

# Intra-Household Risk Attitude Difference and Stock Market Participation

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## Abstract

Using a novel dataset consisting of thousands of Chinese urban residents, this paper examines whether intra-household risk attitude difference affects household stock market participation. Our finding shows that households are more likely to participate in stock market if their members have different risk attitudes. In addition we further consider the intra-household decision-making structure, and find that the effect is even more pronounced if the financial decision is made by both spouses within the household. Our findings shed light on determinants of stock market participation from the perspective of intra-household difference and decision-making, which can be helpful for both households and policy makers.

JEL Classification: G11; D14; D12

*Keywords:*

Household finance, Risk attitude, Intra-household, Stock market participation

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## 1. Introduction

How does risk attitude affect household stock market participation? Financial theory implies that all households, no matter how risk averse, should hold some equities as long as the equity premium is positive (Campbell, 2006, p.1568). In contrast, many theoretical and empirical studies show that risk attitude can affect stock market participation (for example, Carroll, 2000). A popular explanation is offered by Campbell (2006). He argues that if nonparticipants are relatively risk averse, small fixed costs suffice to deter them from participation. This paper, however, examines this issue from a different angle, that is, from the view of intra-household risk attitude difference.

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Many studies suggest that one cannot treat households with multiple members as a single decision maker (see Browning et al., 1994; Doss, 2001; Lundberg and Pollak, 2007, etc). If this is the case, factors such as the relative risk attitude of the household members may affect the final asset allocation decisions made by the household. Specifically, we argue that households whose members share the same risk attitude are more likely to reach an agreement on asset allocation decision. The decision includes whether or not to participate in the stock market (for example, the household can invest all their capital in real estate instead of stocks). However, households whose members have different risk attitudes are less likely to reach an agreement in their asset allocation decisions. The stock market that provides stocks with differential risk characteristics can match with different risk demands of household members. Thus, households with different intra-household risk attitudes may be more likely to participate in stock market than other markets.

## 2. Data and analysis

To shed light on this issue, we use a survey question in the 2011 Survey of Chinese Urban Household Consumer Finance conducted by The Center for China Financial Research. All households in the sample were asked the following question:

*“You and your spouse should both answer the question: When making investment decisions, what is your risk attitude? ”*

<i>You</i>	<i>Your spouse</i>	
(i)	(i)	<i>Unwilling to bear any investment risk</i>
(ii)	(ii)	<i>Can take a low risk for a low return</i>
(iii)	(iii)	<i>Can take a medium risk for a medium return</i>
(iv)	(iv)	<i>Can take a high risk for a high return</i>
(v)	(v)	<i>Can take the highest risk for the highest return</i>

Of the 2933 non-single households, 1190 (40.6%) reported that they had different intra-household risk attitudes, which indicates that it is a common phenomenon that respondents and their spouses have somewhat different risk attitude. Detailed summary statistics are shown in Table 1.

[Table 1 about here.]

In Table 1, we refer  $RAD = 1$  to the subsample with different intra-household risk attitudes, and  $RAD = 0$  otherwise. The result in column 1 shows that the stock market participation of Chinese urban household is 24%, which is much less than that of US in 2001, that is, 50% (Yao and Zhang, 2005). In column 4, we compute the difference between the two subsamples. An interesting result is that if risk attitudes are different in a household, the chance is 7% higher (p-value < 1%) for the household to participate in the stock market than the chance of the household in which risk attitudes are same. Table 1 also illustrates that members in the households with different intra-household risk attitudes are younger, poorer, with more children, and more likely to have college diploma.

Table 2 presents the estimates from a Logit model in which the independent variable is a dummy variable indicating whether the household would ‘participate in stock market’. We are most interested in the independent variable “Risk attitude difference”, defined as a dummy variable equal to 1 if there is spouses have different risk attitude and 0 otherwise. In column 1, we only include ‘Risk attitude difference’ and the spouses’ risk attitude. The result shows that if there is a spouses risk attitude difference, the household is more likely to participate in stock market. The coefficient is significant at 1% level, which is consistent with the result in Table 1.

In column 2, we add additional control variables following Campbell (2006). The result shows that the model’s Pseudo  $R^2$  is greatly improved and the risk attitude coefficient is still significant at 5% level. The probability change caused by a unit change in this variable is 3.2%, a little less than that in Table 1. Nonetheless, it still has a considerable impact.

[Table 2 about here.]

We are particularly interested in a special group in which financial decisions are made by both spouses. To pick up this group, we quote the following question in the Survey:

“*Who make the financial decision in your family? You would answer (i) ‘By me’; (ii) ‘By my spouse’; (iii) ‘Jointly made by me and my spouse’*”

Of 2933 households, 1514 (51.62%) reported that their financial decisions were jointly made by both spouses, which suggests that the decision-making in a household is different from the decision-making of individuals. Column 3 in Table 2 reports the results that are similar to column 1 but based on the sample of the group in which financial decisions are made by both spouses. The coefficient is 0.35 and significant at 1% level. This result shows that risk attitude difference plays

an even more important role in this subsample. The probability change caused by this variable is 6.1%. In other words, when financial decisions are made by both spouses, the household with different risk attitudes between spouses is 6.1% more likely to participate in the stock market.

In column 4, we again include the same control variables as in column 2. The model's Pseudo  $R^2$  is 17.35%, which is greater than in column 2. The coefficient on risk attitude difference is 0.36 and significant at 5% level. The change in probability caused by a unit change in this variable is 5.4%, a little less than that in column 3, but greater than that in column 2. These results again demonstrate that risk attitude difference plays an important role in the household stock market participation decision.

### **3. Conclusion**

This paper examines whether intra-household risk attitude difference affects household stock market participation. Our findings show that households are more likely to participate in stock market if their members have different risk attitudes. Furthermore, the effect is even strong if the financial decision is made by both spouses.

Our results raise up an interesting question: why does intra-household risk attitude difference affect household stock market participation? In this paper, we provide a potential explanation, that is, for households that with different risk attitudes among members, they are less likely to reach an agreement on asset allocation decision. In this case, stock market provides stocks with different risk characteristics which can match with demands of household members with different risk attitudes. Accordingly, the stock market accommodates differential risk attitudes among household members.

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Table 1: Summary statistics

	(1) Full sample	(2) RAD=0	(3) RAD=1	(4) t-value for(2)-(3)
N	2933	1743	1190	
Stock market participation	0.24 (0.47)	0.21 (0.45)	0.28 (0.48)	-4.68***
Respondent's Age	39.36 (10.67)	40.53 (11.37)	37.65 (9.28)	7.25***
High school diploma	0.35 (0.48)	0.36 (0.48)	0.34 (0.47)	1.38
College diploma	0.45 (0.50)	0.42 (0.49)	0.50 (0.50)	-4.51***
Graduate school	0.03 (0.17)	0.03 (0.17)	0.03 (0.17)	0.02
Number of children	0.59 (0.63)	0.57 (0.63)	0.63 (0.63)	-2.59***
Ln(income)	11.27 (0.91)	11.21 (0.94)	11.37 (0.85)	-4.72***
Ln(wealth)	13.24 (1.24)	13.18 (1.29)	13.34 (1.16)	-3.37***
health	3.96 (0.82)	3.97 (0.84)	3.95 (0.79)	0.70

We refer  $RAD = 1$  to the sub-sample with different intra-household risk attitude, and  $RAD = 0$  otherwise. Standard errors are reported in parentheses.

\*\*\* Denotes statistical significance at 1% level.

Table 2: Logit analysis.

	(1)	(2)	(3)	(4)
Constant	-2.35*** (0.15)	5.59 (5.06)	-2.64*** (0.23)	6.62 (6.45)
<b>The respondent's risk attitude</b>				
Can take the highest risk	1.37*** (0.23)	0.97*** (0.25)	1.50*** (0.34)	1.03*** (0.37)
Can take a high risk	1.08*** (0.21)	0.78*** (0.23)	1.23*** (0.31)	0.88*** (0.34)
Can take a medium risk	0.94*** (0.20)	0.53** (0.21)	1.23*** (0.29)	0.79** (0.32)
Can take a low risk	0.64*** (0.21)	0.43** (0.23)	0.97*** (0.31)	0.78*** (0.33)
<b>His/Her spouse's risk attitude</b>				
Can take the highest risk	0.23 (0.24)	0.30 (0.26)	0.19 (0.34)	0.29 (0.38)
Can take a high risk	0.42** (0.20)	0.48** (0.21)	0.46 (0.28)	0.52* (0.31)
Can take a medium risk	0.31* (0.18)	0.40** (0.20)	0.27 (0.26)	0.42 (0.28)
Can take a low risk	0.22 (0.19)	0.26 (0.21)	0.31 (0.27)	0.39 (0.30)
Risk attitude difference?	0.33*** (0.08)	0.21** (0.10)	0.35*** (0.13)	0.36** (0.14)
Respondent's Age		0.05 (0.04)		0.03 (0.05)
Respondent's Age squared		-4.31E-04 (4.16E-04)		-2.4E-04 (6.0E-04)
High school diploma		0.54*** (0.20)		0.61** (0.28)
College diploma		1.15*** (0.20)		1.09*** (0.29)
Graduate school		1.47*** (0.30)		1.21*** (0.41)
Number of children		-0.11 (0.09)		-0.14 (0.12)
Ln(income)		-0.71 (0.60)		-0.45 (0.89)
Ln(income) squared		0.03 (0.03)		0.02 (0.04)
Ln(wealth)		-1.55** (0.69)		-2.01** (0.79)
Ln(wealth) squared		0.09*** (0.03)		0.10*** (0.03)
Health		-0.06 (0.06)		-0.02 (0.09)
Pseudo $R^2$	3.90%	15.61%	4.76%	17.35%
Sample size	2,933	2,933	1,514	1,514

Independent variable is the household stock market participation takes value 1 if the household participate in stock market and 0 otherwise. "Risk attitude difference?" takes value 1 if there is risk attitude difference between spouses and 0 otherwise. Column (1)and(2) are full sample results, and results in column (3)and(4) are the results based on the sample of the group in which financial decisions are made by both spouses..

Standard errors are reported in parentheses.

\*\*\* Denotes statistical significance at 1% level.

\*\* Denotes statistical significance at 5% level.

\* Denotes statistical significance at 10% level.