

# Risk Tolerance and Financial Satisfaction

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**Abstract :** The purposes of this study are to examine effects of household characteristics and risk tolerance attitude on risk tolerance behavior and to investigate the effect of risk tolerance attitude and behavior on financial satisfaction. For this study, data were collected during October of 2001 through a popular Web site for women in South Korea ([www.azoomma.com](http://www.azoomma.com)). The participants in this study were 609 housewives, resulting in 607 with usable data. Multiple regression and path analysis were conducted using the SPSS for Windows. Findings suggest that the greater is risk tolerance attitude, the greater is risk tolerance behavior and those who exhibit more risk tolerance behavior tend to be more satisfied with their personal financial situation. It implies that risk tolerance behavior play a positive role in predicting financial satisfaction. The results have implication for family economists and educators in developing educational program and presenting strategic to increases financial well-being, and also for financial counselors and planners in suggesting portfolio advice to their client

**Key Words :** risk tolerance attitude, risk tolerance behavior, financial satisfaction

## I. Introduction

In recent years, households are facing with many dangerous economics situation and then how to manage the risk is an important issue in order to achieve their financial goal. Financial risk tolerance is a fundamental issue underlying a number of financial decision and then helps to explain consumer behavior related to earnings, expenditures and savings Choices regarding investment products, asset allocation plans, and portfolio accumulation strategies have been attributed to risk tolerance (Grable & Lytton, 1999). Evaluating a client's risk tolerance should

be a primary task for financial planners. A financial planner should help their clients understand the real risk in investments and achieve the highest return under constraints of client's financial capacities and risk tolerance levels. Also, financial advisors who aware of their clients' risk tolerance levels will be able to better help clients establish realistic and acceptable financial goals (Chang & DeVaney, 2001). Thus, understanding and predicting individual financial risk tolerance is related to financial satisfaction.

Several empirical studies of financial risk tolerance have examined demographic and socioeconomic factors as predictors of financial

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risk tolerance. However, there are few attempt to study the effect of risk tolerance on financial satisfaction as financial well-being. In order to meet long run saving goals, households need to invest in volatile assets that are risky in the short-run, but have historically been prudent long-run investments. Therefore, risk tolerance may lead to higher financial satisfaction in the long-run. The purposes of this study are to examine effects of household characteristics and risk tolerance attitude on risk tolerance behavior and to investigate the effect of risk tolerance attitude and behavior on financial satisfaction. The results have implication for family economists and educators in developing educational program and presenting strategic to increases financial well-being, and also for financial counselors and planners in suggesting portfolio advice to their client

## **II. Literature Review**

Previous risk tolerance studies have shown that demographic and socioeconomic factors have an impact on a risk tolerance. For example, age, income, education, and homeownership have been shown to influence financial risk tolerance (Lee & Hanna, 1991; Sung & Hanna, 1996; Grable & Joo, 1997; Wang & Hanna, 1997; Grable & Lytton, 1998; Grable & Joo, 1999). Wang and Hanna (1997) measured the risk tolerance as the ratio of risky assets to net wealth and found a positive relationship between risk tolerance and age. Grable and Joo(1999) concluded that, holding all other factors constant, education, income, financial knowledge, financial solvency had positive effects

on risk tolerance. On the other hand, home ownership, number of dependents, ethnicity were found to have a negative relationship with risk tolerance. Chang and DeVaney(2001) examined the determinants of objective and subjective risk tolerance. Age, education, marital status, self-employment, race and net worth were all determinants of both measures of risk tolerance.

Hanna and Chen(1997) found that the optimal portfolio should depend on objective risk tolerance (based on the investment horizon and the ratio of the household financial assets to total wealth) and subjective risk tolerance. Schooley and Worden(1996) examined the relationship between risk tolerance attitude and behavior and found that those who say they willing to take substantial risk to earn higher return do have riskier portfolios. Hariharan, Chapman and Domian(2000) found that risk-tolerant investors will hold a smaller fraction of their investments in the risk-free asset.

Only a few studies have investigated financial attitude, financial attitudes as an independent variable have an impact on financial management behavior(Godwin, 1994; Parrotta. & Johnson, 1998). Joo and Grable(1999) found that risk tolerance had an indirect positive effect on financial satisfaction through financial behaviors and stress level. Income had a large total effect on financial satisfaction.

Researchers have not yet obtained general consensus regarding the causal effects of relationships between risk tolerance attitude and risk tolerance behavior and financial satisfaction. The purpose of this study was to investigate causal effects of relationships between risk tolerance and financial satisfaction by testing the factors in path model.

### III. Methodology

#### 1. Data

For this study, data were collected during October of 2001 through a popular Web site for women in South Korea (www.azoomma.com). Among those who people visiting the web site, people who were interested in this topic answered the questionnaire with gift coupon. The participants in this study were 609 housewives, resulting in 607 with usable data.

#### 2. Measurement of Variables

The survey instrument, as shown in Table 1, included risk tolerance attitude, risk tolerance behavior, financial satisfaction, as well as demographic and socioeconomic characteristic such as age, education, income, and home ownership.

Financial satisfaction was measured with 2 items based on the scale presented in Waddell(1998) and Hira et al(1992) using a five point Likert-type scale. Respondents were asked to mark how satisfied they were with their present

<Table 1> Measurement of Variables

Variables	Definition and Measurement
<i>Household Variables</i>	
Age	Respondent's age(20-72)
Education	Respondent's education (year)
Income	Monthly total income
Homeownership	No:0 , Yes: 1
<i>Financial Variables</i>	
Risk tolerance attitude	5 items, 5-point scale, $\alpha=.671$
Risk tolerance behavior	Risky asset/total asset
<i>Financial satisfaction</i>	
	2 item, 5-point scale, $\alpha=.772$

financial situation and preparation for emergency situation. An index was found to be reliable with Cronbach's alpha of .77, which was acceptable levels. Higher scores were interpreted to indicate a higher financial satisfaction.

Risk tolerance behavior was measured by the share of risky assets in total assets. The total assets included amount of all financial and property assets. The risky assets were defined as the sum of stocks, bonds, mutual funds, the value of financial assets that provide an uncertain cash flow, the market value of real estate held for investment purposes, loans to individuals.

Five independent variables were used as

<Table 2> Risk Tolerance Attitude

(N=607)

Item	Mean	Standard Deviation
Investing is too difficult to understand.	2.53	1.02
I am more comfortable putting my money in a bank account than in the stock market.	1.68	0.81
When I think of the word "risk" the term "loss" comes to mind immediately.	1.92	0.88
Making money in stocks and bonds is based on luck.	1.79	0.88
In terms of investing, safety is more important than returns.	2.32	1.03
Index	2.05	0.92

possible predictor of risk tolerance behavior and financial satisfaction. Risk tolerance attitude was measured by a financial risk tolerance measure based on the scale presented in Grable and Joo(1999). Respondents answered five questions using a five point Likert-type scale: (1) strongly disagree (2) disagree (3) neither agree or disagree (4) agree (5) Strongly agree. Possible risk tolerance scores ranged from 5 to 25, with higher scores representing higher levels of financial risk tolerance attitude. The index was found to be reliable with a Cronbach’s alpha of .67, which was above acceptable levels as outlined by Pedhazur and Schmelkin(1991) for attitudinal measures. The responses are shown in Table 2.

A respondent’s actual age, education, and income, were used as a continuous variable. Home ownership was dummy coded. Home ownership was coded as 1, otherwise 0.

### 3. Data Analysis

An analysis was conducted using the SPSS for Windows. Descriptive statistics including reliability and correlation were obtained. In order to examine the effects of household characteristics and risk tolerance on financial satisfaction, multiple regression and path analysis were used. The path analysis included two regression equations. The first regression used age, education, income, homeownership, risk tolerance attitude variables with risk tolerance behavior as dependent variable. The second regression used age, education, income, homeownership, risk tolerance attitude, risk tolerance behavior variables with financial satisfaction as dependent variable.

## IV. Results and Discussion

### 1. Sample characteristics

Table 3 summarizes the demographic characteristic of the sample. The average age of respondents was 33 years, with the largest group (59.5%) being in their 30s. The majority of respondents (97%) had above high school education because information was collected through a Web site for women. The average monthly income was 2,240,000 (won) and 45.3% of respondents owned their own home. The average risk tolerance attitude score was 10.24.

<Table 3> sample characteristics (N=607)

Characteristic	Number or Mean	Percent
<b>Age</b>	32.66	n.a.
- 29	181	29.8
30 - 39	362	59.5
40 -	65	10.7
<b>Education</b>	13.9 years	n.a.
Middle school	8	3
High school	236	38.9
College	124	20.4
College above	239	39.4
<b>Income</b>	2,240,000(won)	n.a.
0-1,499,999	87	14.3
1,500,000-2,499,999	307	50.6
2,500,000-3,499,999	153	25.2
3,500,000 and above	60	9.9
Homeowner	275	45.3
Rent	332	54.7
<b>Risk tolerance attitude</b>	10.24	n.a.

\* In October, 2001, the interbank exchange rate averaged 1303.8 won per dollar, with a range of 1277.4 to 1324.0 (www.oanda.com). At the average rate, the mean monthly income of 2,240,000 is equivalent to \$1,718.

## 2. Variables related to risk tolerance behavior

Table 4 summarizes findings from the regression. Two regression models were employed in order to identify the relationship between risk tolerance attitude and risk tolerance behavior and financial satisfaction.

The Variance Inflation Factor (VIF) was used to examine possible multicollinearity problems among the independent variables. The VIF ranged from 1.08 to 1.19 in two regression models and no problems were discovered.

The first regression used risk tolerance behavior as the dependent variable controlling for the independent variables. The  $R^2$  for the equation was .11, indicating that approximately 11% of the variance of risk tolerance behavior was explained by the variables in the model. The F score for the model was 14.42 ( $P < .001$ ). Age, income and risk tolerance attitude had positive effects on risk tolerance behavior. Specifically, older persons are more risk tolerant behavior than younger persons,

the higher incomes tend to have greater risk tolerance behavior, higher levels of risk tolerance attitude led to have larger shares of risky assets in their portfolios. It implies that willingness to take risks has a positive effect on actual risk tolerance behavior. Age was positively related to risk tolerance behavior, consistent with previous studies (Chang & DeVaney, 2001; Wang & Hanna, 1997; Xiao, Alhabeed, Hong & Haynes, 2000). Income has been found to have a positive effect on risk tolerance in previous studies (Schooley & Worden, 1996; Cicchetti & Dubin, 1994). A respondent's home ownership was found to have a negative relationship with risk tolerance behavior, which was consistent with previous studies. Xiao, Alhabeed, Hong & Haynes, 2000; Jianakoplos & Bernasek, 1997)

## 3. Variables related to financial satisfaction

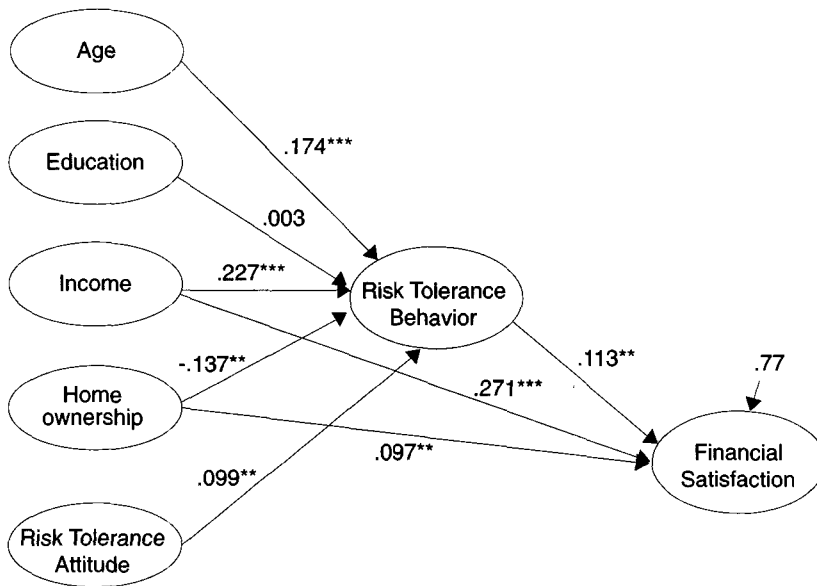
The second regression equation used financial satisfaction as the dependent variable controlling

<Table 4> Regression results

(N=607)

	Risk tolerance behavior		Financial satisfaction	
	B	^	B	^
Age	5.281E-03	.174***	-1.1E-02	-.033
Education	3.017E-04	.003	-2.1E-02	-.020
Income	3.503E-04	.227***	4.501E-03	.271***
Home ownership	-4.8E-02	-.137*	.366	.097*
Risk tolerance attitude	5.645E-03	.099**	-1.8E-02	-.028
Risk tolerance behavior			1.212	.113**
Constant		-.204		5.216
F-value		14.425***		11.730***
$R^2$		.108		.106

Home ownership 0: rent, 1: owner \* $P < .05$  \*\* $P < .01$  \*\*\* $P < .001$



<Figure 1> Path Analysis Result

\*P<.05 \*\*P<.01 \*\*\*P<.001

for the independent variables and risk tolerance behavior. The R<sup>2</sup> for the equation was .11, indicating that approximately 11% of the variance of financial satisfaction was explained by the variables in the model. The F score for the model was 11.73 (P<.001).

Figure 1 shows the path coefficients determined by the path analysis and their level of significance. The only proposed path found to be non-significant

was between education and risk tolerance behavior. Income, home ownership, and risk tolerance behavior were shown to have direct effects on financial satisfaction. Higher levels of income, home ownership, and risk tolerance behavior led to higher levels of financial satisfaction. The summary of direct, indirect and total effects is presented in table 5. Risk tolerance behavior was the important determinant of financial satisfaction.

<Table 5> Direct, Indirect and Total effects of the independent variables on financial satisfaction

Variables	Direct effects	Indirect effects	Total effects
Age	-.033	.019	-.014
Education	-.020	.000	-.020
Income	.271***	.025	.296
Homeownership	.097*	-.015	.082
Risk tolerance attitude	-.028	.011	-.017
Risk tolerance behavior	.113**	-	.113

This finding suggests that those who have the more risky asset tend to be more satisfied with their financial situation. This indicates that if educators, researchers, and practitioners can help to improve a person's risk management ability, this lead to higher levels of financial satisfaction. These findings suggested that the greater is risk tolerance attitude, the greater is risk tolerance behavior and those who exhibit more risk tolerance behavior tend to be more satisfied with their personal financial situation. It implies that risk tolerance behavior play a positive role in predicting financial satisfaction.

## V. Implications

The objectives of this study were to examine effects of household characteristics and risk tolerance attitude on risk tolerance behavior and to investigate the effect of risk tolerance attitude and behavior on financial satisfaction.

The first implication from this research is the impact that risk tolerance attitude has on risk tolerance behavior. Risk tolerance attitude was one of the important factors in determining a respondent's risk tolerance behavior. It indicates that risk tolerance attitude will increase risk tolerant behavior. In other words, the more risk tolerant tend to put more money into risky financial assets. This is good news for financial planners, counselors, educators and consumer specialists by understanding and predicting relationship risk tolerance attitude and risk tolerance behavior.

The second implication from this research is that

risk tolerance behavior has a positive effect on financial satisfaction. It means that financial risk tolerance behaviors are viewed in a positive light in relation to financial well-being such as financial satisfaction. The findings will provide insights and information for financial planner, professionals and educators to better understand positive aspects of risk tolerance. Professionals must make it their goal to motivate their clients to perform the risk-taking behavior and teach them general risk management skills. Also, consumer education programs should be developed.

## VI. Limitations and Recommendations

A limitation of this study was self-selected nature of the sample. Our respondents (can use the internet) were better educated and younger people (30s). Future research is needed to replicate this study using a more general sample in order to test the generalizability of these findings. Risk tolerance behavior is needed to measure specifically (include the human capital, investment horizon). Future research should also consider additional factors, such as risk knowledge and other financial well-being factors and try structural equation modeling with little stronger theoretical foundation

### ■ References

- Chang, C. C. & DeVaney, S. A. (2001). Determinants of objective and subjective risk tolerance. *Proceedings of the*

- Association for Financial Counseling and Planning Education*, 2001 annual conference, 90-97.
- Cicchetti, C. J. & Dubin, J. A. (1994). A microeconomic analysis of risk aversion and the decision to self-insure. *Journal of Political Economy*, 102, 169-186.
- Godwin, D. D. (1994). Antecedents and consequences of newlyweds' cash flow management. *Financial Counseling and Planning*, 5, 161-190.
- Grable, J. E. & Joo, S. H. (1997). Determinants of risk preference: Implication for family and consumer science professionals. *Family and Economics and Resource Management Biennial*, 2, 19-24.
- Grable, J. E. & Joo, S. H. (1999). Factors Related to risk tolerance: A Further Examination. *Consumer Interests Annual*, 45, 53-58.
- Grable, J. E. & Lytton, R. H. (1998). Investor risk tolerance: testing the efficacy of demographics as differentiating and classifying factors, *Financial Counseling and Planning*, 9 (1), 61-737.
- Grable, J. E. & Lytton, R. H. (1999). Assessing financial risk tolerance: do demographic, socioeconomic, and attitudinal factors work?, *Family Economics and Resource Management Biennial*, 1-9.
- Hanna, S. & Chen, P. (1997). Subjective and objective risk tolerance: Implications for optimal portfolios. *Financial Counseling and Planning*, 8 (2), 17-26.
- Hariharan, G., Chapman, K. S. & Domian, D. L. (2000) Risk tolerance and asset allocation for investors nearing retirement. *Financial Services Review*, 9, 159-170.
- Hira, T. K., Fanslow, A. M. & Vogelsang, R. (1992). Determinants of satisfaction with preparation for financial emergencies, 3, 43-62.
- Jianakoplos, A. & Bernasek, A. (1997). Are women more risk averse? *Economic Inquiry*, 36 (4), 620-631.
- Joo, S. H. & Grable, J. E. (1999). Developing a model for the determinants of financial satisfaction: An exploratory model. *Consumer Interests Annual*, 45, 117-122.
- Lee, H. K. & Hanna, S. (1991). Wealth and stock ownership, *Proceedings of the Association for Financial Counseling and Planning Education*, 126-140.
- Parrotta, J. L. & Johnson, P. J. (1998). The impact of financial attitudes and knowledge on financial management and satisfaction of recently married individuals. *Financial Counseling and Planning*, 9 (2), 59-74
- Pedhazur, E. J. & Schmelkin, L. P. (1991). *Measurement, design and analysis*. Hillsdale, NJ:Lawrence Erlbaum Associates.
- Sung, J. & Hanna, S. (1996). Factors related to risk tolerance. *Financial Counseling and Planning*, 7, 11-20.
- Schooley, D. K. & Worden, D. D. (1996). Risk aversion measures: Comparing attitudes and asset allocation, *Financial Services Review*, 5, 87-99.
- Waddell, F. E. (1998). *Financial portfolio- your financial map and compass*-. Alabama: Genesis-The financial services press.
- Wang, H. & Hanna, S. (1997). Does risk tolerance decrease with age? *Financial Counseling*



*and Planning*, 8 (2), 27-31.

Xiao, J. J., Alhabeeb, M. J., Hong, G. S. & Haynes, G. W.(2000). Risk tolerance of family business owners. *Consumer*

*Interests Annual*, 46, 140-146.

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