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Analyzing Chinese Online P2P Financial Product Purchase Decisions Utilizing the Framing Effect

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Abstract

Purpose – This study examines Chinese P2P investment decision processes from a behavioral economics approach.

Research design, data, and methodology – We analyze the online P2P investment product purchase decisions of 241 respondents in China, March 2015 to May 2015.

T-tests were conducted to determine whether the framing effect influenced investor investment preferences. The Association Rule was used to identify the framing effect of respondent demographic characteristics on joint decisions regarding stable or risky investment products.

Results – There are significant differences between the two groups (positive framing and negative framing) and their product-choosing behavior. In the positive framing group, female investors, young investors, investors with non-financial occupations and with limited or no experience, preferred stable P2P investment products. In contrast, in the negative framing group, investors with extensive investment experience preferred risky investment products.

Conclusions – The framing effect influences investor choices in online P2P investment products. It is necessary to implement comprehensive supervision and full information disclosure regarding P2P investment products. P2P investment websites can also adopt different marketing strategies according to investor gender and age.

Keywords: Online P2P Investment, Framing Effect, Investment Preference, Market Segmentation.

JEL Classifications: D03, D14, L80, L81, M31.

1. Research Background and Purpose

With the rapid growth of On-line P2P loan financing products in China, that the whole scale of P2P loan had already reached 6 billion yuan (1 trillion 80 billion) in 2012 and the latest data shows that by the end of 2014, the total scale has reached 83 billion yuan (14 trillion 940 billion). Meanwhile we could see thousands of on-line P2P companies had sprung up rapidly. Online P2P lending, just as its name implies, through the network platform, borrowers and lenders can complete their trades online. All process, including authorization, accounting, clearing, delivery, etc., can be completed through networking, which could largely meets people's requirements for the convenience in getting capital gain and required cash(Wu & Cao, 2013). Online P2P lending is a new financial service model based on network. It bears the features of small private lending, and at the same time bears the flexibility and simplicity when transactions implemented. It provides a new financing channel for individuals and is a useful complement to the existing banking system (Qian & Yang, 2012). Lending club, listed market capitalization about 9 trillion in the New York Stock Exchange at the end of last year, is the representative example, which is a field of Fin Tech business is gradually getting the limelight the world.

P2P loan product investment interest rate is quite higher than bank deposit rate. However, most of the investment products have higher risk. Since 2011, with the crisis of private lending in Wenzhou, Zhejiang Province, the potential risk of the person to person (P2P) online lending platform has inevitably aroused deep worries in China (Zhang & Hu, 2013). However, there is no sufficient research on this fields about new financing exchange. Particularly, there's little research on P2P investment intention and the decision making process with behavioral economics approach. Therefore, this research was intended to investigate investors' investment tastes under framing effect among investors' behavioral economics characteristics. Kahneman and Tversky(1984) said that "framing effect means the phenomenon that consumers' decision making occurs differently along with the frame that suggests information. Prospect theory becomes the theoretical basis of framing effect".

There are various advanced researches that intend to verify the message framing effect through experiments. Most of those

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experiments were designed to measure framing effect after showing them advertising to experiment objects. It was determined that positive or negative framing of the message influence determination on product or decision making, the research result of the framing effect appeared to be more effective in positive framing(Kim,2012).However there's another research result that negative framing is more effective (Meyerowitz, 1987).

2. Advanced Study Research

Tversky and Kahneman (1981) reported that there is the choice between two decision alternatives of equal expected value, one in the degree of risk, was significantly influenced by the "framing"of the alternative decision outcome. When alternative outcomes were phrased "positively" in terms of lives saved, subjects preferred the risk-averse alternative. When outcomes were phrased "negatively" in terms of lives lost, the risk-seeking option was preferred. Prospect theory becomes the theoretical basis of framing effect.

What former studies have in common is that they analyze the message framing effect of negative or positive framing. According to Levin and Gaeth(1998), framing has three types which are different from each other, they are risk choice framing, attribute framing, and goal aim framing. Attribute framing is a framing method that expresses the attributes of the goal object both positively or negatively. Attribute framing influences the evaluation of the goal object, instead of influencing choice decision. In this study, we conduct research on attributes framing.

Beside laboratory studies regarding effects of framings on behavior in laboratory setting, framing effect also studied in many other area such as financial decision making.

Seo et al. (2010)examined the role of affect (pleasant or unpleasant feelings) and decision frames (gains or losses) in risk taking in a 20-day stock investment simulation in which 101 participants rated their current feelings while making investment decisions."As predicted, affect attenuated the relationships between decision frames and risk taking behavior. After experiencing loss, individuals made more risky choices, in keeping with the framing effect".

JungandJu(2013) to compare and measure the positive effects of the diverse types of advertisement messaging framing, college students' willingness to purchase equity funds and savings products was compared. In order to proceed with the research, a random sampling of 296 female college students were selected as the main subjects. The results were that subject respondents who were exposed to profitability framing showed more positive results intention than those exposed to stability framing.

Putri and Arofah (2013)showed some difference when risk information is presented in a tabular format compared to risk information presented in a sensitivity analysis or a value at risk format. Most participants chose the tabular format because it is considered more informative and thought to improve the reason-

ing of the investment analysis.

Furthermore, Ganzach and Karsahi(1995) examined the impact of message framing on real life buying behavior. Results indicated that the impact of the gain-framed message was much stronger than the impact of the loss-framed message.

The purpose of current work is to analyze the online P2P investment products purchase decisions in framing effect approach. Additionally, based on the demographic features of population of investors, we analyze the relationship between framing effect and their gender, age, educational background, and investment intent.

3. Research Subject and Research Design

3.1. Research Subject

1. Does attribute framing influence investors' investment preference?
(Whether of stable P2P / risky P2P product?)
2. Is the effect of attribute framing on the joint intention of stable or risky investment product moderated by respondents' demographic characteristic and investment intent, etc.?

3.2. Research Design

- Framing inducement (positive, negative): manufactured two kinds of explanation
- Printed materials and distributed them along with questionnaire.
- Induced respondents to respond to the questionnaires as follows after well understanding explanatory printed materials.
- One group of people chose from two investment products (Product A: stable investment product; Product B: risky investment products) The other group of people made a choice from two investment products after reading the quality instruction of negative framing.

3.3. Questionnaire content:

- P2P product deal related information:
- 2 questionnaires on preference to relatively stable investment product and high risk product
- Investors' demographic and related information: gender, age, academic ability, investment experience, investment involvement, and family income

4. Result and Analysis of Research

4.1. Features of Research Object(s)

A total of 250 people took part in the experiment. An exclusion of 9 inauthentic questionnaires, we make analysis through 241 effective questionnaires. <Table 1>adds up the ba-

sic situation of returned questionnaire samples. Among those participants, there were 129 men (53.5%) and 112 women (46.5%). The male-female ratio is roughly equal in samples. Based on the age distribution point total number of young people was 188(78%), which accounts for a larger proportion. Viewed from level of educational background, total number of people with high degree (above university educational background) was 219 (90.9%), which accounts for the vast majority of the group.

The fewer people now work in finance, the number of them is 25.7%; the rest is work in other industries. The family monthly income in 2014 was the number of low-income (less than 5000 RMB Yuan)families is 34 (14.1%), the number of low-middle-income families (5000-10000 RMB Yuan) is 101(41.9%), the number of high-medium-income (10000-50000 RMB Yuan) families is73 (30.3%), the number of high-income families (more than 50000 RMB Yuan) is 33 (13.7%).The investment experience of participants, the

number of inexperienced people (investment experience within half a year)is 79 (32.8%), the number of people with general experience (investment experience within half a year to 2 years) was72 (29.9%), the number of people with rich experience (investment experience above two years) is 90(37.3%).

<Table 1> Basic situation of returned questionnaire samples

	Classification	N	%
Sex	Men	129	53.5
	Women	112	46.5
Age	Young age	188	78
	Middle -aged	49	20.3
	Old age	4	1.7
Education	High degree *	219	90.9
	Low degree	22	9.1
Employment status	Employed	193	80.1
	Retire	13	5.4
	In School	35	14.5
Occupation	Finance	62	25.7
	Not Finance	179	74.3
Family monthly income	Low	34	14.1
	Medium	101	41.9
	High	73	30.3
	More High	33	13.7
Total		241	100.0

* High degree: above university educational background

The number of people who impose themselves as lack of investment knowledge is 52 (21.6%), the number of people who impose themselves knowing general investment knowledge is 115 people (47.7%), the number of people who impose themselves as a knowledgeable persons is74 (30.7%).

4.2. Framing and Investment Orientation of P2P Products (Stable investment Product / Highly Risky Avoidance)

In order to analyze the impact of framing effect on the selection of P2P investment products (Risk-preference products and risk-avoidance products), we have made T-test on samples, results are shown as <Table 2>.

<Table 2> T test for Framing type and Product

Group Statistics								
Framing		N	M	SD	Df.			
Product	Stable	129	1.27	.446	.039			
	Risky	112	1.54	.500	.047			
Independent Samples Test								
		Levene's Test		T-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Product	Equal variances assumed	26.10	.000	-4.482	239	.000	-.273	.061
	Equal variances not assumed			-4.446	224.48	.000	-.273	.061

As the result of<Table2>,the first shows a summary of the variables, along with some descriptive statistics. Here we notice that the mean of framing A was 1.27 (sd = .446) and for framing B it was 1.54 (sd= .500).The significance for Levene's test is smaller than 0.05,then the variance of the groups is not equal, so we need to use results showed on the second row. The t-test results are shown under the "t-test for equality of means" part of the table. The t-test value is -4.446 and the significance is .000, which indicating that there are statistically significant difference between our two groups when choosing a product.

4.3. Analysis on participants' characteristics combined with association rules analysis on investment products when using framing effect and socio-demographic characteristics

Association rule is a popular and well researched method for discovering interesting relations between variables in large databases. It has intended to identify strong rules discovered in databases using different measures of interestingness. Based on the concept of strong rules, Rakesh Agrawal et al(1993)introduced association rules for discovering regularities between products in large-scale transaction data recorded by point-of-sale(POS) systems in supermarkets. For example, the rule{onions, potatoes} = {burger} indicate that if a customer buys onions and potatoes together, they are likely to buy hamburger

meat also. Such information can be used as the basis for the decisions about marketing activities, such as, promotional pricing or product placement, etc. In addition to the above examples, market basket analysis shows that association rules are employed today in many application areas, including Web usage mining, intrusion detection, Continuous production, and bio informatics. In contrast with sequence mining, association rule learning typically does not consider the order of items within a transaction or across transactions. To summarize the technique of association rules produces a set of rules describing underlying purchase patterns in the data, like for instance bread ⇒ cheese [support = 20%; confidence = 75%]. The higher the recorded support of the rule, the more prevalent the rule is. Confidence is a measure of the reliability of an association rule (Brijs, et al. 1999).

To analyze on participants' characteristics and association rules analysis on products combined with framing effect and socio-demographic characteristics, we use association rules to find the relationship between them by R system.

<Table 3> Association rules to Product A

	lhs	rhs	support	confidence	lift
1	type=framinga*, gender=women, experience=lack of experience	=>product= Product A**	0.1120332	0.900000	1.495862
2	type=framinga, gender=women, age=young age ,experience=lack of experience	=>product= Product A	0.1078838	0.8965517	1.490131
3	type=framinga, gender=women, career=not finance experience=lack of experience	=>product= Product A	0.1037344	0.8928571	1.483990

* Framinga is the positive framing, experience is investment experience

** Product A is the stable P2P product.

Analyze association rules of risk avoidance investment products Setting Support=0.1, confidence =0.6, we can tell from association rules analysis, under positive framing, female (non-financial occupation, lack of experience, young age) would prefer to choose product A. That is to say, a non-financial female who is lack of investment knowledge would be influenced by positive framing and which choose stable P2P investment products.

<Table 4> Association rules to Product B

	lhs	rhs	support	confidence	lift
1	Type=framingb, experience= rich investment experience	=>product= product B**	0.1327801	0.6530612	1.639456
2	Type=framingb, status=work , experience=rich investment experience	=>product= product B	0.1161826	0.6222222	1.562037
3	Gender=men , age=young age, experience= rich investment experience	=>product= product B	0.1037334	0.6097561	1.53074

* Framinga is the positive framing, experience is investment experience

** Product B is the risky P2P product.

Analyze association rules of risk preference investment products. Setting Support=0.1, confidence =0.6 , we can tell from association rules analysis, under negative framing, people work on the job with rich investment experience prefer to choose product B. That is to say, people work on the job with rich investment experience would be influenced by negative framing and choose risk preference P2P investment products. We also found that young man with rich experience would like to choose risky investment products.

5. Conclusion

This research tests two different groups of people in random case: one group of people chose from two investment products (Product A: risk avoidance product; Product B: risk preference products) after reading quality instruction on positive framing.

The other group of people made choices from two investment products after reading quality instruction of negative framing. In addition, we performed statistical analysis of personal identifications, investment experience and investment knowledge of all participants. And we also created a T-test and utilized association analysis on results, the analysis results are as follows:

Firstly, in order to analyze the impacts of framing effect on

selection of investing on P2P products (risk-preference products and risk-avoidance products), we made a T-test on samples. We can tell from our results that message framing show obvious effectiveness of persuasion to participants. Compared to the positive framing, under the influence of negative framing, participants prefer to choose risk-preference P2P investment products. Compared to the negative framing, under the influence of positive framing, participants would like to choose risk avoidance P2P investment products.

Secondly, we made an analysis on relevant contents with the association rule, in order to know different changes when choosing investment products with different personal characteristics (including investment experience and investment knowledge level) under the influence of framing. Results are shown as 4.3. Non-financial female who was lack of investment knowledge would be influenced by positive framing and choose risk avoidance P2P investment products. People work on the job with rich investment experience would be influenced by negative framing and choose risk preference P2P investment products. We know from those figures above that young men with rich experience would chose risk preference investment products much better.

At last, we can tell from our two results that the framing effect has an influence on choosing P2P investment products by investors. With the rapid development of P2P investment products in China, we face some challenges at the same time, such as shortage disclosure of information about product. In order to induce customer investment, relevant enterprises partially disclose information on purpose. It is necessary to implement comprehensive supervision and clear full disclosure of information for P2P investment products. When analyzing the results with association rule, we could see that men and women show different investment orientations. Therefore, in the marketing level, the P2P investment website can differentiate between the groups and making different marketing strategy according to gender and age of investors. For example, men with rich experience prefer high profit investment targets, it would be a better marketing effect if one rolled out high profit products (corresponding to the necessary risk disclosure).

Additionally, this research limitation is as follows ;

China has a vast territory and large population. And there exists huge differences and unbalanced development in different regions. According to statistics, recent default risk exposure of P2P is mainly in 2~3 tier cities. That's to say, the people in different regions show different investment risk appetite. It is the major limitation of this research that neglect to study the investment preference according to different regions in China. So it will be more meaningful and bear practical significance if add the regions factors in future research.

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