
Association among Financial Risk Tolerance and the Personality Traits of Sensation-seeking, Locus of Control for Pre-retiree Baby Boomers

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Introduction

Financial risk tolerance is an important concept for a financial planner to recommend financial products. It also has many practical significances in everyday money matters. For example, client's financial risk tolerance helps a financial planner to determine the appropriate risk and return parameters of an investment portfolio. Grable and Joo (2004) note that risk tolerance can best be thought of as a person's willingness to take part in a behavior in which one or more outcomes are both uncertain and potentially negative.

Financial risk tolerance is influenced by many factors. Several researchers examined the relationship between demographic variables and financial risk tolerance, for example, gender (Bajtelsmit, Bernasek, & Jianakoplos, 1999), age (Hallahan, Faff, & McKenzie, 2003), education level (Grable, 2000), income and wealth levels (Bernheim, Skinner, & Weinberg, 2001), and marital status (Roszkowski, Snelbecker, & Leimberg, 1993). There has been other research conduct to determine the association between risk tolerance and different personality traits, for example, Type A personality (Carducci & Wong, 1998), Myers-Briggs Type Indicator (Filbeck, Hatfield, & Horvath, 2005), risk propensity in different domains, such as sex, addictions, outdoor, and others (Chauvin, Hermand, & Mullet, 2007; Nicholson, Soane, Fenton - O' Creevy, & Willman, 2005). Chitra and Sreedevi (2011) find that personality traits

had an impact on the choice of investment method, and that the personality impact was stronger than that of demographic variables. Soane, Dewberry, and Narendran (2010) state that personality directly influences risk-taking attitudes in the domains of social, ethical, recreation, and gambling.

The relationship between risk tolerance and personality traits, such as locus of control (Wong and Carducci, 2016), sensation seeking (Wong and Carducci, 2016), personality dimensions of extraversion, conscientiousness, agreeableness, emotional stability and openness (Wong and Carducci, 2013) is an established fact. However, these studies are based on university students whose average age is 23.9 (Wong and Carducci, 2016) and 25.2 (Wong and Carducci, 2013). The current study attempts to examine the relationship among the individuals who are approaching retirement. As the baby boom generation approaches retirement, research to determine how these individuals perceive financial risk tolerance has grown exponentially. Only 17% of boomers reporting they are currently very optimistic about their own financial future (Ameriprise Financial, 2012). The present study tries to determine the relationship between financial risk tolerance and some personality traits, such as sensation-seeking, locus of control of the baby boomers. Three questions are of central interest:

- 1) Do sensation seeking baby boomers have higher financial risk tolerance?
- 2) Do baby boomers with internal locus of control have higher financial risk tolerance?

Methods and Model

The present study uses the data from the National Longitudinal Survey of Youth 1979 (NLSY79), which is a longitudinal project that covers a sample of American youth (aged 52-61 in 2017). Even though it is a longitudinal project, we only use the 2014 survey data in the present study. Except for the variable of risk tolerance which composes of information in several survey years (2010, 2012, 2014), all other variables are recorded in the survey year of 2014. The total sample size in the present study is 4,265.

In this study, risk tolerance is the dependent variable. The respondents were asked to evaluate their degrees of risk tolerance and rate themselves from 0 to 10, where 0 means “unwilling to take any risks” and 10 means “fully prepared to take risks”. The rest are independent variables (Table 1). A dummy variable asking about whether ever used drugs or not is used as a proxy for the sensation seeking variable. Locus of control represents respondents’ believes of their degree of controlling over the life. The higher the score, the more external locus of control respondent has. People with external locus of control believe that what happened in life relies on others, such as luck and chance, while people with a strong internal locus of control believe that they can control over their life (Rotter, 2004). The locus of control in our model is the sum of four Rotter's locus of control scales (Rotter, 2004). It includes the degree of control over the direction of own life, the importance of planning, the importance of luck, and degree of influence over own life. In the dataset, there is no well-defined education variable, and a dummy variable representing college degree or not is used as a proxy for the education in our model.

Table 1

<u>Name</u>	<u>Min</u>	<u>Max</u>	<u>Mean</u>	<u>Std. Dev.</u>
<i>Continuous Variables Used in Logistic Regression</i>				
Risk Tolerance	0	10	4.85	2.96
Log(Income)	0	12.82	10.51	1.11
Age	49	57	52.9	2.31
Locus of Control	0	4	1.05	0.97
<i>Categorical Variables Used in Logistic Regression</i>				
Education	High School or below		55.31%	
	College		44.69%	
Region	Northeast		14.69%	
	North Central		23.00%	
	South		42.60%	
	West		19.70%	
Gender	Male		50.47%	
	Female		49.53%	
Race	White		63.93%	
	Black		30.04%	
	Other		6.03%	
Employment Status	Working		78.13%	
	Unemployed		16.85%	
	Retired		2.16%	
	Homemaker		2.86%	
Marital Status	Never Married		15.90%	
	Married		53.73%	
	Others		30.38%	
Having Business	Have Business		14.91%	
	Don't Have Business		85.09%	
Sensation Seeking	Sensation Seeking		4.90%	
	Not Sensation Seeking		95.10%	

Notes: Locus of Control: A high score = External Locus of Control; A low score = Internal Locus of Control. "Others" in marital status denotes people who are separated, divorced, or widowed.

The dataset is analyzed using ordinary least squares (OLS) regression model, even though the dependent variable, risk tolerance, is measured on an ordinal scale. Williams (2016) suggests that the ordinal scale dependent variable can be treated as a continuous variable particularly when the dependent variable has five or more categories.

In this study, to identify factors associated with risk tolerance and study the racial influence and gender influence on risk-taking attitude, we adopt two models.

Model 1: *Risk Tolerance*

$$= f \left(\begin{array}{l} \text{Log(Income), Age, Employment Status, Marital Status,} \\ \text{Having Business, Gender, Race, Sensation Seeking, Locus of Control} \end{array} \right)$$

Model 2: *Risk Tolerance*

$$= f \left(\begin{array}{l} \text{Log(Income), Age, Employment Status, Marital Status,} \\ \text{Having Business, Gender, Race, Sensation Seeking, Locus of Control,} \\ \text{Gender and Sensation Seeking, Gender and Locus of Control,} \\ \text{Race and Sensation Seeking, Race and Locus of Control} \end{array} \right)$$

Results

Descriptive Analysis

On average people are risk-neutral, where mean and median of risk tolerance are respectively 4.85 and 5.00. Males are significantly better prepared for taking risks on average (mean risk tolerance is 5.18 for males and 4.52 for female).

On average, both males and females baby boomers (1.01 and 1.08) have an internal locus of control. However, females are significantly more external than males. Among races, Blacks predominantly have an external locus of control (mean score 1.20), followed by people of other races (1.19), and Whites have an internal locus of control (0.95).

OLS Results of Risk Tolerance

In both models (Table 2), locus of control is significantly negatively associate with risk tolerance of baby boomers. Baby boomer individual with a higher degree of external locus of control has lower risk tolerance score. This means a baby boomer with an external locus of control would be more risk-averse. Sensation seeking has a significant positive association with risk tolerance. A person who is a sensation seeker has significantly higher risk tolerance than one who is not a sensation seeker.

Table 2
OLS Results of Risk Tolerance (Coefficient)

Risk Tolerance	<u>Model 1</u>	<u>Model 2</u>
Intercept	4.42***	4.33***
Log (Income)	0.08*	0.08*
Age	0.00	0.00
Employment Status (Working base)		
Unemployed	0.35**	0.36**
Retired	0.25	0.23
Homemaker	0.81*	0.81*
Marital Status (Never Married base)		
Married	-0.33***	-0.33**
Others	-0.12	-0.12
Having Business (no business base)	1.08***	1.08***
Gender (Male base)		
Female	-0.62***	-0.61***
Race (White base)		
Black	0.31***	0.37***
Other	0.28	0.09
Sensation Seeking (no sensation seeking base)	0.78***	0.63**
Locus of Control	-0.15***	-0.13*
Interactions		
Gender & Sensation Seeking (Male # Sensation Seeking base)		
Female # Sensation Seeking		0.68
Gender & Locus of Control (Male # Locus of Control base)		
Female # Locus of Control		-0.04
Race & Sensation Seeking (White # Sensation Seeking base)		
Black # Sensation Seeking		-0.78
Other # Sensation Seeking		0.15
Race & Locus of Control (White # Locus of Control base)		
Black # Locus of Control		-0.04
Other # Locus of Control		0.18

*Notes: *, **, and *** indicate statistical significance at an alpha level of 0.1, 0.05, and 0.01 respectively. Locus of Control: A high score = External Locus of Control; A low score = Internal Locus of Control.*

Gender and race significantly affect risk tolerance. Female baby boomers are significantly less willing to take risks than males. Compared with White baby boomers, Blacks are significantly more risk tolerant. Age has no significant influence on risk tolerance, as they are from the same cohort. One percent increase in income would lead to 0.08 point increase in risk tolerance score, indicating that the higher the income, the more risk tolerant a baby boomer become. Unemployed baby boomers have higher risk tolerance than working

people. Married baby boomers have significantly lower risk tolerance than never married.

Baby boomers who own business have significantly higher risk tolerance than those who do not own business.

Furthermore, there is no interaction effect of gender and race on risk tolerance based on Model 2 results. That means gender and race do not mediate the associations among risk tolerance and locus of control and sensation seeking.

Discussion

The present study extends the paper of Wong and Carducci (2016) in which authors studied university students' risk tolerance to the baby boomer generation. We used the large-scale NLSY 79 data instead of primary survey data. The study indicates that baby boomers' locus of control, sensation seeking are important personality traits that have significant influences on their risk tolerance. These results are consistent with the paper of Wong and Carducci (2016). Therefore, influences of these personality traits are consistent in different generations.

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