

Risk Tolerance Across Life Domains: Evidence from A Sample of Older Adults

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This study was designed to determine if a general description of a person's willingness to take risks—risk portrait as phrased in this study—can be developed for individuals nearing retirement (aged 45-53). Using data from the 2010 wave of the National Longitudinal Survey of Youth (NLSY79), a latent risk-tolerance construct was developed consisting of driving, financial, occupational, health, interpersonal, romantic, and major life change risk tolerance. These seven items were found to be positively associated with each other. Each of the items also loaded highly onto one factor within a principal components analysis. Findings from the study suggest that risk tolerance is most likely a generalized attitude, not a domain-dependent attitude, held by individuals. Results suggest that including the seven risk items used in this study into a client data gathering form can provide useful information in strengthening the client-counselor/planner relationship. Opportunities for further research, based on this study, are presented.

Keywords: financial planning, risk, risk attitude, risk tolerance

Introduction

The typical American encounters and engages in multiple risk-taking situations on a daily basis. These risks can generally be classified into a number of risk domains. Weber, Blais, and Betz (2002) identified five domains of risk taking: (a) financial, (b) health/safety, (c) recreational, (d) ethical, and (e) social. Nicholson, Soane, Fenton-O'Creevy, and Willman (2006) identified six domains: (a) recreation, (b) health, (c) career, (d) finance, (e) safety, and (f) social. Some risks, regardless of the domain, can be avoided, minimized, or transferred. It is common, however, for individuals to also actively engage in certain risky activities. That is, people often seek out risks, or when faced with a risky decision, they use their experience and acquired skills to deal with the situation. As might be expected, decisions related to participation in a particular activity, and when the engagement will take place, tend to be shaped by each person's unique experiences, preferences, and perceptions.

An important aspect associated with financial counseling and planning processes involves helping clients identify, analyze, and manage risk. Of the primary risk domains, financial risk is often a central topic of concern for clients who work with financial counselors and planners. Nearly all financial-oriented recommendations and implementation strategies that a financial counselor or planner may recommend entail some degree of financial risk (Griesdorn, Lown, DeVaney, Cho, & Evans, 2014). As such, it is important for financial counseling

and planning practitioners to have both a conceptual understanding of and a practical appreciation for the concepts of general and financial risk tolerance.

Grable and Joo (2004) noted 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. Although a simple concept, debate regarding the stability and specificity of the risk-tolerance construct has been nearly constant over the past two decades (Nicholson et al., 2006). In one camp are those who suggest that risk tolerance is domain-dependent (e.g., [Corter & Chen, 2006](#); [Shellenbarger, 2013](#); [Slovic, 1964](#)). Those who make this argument point to examples where someone appears to be very conservative in several areas of life only to exhibit very low risk aversion in another area. An example would be someone who is unwilling to invest in high risk investments, yet is willing to engage in a risky recreational activity such as flying or skydiving. This type of example illustrates that, for those who argue that risk tolerance is domain-dependent, past experience and environmental factors likely influence risky decision choices.

In the other camp are those who argue that while it is true that individuals are not universally risk tolerant (or risk averse) in *all* areas of their life, individuals can be characterized by a general risk-tolerance representation (e.g., [Zuckerman, 1994](#); [Zuckerman & Kuhlman, 2000](#)). This conceptual risk-tolerance

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sketch, can, according to those who make this argument, be used to differentiate people according to their generalized willingness to engage in risky behaviors. It is important to note that those who make this argument are not suggesting that it is impossible, or even unlikely, that a particular person would, for example, avoid risky investments and concurrently engage in a risky athletic event. Rather, this argument is premised on a broader characterization that individuals, on average, exhibit consistent risk-tolerance attitudes across a wide variety of domains. As such, according to this line of thinking, it would be highly improbable that a large percentage of people, at any one time, would exhibit widely diverging attitudes and behaviors that run counter to their generalized risk-tolerance portrait, which is defined in this study as a general description of a person's willingness to take risks.

The purpose of this paper is to report tests that were designed to determine whether or not a reliable and meaningful risk-tolerance portrait can be developed that is accurate in characterizing risk attitudes among individuals nearing retirement. The term "risk portrait," as used in this study, describes a holistic representation of a person's tolerance for risk rather than a situation-specific profile. As used in this study, risk tolerance is most closely aligned with the socio-psychological conceptualization of risk that hypothesizes an association between attitudes and behavior rather than the traditional expected utility framework that refers to a person's attitude towards risk taking as an indicator of the person's utility function (Weber et al., 2002). The 2010 wave of the National Longitudinal Survey of Youth 1979 (NLSY79) was used as the data source. The 2010 survey asked respondents to indicate their attitude toward seven risk situations. In this study, these seven risk-tolerance domains, which were similar to but slightly broader than those described by Nicholson et al. (2006) and Weber et al. (2002), were evaluated. The analysis began with a test of the level of association between and among the items. A test was then administered to determine how well the items describe risk tolerance. Additionally, steps were taken to determine if risk tolerance is domain-dependent or domain-general. This final test was used to determine how well individuals predict their own tolerance for risk.

Review of Literature

Risk Tolerance: Domain-Dependent or Domain-General?

According to Corter and Chen (2006), social and organizational psychologists have been debating whether risk attitudes and risk-taking behavior are context dependent or domain-general for many decades. There is evidence supporting both sides of the argument. For example, Eysenck

and Eysenck (1978) argued that a person's propensity to take risk is a general personality trait. Researchers studying sensation seeking have often noted that people who are drawn to complex and novel behavior share a common personality profile (Wong & Carducci, 1991; Zuckerman, 1994). Consider the work of Barsky, Juster, Kimball, and Shapiro (1997); they used data from the Health and Retirement Study to determine that risk attitudes, as measured through income gambles, vary across households. They also noted that risk tolerance tends to be related to actual risk taking behaviors across domains, such as smoking, drinking, holding insurance, and investing in equities. Others have reported that risk taking cannot easily be explained by a general "appetite" for risk (Corter & Chen, 2006; Shellenbarger, 2013; Slovic, 1964). From this perspective, it appears that risk taking is domain centered, with experience and knowledge accounting for much of the variation in risk taking within domains.

It is useful to note, however, that what some researchers call domain-dependent tolerance for risk may actually be related to the way a person's values, goals, and beliefs overlap (Callan & Johnson, 2002). It is possible that when broadly conceptualized, people may exhibit greater consistency across domains, even though they may sometimes engage in behavior that appears inconsistent. There is little empirical evidence within the literature to indicate whether people's inconsistencies occur systematically or whether contradictions are short-term in nature, with a longer term reversion to a person's generalized risk-tolerance characterization.

It is also possible that inconsistencies that have been reported in the literature and media are an artifact of small sample sizes or samples that are prone to exhibit attitudinal shifts. For example, a *Wall Street Journal* report (Shellenbarger, 2013) told stories of people who were living relatively mundane lives who suddenly engaged in an impulsive behavior. What makes these types of stories interesting is the fact that the behaviors highlighted are not typical or normal. Empirically, those highlighted in such stories may be statistical outliers. While it may be useful to identify those who are likely to shift their attitude in relation to risk situations, the singular focus on this group, which is likely very small, may distract researchers and financial counseling and planning practitioners from evaluating the more important homogenous nature of people's general tolerance for risk. In the final analysis, financial counselors and planners need risk characterization tools that work with a wide segment of society. While it is easier to dismiss the prospect that people have a risk-tolerance portrait based on stories of outlying behavior, it behooves the financial

counseling and planning profession to look more deeply into this concept as a way to help more clients deal with risk decisions.

Methods of Risk Attitude Validation

Researchers have traditionally used one of two methods when tasked with the challenge of validating someone's risk attitude (Gilliam, Chatterjee, & Grable, 2010). The first involves matching subjectively measured attitudes with objective outcome measures. For example, it would be reasonable to anticipate recording a positive correlation between financial risk tolerance and equity exposure within a portfolio. Holding other factors constant (e.g., source of investment advice, income, net worth, financial numeracy), those with a higher stated level of financial risk tolerance ought to hold a larger portion of their wealth in equities compared to those with lower levels of risk tolerance. In situations where objective measures are either unavailable or unreliable, researchers have tended to test the ability of items and scales to describe risk tolerance by determining how well attitudinal measures discriminate between groups known to hold differing risk attitudes. For example, those who study risk tolerance typically report that when faced with a complex decision in which outcomes are unknown, men report higher attitudinal preferences for taking risk than women (Arano, Parker, & Terry, 2010; Grable, 2008; Neelakantan, 2010; Yao & Hanna, 2005). The notion that women and men differ in their tolerance for risk, across domains, may be explained in part by the different goals, values, and experiences held by women and men (Dwyer, Gilkeson, & List, 2002). Published research findings also suggest that men tend to overestimate their risk tolerance (Roszkowski & Grable, 2010). This phenomenon is referred to as an estimation bias. Gender-based estimation biases appear to be robust across domains, but certainly within the context of financial risk taking (Gilliam & Grable, 2010).

Portraits of Risk Tolerance and Estimation Bias

Much of the research devoted to understanding financial risk tolerance has focused on examining the role demographic factors play in shaping risk attitudes and in linking risk tolerance to consequences of a personal nature (Hanna, Waller, & Finke, 2008). This helps explain why gender is an effective variable within a research context for understanding risk tolerance estimation bias and evaluating the robustness of risk attitude measures. Essentially, it is known that some individuals are prone to making inaccurate estimates of their willingness to engage in risk taking behavior. In some cases, the level of variability in estimation accuracy can be quite large. Most often, men overestimate their risk tolerance

(Barber & Odean, 2001), whereas women underestimate their tolerance for risk. That is, when asked to concurrently indicate how risk tolerant they are while completing a more thorough subjective or objective risk measure, most men tend to report a higher tolerance for risk taking than really exists. When used as a descriptive tool, one would expect women to report having a lower tolerance for risk than is actually the case. The opposite should be true for men.

Summary

In practice, what researchers and financial counseling and planning professionals need is reliable and accurate information about ways that can be used to characterize the risk attitudes of individuals. The development of risk-tolerance portraits is one way to meet this need. Any technique that can provide a broader perspective regarding someone's attitude towards taking risks adds to the tools and techniques that a financial counselor or planner can use when working with clients. Of course, this is true only if a general characterization is reliable and accurate. One important outcome associated with this study is to help answer questions related to the reliability and overall usefulness of a generalized portrait of risk tolerance.

Methods

Data Source

Data for this study were obtained from the 2010 wave of the National Longitudinal Survey of Youth (NLSY79). Although the NLSY79 is a longitudinal panel survey, this study used data only from the 2010 wave because this cross-sectional dataset included a unique series of risk-assessment questions. For those unfamiliar with the NLSY79, the survey is conducted by the U.S. Department of Labor's Bureau of Labor Statistics. The sample consists of men and women born in the years between 1957 and 1964. The survey includes data from cross-sectional, supplemental, and military samples. The original NLSY79 survey was designed to be a nationally representative sample ($N = 12,686$) of individuals who were 14 to 22 years old when they were first surveyed in 1979. In 2010, these individuals were aged 45 to 53 years and nearing retirement.

The NLSY79 originally contained three subsamples: (a) a cross-sectional sample of 6,111 respondents designed to be representative of the civilian U.S. youth population; (b) a supplemental sample of 5,295 respondents designed to oversample civilian Hispanic, Black, and economically disadvantaged non-Black/non-Hispanic U.S. youth; and (c) a sample of 1,280 respondents designed to represent the

population ages 17-21 who were enlisted in the military. After 1984, the military sample was deemphasized. In 1990, the over sampling of economically disadvantaged panel participants was phased out. Essentially, the sample now represents a cross section of U.S. households aged 45 to 53 years. It is important to note, however, that data likely over represent Blacks, Hispanics, Latinos, and those in the military, although the gender makeup of the sample is much closer to the U.S. national average. Data from 7,504 respondents, which represents unweighted data from the cross sectional, supplemental, and military samples, was used in this study. No adjustments for missing data were made.

Variables

For the purposes of this research, seven domain-dependent risk-tolerance assessment items, one general risk assessment, and the gender of respondents were coded and analyzed. As discussed in the review of literature, people can behave differently in unusual situations. One advantage associated with the use of the NLSY79 for this type of analysis is the ability to access respondents' answers to a variety of risk questions. The 2010 NLSY79 included a series of risk-assessment questions that asked respondents to rate their willingness to take risks in a number of domains, as well as generally. The questions were adapted from the German Socio-Economic Panel Study. Specific domains included (a) driving (e.g., reckless or aggressive driving); (b) finances (e.g., maxing out credit cards or investing aggressively); (c) occupational (e.g., working in an environment that entails the possibility of reduced health and/or income); (d) health (e.g., smoking, excessive drinking, and drug use); (e) interpersonal (e.g., trusting people with important information and resources); (f) romance (e.g., engaging in interpersonal and sexual situations that entail the possibility of rejection); and (g) 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." Descriptive data for each item are shown in Table 2.

In addition to questions about driving, financial, occupational, health, interpersonal, romantic, and major life change risk tolerance, respondents were also asked the following question: "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." Based on 7,504 cases, the mean, median, and standard deviation associated with this question were 4.82, 5.00, and 2.96, respectively. Answers to this query were used to validate portraits of risk tolerance as estimated in this paper. Gender was also evaluated in this study. The variable was coded dichotomously, with 1 = male and 2 = female. The sample was split nearly evenly between males and females (50% male and 50% female).

Data Analysis Procedures

Four data analysis procedures were used to determine if a generalized risk-tolerance portrait characterization could be developed for respondents. Associations between and among the seven risk-tolerance items were assessed using Pearson correlation coefficients. This test was used to determine the strength of association among the risk-tolerance variables. Gender differences among the seven items were evaluated using *t* tests. These tests were employed to initially determine if the risk-tolerance items were useful in differentiating between men and women. Essentially, one would expect to see significant bivariate differences between women and men using these tests. Principal component analysis was employed to determine whether a risk-tolerance portrait could be developed to characterize respondents. Finally, a residual prediction modeling technique was used to determine how well those in the sample were able to evaluate their general tolerance for risk. Residual prediction is a term used to describe a technique in which scores on one test are used to predict a self-assessment. In this analysis, scores on the seven risk-tolerance items were combined by adding attitudinal scores across risk-tolerance items for respondents. This summation was based in part on results from the principal components analysis and the resulting reliability estimation, both of which are described later in this paper. The summed score was used to predict each respondent's answer to the general risk-tolerance item (i.e., "Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?"). Reported and predicted scores (after rounding) ranged from 0 to 10. Predicted scores were saved and subtracted from each respondent's global self-assessed score. The difference was hypothesized to represent the level of estimation bias exhibited by respondents. For example, a positive difference was indicative of someone who overestimated their general risk tolerance. A negative score indicated an underestimation of risk tolerance, while a score of zero was indicative of accurate estimation.

Results

Correlation Results

The first step in the analysis to determine whether a generalized risk-tolerance portrait could be estimated involved assessing associations between and among the seven domain-dependent risk-tolerance variables. As shown in Table 1, the seven items were found to be correlated with each other to some extent. Table 1 also shows the correlation coefficients for males and females. No meaningful differences were noted between men and women. The effect size associated with the majority of correlations was small; however, several associations showed a moderate effect size, including: (a) diving and health risk tolerance, (b) financial and occupational risk tolerance, and (c) occupational and life change risk tolerance. All of the associations were statistically significant.

t Test Results

While the results shown in Table 1 indicate that people nearing retirement appear to be relatively consistent in their risk appraisals, the next step in the analysis involved determining if the items did a reasonably good job of describing risk tolerance. As discussed in the review of literature, it is

reasonable to hypothesize that women and men should score differently on the seven items. Table 2 presents the results from t tests that were designed to evaluate the differences in mean scores between women and men on the seven items. As shown, men scored statistically significantly higher on six of the seven items. Similar to Weber et al. (2002), no differences were noted on the interpersonal risk item. Overall, these results help to confirm that the risk-tolerance items do appear to be effective in describing a person's willingness to engage in different risk behaviors.

Principal Components Analysis Results

The previous two tests indicated that the seven risk items were positively associated and that, in general, the items did a relatively good job of differentiating among levels of risk tolerance in different domains between women and men. Given these findings, a principal components analysis was undertaken to determine if one or more factors could be identified when the items were subjected to this data reduction methodology. Prior to the analysis, it was hypothesized that if more than one factor was identified, this would add support to the argument that risk tolerance is primarily a domain-

Table 1. Correlations Between Seven Risk-tolerance Items

	1	2	3	4	5	6	7
1. Driving	1						
Males	1						
Females	1						
2. Financial	0.44**	1					
Males	0.42**	1					
Females	0.44*	1					
3. Occupational	0.45**	0.57**	1				
Males	0.45**	0.56**	1				
Females	0.45**	0.58**	1				
4. Health	0.50**	0.38**	0.42**	1			
Males	0.52**	0.38**	0.44**	1			
Females	0.46**	0.36**	0.38**	1			
5. Interpersonal	0.29**	0.37**	0.38**	0.33**	1		
Males	0.30**	0.38**	0.38**	0.32**	1		
Females	0.29**	0.37**	0.38**	0.34**	1		
6. Romantic	0.32**	0.35**	0.39**	0.33**	0.40**	1	
Males	0.33**	0.35**	0.39**	0.34**	0.38**	1	
Females	0.30**	0.33**	0.38**	0.30**	0.43**	1	
7. Life Change	0.34**	0.49**	0.50**	0.33**	0.39**	0.47**	1
Males	0.33**	0.49**	0.49**	0.33**	0.37**	0.47**	1
Females	0.34**	0.50**	0.50**	0.33**	0.41**	0.47**	1

Note: * $p < .05$ ** $p < .01$

Table 2. Tests of Gender Differences in Risk-Tolerance Items

	Gender	N	M	SD	Std. Error	t	df
Driving	Male	3600	2.82	3.07	0.05	13.04***	7394
	Female	3796	1.93	2.78	0.05		
Financial	Male	3625	3.99	2.82	0.05	11.75***	7466
	Female	3843	3.25	2.66	0.04		
Occupational	Male	3566	4.24	3.32	0.06	8.35***	7322
	Female	3758	3.61	3.13	0.05		
Health	Male	3620	2.85	2.96	0.05	8.62***	7471
	Female	3853	2.27	2.79	0.05		
Interpersonal	Male	3609	4.08	2.84	0.05	-0.54	7413
	Female	3806	4.11	2.93	0.05		
Romantic	Male	3565	3.79	3.43	0.06	7.23***	7338
	Female	3775	3.22	3.32	0.05		
Life Change	Male	3592	4.4	2.97	0.05	4.06***	7420
	Female	3830	4.12	2.91	0.05		

Note: * $p < .05$ ** $p < .01$ *** $p < .001$

dependent attitude. If, on the other hand, only one factor was derived this would add credence to the argument that a generalized risk-tolerance portrait can be estimated that is characteristic of an individual.

The principal components analysis was conducted using SPSS® version 21 with an Eigen greater than 1, with 25 iterations, criteria. Data were initially rotated using varimax rotation. The Kaiser-Meyer-Okin measure of sampling adequacy was strong (0.86), and Bartlett's test of sphericity was not significant ($\chi^2 = 14618$, $df = 21$). Table 3 indicates the results from the test. As shown in the table, only one factor was extracted. All of the risk-tolerance items loaded at a 0.60 or higher level on the one factor. Because of this unique finding, a second principal components analysis was conducted using an oblimin rotational criterion. It was thought that the initial results may have been due to the relatively high

inter-correlations among the seven items. However, results from this follow-up analysis were exactly the same; namely, one generalized risk-tolerance portrait was identified.

Estimation Accuracy

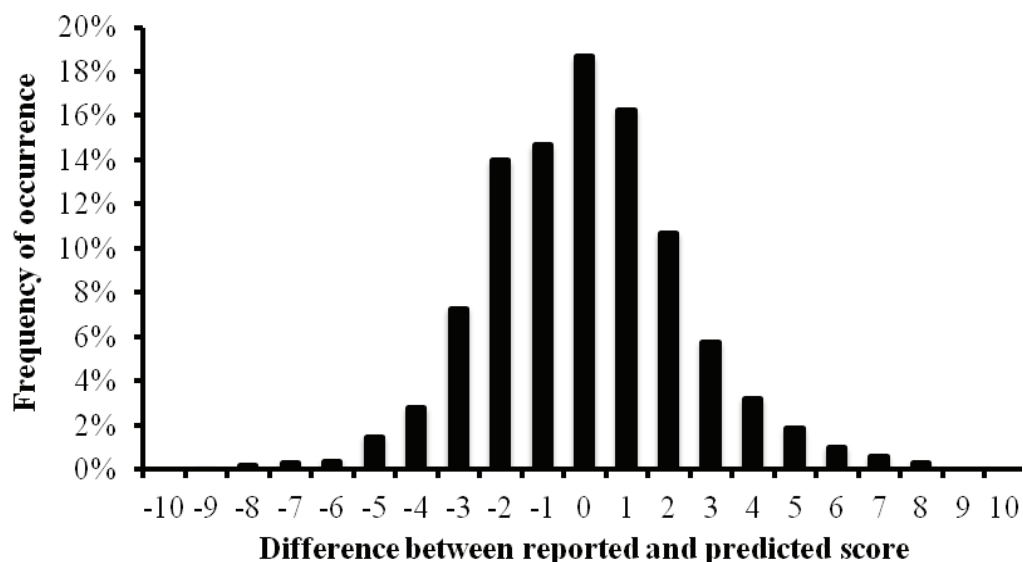
Findings from the principal components analysis provided clear support for the notion that while an individual's willingness to engage in different risky behaviors may vary, a risk-tolerance portrait can be developed that accurately characterizes the risk attitude of those who are nearing retirement. Given this finding, scores from the seven risk-tolerance items were summed into a risk-tolerance scale. Scores ranged from 0 to 70, with the sample mean and standard deviation score being 24.30 and 14.64, respectively. The reliability of this scale was estimated using Cronbach's alpha. The resulting alpha was strong (0.82). A t test was used to confirm that gender differences existed on the

Table 3. Principal Components Analysis Results

Risk-Tolerance Item	Factor Weight
Driving Risk Tolerance	0.68
Financial Risk Tolerance	0.75
Occupational Risk Tolerance	0.77
Health Risk Tolerance	0.67
Interpersonal Risk Tolerance	0.64
Romantic Risk Tolerance	0.66
Life Change Risk Tolerance	0.73

Notes: Varimax and Oblimin Rotation

Figure 1. Accuracy of Risk-Tolerance Estimates



scale. As expected, the mean score for women was lower ($M = 22.52$) than for men ($M = 26.15$). The difference was statistically significant ($t = 10.47$, $df = 7013$). Next, scores on the summated scale were correlated with each respondent's subjective response to the general risk-tolerance question. The two items were significantly associated ($r = 0.81$).

Finally, risk estimation bias, which was defined in this paper as the tendency of someone to over- or under-estimate their tolerance for risk (Roszkowski & Grable, 2010), was estimated using a residual prediction methodology. Summated scores significantly predicted general risk-tolerance responses, $b = 0.59$, $t_{7003} = 60.38$, $p < 0.001$. Summated scores also explained a significant proportion of variance in general subjective evaluations, $R^2 = 0.34$, $F_{1, 7003} = 3645.71$, $p < 0.001$. While the majority of respondents did a good job of self-evaluation of risk, some bias did exist. Figure 1 shows how accurate respondents were when estimating their generalized tolerance for risk. Data in the figure were calculated by subtracting predicted risk-tolerance scores from the general risk-tolerance item. Negative scores are indicative of a tendency to underestimate risk tolerance, whereas positive scores reveal overestimation. Although the variance in accuracy was wide, in general, respondents did a reasonably good job of evaluating their overall risk tolerance. This is evidenced by a mean estimation bias score of 0.0007 ($SD = 2.38$) and the grouping of estimation bias scores from -3 to +3.

A final test was conducted to compare risk-tolerance estimation bias scores in t tests between women and men.

As suggested by Grable and Roszkowski (2007), it was hypothesized that biases in estimation would be exhibited by women and men. A significant difference was noted. Women tended to underestimate their risk tolerance ($M = -0.12$), while men overestimated their tolerance for risk ($M = 0.13$).

Conclusion

The purpose of this research was to determine if a reliable and meaningful risk-tolerance portrait can be developed that is accurate in characterizing risk attitudes among individuals nearing retirement. Based on correlation, t test, principal components, and estimation accuracy analyses, the primary takeaway from this study is that risk tolerance does *not* appear to vary dramatically from one domain to another. Rather, it appears that a portrait of risk tolerance can be developed that is both reliable and useful in describing a person's general willingness to take risk. In some respects, this finding is intuitive. Nearly everyone, at some point in their life, does something that deviates from their normal life course. For some, this might be something like trying sky diving. For others, unusual behavior may involve investing in a startup venture or having an extramarital affair. As these examples illustrate, it is reasonable to anticipate that people will deviate from their general pattern of risk taking from time to time. However, when viewed holistically, the evidence suggests that people are more likely to assess their willingness to take risks similarly across domains. This is true across domains. Further, over a wide range of risk situations it is unrealistic to expect wide variations in risk tolerance within the domains. It is important to note, however, that this conclusion is not without

some controversy. Weber and her associates (2002) arrived at the opposite conclusion when examining risk attitudes among college students. It is possible that the differences between this study and that of Weber et al. may be attributable to the special age cohorts examined. It is imaginable, for example, that over time the risk tolerance of individuals becomes more homogenous. It is also possible that Weber and her associates were measuring a different aspect of risk, namely, risk perception. While risk tolerance and perception are closely related, these two concepts are not identical. Nonetheless, it is important to recognize that room for discussion and analysis still exists.

Limitations

Readers should note several limitations and opportunities associated with this study. For example, the generalization of results is, by definition, limited to pre-retiree baby boomers. It is possible that younger cohorts may exhibit different response patterns. As was noted previously, this may explain findings reported by Weber et al. (2002). Additionally, data represent subjective evaluations of respondents on a particular day. Whether risk tolerance has remained consistent since first evaluated is unknown.

Future Research

As noted above, results reported here are based on relatively simple statistical techniques. Additional research is needed to evaluate risk attitudes using more sophisticated methodologies. A need exists for financial counseling and planning practitioners to introduce more detailed risk assessments into their data gathering processes as a way to verify the findings reported in this paper. Including the seven risk items used in this study into a client data gathering form can provide useful information in strengthening the client-counselor/planner relationship. Feedback from practitioners on the use of such items can help inform future research. If it is true that an important aspect associated with financial counseling and planning involves helping clients identify, analyze, and manage risk, then the more information a practitioner has, the better advice he or she ought to provide. Collaborative research between academicians and practitioners is one way to develop this type of information. The use of these risk items in practice can also help validate the findings from this research project.

Future research should be focused on determining how well a portrait of risk tolerance compares to domain-dependent risk-assessment tools. It may turn out, for instance, that even though both the general risk portrait and, say, a financial risk-

tolerance measure, are positively associated with financial risk taking, the financial measure may explain variance in risky behavior to a greater extent. Additionally, research is needed to determine if people's inconsistencies in risk attitudes and behaviors occur systematically or whether inconsistencies are short-term in nature, with a longer term revision to a person's generalized risk-tolerance characterization. It would also be useful to explore the demographic, socioeconomic, and psychosocial characteristics of those individuals who are truly outliers within each domain of risk evaluation. In the future, gender, income, age, marital status, and other socioeconomic factors should be used to predict portrait scores. Finally, more detailed validity work is needed to link the risk attitudes measured in this study with actual behaviors. In effect, this means conducting concurrent and predictive validity tests to ensure that, say, health risk tolerance is, in fact, associated with behaviors such as smoking and drinking alcohol and that financial risk tolerance, as measured in this study, is associated with risky financial behavior.

Implications for Financial Counselors, Planners, and Educators

Financial counselors, planners, and educators, of course, are most interested in financial risk tolerance. Findings from this study shed some light on the importance of financial risk tolerance. While it is true that, in general, financial risk tolerance was positively associated with driving ($r = 0.44$), occupational ($r = 0.57$), health ($r = 0.38$), interpersonal ($r = 0.37$), romantic ($r = 0.35$), and life change ($r = 0.49$) risk tolerance, financial counselors and planners are cautioned to note that findings do not suggest that these other risk indicators should be used as a substitute for financial risk tolerance when making financial recommendations. The correlation coefficients, while positive, were only of modest effect size. Practitioners are encouraged to use specifically designed measures of financial risk tolerance whenever developing portfolios or in calculations that require specific information about a person's willingness to take financial risk. This is not only prudent, but it may be a legal requirement as well (see FINRA Regulatory Notice 11-25 [Rule 11-02] regarding suitability standards and procedures).

Instead, results from this study provide some evidence and support to the notion that people can, generally, be characterized by a portrait of risk tolerance. That is, people do appear to hold relatively consistent attitudes across risk appraisals. This knowledge can assist financial counselors and planners when they begin to discuss concepts related to risk taking and decision outcomes. Knowing, for instance,

that someone is willing to take driving and health risks may be a clue that the person, when given appropriate information and guidance, may also be willing to engage in risky financial behavior. Knowing about a client's general risk-tolerance portrait may help a counselor or planner better match product and service 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-adviser conversations. In the final analysis, it does look like portraits of risk tolerance can be developed for individuals. This does not mean that some individuals will not make rash, unusual, illogical, or inconsistent decisions from time to time. These results indicate, rather, that the majority of respondents who are aged 45 to 53 years are more likely to exhibit consistency across risk situations.

References

- Arano, K., Parker, C., & Terry, R. (2010). Gender-based risk aversion and retirement asset allocation. *Economic Inquiry*, 48, 147-155.
- Barber, B. M., & Odean, T. (2001). Boys will be boys: Gender, overconfidence, and common stock investment. *The Quarterly Journal of Economics*, 116, 261-292.
- Barsky, R. B., Juster, F. T., Kimball, M. S., & Shapiro, M. D. (1997). Preference parameters and behavioral heterogeneity: An experimental approach in the health and retirement study. *Quarterly Journal of Economics*, 112, 537-579.
- Callan, V. J., & Johnson, M. (2002). Some guidelines for financial planners in measuring and advising clients about their levels of risk tolerance. *Journal of Personal Finance*, 1(1), 31-44.
- Cortor, J. E., & Chen, Y.-J. (2006). Do investment risk tolerance attitudes predict portfolio risk? *Journal of Business and Psychology*, 20, 369-381.
- Dwyer, P. D., Gilkeson, J. H., & List, J. A. (2002). Gender differences in revealed risk taking: Evidence from mutual fund investors. *Economics Letters*, 76, 151-158.
- Eysenck, S. B. G., & Eysenck, H. J. (1978). Impulsiveness and venturesomeness: Their position in a dimensional system of personality description. *Psychological Reports*, 43, 1247-1255.
- Gilliam, J., Chatterjee, S., & Grable, J. (2010). Measuring the perception of financial risk tolerance: A tale of two measures. *Journal of Financial Counseling and Planning*, 30(2), 30-43.
- Gilliam, J., & Grable, J. E. (2010). Risk tolerance estimation bias: Do married women and men differ. *Journal of Consumer Education*, 27(1), 45-58.
- Grable, J. E. (2008). Risk tolerance. In J. J. Xiao (Ed.), *Handbook of consumer finance research* (pp. 1-20). New York: Springer.
- Grable, J. E., & Joo, S.-H. (2004). Environmental and biopsychosocial factors associated with financial risk tolerance. *Journal of Financial Counseling and Planning*, 15(1), 73-82.
- Grable, J. E., & Roszkowski, M. J. (2007). Self-assessment of risk tolerance by women and men. *Psychological Reports*, 100, 795-802.
- Griesdorn, T. S., Lown, J. M., DeVaney, S. A., Cho, S. H., & Evans, D. A. (2014). Association between behavioral life-cycle constructs and financial risk tolerance for low-to-moderate income households. *Journal of Financial Counseling and Planning*, 25(1), 27-40.
- Hanna, S. D., Waller, W., & Finke, M. (2008). The concept of risk tolerance in personal financial planning. *Journal of Personal Finance* 7(1), 96-108.
- Neelakantan, U. (2010). Estimation and impact of gender differences in risk tolerance. *Economic Inquiry*, 48, 228-233.
- Nicholson, N., Soane, E., Fenton-O'Creevy, M., & Willman, P. (2006). Personality and domain-specific risk taking. *Journal of Risk Research*, 8, 151-176.
- Roszkowski, M. J., & Grable, J. E. (2010). Gender differences in personal income and financial risk tolerance: How much of a connection? (Brief Report). *The Career Development Quarterly*, 58, 270-275.
- Shellenbarger, S. (2013, May 22). What makes a risk-taker? *The Wall Street Journal*. Retrieved from <http://online.wsj.com/article/SB10001424127887324102604578497133593217870.html>
- Slovic, P. (1964). Assessment of risk taking behavior. *Psychological Bulletin*, 61, 220-233.
- 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, 263-290.
- Wong, A., & Carducci, B. J. (1991). Sensation seeking and financial risk taking in everyday money matters. *Journal of Business and Psychology*, 5(4), 525-530.
- Yao, R., & Hanna, S. D. (2005). The effect of gender and marital satisfaction on financial risk tolerance. *Journal of Personal Finance*, 4(1), 66-85.
- Zuckerman, M. (1994). *Behavioral expressions and biosocial bases of sensation seeking*. Cambridge: Cambridge University Press.

Zuckerman, M., & Kuhlman D.M. (2000). Personality and risk-taking: Common biosocial factors. *Journal of Personality*, 68, 999-1029.

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