Factors Associated With Financial Risk Tolerance Based on Proportional Odds Model: Evidence From Sweden

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Is the way that individuals make risky financial choices, or tradeoffs over time, related to demographic characteristics? This article attempts to examine whether there is a link between demographic variables, risk aversion, and impatience using a randomly drawn sample of the population in Sweden. Based on a proportional odds model, the findings show that willingness to take financial risk depends on portfolio structure, gender, age, educational attainment, income, financial stability, financial literacy, marital status, and family size. Financial counselors are encouraged to use the variables related to financial risk tolerance discussed in this article whenever developing portfolios or in calculations that require specific information about a person's willingness to take financial risk.

Keywords: financial literacy, financial risk tolerance, financial stability, nonlinear, proportional odds model

Risk aversion (the opposite of risk tolerance) is an important phenomenon in explaining significant economic and daily life decisions. Although 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. This conceptual risk-tolerance sketch can be used to differentiate people according to their generalized willingness to engage in risky behaviors. This argument is based on a broader characterization that individuals, on average, exhibit consistent risk-tolerance attitudes across a wide variety of activities (e.g., Grable & Rabbani, 2014; Zuckerman & Kuhlman, 2000).

Accordingly, it would be highly unlikely that a large percentage of people would show widely diverging attitudes and behaviors that run counter to their generalized risk tolerance of a person's willingness to take risks. Thus, it is interesting to find out differences in risk attitudes and behavior and to determine whether or not a reliable and meaningful risk-tolerance pattern can be developed. According to the simplest versions of the life-cycle model (LCM), a person's consumption depends only on the present value of his or her wealth (Ando & Modigliani, 1963). This theory has several implications, the most studied being that individuals should engage in consumption smoothing, which has been rejected by most empirical studies (e.g., Thaler, 1990). Often, the failure of the LCM is attributed to the presence of liquidity constraints. Thus, an alternative model, which is called the behavioral life-cycle model (BLCM), was formulated by Shefrin and Thaler (1988).

The LCM and BLCM explain consumption behavior differently. In the LCM, consumption should only depend on an individual's total wealth, in other words, assets should be fungible. The BLCM predicts that assets should not be fungible, implying that an individual's consumption decisions will be influenced by asset composition as well as total wealth. The BLCM is a simple model of self-control based on three ideas: (a) individuals are tempted to spend all their resources on current consumption instead of saving for the future, (b) individuals who save overcome this self-control problem by investing in various assets that have different levels of temptation associated with them, and (c) individuals engage in "framing"; a person's consumption spending not only depends on total wealth but also depends on how that wealth is allocated among assets with differing levels of "temptation."

Financial literacy, knowledge, and feeling of personal power (self-efficacy) should be related to self-control. Framing

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refers to the notion that how information is presented or perceived can influence the outcome. Money received in a lump sum is treated differently than money received on a recurring basis. Individuals can affect one another's perceptions of financial situations. The demographic, educational, and financial variables, age, age squared (because of expected reductions in risk tolerance as retirement approaches or nonlinearity argument), household income, household assets, gender, employment status, homeownership, family size, race, and education, should be related to framing.

Although there exists an established body of literature focusing on the linkage between financial risk tolerance and demographic characteristics, the evidence is quite mixed and focused on the U.S. samples. Thus, this article attempts to shed light on these issues by studying the effects of several factors that influence the probabilities of being risk averse or risk seeking in Sweden. A proportional odds model (POM) is used here, which appropriately captures the natural ordering of dependent variables and any inherent nonlinearities (Agresti, 2007).

Literature Review and Research Questions

Gender Differences in Risk Tolerance

The role of gender has been analyzed and many studies have shown that women are generally more risk averse than men (Cohen & Einav, 2007; Grable & Lytton, 1998) or, indeed, have different risk tolerances (Croson & Gneezy, 2009). Women are also considered to be more loss averse than men (Brooks & Zank, 2005). Gender, however, is considered an important investor risk-tolerance classification factor because more men than women tend to fit the personality trait called "thrill-seeker" or "sensation-seeker" (Roszkowski, Snelbecker, & Leimberg, 1993).

Amanatullah, Shropshire, James, and Lee (2010) revealed gender differences in risk aversion as an outcome of self-interest orientation. That is, men are more selfish and, therefore, make riskier choices, which are more in their interest than in the corporation's interest. In contrast, women focus more on the interest of the firm they work for. Another explanation for differences may be overconfidence of men, which means that men are more convinced about their decisions than women because they believe they can predict possible outcomes more accurately than women (Barber & Odean, 2001). This does not necessarily mean that men are acting more risk seeking than women.

However, there are also several studies that indicate opposite results when reviewing the role of gender, and it is shown that women are not more risk averse than men (e.g., Embrey & Fox, 1997). Women's preferences do not differ from men's all the time when ambiguity is introduced in a game (Borghans, Golsteyn, Heckman, & Meijers, 2009). This implies that at greater levels of uncertainty, women are as risk averse as men. Furthermore, Adhiraki and O' Leary (2011) reported that there is no significant dependency of risk aversion on gender. Following their interpretation, the difference in financial risk-taking between genders stems from the fact that women think that they know less about financial and asset markets. Also Atkinson, Baird, and Frye (2003) indicated that possible gender differences may arise from the fact that women are less informed about financial markets and that they are less wealthy.

Nelson (2015) asserted that much of the literature fails to clearly distinguish between differences that hold at the individual level (categorical differences between men and women) and patterns that appear only at the aggregate level (statistically detectable differences in men's and women's distributions, such as different means). Thus, there is a resulting problem of possible misinterpretation as well as a dearth of appropriate attention to substantive significance. However, she found substantial similarity and overlap between the distributions of men and women in risk taking and a difference in means that is not substantively large.

Risk Tolerance, Marital Status, and Dependents

The role of marital status and family size is another factor affecting risk behavior. Investment managers consider marital status an effective factor in distinguishing among levels of investor risk tolerance for two reasons (Roszkowski et al., 1993): (a) It is assumed that single individuals have less to lose by accepting greater risk compared to married individuals who often have responsibilities for themselves and dependents and (b) it is assumed that married individuals are more susceptible to social risk, which is defined as the potential loss of esteem in the eyes of colleagues and peers, if an investment choice leads to increased risk of loss.

Gilliam, Dass, Durband, and Hampton (2010) examined the financial risk tolerance of married couples to determine if assertiveness affects their financial decisions. Other control variables such as education, gender, asset ownership, relative income, and the wife's cohort are considered to

ascertain the possible influence of these factors on a couple's assertiveness. Their results revealed that assertiveness itself does not notably impact their combined financial or portfolio risk tolerance.

Theoretically, the relationship between risk aversion and marital status is not clear. For example, marriage increases one's risk aversion, but at the same time, more risk-averse individuals choose to marry (Halek & Eisenhauer, 2001). Furthermore, it has been suggested that having children also is a factor that affects the level of willingness to take financial risk. According to Chaulk, Johnson, and Bulcroft (2003), individuals with children are more reluctant to take financial risk compared to individuals without children. This could also be explained by the biological factor where individuals desire security and therefore become more risk averse. Hallahan, Faff, and McKenzie (2004) revealed that there is a negative relationship between number of dependence and risk tolerance.

Research results are mixed as to the importance of marital status on risk tolerance. Research from Hallahan et al. (2004), Roszkowski et al. (1993), and Sung and Hanna (1996) supported the view that single persons are more risk tolerant than married couples. Grable (2000) found that married couples are more risk tolerant than single persons. Married respondents tended to exhibit lower levels of financial risk tolerance (Grable, Britt, & Webb, 2008; Grable & Joo, 2004). However, Sunden and Surette (1998) demonstrated that the behavior is determined by a combination of gender and marital status and may exhibit different signs.

Risk Tolerance and Age

Age is a demographic characteristic that is often hypothesized to affect an individual's degree of risk aversion. Investment managers use age as a measure of the time remaining until a client's financial assets are needed to meet goals and objectives. In addition to being used as a proxy for time, investment managers also use age as a measure of someone's ability to recoup financial losses. It is widely assumed that older individuals have less time to recover losses than younger individuals, and as such, risk tolerance will decrease with age (Morin & Fernandez Suarez, 1983; Pålsson, 1996; Xiao, Alhabeeb, Hong, & Haynes, 2001). Elderly individuals are more likely to be risk averse than younger ones, and risk aversion increases significantly after age 65 years (Halek & Eisenhauer, 2001; Riley & Chow, 1992). Several other studies confirm this nonlinear relationship between age and relative risk aversion (Jianakoplos & Bernasek, 1998; Lin, 2009). It is also argued that risk aversion depends on the investment's horizon and decreases with respect to age up to a certain point and then increases again (Cohen & Einav, 2007). In contrast, Wang and Hanna (1997) and Bellante and Green (2004) have revealed that risk aversion is decreasing with respect to age, whereas Grable and Lytton (1998) have not found age to have a significant effect on risk tolerance.

Risk Tolerance and Education

The theory of relative risk aversion suggests that individuals are utility-maximizing agents and assumed to make educational decisions in light of the expected benefits and costs of these decisions. The relationship between relative risk aversion and the level of education tends to support the view that more risk-averse individuals have a lower tendency to pursue a university education. Riley and Chow (1992) found that financial risk aversion decreases with education. Papers by Bajtelsmit and Bernasek (2001), Grable and Lytton (1998), and Lin (2009) also support this result. Dohmen, Falk, Huffman, and Sunde (2010) also revealed that higher education and cognitive ability has a significant positive impact on the willingness to take risks. But Hallahan et al. (2004) reported conflicting results for education in their research. Generally speaking, Grable and Joo (2004), Grable et al. (2008), Sung and Hanna (1996), and Xiao et al. (2001) indicated that predicted risk tolerance increases with education.

Risk Tolerance and Income

Income also plays a major role in explaining risk-taking behavior (Grable et al., 2008; Grable & Joo, 2004; Xiao et al., 2001). Investment managers have suggested that increasing income levels are associated with access to more immediate resources, leading some to conclude that increased levels of income lead to increased levels of risk tolerance. For example, someone with higher income may be less worried about taking a risk and winning nothing, all else equal. This stems from the fact that higher income provides a cushion against negative income shocks. However, people with higher income tend to be less risk averse (Agnew, Balduzzi, & Sunden, 2003). The predicted probability of being risk tolerant increases with noninvestment income (Sung & Hanna, 1996).

Risk Tolerance and Portfolio Choice

Another variable to measure risk aversion is portfolio decisions (Hanna & Chen, 1996, 1997). The literature frequently takes the share of financial wealth invested in stocks and risky assets as a proxy for risk aversion. This allows us to identify how large of financial wealth are invested in stocks which carry some source of risk. Stocks are considered as riskier than other investment vehicles.

The theoretical literature on nonfinancial income and background risk suggests three effects (Vissing-Jørgensen, 2002). If nonfinancial income is riskless, then the more nonfinancial income an individual possess relative to its financial wealth the larger a fraction of financial wealth should be invested in stocks. The means that a riskless nonfinancial income stream is similar to the payoff from a riskless asset. A household should therefore adjust its allocation of financial assets toward stocks to obtain an optimal portfolio mix. But nonfinancial income is usually not riskless. If this "background risk" is not correlated with stocks then it will influence households to behave in a more risk averse way and this creates a lower fraction of financial wealth invested in stocks. And if nonfinancial income is correlated with stock returns, this implies a hedging component in the proportion invested in stocks of the opposite sign of the correlation.

Lee, Rosenthal, Veld, and Veld-Merkoulova (2015) investigated the relationship between stock market return expectations and risk aversion of individuals and examined whether the joint effects arising from the interaction of these two variables affect investment decisions. Using data from the Dutch National Bank Household Survey, they found that risk aversion levels have significant and negative effects on stock market expectations. They also revealed significant negative effects arising from the interaction between stock market expectations and risk aversion. These effects are in addition to a significant positive impact from stock market return expectations as well as a significant and negative effect from risk aversion separately. Moreover, once individuals participate in the stock market, their stock market expectations alone remain significant in determining their portfolio allocation decisions.

Adhikari and O'Leary (2011) reported that risk tolerance is positively related to the proportion of wealth kept in risky assets, that is, stocks and direct investment in business. In other words, those who rate themselves as high risk takers invest a larger portion of their wealth in risky assets (stocks and business) than those who rate themselves as more risk averse (Xiao et al., 2001).

Risk Tolerance and Financial Literacy

Surprisingly, financial literacy does not influence decisions on risk tolerances (Cole, Paulson, & Shastry, 2012). Van Rooij, Lusardi, and Alessie (2011) devised an extensive module of survey questions that measure the understanding of economic concepts such as compound interest and inflation. They showed that even a very basic understanding of economics is limited among households and that low literacy levels deter stock market participation. They also concluded that risk tolerance has been shown to increase with financial literacy. However, Grable and Joo (2004) and Grable et al. (2008) have shown that financial literacy is an important factor in financial risk tolerance.

Risk Tolerance, Financial Stability, and Attitude Toward Financial Risks

Another important factor affecting the investment pattern is the attitude toward financial risks. In the literature, two models of decision making, which relate mood states with risk taking, lead to opposite predictions. The first one is the affect infusion model, which asserts that positive mood tends to increase risk propensity, whereas negative mood tends to increase risk aversion (Forgas, 1995). The higher risk tolerance of people with no worries about financial stability may be explained by optimistic beliefs about a favorable gamble outcome (Johnson & Tversky, 1983). On the opposite side, the mood maintenance hypothesis suggests that people with no worries about financial situation tend to behave more cautiously in risky situations because they try to protect their current elated emotional state (Isen & Patrick, 1983). Thus, besides those variables that are used in estimations of risk-taking behavior worries about finances or financial stability should be taken into account when studying households' financial decisions.

Grable and Roszkowski (2008) examined whether they could find support for either the affect infusion model or the mood maintenance hypothesis regarding how mood influences financial risk tolerance. An ordinary least-squares regression model was used to determine if people who exhibited a happy mood at the time they completed a survey scored differently than those who were not happy.

They revealed that being in a happy mood was positively associated with having a higher level of financial risk tolerance, holding biopsychosocial and environmental factors constant. Thus, support for the affect infusion model was obtained.

Other indicators as determinants of investors' risk aversion identified in the asset pricing literature are measures of equity and credit market risk and negative news events in other equity markets (De Santis & Gerard, 1997). A poorer outlook for the economy may raise risk aversion because investors react to the increased likelihood of lower wealth situations by reducing their willingness to bear risk. If investors expect the business climate to improve, they will shift some of their assets from short-maturity instruments into long-term bonds. This change in the portfolio composition will increase the short rate relative to the long rate. Rising risk in the equity and credit markets makes it likely that future wealth will be lower and hence may create higher risk aversion.

As shown earlier, the study of risk tolerance is multidisciplinary. The general consensus among researchers indicates that future research devoted to the investigation of the effects of factors related to risk tolerance should use a combination of demographic, socioeconomic, social development, and family situation factors. Results can then be used to develop a model for understanding the principal factors affecting financial risk-tolerance attitudes and behaviors. In practice, researchers and financial counseling and planning professionals require reliable and accurate information about ways that can be used to characterize the risk attitudes of individuals. Any additional study that can provide a broader perspective regarding individuals' attitude toward 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.

However, one important outcome associated with this study is to answer the following questions: Does financial risk tolerance increase with financial literacy? Is high income associated with high-risk tolerance? Are married individuals more risk tolerant than single individuals? Does the number of family dependents affect financial risk tolerance? Is financial stability important in risk taking? Are high-educated individuals more risk tolerant? How is age related to risk tolerance? Are men more risk tolerant than women? Do individuals with more stocks represent more risk tolerance?

Method

Data

The sample was drawn from individuals in Malmö which is located in the south of Sweden. The data for variables were collected from responses to a questionnaire during May 2015. Several representative betting shops were chosen in the town areas. A systematic stochastic sample of 180 individuals was chosen outside these shops. The questionnaire was distributed to the randomly selected individuals who were the lottery buyers. Face-to-face interviews were conducted during the process.

Respondents were asked questions about individual's attitudes and behavior toward financial risk tolerances. Economic and sociodemographic characteristics were also included. The observations on dependent variable take three different forms: individuals with high risk choice (HRISK), individuals with moderate risk choice (MRISK), and individuals with low risk choice (LRISK). LRISK means that a person is low risk seeking (investing less than 20% in equities), MRISK indicates that he or she is moderate risk seeking (investing between 20% and 50%), and HRISK represents a person with high risk seeking (investing more than 50%). Participants are ranked according to their risk tolerances by asking how much of a hypothetical lottery win of 100,000 Euros they are willing to invest in a game in which the bet will be either doubled or halved with a probability of 0.5 in each case.

Variables

The independent variables are income, which indicates the level of income among individuals (1 if they earn more than 20,000 Swedish Krona (SEK) or 2,100 Euros per month, 0 otherwise. If the variable in question has an exactly linear relationship with the outcome, you do lose information by making a continuous variable into categorical one. Treating the variable as continuous allows you to estimate linear component of the relationship, but the categorical version allows to capture much more complicated relationships); financial literacy, which indicates the level of financial literacy and is measured by asking the following question: Suppose the interest on your bank account is 1% and the inflation is 2%. If you keep your money in the account for

a year, how much will you be able to buy at the end of the year? (if they have a right answer 1, 0 otherwise); education, which denotes the level of education among individuals (1 if they have completed higher studies, 0 otherwise); age, which indicates age of respondent; age square, which is the square of age; gender, which shows gender among participants (1 if the respondent is female, 0 otherwise), marital status, which indicates the marital status among respondents (1 if they are married legally or de facto, 0 otherwise); number of family dependents, which shows the number of family dependents among respondents, that is, the number of people in the family who are financially dependent on the respondent, Financial stability, which indicates worries about finances or financial stability (1 if they are not worried about their financial stability, 0 otherwise. The following yes/no question was asked: "Do you have stable, adequate income or financial resources (savings and assets) to cover all expenses (expected and unexpected)?"; and finally, Portfolio structure, which shows the portfolio structure of individuals' wealth and saving (1 if they invest a large share of financial wealth invested in stocks, 0 otherwise).

Data Analyses

Ordered response variables are very common in social science research. Before methods such as ordinal logistic regression gained popularity in the 1980s and 1990s, researchers would often estimate models with ordinal dependent variables using ordinary least squares (OLS) regression. The unrealistic assumption of equal spacing between the categories of ordinal variables (e.g., Likert scales numbered 1–5) and the potential for misleading results eventually led researchers to consider methods designed explicitly for ordinal outcomes (Long, 1997). When the ordinal categorical responses are treated as ordinal categorical variables and the frequencies of the categories of the responses are of interest, proportional odds models are appropriate (McCullagh, 1980). Another advantage of proportional odds models is invariance to choice of response categories (Agresti, 2007). This means that when nine categories and three categories that were collapsed from the nine categories are used in parallel, similar conclusions will be reached (Agresti, 2007).

A POM is used here which appropriately captures the natural ordering of dependent variables and any inherent nonlinearities (Agresti, 2007). This means that not only is the effect of a regressor nonconstant on the probability of a given attitude but also its influence varies across different attitudes. This model, which is based on a constrained ordinal model, has better statistical power than simple logistic regression (Capuano, 2012). Furthermore, because response (the observations on dependent variable) is a three-level ordinal variable, it is wise to consider the natural ordering to the response levels when modeling the effects of the explanatory variables on the consumer behavior (Agresti, 2007).

Results

Descriptive Statistics

The gender distribution across the sample was 51% female and 49% male. The age distribution was 30% (aged from 20 to 29 years old), 35% (aged from 30 to 44 years old), 20% (aged from 45 to 59 years old), and 15% (aged from 60 to 80 years old). Regarding education and income variables, 30% of respondents had higher studies at university or college levels and 39% of respondents had a monthly income less than 20,000 SEK (2,100 Euros). The percentage of married or cohabitant people was 48% of respondents. The collected information indicated that 32% of respondents had people in the family who were financially dependent, and 70% of respondents invested in stocks. The percentage of those who were worried about their financial stability was 38%. Finally, 80% of respondents had a correct answer about the financial literacy question. Table 1 shows the relative frequencies of answers for risk taking or cutoff points after winning the lottery. This table also indicates relative distribution of dependent variables. Table 2 summarizes percentage distribution of study variables.

TABLE 1. Relative Frequencies of Answers After Winning the Lottery

Answer (Euros)	Relative Frequency (%)
0–10,000	36.0
10,000–20,000	34.0
20,000–30,000	7.7
30,000–40,000	7.3
40,000–50,000	5.0
50,000–60,000	3.5
60,000–70,000	3.3
70,000–80,000	1.0
80,000–90,000	1.0
90,000–100,000	1.2

TABLE 2. Percentage Distribution of Study Variables

Female	51%
Male	49%
Age (years)	
20–29	30%
30–44	35%
45–59	20%
60–80	15%
Higher studies at university or college levels	30%
Monthly income below 20,000 SEK	39%
Married or cohabitant	48%
Having financially dependent individuals	32%
Financial literacy	80%
Invested in stocks	70%
Worried about financial stability	38%
Individuals with low-risk choice	70%
Individuals with moderate-risk choice	20%
Individuals with high-risk choice	10%

Note. SEK = Swedish Krona.

Results of Proportional Odds Model

Table 3 reveals the relative importance of the explanatory variables outlined before. All variables have been found to be statistically significant at conventional levels with expected signs. The influence of marriage decreases the likelihood of being highly risk seeking. The probability of being highly risk seeking is also determined by the number of people in the family who are financially dependent. The likelihood of being low risk averse is negatively associated with the number of family dependents. The likelihood of risk aversion also depends on age. Thus, young individuals are more likely to be risk tolerant but the effect is nonlinear. This implies that risk tolerance is decreasing at an increasing rate as reported age increases.

As the introduction indicated, educational background is a relevant factor in this context. Having a university education increases the likelihood of being risk seeking. Also, having a high income increases the likelihood of being highly risk tolerant. This is in contrast to prospect theory, which suggests that people tend to be risk seeking if they are below a subjective reference point and, on the other hand, people have tendency to be risk averse if they are above this reference point. The probability of being a high versus a moderate or low risk tolerant is also determined by portfolio structure, that is, those who invest a large share of financial wealth in stocks are highly risk tolerant. Being female increases the probability of being risk averse. Financial stability variable shows that people with no worries about finances have a higher probability to be risk seeking. Thus, the results here support the affect infusion model. Finally, the likelihood of being highly risk seeking is increasing with financial literacy.

Note that Table 3 also shows odds ratios. For example, in the case of income and portfolio structure, the estimated odds ratios of being a high versus a moderate or low risk tolerant are 3.14 and 1.29, respectively. To test for the proportional odds assumption, we perform a score test. The resulting p value is 0.366, implying that we cannot reject the null hypothesis of the proportional odds assumption.

Conclusion

This study attempts to shed light on several determinants explaining differences in financial risk tolerance and preferences in Sweden. Based on the estimation of a proportional odds model, the results indicate that the probability of being highly risk seeking is affected by marital status, family size,

TABLE 3. Results of Proportional Odds Model

Variable	Parameter Estimate	*p* Value	Odds Ratio
Constant 1	−5.460	.006	—
Constant 2	−2.261	.530	—
Gender	−1.206	.038	0.30
Income	1.143	.002	3.14
Financial literacy	0.027	.011	1.03
Education	3.435	.005	31.03
Marital status	−0.527	.092	0.59
Age	−0.768	.061	0.46
Age square	−0.088	.004	0.92
Portfolio structure	0.259	.009	1.29
Number of family dependents	−0.627	.001	0.53
Financial stability	0.473	.076	1.60

Note. Goodness of fit: Score test with p value = 0.366. Concordance index = 84%.

age, income, gender, financial literacy, financial stability, portfolio structure, and education.

The fact that risk tolerance is correlated with demographic variables has important implications for theoretical and empirical research in economics and finance. These traits are usually assumed to be relatively independent in economic models and could be a potentially important source of model misspecification.

Financial counselors, planners, and educators are most interested in financial risk tolerance. Findings from this study shed some light on the importance of financial risk tolerance. In general, financial risk tolerance was positively associated with demographic factors (except age, marital status, and dependents) and financial indicators; thus, financial counselors and planners are recommended to consider these issues when making financial recommendations.

Financial counselors are encouraged to use the variables related to financial risk tolerance discussed in this article whenever developing portfolios or in calculations that require specific information about a person's willingness to take financial risk. Results from this study provide some evidence and support to the notion that people can, generally, be characterized by certain factors related to risk tolerance. This knowledge can help financial counselors and planners when they discuss concepts related to risk taking and decision outcomes. Knowing about a household's general risk-tolerance attitude may assist a counselor or planner better match product and service recommendations to what drives a household's fears and expectations about the future. Asking current and prospective clients about their willingness to engage in financial risk taking, and using answers to develop a pattern, will likely create better and more in-depth client–adviser conversations.

There are a few limitations inherent in this study. The risk tolerance question did not directly ask for individuals' tolerances for risks; instead, a hypothetical action was asked so that the risk tolerance preferences can be inferred. This question was designed so that respondents had a hypothetical lottery gain and the following action plan was based on the gain, not their current wealth. This would likely introduce a confounding factor, the house money effect. Another limitation stems from the fact that the sample does consist of people who are willing to gamble and the sample is missing nongamblers.

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