Risk Tolerance Profile of Cash Value Life Insurance Owners

Abed Rabbani, PhD, CFP®, Assistant Professor, University of Missouri
Anthea (Zheying) Yao, Ph.D. Student, University of Missouri
Dalisha Herring, MBA, CFP®, Ph.D. Student, University of Missouri

Abstract

Life insurance, a risk management tool, generally provides ways to protect against the financial loss due to an individual's death. This study investigates the risk tolerance profile of cash value life insurance owners and attempts to investigate the association between life insurance ownership and subjective attitude toward different domains of risk by comparing with two logistic models. Inconsistencies exist with risk tolerance in different domains; specifically, life insurance owners are risk averse, in general, but they are risk takers in other domains.

Keywords: life insurance, risk domains, risk tolerance, risk assessment

Introduction

Assessment of risk attitudes of individuals is of great interest in the growing area of financial planning. An important aspect associated with financial planning processes involves helping clients identify, analyze, and manage risk. After assessment of risk tolerance, financial planners recommend financial products that are best for a client at a given level of risk tolerance.

Life insurance provides a way to protect against the financial loss due to an individual's death. For some consumers, life insurance is an optional form of insurance, while for others, life insurance may be necessary. Individuals with a family to consider are likely to have a higher demand for life insurance to provide financial support for surviving the family members. Thus, purchasing life insurance is inherently a form of risk aversion.

It is reasonable to assume that life insurance owners are likely to have lower risk tolerance. However, a typical consumer encounters and engages in multiple risk-taking situations on a daily basis. These risks can commonly be classified into a number of risk domains. Weber, Blais, & Betz (2002) identified five domains of risk taking: financial, health/safety, recreational, ethical, and social. Willman, Fenton-O'Creevy, Nicholson, & Soane (2006) also identified six domains: recreation, health, career, finance, safety, and social.

Some researchers believe risk tolerance is domain-dependent (Corter & Chen, 2006; Slovic, 1964). This means people respond differently in different domains of risk. Someone may be a very conservative risk taker in several areas of life but show very a high risk tolerance in another area. For example, a person may be unwilling to invest in a cash value

life insurance yet willing to engage in a risky health activity such as smoking or drinking alcohol.

Outreville (2014) conducted a literature review and reported that many recent studies in insurance focus on the riskiness of situations, while other studies focus on the willingness of people to take risks in such situations. The purpose of this research is to empirically study how cash value life insurance ownership varies with consumers' willingness to take risk in different domains while accounting for various demographic factors. Specifically, we tested if risk tolerance at different risk domains is associated with owning a cash value life insurance.

Methods

The study utilized data from the National Longitudinal Survey of Youth 1997, a longitudinal project funded by the Bureau of Labor Statistics (BLS) that sampled American youth born between 1980 and 1984. Although it was a longitudinal project, we only used the 2010 wave of data because this wave contained data on the different domains of risk as needed for the study. The final sample size was 4,723. We did not include the 2011 wave due to its limited sample size.

Ownership of cash value life insurance is the dependent variable. It represents whether the family has cash value life insurance or not. The remaining parameters listed in Table 1 below are the independent variables.

Table 1

Categorical Variables Used in Logistic Regression

Name	Levels	Proportion%	Number of Observations
Having Cash-Value Life Insurance	0	87	5,949
	1	13	890
Region	Northeast	16	1,140
	North Central	21	1,515
	South	41	3,020
	West	23	1,682
Gender	Male	51	4,599
	Female	49	4,385
Degree	None	9	647
	Associate and Below	64	4,532
	Bachelors	20	1,396
	Masters, PhD, and Professional	8	541
Marital Status	Never-married	50	3,525
	Married	41	2,932
	Others	9	663
Race	White	59	5,232
	Black or African American	27	2,388
	Others	14	1,284

Continuous Variables Used in Logistic Regression

Variable	Min	Max	Mean	Std. Dev.
Risk Tolerance General	0	10	5.61	2.59
Risk Tolerance Finance	0	10	3.96	2.77
Risk Tolerance Driving	0	10	2.81	3.10
Risk Tolerance Work	0	10	4.68	3.14
Risk Tolerance Life Change	0	10	5.13	2.87
Risk Tolerance Gambling	0	10	5.40	3.52
Risk Tolerance Health	0	10	2.92	3.00
Risk Tolerance Faith in People	0	10	4.29	2.85
Risk Tolerance Romance	0	10	4.42	3.25
Log (Income)	3.53	12.58	10.61	1.12
Self-disciplined	1	7	6.11	1.07
Household Size	1	13	3.33	1.68
Age	28	34	31.00	1.44

Note: "Others" in marital Status includes separated, divorced, and widowed

The 2010 wave of NLSY79 included a series of risk assessment questions that asked respondents to rate their willingness to take risks in a number of domains. Respondents were asked: "Are you generally a person who is fully prepared to take risks, or do you try to avoid taking risks?" Respondents were asked to rate themselves on the same risk tolerance scale, where 0 meant "unwilling to take any risks" and 10 meant "fully prepared to take risks." Respondents were also asked about their attitudes toward taking risk in other domains. Specific domains included driving (e.g., reckless or aggressive driving), finances (e.g., maxing out credit cards or investing aggressively), occupational (e.g., working in an environment that entails the possibility of reduced health and/or income), health (e.g., smoking, excessive drinking, and drug use), interpersonal (e.g., trusting people with important information and resources), romance (e.g., engaging in interpersonal and sexual situations that entail the possibility of rejection), and major life changes (e.g., willingness to move away from family and friends and altering one's life course). For each of the situations listed, respondents were asked to rate themselves on the following willingness scale: 0 to 10, where 0 meant "unwilling to take any risks" and 10 meant "fully prepared to take risks."

Our analysis of the data included use of two logistic regression models. Model 1 used general risk tolerance as a dependent variable. Model 2 included all nine risk tolerance assessments available in the dataset.

Model 1: Having Cash − Value Life Insurance

$$= f\begin{pmatrix}\text{Risk tolerance general, Log(Income), Region, Self disciplined,} \\ \text{Household size, Gender, Degree, Marital Status, Race}\end{pmatrix}$$

Model 2: Having Cash − Value Life Insurance

$$= f\begin{pmatrix}\text{Risk tolerance in nine domains, Log(Income), Region, Self disciplined,} \\ \text{Household size, Gender, Degree, Marital Status, Race}\end{pmatrix}$$

Results

In comparison to the respondents who do not have life insurance (columns with 0), owners of life insurance (columns with 1) have different risk tolerance profiles and assess their risk tolerance differently in different risk domains (Figure 1). The respondents who possess life insurance have lower risk tolerance than people who do not have life insurance in the risk domains of general, finance, life change, faith in people, driving, gambling, and romance. However, life insurance owners have higher risk tolerance in the domains of work and health.

Figure 1

Risk Profile for Life Insurance Owners
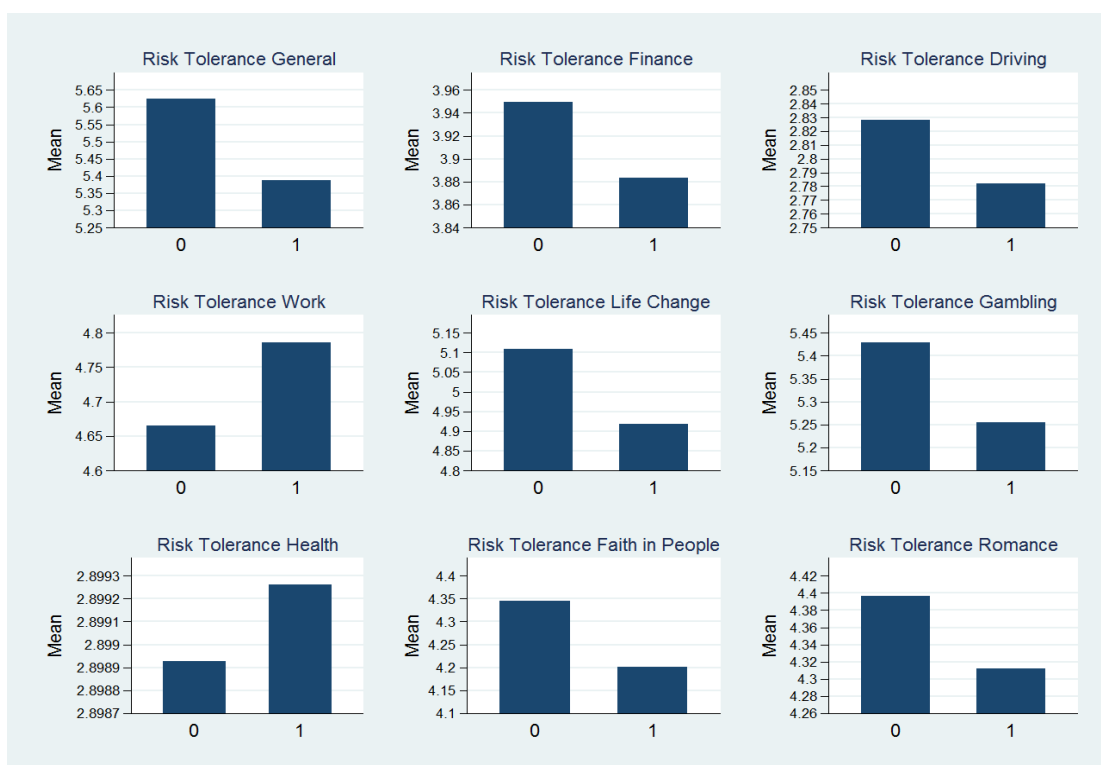
Correlation analysis of the variables shows that risk tolerance general is negatively correlated with having life insurance. Except for the region and race, all other correlations are positive and significant, though they are all small.

According to the odds ratio results for Model 1 (Table 2), except household size and gender, all other variables have significant effects on cash value life insurance ownership. Model 2 shows similar results and the corresponding significance. In addition to general risk tolerance, Model 2 suggests that risk tolerance in work and health have significant positive associations with cash value life insurance ownership, and risk tolerance in gambling has a significant negative association with cash value life insurance ownership.

Discussion and Conclusion

The findings of this study show that people have different attitudes of risk tolerances in different areas. General risk tolerance is significant in both models. The self-disciplined variable was significantly and positively associated with the cash value life insurance ownership in both models. Our study provides support for the notion of domain-specific risk tolerance in the area of cash value life insurance purchase. Cash value life insurance owners are more risk averse than people who do not have such life insurance in the domains of general, finance, driving, life change, gambling, faith in people, and romance. However, they are more risk tolerant than people who do not purchase cash value life insurance in the domain of work and health. The findings of the study can assist financial service providers when they begin to discuss concepts related to risk taking and decision outcomes. Better understanding of a client's risk tolerance portrait may help a financial planner better match

Table 2

Odds Ratios of Each Variable in Logistic Regression Model

	Model 1		*Model 2*	
Cash-value life insurance	Coefficient	Odds Ratio	Coefficient	Odds Ratio
Risk Tolerance General	-0.03	0.97*	-0.04	0.96*
Risk Tolerance Finance			-0.01	0.99
Risk Tolerance Driving			-0.01	0.99
Risk Tolerance Work			0.05	1.05**
Risk Tolerance Life Change			-0.01	0.99
Risk Tolerance Gambling			-0.02	0.98*
Risk Tolerance Health			0.04	1.04**
Risk Tolerance Faith in People			-0.03	0.97
Risk Tolerance Romance			0.02	1.02
Log (Income)	0.38	1.46***	0.41	1.51***
Region (northeast base)				
North Central	0.21	1.23	0.22	1.25
South	0.27	1.31*	0.26	1.30*
West	0.10	1.11	0.12	1.12
Self-disciplined	0.09	1.09*	0.11	1.12**
Household Size	0.02	1.02	0.02	1.02
Age	0.07	1.08**	0.08	1.08***
Gender (male base)				
Female	0.13	1.14	0.14	1.15
Degree (none base)				
Associate and Below	0.61	1.84***	0.55	1.74**
Bachelors	0.77	2.17***	0.70	2.02***
Masters, PhD, and Professional	0.61	1.84**	0.55	1.73*
Marital Status (never-married base)				
Married	0.39	1.48***	0.40	1.49***
Others	0.19	1.2	0.23	1.26
Race (others base)				
White	-0.07	0.93	-0.08	0.93
Black or African American	0.40	1.49***	0.38	1.46**
Cons	-9.77	0.00***	-10.41	0.00***

Notes: Model 1, LR chi2(14)=139.18, Prob > chi2=0.00

Model 2, LR chi2(14)=152.85, Prob > chi2=0.00

*p<0.1, **p<0.05, and ***p<0.01

"Others" in marital Status includes separated, divorced, and widowed

life insurance products and risk management recommendations to what drives a client's fears and expectations about the future. At a minimum, asking current and prospective clients about their willingness to engage in multiple domains of risk taking and using answers to develop a risk portrait will likely lead to better and more in-depth client-planner conversations.

References

Corter, J. E., & Chen, Y. J. (2006). Do investment risk tolerance attitudes predict portfolio risk? *Journal of Business and Psychology*, *20*(3), 369–381. https://doi.org/10.1007/s10869-005-9010-5

Outreville, J. F. (2014). Risk aversion, risk behavior, and demand for insurance: A survey. *Journal of Insurance Issues*. Western Risk and Insurance Association. https://doi.org/10.2307/43151298

Slovic, P. (1964). Assessment of risk taking behavior. *Psychological Bulletin*, *61*(3), 220–233. https://doi.org/10.1037/h0043608

Weber, E. U., Blais, A.-R., & Betz, N. E. (2002). A domain-specific risk-attitude scale: Measuring risk perceptions and risk behaviors. *Journal of Behavioral Decision Making*, *15*(4), 263–290. https://doi.org/10.1002/bdm.414

Willman, P., Fenton-O'Creevy, M., Nicholson, N., & Soane, E. (2006). Noise trading and the management of operational risk: Firms, traders and irrationality in financial markets. *Journal of Management Studies*, *43*(6), 1357–1374. https://doi.org/10.1111/j.1467-6486.2006.00648.x