratios	Coefficient	Rob. S.E	Odds Ratios	Coefficient	Rob. S.E.	Odds Ratios
Objective Financial Knowledge									
Numeracy	−0.690 **	0.341	0.501	−0.439 *	0.197	0.644	0.411	0.547	1.509
Compound interest	0.002	0.491	1.001	−0.261 *	0.107	0.771	0.291	0.743	1.338
Inflation	−0.363	0.364	0.695	−0.556	0.362	0.573	−0.004	0.540	0.995
Time value of money	−0.653 **	0.321	0.521	−0.841 **	0.307	0.431	0.038	0.467	1.038
Money illusion	−0.647	0.413	0.516	−0.613 *	0.319	0.542	0.178	0.341	1.195
Personality Traits									
Neuroticism	0.019	0.021	1.033	0.029	0.039	1.027	−0.027 *	0.014	0.973
Extraversion	0.001	0.014	1.001	−0.002	0.015	0.997	0.008	0.043	1.008
Openness	0.022	0.200	1.022	−0.014	0.014	0.980	0.005	0.041	0.995
Agreeableness	−0.005	0.015	0.994	0.011	0.017	1.014	0.021	0.114	1.022
Conscientiousness	−0.027 **	0.013	0.971	−0.022 *	0.009	0.978	−0.026	0.023	0.974
Financial Help-Seeking Sources (Ref: Parents and friends)									
Newspapers, magazines, media	−1.124 *	0.602	0.323	−0.051	0.614	0.948	−0.760**	0.278	0.467
Professional financial advisor	1.184	1.105	3.223	1.245	1.169	3.473	−1.188**	0.417	0.305
Investment Horizon (Ref: Short-term)									
Long-term	−0.189	0.526	0.821	0.201	0.540	1.227	0.397	0.566	1.479
Mid-term	−1.222 **	0.539	0.294	−1.381 **	0.533	0.253	−0.051	0.523	0.947
Gender (Ref: Female)	0.335	0.361	1.399	0.730 *	0.373	2.076	−0.215	0.345	0.883
Age (Ref: 61 or older)									
18–30	−1.107	0.779	0.334	0.808	0.904	2.245	0.162	1.022	1.173
31–46	−0.714	0.733	0.489	−0.097	0.195	0.908	−0.753	0.874	0.471
46–60	−1.546 *	0.772	0.213	−0.391	0.418	0.676	−1.472	0.940	0.230
Marital Status (Ref: Not married)	−0.117	0.423	0.890	−0.472	0.421	0.651	−0.651	0.584	0.518
Children (Ref: No children)									
1–2 children	0.115	0.426	1.121	−0.278	0.333	0.756	0.387	0.425	1.414
3–4 children	−1.004	0.617	0.366	−0.079	0.191	0.924	0.122	0.544	1.136
> 4 children	−2.241	1.362	0.106	0.008	0.532	1.007	0.124	0.429	1.137
Education (Ref: HS or less)									
Bachelors	−0.009	0.564	0.991	0.249	0.556	1.282	0.054	0.449	1.055
Graduate (MS/PhD)	−0.312	0.785	0.733	0.097	0.810	1.102	0.025	0.562	1.026
Monthly Income (Ref: <$300 USD)									
$301–600	−0.269	0.456	0.744	−0.616	0.438	0.548	0.318	0.432	1.341
$601–1500	−0.095	0.560	0.909	−0.843	0.295	0.155	−0.268	0.546	0.764
>$1500	0.279 *	0.135	0.322	0.104 *	0.047	1.105	0.815 **	0.321	2.261
Employment (Ref: Not employed)									
Public sector	−0.129	0.482	0.878	0.598	0.498	1.438	0.045	0.224	1.048
Private sector	1.353 **	0.591	3.869	1.768 ***	0.860	6.842	1.313 ***	0.231	3.723
Student	−0.064	0.638	0.938	0.071	0.966	1.081	−0.268	0.652	0.764
Intercept	−0.272	1.214	0.761	−1.168	1.133	0.310	−1.086	1.081	0.176
Pseudo *R*-square	0.263			0.261				0.237	

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

Compared to the reference group of respondents aged 61 or older, those who were between 46 and 60 years old were 79% less likely to borrow more than $1500 USD (odds=0.213; $p < 0.1$). Compared to those respondents who had monthly incomes of less than $300 USD, those who earned more than $1500 USD were more likely to engage in each of the three borrowing behaviors than those with the

lowest incomes. Being employed in the private sector (relative to being unemployed) was associated with increased odds for each of the three borrowing behaviors; perhaps at least in part because lenders may view those individuals as better credit risks.

4.2. Interaction of Income and Financial Knowledge and Risky Borrowing Behaviors

A linear probability model was used to further explore the influence of financial knowledge. Specifically, variables were created to interact each financial knowledge variable with each of the three income categories (less than $300 USD annually was the omitted category). Significant interactions between a financial knowledge variable and the lowest income category would be one indicator of the importance of knowledge of that concept as an influence on financial behavior, as individuals with lower incomes have fewer degrees of freedom to apply their knowledge.

Coefficients, robust standard errors, and odds ratios are reported in Table 7. Personality traits and the same control variables as used in the previous regression were included in the analysis; however, those results are not reported in Table 7. The R-squares are similar to those in the earlier regression.

Numeracy and compound interest were the only two financial knowledge variables that were significant influences on risky borrowing behaviors, when those variables interacted with the $301–600 USD annual US income category. Respondents in that income category who correctly answered the numeracy question were less likely to borrow more than $1500 USD and to use payday loans than individuals who earned $300 USD or less a year. Those who understood compound interest and earned $301–600 USD annually were less likely to borrow more than $1500 USD relative to those in the lowest income category.

Knowledge of compound interest and money illusion were significant and negatively influenced use of payday loans and use of rent-to-own, respectively, when interacting with the $601–1500 USD income category. Finally, several of the financial knowledge variables were significant when they interacted with the highest income category. Those earning at least $1500 USD a year, who correctly answered the numeracy, inflation, and time value of money questions were less likely to borrow more than $1500 USD and use payday loans than those who earned less than $300 USD annually. Those who understood the money illusion concept or time value of money and were in the highest income category were less likely to use rent-to-own than those in the lowest income group.

Thus, overall, it appears that numeracy and knowledge of compound interest were the most significant influences on risky borrowing behaviors for lower-income individuals. More income may have given individuals with financial knowledge a greater ability to apply that knowledge to avoid risky borrowing behaviors.

Table 7. LPM Estimation of Interaction of Financial Knowledge and Income Categories.

	Borrow >$1500 USD			Use Rent-to-Own			Use Payday Loans		
	Coef.	Rob.SE	Sig	Coef.	Rob.SE	Sig	Coef.	Rob. SE	Sig
Income (Ref: <$300 USD)									
Inc1 ($301–600 USD)	−0.049	0.153		0.003	0.163		0.156	0.169	
Inc2 ($601–1500 USD)	0.040	0.164		0.393	0.174	**	0.379	0.181	**
Inc3 (>$1500 USD)	−0.252	0.172		−0.250	0.181		0.232	0.188	
Financial Knowledge									
Numeracy	−0.467	0.152	***	−0.145	0.059	*	−0.330	0.165	**
Compound interest	−0.355	339		−0.225	0.164		−0.171	0.171	
Inflation	−0.128	0.136		−0.129	0.163		−0.329	0.254	
Time value of money (TVM)	−0.339	0.157	**	−0.216	0.155		0.279	0.161	
Money illusion	−0.166	0.130		0.029	0.128		0.045	0.133	
Numeracy * Income									
Numeracy * Inc1	−0.621	0.187	***	−0.332	0.295		−0.400	0.202	*
Numeracy * Inc2	−0.167	0.230		−0.271	0.240		0.164	0.249	
Numeracy * Inc3	−0.474	0.213	**	0.136	0.221		−0.566	0.230	**
Compound * Income									
Compound * Inc1	−0.489	0.219	**	0.095	0.225		0.299	0.234	

	Coef.	SE	Sig	Coef.	SE	Sig	Coef.	SE	Sig
Compound * Inc2	0.053	0.363		0.099	0.378		−0.787	0.393	**
Compound *Inc3	−0.277	0.297		0.329	0.302		0.145	0.313	
Inflation * Income									
Inflation * Inc1	0.259	0.288		−0.192	0.197		0.382	0.281	
Inflation * Inc2	−0.209	0.189		0.084	0.245		0.337	0.255	
Inflation * Inc3	0.176	0.200		0.148	0.226		−0.505	0.235	**
TVM * Income									
TVM * Inc1	0.058	0.201		-0.158	0.199		−0.326	0.207	
TVM * Inc2	0.259	0.234		-0.054	0.237		−0.015	0.246	
TVM * Inc3	−0.618	0.232	***	0.401	0.228	*	−0.454	0.237	**
Money Illusion * Income									
Money Illusion * Inc1	−0.061	0.163		-0.106	0.161		−0.132	0.167	
Money Illusion * Inc2	−0.007	0.193		-0.342	0.195	*	0.064	0.202	
Money Illusion * Inc3	−0.161	0.195		-0.668	0.193	**	−0.018	0.201	
Intercept	0.698	0.140	***	0.620	0.127	***	0.457	0.132	***
R-Squared	0.253			0.238			0.258		

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

4.3. Interaction of Personality Traits and Financial Literacy on Risky Borrowing Behaviors

As a robustness check, coefficients for interactions between an index of financial knowledge and personality traits were estimated using LPM. The index was constructed based on the number of financial knowledge questions answered correctly. Financial help-seeking sources, investment horizon, and the demographic characteristics included in the previous regressions were also in this regression. Results are reported in Table 8 only for the primary variables.

The results in Table 8 show that financial knowledge was negatively associated with all three types of borrowing behaviors. Among the personality traits, neuroticism was negatively associated with borrowing more than $1500 USD, while openness was positively associated with borrowing larger amounts. The interaction of neuroticism and financial knowledge also was negatively associated with borrowing more than $1500 USD, as well as with using a payday loan. In contrast to the results for openness alone, openness, when it interacted with financial knowledge, was negatively associated with borrowing more than $1500 USD. Conscientiousness as well as the interaction of financial knowledge with conscientiousness were negatively associated with using rent-to-own.

Table 8. LPM Estimation of Interactions between Personality Traits and Financial Knowledge.

	Borrow >$1500 USD			Rent-to-Own			Payday Loans		
	Coef.	SE	Sig	Coef.	SE	Sig	Coef.	SE	Sig
Financial Knowledge	−0.083	0.043	*	−0.062	0.022	**	−0.081	0.043	*
Personality Traits									
Neuroticism	−0.015	0.007	**	−0.006	0.007		0.007	0.007	
Extraversion	0.004	0.006		0.007	0.006		0.000	0.006	
Openness	0.018	0.009	**	0.008	0.009		−0.014	0.009	
Agreeable	0.006	0.007		0.006	0.007		0.004	0.009	
Conscientiousness	−0.012	0.008		−0.009	0.008	**	−0.007	0.008	
FK * Neuroticism	−0.005	0.002	**	0.003	0.002		−0.004	0.002	*
FK * Extraversion	−0.001	0.001		−0.002	0.001		0.000	0.001	
FK *Openness	−0.003	0.001	**	−0.002	0.002		0.003	0.002	
FK *Agreeable	0.003	0.002		0.002	0.002		−0.002	0.002	
FK * Conscientiousness	−0.002	0.002		−0.003	0.001	**	0.002	0.002	
Intercept	0.607	0.175	***	0.518	0.171	***	0.414	0.176	**

*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$.

The results suggest that financial knowledge may reinforce the influence of personality traits that tend to be associated with positive financial behaviors (such as conscientiousness). However, financial knowledge may not be a strong influence on behaviors among individuals whose dominant personality trait is one associated with risky financial behaviors (such as extraversion).

5. Discussion

A primary goal of this research was to better understand the influence of financial knowledge and personality traits on risky borrowing behaviors. The results indicate that, as in previous studies about household financial decisions and behaviors [5,8,12], objective financial knowledge is associated with the borrowing behaviors of Iranian households. Numeracy and knowledge of the time value of money were associated with lower odds of borrowing more than $1500 USD and using rent-to-own. Similarly, knowledge of compound interest and money illusion were negatively associated with use of rent-to-own. Respondents who had a better understanding of the concept of time value of money, compound interest, and money illusion, each of which also requires some numerical ability, may be better able to assess the long-term costs of borrowing.

Conscientiousness was associated with reduced odds of borrowing more than $1500 USD and using rent-to-own. Conscientiousness has been negatively associated with debt holding in previous literature [15]. Individuals exhibiting conscientiousness often are described as having greater self-control and being less impulsive in their decision-making [48]. Perhaps individuals exhibiting conscientiousness personality traits are averse to borrowing more than $1500 USD and the use of rent-to-own, due to the risky nature of these transactions as well as the ambiguity of ownership in rent-to-own arrangements. Rent-to-own for housing also is a relatively recent option in Iran, perhaps creating more discomfort among those exhibiting conscientiousness. In addition, Neuroticism was negatively associated with the use of payday loans. In previous literature [15], Neuroticism was not associated with having unsecured debt. Thus, more research is needed to understand whether neuroticism is associated with risky borrowing behavior globally, or whether this association is significant only in the Iranian context, where the market for payday loans is mostly informal.

Among other interesting findings from this study, the results indicated that seeking financial information from newspapers, magazines, or other media and receiving professional financial advice from experts were negatively associated with seeking payday loans. Seeking financial information from newspapers, magazines, or other media also was negatively associated with borrowing more than $1500 USD. Compared to those who sought advice from their parents and friends, perhaps those who sought information about debt-related products through more credible and professional sources such as professional financial advisors, newspapers, media, and magazines have gained a better understanding of the higher costs associated with these types of credit. If so, they may be less likely to engage in this type of borrowing behavior. It also is possible that because an Iranian payday loan is an informal loan, seeking advice from parents and friends and asking for a loan is a single act.

Among the demographic characteristics, only income and employment had any consistent influence on borrowing behaviors. Incomes greater than $1500 USD and private sector employment were positively associated with seeking all three types of risky borrowing. Although, more research is needed to understand this association, respondents earning less than $1500 USD may not meet the income threshold to qualify for some loans. Further analyses of interactions between income and financial knowledge (Table 7) suggested that financial knowledge can moderate the likelihood of risky borrowing behaviors, especially among individuals with higher incomes.

The interactions of financial knowledge with personality traits also show that financial knowledge may reinforce the influence of personality traits when the trait is associated with positive financial behaviors. However, financial knowledge may have less influence on individuals whose behaviors are influenced by traits associated with risky behaviors. Additional research is needed to better understand the associations between financial knowledge, personality traits, and financial behaviors.

As with all research, this study has limitations. The most obvious is the convenience sample drawn from Iranian investors. Because they are investors, it seems likely that this sample would have greater financial knowledge than the general population. On the other hand, one fifth of the sample was students and nearly a quarter were in the "other" category, likely unemployed or self-employed. These are not the characteristics typically ascribed to investors. Iran has been described as having an "over-education" problem [49], as 7.4% of the country's adult population is enrolled in higher education and unemployment among youth was 26% in 2016.

In this research, payday loans, or loans from a relative, friend, or someone in the household, were classified as risky because they are illegal. However, those seeking these loans may not agree, because the source is a known individual whom they presumably trust. In addition, a payday loan in Iran that is a private money transfer may be motivated by altruism or expectations of future services [50] and perhaps unique from the other borrowing behaviors studied in this research.

The negative association between financial knowledge and risky borrowing behaviors among Iranian households suggests a silver lining in the context of Iran, where the inclusion of financial education into the academic curriculum could improve the financial knowledge and hence the financial capability of Iranian households. Jalilvand et al. [18] called for a serious effort to improve financial literacy among individual investors in Iran, citing statistics indicating that only 20% of Iranians are financially literate. The results also suggest, however, that there are limitations to the potential impact of financial education, especially among those with lower incomes and with personality traits often associated with riskier financial behaviors.

The Danns and Danns' [51] framework would be useful to design a national financial education strategy. Economic education, financial education, and financial inclusion make up the three prongs of their framework. The Danns [51] also noted that the Central Bank provides leadership for financial education programs in most developing countries.

Garcia et al.'s [52] recommendations also would be useful to create a national strategy. The recommendations include providing efficient structures for cooperation between the public and private sectors and considering the needs of the financially excluded and rural populations, which may be different from those of urban populations. However, it also is worth noting that previous research (for example, [53,54]) has demonstrated that consumer education and/or disclosure may not impact consumer use of high-cost borrowing behaviors such as payday loans and rent-to-own if those are the consumers' "best-worst" options.

To evaluate a nation's financial consumer protection framework, the guidelines and principles from the OECD and G20 and the World Bank [55,56] are useful. Ahmed and Ibrahim [57] organized the key features of a financial consumer protection regime as legislative empowerment and supervisory framework, information disclosure and protection, fair treatment of the financial consumer, complaints and redress, and financial literacy. However, Mak and Braspenning [58] cautioned that, while both information disclosure and financial literacy are key features of the framework, consumers, especially the most vulnerable groups, often lack the financial knowledge to use disclosures for self-protection. They urge balance with regulation that requires companies to warn and, in certain situations, even prevent high-risk consumers from entering certain risky transactions. Thus, a valid, reliable, and culturally appropriate assessment of a nation's financial literacy is key information to have before designing a financial consumer protection framework.

Future research and additional data from a more representative sample are needed to better understand the financial knowledge of the Iranian people. Specifically, while measuring financial knowledge by using questions such as those developed by Lusardi and Mitchell [2] allows for comparisons across countries, this approach may not produce valid results in Islamic countries. Future research in Islamic countries should consider using questions specific to Islamic finance, such as those developed by Antara et al. [59], Erb and Mutlu [60], and Ahmad et al. [61].

Appendix A

Box A1. Measures of Objective Financial Knowledge. Correct responses in bold. The original text of the Lusardi and Mitchell [2] questions was retained. However, it is worth noting that a savings account in Iran likely would pay a 20% profit rate and the inflation rate is 9 to 10% [43]. In addition, Iranians may recall recent inflation rates that were much higher and 2018 protests in Iran signal a lack of trust in the Iranian government [62].

Numeracy

1) Suppose you had 100 in a savings account and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow? **a) More than 102** b) Exactly 102 c) Less than 102 d) Do not know e) Refusal

Compound Interest

2) Suppose you had 100 in a savings account and the interest rate is 20% per year and you never withdraw money or interest payments. After five years, how much would you have on this account in total?

a) More than 200 b) Exactly 200 c) Less than 200 d) Do not know e) Refusal

Inflation

3) Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, would you be able to buy more than, exactly the same as, or less than today with the money in this account?

a) More than today b) Exactly the same as today **c) Less than today** d) Do not know e) Refusal

Time Value of Money

4) Assume a friend inherits 10,000 today and his sibling inherits 10,000 3 years from now. Who is richer because of the inheritance?

a) My friend b) His sibling c) They are equally rich d) Do not know e) Refusal

Money Illusion

5) Suppose that in the year 2010, your income has doubled and prices of all goods have doubled too. In 2010, how much will you be able to buy with your income?

a) More than today **b) The same** c) Less than today d) Do not know e) Refusal

References

1. Hastings, J.; Tejeda-Ashton, L. *Financial Literacy, Information, and Demand Elasticity: Survey and Experimental Evidence from Mexico; NBER Working Paper No. 14538*; The National Bureau of Economic Research: Cambridge, MA, USA, 2008.

2. Lusardi, A.; Mitchell, O.S. *Financial Literacy and Retirement Planning: New Evidence from the RAND American Life Panel; CFS Working Paper No. 2007/33*; The National Bureau of Economic Research: Cambridge, MA, USA, 2007.

3. Nyhus, E.K.; Webley, P. The role of personality in household saving and borrowing behaviors. *Eur. J. Pers.* **2001**, *15*, S85–S103, doi:10.1002/per.422.

4. Bin Haji Ghazali, A. Consumer credit from the Islamic viewpoint. *J. Consum. Policy* **1994,** *37*, 196–202, doi:10.1007/BF01022913.

5. Hilgert, M.; Hogarth, J.; Beverly, S. Household financial management: The connection between knowledge and behavior. *Fed. Res. Bull.* **2003**, 309–322.

6. Mitchell, O.S.; Lusardi, A. Financial literacy and economic outcomes: Evidence and policy implications. *J. Retire.* **2015**, *3*, 107–114, doi:10.3905/jor.2015.3.1.107.

7. Bucher-Koenen, T.; Lusardi, A.; Alessie, R.J.M.; van Rooij, M.C.J. How financially literate are women? An overview and new insights. *J. Consum. Aff.* **2017**, *51*, 255–283, doi:10.1111/joca.12121.

8. Lusardi, A. Financial literacy skills for the 21st Century: Evidence from PISA. *J. Consum. Aff.* **2015,** *49*, 639–659, doi:10.1111/joca.12099.

9. Lusardi, A.; Mitchell, O.S. *Debt and Debt Management among Older Adults; Global Financial Literacy Excellence Center Working Paper 2013-2*; Global Financial Literacy Excellence Center: Washington, DC, USA, 2013.

10. de Bassa Scheresberg, C. Financial literacy and financial behavior among young adults: Evidence and implications. *Numeracy* **2013**, *6*, 5, doi:10.5038/1936-4660.6.2.5.

11. Lusardi, A.; de Bassa Scheresberg, C. *Financial Literacy and High-Cost Borrowing in the U.S.*; *Global Financial Literacy Excellence Center Working Paper 2013-1*; Global Financial Literacy Excellence Center: Washington, DC, USA, 2013.

12. Lusardi, A.; Tufano, P. Debt literacy, financial experience, and overindebtedness. *J. Pension Econ. Financ.* **2015**, *14*, 332–368.

13. Paunonen, S.V.; Ashton, M.C. Big Five predictors of academic achievement. *J. Res. Pers.* **2001**, *35*, 78–90, doi:10.1006/jrpe.2000.2309.

14. Donnelly, G.; Iyer, R.; Howell, R.T. The Big Five personality traits, material values, and financial well-being of self-described money managers. *J. Econ. Psych.* **2012**, *33*, 1129–1142, doi:10.1016/j.joep.2012.08.001.

15. Brown, S.; Taylor, K. Household finances and the 'Big Five' personality traits. *J. Econ. Psych.* **2014**, *45*, 197–212, doi:10.1016/j.joep.2014.10.006.

16. Harrison, N.; Chudry, F. Overactive, overwrought or overdrawn? The role of personality in undergraduate financial knowledge, decision-making and debt. *J. Furth. High. Educ.* **2011**, *35*, 149–182, doi:10.1080/0309877X.2010.540080.

17. Schaefer, P.S.; Williams, C.C.; Goodie, A.S.; Campbell, W.K. Overconfidence and the Big Five. *J. Res. Pers.* **2004**, *38*, 473–480, doi:10.1016/j.jrp.2003.09.010.

18. Jalilvand, A.; Noroozabad, M.R.; Switzer, J. Informed and uninformed investors in Iran: Evidence from the Tehran Stock Exchange. *J. Econ. Bus.* **2018**, *95*, 47–58, doi:10.1016/j.jeconbus.2017.08.004.

19. Grable, J.E.; Joo, S. Financial help-seeking behavior: Theory and implications. *Financ. Couns. Plan.* **1999**, *10*, 14–25.

20. Britt, S.L.; Grable, J.E.; Cumbie, J.; Cupples, S.; Henager, J.; Schindler, K.; Archuleta, K. Student financial counseling: An analysis of a clinical and non-clinical sample. *J. Pers. Financ.* **2011**, *10*, 95–121.

21. Lim, H.; Heckman, S.J.; Letkiewicz, J.C.; Montalto, C.P. Financial stress, self-efficacy, and financial help-seeking behavior of college students. *J. Financ. Couns. Plan.* **2014**, *25*, 148–160.

22. van Rooij, M.; Lusardi, A.; Alessie, R. Financial literacy and stock market participation. *J. Financ. Econ.* **2011**, *101*, 449–472, doi:10.1016/j.jfineco.2011.03.006.

23. Grable, J.E.; Joo, S.A further examination of financial help-seeking behavior. *Financ. Couns. Plan.* **2001**, *12*, 55–65.

24. Veld-Merkoulova, Y.V. Investment horizon and portfolio choice of private investors. *Int. Rev. Financ. Anal.* **2011**, *20*, 68–75, doi:10.1016/j.irfa.2011.02.005.

25. Tokar Asaad, C. Financial literacy and financial behavior: Assessing knowledge and confidence. *Financ. Serv. Rev.* **2015**, *24*, 101–117.

26. Worthington, A.C. Predicting financial literacy in Australia. *Financ. Serv. Rev.* **2006**, *15*, 59–79.

27. Hosseini, S.S.; Khaledi, M.; Ghorbani, M.; Brewin, D.G. An analysis of transaction costs of obtaining credits in rural Iran. *J. Agric. Sci. Technol.* **2012**, *14*, 243–256.

28. Trading Economics. Iran interest rates. n.d. Available online: https://tradingeconomics.com/iran/interest-rate (accessed on 29 July 2020).

29. Financial Tribune. Rent-to-own firms enter Iran's housing sector. Available online: https://financialtribune.com/articles/economy-business-and-markets/59320/rent-to-own-firms-enter-irans-housing-sector (accessed on 29 July 2020).

30. Johan, Z.J. Shariah compliant credit cards: Disputes and steps forward. *J. EEIR* **2018**, *6*, 44–54.

31. Johan, Z.J.; Dali, N.R.S.M.; Suki, A.A.; Hafit, N.I.A. Customers' intention towards Shariah compliant credit cards: A pilot study. *IJ ISEF* **2017**, *7*, 772–799, doi:10.6007/IJARBSS/v7-i4/2887.

32. Johan, Z.J.; Hussain, M.Z.; Putit, L.; Dali, N.R.S.M.; Hafit, N.I.A. Consumers' perception of Islamic credit cards: An exploratory study. *Pertanika J. Soc. Sci. Hum.* **2016**, *25*, 179–196.

33. Johan, Z.J.; Putit, L. Conceptualizing the influences of knowledge and religiosity on Islamic credit card compliance. *Proc. Econ.* **2016**, *37*, 480–487, doi:10.1016/S2212-5671(16)30155-1.

34. Putit, L.; Johan, Z.J. Consumers' acceptance of "Halal" credit card services: An empirical analysis. *J. EEIR* **2015**, *3*, 1–9.

35. Kahf, M.; Mohomed, A.N. Credit cards: Contemporary issues from economic and Shariah perspective. *J. KAU Islam. Econ.* **2016**, *29*, 57–80. doi:10.4197/Islec. 29-1.4.

36. Amin, H. Factors influencing Malaysian bank customers to choose Islamic credit cards: Evidence from the TRA model. *J. Islam Mark.* **2013**, *4*, 245–263, doi:10.1108/JIMA-02-2012-0013.

37. Rusmita, S.A.; Ajija, S.R. Attitudes of consumers towards Islamic and conventional credit cards in Indonesia. *Etikonomi* **2017**, *16*, 145–160, doi:10.15408/etk.v16i2.5519.

38. Amin, H.; Rahman, A.R.A.; Sondoh, S.L., Jr.; Hwa, A.M.C. Determinants of customers' intentions to use Islamic personal financing: The case of Malaysian Islamic banks. *J. Islam. Account. Bus. Res.* **2011**, *2*, 22–42, doi:10.11108/17590811111129490.

39. Gumel, A.M.; Othman, M.A. Reflecting customers' innovativeness and intention to adopt Islamic banking in Nigeria. *Bus. Manag. Quat. Rev.* **2013**, *4*, 27–37.

40. Idris, N.H.; Salleh, N.A.; Ahmad, N.; Ismail, S.; Yazid, Z.A. Determinants of intention to use Islamic banking products among Malay Muslims: A case study in Johor Bahara. In Proceedings of the 2nd World Conference on Islamic Thought & Civilization, Ipoh Perak, Malaysia, 18–19 August 2014; pp. 606–615.

41. Basri, M.N.H.; Taslin, M.H.K.N.; Mohamed, S.; Halim, S.D.A. A critical appraisal of Islamic banking product: Islamic pawnbroking (Ar-Rahnu). Available online: https://www.academia.edu/11417663/A_CRITICAL_APPRAISAL_OF_ISLAMIC_BANKING_PRODUCT _ISLAMIC_PAWNBROKING_AR-RAHNU_?auto=download (accessed on 29 July 2020).

42. McCrae, R.R.; John, O.P. An introduction to the five-factor model and its applications. *J. Pers.* **1992**, *60*, 175–215, doi:10.1111/j.1467-6494.1992.tb00970.x.

43. Central Bank of the Iranian Republic of Iran, General Directorate of Economic Statistics. Economic Trends 2017/18; Central Bank of the Iranian Republic of Iran: Teheran, Iran, 2017.

44. Wooldridge, J.M. *Econometric Analysis of Cross Section and Panel Data*; MIT Press: Cambridge, MA, USA, 2010.

45. Caudil, S. An advantage of the linear probability model over probit or logit. *Oxf. B Econ. Stat.* **1988**, *50*, 425–427.

46. Shafir, E.; Diamond, P.; Tversky, A. Money illusion. *Quat. J. Econ.* **1997**, *112*, 341–374, doi:10.1162/003355397555208.

47. RadioFarda. Iran's Latest Inflation Figure Tops 50%-Food Prices Jump 85%. Available online: https://en.radiofarda.com/a/iran-s-latest-monthly-inflation-tops-50-percent---food-prices-jump-85-percent/29895099.html (accessed on 29 July 2020).

48. Letkiewicz, J.C.; Fox, J.J. Conscientiousness, financial literacy, and asset accumulation of young adults. *J. Cons. Aff.* **2014**, *48*, 274–300, doi:10.1111/joca.12040.

49. Mohseni-Cheraghlou, A. Update from Iran: Iran's over-education crises. In *Voices and Views: Middle East and North Africa;* World Bank: Washington, DC, USA, 2017.

50. Aldieri, L.; Fiorilli, D. Private money transfers and altruism: An empirical investigation on Italian families. *Econ. Anal. Pol.* **2015**, *46***,** 1–15, doi:10.1016/j.eap.2015.02.001.

51. Danns, D.E.; Danns, G.K. The creation of financial literacy programs in small developing countries: An institutional model approach. *J. Int. Bus. Discip.* **2017**, *12*, 16–37.

52. Garcia, N.; Grifoni, A.; Lopez, J.C.; Mejía, D. *Financial Education in Latin America and the Caribbean: Rationale, Overview and Way Forward*; OECD Working Papers on Finance, Insurance and Private Pensions (No. 33)*;* OECD: Paris, France, 2013.

53. Hill, R.P.; Ramp, D.L.; Silver, L. The rent-to-own industry and pricing disclosure tactics. *J. Publ. Policy Mark.* **1998**, *17*, 3–10, doi:10.1177/074391569801700102.

54. Lacko, J.M.; McKernan, S.-M.; Hastak, M. Customer experience with rent-to-own transactions. *J. Publ. Policy Mark.* **2002**, *21*, 126–138, doi:10.1509/jppm.21.1.126.17615.

55. OECD & G20. *High Level Principles on Financial Consumer Protection*; OECD: Paris, France, 2011.

56. World Bank. *Good Practices for Financial Consumer Protection*; World Bank: Washington, DC, USA, 2012.

57. Ahmed, H.; Ibrahim, I.R. Financial consumer protection regime in Malaysia: Assessment of the legal and regulatory framework. *J. Consum. Policy* **2018**, *41*, 159–175, doi:10.1007/s10603-9369-0.

58. Mak, V.; Braspenning, J. *Errare humanum est:* Financial literacy in European consumer credit law. *J. Consum. Pol.* **2012**, *35*, 307–332, doi:10.1007/s10603-012-9198-5.

59. Antara, P.M.; Musa, R.; Hassan, F. Bridging Islamic financial literacy and Halal literacy: The way forward in Halal ecosystem. *Proc. Econ.* **2016**, *37*, 196–202, doi:10.1016/52212-5671(16)30113-7.

60. Er, B.; Mutlu, M. Financial inclusion and Islamic finance: A Survey of Islamic Financial Literacy Index. *IJ. ISEF* **2017**, *3*, 33–54, doi:10.25272/j-2149-8407.2017.3.2.02.

61. Ahmad, G.N.; Widyastuti, I.; Susanti, S.; Mukhibad, H. Determinants of Islamic financial literacy. *Account* **2020**, *6*, 961–966, doi:10.5267/j.ac.2020.7.024.

62. Gast, P.; Andone, D.; Fox, K. Here's why the Iran protests are significant. Available online: http://www.cnn.com (accessed on 29 July 2020).