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Loss aversion attitude among Wenzhou-Kean University students

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by

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Abstract

People frequently face risky decisions in their life, and they need to make trade-off on risk level they want to take. One important factor which can influence people's choice is their loss aversion level. Loss aversion is a branch of Behavioral Finance and it refers to people's tendency to prefer avoiding losses to acquiring equivalent gains (Schmidt & Zank, 2005). Exploring loss aversion attitude is critical for understanding people's behavior when they face risky decisions. This study aims to explore the loss aversion attitude among Wenzhou-Kean University students. I use online survey to randomly select 100 respondents who are studying in WKU. To measure the overall level of the loss aversion level of WKU students, I use descriptive and percent frequency method, and the result shows a mid-level of loss aversion; to explore the factors which has impact on loss aversion attitude, I use multiple regression method, and the result shows that gender, age, and monthly disposable income have impact; I also use correlation to explore the relationship between loss aversion and risk tolerance level, and the result demonstrate a weakly negative correlation.

1 Introduction

In economic terms, people are rational. They consider things through all the information they can get, have perfect self-control, balance the gains and losses, then make reasonable choices. However, in real world, the situation is not the same as what written in the economic and financial textbooks. In fact, when people are doing financial and economic decisions, they behave more like “normal” not “rational”. Have limits to their self-control, and sometimes make cognitive errors that can lead to wrong decisions. Especially, when people are facing the gain and loss of one financial or economic decision, they usually cannot rationally do the trad-offs and balance it well. To deal with this situation, a new financial concept which is called Loss Aversion emerges.

Loss Aversion is a branch of Behavioral Finance and it refers to people's tendency to prefer avoiding losses to acquiring equivalent gains (Schmidt & Zank, 2005). For intense, for most people, it is better to not lose $100 than to get $100. Compare to other financial concepts, Loss Aversion and its trunk Behavioral Finance can be counted as a new subject of finance financial field. Loss Aversion theory was first identified by Amos Tversky and Daniel Kahneman in 1973, and therefore they won the Nobel Memorial Prize in Economic Science in 2002. It connects cognitive psychology with decision theory to combines people’s behaviors and their economic decisions. It can explain the financial phenomenon which traditional finance cannot explain.

In this thesis, I plan to explore the loss aversion attitude among Wenzhou-Kean University students. I mainly focus on how loss aversion attitude plays a role in financial decisions marking by WKU students. I use survey to get the needed information. First, I summarize the overall degree about loss aversion attitude among WKU students. It can

provide the basic understanding for you. Second, I use the date collected to analyze what factors have impact on loss aversion for WKU students when they are marking financial decisions. And at the end, I explore the relationship between loss aversion attitude of WKU students and their risk tolerance level.

For the next section, I will arrange and analyze the literature of related literature and studies about Loss Aversion attitude.

2 REVIEW OF RELATED LITERATURE AND STUDIES

Due to the great successes in Behavioral Finance, in recent years, Loss Aversion and its further studies are much popular, there are many publications and studies about Loss Aversion. To fit my theme about Loss Aversion attitude among Wenzhou-Kean University students, I will mainly choose the previous literatures which focus on loss aversion attitude on students or adolescents and the causes and effects of loss aversion.

2.1 Loss Aversion Attitude among University Students or Adolescents

Majority of existing studies and experiments show the differences of loss aversion attitude between adolescents and adults, or students and graduated people. Linda, Leijenhorst and Galván (2013) found that both adults and adolescents are strongly influenced more by losses than gains. And they also discovered that adolescents show less loss aversion attitude than adults through a mixed gambles task. Their finding is mainly based on the study of neurology. When facing the risk decision, adolescents present more frontostriatal activation than adults. Steinberg (2008) came to the similar conclusion. He found that risk taking is increasing during adolescence and decreasing during adolescence and adulthood. The reason that causes this phenomenon is that comparing to adults, adolescents or students' cognitive control system are not mature enough, so their abilities to decide long-term planning and inhibit impulse behavior are not strong.

Bacova and Juskova (2009) randomly chose 299 students from different universities in the U.S. to test their loss aversion level. The result is unexpected for them because they found many of the university students showed much lower loss aversion attitude when they were facing risky choices. However, in Gal's (2018) research, the students in the U.S. showed higher level of loss aversion attitude. Bacova and Juskova (2009) also found that the

students who came from eastern countries showed higher level of loss aversion attitude than the students came from western countries.

What's more, in Eckel and Grossman's (2008) study, they found that female university students were more loss-averse than male university students. They designed an experiment discovered that female university students were more sensitive to loss and risk than male students.

2.2 Factors of Causing Loss Aversion

2.2.1 Cultural Causes

In Hendricks's (2018) research, he posted that the culture difference would cause different level of loss aversion attitude. He used the date from Wang (2017) and did the further analysis. Wang (2017) and her colleagues surveyed groups of people from 53 countries to discover how people from different cultures value losses compared to gains and they found people from Eastern European countries tend to be the most loss averse, with a loss aversion ratio around 2.3, while people from African countries were the least loss averse, having a loss aversion ratio around 1.4. Combine with the experiment he did, Hendricks's (2018) concluded that people from individualist cultures are more loss averse than people from collectivist cultures and people from unequal cultures are more loss averse than people from cultures where equality is valued.

Rieger and Hens (2017) got the similar result with Hendrick. They found that people from collectivistic culture are more able to deal with losses due to social norms about emotional regulation. They also receive more social support, which makes them perceive losses to be less severe and are, hence, less sensitive of losses.

2.2.2 Social Causes

According to the research, Hendricks (2018) also found that people in power are less loss averse. The reason is that, in many cases, powerful people are in a better position to accept a loss should it occur. They're usually richer and have the means to compensate for a loss. As a result, they give less weight to losses compared to gains than non-powerful people. And another important reason is that people in power give more value to gains than non-powerful people. By deriving from last conclusion, Hendricks also found wealthy people would have an easier time accepting losses.

Education influence and cause lots of social outcomes, and loss aversion is no exception. Hendricks (2018) and Bacova and Juskova (2009) all agreed that more education usually give some extra benefit that results in a more accurate understanding of the world and lead to less loss aversion. In short, more knowledge and higher education connect with less risk.

2.2.3 Age and Gender Causes

As a factor of causing loss aversion, age should relate to not only the life experience, but also the physiology and neurology. Steinberg (2008), Linda, Leijenhorst and Galván (2013), Arora and Kumari (2015) found that risk-taking increase between childhood and adolescence and decline between adolescence and adulthood due to the changes of cognitive control system and differences in neural activation.

For gender difference, Arora and Kumari (2015) found that females show more loss aversion and regret more as compared to males through experiment. Eckel and Grossman (2008) got the similar result. They discovered that women are more sensitive when they face risky choices.

2.3 Effects of Loss Aversion on Financial Decision

In Kahneman and Tversky's (1979) view, investors do not value the gain and loss in the same way. The investor which has bias uses gain to decide rather than loss because he tries to avoid the risk of loss. An investor is trend to loss aversion if he believes that when he does not get a capital loss for the securities, he holds on stock market then he gets a capital gain. Due to the quickly changes of price, he wants to sell the security as soon as possible to get profits. he sells the asset which worth less in the market by the price he had bought it. The importance of this bias is due to its influence on investor's decision-making in purchase and sale of securities.

However, direct empirical evidence for loss aversion is surprisingly hard to find (Ert & Erev, 2007). And Gal (2018) also pointed out that loss aversion may not be significant an influence on investment decision. He found that the current psychological research does not demonstrate that loss aversion truly exists as a general psychological principle. Although it may exist in some conditions, there are too many situations in which the evidence does not show that losses are larger than gains. Also, according to Mengarelli, Moretti, Faralla, Vindras, Sirigu's (2014) study, when people are choosing on behalf of another person compared to when choosing for themselves, loss aversion bias is significantly reduced, and they become more risk-seeking as compared to when deciding for themselves.

For the next section, I will discuss the methodology I choose to apply for this thesis.

3. Methodology

3.1 Data and Sample

3.1.1 Data

In this thesis, I use survey to collect the data and information about the loss aversion attitude among WKU students. The data collected by survey will be mainly divided by five parts. The data of first part will provide the information about the respondents' demographic profile. The second part of data pays attention to the overall level of loss aversion for WKU students. The third part focus on the factors which has impact on loss aversion to the respondents. And the last part will compare the loss aversion attitude and the risk tolerance level of WKU students.

3.1.2 Sample

In this thesis, WKU students will be the study population, and sample will be randomly chosen to participate in the questionnaire, therefore, every student has the same probability to be chosen. This study is going to be conducted at Wenzhou-Kean University which is in Wenzhou, China, during the fall semester, 2019. The total number of WKU students is 2200 and sampling size is around 100.

3.2 Methodology and model

3.2.1 Methodology

In the thesis, because I choose to use survey to collect data, descriptive research is applied, which is designed to measure the loss aversion attitude among WKU students. Correlation design is also applied according to the research question I set to explore which

factor has impact on WKU students' loss aversion level. I mainly use qualitative method to analyze the date and information and meanwhile use quantitative method as supplementary method to measure the loss aversion attitude.

3.2.2 Model and Hypotheses

To analyze the overall attitude of loss aversion attitude among WKU students, I use frequency and descriptive method to measure the sample data. Five-point Likert scale is used in the instrument to measure the loss aversion level. Mean and percent frequency of sample will be calculated:

$\bar{x} = (\Sigma x_i) / n$

$\bar{x}$ is the average loss aversion level of responders, Σx_i is the sum of the grads of loss aversion, and n is the number of samples.

Percentage frequency = $f \div n \times 100$

f is the frequency of each group of different loss aversion level, n stands for the number of total respondents.

To explore which kinds of factors have impact on loss aversion, I use multiple regression method:

$Y=\beta_0+\beta_1x_1+\beta_2x_2+\beta_3x_3+\beta_4x_4$

Y is dependent variable that stand for the loss aversion attitude level. β_0 is constant term. β_1 is regression coefficient that measures the change in loss aversion level when gender changes, x_1 is an independent variable which stands for gender. β_2 is regression coefficient that measures the change in loss aversion level when the age changes, x_2 is an independent variable which stands for age. β_3 is regression coefficient that measures the

change in loss aversion level when monthly disposable income changes, x_3 is an independent variable which stands for monthly disposable income. β_4 is regression coefficient that measures the change in loss aversion level when the knowledge level of economics and finance changes, x_4 is an independent variable which stands for knowledge level of economics and finance.

$H_0$1: Gender has no impact on loss aversion attitude among WKU students.

$H_0$2: Age has no impact on loss aversion attitude among WKU students.

$H_0$3: Monthly disposable income has no impact on loss aversion attitude among WKU students.

$H_0$4: Knowledge level of economics and finance has no impact on loss aversion attitude among WKU students.

For comparing the loss aversion attitude and the risk tolerance of WKU students, I use correlation method:

$$r = \frac{\sum(X-\overline{X})(Y-\overline{Y})}{\sqrt{\sum(X-\overline{X})^2}\sqrt{(Y-\overline{Y})^2}}$$

R stands for the correlation coefficient, $\bar{x}$ equals to the average loss aversion attitude level among WKU students, $\bar{y}$ equals to the average performance of actual investing behaviors of WKU students.

H_0: The loss aversion attitude of WKU students does not have negative correlation with their risk tolerance level.

For the next section, I will discuss the result after analyzing the data.

4. Results

The datasets which used to be analyzed here come from the survey I design and distribute online. The samples are WKU students and there are 100 respondents (62 females and 38 males) fill out the questionnaires. In this part, I use frequency and descriptive method to measure the analyze the overall attitude of loss aversion attitude among WKU students; to explore which kinds of factors have impact on loss aversion, I use multiple regression method; to explore the relationship between loss aversion attitude level and risk tolerance level of WKU students, I use correlation method.

4.1 Overall Level of Loss Aversion Attitude among WKU Students

To measure the overall level of loss aversion attitude, I use Five-point Likert scale to calculate the percent frequency and mean. The 1-5 point stands for the loss aversion level from low to high. Use formula: $f \div n \times 100$ to calculate the percent frequency of loss aversion attitude level of

respondents:

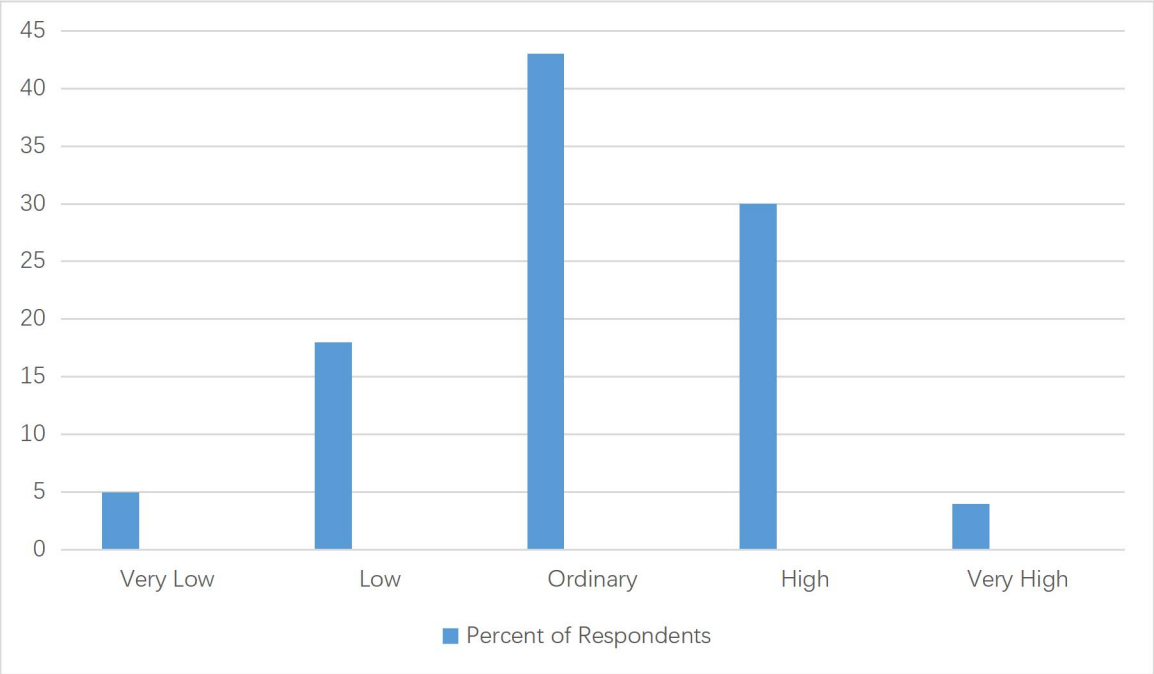

Figure 1-Percent Frequency of Loss Aversion Level among WKU students

According to the chart, 43% (43) respondents value their loss aversion level as ordinary, 30% (30) respondents value their loss aversion level as high, 18% (18) respondents value their loss aversion level as low, 5% (5) respondents value their loss aversion level as very low, and 4% (4) respondents value their loss aversion level as very high.

Use formula: $\bar{x} = (\Sigma x_i) / n$ to calculate the mean of loss aversion attitude level of respondents: 3.10 (of total 5.00). It demonstrates the mid-level of loss aversion level when respondents value themselves. This result is different with Bacova and Juskova (2009) and Linda, Leijenhorst and Galván (2013) that university students showed much lower loss aversion attitude.

4.2 Factors Which Influence Loss Aversion Attitude Level among WKU Students

To explore which kinds of factors have impact on loss aversion, I use multiple regression method:

Loss Aversion Attitude Level=β_0+β_1Gender+β_2Age+β_3Monthly Disposable Income+β_4Knowledge Level of Finance

I use α=0.10 as significance level. After running the multiple regression in Excel, the

	df	SS	MS	F	Significance F
Regression	4	7.228	1.807	2.266	0.068
Residual	95	75.772	0.798		
Total	99	83			

equation comes:

	Coefficients	Standard Error	t Stat	P-value
Intercept	3.012	0.409	7.359	6.60E-11
Gender	-0.325	0.192	-1.697	0.093
Age	0.151	0.080	1.878	0.063
Monthly Disposable Income	-0.123	0.073	-1.682	0.096
Knowledge Level of Finance and Economics	0.123	0.091	1.347	0.181

Table 1 Regression Results

$Y=3.012+(-0.325)\ x_1+0.151x_2+(-0.123)\ x_3+0.123x_4$

According to the F-test, the significance F=0.068<0.10, so the model is meaningful and at least one variable has impact on loss aversion attitude level.

4.2.1 Gender

For x_1 which stands for gender, the P-value=0.093<0.1. Therefore,

$H_0$1: Gender has no impact on loss aversion attitude among WKU students

should be rejected, and

$H_1$1: Gender has impact on loss aversion attitude among WKU students

should be accepted. Also, since β_1=-0.325, it shows that gender has weakly negative impact on loss aversion attitude among WKU students. This result is consistent with the finding of Arora and Kumari (2015) that gender difference can influence loss aversion level.

4.2.2 Age

For x_2 which stands for age, the P-value=0.063<0.1. Therefore,

$H_0$2: Age has no impact on loss aversion attitude among WKU students

should be rejected, and

$H_1$2: Age has impact on loss aversion attitude among WKU students

should be accepted. Also, since β_2=0.151, it demonstrates that age has weakly positive impact on loss aversion attitude among WKU students. This result is consistent with the finding of Steinberg (2008), Linda, Leijenhorst and Galván (2013) that age is a factor that can influence loss aversion level.

4.2.3 Monthly Disposable Income

For x_3 which stands for monthly disposable income, the P-value=0.096<0.1. Therefore,

$H_0$3: Monthly disposable income has no impact on loss aversion attitude among WKU students

should be rejected, and

$H_1$3: Monthly disposable income has impact on loss aversion attitude among WKU students should be accepted. Also, since β_3=-0.123, it demonstrates that monthly disposable income has weakly negative impact on loss aversion attitude among WKU students.

4.2.4 Knowledge Level of Economics and Finance

For x_4 which stands for knowledge level of economics and finance, the P-value = 0.181>0.1. Therefore,

H_0: The loss aversion attitude of WKU students does not positively influence their actual buying and investing behaviors

should not be rejected, and it demonstrates that knowledge level of economics and finance does not influence loss aversion level of WKU students.

4.3 Loss Aversion Attitude and Risk Tolerance Level

To explore the relationship between loss aversion attitude level and risk tolerance level of WKU students, I use correlation method:

$$r = \frac{\sum(X-\overline{X})(Y-\overline{Y})}{\sqrt{\sum(X-\overline{X})^2}\sqrt{(Y-\overline{Y})^2}}$$

R stands for the correlation coefficient, $\bar{x}$ equals to the average loss aversion attitude level among WKU students, $\bar{y}$ equals to the average performance of risk tolerance level of WKU students.

I use α=0.10 as significance level. After running the correlation, P=0.079<0.1. Therefor,

H_0: The loss aversion attitude of WKU students does not have negative correlation with their risk tolerance level

should be rejected, and

H_1: H_0: The loss aversion attitude of WKU students has negative correlation with their risk tolerance level

should be accepted. Also, the correlation coefficient=-0.176, so the loss aversion attitude of WKU students has weakly negative correlation with their risk tolerance level

5 Conclusion

This thesis aims to explore the loss aversion attitude among Wenzhou-Kean students. It is important to understand loss aversion due to its great influence for people when they face risky decisions. To get the data needed, I did the online survey and collected data from 100 respondents from WKU students.

I calculated the mean and percent frequency of respondents' loss aversion level to measure the overall level of loss aversion attitude of WKU students, and the result demonstrated the mid-level loss aversion attitude which was different with Bacova and Juskova (2009) that university students shows much lower loss aversion attitude. I think the culture difference is one important factor of causing this result because Chinese students tend to be more conservative and loss averse. I also used regression method to explore which factor has impact on loss aversion attitude, and the result demonstrated that age, gender, and monthly disposable income have weekly influence on loss aversion among WKU students. For gender, the result is consistent with the finding of Arora and Kumari (2015) that gender difference can influence loss aversion level. However, due to the negative correlation coefficient, female students have higher level of loss aversion attitude, and this result is different with the finding of Eckel and Grossman (2008) that female has higher loss aversion level. I think it is because that more female respondents decrease the female's overall level of loss aversion level. And other factors can be further explored to test how these factors influence people's loss aversion attitude in the future. I also use correlation to test how loss aversion of WKU students and their investment behaviors move in relation to each other, and the result demonstrated a very weakly negative correlation. It is consistent with the finding of Gal (2018) that loss aversion may not be significant an influence on investment decision.

Due to the time and geographic restrictions, I only collected data in Wenzhou-Kean University and the sample size was only 100. For future study, to explore the loss aversion attitude among Chinese students to get more general idea, I will extend the scope of data collecting and enlarge the sample size. Also, the model of measuring loss aversion should also be more precise and appropriate.

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7 Tables and Figures

Figure 1 Percent Frequency of Loss Aversion Level among WKU students

Table 1 Regression Results

8 Appendix

Appendix A Questionnaire on Loss Aversion level among WKU Students

Dear students:
I'm a senior student who major in finance. I'm doing a survey about loss aversion attitude among WKU students. The survey results are only used for the comprehensive situation of survey statistics and I will not spread the personal information of respondents. I'm honored to get your advice. If you have any questions, please feel free to contact me. My email address is xuke@kaeen.edu, and my QQ number is 1044145943. Thanks for your help!

Sincerely,
Xu Ke (David)

Loss Aversion is a branch of Behavioral Finance and it refers to people's tendency to prefer avoiding losses to acquiring equivalent gains. For the same thing, the sadness of losing it is much stronger than the happiness of getting it. For intense, for most people, it is better to not lose $100 than to get $100.

1. Your gender *

○Female

○Male

2. Your age *

○Under 18

○18

○19

○20

○Over 20

3. Your monthly disposable income *

○Under ￥1500

○ ￥1500~ ￥2000

○ ￥2000~ ￥2500

○ ￥2500~ ￥3000

○Over ￥3000

4. your knowledge level of economics and finance. *

Almost know nothing	○1	○2	○3	○4	○5	Professional

Happiness is much stronger	o1	o2	o3	o4	o5	Sadness is much stronger

6. If you have a investing opportunity,which level of the risk you can take for a investment *

- oAlmost no risk
- oHas lower risk
- oHas moderate risk
- oHas higher risk
- oHas much higher risk

7. How do you measure the influence of loss aversion attitude to your financial decision? *

Almost no influence	o1	o2	o3	o4	o5	Has a great influence

8. How do you measure the influence of loss aversion attitude to your daily consumption? *

Almost no influence	o1	o2	o3	o4	o5	Has a great influence

9. How do you measure your level of impulse spending? [单选题] *

Very low	o1	o2	o3	o4	o5	Very high

10. How do you measure your overall level of loss aversion attitude? *

Very low	o1	o2	o3	o4	o5	Very high

Appendix B Regression Result

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.295101054
R Square	0.087084632
Adjusted R	0.04864609
Standard E	0.893084398
Observatic	100

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regressio	4	7.228024464	1.807006116	2.265555	0.067782657
Residual	95	75.77197554	0.797599742		
Total	99	83			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*ower 90.0%*	*pper 90.0%*
Intercept	3.011999098	0.409319714	7.358548821	6.6E-11	2.199396725	3.824601	2.332098	3.6919
X Variable	-0.32535836	0.191759092	-1.696703696	0.093027	-0.70604829	0.055332	-0.64388	-0.00684
X Variable	0.150504458	0.080141205	1.877990952	0.06345	-0.00859595	0.309605	0.017386	0.283623
X Variable	-0.122811045	0.073023089	-1.681811137	0.09589	-0.26778021	0.022158	-0.24411	-0.00152
X Variable	0.122535309	0.090938369	1.347454448	0.181039	-0.05800018	0.303071	-0.02852	0.273589

Appendix C Correlation Result

	Column 1	*Column 2*
Column 1	1	
Column 2	-0.17639	1