Cross-Cultural Differences in Financial Risk Preference between Chinese and American College Students

by
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Abstract

Generally, people can easily get an impression that Chinese people are very conservative in making monetary decisions. Empirical evidence shows that China’s saving rate is one of the highest in the world. However, are Chinese people really more risk-averse than Americans? Contradicted to the traditional stereotype, the Cushion Hypothesis suggests that people in collectivist culture, such as China, are likely to be more risk-seeking in making financial decisions. Because the closer social networks in such society serve as the “cushions” if they fall. The goal of this thesis is to investigate whether there are cross-cultural differences in financial risk preference between Chinese and American college students. If so, what role does culture play in influencing people’s risk preference? By using basic statistical tools, this study found that Chinese students were significantly more collectivistic and risk-seeking than American students and there was a positive relationship between collectivism and risk-seeking preference.

Keywords: individualism/collectivism, financial risk preference, the Cushion Hypothesis

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1. Introduction

People make decisions every day, small ones and big ones. We make decisions as small as ordering a cup of coffee and whether to add sugar in the coffee. At the same time, we also make big decisions, such as choosing the best college to go to or the most satisfactory job offer to accept. No matter whether the decisions are big or small, almost all decisions involve uncertainty or risk. Slovic (1987) defined the risk-taking decision-making process as the propensity to select an option with the potential for relatively large beneficial outcomes over the alternative option with relatively small beneficial outcomes. However, in the real world, people perceive things differently. Previous studies have shown that the concept “risk” means different things to different people (for example, see Slovic, 1987; Weber & Hsee, 1999).

It is not unusual that people from different cultural backgrounds may think or act differently. For example, in the United States, people say “The squeaky wheel gets the grease.” But in China, there is a proverb called “The nail that sticks up gets hammered down.” So why do people from different countries hold different attitudes towards similar situations? Studies have shown that culture plays an important role behind these. Important research in cultural studies was provided by Hofstede. As a personnel director of IBM, Hofstede had the opportunity to analyze a large database of employee value scores across the globe. Hofstede (1980) developed a Cultural Dimensions Model in analyzing the differences among national cultures. One of the most important dimensions was labeled as individualism and collectivism. Hofstede (2010) described the societies where interests of the individual prevail over the interests of the group as individualists. Societies where group interests are more important are called collectivists. The United States is a highly individualistic country, whereas China is a typical representative of collectivist.
Traditionally, Chinese people are famous for the conservatism with their money. China’s saving rates are among the highest in the world (Kraay, 2000). In 2008, China’s saving rate was 54.3% of the GDP, while the rate of the United States was only 12.1% (Ma & Yi, 2011). Therefore, intuitively, one would guess that Chinese people are willing to take less risk in making financial decisions because of this conservatism. However, opposite to the traditional view of the Chinese, Weber and Hsee (1998) found that Chinese respondents were significantly more risk-seeking than Americans in pricing for risky financial options. They proposed the Cushion Hypothesis as a possible explanation of this puzzle. Weber and Hsee argued that in collectivist society like China, the support from family or other in-group members serves as the “cushion” for an individual in case he/she runs into financial difficulties.

In the past few decades, despite both cultural and risk studies respectively gaining higher profiles in academics, the topic of cross-cultural risky decision-making has received little attention from researchers. The present study investigates whether there are systematic cross-cultural differences in financial risk preference between Chinese and American college students. This topic has both theoretical and practical implications. Theoretically, understanding the risk preference in a cross-cultural context can help determine whether previous studies about risk perceptions within the United States have universal validity (Weber & Hsee, 1999). In addition, the findings to this topic can provide explanations for the different behaviors in decision-making process between Chinese and Americans. From a practical standpoint, the results of this research will provide future study with empirical evidence on assessing cross-cultural differences. As the cross-national political and economic interactions grow rapidly, understanding the differences between countries can not only reduce the misinterpretations and conflicts between parties, but
also be beneficial for global joint ventures or Mergers & Acquisitions in the era of globalization. Better prediction of other parties’ risk preference could lead to better management decisions.

To investigate whether there is a significant difference in risk preference across cultures, respondents from China and the United States were asked to make financial decisions given different risky scenarios. The goal of the research is to examine how Chinese and American students differ in making decisions involving risk and how culture influences this decision-making process. Specifically, how do individualism and collectivism influence people’s financial risk preference? Based on a review of existing literature, three hypotheses will be examined. First, I test whether Chinese students are significantly more collectivistic than American students. Second, I evaluate if Chinese students are more risk-seeking than American students in making monetary decisions. Third, I examine if there is a positive relationship between collectivism and one’s risk-seeking preference.

The rest of the thesis is organized as follows. Section two reviews the literature on individualism and collectivism, risk preference, and the Cushion Hypothesis. Section three of the thesis describes the methodology used to evaluate the cross-cultural differences in financial risk preference, hypotheses, and statistical analyses. The appropriateness and limitations are discussed. Section four provides the statistical results and figures. Finally, section five and section six present the meaning of the results and conclusions of the study.

2. Literature Review

To understand whether there is a difference in risk preference between Chinese and American college students, literature on culture, risk preference, and cross-cultural risk preference are reviewed in this section. First, cultural differences on individualism and
collectivism between China and the United States are discussed. Then, results, definitions, and measurements from previous publications on risk preference are presented. Finally, the Cushion Hypothesis, a notable work in cross-cultural risk research, is reviewed and explained. This section provides the fundamental knowledge for the research and helps the readers understand how the principal research questions are constructed based on existing scholarly articles.

2.1 Culture

In most cases, different individuals behave differently. Differences in behavior could be shaped by individual’s different beliefs, norms, and attitudes. Culture, which has been shown to be one of the most significant differences among people, plays a critical role in a wide range of psychological processes and behaviors (Hofstede, 1980). During the last three decades, as the globalization leads to more and more communications and interactions among countries, studies on cross-cultural differences have been steadily growing in quantity. In the context of financial decisions, Du, Green, and Myerson (2002) demonstrated that members of different cultures have different monetary decision-making processes for probabilistic rewards. In related work, Nisbett, Peng, Choi, and Norenzayan (2001) found that there are significant differences in people’s cognitive process across cultures. Therefore, there is empirical evidence showing that people from different cultural backgrounds hold different perceptions and preferences.

In order to examine how culture influences human behaviors especially in a financial decision-making context, it is necessary to understand what culture means. Scholars have defined culture in many ways from different perspectives. The word “culture” was originally derived from the Latin source cultura, which refers to the tilling of the soil (Hofstede, 2010). In a narrow sense, culture in most Western languages means “civilization” or “refinement of mind.” As the
pioneers of cultural studies, both Triandis and Hofstede give similar definitions on culture. Triandis (1972) defined culture as shared attitudes, beliefs, categorizations, expectations, norms, values, and other subjective culture found within certain region or historical period. Hofstede (1980) defined culture as “a collective programming of the mind that distinguishes the members of one group or category of people from another” (p. 2). It is a collective phenomenon that affects people who live or lived within the same social environment and causes them to share the common patterns of thinking, feeling, and potential acting that are learned throughout the lifetime. Hofstede (2010) argued that culture is learned, not innate. It should be distinguished from human nature and personality (see Figure 2.1). Human nature is what all human beings have in common, such as fear, anger, love, or joy, while personality is the unique personal trait which learned by unique personal experiences.

Figure 2.1: Three Levels of Uniqueness in Mental Programming (Hofstede, 2010)

**Individualism and Collectivism**

Hofstede’s work measured the work-related employee value scores at IBM between 1967 and 1973 and covered more than 70 countries. With continued research on national cultures, Hofstede (2010) developed six cultural dimensions. He labeled them as power distance, uncertainty avoidance, individualism/collectivism, masculinity/femininity, long-term
orientation/short-term orientation, and indulgence/restraint. This model has generated a wide range of literature to validate and to explore both theoretical and practical implications (Hofstede & Bond, 1984; Markus & Kitayama, 1991; Bochner, 1994). In Hofstede’s (1980) Cultural Dimensions Model, individualism is defined as a situation when people focus on taking care of themselves and their immediate family. Individual’s interests prevail over interests of the group. People grow up in individualist culture tend to think themselves as “I,” a unique individual. Alternatively, collectivism is a situation in which people are concerned not only about their immediate family, but also extended family such as grandparents, uncles, or aunts. People in collectivist culture tend to think themselves as part of the “we” group (Hofstede, 2010).

Markus and Kitayama (1991) analyzed the cultural differences in individualism and collectivism from a different, but similar perspective. They claimed that people from different cultures have different construals of self, namely the independent and interdependent self. They found that people with highly developed independent self-construal (individualists) usually emphasize their own abilities and attributes instead of the thoughts or feelings of others. They tend to be direct in communications. These people will gain self-esteem through expressing the self and validating their attributes. On the contrary, Markus and Kitayama (1991) stated that people with highly developed interdependent self-construals (collectivists) emphasize external and public features such as roles and relationships. These people are more socially connected and less differentiated from others. They treasure the sense of belongings and believe in harmony. Their self-esteem comes from the harmonious interpersonal relationships and the ability to adjust to various situations (Singelis, 1994). Thus, people with such mindset tend to communicate indirectly and are very careful about others’ feelings.
In order to exemplify the cross-cultural differences between collectivists and individualists, Triandis (1990) developed an “I am…” method. Respondents in his study were asked to complete 20 sentences that began with “I am…” as they were talking to themselves. He found that the statements of collectivists were more group-oriented. For example, “I am a daughter,” or “I am a Roman Catholic.” On the contrary, answers from individualists were more about personal attributes and characteristics. Individualists would like to express their uniqueness in the statements such as “I am honest,” or “I am intelligent.” Therefore, there is empirical evidence showing that collectivists tend to define themselves more in group terms than individualists. In the same study, Triandis (1990) also found that Asian cultures such as China emphasize the harmonious interdependence among each other (collectivist), while Western cultures emphasize the uniqueness of people’s inner attributes (individualist).

Hofstede (1980) presented individualism and collectivism as the two opposite poles on one dimension in his model. However, later, Hui, Triandis, and Yee (1991) argued that people can carry both individualism and collectivism at the same time. They coexist depending on the situation. One can be individualistic under some circumstances while collectivistic in other situations. The difference is that in some cultures, individualistic attitudes are dominant, while in other cases, collectivistic norms are more valued.

The present study focuses on the cultural differences between respondents from China and the United States, which are two nations that found to be significantly differed in individualism and collectivism in most of the cultural studies. Previous research shows that the United States is regarded as one of the most individualistic cultures in the world, while China has highly collectivistic culture (Singelis et al, 1995; Hofstede 2010). According to Hofstede (2010), the United States ranked the 1st with an individualism index score of 91, while China ranked the
58th with a score of 20 among a total of 76 countries. Part of the thesis expands on this basic idea and strives to examine the overall cultural differences between Chinese and American college students.

2.2 Financial Risk Preference

The original concept of perceived risk was introduced by Bauer (1960) to explain psychological phenomena such as information seeking and brand loyalty. More than half a century later, risk perception and preference continue to receive attention from researchers. Tremendous research has been constructed to understand the concept and influence of risk on individuals’ decision-making process (for example, see Weber & Hsee, 1998; Hilton, 2001). There is an extensive literature on risk preference in both psychology and economics. In economics, risk preference within decision-making field has been traditionally modeled using expected utility framework, which is a theory states that decision-makers will always choose the options with the highest expected utility values (Rabin, 2000). However, researchers have suggested that alternative models such as risk-return framework (Markowitz, 1959) may be a better model to use in analyzing decisions involving risk. Markowitz (1959) stated that people’s willingness to pay (WTP) for risky options X is a function of the option’s expected return or value (V) and its risk (R). The main goal of decision makers is to maximize the expected return while trying to minimize the risk. He described the function as:

\[ WTP(X) = V(X) - bR(X). \]

In the equation, \( V(X) \) is the expected return of the risky option. When we assume the expected return of certain risky option \( V(X) \) remains unchanged, the difference in people’s willingness to pay \( (WTP) \) depends on either \( b \) coefficient or \( R(X) \). Markowitz (1959) defined the \( b \)
coefficient as the risk-value tradeoff and the \( R(X) \) as the perception of the riskiness. They are different in the sense that the risk-value tradeoff measures people’s perceived risk and the other one measures the risk perception. A higher risk-value tradeoff \((b\) coefficient\) means some people may inherently prefer high-variance option over low-variance option, whereas a higher risk perception \((R(X))\) represents there is a higher perceived risk by individuals towards the option.

However, for the purpose of this study, even though the distinctions between risk perception and perceived risk are important, they are not directly addressed here in this study. Financial risk preference, in this research, is analyzed specifically as the outcome of a person’s choice between a sure payoff (e.g. receive \$20\) for sure) and a probabilistic payoff (e.g. receive \$100\) or nothing\). This method has been used and validated repetitively by previous research on risk preference study (Hsee & Weber, 1997; Weber & Hsee, 1999).

2.3 Culture and Financial Risk Preference

As the connectedness of world’s economic and cultural systems increases through the reduction of barriers to international trade, more and more organizations and individuals have to recognize the opportunities and challenges that globalization has brought to the world. Existing research has considered a cross-national context. In the study of the relationship between culture and risk behaviors, Douglas and Wildavsky (1983) addressed the influence of culture on the risk perception and risk-taking behaviors. They developed the Cultural Theory which argues that risk is a collective phenomenon which different cultures choose different risks to pay attention to or to ignore. They argued that cross-cultural differences in risk preference can be attributed to maintain different ways of life. They categorized the ways of life into two dimensions: “group” and “grid.” A “high-group” way of life emphasizes collective interest, whereas a “low-group”
exhibits higher degree of individual control. A “high-grid” way of life exhibits higher power distance among people, where as a “low-grid” reflects a more egalitarian ordering. The Cultural Theory asserts that the social structures endow individuals with perception of relationship and events which reinforces those structures in competition with alternatives.

This theory was tested and further developed by many researchers. Weber and Hsee (1998), as the pioneers in cross-cultural risk behaviors study, contrasted the risk preference of respondents from China, the United States, Germany, and Poland. In the study, respondents were given a hypothetical $20,000 to make investments, and they were shown a series of investment scenarios with different expected utilities and probabilities. Respondents’ willingness to pay and perception of riskiness were collected. The results showed that the Chinese sample thought the risks of the investment options were the lowest and offered a significantly higher mean buying price for the investments on average, while the opposite was true for Americans. In other words, the results indicated that Chinese respondents chose to invest more money and perceived the risky options to be safer than respondents from other countries.

In searching for an explanation for the cross-cultural difference in risk preference, Hsee and Weber (1999) continued their research. In another study, respondents from China and the United States were given a series of options with either sure or risky outcomes to choose from. Options included risk preference in financial investment, medical, and academic decisions. Results showed that Chinese respondents were more risk-seeking in making decisions than American respondents only in financial investment domain and not in other domains (Hsee & Weber, 1999).

In response to their findings, Hsee and Weber (1998) proposed the Cushion Hypothesis to explain the differences in risk preference across nations. They argue that the closer social
network, which is the collectivism in culture, acts as a cushion against possible losses in financial investments (Hsee & Weber, 1999; Hsee & Weber, 2000). In socially-collectivistic country like China, people would like to take greater financial risks because they could ask for help from their extended social networks if they run into financial difficulty. Consequently, based on this hypothesis, the collectivism and interdependence cultural tendency could have positive influence on people’s risk-seeking preference. Individuals from collectivistic culture may perceive and act differently in financial investments than those from individualistic culture.

Overall, with previous literature on cultural dimensions, risk preference, and the Cushion Hypothesis leading up to this point, a cross-cultural risk preference comparison between China and the United States should consider both individualism and collectivism cultural tendency and the risk preference. This thesis will examine the Cushion Hypothesis and address the influence of culture on risk behaviors. At the same time, it will help answer the questions about culture and risk: Do students from China and the United States hold different cultural attitudes? How do Chinese students and American students differ in making financial decisions? If possible, can this culture-risk relationship apply to all individuals? The answers to these questions are of significance. The results may provide future studies with empirical evidence on cross-cultural comparison in risk preference and help reduce miscommunications across cultures.

3. Methodology

This section includes the hypotheses, data and measures, statistical analysis, and appropriateness and limitations for the study. The hypotheses, which are developed based on the existing literature, are to test the relationship between people’s cultural tendency and financial
risk preference in a cross-cultural context. Specific hypotheses and analysis procedures are explained in the following paragraphs.

3.1 Hypotheses

Generally speaking, collectivism emphasizes the importance of group, family, nationality, and relationship. A prototypical collectivist social relationship is long-term family-oriented with strong emotional ties and common goals (Triandis, 1993). Individualism is different in the sense that people want to remain their uniqueness even when they belong to some groups. They believe that competition and personal accomplishments are more important than the membership of some group (Triandis, 1993). Previous studies have tested this cultural difference between Chinese and Americans, and the results did show that Chinese people were more collectivistic than Americans (Hofsted, 2010). However, since this study involves Chinese students who are currently located in the United States, it is worth testing the cultural difference under this new geographic setting in order to compare the risk preference between American students and Chinese students in the United States. From now on, for the simplicity’s sake, Chinese students in the United States are referred to Chinese students in this paper.

*Hypothesis 1: Chinese students are more collectivistic than American students.*

Furthermore, as mentioned in the literature review section, the *Cushion Hypothesis* (Weber & Hsee, 1998) suggests that Chinese people tend to exhibit a more risk-seeking pattern in making financial investments because the close social network in the society serves as the “cushion” against the financial loss. Similarly, this thesis hypothesizes the results to be consistent with previous research. Because culture is a shared pattern of thinking and acting, the risk preference of Chinese students in the United States should still be similar to traditional
Chinese students. Thus, I predict that there is a significant difference between Chinese and American students in financial risk preference, i.e., Chinese students in the United States are more risk-seeking than American students despite the fact that they are geographically separated from their existing social structure.

**Hypothesis 2:** Chinese students are more risk-seeking than American students in making financial decisions.

Finally, in order to understand why people behave differently in face of the same risky options, the thesis proposes a relationship between individuals’ cultural attitudes (individualisms and collectivism) and financial risk preference. If the difference in people’s financial risk preference is attributed to the difference in cultural attitudes, but not the nationality, then there will be a positive relationship between collectivism and risk-seeking pattern. More specifically, if a person shows more collectivistic tendency, then he/she should be more risk-seeking in making financial decisions, no matter he/she is an American or a Chinese.

**Hypothesis 3:** People who are more collectivistic tend to exhibit a more risk-seeking pattern in making financial decisions over and above the nationality.

### 3.2 Data and Measures

The total number of valid participants in the study was 113. These participants were selected from the students at the University of Minnesota. With the permission from some professors who I have personal connections with, I emailed the students in their class with the link of the Internet survey. The sample included approximately equal representation of each cultural group, consisting of 63 American students and 50 Chinese students. The age of the sample ranged between 19 and 27 with a mean of 22. Given the nature of the sample, the
students that participated in the study were likely to be economics and business majors with some degree of finance-related knowledge.

The data collect for this study could be divided into three main sections. The first section was to test the participants’ cultural patterns. Seven questions from previous studies on measuring individualism and collectivism with minor modifications were used in the survey. Singelis et al. (1995) conceptualized individualism and collectivism and came up with a list of valid questions to measure the pattern. In my survey, participants were asked to evaluate how well each of the statements described them on a 7-point likert scale: 1 = Strongly Disagree to 7 = Strongly Agree. These statements involved a series of personal beliefs and opinions, which were created for reflecting respondents’ social and cultural attitudes. For example, “I am a unique individual” (Individualism) or “It is my duty to take care of my family, even when I have to sacrifice what I want” (Collectivism).

Secondly, participants’ financial risk preferences were collected. The construct for this study was inspired by Hsee and Weber (1999). Participants were asked to imagine that they bought a lottery ticket a few weeks ago. Then they were informed that they had won and there were two options (one sure option and one risky option) for them to choose how to receive the money. The options in the survey were as follows.

<table>
<thead>
<tr>
<th>Sure option</th>
<th>Risky option</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Receive $20 for sure</td>
<td>Flip a coin; receive $100 for sure if head or $0 if tail.</td>
</tr>
<tr>
<td>2. Receive $30 for sure</td>
<td>Flip a coin; receive $100 for sure if head or $0 if tail.</td>
</tr>
<tr>
<td>3. Receive $40 for sure</td>
<td>Flip a coin; receive $100 for sure if head or $0 if tail.</td>
</tr>
<tr>
<td>4. Receive $50 for sure</td>
<td>Flip a coin; receive $100 for sure if head or $0 if tail.</td>
</tr>
<tr>
<td>5. Receive $60 for sure</td>
<td>Flip a coin; receive $100 for sure if head or $0 if tail.</td>
</tr>
</tbody>
</table>
6. Receive $70 for sure
   Flip a coin; receive $100 for sure if head or $0 if tail.

7. Receive $80 for sure
   Flip a coin; receive $100 for sure if head or $0 if tail.

These seven scenarios were in a random order in the survey. In the original study proposed by Hsee and Weber (1999), there were three other sets (seven each) of questions with similar constructions. One other set of the questions were in the exact same dollar amount, but they were phrased in paying fines (loss) instead of winning lottery tickets (gain). For example, “Pay $40 for sure, or flip a coin, pay $100 if head or $0 if tail.” The other two sets of the questions were in the same phrasing but were in bigger dollar amount. For example, “Receive/Pay $600 for sure, or flip a coin, receive/pay $2000 if head or $0 if tail.” Mellers, Schwarts, and Weber (1997) examined that people tend to be more risk-averse in the gain domain and risk-seeking in the loss domain. I chose the small/gain set of questions in my survey because previous results have showed that people were most sensitive to risks under this condition (Hsee & Weber, 1999). Considering the respondents in the sample were most likely to be college students, the small/gain scenarios were most appropriate due to the limited budget of students.

Lastly, demographic information about the respondents was collected. Age, gender, family’s household income, and nationality were included in the survey. In order to distinguish the students between American students and Chinese students in the United States, instead of asking for their ethnic identity, participants were asked if they were international students. If the answer was yes, they would be asked to specify the country they came from. In this case, even if the student was a Chinese American, he/she would still be counted as an American student due to the cultural background he/she has been exposed to in the United States for the most part of
his/her life. For a complete survey presented to the participants, please refer to the Appendix section.

To perform a meaningful statistical analysis to test the relationship between cultural tendency and financial risk preference, decoding and measurement of the survey questions will be discussed in this subsection. In the survey, people’s cultural tendency was measured by questions from Triandis (1993) individualism and collectivism scales. People’s financial risk preference was measured as Risk Preference (RP) Index decoded from seven risky scenarios mentioned above. The variables that were used in analysis are described below.

**Dependent Variable:**

*Risk Preference (RP) Index* was calculated based on the participants’ responses in the seven scenarios. Similar with what Hsee and Weber (1999) did in their study, if the participant chose to receive all the seven sure options, then the RP Index was marked as 1, the most risk-averse situation. By choosing one more risky option, the RP Index would increase by one. So if the participant chose all the seven risky options, then the RP was defined as 8, the most risk-seeking situation. If the respondent chose to receive a small sure gain option but to flip a coin in a large risky gain option, then the response was considered to be invalid. Therefore, the valid data should be in single crossing condition. The RP Index ranged from 1 to 8.

**Independent Variables:**

The *Individualism Score* was used to measure participants’ cultural tendency. It was calculated based on the results from the seven cultural statements. Each question, there was a score (X) from 1 to 7 that indicated the degree on how much the respondents agreed with the statement. For questions that emphasized individualism, the score was just X itself. But for questions that emphasized collectivism, the score was equal to 8 – X. For example, if a
participant responded a collectivism question as 1 (Strongly Disagree), then the response should be coded as 7 (8 - 1 = 7) in calculation for the Individualism Score. In this case, the Individualism Score should range from 7 (most collectivistic) to 49 (most individualistic). The higher the score was, the more individualistic the respondent tended to be.

**Control variables:**

*Gender* has been tested to be one of the influential factors on people’s risk preference in previous studies. Powell and Ansic (1997) argued that males and females adopted different strategies in making financial decisions and females tended to be less risk-seeking than males. I controlled for this variable in order to make sure that the statistical results only reflected the relationship between cultural tendency and financial risk preference. I created a dummy variable in the analysis where “0” represented a male respondent and “1” for a female respondent.

Many previous studies on risk-aversion have shown that *age* also has effects on people’s risk preference. Riley and Chow (1992) examined people’s asset allocation decisions and they found that the risk-aversion tended to decline with age until 65. Even the age might not be an influential factor in the study because the respondents were likely to be undergraduate students, I collected the age information in the survey and controlled this variable in the regression analysis.

*Income level* was controlled in this study because early research has shown that it is an important factor that influences risk-aversion. Holt and Laury (2002) published a study on risk aversion and incentive effects. While the study was not designed to address the effects of income on risk aversion, they found that there was a quite wide variation in subjects’ income level. The results showed that there was a negative relationship between income level and risk aversion. That is, people with higher level of income tended to be more risk-seeking. In this study,
considering the limitation of an undergraduate student’s personal annual income, respondent’s family (parents) annual household income level was controlled in the study to better demonstrate the relationship between culture and financial risk preference. There were 6 income levels that ranged from “under $24,999” to “$250,000 and above.”

Nationality was also controlled in the study. A dummy variable was created for the purpose of calculation in the regression analysis. American students were coded as “0”, while Chinese students were coded as “1.”

### 3.3 Statistical Analysis

To compare the differences between American and Chinese students and examine the relationship between variables, two statistical techniques were used in analyzing the data. They were two sample T-test and regression analysis. For the first two hypotheses, the main purpose was to compare the cultural tendency and financial risk preference between Chinese and American students. Therefore, a two sample T-test was used to analyze whether there was a significant difference between the two groups of people. P-values near zero indicate a non-random relationship.

The second technique used to analyze the data set was regression analysis. For the third hypothesis, individuals’ financial risk preference served as the dependent variable, while cultural tendency (Individualism Score) was the independent variable. With the control variables (gender, age, income, and nationality) collected in the survey, the regression examined the effect of individualism has on the one’s risk-seeking preference; i.e., whether individualistic people tend to be less risk-seeking in making decisions. The basic set up of the regression model follows:
Risk Preference Index = α + β₁ (Individualism Score) + β₂ (Age) + β₃ (Gender) + β₄ (Income) + β₅ (Nationality) + ε

Under this regression model, β₁ is expected to be negative at the 5% significance level. Thus, hypothesis 3 would be supported if the p-value was less than 0.05.

3.4 Appropriateness of Methodology

The data collection and statistical analyses discussed above are appropriate for this study given the nature of the research questions. Survey, as the primary methodology, is appropriate because it is flexible in the sense that it can generate a wide range of information in a short period of time. This allowed me to analyze a large number of individuals with multiple variables simultaneously. It is relatively inexpensive and easy to administer.

For the statistical tools, two sample T-test is best used for comparing whether the average differences between two groups are likely different from each other, or if the results are due to chance. Regression is best used for examining the relationship between dependent and independent variables. Thus, survey, two sample T-test, and regression are the most efficient ways to collect or analyze the data for the purpose of the study.

3.5 Assumptions and Limitations

There are several assumptions and limitations of this methodology. First of all, all the assumptions of the statistical tools (two sample T-test and regression analysis) hold in this study. The methodology assumes that the relationship between dependent variable and independent variables is linear. The samples are representative of the population. In this case, the method assumes that the students participated in the study are good representatives of American and
Chinese college students. However, one main limitation in the study is the convenience sampling bias. I have to use my personal connections to reach the respondents that are close to hand. In addition, as stated previously, the Chinese student sample was collected in the United States. The primary assumption is that the cultural tendency of Chinese students remains unchanged even the students are geographically located outside of China. The study also assumes that the nationality is a good indicator of respondents’ cultural background. Thus, the sample might be under-representative of the larger population given the limited scope of the research.

The other key assumption of this thesis is that people from the same cultural group have homogenous preference when comparing with other groups. The differences between individuals are neglected within certain cultural group when testing the first two hypotheses. In other words, the study assumes that the variation of the cultural patterns of within group is significantly smaller than that of between groups.

Finally, this study also assumes that the questions on testing cultural tendency and risk preference are valid. All the key factors that influence the risk preference are considered in the analysis. All the variables are measured with no error.

4. Statistical Results

This section includes the statistical results for the study. Descriptive statistics, two sample T-test, and regression results are presented to examine each of the hypotheses. A level of 5% statistical significance is chosen for all the analyses, which means the hypothesis is supported when the p-value is less than 0.05.

4.1 Descriptive Statistics
Table 4.1 provides the descriptive statistics for the data collected in the study. The total number of respondents was 113. These 63 American students and 50 Chinese students were categorized into two groups based on the nationality. Risk preference, individualism scores, age, gender, and income are displayed as the variables in the table. Mean, standard deviation, minimum, and maximum of the sample for the two groups are shown separately in order to compare the differences. While the similarities of the age and gender existed between the respondents of the two groups, the risk preference, individualism scores, and income level differed a lot. Chinese students had a much higher risk-seeking preference scores and lower individualism scores and income level.

Table 4.1: Descriptive Statistics of Variables

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<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Preference</td>
<td>50</td>
<td>4.40</td>
<td>1.44</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Individualism Scores</td>
<td>50</td>
<td>25.10</td>
<td>3.88</td>
<td>18</td>
<td>33</td>
</tr>
<tr>
<td>Age</td>
<td>50</td>
<td>22.12</td>
<td>1.26</td>
<td>19</td>
<td>25</td>
</tr>
<tr>
<td>Gender</td>
<td>50</td>
<td>0.52</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Income</td>
<td>50</td>
<td>3.60</td>
<td>1.60</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Preference</td>
<td>63</td>
<td>3.71</td>
<td>1.11</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Individualism Scores</td>
<td>63</td>
<td>29.21</td>
<td>3.84</td>
<td>23</td>
<td>39</td>
</tr>
<tr>
<td>Age</td>
<td>63</td>
<td>21.84</td>
<td>2.02</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>Gender</td>
<td>63</td>
<td>0.48</td>
<td>0.50</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Income</td>
<td>63</td>
<td>4.29</td>
<td>1.38</td>
<td>1</td>
<td>6</td>
</tr>
</tbody>
</table>

4.2 Correlation Matrix

Table 4.2 shows the correlations of the variables in the study. The correlation coefficient ranges from -1 to 1. The closer the coefficient is to -1 or 1, the more closely the two variables are linearly related. In this study, some of the coefficients were large enough to demonstrate the significant correlations among the variables. Similar with what the supporting literature predicted,
the risk-seeking preference was positively correlated with the nationality. The p-value was less than 0.001. Since nationality was a dummy variable where an American student was coded as “0” and a Chinese student as “1”, positive coefficient means that Chinese students on average had higher risk-seeking preference scores than American students. In addition, the relationship between risk-seeking preference and individualism scores was also meaningful at the 0.001 significance level. The negative coefficient meant the negative correlations between the two. This indicated that individuals with higher individualistic cultural mindset tended to make less risk-seeking monetary decisions.

Another strong negative correlation was between individualism scores and nationality. This was consistent with what the prediction that American students were more individualistic than Chinese students. While this study was not designed to test the difference of income level between Chinese and American students, the results have shown that there was a negative relationship between nationality and income. The income level of the Chinese students participated in the study was significantly lower than that of American students.

Table 4.2: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>RP</th>
<th>Nationality</th>
<th>Age</th>
<th>Gender</th>
<th>Income</th>
<th>Individualism</th>
</tr>
</thead>
<tbody>
<tr>
<td>RP</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nationality</td>
<td>.261**</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.034</td>
<td>.117</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-.068</td>
<td>.044</td>
<td>.015</td>
<td>1.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>.009</td>
<td>-.225*</td>
<td>-.118</td>
<td>-.000</td>
<td>1.000</td>
<td></td>
</tr>
<tr>
<td>Individualism</td>
<td>-.582**</td>
<td>-.470**</td>
<td>.026</td>
<td>.021</td>
<td>-.093</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*p<0.05, ** p<0.001

4.3 Two Sample T-tests

As mentioned in the methodology section, two sample T-tests will be used to examine Hypothesis 1 and 2. Table 4.3 shows the results of the T-tests. These results indicate whether there is a significant statistical difference between the two groups on individualism/collectivism.
and risk-seeking preference. The p-value is an important figure to consider because it indicates whether there is enough evidence to reject the null hypothesis (there is no difference between Chinese and American students on cultural tendency and risk preference). The lower the p-value is, the more evidence we have to reject the null hypothesis.

From the results table, the p-values for the two hypotheses were both less than 0.01. This means that at 1% of the significance level, there was strong evidence to reject the null hypothesis in favor of the alternative hypothesis that Chinese students on average were more collectivistic than American students. Similarly, the second hypothesis was supported by the statistical tests as well. There was strong evidence showing that Chinese students were more risk-seeking than American students in making financial decisions in this study.

Table 4.3: Summary of Two Sample T-test Results for Chinese and American students

<table>
<thead>
<tr>
<th>Factors</th>
<th>China</th>
<th>US</th>
<th>P-value</th>
<th>Whether or not support the hypothesis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualism Scores</td>
<td>25.10</td>
<td>29.21</td>
<td>&lt;0.001</td>
<td>Hypothesis 1 was supported.</td>
</tr>
<tr>
<td>Risk Preference</td>
<td>4.40</td>
<td>3.71</td>
<td>&lt;0.01</td>
<td>Hypothesis 2 was supported.</td>
</tr>
</tbody>
</table>

### 4.4 Regression Analysis

Table 4.4 provides the summary and the results of the regression analysis in order to examine Hypothesis 3. These regression results indicate how each of the variables is predicted to relate with the dependent variable, i.e., risk preference. The R-squared, which is called the coefficient of determination, is a figure evaluates how well future outcomes are likely to be predicted by the regression model. The R-squared in this study was 0.347. This indicated that 34.7% of the variation in the dependent could be explained by the regression. The p-value for the regression as a whole was less than 0.001, which gave me enough evidence to predict the relationship between risk-seeking preference and cultural tendency.
As shown in Table 4.4, the results of the regression analysis include the coefficients, standard errors, t-values, and p-values. The coefficient for each independent variable shows the size of the effect it has on the dependent variable. The sign of the coefficient shows the direction of this effect. For example, the coefficient between age and risk preference was 0.0362. This indicated how much the risk preference index would increase as age increased by 1, holding all other independent variables constant. However, the coefficient isn’t significant unless the p-value is 0.05 or less. Looking at the p-values, all the control variables (nationality, age, gender, and income level) were not statistically significant to the dependent variable. Only the relationship between risk preference and individualism scores was of statistical significance. The p-value was small enough to reject the null hypothesis (the coefficient is equal to zero) in favor of the alternative hypothesis that there was a significant negative relationship between the individualism scores and risk-seeking preference. Figure 4.1 shows the relationship between Individualism Scores and Risk-seeking preference along with the effect of control variables. Therefore, these results helped support the hypothesis 3 that people with higher individualism scores tended to be less risk-seeking in making financial decisions.

Table 4.4: Results of Regression Analysis

<table>
<thead>
<tr>
<th>Ind. Var.</th>
<th>Coefficients</th>
<th>Std. Error</th>
<th>t (df=107)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nationality</td>
<td>-0.0993</td>
<td>0.2462</td>
<td>-0.403</td>
<td>.6876</td>
</tr>
<tr>
<td>Age</td>
<td>0.0362</td>
<td>0.0581</td>
<td>0.623</td>
<td>.5347</td>
</tr>
<tr>
<td>Gender</td>
<td>-0.1409</td>
<td>0.2041</td>
<td>-0.690</td>
<td>.4914</td>
</tr>
<tr>
<td>Income</td>
<td>-0.0432</td>
<td>0.0713</td>
<td>-0.606</td>
<td>.5460</td>
</tr>
<tr>
<td>Individualism</td>
<td>-0.1818</td>
<td>0.0275</td>
<td>-6.619</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intercept</td>
<td>8.4849</td>
<td>1.5449</td>
<td>5.492</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Notes: Dependent variable: Risk preference; R²=0.347; p-value<0.001

Figure 4.1: Relationship between Individualism Scores and Risk Preference Index
5. Discussion

The purpose of this thesis is to test the *Cushion Hypothesis* and examine how culture and financial risk preference differ between Chinese and American students. Below is a discussion of the implications and significance of the research based on the statistical analyses.

5.1 Cultural Differences

According to the two sample T-tests on individualism and collectivism between Chinese and American students, the results were consistent with my hypothesis. Chinese students who enrolled in the University of Minnesota tended to be more collectivistic than American students. In analyzing the responses to the individualism statements from the survey, American students were found to score significantly higher (agree more) on statements related with individualistic behaviors, such as “*I’d rather depend on myself than others,*” and “*I tend to do my own thing and most people in my family do the same.*” Alternatively, Chinese students were shown to report a higher degree of agreement on collectivistic phenomenon. On average, they believed “*The basic unit of society is the group, not the individual.*” In general, Chinese students tended to be more group-oriented while American students were more individual-oriented.
Even though many studies have tested the cultural difference on individualism and collectivism between Chinese and Americans before, this study is different from other studies in the sense that the Chinese respondents participated in this study were geographically located in the United States. One possible explanation for the consistent results could be that some cultural attributes may remain unchanged even the original context no longer exists. In this study, the respondents were likely to be undergraduate students with similar ages and years of experience in the United States. So the cultural discrepancies between Chinese students and Chinese students learning in the United States may be small. However, it is possible that some distinctive cultural traits may be shifted as respondents’ number of years living in the United States increases. Cultural assimilation could happen in the long run, even though it was not the focus of the study. Future studies could work on capturing respondents’ cultural experience in the United States to see whether it has any influence on the results.

### 5.2 The Cushion Hypothesis

As shown in the Correlation Matrix (Table 4.2) above, it was shown that there was a significant positive relationship between nationality and income, which means that the annual household income of American students was much higher than that of Chinese students. It is reasonable because the income levels in the survey were expressed in dollar terms as well as the risky options. If we were only given this piece of information, one would probably predict that American students were more risk-seeking because they were richer. However, according to the numbers in Correlation Matrix, there was a significant negative relationship between nationality and risk-seeking preference. Similar with what the Cushion Hypothesis predicts, the results from
the two-sample T-test showed that Chinese students tended to exhibit a more risk-seeking pattern in making financial decisions than American students.

Recall the third hypothesis, which was designed to find what really influences the risk-seeking preference, whether it is culture or nationality. The regression analysis further tested the relationship between cultural tendency and financial risk preference. If the Cushion Hypothesis suggests the difference in financial risk preference is rooted in the cultural differences and the collectivistic social network serves as the cushion for people to make riskier decisions. Then, there should be a significant relationship between culture and risk preference, over and above nationality. The results supported the hypothesis that a person with a more individualistic mindset would like to pursue the financial outcomes involving less risk. Figure 5.1 shows the relationship between nationality, cultural tendency (individualism and collectivism), and the risk-seeking preference. The model shows that people from any country could be either individualism-oriented or collectivism-oriented. Higher individualism (higher collectivism) tends to lead to less (more) risk-seeking preference in making financial decisions. Even though the regression analysis cannot test whether there is causality between the cultural tendency and risk preference, the regression model could still help predicting future risk behaviors.

Figure 5.1: Relationship Model
6. Conclusion

Consistent with previous research on cultural and risk preference study, this thesis finds that Chinese students tend to be more collectivistic than American students. They are more group-oriented while American students are more success-driven. In addition, Chinese students tend to exhibit a more risk-seeking pattern than American students in choosing among risky options. In order to investigate why this difference exists, this study also tests the relationship between cultural tendency and risk-seeking preference. Results show that individuals who are collectivistic-oriented tend to prefer options involving more risk. This finding supports the Cushion Hypothesis and contributes to the literature with empirical evidence.

Understanding the cultural differences and the Cushion Hypothesis is of highly practical significance, especially for those decisions-makers and international marketers that encounter cross-cultural communications. In the era of globalization, how to create good international relations and success in cross-cultural negotiations is essential. Bontempo, Bottom, and Weber (1997) pointed that accurate prediction of opponents’ risk preference will help increase the bargaining power of the negotiator. Based on the findings of this study, international decision-makers should understand that people from different cultures value different things. The financial risk preference across countries may also vary. Therefore, they should realize that making decisions or judgments based on stereotype or personal perception could potentially be misguided under another cultural context. Better prediction of other parties’ preference could increase the possibility of success.
References


Triandis, H. C. (1972). *The analysis of subjective culture*


Appendix A: Survey

1. Please circle the number that represents how you feel about the following statements:

I am a unique individual.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

It is important to maintain harmony within group.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

I tend to do my own thing and most people in my family do the same.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

The basic unit of society is the group, not the individual.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

I’d rather depend on myself than others.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

It is my duty to take care of my family, even when I have to sacrifice what I want.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

I would do what would please my family, even if I detested that activity.
Strongly Disagree -----1-----2-----3-----4-----5-----6-----7----- Strongly Agree

2. Suppose that you bought a lottery ticket a week ago. You are now informed that you have WON and have been given two options of how to receive the money. Please choose ONE from each scenario.

a) ___ Receive $30 for sure;
   ___ Flip a coin; receive $100 if head or $0 if tail.

b) ___ Receive $80 for sure;
   ___ Flip a coin; receive $100 if head or $0 if tail.

c) ___ Receive $60 for sure;
   ___ Flip a coin; receive $100 if head or $0 if tail.

d) ___ Receive $20 for sure;
   ___ Flip a coin; receive $100 if head or $0 if tail.

e) ___ Receive $40 for sure;
   ___ Flip a coin; receive $100 if head or $0 if tail.
f) ___ Receive $70 for sure;
    ___ Flip a coin; receive $100 if head or $0 if tail.

g) ___ Receive $50 for sure;
    ___ Flip a coin; receive $100 if head or $0 if tail.

3. What is the annual household income of your family (parents)?
   Under $24,999 _____
   $25,000 – $44,999 _____
   $45,000 – $74,999 _____
   $75,000 – $99,999 _____
   $100,000 – $249,999 _____
   $250,000 and above _____

4. What is your age? __________

5. What is your gender?
   Female _____
   Male _____

6. Are you an international student?
   No _____
   Yes _____
   If yes, which country are you from? __________