30 Financial Risk Tolerance of Chinese American Families

Rui Yao

Introduction

Planning for retirement has become a major financial goal for many households. The ability to accumulate adequate wealth to retire depends on prudent action with respect to investment activities. Investment strategies, including financial risk management, play a very important role in the process of wealth accumulation. In the long run, riskier assets have provided higher returns (Siegel 2002). Therefore, households must select between the higher risks associated with riskier assets and the lower rates of return with safer investments. The portfolio decision is dependent on household willingness to assume financial risks, commonly known as financial risk tolerance. Racial and cultural differences may affect household financial risk tolerance.

Households should preserve wealth to achieve short-term goals and at the same time reap adequate returns for intermediate- and long-term financial goals. Financial risk tolerance influences investment decisions, which directly affect a household's ability to accumulate adequate wealth to realize these goals. Households that are not willing to take financial risks may end up with inadequate wealth. On the contrary, too much financial risk may result in unnecessary losses. Previous research has provided evidence that a household's demographic characteristics, economic characteristics, and expectations of the future have an effect on its financial risk tolerance.

Race is a key demographic characteristic of a household. Of the total US population, 4.2 % are Asians (U.S. Census Bureau 2007), and about one-fourth of them report they are Chinese. A vast volume of research has been conducted on consumer financial well-being; however, the majority of previous studies analyzing racial differences in financial risk tolerance have focused on the comparison between White and non-White households (e.g. Bertaut and Starr-McCluer 2000; Zhong and Xiao 1995) and Whites, Blacks, and Hispanics (e.g. Plath and Stevenson 2000; Yao et al. 2005). One reason for not including Asian households as one separate race and ethnicity group may be the limitation of available datasets. For example, Yao et al. (2005) employed the Survey of Consumer Finances public use datasets, which combine various race and ethnicity groups into one category classified as "other." This category includes Asian, American Indian, Alaska Native, and Native Hawaiian/Pacific Islander. Households in this group represent many different cultures; combining them into one category does not generate meaningful results, and therefore, many studies excluded these households (e.g. Bucks et al. 2006).

Asian Americans are a greatly diversified group, who are from countries such as Cambodia, China, India, Japan, Korea, Laos, Pakistan,

R. Yao, Ph.D., CFP® (✉)
Personal Financial Planning Department,
University of Missouri, 239B Stanley Hall,
Columbia, MO 65211, USA
e-mail: rui_yao@yahoo.com; yaor@missouri.edu

C. Kwok-bun (ed.), *International Handbook of Chinese Families*,
DOI 10.1007/978-1-4614-0266-4_30,

Philippines, Thailand, and Vietnam. Although they share similar cultures in "Confucian Dynamism" (Hofstede and Bond 1988), each of these countries is unique in language, life style, cultural values, and beliefs (Kim et al. 2001). This study focuses on picturing the financial risk tolerance of Chinese Americans, the largest Asian American group, and analyzing the factors that affect their financial risk tolerance.

Literature Review

Existing differences in financial well-being of households with various racial/ethnic backgrounds have been documented. Using the 2000 Census data, Sharpe and Abdel-Ghany (2006) compared the income level of six Asian groups in the USA. Compared with White households, Japanese American households had significantly more income and Chinese, Filipinos, Korean, and Vietnamese immigrant households had less. Cobb-Clark and Hildebrand (2006) employed six Survey of Income and Program Participation datasets to study the wealth of US households. The authors concluded that immigrant households from European and Asian countries had substantially more wealth than average immigrant households. However, the Census data consistently shows that Asian American households are more likely to be in poverty than non-Hispanic White households (DeNavas-Walt et al. 2005; Reeves and Bennett 2004).

This wealth inequality between races may be due to the composition of wealth (Keister 2000). Different assets offer different combinations of financial risks and rates of return, and therefore, households with different asset allocations may end up with various levels of wealth. Stocks are generally riskier than other investments, however, in the long run, have historically produced higher returns (Ibbotson Associates 2006). Research on the ownership of risky assets (e.g. Bertaut and Starr-McCluer 2000; Haliassos and Bertaut 1995; Zhong and Xiao 1995) have found that Whites were more likely to own stocks than their non-White counterparts and that Whites also had higher holdings of stocks and bonds. Black households were found to hold a higher proportion of low-yield financial assets and a lower proportion of stocks and bonds (Plath and Stevenson 2000). Coleman (2003) examined the ratio of risky assets divided by net worth and found that, all else being equal, Hispanics allocated a lower proportion of net worth to risky assets than Whites.

Race and ethnicity have been found to affect household attitude towards taking financial risks and their actual risk-taking behavior. In a study of the determinants of a financial risk tolerance, Grable and Joo (1999) found that white-collar clerical workers who were White were less risk tolerant than their non-White counterparts. Coleman (2003) studied household willingness to take financial risks and their actual investment behavior. It was found that Blacks and Hispanics were less willing to take financial risks than otherwise similar Whites. The study by Yao et al. (2005) found that Blacks and Hispanics were more likely to be willing to take no financial risks; however, Hispanics were also more likely to be willing to take substantial financial risks than their otherwise similar White counterparts.

Irwin (1993) asserted that attitudes affect behavior. Consequently, willingness to tolerate financial risks should influence a household's investment behavior. In other words, financial risk tolerance plays a critical role in household wealth accumulation and achievement of financial goals. This is confirmed by previous research (e.g. Campbell 2006; Snelbecker et al. 1990), which concluded that risk tolerance was an important factor that influences financial behavior.

Although race and ethnicity have been consistently found to have an effect on financial risk tolerance, minority groups, especially Asian American households, are inadequately studied. In the literature, minority groups with an Asian background have been combined with other race/ethnicity groups or even ignored (e.g. Bryant 1986; Getter 2006; Olney 1998). It is erroneous and misleading to assume that the simple assignment to a race/ethnicity group affects household financial well-being. A more in-depth discussion of the reasons behind the visible race/ethnicity classification is necessary. The differences in financial well-being

that are claimed, by some researchers, to be race/ethnicity related may be due to other factors hidden behind the race/ethnicity variable. Cultures and beliefs that are associated with race/ethnicity may be more likely to affect an individual's financial behavior, which have direct impacts on his economic well-being. Knowledge of which factors truly affect financial risk tolerance is a step-forward in understanding how best to propose strategies that strengthen financial risk tolerance for Chinese Americans.

Controlling for race and ethnicity, household demographic characteristics, economic characteristics and expectations have been found to play an important role in household financial risk tolerance. Most prior research found that age was negatively related to financial risk tolerance (Bakshi and Chen 1994; Morin and Suarez 1983; Palsson 1996). However, some discovered that the effect of age on financial risk tolerance was not linear (Plath and Stevenson 2000; Riley and Chow 1992). Previous research agreed that women were less risk tolerant than men (e.g. Jianakoplos and Bernasek 1998; Hariharan et al. 2000; Hartog et al. 2002).

Prior research showed that risk tolerance increased with income and wealth (Hartog et al. 2002; Riley and Chow 1992). Hinz et al. (1997) and Grable and Joo (1999) found income to be positively related to financial risk tolerance. Gollier (2000) concluded that being subject to a liquidity constraint makes individuals less willing to bear risks.

Grable (2000) found that those with more positive economic expectations were more risk tolerant than those with lower expectations. Hariharan et al. (2000) found that the proportion of financial assets invested in stocks and bonds increased with the investment time horizon.

Theoretical Framework

Expected Utility Theory

If people maximize expected values, their investment portfolio would consist of 100 % of the asset with the highest mean return. However, as shown by the St. Petersburg Paradox, people would not pay an infinite price to play a gamble that has an infinite expected amount of return. Risk aversion plays a role in utility functions. Bernoulli Utility Function is often used to refer to a decision-maker's utility over wealth. When the outcomes are uncertain, the expected utility function is dealing with decision-making under uncertainty. The Expected Utility Theory (EUT) states that the decision maker chooses between uncertain prospects by comparing their expected utility.

Risk Aversion and Risk Tolerance

Based on the form of Bernoulli utility functions, people's attitudes towards risk can be categorized into three groups: risk-averse, risk-neutral, and risk-loving. As stated by Friedman and Savage (1948), risk aversion implies that when facing choices with equal returns, people tend to choose the less-risky alternative. Risk-averse behavior is demonstrated by a concave Bernoulli utility function. The most famous measures of risk aversion were introduced by Pratt (1964) and Arrow (1965). Pratt (1964) developed the measure of absolute risk aversion and demonstrated that more risk-averse individuals would invest a smaller amount of wealth in risky assets. Arrow (1965) derived the measure of relative risk aversion and suggested that individuals with a higher level of risk aversion would invest a smaller proportion of their wealth into risky assets.

Barsky et al. (1997) defined risk tolerance as the inverse of risk aversion. Historical rates of return fluctuate around their mean. Different types of assets show different magnitudes of such fluctuation (risk). Different individuals have different tolerance levels toward risk. Some people can tolerate a high level of risk (or have low risk aversion), and others can tolerate less risk (or have high risk aversion).

Hypotheses

As demonstrated by Pratt (1964) and Arrow (1965), wealth provides utility. The hypotheses in

this study are based on the assumptions that (1) people are rational; (2) they seek to maximize their wealth; and (3) they are generally risk averse.

Age should have a negative effect on financial risk tolerance because as people age, they have less time to make up possible losses. On average, females live longer than males, and therefore, should tolerate more financial risks in order to receive a higher investment return to fund their living. Individuals with related children under age 18 may be less risk tolerant because their decision on financial risk taking will affect more family members. It may be more painful to make others deal with a reduced living standard than to personally accept it for oneself.

Since liquid assets provide financial flexibility in case of investment losses, households with an adequate emergency fund should be more risk tolerant than those without. Non-financial assets (except own home) should function as a second-tier financial cushion in case of investment losses. Therefore, the level of non-financial assets is expected to have a positive effect on financial risk tolerance. Income should positively influence financial risk tolerance. Apart from offering a financial backup when investment losses occur, higher income is related to lower wage replacement rate of Social Security and less opportunity to reap benefits from different kinds of retirement accounts. Households with more income should take more financial risks in order to receive higher returns to meet their needs.

When individuals expect the economy to be better in the future, they should be more willing to take financial risks to take advantage of the market. Individuals with a longer investment time horizon should be more risk tolerant since they have a longer time to recover from possible investment losses.

Empirical Methodology

The SCF Measure of Risk Tolerance

In this chapter, financial risk tolerance is defined as the willingness to assume financial risk in order to obtain a certain level of financial return. The Survey of Consumer Finances (SCF) question on willingness to take financial risk is:

> Which of the statements on this page comes closest to the amount of financial risk that you and your spouse/partner are willing to take when you save or make investments?

1. Take substantial financial risks expecting to earn substantial returns.
2. Take above average financial risks expecting to earn above average returns.
3. Take average financial risks expecting to earn average returns.
4. Not willing to take any financial risks.

This measure is based on respondents' beliefs rather than their behavior, which is more reasonable than behavior-based measures because households without investment assets at present can still specify the level of financial risk tolerance they would like to take if they had money to invest.

The Concept of Chinese American Households

Households currently living in the USA with a Chinese heritage include three major categories: households whose members are Chinese citizens; households with a mixture of citizenships but with a Chinese heritage; and households whose members are US citizens but with a Chinese heritage (Fig. 30.1). Technically, Chinese American is a term that is used to refer to US citizens with a Chinese heritage. However, during any data collection process, respondents are usually asked to self-identify their race but not their nationality. It is not possible to differentiate between Chinese individuals who are US citizens and those who are not.

In the 2000 US Census survey, all respondents, regardless of their citizenship or immigration status, were asked to select one or more of the race categories: American Indian or Alaska Native; Asian; Black or African American; Native Hawaiian or Other Pacific Islander; and White (http://www.census.gov/population/www/socdemo/race/racefactcb.html). In its 1993 publication "We the Americans: Asians," the US Census used the term "Asian Americans" to describe

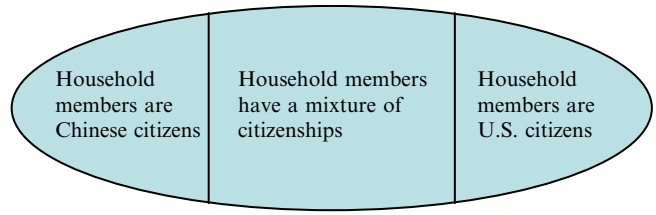

Fig. 30.1 Households in the USA with a Chinese heritage

this figure will be printed in b/w

Asians in the USA including Chinese, Filipinos, Koreans, Asian Indians, Japanese, Vietnamese, Cambodians, Laotians, Hmong, and Thai (U.S. Census Bureau 1993).

Following the same method, the term "Chinese American households" is used, in this chapter, to refer to households currently living in the USA with a Chinese heritage, regardless of their citizenship and immigration status.

Data

A survey was conducted by selecting relevant questions from the SCF. Authorization from the Federal Reserve Board was obtained to use these questions. Willingness to take financial risks was the major question asked in the survey. Other information collected includes household demographic characteristics (e.g. age, marital status), economic characteristics (e.g. income, assets, debts), and future expectations (e.g. self-perceived life expectancy).

Data were collected from Chinese households located in five Midwestern states in the Northwest Central Region, including Iowa, Minnesota, Nebraska, North Dakota, and South Dakota. The two largest cities (most populated without adjusting for area) in each of the five states were selected. The DEX white pages online phone book (http://www.dexknows.com/) was used to identify households with a Chinese last name listed. There were a total of 1,957 Chinese American households identified in these states. Every other household was selected and 979 phone calls were made to invite them to participate in the study. A $10 Wal-Mart gift card was offered as an incentive to participate.

Two hundred and forty-two households could not be reached due to reasons such as a number not in service, number disconnected, wrong number, fax number, no answer, and number always busy. Households that could not be reached due to no answer or a busy line were contacted two more times at a different time on a different day. Phone calls were continuously made to randomly selected new households until a total of 979 households were contacted. A total of 341 households agreed to participate in the research over the phone. One survey was mailed to each of these households, from which, 158 completed surveys were received. Among these completed surveys, nine did not provide vital information such as level of income and market value of home. These surveys were not used in the analysis. One respondent indicated an annual income of $2 million, which did not have significant impact on the multivariate results and therefore was included in the analyses. As a result, the total number of respondents in this study was 149.

Variables

The dependent variable was the SCF measure of financial risk tolerance. Due to the small number of respondents, the four choices of the dependent variable (substantial risk, above average risk, average risk, and no risk) were categorized into two groups: no risk and some risk. Independent variables include household demographic characteristics, economic characteristics, and respondent expectations.

Demographic characteristics included age, gender, and presence of related child(ren) under 18. Age was categorized into three groups: less than

35; 35–49; and 50 and older. Marital status was not included in the logistic model due to inadequate number of respondents in the categories of never married, separated or divorced, and widowed. Education was not included in the multivariate analysis due to its high correlation with income and amount of non-financial assets.

Economic characteristics included: emergency fund adequacy, amount of non-financial assets, and income. A household was considered to have and adequate level of emergency fund if it has at least 3 months' income saved in the form of liquid assets (e.g. cash, checking, savings, and money market accounts). Level of non-financial assets and income were used as continuous variables. Employment status was excluded from the logistic model due to insufficient number of respondents in the retired, not currently working, and self-employed categories. Home ownership was not included in the logistic analysis due to its high correlation with age, income, and the number of children under age 18.

Expectation variables included expectation of the economic performance in the future and investment time horizon. Respondents who expected the economy to be better than the past 5 years were grouped together and those who expected the economy to be worse or the same as the past 5 years were put into another group. Investment time horizon had three categories: less than 5 years, 5–10 years, and longer than 10 years. Expectation of a substantial amount of inheritance or asset transfers in the future was not included in the logistic model due to the small number of respondents who expected such assets.

Statistical Methods

A logistic model was used in the multivariate analysis. The model examines the effect of independent variables on the probability for respondents to take no financial risk or at least some financial risk, whether substantial, above average, or average.

There were four levels of the willingness to take financial risks. Respondents who were willing to take a substantial amount of financial risks in order to receive substantial amount of financial returns may be significantly different from those who were only willing to take average financial risk to obtain average amount of return. This binary measure of willingness to take financial risks can only differentiate whether households take any financial risk or not at all; for those who expressed a willingness to take some financial risk, this method cannot distinguish between different levels of financial risk tolerance. Therefore, some useful information endogenous to the choice of financial risks was not used. However, due to the small number of respondents, the binary logistic model was the best that could be used.

Results

Characteristics of Sample Households

As shown in Table 30.1, the age of the respondents ranged from 24 to 77 years old, with the mean and the median age being 42. Of the total respondents, only six did not receive a bachelor's degree (Table 30.2); 20 indicated that their highest education level was a bachelor's degree; 123 received a graduate degree. There were 45 female respondents and 104 male respondents. The majority of the respondents (88.6 %) were married or living with a partner; 6.0 % were separated or divorced; 5.4 % were never married; and none of them were widowed. About three quarters (72.5 %) of the total respondents had at least one related child under age 18 living with them.

Table 30.1 Age, non-financial assets, and annual income of respondents

	Minimum	Maximum	Mean	Median
Age	24	77	42	42
Non-financial assets	$0	$500,000	$39,312	$20,000
Annual income	$10,900	$2,000,000	$105,976	$85,000

Table 30.2 Financial risk tolerance by respondent characteristics t2.1

	No risk	Average risk	Above average risk	Substantial risk	
Education of respondents					t2.3
Less than High School Diploma	100 %	0 %	0 %	0 %	t2.4
	1	0	0	0	t2.5
High School Diploma	100 %	0 %	0 %	0 %	t2.6
	3	0	0	0	t2.7
Associate Degree or Some College	100 %	0 %	0 %	0 %	t2.8
	2	0	0	0	t2.9
Bachelor's Degree	30.0 %	55.0 %	10.0 %	5.0 %	t2.10
	6	11	2	1	t2.11
Graduate Degree	13.8 %	43.9 %	32.5 %	9.8 %	t2.12
	17	54	40	12	t2.13
Gender of respondents					t2.14
Male	15.4 %	43.3 %	28.9 %	12.5 %	t2.15
	16	45	30	13	t2.16
Female	28.9 %	44.4 %	26.7 %	0 %	t2.17
	13	20	12	0	t2.18
Marital status					t2.19
Married/living with partner	18.2 %	47.0 %	28.0 %	6.8 %	t2.20
	24	62	37	9	t2.21
Divorced or separated	33.3 %	33.3 %	22.2 %	11.1 %	t2.22
	3	3	2	1	t2.23
Never married	18.2 %	47.0 %	28.0 %	6.8 %	t2.24
	2	0	3	3	t2.25
Presence of related children <18					t2.26
Yes	19.4 %	48.2 %	29.6 %	2.8 %	t2.27
	21	52	32	3	t2.28
No	19.5 %	31.7 %	24.4 %	24.4 %	t2.29
	8	13	10	10	t2.30
Emergency fund adequacy					t2.31
Yes	18.9 %	50.9 %	18.9 %	11.3 %	t2.32
	10	27	10	6	t2.33
No	19.8 %	39.6 %	33.3 %	7.3 %	t2.34
	19	38	32	7	t2.35
Employment status					t2.36
Working for someone else	17.9 %	43.3 %	29.9 %	9.0 %	t2.37
	24	58	40	12	t2.38
Self-employed	50.0 %	37.5 %	0 %	12.5 %	t2.39
	4	3	0	1	t2.40
Not currently working	16.7 %	50.0 %	33.3 %	0 %	t2.41
	1	3	2	0	t2.42
Retired	0 %	100 %	0 %	0 %	t2.43
	0	1	0	0	t2.44
Home ownership					t2.45
Homeowner	17.4 %	45.5 %	29.8 %	7.4 %	t2.46
	21	55	36	9	t2.47
Renter	28.6 %	35.7 %	21.4 %	14.3 %	t2.48
	8	10	6	4	t2.49

(continued)

Table 30.2 (continued)

	No risk	Average risk	Above average risk	Substantial risk
Expecting substantial amount of inheritance or asset transfer				
Yes	0 %	66.7 %	33.3 %	0 %
	0	4	2	0
No	20.3 %	42.7 %	28.0 %	9.1 %
	29	61	40	13
Expectation of economy performance				
Better	20.0 %	32.7 %	30.9 %	16.4 %
	11	18	17	9
Same as now	21.2 %	48.5 %	27.3 %	3.0 %
	3	32	18	2
Worse	14.3 %	53.6 %	25.0 %	7.1 %
	4	15	7	2
Investment time horizon				
Next few months	60.0 %	20.0 %	20.0 %	0 %
	6	2	2	0
Next year	18.2 %	54.6 %	27.3 %	0 %
	2	6	3	0
Next few years	20.8 %	52.8 %	22.6 %	3.8 %
	11	28	12	2
Next 5–10 years	25.0 %	42.9 %	28.6 %	3.6 %
	7	12	8	1
Longer than 10 years	6.4 %	36.2 %	36.2 %	21.3 %
	3	17	17	10
Total	19.5 %	43.6 %	28.2 %	8.7 %
	29	65	42	13

Only one-third of the total respondents (35.6 %) had at least 3 months' income saved in a liquid form. One of the respondents was retired; six (4.0 %) were not working at the time of the survey; 5.4 % were self-employed; and 89.9 % were working for someone else. Homeowners counted for 81.2 % of the total respondents. Six (4.0 %) respondents were expecting a large inheritance or asset transfer in the future. Around one-fifth (18.8 %) of the respondents specified that compared to the past 5 years, they expect the US economy to perform worse in the next 5 years; 36.9 % expressed the opposite expectation; and 44.3 % indicated that the economy is going to perform about the same as the past 5 years. In terms of their family's saving and spending, 6.7 % of the respondents indicated that they were planning for the next few months; 7.4 % were planning for the next year; 35.6 % were planning for the next few years; 18.8 % were planning for the next 5–10 years; and 31.5 % had a horizon of longer than 10 years.

Table 30.1 shows that the mean non-financial assets ~~were of~~ $39,312. Total household income averaged at $105,976, and the median was $85,000. The distribution of income is highly skewed because one respondent indicated a total annual income of $2,000,000. The next highest income level was $310,000.

Twenty-nine of the 149 (19.5 %) respondents indicated in their survey that they were not willing to take any financial risk; 43.6 % were willing to take average financial risk in order to earn average returns; 28.2 % expressed a willingness to take above average financial risk in order to earn above average returns; and 8.7 % indicated that they were willing to take substantial financial risk in order to earn substantial returns.

Controlled Results

After controlling for other variables, being a male had a significant effect on the willingness to take financial risks (Table 30.3). All else being the same, males were twice as likely to take financial risks as female respondents.

As shown in Table 30.3, both annual income and amount of non-financial assets had a significant impact on financial risk-taking. Those with a higher level of household income in the past year were more likely to take some financial risks than those with a lower level of household income. Compared to otherwise similar counterparts, those who had more non-financial assets were more likely to be willing to assume financial risks.

Investment time horizon had a significant positive effect on financial risk tolerance. Respondents who identified an investment time horizon of longer than 10 years were 2.4 times as likely to take some financial risks as those who selected a medium length of horizon (5–10 years). However, the likelihood to take financial risks of those who indicated a short investment time horizon (less than 5 years) was not significantly different from those with a medium length of investment time horizon.

Table 30.3 Logistic analysis of the likelihood of taking some financial risks

Parameter	Some risk Coefficient odds ratio
Intercept	−0.8097
Age 35–49: reference group: age <35	1.3517 3.864
Age >=50	1.3149 3.724
Male	0.6792* 1.972
Presence of related children under age 18	0.0170 1.017
Emergency fund adequate	0.2701 1.310
Non-financial assets	5E-06* 1.000
Annual income	3E-05** 1.000
Expect the economy to be worse	−0.0878 0.916
Planning for <5 years	0.1210 1.129
Planning for >10 years	0.8824* 2.417
Concordance	83.1
Chi-square test of the likelihood ratio	35.0612 *P*=0.0001

Note: *$p<0.05$, **$p<0.01$

Summary and Discussion

Earning more income, having more non-financial assets, and having an investment time horizon of longer than 10 years had a significant positive effect on the willingness to take some financial risks. These results are consistent with the hypotheses. Being a male had a positive effect on financial risk tolerance, which is consistent with the findings in previous research (e.g. Guiso et al. 1996; Hariharan et al. 2000; Hartog et al. 2002; Jianakoplos and Bernasek 1998; Powell and Ansic 1997; Yao and Hanna 2005), but inconsistent with the hypothesis. All other things being equal, females, who are expected to live longer than males on average, should take more financial risks in order to obtain higher returns to support their consumption. There might be a few reasons why females are not so willing to take financial risks; lack of knowledge and experience of investing and taking financial risks may be one of them (Campbell 2006). The results of this study suggest that females should learn more about available investment assets and their associated financial risks so that financial risks do not seem to be so terrifying.

Those with at least a 3-month income saved in liquid forms were expected to be more willing to take financial risks than otherwise similar respondents who do not have adequate emergency funds saved. However, this is not confirmed by the logistic results. Households that do not have such assets should not consider taking financial risks until their emergency funds are adequately saved. Without a sufficient amount of emergency fund, a household is vulnerable to unexpected risks such as loss of employment.

Having at least one related child under the age of 18 living in the household was hypothesized to

have a negative effect on financial risk tolerance. However this hypothesis was rejected by the multivariate results. In other words, whether or not they have such children living in the household, the majority of respondents were willing to take some financial risks (80.5 % of total households, as shown by Table 30.2). Children's education expenditure may be related to this result. Xiao and Fan (2002) found that Chinese were more likely than Americans to save for children and for higher education expenses may be one of the reasons. In China, average household expenditure on education has been increasing at an average rate of 29.3 % per year since 1990, much higher than the increase of household income (Li 2000). It was also found that on average, Chinese households spend 15.1 % of their income on education. However, in the USA, the K-12 education is free. Even if an investment loss should occur, it is not likely to affect young children's education. Therefore, coming from a country where education is expensive, immigrant households from China may be more likely to take some financial risk and invest for other goals.

Table 30.2 showed that the majority (80.5 %) of Chinese Americans were willing to take at least some financial risks. This percentage is much higher than the 59.4 % of Whites, 43.0 % of Blacks, and 36.1 % of Hispanics, found by Yao et al. (2005). This is consistent with the findings by Fan and Xiao (2006), which concluded that Chinese were more risk tolerant than Americans. The traditional belief that Chinese may be more risk averse (Douglas and Wildavsky 1982) needs to be revisited. The fact that many factors that should ~~impact on~~ household financial risk tolerance did not have a significant effect after controlling for other variables indicates that Chinese American households may not be well informed on what financial risk is and the appropriate amount of risk to take.

Implications

The inequality of wealth may be an unresolved issue (Keister 2000). However, knowledge of financial risks, which directly affect one's wealth accumulation, can be improved through education and training that is targeted at minority groups such as Chinese Americans. The consistent finding of males being more risk tolerant than females suggests that such education is needed whether or not there is a genetic difference in risk taking between men and women. Financial planners, as the fiduciary of their clients, should educate their Chinese American clients regarding the outcomes related to inappropriate financial risk taking and help them select the right amount of financial risk to take in order to achieve their financial goals. In this study, emergency fund adequacy was found to be unrelated to financial risk tolerance of Chinese American households (Table 30.4). Those who do not have adequate emergency fund saved should be informed that enough emergency fund should be in place before investing in risky assets such as stocks.

Immigration status may affect household financial risk tolerance. Immigrants with a temporary student visa or work visa are likely to have a lower financial risk tolerance due to the uncertainty of their future: whether they would stay in the USA or not. Unlike those individuals, Chinese immigrants who are permanent residents or have a US citizenship may be more comfortable in taking financial risks because they are assured that they do not have to leave the USA due to immigration reasons. Masuo et al. (2004) claimed that the degree of affinity to a certain culture affects the money attitudes and beliefs of young immigrants.

Table 30.4 Hypotheses' test results

Variable	Hypothesized effect	Actual effect
Age	–	NS
Male	–	+
Presence of related children under age 18	–	NS
~~Emergency fund adequate~~	+	NS
Non-financial assets	+	+
Annual income	+	+
Expect the economy to be better	+	NS
Planning for <5 years	–	NS
Planning for >10 years	+	+

Note: + positive effect, – negative effect, NS not significant

Rhine and Greene (2006) found that the length of living in the USA had a significant ~~impact~~, on the banking status of immigrants: those who had lived in the USA for a longer period of time were found to be less likely to be unbanked. Kwon et al. (2004) concluded that the degree of acculturation affected Asian immigrant household economic well-being. Compared to first-generation immigrants, Chinese Americans who were born and raised in the USA may be more acquainted with American values and beliefs and, therefore, may have different attitudes towards financial risks that directly affect their economic well-being.

This study has several limitations. One is the lack of knowledge on respondent immigration status and their culture affinity; therefore, whether these factors contributed to some of the statistical insignificance of controlled results cannot be determined. Another limitation is that samples were chosen according to their last name listed on the DEX white pages online phone book. Households with no landlines and households that list their non-Chinese member's last name in the phone book could not be identified nor contacted. Nonetheless, this study makes the first step into the investigation of Chinese American households' financial risk tolerance.

The Chinese American population is the biggest Asian American group, which is growing fast (Bernstein 2004). This group has enormous needs in financial services that could be better served by the financial services industry in the USA. Future research should compare Chinese American households and households with other racial/ethnic backgrounds, investigate the similarities and differences in financial risk tolerance between these groups, and provide in-depth understanding of these similarities and differences in order to help households improve their economic well-being by taking the appropriate level of financial risk.

References

Arrow, K. J. (1965). Aspects of the theory of risk bearing. Helsinki: Yrjo Jahnsson Foundation (Reprinted in Arrow, K. J., 1971. *Essays in the theory of risk-bearing.* Chicago: Markham Pub. Co.).

Bakshi, G. S., & Chen, Z. (1994). Baby boom, population aging, and capital markets. *Journal of Business, 67*(2), 165–202.

Barsky, R. B., Juster, T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An example approach in the Health and Retirement Study. *Quarterly Journal of Economics, 112*(2), 537–579.

Bernstein, R. (2004). Hispanic and Asian Americans increasing faster than overall population. Retrieved November 20, 2007, from http://www.census.gov/Press-Release/www/releases/archives/race/001839.html.

Bertaut, C., & Starr-McCluer, M. (2000). Household portfolios in the United States. Federal Reserve Board of Governors. Retrieved November 27, 2007, from http://www.federalreserve.gov/pubs/feds/2000/200026/200026pap.pdf.

Bryant, W. K. (1986). Assets and debts in a consumer portfolio. *Journal of Consumer Affairs, 20*(1), 19–35.

Bucks, B. K., Kennickell, A. B., & Moore, K. B. (2006). Recent changes in U.S. family finances: Evidence from the 2001 and 2004 Survey of Consumer Finances. *Federal Reserve Bulletin,* Retrieved on December 18, 2007 from http://www.federalreserve.gov/pubs/bulletin/2006/financesurvey.pdf.

Campbell, J. Y. (2006). Household finance. *Journal of Finance, 61*, 1553–1604.

Cobb-Clark, D. A., & Hildebrand, A. A. (2006). The wealth and asset holdings of US-born and foreign-born households: Evidence from SIPP data. *Review of Income and Wealth, 52*(1), 17–42.

Coleman, S. (2003). Risk tolerance and the investment behavior of Black and Hispanic heads of household. *Financial Counseling and Planning, 14*(2), 43–52.

DeNavas-Walt, C., Proctor, B. D., & Lee, C. H. (2005). *U.S. Census Bureau, Current population reports, P60–231, Income, poverty, and health insurance coverage in the United States: 2005*. Washington, DC: U.S. Government Printing Office.

Douglas, M., & Wildavsky, A. (1982). *Risk and culture: An essay on the selection of technical and environmental dangers*. Berkeley, CA: University of California Press.

Fan, J. X., & Xiao, J. J. (2006). Cross-cultural differences in risk tolerance: A comparison between Chinese and Americans. *Journal of Personal Finance, 5*(3), 54–75.

Friedman, M., & Savage, L. P. (1948). The utility analysis of choices involving risk. *Journal of Political Economy, 56*, 279–304.

Getter, D. E. (2006). Consumer credit risk and pricing. *Journal of Consumer Affairs, 40*(1), 41–63.

Gollier, C. (2000). What does the classical theory have to say about portfolio choice? In L. Guiso, M. Haliassos, & T. Jappelli (Eds.), *Household portfolios*. Cambrige, MA: MIT Press.

Grable, J. E. (2000). Financial risk tolerance and additional factors that affect risk taking in everyday money matters. *Journal of Business and Psychology, 14*(4), 625–630.

Grable, J. E., & Joo, S. (1999). Factors related to risk tolerance: A further examination. *Consumer Interests Annual, 45*, 53–58.

Guiso, L., Jappelli, T., & Terlizzese, D. (1996). Income risk, borrowing constraints, and portfolio choice. *American Economic Review, 86*(1), 158–172.

Haliassos, M., & Bertaut, C. C. (1995). Why do so few hold stocks? *The Economic Journal, 105*(432), 1110–1129.

Hariharan, G., Chapman, K. S., & Domian, D. L. (2000). Risk tolerance and asset allocations for investors nearing retirement. *Financial Services Review, 9*(2), 159–170.

Hartog, J., Ferrer-I-Carbonell, A., & Jonker, N. (2002). Linking measured risk aversion to individual characteristics. *Kyklos, 55*(1), 3–26.

Hinz, R. P., McCarthy, D. D., & Turner, J. A. (1997). Are women conservative investors? Gender differences in participant-directed pension investments. In M. S. Gordon, O. S. Mitchell, & M. M. Twinney (Eds.), *Positioning pensions for the twenty-first century* (pp. 91–103). Philadelphia: University of Pennsylvania Press.

Hofstede, G., & Bond, M. H. (1988). The Confucius connection: From cultural roots to economic growth. *Organizational Dynamics, 16*, 5–21.

Ibbotson Associates. (2006). *Stocks, bonds, bills, and inflation 2005 yearbook*. Chicago: Ibbotson Associates.

Irwin, C. E. (1993). Adolescence and risk taking: How are they related? In N. J. Bell & R. W. Bell (Eds.), *Adolescent risk taking*. Newbury Park, CA: Sage.

Jianakoplos, N. A., & Bernasek, A. (1998). Are women more risk averse? *Economic Inquiry, 36*(4), 620–630.

Keister, L. A. (2000). Race and wealth inequality: The impact of racial differences in asset ownership on the distribution of household wealth. *Social Science Research, 29*, 477–502.

Kim, B. S. K., Yang, P. H., Atkinson, D. R., Wolfe, M. M., & Hong, S. (2001). Cultural value similarities and differences among Asian American Ethnic Groups. *Cultural Diversity and Ethnic Minority Psychology, 7*(4), 343–361.

Kwon, H., Zuiker, V. S., & Bauer, J. W. (2004). Factors associated with the poverty status of Asian immigrant householders by citizenship status. *Journal of Family and Economic Issues, 25*(1), 101–120.

Li, H. (2000). An empirical analysis on education expenditure of Chinese households. *Journal of Education and Economy, 16*(4), 1–7.

Masuo, D. M., Malroutu, Y. L., Hanashiro, R., & Kim, J. H. (2004). College students' money beliefs and behaviors: An Asian perspective. *Journal of Family and Economic Issues, 25*(4), 469–481.

Morin, R. A., & Suarez, A. F. (1983). Risk aversion revisited. *The Journal of Finance, 38*(4), 1201–1216.

Olney, M. L. (1998). When your world is not enough: Race, collateral, and household credit. *Journal of Economic History, 58*(2), 408–431.

Palsson, A. M. (1996). Does the degree of relative risk aversion vary with household characteristics? *Journal of Economic Psychology, 17*(6), 771–787.

Plath, D. A., & Stevenson, T. H. (2000). Financial services and the African-American market: What every financial planner should know. *Financial Services Review, 9*(4), 343–359.

Powell, M., & Ansic, D. (1997). Gender differences in risk behaviour in financial decision-making: An experimental analysis. *Journal of Economic Psychology, 18*, 605–628.

Pratt, J. W. (1964). Risk aversion in the small and in the large. *Econometrica, 32*(1/2), 122–136.

Reeves, T., & Bennett, C. E. (2004). *We the people: Asians in the United States*. Washington, DC: U.S. Census Bureau.

Rhine, S. L. W., & Greene, W. H. (2006). The determinants of being unbanked for U.S. immigrants. *Journal of Consumer Affairs, 40*(1), 21–40.

Riley, W. B., & Chow, K. V. (1992). Asset allocation and individual risk aversion. *Financial Analysts Journal, 48*, 32–37.

Sharpe, D. L., & Abdel-Ghany, M. (2006). Determinants of income differentials: Comparing Asians with Whites and Blacks. *Journal of Family and Economic Issues, 27*(4), 588–600.

Siegel, J. J. (2002). *Stocks for the long run* (3rd ed.). New York: Mcgraw Hill.

Snelbecker, G. E., Roszkowski, M. J., & Cutler, N. E. (1990). Investors' risk tolerance and return aspirations, and financial advisors' interpretations: A conceptual model and exploratory data. *The Journal of Behavioral Economics, 19*, 377–393.

U.S. Census Bureau. (1993). We the Americans: Asians. Retrieved November 20, 2007, from http://www.census.gov/apsd/wepeople/we-3.pdf.

U.S. Census Bureau. (2007). The American community – Asians: 2004. Retrieved March 16, 2009, from http://www.2010census.biz/prod/2007pubs/acs-05.pdf.

Xiao, J. J., & Fan, J. X. (2002). A comparison of saving motives of urban Chinese and American workers. *Family and Consumer Sciences Research Journal, 30*(4), 463–495.

Yao, R., Gutter, M. S., & Hanna, S. D. (2005). The financial risk tolerance of Blacks, Hispanics and Whites. *Financial Counseling and Planning, 16*(1), 51–62.

Yao, R., & Hanna, S. D. (2005). The effect of gender and marital status on financial risk tolerance. *Journal of Personal Finance, 4*(1), 66–85.

Zhong, L. X., & Xiao, J. J. (1995). Determinants of family bond and stock holdings. *Financial Counseling and Planning, 6*, 107–114.

Author Queries

Chapter No.: 30 0001540837

Queries	Details Required	Author's Response
AU1	Please check the change made to the sentence "Households should…	
AU2	Please check whether the table is appropriate as edited.	