Financial Literacy and Interest Bias among Chinese College Students

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Introduction

- Financial literacy is one of the key factors affecting the financial well-being, and it is important to popularize relevant financial knowledge to the public through financial education.
  - OECD published a report (2005) and a handbook (2015) to highlight the lack of financial literacy across countries.
  - Lusardi and Mitchell (2014) showed that many people are financially illiterate around the world.

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Introduction

- Some researchers have examined the relationships between financial literacy and economic behaviors.
  - Stango and Zinman (2009) concluded that those unable to correctly calculate interest rates would borrow more and save less.
  - Cambell (2006) found that illiterate people are less likely to refinance their mortgages when interest rates are falling.
  - Lusardi and Mitchell (2006) found that the less financially literate of a person, less likely he will plan for retirement.

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Research Purpose

- There has been a trend that people have to shoulder greater personal financial responsibilities than ever before in saving and investment.
- The rapid growth of Internet Finance exacerbates the problem in China.
  - People are often attracted to fraudulent and high-risk offers.
  - Young college students are one of the groups being targeted.
- This paper aims to show the need to provide financial education to college students in China.

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Methodology and Survey Design

- In 2014, we partnered with Citigroup and China Foundation for Poverty Alleviation, to initiate and administer the Financial Education and Assessment Program.
- We developed and administered a survey to solicit college students' information on
  - Financial attitude
  - Financial skills
  - Financial Behavior
  - Financial knowledge

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Methodology and Survey Design

- Financial literacy is measured by evaluating the level of financial knowledge, that is, how many questions the respondents can answer correctly out of 19 questions in the survey.
- Interest bias is defined as a tendency to infer a lower APR when attempting to calculate it based on other loan terms.

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Methodology and Survey Design

- Interest bias comes from one hypothetical question that appears in the survey:
  - *"Suppose you were using an installment plan by borrowing $10,000 and you were to repay $1,250 per month to the lender in 10 monthly installments. In the basic repayment mode of the equality corpus and interest, what percent rate of interest do those payments imply?"*
- The level difference between the perceived and actual APRs is calculated, with negative values indicating greater bias.

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Data

- Our data are from the 2016 Survey of the Financial Education and Assessment Program which includes 2050 college students.
- Some sample requirements are applied:
  - Age between 16 and 27
  - The perceived APRs between 5% and 200%
  - The time span of filling questionnaires reported between 5 minutes and 90 minutes

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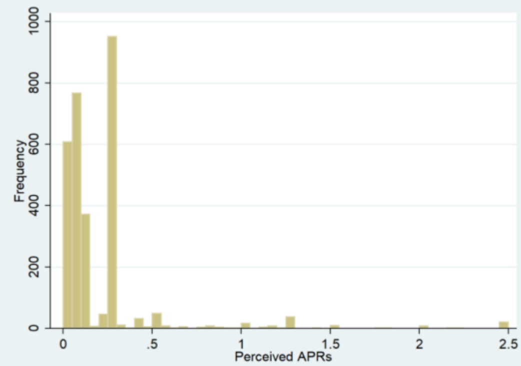
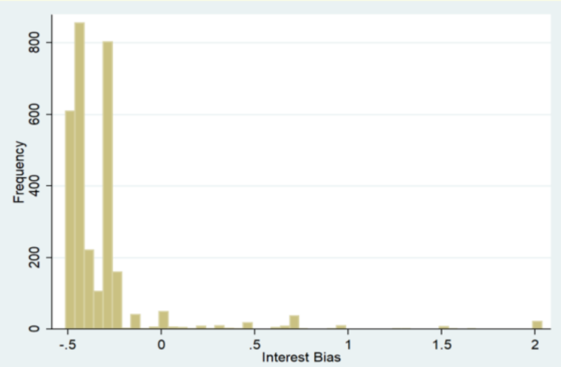
Data

- The share of respondents underestimating the actual APR is 95%.
- The median bias is -39 percentage points, and the mean bias is -31percentage points.





Data

Basic Information						
Variable	Explanation	Obs	Mean	Std. Dev.	Min	Max
Bias	actual APR - perceived APR	2,250	-0.287	0.259	-0.463	1.487
Males		828	-0.269	0.261	-0.463	1.487
Females		1422	-0.297	0.257	-0.463	1.487
Sex	female=0, otherwise=1	2,250	0.368	0.482	0	1
Age		2,250	18.894	1.201	16	27
GPA	above average or don't know=0, otherwise=1	2,250	0.420	0.493	0	1
Edu	freshman=0, otherwise=1	2,250	0.382	0.486	0	1
Q	accuracy=number of correct answers/19	2,250	0.945	0.041	0.842	1
Males		828	0.946	0.041	0.842	1
Females		1422	0.944	0.041	0.842	1
Schcredit	never applying for student loan=0, otherwise=1	2,250	0.329	0.470	0	1
Financial Attitude						
Variable	Explanation (lowest=1, highest=10)	Obs	Mean	Std. Dev.	Min	Max
Fin	self-assessment of financial situation	2,250	0.486	0.500	0	1
Risk	self-assessment of risk tolerance	2,250	0.104	0.305	0	1
Cal	self-assessment of calculative ability	2,250	0.452	0.498	0	1
Use_Cal	self-assessment of ability to use financial calculations	2,250	0.472	0.499	0	1
Financial Behavior						
Variable	Explanation	Obs	Mean	Std. Dev.	Min	Max
Cus	without bookkeeping=0, otherwise=1	2,250	0.620	0.485	0	1
Term	compare financial terms=1, otherwise=0	2,250	0.925	0.263	0	1

Results

- We rank individuals as more or less biased to test the relationship between financial literacy and interest bias.
- Observations with positive interest bias are eliminated in the subsample.
- The college students are divided into 5 groups by quantiles:
  - "more biased" is defined in different quintiles, that is, students from the highest quintile of interest bias to the lowest quintile of interest bias are regarded more biased successively.

Results

- The students with lower scores in financial knowledge evaluation are more likely to infer a low interest on loans.
- The impact of financial literacy on interest bias is significantly larger in all four groups in the subsample.
- The females are more likely to underestimate interest rates.
- When controlling a set of variables on financial attitude, we reach similar conclusions.

Results

VARIABLES	Group1				Group2			
	Full Sample		Subsample		Full Sample		Subsample	
	a	b	a	b	a	b	a	b
Sex	-0.325***	-0.313***	-0.485***	-0.447***	-0.477***	-0.451***	-0.495***	-0.459***
	(0.108)	(0.110)	(0.111)	(0.112)	(0.0895)	(0.0911)	(0.0923)	(0.0940)
Age	-0.0258	-0.0195	-0.0338	-0.0357	-0.00951	-0.0183	-0.00832	-0.0209
	(0.0436)	(0.0440)	(0.0449)	(0.0452)	(0.0362)	(0.0366)	(0.0375)	(0.0380)
GPA	0.332***	0.330***	0.311***	0.270**	0.193**	0.159*	0.180**	0.128
	(0.110)	(0.112)	(0.113)	(0.115)	(0.0885)	(0.0901)	(0.0913)	(0.0932)
Q	-0.0632	-0.193	-3.917***	-3.809***	-2.847***	-2.652**	-5.095***	-4.873***
	(1.291)	(1.297)	(1.363)	(1.368)	(1.066)	(1.072)	(1.114)	(1.121)
Fin		0.112		-0.0207		-0.0619		-0.116
		(0.108)		(0.112)		(0.0888)		(0.0919)
Risk		-0.280*		0.0408		0.141		0.284*
		(0.165)		(0.187)		(0.146)		(0.156)
Cal		-0.116		-0.229**		-0.217**		-0.288***
		(0.110)		(0.113)		(0.0901)		(0.0930)
Use_cal		0.00692		-0.00853		0.118		0.124
		(0.108)		(0.111)		(0.0886)		(0.0917)
Constant	1.929	1.957	5.803***	5.859***	3.376***	3.423***	5.492***	5.633***
	(1.512)	(1.519)	(1.582)	(1.587)	(1.252)	(1.260)	(1.299)	(1.312)
Observations	2,250	2,250	2,126	2,126	2,250	2,250	2,126	2,126

Results

VARIABLES	Group3				Group4			
	Full Sample		Subsample		Full Sample		Subsample	
	a	b	a	b	a	b	a	b
Sex	-0.578***	-0.546***	-0.622***	-0.589***	-0.327***	-0.273**	-0.305***	-0.256**
	(0.0927)	(0.0947)	(0.0959)	(0.0982)	(0.114)	(0.116)	(0.117)	(0.119)
Age	0.0276	0.00834	0.0413	0.0198	0.0188	-0.00270	0.0198	0.000592
	(0.0366)	(0.0373)	(0.0379)	(0.0388)	(0.0442)	(0.0453)	(0.0458)	(0.0469)
GPA	0.143	0.0884	0.163*	0.0980	0.0991	0.0250	0.0375	-0.0313
	(0.0885)	(0.0905)	(0.0914)	(0.0939)	(0.107)	(0.109)	(0.111)	(0.113)
Q	-4.922***	-4.506***	-5.950***	-5.563***	-3.851***	-3.363***	-4.206***	-3.741***
	(1.068)	(1.078)	(1.109)	(1.123)	(1.280)	(1.289)	(1.323)	(1.332)
Fin		-0.136		-0.155*		-0.204*		-0.149
		(0.0897)		(0.0931)		(0.109)		(0.113)
Risk		0.477***		0.638***		0.462***		0.585***
		(0.143)		(0.151)		(0.160)		(0.164)
Cal		-0.333***		-0.417***		-0.402***		-0.415***
		(0.0915)		(0.0947)		(0.113)		(0.116)
Use_cal		0.224**		0.253***		0.167		0.174
		(0.0896)		(0.0931)		(0.108)		(0.112)
Constant	3.862***	3.900***	4.577***	4.706***	1.959	2.047	2.286	2.317
	(1.253)	(1.271)	(1.293)	(1.319)	(1.506)	(1.528)	(1.550)	(1.574)
Observations	2,250	2,250	2,126	2,126	2,250	2,250	2,126	2,126

Results

- We also use ordered logistic model to capture the behavioral features shown by biased students.
- The students with larger interest bias are more likely not to have conservative financial behaviors, such as
  - A lower ratio of savings to incomes
  - A larger sum of outstanding balance of credit cards
  - A high frequency in financing expenditures by installment credits

Results

Variables	Saving/Income	Outstanding Balance of Credit Card	Installment Payment
Bias	0.314**	-0.347**	-0.266*
	(0.152)	(0.163)	(0.159)
Sex	0.111	-0.212**	-0.599***
	(0.0840)	(0.0882)	(0.0872)
Age	-0.0574	0.00233	-0.0518
	(0.0431)	(0.0448)	(0.0446)
Edu	0.465***	-0.318***	-0.790***
	(0.104)	(0.111)	(0.110)
Q	-0.167*	0.178**	0.274***
	(0.0872)	(0.0890)	(0.0912)
Schcredit	0.307***	-0.0779	-0.178**
	(0.0820)	(0.0854)	(0.0849)
Fin	-0.124	0.0207	0.669***
	(0.137)	(0.136)	(0.147)
Risk	0.315***	0.195**	-0.394***
	(0.0822)	(0.0856)	(0.0853)
Use_cal	0.274***	0.0305	-0.300***
	(0.0868)	(0.0901)	(0.0906)
Cus	0.712***	0.111	-0.345**
	(0.167)	(0.167)	(0.171)
Term	0.409***	0.0936	-0.349***
	(0.0854)	(0.0888)	(0.0885)
Budget	0.314**	-0.347**	-0.266*
	(0.152)	(0.163)	(0.159)

Conclusions

- This paper explores the relationship between financial literacy and interest bias and discusses financial behaviors of biased people.
  - The more biased the students are, the less conservative their financial behaviors are.
  - The biased people are apt to save less and consume more by using credit cards or paying in installments.
- To make a better financial decision in saving, consumption and investment, financial literacy needs to be improved so that students can be debiased.

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Internet Financial Products, Financial Investment and Financial Literacy

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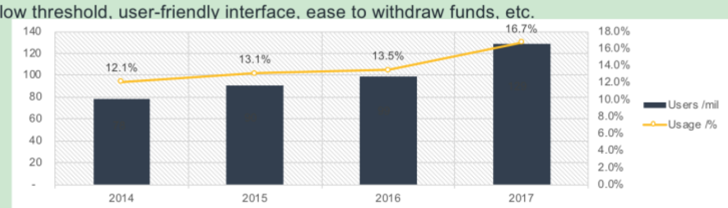
Introduction

Our question:

What factors may affect college students' internet investment decisions?

- **Why "internet investment" :**
  - With the rapid development of the internet, various types of **internet financial products** have emerged. The demand for personal financial services has become increasingly large as people's wealth has increased.
  - Internet financial products: low threshold, user-friendly interface, ease to withdraw funds, etc.



- **Why "college students" :**
  - They are more adaptive to emerging financial management methods and internet-based technologies.
  - But are exposed to investment frauds and risks because of their lack of relevant knowledge and experiences.

Introduction

Important areas:

- **Internet financial products :**
  - Definition - financial services based on the Internet and related technologies, such as third-party payment, online lending, direct sales of funds, crowdfunding, online insurance, and banking.
    Ping Xie and Chuanwei Zou(2012), Yan Shen and Yiping Huang(2016), etc.
- **Financial Literacy :**
  - Definition - Romer(1986), Noctor, Stoney and Strading(1992), Hung and Yoong(2009), etc.
  - Measurement - Questionnaire. Agnew and Szykman(2005), Rooij, Lusardi and Alessie(2011), CHFS, etc.
  - Current development - Plays an increasingly important role in finance industry and personal financial management, but it is also very common across both rich and poor countries that most people lack enough financial knowledge.
- **Overconfident :**
  - Definition – People subjectively believes that they have mastered a higher level of skill and therefore may overestimate the return of the decision, or think that they can effectively avoid the loss.
    Bazerman and Max(1998), Richard, Lüders and Luo(2005), etc.

Research Questions -- Literature

- **What factors may affect people's investment behavior in internet financial products?**
  - Demographics, costumer-related factors(attitude about risk, behavioral experience, etc.), product-related factors(complexity, perceived risk, and relative advantage) and technology related factors.
    Polatoglu and Ekin(2009), Shu-Fong et al(2007), Ramayah et al(2009), Allameh, Jafari and Esfahani(2010), etc.
- **What's the relationship between financial knowledge and financial investment behavior?**
  - Financial knowledge will affect the optimality of their financial decisions. Individuals with higher level of financial awareness are more likely to make better financial decisions or bear lower costs.
  - A satisfactory level of financial knowledge makes people more likely to accept good financial management behaviors or to accept complex financial management behaviors. People with higher levels of financial knowledge are more likely to participate.
    Voipe and Chen(1996), Graham, Harvey and Huang(2009), Choi, Madrian and Laibson(2011), Moore and Danna(2003), Campbell(2006), Lusardi and Mitchell(2007), Bernheim et al(2003), Rooij, Lusardi and Alessie(2011), Stango and Zinman(2009), etc.
- **How does overconfidence affect people's investment decision?**
  - Overconfident investors tend to overestimate the return or underestimate risks and consequently they may have excessive trading, are more likely to invest in individual stocks.
    (Barber and Odean(2001), Grinblatt and Keloharju(2009), Xia, Wang and Li (2014), Bailey et al(2006), Zhong Chu et al(2016), etc.

Research Questions -- Our study

- **What factors may affect college students' internet investment decisions?**
  - Objective financial literacy
  - Subjective financial literacy
  - Overconfidence
  - Other factors(peer effect, calculation and grades, risk aversion)
  - Demographics
- **Purposes of this paper**
  - Learn about college students' level of financial literacy and their investment behaviors.
  - By launching financial education program, help college student to cultivate rational financial behavior and be less likely to be allured into frauds or high-risk investment.
  - Improve and perfect the education and assessment program.

Empirical Study -- Introduction

- **Source of data:**
  - **Financial Education and Assessment Program (3rd)**

    10 cities, **20** universities,

    A questionnaire of **90** questions

    including questions from 5 aspects: demographics, financial attitude, financial skills, financial knowledge and financial behavior.

    3982 observations

    most students are freshman and sophomore,

    most students are non-economics or non-finance majored.
- **Empirical model**
  - Probit model and IV-probit model.

Empirical Study -- Descriptive data

- **Dependent variable**

Y : Have invested in the internet financial products

Have you ever invested in the following internet financial products?

34.9% a. Financial products integrating functions of third-party payment, earning profit and financing (e.g. Yuebao of Alipay)
9.4% b. Financial products run by well-known Internet companies (e.g. Tenpay of WeChat)
4.6% c. Financial products run by P2P platforms (e.g. Renren loan, Lufax)
5.3% d. Financial products on sales platform run by fund companies (e.g. Xianjinbao of China Universal Asset Management Co)
7.6% e. Mobile and online wealth managing products run by banks (e.g. Pinganying of Pingan Bank)
6.0% f. Others.
55.1% g. Have never invested.

- **Main independent variable**

FL : Objective level of financial literacy

We designed 19 questions, concerning knowledge of finance and accounting basics, comparison of investment risks and returns, interest rate calculations, installment loans, banking and savings, credit cards and other aspects of finance and wealth management.

FL_sub : subjective level of financial literacy

W asked in the questionnaire "I think I have enough knowledge about personal financial management" and students were required to answer it with a continuous number within the interval 0-10.

Variable	Name	Obs	Mean	Std. E	Min	Max
Internet finance investment	IF	3,982	0.45	0.50	0	1
Objective level of financial literacy	FL	3,982	0.55	0.15	0	0.95
Subjective level of financial literacy	FL_sub	3,982	4.03	2.44	0	10

Empirical Study -- Descriptive data

- **Other influential factor:**

The most important reason that you haven't invested in internet financial products?

57.61% a. Take education as a priority and pay little attention to it.
17.73% b. I don't have enough funds to invest.
2.60% c. Those financial products are too complicated to understand.
11.62% d. I don't know how to select the ones that suit me.
4.06% e. Afraid of high risks and loosing the principal.
4.42% f. Have no confidence of earning return.
1.96% g. Others.

- **Peer effect**
  Group by school, grade, and place of origin, and calculate the proportion of investing in Internet wealth management products among other students in the same group.
- **School performance**
  "I think my digital computing power is good", answered with continuous numbers 0-10.
  "In my class, my grades are very good" answered with continuous numbers 1-6.
- **Risk attitude**
  "When you consider saving or investing, which of the following statements is more close to your willingness of taking risks", answered with continuous numbers 1-4

Variable	Obs	Mean	Std. E	Min	Max
Peer Effect	3,563	0.44	0.25	0	1
Numeracy	3,982	5.93	2.54	0	10
Grades	3,982	3.87	1.38	1	6
Risk	3,982	2.76	0.74	1	4

Empirical Study -- Descriptive data

■ Control variables:

Variable	Name	Definition	Obs	Mean	Std. E	Min	Max
Gender	male	male=1 , others=0	3,982	0.64	0.48	0	1
Grade	freshman	freshman=1, others=0	3,982	0.63	0.48	0	1
	sophomore	sophomore=1, others=0	3,982	0.28	0.47	0	1
	junior	junior=1, others=0	3,982	0.10	0.30	0	1
Financial Asset	asset1	[0,999]yuan	3,982	0.34	0.47	0	1
	asset2	[1000,4999]yuan	3,982	0.35	0.48	0	1
	asset3	[5000,∞)yuan	3,982	0.15	0.35	0	1
	asset0	reject	3,982	0.17	0.38	0	1
Only Child	onlychild	onlychild=1, others=0	3,982	0.47	0.50	0	1
Family Education	fm_sch	high school and above=1	3,982	0.54	0.50	0	1
Family Income	inc1	[0,4999]yuan	3,982	0.43	0.49	0	1
	inc2	[5000,9999]yuan	3,982	0.29	0.45	0	1
	inc3	[10000,14999]yuan	3,982	0.09	0.29	0	1
	inc4	[15000,19999]yuan	3,982	0.02	0.15	0	1
	inc5	[20000,∞)yuan	3,982	0.02	0.13	0	1
	inc0	don't know	3,982	0.15	0.36	0	1
Information source	info_in	internet=1	3,982	0.38	0.49	0	1
Cities	city1~35	-	3,982	-	-	-	-

Empirical Results

	Variables	IF	IF	IF	IF	IF
Objective level Stepwise regression	FL	0.0686	-0.0176	-0.0838	-0.111*	-0.134**
		(0.0537)	(0.0580)	(0.0591)	(0.0598)	(0.0612)
Subjective level Stepwise regression	FL_sub	0.0250***	0.0266***	0.0272***	0.0279***	0.0280***
		(0.00326)	(0.00377)	(0.00381)	(0.00383)	(0.00388)
		(1)	(2)	(3)	(4)	(5)
Objective level + Subjective level Stepwise regression	FL	0.0646	-0.00359	-0.0956	-0.124**	-0.123**
		(0.0539)	(0.0582)	(0.0601)	(0.0605)	(0.0615)
	FL_sub	0.0249***	0.0266***	0.0271***	0.0277***	0.0278***
		(0.00326)	(0.00377)	(0.00382)	(0.00384)	(0.00388)
	Other factors		YES	YES	YES	YES
	Personal characteristics			YES	YES	YES
	Family characteristics				YES	YES
	Cities					YES

Empirical Results

Obs= 3,563 **Pseudo R2 =** 0.0606

VARIABLES	(5) IF	VARIABLES	(5) IF	VARIABLES	(5) IF
FL	**-0.123****	Sophomore	0.133***	Inc2	0.0534**
	(0.0615)		(0.0208)	*[5000,9999]yuan*	(0.0220)
FL_sub	**0.0278*****	Junior	0.241***	Inc3	0.110***
	(0.00388)		(0.0354)	*[10000,14999]yuan*	(0.0331)
Numeracy	-0.0112***	Only child	0.0471**	Inc4	0.188***
	(0.00382)		(0.0199)	*[15000,19999]yuan*	(0.0604)
Grades	-0.0133**	Asset2	-0.00156	Inc5	0.140**
	(0.00659)	*[1000,4999]yuan*	(0.0211)	*[20000,∞)yuan*	(0.0706)
Risk	-0.0464***	Asset3	0.0874***	Inc0	0.0838***
	(0.0118)	*[5000,∞)yuan*	(0.0290)	*don't know*	(0.0271)
Peer Effect	0.00343	Asset0	-0.0647**	Information	0.0683***
	(0.0365)	*reject*	(0.0255)		(0.0179)
Male	-0.0782***	Family Sch	-0.00161	City Controls	YES
	(0.0187)	*high school and above=1*	(0.0197)		

Extensive study

- **Study of overconfidence ---- constructing dummies**
  - Divide the sample into 4 groups by constructing 2 dummy variables, D1 and D2.

$$D1=\begin{cases}1, & if\ FL>FL\_p50\\ 0, & if\ FL\le FL\_p50\end{cases}\qquad D2=\begin{cases}1, & if\ FL\_sub>FL\_sub\_p50\\ 0, & if\ FL\_sub\le FL\_sub\_p50\end{cases}$$

  - Model:

$$P(IF_i|\boldsymbol{X})=\beta_0+\gamma_1 D1_i+\gamma_2 D2_i+\gamma_3 D1_i*D2_i+\beta_3 control_i+\beta_4 others_i+\epsilon_i$$

D1 \ D2	1	0
1	high_obj , high_sub / 685	high_obj , low_sub / 873
0	**low_obj , high_sub / 1,018**	low_obj , low_sub / 1,496

D1 \ D2	1	0	Dif
1	$\gamma_1+\gamma_2+\gamma_3$	γ_1	$\gamma_2+\gamma_3$
0	γ_2	0	γ_2
Dif	$\gamma_1+\gamma_3$	γ_1	γ_3

VARIABLES	(5) IF	(6) IF
FL	-0.123**	
	(0.0615)	
FL_sub	0.0278***	
	(0.00388)	
D1		-0.0216
Relative high objective level		(0.0237)
D2		0.109***
Relative high subjective level		(0.0229)
D1*D2		0.0396
		(0.0359)

Extensive study

■ **Study of overconfidence ---- construct index**

- Quantify the degree of observation's overconfidence:

$$overcon_i = percentile(FL\_sub_i) - percentile(FL_i) = pFL\_sub_i - pFL_i$$

Variables	Name	Obs	Mean	Std. E	Min	Max
Quantile of objective level	pFL	3,982	45.40	28.36	1	100
Quantile of subjective level	pFL_sub	3,982	44.49	29.22	1	98
Index of overconfidence	overcon	3,982	-0.009	0.40	-0.99	0.97

VARIABLES	(5) IF	(7) IF Overcon>0	(8) IF Overcon<=0	(9) IF
FL	-0.123**	-0.364***	-0.131	
	(0.0615)	(0.113)	(0.127)	
FL_sub	0.0278***	0.0242***	0.0481***	
	(0.00388)	(0.00684)	(0.00769)	
Overconfidence				0.135***
				(0.0226)
Overcon_sqr				-0.0131
				(0.0434)

Discussion of endogeneity

■ **Financial literacy**

- Endogeneity comes from: a) possible reciprocal causation between investment and relative knowledge
  b) measurement bias
- Normal solution: instrumental variables
  We've run tests on possible instrumental variables like parents' years of schooling, parents' financial training on their children, group average literacy level and parents' college degree.

■ **Overconfidence**

- Investors are overconfident. Then, according to their psychological status, investors make their decisions. And, according to their decisions, they take action on whether or not investing on the internet financial products.
- Therefore, those actions are sequential in time. And there should be no reverse causality between investment and overconfidence. Therefore, we do not consider the possibility of endogeneity of overconfidence.

Conclusions

- **There is a significant negative correlation between objective financial knowledge level and dependent variable.**
  - Students with low level of objective financial knowledge are less likely to accurately understand the financial products , identify and mitigate risks. So, they have lower time and effort cost to make investment and It is easier and quicker for them to make simple decisions of just investing.
  - We would like to find ways not only to enrich students' knowledge, but also improve their optimality of financial decisions.
- **The level of subjective financial knowledge has a significant positive effect on college students' choice of investing in internet financial products.**
  - College students tend to make investing decisions based on subjective feelings. The higher the level of subjective knowledge, the higher the probability of investing in internet financial products.
  - Possible reasons: limited access to formal financial education, lack of investment related experiences, overconfidence.

Conclusions

- **Overconfidence affects college students' decision of investing and there is a linear significant positive relationship between overconfidence and the dependent variable.**
  - As college students usually have little investing experiences and insufficient knowledge, they are probably overconfident when deciding to invest and the level of overconfidence increases their participation rate significantly.
  - When launching financial education and assessment program, we should do a better job on: assessing literacy level, improving their knowledge, improving their optimality of decisions, emphasizing rationality, cultivating good investing habits…..
- **Other conclusions:**
  - The better self-evaluated learning performance and computing ability, the less likely to invest.
  - The higher the degree of risk aversion, the lower the participation rate.
  - The possibility of women investing in Internet financial products is higher than that of men.
  - Investment odds also increase significantly with the increase of grades.
  - Family education background has no significant impact on the investment motivation of college students.
  - Household income and personal financial assets scale have a significant role in promoting investment participation.
  - College students' Internet financial management behavior has not shown peer effect.

Quantile Regression Analysis of the Impacts of Financial Literacy and Digital Finance Across the Wealth Distribution in China

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Abstract

Financial literacy and digital finance have become important tools for accelerating financial inclusion and helping households to achieve long-run financial security. While several studies have linked financial literacy to household wealth accumulation, most have paid little attention to the impacts of financial literacy across the wealth distribution. Fewer, yet, have taken into consideration the additional role that digital finance may be playing. We used data from the *2015 China Household Finance Survey* to construct both a general financial literacy index and a digital finance index. We then used these indices to estimate a series of OLS and quantile regressions to investigate the impacts of both financial literacy and digital finance on household wealth accumulation across the wealth distribution in China. OLS estimates showed that while financial literacy and digital financial both had a positive effect on average wealth accumulation, the impacts for digital finance were larger. Quantile estimates further showed that financial literacy and digital finance led to significant increases in wealth across all the quintiles. However, the effects did vary across the distribution. Financial literacy tended to result in larger increases in wealth for those in the lower and highest tails of the distribution, while digital finance resulted in larger increases in the wealth accumulation of poorer households. Even so, across the distribution, the effects for digital finance remained consistently larger than those for financial literacy. Urban-rural differences were also found. Specifically, the impacts of digital finance on wealth accumulation were considerably larger than the impacts of financial literacy for rural households than urban households, especially the poorest rural families. These findings have important implications for policy makers and international organizations in China, as well as other developing countries. China has been an emerging leader in the developing world in terms of its efforts to rapidly improve financial inclusion with both financial literacy and digital finance. There is much that can be learned from its early efforts to improve financial inclusion and reduce poverty through capacity building via financial literacy and digital finance.

JEL Classification: D14, G23, G41, J24

Keywords: financial literacy, digital finance, wealth, quantile regressions, China

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