Credit Availability and Consumer Investments in Risky Financial Assets: Mobile Payments, Financial Education, and Financial Satisfaction as Mediators

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ABSTRACT

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| Credit availability is defined as the amount of credit available to borrowers at a given time. Utilizing the data surveyed by the National Financial Capability Study in 2009, 2012, 2015, and 2018, this study investigates the impacts of credit availability on consumer investments in risky financial assets (IRFA). Moreover, the mediating roles of mobile payments, financial education, and financial satisfaction are also explored. The results show that credit availability positively contributes to consumer IRFA. In addition, mobile payments, financial education, and financial satisfaction mediate the nexus between credit availability and consumer IRFA. The findings of this study are informative for policymakers and financial institutions when improving holding risky financial assets and enhancing consumer financial wellbeing. |

*Keywords: Credit availability; risky financial assets; mobile payments; financial education; financial satisfaction*

1. INTRODUCTION

The rapid growth of the global financial sectors has enriched the financial assets in the financial systems of developed countries and emerging economies (Wang, 2016; Agudelo et al., 2021; Asamoah et al., 2021). The financial system promotes trading, hedging, diversification, and risk sharing, allocates resources, and implements corporate controls, which can actively encourage financial innovations and promote future growth by financing productive investments. Modern financial institutions provide financial products and services to meet the needs of consumers for investment and wealth management (Kar et al., 2011). According to the risk level of financial assets, the ways consumers participate in the financial market can be divided into holding risky and risk-free financial assets (Xu et al., 2021). Investors generally hold risky financial assets, including stocks, bonds, and mutual funds (Chen et al., 2020a). Holding risky financial assets is an important part of the financial life of consumers (Rijken and Groenewegen, 2008). Risky asset holders may accumulate more wealth and improve social welfare, so consumers should carefully measure the financial risks matching their income when holding risky financial assets (Xiao and O’Neill, 2020). According to Markowitz's portfolio theory, accurately identifying risks and returns can better guide consumers to invest in risky financial assets to improve consumer income and subjective wellbeing (Chu et al., 2016; Chen et al., 2020a; Chen et al., 2020b).

Previous studies have shed light on consumer financial knowledge (Cupák et al., 2020), financial literacy (Wang and Tsai, 2021), risk attitudes (Sengupta and Kumar, 2017), and the like. However, little research has focused on the impacts of credit availability on consumer investments in risky financial assets (IRFA). Credit availability significantly impacts the participation rate and allocation rate of consumers’ savings, stocks, and risky financial assets. Households with low credit availability use their funds less to meet their capital needs, and risk tolerance is low. Moreover, consumers are not willing to invest in markets with greater financial risks but hold assets with fewer risks (Wang, 2016). Unlike prior studies, the purpose of this study is to explore the impacts of credit availability on consumer IRFA and further investigate the mediating effect of mobile payments, financial education, and financial satisfaction (Chen et al., 2020a).

The structure of the rest of this study is as follows. Section 2 reviews the literature on consumer IRFA and the nexus between credit availability and consumer IRFA and puts forward the hypothesis. Section 3 describes the research data, variable measurements, and methodology. Section 4 discusses the empirical results and explores further the influence channels between credit availability and consumer IRFA. Section 5 concludes and summarizes the implications and limitations.

2. LITERATURE REVIEW

**2.1 Previous Research on Consumer IRFA**

The rapid popularity of complex financial products increasingly requires consumers to decide how much to save and where to invest. In previous studies, the factors affecting consumer IRFA can be divided into objective and subjective. Objective factors refer to risk financial assets, namely risk and expected rate of return. The classical theories to profile objective factors are the Markowitz portfolio model (Maier-Paape and Zhu, 2018), the capital asset pricing model (Gunasekaran and Ramaswami, 2014; Horenstein, 2021), and the like. Subjective factors include consumer risk attitude, age, gender, and financial knowledge. The model of choosing risky financial assets to build an asset portfolio contains two objective constraints. The first represents the return on the portfolio. The second evaluates the risks associated with the portfolio (Korchakova, 2020). Financial variables such as potential portfolio profitability and net present numerical value (NPV) are used to measure the target returns of risky financial assets (Kremmel et al., 2011). Thus, it is necessary to measure the risk of a single risky financial asset in the asset portfolio and the risk of the overall asset portfolio. Risk control is vital to increase returns on risky financial assets (Xu, 2015; Lu and Souri, 2022).

Financial risk refers to the uncertainty of the future return of the asset portfolio caused by the change in financial factors. Financial risk has a superposition; simultaneously, the risk factors will interact to form the coupling effect of direct and indirect risk contagion (Wang, 2022). More specifically, it may cause mutation and large-scale destruction (Haldane and May, 2011; Zhang et al., 2019). Rational consumers will first collect sufficient information to measure the risk of financial assets. Consumer portfolio management is vital to maximize the possible return with limited financial resources (Korchakova, 2020). Therefore, rational consumers will choose the assets with greater returns among various financial assets with the same risk level. In Markowitz's mean-variance model, the expected rate of return is used to measure the return on assets, and variance and covariance are employed to measure the risk of the asset portfolio (Tsaur et al., 2020). Specifically, an asset portfolio with a negative correlation or covariance may significantly decrease portfolio risks (Liu et al., 2021). Another common way to measure earnings is to use future cash flows and discount rates to measure the return on risky financial assets (Agudelo et al., 2021). In addition to the two variables related to risky financial assets, namely risk and return, different consumer groups also show various characteristics when investing in risky financial assets.

Previous research has suggested that consumer age structure may affect the scale and financial asset allocation (Gamble et al., 2015). Specifically, aging may cause households to reduce the scale of IRFA, even if households allocate more investment to financial assets with lower risks and crowd out financial investments with higher risks. For instance, Alda (2017) indicated that under different circumstances, aging would lead to the contraction and expansion of the stock market, and this phenomenon may be related to the decline of risk preference of the elderly. Besides, Gamble et al. (2015) showed that the cognitive ability decline related to age growth negatively contributes to the financial decision-making ability of the elderly in the United States. They also revealed that this phenomenon is due to the decline in cognitive ability and financial literacy of the elderly. Moreover, Xiao and O'Neill (2016) documented that the proportion of individuals in families aged 65 and over was negatively correlated with their stock investments.

According to a survey conducted by Maknickienė and Rapkevičiūtė (2022), gender has played a pivotal role in consumer IRFA. The results show that the portfolio constructed from male interest fields is more diversified than that from female interest fields or both male and female interest fields, but the return of women's portfolios is more stable than that of males. Dishaw and Strong (1999) suggested that young women are more uncertain about their computer skills than men when investigating the reactions of Princeton first-year students to computers, and women feel significantly worse about using computers. Therefore, the difference in logical thinking between women and men may be one of the reasons why men and women differ in IRFA. Besides, the gender ratio is vital in households allocating wealth to risky assets, especially funds, and stocks. Utilizing the data of CHFS, Li et al. (2022) revealed that household decisions on IRFA are related to the gender ratio, and that is, a high gender ratio is positive to parents' risk-taking and then affects risky portfolio choices. To be more specific, the results also suggest that the high sex ratio is positively associated with men's greater risk-taking and impatience, which makes households invest more time and money in risky financial assets. Therefore, a high gender ratio affects household participation in financial markets, which may further affect the returns of IRFA.

Besides, previous research has emphasized the importance of financial literacy in affecting consumer IRFA. Using the China Household Finance Survey (CHFS) data in 2014, Chu et al. (2016) investigated the impacts of financial literacy on household risky financial asset allocation. The results show that households with higher financial knowledge invest more in mutual funds, and families confident in their financial knowledge tend to invest in riskier stocks. Besides, the results also revealed that households with a higher level of financial knowledge are more likely to obtain more return on investment. Furthermore, prior research also shows that consumers with a higher level of financial knowledge tend to invest more in risky financial assets, which is conducive to promoting subjective wellbeing (Chen et al., 2020a).

Additionally, the political background (Quinn and Ogburn, 2019; Ge et al., 2021), transaction cost (Zhang, 2019), enterprise profitability (Sun et al., 2019a), and investor sentiment (Zhang et al., 2011; Sun et al., 2019b) are pivotal to consumer IRFA.

**2.2 The Impacts of Credit Availability on Consumer IRFA**

Credit availability refers to the amount of credit available to the borrower at a given time (Fasola et al., 2020). Credit availability is essential to the development of financial markets. For instance, the monetary policy of the central bank primarily affects the credit expansion ability of financial institutions, especially commercial banks, and then influences the financing ability of enterprises (Leijonhufvud, 2009; Skidelsky, 2010). Regarding the life cycle theory, consumers with a stable income tend to spend more when they are young (Ando and Modigliani, 1963). If consumer credit availability is insufficient, it may inhibit the development of consumer expenditure.

Previous studies have shown that improving credit availability is conducive to consumers’ increasing IRFA. In the investigation conducted by Ge et al. (2021), the increase in social capital and the reduction of credit constraints are conducive to consumers’ rapid access to loans, making consumers more likely to invest in risky financial markets with low liquidity but high yield. Moreover, Li et al. (2020) indicated that expanding credit services can alleviate the liquidity constraints of residents. Thus, the money supply held by consumers is greater than the money demand, increasing the expenditure. Meanwhile, consumers tend to maintain a relatively fixed proportion of various expenditures and assets in expenditure and asset allocation, so a part of the increased expenditure will be allocated to IRFA. Thus, this study proposes the hypothesis as follows:

H1 Credit availability positively contributes to consumer IRFA.

**2.3 The Influence Channels between Credit Availability and Consumer IRFA**

In recent decades, with the development of information technology, digital finance is gradually becoming an indispensable part of China's financial system because it helps reduce the degree of information asymmetry and improve the availability of financial resources. The rapid development of mobile payments has greatly decreased the transaction cost of financial services and improved the efficiency and security of consumer payment and transfer (Gong et al., 2021; Xu et al., 2021). Mobile payment is an Internet-based payment platform and online banking business. Consumers can access virtual services at the time and place of their choice through mobile payments, enjoy the uninterrupted functions of the bank and payment platform, and eliminate the restrictions of time and space. With the support of mobile banking, consumers can pay bills, transfer money, execute transactions, and check account balances anytime and anywhere. In addition, the banking services provided by mobile devices are vital to decreasing consumer transaction costs in remote areas, especially in some emerging markets. Formal financial services will be easier to bring some benefits to many consumers, including those living in remote areas. Mobile payments further enhance financial inclusiveness (Chen and Xiang, 2021). More specifically, mobile payments are conducive to improving consumers’ credit availability and promoting inclusive finance development. It also strengthens the turnover speed of risky financial assets and reduces the degree of information asymmetry between consumers and the financial market, which helps consumers more conveniently screen their risky financial assets and thereby promotes consumer IFRA. Therefore, this study puts forward the following hypothesis:

H2 Mobile payments mediate the nexus between credit availability and consumer IFRA.

Previous studies have shown that financial education can improve consumers’ financial literacy and capability. Using the 2012 China Urban Household Consumption Finance Survey data, Chen et al. (2020b) showed that sustainable financial education after formal education enables consumers to participate in the financial market rationally and positively contributes to consumer life satisfaction. Using the data from the 2012 NFCS, Xiao et al. (2014) suggested that financial education is positive to improve consumer financial literacy, which is measured by subjective measurement, objective measurement, financial behavior, and perceived financial literacy. Additionally, several studies indicate that financial education encourages desirable financial behaviors, enhances confidence in financial capability, and improves household financial decision-making (Xiao and O'Neill, 2016; Kim et al., 2017). Doi et al. (2014) documented that training immigrants and family members have a huge and significant impact on knowledge, behavior, and savings. The results also show that these training programs enhance financial planning, budgeting, and savings. Besides, consumers who have received financial education may have higher financial literacy scores than those who have not, and the role of financial education is particularly important for consumers with lower education and income (Wagner, 2019). Utilizing the data of NFCS in 2009, 2012, 2015, and 2018, Chen and Sun (2021) revealed that consumer financial knowledge positively affects retirement plan behavior. It can be explained as consumers with higher financial knowledge are easier to understand the technical details and risks involved in financial products, which helps obtain information, calculate and plan, to participate in the financial market and invest in risky financial assets. Therefore, enhancing consumer financial education is vital to improve consumers' financial knowledge level, thereby improving consumers' capability to measure risks and benefits, to promote consumers to allocate more financial resources to the investment of risky financial assets, and improve consumers' financial confidence and the capability to screen appropriate risky financial assets. Thus, this study proposes the hypothesis as follows:

H3 Financial education mediates the relationships between credit availability and consumer IRFA.

Consumer IRFA is conducive to improving consumers' subjective wellbeing and life satisfaction (Chen et al., 2020a). Life satisfaction is regarded as overall happiness (Tahir et al., 2022), and financial satisfaction is an important determinant of life satisfaction and subjective wellbeing (Netemeyer et al., 2018). Financial satisfaction refers to a state of financial health where cognitive and emotional assessments play an important role (Belás and Gabčová, 2016). It refers to the subjective evaluation of an individual's financial situation (Brüggen et al., 2017; Xiao and O'Neill, 2018).

Previous literature studies have examined the relationships between financial satisfaction and factors affecting consumers’ holding of risky financial assets, such as subjective income adequacy ratio (Grable et al., 2012), financial capability, credit card debt, and household debt (Tahir and Ahmed, 2021). Grable et al. (2012) suggested that an individual’s perception of income adequacy (subjective income) leads to subjective satisfaction or dissatisfaction with the financial situation, which affects the attitude toward social commodity consumption and financial market investments. Moreover, Tahir and Ahmed (2021) indicated that household members’ positive cognition of personal financial status is conducive to improving their financial decisions, including the debt decision, and thus have the tendency to reduce debt. Therefore, higher financial satisfaction is conducive to optimizing consumers' balance sheets, improving their risk-taking capability and willingness, and promoting consumers to invest in risky financial assets. According to the balance sheet channel theory of monetary policy transmission, when consumers think their balance sheet is benign, their financial satisfaction is high. Thus, consumers will think that there is sufficient liquidity in the future and the future income is enough to repay the credit, so it will encourage consumers to actively obtain credit from banks to improve their credit availability. According to Keynes’ money demand theory and the view that consumers often allocate financial resources in different assets according to a fixed proportion. Hence, when liquidity and money holdings increase, consumers tend to increase money demand which is used to invest in risky financial assets, so as to strive for income and risk diversification. Thus, this study puts forward the following hypothesis:

H4 Financial satisfaction mediates the associations between credit availability and consumer IRFA.

3. methodology

**3.1 Data**

Using data from the NFCS in 2009, 2012, 2015, and 2018, this study aims to explore the associations between credit availability and consumer IRFA, and the mediating roles of mobile payments, financial education, and financial satisfaction are investigated as well. The related data involved in NFCS are about demographic and classification issues, financial attitudes and behaviors, retirement accounts, government benefits, housing and mortgage loans, credit cards, insurance, and the like. The data are nationally representative, which is positive to produce robust and accurate results in this study. Accordingly, samples with missing values are excluded, and the respondents who responded “Don’t know” or “Prefer not to say” are also dropped. Thus, the final sample size of this study is 20,559.

**3.2 Model Specification and Variables**

The specifications of all variables are exhibited in Table 1. In this study, the dependent variable is consumer IRFA, measured by the question: “ Does your household or do you have any investments in stocks, bonds, mutual funds, or other securities?” The measurement is consistent with Chen et al. (2020a), in which the holding of stocks, mutual funds, and the like measured risky financial assets. Accordingly, the variable is coded as binary, with 1 indicating performing the investing behaviors and 0 otherwise. The independent variable of this study is consumer credit availability, which is measured from objective and subjective perspectives, respectively. To accurately measure consumer objective credit availability, this study utilizes the question in the NFCS, “Does your household or do you overdraw your checking account occasionally if having a savings account, money market account, or CDs?” The variable is encoded as 1 if the answer is “Yes” and 0 otherwise. Besides, subjective credit availability is measured by the consumer’s overall evaluation of the comfort with a product or service offered by a bank or credit union branch. The respondents were asked, “How strongly do you agree or disagree with the following statement? I would feel comfortable going to a bank or credit union branch to ask questions about a product or service.” Responses range from 1 1 (Strongly disagree) to 7 (Strongly agree). To comprehensively measure consumer credit availability, this study constructs a new variable of the credit availability index, equal to a sum of Z-scores of consumer objective and subjective availability.

To explore the influence channels of credit availability on consumer IRFA, this study introduces mobile payments, financial education, and financial satisfaction as mediators. For the medicating variable of mobile payments, the respondents were asked, “How often do you use your mobile phone to pay for a product or service in person at a store, gas station, or restaurant (e.g., by waving/tapping your mobile phone over a sensor at checkout, scanning a barcode or QR code using your mobile phone, or using some other mobile app at checkout)?” Responses are as follows: 1 (Never), 2 (Sometimes), and 3 (Frequently). To measure consumer status of financial education, the respondents were asked whether they had received financial education from high school, college, an employer, or the military. The variable is encoded binarily, with 1 suggesting having received financial knowledge education before and 0 otherwise. In this study, consumer financial satisfaction also serves as a vital mediator. According to the NFCS, the question to measure financial satisfaction is as follows: “Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition?” Responses range from 1 (Not at all satisfied) to 10 (Extremely satisfied).

Following the approach of Chen et al. (2022), this study incorporates age, gender, marital status, education levels, ethnicity, number of financially depended children, and annual income as the control variables. Besides, to control the effects of consumer financial knowledge on the regression results, this study introduces objective and subjective financial knowledge at the same time. Accordingly, six questions regarding compound interest (2 questions), bond price, inflation, risk diversification, and repayment interest are utilized to measure consumer objective financial knowledge. If the respondent answered the question correctly, the score is 1, and otherwise, 0. Moreover, the consumer objective financial knowledge variable equals the sum of the above questions’ scores. Concerning consumer subjective financial knowledge, it is measured by the respondent’s overall evaluation of personal financial knowledge. Responses range from 1 (Very low) to 7 (Very high). In terms of Chen et al. (2020a), consumer risk attitude is vital to risk asset holdings. In this study, consumer risk attitude is measured by the question: “When thinking of your financial investments, how willing are you to take risks?” Responses range from 1 (Not at all willing) to 10 (Very willing). Meanwhile, this study also includes consumer subjective financial capability as one of the control variables, measured by the respondent’s perceived ability of dealing with daily financial affairs. Additionally, consumer credit record is considered as well. The respondents were asked, “How would you rate your current credit record?” Responses range from 1 (Very bad) to 5 (Very good).

**Table 1. Variable specification**

|  |  |
| --- | --- |
| **Variable label** | **Attribute** |
| Consumer IRFA  | “Does your household or do you have any investments in stocks, bonds, mutual funds, or other securities?” 1 = Yes, and 0 = No |
| Objective credit availability  | “Does your household or do you overdraw your checking account occasionally if having a savings account, money market account, or CDs?” 1 = Yes, and 0 = No  |
| Subjective credit availability  | “How strongly do you agree or disagree with the following statement? I would feel comfortable going to a bank or credit union branch to ask questions about a product or service.” From 1 (Strongly disagree) to 7 (Strongly agree) |
| Credit availability index | A sum of Z-scores of consumer objective and subjective availability |
| Mobile payments | “How often do you use your mobile phone to pay for a product or service in person at a store, gas station, or restaurant (e.g., by waving/tapping your mobile phone over a sensor at checkout, scanning a barcode or QR code using your mobile phone, or using some other mobile app at checkout)?” From 1 (Never) to 3 (Frequently) |
| Financial education | “When did you receive that financial education?” If the respondents received financial education from high school, college, an employer, or the military, the variable is encoded as 1 and 0 otherwise. |
| Financial satisfaction | “Overall, thinking of your assets, debts, and savings, how satisfied are you with your current personal financial condition?” From 1 (Not at all satisfied) to 10 (Extremely satisfied) |
| Objective financial knowledge | The variable equals a sum score of six questions regarding the compound interest, bond price, inflation, risk diversification, repayment interest, and the time for double repayment with the compound interest. If the respondent answered the question correctly, the score is 1, and otherwise, 0. |
| Subjective financial knowledge | “On a scale from 1 to 7, where 1 means very low and 7 means very high, how would you assess your overall financial knowledge?” |
| Risk attitude | “When thinking of your financial investments, how willing are you to take risks?” From 1 (Not at all willing) to 10 (Very willing) |
| Subjective financial capability | “How strongly do you agree or disagree with the following statements? I am good at dealing with day-to-day financial matters, such as checking accounts, credit and debit cards, and tracking expenses.” From 1 (Strongly disagree) to 7 (Strongly agree) |
| Credit record rating | “How would you rate your current credit record?” From 1 (Very bad) to 5 (Very good) |
| Annual income | 1 = “Less than $15, 000”, 2 = “At least $15, 000 but less than $25, 000”, 3 = “At least $25, 000 but less than $35, 000”, 4 = “At least $35, 000 but less than $50, 000”, 5 = “At least $50, 000 but less than $75, 000”, 6 = “At least $75, 000 but less than $100, 000”, 7 = “At least $100, 000 but less than $150, 000”, 8= “$150, 000 or more”. |
| Male | 1 = Male, and 0 = Female |
| Age 18 to 24 | If the respondent’s age is between 18 and 24, the variable is encoded as 1, and 0 otherwise. |
| Age 25 to 34 | If the respondent’s age is between 25 and 34, the variable is encoded as 1, and 0 otherwise. |
| Age 35 to 44 | If the respondent’s age is between 35 and 44, the variable is encoded as 1, and 0 otherwise. |
| Age 45 to 54 | If the respondent’s age is between 45 and 54, the variable is encoded as 1, and 0 otherwise. |
| Age 55 to 64 | If the respondent’s age is between 55 and 64, the variable is encoded as 1, and 0 otherwise. |
| Age 65 or older | If the respondent is 65 or older, the variable is encoded as 1, and 0 otherwise. |
| High school or below | 1 = Yes, and 0 = No |
| Some colleges to Bachelor’s degree | 1 = Yes, and 0 = No |
| Postgraduate degree or above | 1 = Yes, and 0 = No |
| Being married | If the respondent is married, the variable is encoded as 1, and 0 otherwise. |
| White | 1 = White, and 0 = Non-white |
| Number of financially depended children | “How many children do you have who are financially dependent on you or your [spouse/partner]?”1 = 1, 2 = 2, 3 = 3, 4 = 4 or more, and 0 = “No financially dependent children”, or 6= “Do not have any children”. |

**3.3 Data Analysis**

As the dependent variable of this study, consumer IRFA is binary. Therefore, in addition to the approach of ordinary least squares (OLS), this study also conducts probit regression to produce more accurate results. Besides, the method of logit regression is also performed to verify the robustness. This study incorporates state dummies in all estimates to alleviate the estimation bias caused by heterogenous state effects.

**3.4 Statistics Description**

The results of descriptive statistics are displayed in Table 2. The average score of consumer IRFA is 0.40, suggesting that consumers still have substantial room to improve their investment performance in risky financial assets. Regarding the independent variable, the average score of consumer objective credit availability is 0.87, indicating that most consumers have savings and money market accounts and occasionally overdraw their check accounts. Meanwhile, the mean value of consumer subjective credit availability is 1.56, revealing that consumers are not enthusiastic about going to banks or credit union branches to seek help specific to financial products or services. In addition, the frequency of using mobile payments is a little low. The average score of consumer financial satisfaction is 6.02, implying that most consumers are relatively satisfied with their financial status. The mean value of consumer financial education is 0.21, so most consumers have received financial education during their lifetime.

**Table 2. Descriptive statistics**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variable label** | **Obs** | **Mean** | **Std.Dev.** | **Min** | **Max** |
| Investments in risky financial assets | 20,559 | 0.40 | 0.49 | 0 | 1 |
| Objective credit availability | 20,559 | 0.87 | 0.34 | 0 | 1 |
| Subjective credit availability | 20,559 | 5.84 | 1.56 | 1 | 7 |
| Credit availability index | 20,559 | 0.09 | 1.44 | -5.34 | 1.18 |
| Objective financial knowledge | 20,559 | 3.44 | 1.59 | 0 | 6 |
| Subjective financial knowledge | 20,559 | 5.30 | 1.20 | 1 | 7 |
| Risk attitude | 20,559 | 5.05 | 2.60 | 1 | 10 |
| Subjective financial capability | 20,559 | 6.00 | 1.35 | 1 | 7 |
| Credit record rating | 20,559 | 4.15 | 1.07 | 2 | 5 |
| Mobile payments | 20,559 | 1.43 | 0.67 | 1 | 3 |
| Financial education | 20,559 | 0.21 | 0.41 | 0 | 1 |
| Financial satisfaction | 20,559 | 6.02 | 2.75 | 1 | 10 |
| Annual income | 20,559 | 4.83 | 1.95 | 1 | 8 |
| Male | 20,559 | 0.46 | 0.50 | 0 | 1 |
| Age 18 to 24 | 20,559 | 0.07 | 0.26 | 0 | 1 |
| Age 25 to 34 | 20,559 | 0.16 | 0.37 | 0 | 1 |
| Age 35 to 44 | 20,559 | 0.16 | 0.37 | 0 | 1 |
| Age 45 to 54 | 20,559 | 0.17 | 0.38 | 0 | 1 |
| Age 55 to 64 | 20,559 | 0.20 | 0.40 | 0 | 1 |
| Age 65 or older | 20,559 | 0.23 | 0.42 | 0 | 1 |
| High school or below | 20,559 | 0.23 | 0.42 | 0 | 1 |
| Some college to Bachelor’s degree | 20,559 | 0.61 | 0.49 | 0 | 1 |
| Postgraduate degree or above | 20,559 | 0.16 | 0.36 | 0 | 1 |
| Being married | 20,559 | 0.58 | 0.49 | 0 | 1 |
| White | 20,559 | 0.77 | 0.42 | 0 | 1 |
| Number of financially depended children | 20,559 | 0.64 | 1.03 | 0 | 4 |
| *Source: The results of descriptive statistics are from the NFCS in 2009, 2012, 2015, and 2018.* |

4. Empirical Results

**4.1 Results of Correlation Analysis**

The results of correlations are exhibited in Table 3. The correlations between consumer IRFA and most independent variables are as expected. In detail, consumer IRFA positively correlates with objective credit availability, subjective credit availability, and the credit availability index, with correlation coefficients of 0.21, 0.19, and 0.27, respectively. It implies that having checking accounts, savings accounts, overdraft of checking accounts, and actively going to the bank to consult relevant products and services are conducive to promoting consumer IRFA. Besides, for other main control variables, incorporating objective financial knowledge, subjective financial knowledge, risk attitude, subjective financial capability, and credit record rating, all are significantly and positively correlated with consumer IRFA. In detail, the correlation coefficients are 0.28, 0.27, 0.17, and 0.34, respectively.

**4.2 Credit Availability and Consumer IRFA**

A series of regression results of credit availability on consumer IRFA are presented in Table 4. Accordingly, only control variables are input in Columns (1) and (2). Column (3) adds the variable of consumer objective credit availability. In Column (4), consumer objective and subjective credit availability variables are entered. In Column (5), and credit availability index is added in Column 5. More specifically, to make the results more robust and accurate, Column (1) uses the OLS estimation results, and Columns (2) to (5) report the results of probit regression. Furthermore, the robust clustering standard error is reported in brackets.

Columns (1) and (2) report the regression results of control variables on consumer IRFA. Although different methods are employed, the results are consistent with each other. Except for the marital status variable, most control variables are statistically positive. Accordingly, objective and positive financial knowledge are statistically positive to consumer IRFA, indicating that consumers with higher financial knowledge tend to invest more in risky financial assets. More specifically, both coefficients are significant at 1%. The regression coefficients of the variable of consumer risk attitude are significant and positive, suggesting that consumers with a higher willingness to take risks are more likely to invest in risky financial assets. Meanwhile, the coefficients of consumer credit record rating and annual income are statistically positive, implying that consumers who evaluate their credit records higher tend to invest more risky assets in the financial market. Besides, consumers with a higher annual income are more likely to hold more risky financial assets. The results reveal a nonlinear association between age and consumer IRFA since the coefficients regarding age categories significantly change from negative to positive. Compared with the group educated in high school or below, consumers tend to invest more in risky financial assets if they attain high levels of education. The results suggest a negative association between consumer marital status and IRFA, suggesting that married consumers are willing to invest less in risky financial assets due to maintaining household stability and avoiding risks.

In Column (3), the coefficient of the variable regarding consumer objective credit availability is positive at a significance of 1% and keeps unchanged in Column (4). Thus, consumers with more checking, savings, or overdraft checking accounts will invest more in risky assets to increase their income and subjective wellbeing. In Column (4), the results show that the convenience of consumers to consult relevant financial products or services in banks or financial institutions is positively associated with consumer IRFA, with a coefficient of 0.02 at the 1% significant level. Furthermore, the regression results between the credit availability index and consumer IRFA are reported in Column (5), indicating a positive relationship. In detail, the coefficient is 0.12 at a significance of 1%. Thus, improving credit availability can significantly promote consumer IRFA, hypothesized as H1.

**Table 3. Correlations between variables**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **Consumer IRFA** | **Objective credit availability** | **Subjective credit availability** | **Credit availability index** | **Objective financial knowledge** | **Subjective financial knowledge** | **Risk attitude** | **Subjective financial capability** |
| Objective credit availability | 0.21\*\*\* |  |  |  |  |  |  |  |
| Subjective credit availability | 0.19\*\*\* | 0.13\*\*\* |  |  |  |  |  |  |
| Credit availability index | 0.27\*\*\* | 0.75\*\*\* | 0.75\*\*\* |  |  |  |  |  |
| Objective financial knowledge | 0.28\*\*\* | 0.14\*\*\* | 0.19\*\*\* | 0.22\*\*\* |  |  |  |  |
| Subjective financial knowledge | 0.27\*\*\* | 0.10\*\*\* | 0.31\*\*\* | 0.27\*\*\* | 0.23\*\*\* |  |  |  |
| Risk attitude | 0.32\*\*\* | 0.12\*\*\* | 0.16\*\*\* | 0.19\*\*\* | 0.15\*\*\* | 0.30\*\*\* |  |  |
| Subjective financial capability | 0.17\*\*\* | 0.08\*\*\* | 0.32\*\*\* | 0.27\*\*\* | 0.22\*\*\* | 0.44\*\*\* | 0.09\*\*\* |  |
| Credit record rating | 0.34\*\*\* | 0.19\*\*\* | 0.30\*\*\* | 0.33\*\*\* | 0.28\*\*\* | 0.32\*\*\* | 0.15\*\*\* | 0.32\*\*\* |

*Notes: Sample size = 20,559. Besides, \*\*\*, \*\* and \* denote statistical significance at 1%, 5% and 10%, respectively.*

**Table 4. Results of regression of credit availability on consumer IRFA**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Variables** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** |
| Objective credit availability |  |  | 0.62\*\*\* | 0.61\*\*\* |  |
|  |  | (0.03) | (0.03) |  |
| Subjective credit availability |  |  |  | 0.02\*\*\* |  |
|  |  |  | (0.01) |  |
| Credit availability index |  |  |  |  | 0.12\*\*\* |
|  |  |  |  | (0.01) |
| Objective financial knowledge | 0.03\*\*\* | 0.10\*\*\* | 0.10\*\*\* | 0.10\*\*\* | 0.09\*\*\* |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Subjective financial knowledge | 0.03\*\*\* | 0.10\*\*\* | 0.10\*\*\* | 0.09\*\*\* | 0.09\*\*\* |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Risk attitude | 0.04\*\*\* | 0.14\*\*\* | 0.14\*\*\* | 0.14\*\*\* | 0.14\*\*\* |
| (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Subjective financial capability | -0.00 | -0.01 | -0.01 | -0.01 | -0.02\*\* |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Credit record rating | 0.07\*\*\* | 0.24\*\*\* | 0.23\*\*\* | 0.23\*\*\* | 0.22\*\*\* |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Annual income | 0.04\*\*\* | 0.15\*\*\* | 0.13\*\*\* | 0.13\*\*\* | 0.14\*\*\* |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Male | 0.01 | 0.01 | 0.03 | 0.03 | 0.03 |
| (0.01) | (0.02) | (0.02) | (0.02) | (0.02) |
| Age 25 to 34 | -0.01 | -0.07 | -0.06 | -0.07 | -0.08 |
| (0.01) | (0.05) | (0.05) | (0.05) | (0.05) |
| Age 35 to 44 | -0.05\*\*\* | -0.20\*\*\* | -0.19\*\*\* | -0.19\*\*\* | -0.22\*\*\* |
| (0.01) | (0.05) | (0.05) | (0.05) | (0.05) |
| Age 45 to 54 | -0.05\*\*\* | -0.20\*\*\* | -0.17\*\*\* | -0.18\*\*\* | -0.21\*\*\* |
| (0.01) | (0.05) | (0.05) | (0.05) | (0.05) |
| Age 55 to 64 | 0.02 | 0.02 | 0.04 | 0.03 | -0.00 |
| (0.02) | (0.05) | (0.05) | (0.05) | (0.05) |
| Age 65 or older | 0.11\*\*\* | 0.30\*\*\* | 0.30\*\*\* | 0.29\*\*\* | 0.26\*\*\* |
| (0.01) | (0.05) | (0.05) | (0.05) | (0.05) |
| Some college to Bachelor’s degree | 0.02\*\*\* | 0.10\*\*\* | 0.08\*\*\* | 0.08\*\*\* | 0.09\*\*\* |
| (0.01) | (0.03) | (0.03) | (0.03) | (0.03) |
| Postgraduate degree or above | 0.08\*\*\* | 0.24\*\*\* | 0.23\*\*\* | 0.23\*\*\* | 0.23\*\*\* |
| (0.01) | (0.04) | (0.04) | (0.04) | (0.04) |
| Being married | -0.02\*\*\* | -0.07\*\*\* | -0.07\*\*\* | -0.08\*\*\* | -0.07\*\*\* |
| (0.01) | (0.02) | (0.02) | (0.02) | (0.02) |
| White | 0.01 | 0.01 | 0.02 | 0.02 | 0.02 |
| (0.01) | (0.03) | (0.03) | (0.03) | (0.03) |
| Number of childrendepended children | -0.01 | -0.02 | -0.02 | -0.02 | -0.02 |
| (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Constant | -0.59\*\*\* | -3.62\*\*\* | -4.06\*\*\* | -4.11\*\*\* | -3.30\*\*\* |
| (0.02) | (0.10) | (0.11) | (0.12) | (0.10) |
| State dummies | Yes | Yes | Yes | Yes | Yes |
| Observations | 20,559 | 20,559 | 20,559 | 20,559 | 20,559 |
| Adjusted R2 | 0.26 |  |  |  |  |
| Pseudo R2 |  | 0.22 | 0.23 | 0.23 | 0.23 |

*Notes: The content is arranged by the authors. Besides, \*\*\*, \*\*, and \* represent 1%, 5%, and 10% signiﬁcance levels, respectively, and the data in brackets are robust clustered standard errors. Samples of high school or below and aged 18 to 24 serve as reference groups. In Column (1), the method of OLS is utilized, and in Columns (2) to (5), the approach of probit regression is employed.*

**Table 5. Robustness check**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| Credit availability index | 0.21\*\*\* | 0.13\*\*\* | 0.12\*\*\* | 0.14\*\*\* | 0.14\*\*\* | 0.08\*\*\* |
| (0.02) | (0.01) | (0.02) | (0.01) | (0.02) | (0.01) |
| Objective financial knowledge | 0.16\*\*\* | 0.09\*\*\* | 0.14\*\*\* | 0.08\*\*\* | 0.09\*\*\* | 0.09\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.02) | (0.01) |
| Subjective financial knowledge | 0.15\*\*\* | 0.09\*\*\* | 0.07\*\*\* | 0.09\*\*\* | 0.09\*\*\* | 0.10\*\*\* |
| (0.02) | (0.01) | (0.02) | (0.01) | (0.02) | (0.02) |
| Risk attitude | 0.23\*\*\* | 0.14\*\*\* | 0.14\*\*\* | 0.13\*\*\* | 0.13\*\*\* | 0.15\*\*\* |
| (0.01) | (0.00) | (0.01) | (0.01) | (0.01) | (0.01) |
| Subjective financial capability | -0.04\* | -0.02 | 0.04 | -0.04 | -0.01 | -0.06\*\*\* |
| (0.02) | (0.01) | (0.03) | (0.03) | (0.02) | (0.02) |
| Credit record rating | 0.38\*\*\* | 0.22\*\*\* | 0.23\*\*\* | 0.20\*\*\* | 0.23\*\*\* | 0.22\*\*\* |
| (0.02) | (0.01) | (0.03) | (0.03) | (0.03) | (0.01) |
| Annual income | 0.23\*\*\* | 0.12\*\*\* | 0.10\*\*\* | 0.16\*\*\* | 0.15\*\*\* | 0.13\*\*\* |
| (0.01) | (0.01) | (0.02) | (0.02) | (0.01) | (0.01) |
| Male | 0.04 | 0.03 | 0.06 | -0.01 | 0.11\*\*\* | -0.05 |
| (0.04) | (0.03) | (0.07) | (0.04) | (0.04) | (0.04) |
| Age 25 to 34 | -0.12 | -0.02 | 0.26\*\*\* | -0.26\*\*\* | -0.09 | -0.07 |
| (0.08) | (0.05) | (0.08) | (0.08) | (0.09) | (0.07) |
| Age 35 to 44 | -0.36\*\*\* | -0.15\*\*\* | 0.06 | -0.46\*\*\* | -0.21\*\* | -0.15\*\*\* |
| (0.08) | (0.05) | (0.08) | (0.11) | (0.09) | (0.06) |
| Age 45 to 54 | -0.34\*\*\* | -0.13\*\*\* | 0.07 | -0.32\*\*\* | -0.34\*\*\* | -0.12 |
| (0.09) | (0.05) | (0.07) | (0.10) | (0.10) | (0.08) |
| Age 55 to 64 | 0.02 | 0.05 | 0.19\* | -0.12 | -0.05 | 0.05 |
| (0.09) | (0.05) | (0.11) | (0.12) | (0.09) | (0.10) |
| Age 65 or older | 0.46\*\*\* | 0.33\*\*\* | 0.56\*\*\* | 0.08 | 0.16\* | 0.35\*\*\* |
| (0.09) | (0.05) | (0.12) | (0.09) | (0.09) | (0.07) |
| Some college to Bachelor’s degree | 0.15\*\*\* | 0.10\*\*\* | 0.08\*\* | -0.10 | 0.17\*\*\* | 0.19\*\*\* |
| (0.05) | (0.03) | (0.04) | (0.07) | (0.04) | (0.05) |
| Postgraduate degree or above | 0.37\*\*\* | 0.23\*\*\* | 0.18\*\*\* | 0.06 | 0.26\*\*\* | 0.38\*\*\* |
| (0.06) | (0.04) | (0.06) | (0.08) | (0.07) | (0.06) |
| Being married | -0.13\*\*\* | -0.08\*\*\* | -0.05 | -0.07 | -0.13\*\*\* | -0.04 |
| (0.04) | (0.02) | (0.05) | (0.05) | (0.04) | (0.04) |
| White | 0.03 | 0.02 | 0.05 | -0.08 | 0.01 | 0.07 |
| (0.05) | (0.03) | (0.08) | (0.05) | (0.05) | (0.05) |
| Number of financially depended children | -0.03 | -0.01 | -0.05 | -0.04\* | 0.02 | -0.01 |
| (0.02) | (0.01) | (0.04) | (0.03) | (0.02) | (0.03) |
| Constant | -5.69\*\*\* | -3.35\*\*\* | -3.80\*\*\* | -2.70\*\*\* | -3.53\*\*\* | -3.39\*\*\* |
| (0.18) | (0.10) | (0.27) | (0.17) | (0.21) | (0.13) |
| State dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 20,559 | 17,559 | 3,476 | 4,556 | 6,281 | 6,246 |
| Pseudo *R*2 | 0.23 | 0.21 | 0.24 | 0.22 | 0.25 | 0.23 |

*Notes: Reference categories are a high school or lower, and age 18 to 24. In addition, \*\*\*, \*\*, and \* represent 1%, 5%, and 10% significance levels, respectively, and the data in parentheses is the robust standard error.*

**Table 6. Mediating effect**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Variables** | **(1)** | **(2)** | **(3)** | **(4)** | **(5)** | **(6)** |
| **Mobile payments** | **Consumer IRFA** | **Financial education** | **Consumer IRFA** | **Financial satisfaction** | **Consumer IRFA** |
| Mobile payments |  | 0.08\*\*\* |  |  |  |  |
|  | (0.02) |  |  |  |  |
| Financial education |  |  |  | 0.16\*\*\* |  |  |
|  |  |  | (0.03) |  |  |
| Financial satisfaction |  |  |  |  |  | 0.08\*\*\* |
|  |  |  |  |  | (0.01) |
| Credit availability index | 0.02\*\*\* | 0.12\*\*\* | 0.05\*\*\* | 0.12\*\*\* | 0.06\*\*\* | 0.11\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Objective financial knowledge | -0.07\*\*\* | 0.10\*\*\* | 0.09\*\*\* | 0.09\*\*\* | -0.08\*\*\* | 0.11\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Subjective financial knowledge | 0.12\*\*\* | 0.08\*\*\* | 0.18\*\*\* | 0.08\*\*\* | 0.27\*\*\* | 0.04\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Risk attitude | 0.07\*\*\* | 0.13\*\*\* | 0.02\*\*\* | 0.14\*\*\* | 0.10\*\*\* | 0.12\*\*\* |
| (0.00) | (0.00) | (0.00) | (0.00) | (0.00) | (0.00) |
| Subjective financial capability | -0.05\*\*\* | -0.02\* | 0.00 | -0.02\*\* | 0.05\*\*\* | -0.03\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Credit record rating | -0.05\*\*\* | 0.22\*\*\* | -0.06\*\*\* | 0.22\*\*\* | 0.36\*\*\* | 0.16\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Annual income | 0.06\*\*\* | 0.14\*\*\* | 0.00 | 0.14\*\*\* | 0.11\*\*\* | 0.12\*\*\* |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| Male | 0.11\*\*\* | 0.02 | 0.05\*\* | 0.02 | 0.10\*\*\* | 0.01 |
| (0.02) | (0.02) | (0.02) | (0.02) | (0.02) | (0.02) |
| Age 25 to 34 | -0.06 | -0.08 | -0.37\*\*\* | -0.06 | -0.12\*\*\* | -0.05 |
| (0.04) | (0.05) | (0.05) | (0.05) | (0.03) | (0.05) |
| Age 35 to 44 | -0.28\*\*\* | -0.20\*\*\* | -0.59\*\*\* | -0.19\*\*\* | -0.27\*\*\* | -0.17\*\*\* |
| (0.04) | (0.05) | (0.06) | (0.05) | (0.03) | (0.05) |
| Age 45 to 54 | -0.47\*\*\* | -0.19\*\*\* | -0.64\*\*\* | -0.18\*\*\* | -0.32\*\*\* | -0.16\*\*\* |
| (0.03) | (0.05) | (0.06) | (0.05) | (0.03) | (0.05) |
| Age 55 to 64 | -0.75\*\*\* | 0.03 | -0.79\*\*\* | 0.04 | -0.05 | 0.00 |
| (0.05) | (0.05) | (0.06) | (0.05) | (0.04) | (0.05) |
| Age 65 or older | -0.97\*\*\* | 0.29\*\*\* | -0.87\*\*\* | 0.30\*\*\* | 0.24\*\*\* | 0.22\*\*\* |
| (0.05) | (0.05) | (0.05) | (0.05) | (0.04) | (0.05) |
| Some college to Bachelor’s degree | 0.03 | 0.08\*\*\* | 0.42\*\*\* | 0.07\*\* | -0.15\*\*\* | 0.11\*\*\* |
| (0.03) | (0.03) | (0.03) | (0.03) | (0.02) | (0.03) |
| Postgraduate degree or above | 0.01 | 0.22\*\*\* | 0.45\*\*\* | 0.21\*\*\* | -0.13\*\*\* | 0.25\*\*\* |
| (0.04) | (0.04) | (0.04) | (0.04) | (0.03) | (0.04) |
| Being married | -0.08\*\*\* | -0.07\*\*\* | -0.02 | -0.07\*\*\* | 0.06\*\*\* | -0.09\*\*\* |
| (0.02) | (0.02) | (0.03) | (0.02) | (0.02) | (0.02) |
| White | -0.26\*\*\* | 0.03 | -0.11\*\*\* | 0.02 | -0.06\*\*\* | 0.03 |
| (0.03) | (0.03) | (0.03) | (0.03) | (0.02) | (0.03) |
| Number of financially depended children | 0.08\*\*\* | -0.02 | 0.02\*\* | -0.02 | -0.04\*\*\* | -0.01 |
| (0.01) | (0.01) | (0.01) | (0.01) | (0.01) | (0.01) |
| State dummies | Yes | Yes | Yes | Yes | Yes | Yes |
| Constant |  | -3.42\*\*\* | -1.68\*\*\* | -3.31\*\*\* |  | -3.18\*\*\* |
|  | (0.11) | (0.10) | (0.10) |  | (0.10) |
| Observations | 20,559 | 20,559 | 20,559 | 20,559 | 20,559 | 20,559 |
| Pseudo R2 | 0.11 | 0.23 | 0.08 | 0.23 | 0.13 | 0.24 |

*Notes: Reference categories are a high school or lower, and age 18 to 24. In addition, \*\*\*, \*\*, and \* represent 1%, 5%, and 10% significance levels, respectively, and the data in parentheses is the robust standard error.*

**4.3 Robustness Check**

This study conducts a comprehensive robustness check to verify the estimation results’ robustness further. First, the estimation approach of probit regression is replaced by logit regression, and a re-estimate is performed. Second, to mitigate the estimation bias caused by income outliers, this study drops samples with annual income less than $15,000 or greater than $150,000. Third, this study further examines the robustness by introducing regional heterogeneity, which is positive to produce more accurate results.

Table 5 exhibits the results of the robustness check. In Column (1), the results of the re-estimate performed by logit regression are presented. Column (2) reports the regression results after excluding income outliers. In Columns (3) to (6), the estimation results using samples from the Northeast, Midwest, South, and West of the United States, respectively. Regardless of changing the estimation method or removing income outliers, the results remain unchanged in Columns (1) and (2). Moreover, the coefficients of the consumer credit availability index in Columns (3) to (6) are still statistically positive. Thus, the results of the robustness check are aligned with H1.

**4.4 Further Discussion: The Mediating Effects of Mobile Payments, Financial Education and Financial Satisfaction**

To explore the influence channels of credit availability on consumer IRFA, this study further examines the mediating effects of mobile payments, financial education and financial satisfaction. Following the approach of Baron and Kenny (1986), this study uses the method of causal stepwise regression.

Table 6 shows the results of further investigation of the mediating roles of mobile payments, financial education and financial satisfaction. Since the variable of mobile payments is ordered and non-continuous, the ordered probit regression is performed in Column (1). In Columns (2) to (6), all dependent variables are binary, so the approach of the probit regression is utilized. First, according to Column (1), the results indicate that consumer credit availability positively associates with the usage of mobile payments, implying that consumers with higher credit availability tend to use mobile payments. Column (2) shows that mobile payments and credit availability positively enhance consumer IRFA. Accordingly, the coefficients are 0.08 and 0.12 at a 1% significance level. Thus, H2 is corroborated by showing that mobile payments have played a vital mediating role in the associations between credit availability and consumer IRFA. Second, Columns (3) and (4) report the results of the mediator of financial education. The results reveal that consumers are more likely to have received financial education if they have higher credit availability, indicating that the coefficient is 0.05 at a significance of 1%. Besides, financial education, as a mediator, is statistically positive, and the coefficient is 0.16 at the significant level of 1%. Thus, financial education mediates the relationships between credit availability and consumer IRFA, hypothesized as H3. Third, Columns (5) and (6) present the mediating effects of financial satisfaction. The results suggest that financial satisfaction serves as a positive mediator specific to the nexus between credit availability and consumer IRFA. More specially, the coefficient of the credit availability index on financial satisfaction is 0.06 at a significance of 1% in Column (5). In Column (6), the variables of credit availability index and financial satisfaction are statistically positive with a significant level of 1%. Thus, financial satisfaction also mediates the associations between credit availability and consumer IRFA, which is consistent with H4.

5. Conclusions and implications

Using the data from different regions in the United States, this study investigates the impacts of credit availability on consumer IRFA and further explores the mediating effects of mobile payments, financial education and financial satisfaction. This study divides credit availability into objective and subjective credit availability. The results show that credit availability significantly promotes consumers to invest in risky financial assets. Besides, the mediating effects of mobile payments, financial education and financial satisfaction are carefully verified in this study. Therefore, through a comprehensive measurement of credit availability and the introduction of new mediating variables, this study further enriches the literature in the related fields specific to consumer IRFA.

However, this study also has some limitations. First, the data used in this study contains relatively few years and a relatively narrow period, which is difficult to reflect the dynamic changing effects of credit availability on consumer IRFA. Second, when relevant panel data sets are available, further study can employ more advanced methods to produce more exquisite results. Third, this study only uses the data from the United States without considering whether it applies to developing or developed countries. Therefore, in future studies, cross countries data are encouraged to be utilized to produce more general results.

The findings of this study have informative implications. This study explores more factors and mediating effects that affect consumer IRFA, which is conducive to providing more information for enterprises, financial institutions, and financial regulatory authorities, promoting the benign development of the financial market, and enriching consumers’ asset portfolios. Thus, policymakers are encouraged to formulate measures to improve consumer credit availability, increasing consumer IRFA. Financial institutions are suggested to offer more accessible products and services to enhance consumer credit availability. Additionally, this study is conducive to guiding the benign development of financial markets in various countries to meet the needs of investors and depositors for financial services and products.

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