The Relationship between Risk Attitude and Financial Fraud: Evidence from China

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Abstract

This study investigates the relationship between risk attitude and financial fraud by using the data from China Family Finance Survey (CHFS) in 2015. According to our study, risk attitude and fraud experienced, the number of frauds experienced and the amount of money lost due to fraud have significant positive effects, that is, people with risk preferences are more likely to experience fraud, the number of experienced frauds is also greater and the amount of money lost due to fraud bigger. Therefore, holding a rational risk attitude is the most effective way to resist financial fraud.

Keywords

Risk attitude; Financial fraud; Empirical analysis.

1. Introduction

With the deepening of reform and opening up and the gradual establishment of the socialist market economic system, illegal activities in the financial field have also increased dramatically among which financial fraud has become one of the most harmful economic criminal activities. Financial fraud refers to the act of using fictitious facts or concealing the truth for the purpose of illegal possession to defraud public and private property or credit of financial institutions and disrupt the order of financial management. It severely disrupted the country's financial and taxation order and social order, and directly endangered the healthy development of economic construction.

The relevant literature on risk attitudes and financial fraud is summarized as follows. The accumulation of wealth makes rich people prefer risk to poor people (Bardhan et al.,2000). Moreover, the more residents prefer risk, the stronger their motivation to make speculative investments, and enough wealth makes them more involved in high-risk investments(Post et al,2005). Investment risk appetite can significantly increase the income level of residents, obtain high returns by investing in high-risk projects, and achieve the purpose of leveraged income (Deng C Y,2019).

The characteristics of financial fraud in the new situation include realistic means, high-end, "legal", large-scale and intelligent (Liu,2018). (Wang et al, 2018) analyzed the amount of financial losses suffered by individuals who suffered financial fraud and the methods of fraud encountered, to study people's understanding of financial fraud related information and the reasons for the current occurrence of financial fraud in China. In 49 journal articles on financial fraud published between 1997 and 2008 (Ngai et al., 2011), it was divided into four categories of financial fraud including bank fraud, insurance fraud, securities and commodity fraud and other related Financial fraud. Factors such as the legal system, regulatory system, Internet environment, financial knowledge literacy, risk attitude, risk awareness, and economic status quo all have a certain impact on financial fraud.

In theory, when analyzing economic problems with uncertainty, the risk attitude held by residents is one of the most important influencing factors for their results. However, unfortunately, there is little literature examining the impact of risk attitudes on financial fraud

from the perspective of behavioral economics. For example, what factors influence financial fraud? What is the relationship between risk appetite and financial fraud? How much do risk attitudes affect financial fraud? The research on these issues not only helps to enrich the literature on financial fraud related research, but also helps to enhance people's awareness of risk awareness education and at the same time plays a role in promoting the stable development of the financial industry.

This paper uses data from CHFS (2015) to investigate the relationship between risk attitude and financial fraud by using logit model analysis and ordinary least squares (OLS) in China.

2. Data, Specification and Variables

2.1. Data

This paper uses the data of 2015 China Household Finance Survey (CHFS) collected by the Survey and Research Center for China Household Finance from 29 provinces in China with nearly 40,000 household samples. The dataset includes rich and detailed information including demographic characteristics, assets and debts, insurance and security, expenditures and incomes. The demographic characteristics include the unique subjective risk attitudes of the interviewees, and the questionnaires carefully asked whether individuals experienced fraud, the detailed types of fraud experienced, and the amount of money lost due to fraud, which provided strong support for the research in this article. We filter the raw data according to research needs of this paper, after eliminating missing values and fuzzy values of key variables, we obtain a sample with 32847 households which accounts for 11.91% of the raw data. The definition of all variables is summarized in Table 1.

Table 1: Variable definitions

Variables	Variable description
Risk attitude	Unwilling to take any risk = 1; slightly lower risk, slightly lower return = 2 projects; average risk, average return = 3; slightly higher risk and slightly higher return projects = 4; High risk and high return projects = 5.
experience fraud	1 for household have experienced fraud; 0 otherwise.
Types of fraud experienced	Telephone fraud; SMS fraud; online fraud such as QQ, WeChat and fetion; phishing website fraud; acquaintance / face-to-face fraud (MLM, unfair merchandise transactions) and others, sum the above six types.
Lost by fraud	The logarithm of loss due to fraud
Gender	Male = 1; female = 0.
Age	The age of householder
Education	Never attended school = 1; primary school education = 2; junior high school education = 3; high school education = 4; technical secondary school / vocational education = 5; junior college / vocational education = 6; bachelor's degree = 7; master's degree = 8; doctoral degree = 9.
Hukou	Urban registered residence = 0; Rural registered residence = 1.
Household assets	The logarithm of total household assets.
Region	Eastern Region = 1, Middle region =2; Western Region =3

2.2.   Specification and Variables

In order to study the impact of risk attitude on financial fraud, this article selects from the questionnaire "when people have a certain amount of money for investment, the choice of risk and return combination includes high risk and high return, slightly higher risk and slightly higher return, average risk average return, slightly lower risk and slightly lower return, unwillingness Take any risk "to answer the question to measure people's risk attitude.

Regarding the dependent variables, this article adopts three variables including experience fraud, types of fraud experienced and lost by fraud to measure financial fraud, in which experience fraud is a dummy variable, if it is assigned a value of 1, otherwise it is 0. One of the other two explained variables is the number of frauds experienced by adding up to six fraud methods and the other is the amount of loss due to fraud, and the total amount of loss is analyzed by logarithm.

We establish the following empirical specification to exam the nexus between risk attitude and financial fraud. we use Logit model to get the estimated result of experiencing fraud. The robust standard errors are used for statistical inference in all regressions.

$$fraud = 1(\alpha1 Core\_X + \alpha2 X + \mu)$$

Where, the fraud is one of the dependent variables in this article and is a dummy variable. Since the other two dependent variables are continuous variables, the OLS model is used to analyze the impact of risk attitude on financial fraud. Core_X represents the risk attitude of the core independent variable concerned in the empirical process. X represents the control variables consisting of age, gender, education, household assets, the type of Hukou and region.

3.   Empirical Results

3.1.   The Impact of Risk Attitude on Experience Fraud

Table 2 shows the estimation results using experience fraud (Dummy variable) as dependent variables. As demonstrated in this table, there are three different models and the difference is the addition of different control variables in addition to the core explanatory variables. Moreover, columns (2), (4) and (6) report the estimated marginal effects. In the three models, the estimated coefficients of risk attitudes are positive and significant at 1% levels respectively. This means that individuals who tend to be at higher risk are more likely to experience fraud.

According to the estimation results of columns 2, without introducing any control variables, when an individual's risk attitude increases by one unit, it increases his/her likelihood of suffer fraud by4.9%. Which reflects that risk appetite is an important factor to increase the rate of financial fraud.

Table 2: Results of risk attitude on experience fraud

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	experience fraud		experience fraud		experience fraud	
Risk attitude	0.209***	0.049***	0.0982***	0.021***	0.0732***	0.0157***
	(0.0101)	(0.0023)	(0.0112)	(0.0024)	(0.0113)	(0.0024)
Hukou			-0.775***	-0.169***	-0.652***	-0.1401***
			(0.0273)	(0.0056)	(0.0282)	(0.0058)
Age			0.00176*	0.0004**	0.00134	0.0003
			(0.000917)	(0.0002)	(0.000926)	(0.000199)
Education			0.229***	0.0499***	0.184***	0.0395***
			(0.00872)	(0.0018)	(0.00906)	(0.0019)
Gender			-0.00583	-0.0013	-0.0161	-0.00346
			(0.0243)	(0.0053)	(0.0245)	(0.00527)
Household assets					0.170***	0.0364***
					(0.00834)	(0.00175)
Middle region					-0.107***	-0.0233***
					(0.0290)	(0.00632)
Western Region					0.0941***	0.0201***
					(0.0305)	(0.0.00647)
Constant	0.0233	0.0233	-0.401***	-0.401***	-2.350***	-2.350***
	(0.0219)	(0.0219)	(0.0738)	(0.0738)	(0.124)	(0.124)
Observations	32,847		32,847		32,834	

Note: Standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

3.2. The Impact of Risk Attitude on Types of Fraud Experienced

Table 3 presents the estimation results of the impact of risk attitude on Types of fraud experienced. This table shows that model 1 gives the results of the OLS regression estimation of people's risk attitude, adding different control variables to columns 2 and 3 to obtain corresponding estimation results, respectively. From model 1,the coefficient of risk attitude is 0.168, which is positively related to the number of types of frauds at 1% significance level. Indicating that there are more risk enthusiasts than risk-neutral and risk-averse individuals who experience fraud types.

3.3. The Impact of Risk Attitude on Lost by Fraud

In the research process, we found that there are many zero values in the database due to fraud losses. It may be that people recovered the losses in a timely and effective manner after experiencing fraud and there may be no reason for money losses during the fraud process. Table 4 presents the estimation results of the impact of risk attitude on lost by fraud. Specifically, one unit increase of risk attitude will lead to an increase of the amount of fraud losses by 2.15%, respectively. It indicates that people with risk appetite are more inclined to high-risk investments, and their ambitions prompt them to invest more money in the hope of gaining multiples. Therefore, the amount of money lost when they are scammed is also greater.

Table 3: Results of risk attitude on types of fraud experienced

Variables	(1) Types of fraud experienced	(2) Types of fraud experienced	(3) Types of fraud experienced
Risk attitude	0.168***	0.0762***	0.0542***
	(0.00542)	(0.00563)	(0.00564)
Gender		0.0747***	0.0414***
		(0.0124)	(0.0123)
Age		-0.00827***	-0.00453***
		(0.000444)	(0.000462)
Hukou		-0.474***	-0.360***
		(0.0143)	(0.0148)
Household assets		0.120***	0.0907***
		(0.00402)	(0.00421)
Education			0.113***
			(0.00432)
Middle region			-0.0420***
			(0.0148)
Western Region			0.0649***
			(0.0153)
Constant	0.868***	0.0654	-0.138**
	(0.0122)	(0.0603)	(0.0622)
Observations	32,847	32,834	32,834
R-squared	0.028	0.121	0.140

Note: Standard errors in parentheses,*** p<0.01, ** p<0.05, * p<0.1

Concerning the control variables, we find that risk attitude, age and household assets all have significant positive effect on the amount of fraud losses in model 3. In the study of risk attitudes and residents' wealth, changes in wealth have changed investors' risk levels. People with high wealth have a lower degree of risk aversion and a higher degree of participation in high-risk investments (Wu and Zhang, 2016). Then it is not difficult to understand why individuals who prefer high-risk individuals are more likely to experience fraud and the amount of money lost due to fraud is also greater.

Table 4: Results of risk attitude on lost by fraud

Variables	(1)	(2)	(3)
	Lost by fraud	Lost by fraud	Lost by fraud
Risk attitude	0.0215***	0.0262***	0.0232***
	(0.00649)	(0.00712)	(0.00716)
Gender		-0.0180	-0.0186
		(0.0156)	(0.0156)
Age		0.00228***	0.00226***
		(0.000586)	(0.000587)
Hukou		-0.0496***	-0.0421**
		(0.0183)	(0.0189)
Education		0.00902*	0.00443
		(0.00527)	(0.00549)
Household assets			0.0212***
			(0.00535)
Middle region			0.0492***
			(0.0189)
Western Region			0.0549***
			(0.0195)
Constant	0.210***	0.0680	-0.206***
	(0.0146)	(0.0471)	(0.0791)
Observations	32,847	32,847	32,834
R-squared	0.000	0.001	0.002

Note: Standard errors in parentheses, *** $p<0.01$, ** $p<0.05$, * $p<0.1$

4. Conclusion

The purpose of this study is to examine the impact of risk attitude on financial fraud. We achieve this goal by running logit and OLS regressions in the benchmark analysis using the data of China Household Finance Survey (CHFS) in 2015. The empirical results can be summarized as follows. First of all, there is a significant positive correlation between risk attitudes and financial fraud. In other words, people with risk preferences are more likely to experience fraud, the number of experienced frauds is greater and the amount of money lost due to fraud is greater. Moreover, assume that the higher the education level, the greater the possibility of experiencing fraud and the more types of frauds suffered. With the improvement of education level, there is a deviation in self-positioning and it is easy to fall into the trap of financial fraud. Next, as the control variable, household assets have a significant positive correlation with the three explained variables. Finally, the regression results of the type of hukou are all negative at the 1% significance level. Compared with those with rural hukou, it indicates that people with urban hukou have a higher probability of experiencing fraud, the more types of frauds are suffered and the greater the amount of money lost due to fraud. Therefore, investors are reminded to remain rational and invest prudently in the face of interest temptations and once they find themselves likely to be involved in financial fraud should protect their legal rights and interests according to law.

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