

THE EFFECTS OF PERSONAL TYPES AND DECISION-MAKING MODES ON IRRATIONAL FINANCIAL BEHAVIOR OF CHINESE STUDENTS UNDER THE CLASSIC SCENARIO EXPERIMENT

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Abstract

Based on classic situational experiment developed by Thaler, Kahneman and Tversky, this paper studies the relationship between personality types, decision-making style and irrational financial behaviors. The results show that personality types, and decision-making modes have significant effect on individual irrational financial behaviors. Thus, Individuals of different personality types and decision-making modes show distinct difference in their irrational financial behaviors. Besides, personality types and decision-making modes have different predictive power for various irrational financial behaviors. The finding of the paper fill the gap that most researchers focus on single psychological factor's effect on certain irrational financial behavior, proving that irrational financial behaviors are subject to the intertwined effect of multiple psychological factors.

Keywords: Personality, Irrational financial behaviors, Decision-making style

Introduction

Traditional finance analyzes human financial behaviors with the assumption that humans are rational, and thus it assumes that maximization of utility is the essential character of human behaviors. However, it is noticed by some financial researchers that some individuals show irrational behaviors, namely behavior deviation from maximization of utility. The scholar Shefrin defined behavioral financing as “a fast-developing area concerning psychological factors’ effect on behaviors in financial industry. In this sense, behavioral finance, to some extent, abandon the classic financial assumption that humans are rational and efficient market hypothesis. Kahneman & Tversky (1979), Tversky & Kahneman (1981), Shefrin & Statman (1984), Thaler’s classic studies on these irrational financial behaviors, such as Mental Accounting, Sunk Cost, Regret Averse, Endowment Effect, Framing Bias, have made the beginning of behavioral finance. The scholars started to study the forming of the financial mechanism in which individuals show sunk cost effect in their consumption. One possible explanation is Kahneman’s “prospect theory”: in decision-making, individuals not only consider the amount of wealth but also cognitively edit and evaluate the wealth based on previous experiences. In 1981, Kahneman and his partner Amos Tversky used psychological account to explain “concert experiment” and put forward that psychological account is a process of keeping record of, editing, evaluating, budgeting financial results. Afterward, researchers both at home and abroad have made extensive

exploration into individual psychological factors’ impact on his irrational financial behaviors. Moreover, they paid special attention to personality types, emotion, self-control, attribution type, and decision-making style. Lu (2009), Wang & Zheng (2003), Zhang & Ling (2005), Duxbury, Keasey & Zhang (2005), Filbeck, Hatfield & Horvath (2005), have found individuals are likely to have irrational behaviors when they have either too intensive or too low emotion, decrease or collapse in self-control, overconfidence, external attribution tendency or overreliance on individual experience and emotion in decision-making. Apparently, various individual psychological factors have been studied to explain different irrational financial behaviors. However, it can be observed from the previous studies that some researches are very partial. For example, researchers have mainly focused on the relationship between an individual’s certain single psychological factor and his irrational financial behavior. These studies could be somewhat partial because an individual’s irrational financial behavior might be caused by multiple psychological factors, and moreover, different irrational behaviors might be caused by different factors. In addition, Thaler (1985) didn’t reveal the difference in different individual’s irrational behaviors, thus ignoring the very important variable of an individual in financial behavior study. Considering all above, this paper is going to study the relationship between various psychological factors and irrational financial behaviors. The research of the paper shows that the two variables’ personality types and

decision-making modes, have significant main effect on yet insignificant interaction with individual irrational behaviors, which signifies that the two variables are important psychological factors affecting irrational financial behaviors.

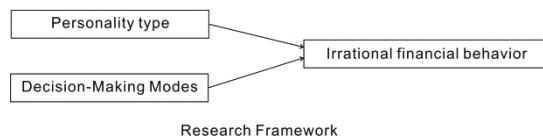
Research purposes

It can be found from the literature review that there are defects in irrational financial behavior researches. For example, it is partial to explain irrational financial behaviors with a single individual psychological factor. Moreover, some scholars failed to reflect on the difference among individuals in terms of irrational financial behaviors. Therefore, this paper is going to study the relationship of different individual psychological factors with irrational financial behaviors. An individual's personality type, and decision-making style are quite stable and have profound impact on his behavior, so individual financial behaviors, in essence, is a financial decision-making process through collecting, processing information. Therefore, personality types, decision-making style also exert profound influence on individual irrational financial behaviors. This paper will study on psychological affecting factors, including personality types, decision-making style, to reveal their relation with irrational financial behaviors so that irrational financial behaviors can be better, comprehensively explored and understood.

Research framework

As indicated in Introduction, this paper is going to study the relationship between irrational

financial behaviors and personality types and decision-making style. Accordingly, the framework is made as follows:



Research methods

1. Survey

There are 160 participants surveyed, randomly picked from 3 colleges of Chengdu, including undergraduates, graduates and college staff from all across the country. These participants, 78 men and 82 women aged 19 to 50, are also from different fields and industries, including art, sport, management, economics, wine brewing, journalism and so on.

2. Research tools

2.1 Personal type

In this paper, we use Chinese version of MBTI-M to test personality types. The MBTI-M contains 93 questions for testing the four functions and 8 dichotomies, namely E-I, S-N, T-F, J-P and the 16 personality types based on the dichotomies (each type is composed of 4 dichotomies, such as ISTJ). E-I is the way one direct and draw his energy, S-N information-gathering and interpretation, T-F decision-making function, and J-P how one judge and perceive the world. MBTI has been used widely in cross-culture context and the validity and efficiency test on different revised versions of MBTI (MBTI-G, MBTI-M) by Miao & Huang (2000), Cai & Zhu (2001) and Yang & Zhao (2004) have

shown that MBTI has excellent reliability and utility.

2.2 General Decision-making style

We introduce the General decision-making modes inventory developed by Scott & Bruce (1995), including 25 questions, to test five decision making styles: DR, DI, DD, DA, and DS. Likert 5 is used to score. Among the decision-making style, DR tend to collect information and make decisions through logic evaluation of options; DI usually focus on salient details and make decisions through hunches or feelings; DD tend to search for other counsel and guidance; DA tend to keep delaying or avoid making decisions; DS tend to make immediate decision as quickly as possible. In this research, the total variance accounted for by the 5 styles from the inventory is up to 50.28% and the internal consistency coefficient is 0.88, which suggests that the General decision-making style inventory is reliable and of high utility in China. In the survey, participant's score on the 5 decision-making style will be converted into standard score, and the style with highest standard score will be used as decision-making style surveyed.

2.3 Scene-questionnaires for irrational financial behaviors

Based on the situational experiment for irrational financial behaviors developed by Thaler (1985), Kahneman & Tversky (1979), Tversky & Kahneman (1981), Shefrin & Statman (1984), we set 18 scene-questionnaires in the survey. First, in order to make the experiment compatible with Chinese context, we made

changes to the experiment without altering its essential elements and characteristics. For instance, Yuan is used instead of Dollar as the monetary unit. Second, in each questionnaire, if participant surveyed choose irrational financial behavior, he would get 1 point; if otherwise, 0 point is given. The irrational behaviors to be tested are sunk cost, risk appetite, house money, framing bias, representativeness bias, disposition effect, endowment effect, WTP-WTA GAP, regret aversion, mental accounting (vacation, entertainment, cash). At last, we work out overall deviation of the irrational financial behaviors. The results show that the total variance accounted for by the 4 factors from 18 questionnaires is 5.88; the correlation between various irrational financial behaviors and their overall deviation is quite significant, ranging from 0.11 to 0.55; the correlations between each irrational behavior is between 0.01 to 0.34.

3. Data processing

By the method of group survey, we provide every participant surveyed with MBTI-M, General decision-making style, and the questionnaire for irrational financial behaviors. The participant surveyed is asked to finish questions independently based on directions and afterwards, 160 pieces of valid questionnaires are collected, with 70 from males and 82 from females. At last, we conduct a statistical analysis on collected data through SPSS 12.0. We choose stepwise regression analysis in this paper because stepwise regression is variable selection method in linear regression model. Its main idea is to introduce variables one by one on the condition that the

sum of squares of partial regression is significant. Meanwhile, once a new variable is introduced, the variables previously introduced is tested and the insignificant variables are deleted to ensure significant ones in independent variables subset.

Results and analysis

1. Irrational financial behavioral Characteristics of different personality types and decision-making types

We first set personality types and decision-making types as independent variables and irrational financial behaviors as dependent variables, then carry out a double factor variance analysis on them and finally have a test for the effect of personality types and decision-making style on irrational behaviors. Through the variance analysis, it can be found that the main effects of personality types and decision-making style on irrational financial behaviors are both significant with $F(15, 275) = 1.75$, $p<0.05$ and $F(4, 275) = 2.93$, $p<0.05$ respectively while their interaction is far less than significant. Therefore, we only need to conduct LSD on the main effects of personality types and decision-making style respectively. Table 1 contains the mean score and standard deviation of irrational financial behaviors of each personality type and decision-making style. According to Table 1, in terms of irrational financial behaviors, ISTJ has highest mean score, followed by ISTP, ENTP, INFP, ESFJ, INTJ, ESTJ; ESTP has lowest mean score, followed by INFJ, INTP, ESFP. Besides, it is also

found through LSD that the mean score of ISTJ, ISTP, ENTP, INFP, ESFJ is significantly higher than that of INFJ, ESTP, ESFP with $p<0.001$, $p<0.01$, $p<0.05$ respectively and that of ISTJ, ISTP, INFP is significantly higher than that of INTP with $p<0.05$. Moreover, the mean score of ISTJ is much higher than that of ENTJ, ISFJ, ENFP with $p<0.05$; the difference in mean score of ISTJ and ESFJ is also significant with $p<0.05$. The mean score of ESTJ is significantly higher than that of EST and INFJ with $p<.005$ while the difference in the mean score of INTJ and other personality types is less than significant. Based on the results, it can be concluded that among the 16 personality types, ISTJ, ISTP, INFP, ENTP, ESFJ, ESTJ are more likely to have irrational financial behaviors while ESTP, INFJ, INTP, ESFP are less likely to do so. Among the different decision-making style, DD (dependent decision-making style) has the highest mean score in terms of irrational financial behaviors, followed by DR (rational decision-making style), while DS (Spontaneous decision-making style) has the lowest score, followed DA (avoidant decision-making style). Through LSD, it can be found that the mean score of DD and DR is significantly higher than that of DA and DS, which suggests that DD and DS are more likely to have irrational financial behaviors; DS and DA are less likely to have irrational financial behaviors. There is no significant difference in the mean score of DI (intuitive decision-making style) and that of other styles.

Table 1 Mean Score and Standard Deviation of Irrational Financial Behaviors of Different Personality Types and decision-making style

Type	M	S.D.	Type	M	S.D.	Type	M	S.D.	Decision Making	M	S.D.
ESTJ	11.0	2.39	INFJ	9.3	2.60	ISFP	1.8	2.28	DR	11.4	2.52
ISTJ	12.3	2.12	ENFJ	1.9	2.51	ESFP	9.9	2.89	DI	1.9	2.56
INTJ	11.1	2.32	ISTP	12.2	2.86	INFP	11.8	2.16	DD	11.8	2.20
ENTJ	1.0	2.62	ESTP	9.1	3.39	ENFP	1.5	3.04	DA	1.6	2.49
ISFJ	1.6	2.53	INTP	9.6	1.41				DS	1.4	2.85
ESFG	11.1	2.55	ENTP	12.0	2.07						

M (Mean Score), S.D. (Standard Deviation)

2. Analysis on relationship between personality types, decision-making styles and irrational financial behaviors

In order to further understand the relationship between personality types, decision making styles and irrational financial behaviors, we set personality types, decision making styles as independent variables and irrational financial behaviors as dependent variables, and then employs stepwise regression to test the predictive power of different personality types and decision-making style for irrational financial behavior. The results are shows in Table 2. In sunk cost, DS, DR, and DD can account for 13% of overall deviation, which means they have significant predictive power for sunk cost. Among them, the predictive power of DS is negative while that of DR and DD are positive. In face with risks of profit and loss, DI has significant negative predictive power for risk appetite while DR has negative predictive

power for house money. In framing bias, S-N, and DR have significant positive predictive power; that of DS is negative while that of T-F is positive. DR and DS have positive predictive power for both representativeness bias of sample scale; for endowment effect, DR and DS has positive predictive power while DR and E-I have positive one for WTP-WTA in endowment effect. DR and DA have significant negative predictive power for regret averse. DR can account for 6% of overall deviation of disposition effect, suggesting significant positive predictive power for disposition effect. In mental accounting, S-N and DS have significant predictive power for vocation accounting, in which that of S-N is positive while that of DS is negative. DD has significant positive predictive power for entertainment accounting; T-F and DS have significant predictive power for cash accounting, in which that of T-F is positive while that of DS is negative. For the overall deviation caused by

various irrational financial behaviors, DS, DR, DD and S-N have significant predictive power, accounting for 11% of overall deviation, with

DR accounting for 5.5%; DR, and DD and S-N have positive predictive power for irrational financial behavior while that DS is negative.

Table 2 Regression Analysis on Personality types and decision-making style

	Model	F	R ²	Beta
Sunk Cost	DS, DR, DD	16.67 ***	.13	-.26 **, .19 **, .16 **
Risk appetite	DI	6.72 *	.02	-.14 *
House money effect	DR	7.01 **	.02	-.14 **
framing bias	S-N, DR	7.99 ***	.05	.15 **, .13 *
Representativeness bias	DR, DD	9.42 ***	.05	.15 **, .14 *
Endowment Effect	DR, DS	5.32 **	.03	.14 **, .12 *
WTP-WTA gap	DD, E-I	4.90 **	.03	.13 *, .12 *
Regret Aversion	DR, DA	8.56 ***	.05	-.20 **, -.13 *
Disposition Effect	DR	2.89 ***	.06	.24 ***
Mental Accounting (vacation)	S-N, DS	12.34 ***	.07	.20 **, -.14 *
Mental Accounting (entertainment)	DD	1.15 **	.03	.17 **
Mental Accounting (cash)	T-F, DS	5.84 **	.03	.14 *, -.13 *
Total deviation	DR, DS, DD, S-N	1.29 ***	.11	.17 **, -.17 **, .14 *, .11 *

Note: when R² is close to 1, it means that the equation has important reference value; when R² is close to 0, it means that the equation has lower reference value. In essence, the determination coefficient has no relation to regression coefficient, just as standard deviation has no relation to standard error.

Based on the above, the more DS-oriented an individual is, the less likely decision maker is to have sunk cost, while the more DR and DD-oriented an individual is, the more likely decision maker is to have sunk cost. The more DI-oriented an individual is, the lower risk preference decision maker would have in face of

profit and loss, while the more DR-oriented an individual is, decision maker is less likely to have house money effect. The more DR and S-N -oriented an individual is, the more likely they are to have framing bias. The more DR and DS-oriented an individuals is, the more likely decision maker is to have endowment

effect and the more DR-oriented and E-I an individuals is, the bigger WTP-WTA gap decision maker is likely to have. The more DR and DA-oriented an individual is, the more likely decision maker is to have regret aversion. The more DR-oriented an individual is, the more likely decision make would have disposition effect. The more S-N-oriented an individual is, the more likely decision make is to be affected by vocation accounting, while DS-oriented individuals are less likely to be affected by vocation accounting and DD-oriented individuals are very likely to be affected by entertainment accounting. The more T-F-oriented an individual is, the less likely decision make is to be affected by cash accounting, while DS-oriented individuals are less likely to be affected by Cash. Overall, the more DR, DD, S-N- oriented an individual is, the more likely decision make is going to have irrational financial behaviors, while the more DS-oriented an individuals is, decision make is less likely to have irrational behaviors.

Discussion

The results of the research show that personality types, decision-making style have shown significant main effect as well as far more less significant interaction on irrational financial behaviors, suggesting that they are crucial psychological factors affecting one's financial behaviors. Besides, it also can be observed that individuals who attach importance to security, order and logic, such as ISTJ, ESFJ, ESFJ, ISTP, are move likely to have irrational financial behaviors, while individuals who tend

to pursue adventure, stimulus, innovation, such as ESTP, ESFP, INFJ, are less likely to have irrational financial behaviors. Among the decision-making types, DR and DD are very likely to have irrational financial behaviors while DS and DA are less likely to do so. Therefore, it can be concluded that the personality types and decision-making style who are likely to have irrational financial behaviors share similar characteristics in common. That is, they are rational, and logic, and rule-abiding. On the contrary, individuals who are adventurous and spontaneous tend to have less irrational financial behaviors. This phenomenon probably can be explained by the fact that the financial market itself is not rational and changes in it are hard to predict, so rational individuals (logic and rule-abiding ones) are more likely to have irrational financial behaviors. This finding will be further tested in future researches.

In terms of predictive power for irrational financial behaviors, the results of the research show that different personality types and decision-making types have different predictive power. They also suggest that each psychological factor affects one's financial behavior in different way and to different extent. Therefore, diverse perspectives and methods should be employed to study the effect of psychological factors on irrational financial behaviors. In addition, it is noteworthy that because of the diversity and complexity of psychological factors, even though irrational financial behaviors are universal and frequent among individuals, most of individuals are unaware of their tendency for, and even

unconsciously conduct, irrational consuming or investing behaviors. Irrational financial behaviors not only jeopardize individual pursuit for maximum economic benefit, but also unavoidably bring about negative influence on an individual's self-cognition, social perception and emotional experience.

Conclusion

Personality types and decision-making styles have significant effect on irrational financial behaviors. Different personality types and decision-making styles exert different effect on individual irrational financial behaviors. Personality types and decision-making styles have significant predictive power for various irrational financial behaviors and their deviation. The finding of

the paper fills the gap that most researchers focus on single psychological factor's effect on certain irrational financial behavior, proving that irrational financial behaviors are subject to the intertwined effect of multiple psychological factors.

Therefore, in financial practice, even though irrational financial behaviors cannot be totally avoided, effort should be made to decrease the probability of such behaviors. At first, individuals should understand the characteristics and precondition of irrational financial behaviors. Secondly, individuals should actively learn and work out efficient precautions strategy and skills, to prevent from being trapped in the cognitive confusion, maximizing adverse effects of irrational financial behaviors.

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