

# A Comparative Study on the Impact of Financial Literacy and Overconfidence on Risk Attitudes

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Received: March 11, 2022

Accepted: April 8, 2022

Online Published: April 28, 2022

doi:10.20849/abr.v7i3.1122

URL: <https://doi.org/10.20849/abr.v7i3.1122>

**Fund project:** *Jishou University Humanities and Social Sciences Program "Research on the influence of residents' financial literacy on the choice of household risky financial assets" (21SKY09)*

## Abstract

Based on the data of the NFCS in the United States in 2012 and 2015, we measured the level of personal financial literacy and financial literacy overconfidence. By using the Ordered Probit model empirical research, we found that financial literacy and risk appetite were significantly positively correlated, but the positive correlation between financial literacy overconfidence and risk appetite were even tighter. The results of the study showed that people with higher financial literacy levels had greater willingness to take risks, but if there were overconfidence in financial literacy, their risk appetite will be greater.

**Keywords:** financial literacy, overconfidence, risk attitude

## 1. Introduction

With the improvement of the economic level and the improvement of the financial market, risky financial assets, as an important supplement to people's income, have been paid more and more attention by people. In April 2020, the People's Bank of China released a survey report showing that the average household assets of urban residents in China are 3.179 million yuan, the average net assets of each household are 2.89 million yuan, and housing assets account for as high as 59.1%, but financial assets account for only 20.4%. , 22.1 percentage points lower than the United States, and the distribution of financial assets is more uneven, residents tend to invest prudently, households have a high rate of risk-free assets, and high-asset and highly educated households have a higher financial market participation rate. The special knowledge barriers in the financial market make people afraid to participate in it, and the lack of financial literacy leads to poor investment results, which reduces their willingness to bear risks. The study found that financial products are becoming more complex, but residents' financial literacy is relatively low. Research by a large number of domestic scholars has found that the improvement of financial literacy will increase the probability of participation in the stock market (Hu Zhen et al., 2016), increase the participation of residents in commercial insurance (Yang Liu et al., 2019), and improve the diversification of household investment portfolios (Lu Xiaomeng et al., 2019), increase household consumption expenditure (Meng Hongwei et al., 2020). Therefore, from the perspective of residents' financial literacy, especially the comparative study of the impact of subjective financial literacy and objective financial literacy on risk attitudes, the understanding of residents' willingness to take risks, and the provision of targeted risk products and services are of great significance.

## 2. Data Sources and Variable Descriptions

The data for this study are mainly from the Resident Financial Capability Survey (NFCS) conducted by the Financial Supervisory Authority (FINRA) Investor Education Foundation. Based on the comprehensiveness, validity and availability of the data, this paper intends to use the data in 2012 and 2015 for empirical analysis. The valid data obtained in this paper are 21,655 (2012) and 23,509 (2015) respectively.

The explanatory variable of this paper is financial literacy. Residents answer five questions in the financial field. The above five questions are summarized to obtain residents' financial literacy. Financial literacy overconfidence is the result of comparing residents' subjective financial literacy with objective financial literacy. Risk attitudes are summarized by residents' responses to questions related to risk tolerance.

### 3. Empirical Analysis

#### 3.1 Model Design

This article examines the relationship between financial literacy and financial literacy overconfidence and risk attitudes. Among them, financial literacy is obtained by respondents answering 5 questions about economy and finance, and the score is divided into six grades from 0 to 5; financial literacy overconfidence is a dummy variable, according to the objective situation of respondents answering questions Combined with the subjective analysis of self-assessment of financial literacy, those who answered questions objectively below average and subjectively rated above average were defined as overconfident in financial literacy. The risk attitude of the explained variable in this study is ordered data, and OLS estimation is not applicable at this time. Therefore, this paper refers to the empirical method of Lian Yujun (2015) and uses the ordered Probit (ordered Probit) model for estimation. This model is an extension of the Probit model and specifically handles the case where the explanatory variable is ordinal data. At the same time, this paper controls the personal characteristic X in the model. Based on the research purpose, this topic constructs the following empirical analysis model:

$$\text{Risk} = \alpha_0 + \alpha_1 FL + \alpha_2 X_i + \varepsilon \quad (1)$$

$$\text{Risk} = \beta_0 + \beta_1 FLO + \beta_2 X_i + \varepsilon \quad (2)$$

In the above model, Risk represents risk-taking preference, FL represents the financial literacy level of the respondent, FLO represents whether the respondent has overconfidence in financial literacy, and X represents the control variable. This paper refers to the research results of previous scholars and selects the personal characteristic variable as the Control variables, including gender, age, education level, race, marital status, number of children, work status, housing status, and financial education.  $\alpha_1$  measures the effect of financial literacy on residents' risk attitudes, and  $\beta_1$  measures the effect of financial literacy overconfidence on residents.

$\alpha_0$  and  $\beta_0$  are the constant terms,  $\alpha_2$ ,  $\beta_2$  are the effect of the control variables, and  $\varepsilon$  is the residual term.

#### 3.2 Regression Analysis

According to the influence models (1) and (2) of financial literacy and financial literacy overconfidence on risk appetite, the regression results of financial literacy and financial literacy overconfidence on risk appetite are shown in Table 1. The results show that both financial literacy and financial literacy overconfidence are positively correlated with risk appetite, indicating that the higher the level of financial literacy, or the higher the level of financial literacy overconfidence, the stronger people's risk appetite. From the regression coefficient, the regression coefficients of financial literacy and risk attitude are 20.7% and 7.4% respectively, while the regression coefficients of financial literacy overconfidence and risk attitude are 84.6% and 80.6% respectively. stronger influence.

Table 1. The regression analysis results of financial literacy and financial literacy overconfidence on risk appetite

variable	risk	
FL	0.207*** (0.009)	0.074*** (0.009)
FLO		0.846*** (0.034)
		0.806*** (0.031)
gender		0.902*** (0.024)
		0.956*** (0.023)
age		-0.329*** (0.009)
		-0.305*** (0.008)
education level		0.140*** (0.012)
		0.180*** (0.012)

race	-0.400*** (0.027)	-0.333*** (0.027)
marital status	-0.197*** (0.027)	-0.197*** (0.027)
number of children	0.078*** (0.012)	0.065*** (0.011)
income	0.260*** (0.007)	0.276*** (0.007)
work status	0.440*** (0.025)	0.429*** (0.025)
housing status	0.338*** (0.028)	0.312*** (0.028)
financial education	-0.256 (0.017)	-0.230*** (0.017)

Note: Standard errors are indicated in parentheses. \*, \*\* and \*\*\* indicate significance at the 10%, 5% and 1% levels, respectively.

#### 4. Results

Based on the data of NFCS in the United States in 2012 and 2015, this paper measures the level of personal financial literacy and financial literacy overconfidence, and then uses the empirical analysis of the Ordered Probit model to find that there is a significant positive correlation between financial literacy and risk taking. The positive correlation between financial literacy overconfidence and risk taking is even stronger. The findings show that individuals with higher levels of financial literacy will take greater risks, but if there is financial literacy overconfidence, their risk appetite will be greater. Therefore, financial services institutions should infer customers' risk tolerance levels through financial literacy and their overconfidence, and provide them with corresponding financial products.

#### References

- Hu, Z., Zang, R.-H. (2016). Does overconfidence in financial literacy affect stock market participation? ---Based on Micro Data of Chinese Urban Households. *Journal of Beijing Technology and Business University (Social Science Edition)*, 31(6), 101-111.
- Lian, Y.-J., Li, W.-S., & Huang, B.-H. (2015). Research on the impact of children's migrant work on parents' health and life satisfaction. *Economics (Quarterly)*, 14(1), 185-202.
- Lu, X.-M., Zhao, S., & Luo, R.-H. (2019). Will regional financial development promote rational household investment? ---Based on the perspective of household asset portfolio diversification. *Economics and Management Research*, 40(10), 60-87.
- Meng, H.-W., & Yan, X.-H. (2020). The Impact of Financial Literacy on Urban Household Consumption: An Empirical Study Based on Chinese Household Finance Survey Data. *Research World*, (3), 16-21.
- Yang, L., & Liu, Z.-X. (2019). The impact of financial literacy on household commercial insurance consumption decision-analysis based on the China Household Financial Survey (CHFS). *Consumer Economy*, 35(5), 53-63.

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