Handbook of Consumer Finance Research
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Jing Jian Xiao, Ph.D.
Editor

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Preface

For several reasons, American consumers are now facing many financial challenges. First, the social security system will likely be insolvent within the next 40 years. Second, private industries are moving from defined benefit pensions to defined contribution retirement plans. These trends require individual consumers to take more responsibility for their financial future. Another factor is the rising cost of higher education that many consumers now have to consider when planning their children's college education. In addition, easily accessible credit has pushed many consumers deep into debt, leading to record high individual bankruptcy filings, increased demand for credit counseling, and increased numbers of debt consolidations. These growing social issues recently prompted government and private organizations to sponsor joint efforts of financial education and research. Out of these developments grows the need for a book to summarize research findings and point out future directions. *Handbook of Consumer Finance Research* answers this call by addressing these social issues as well as directly helping consumer finance researchers, policy makers, educators, and practitioners to design, implement, and evaluate financial education and research initiatives.

Active, multidisciplinary researchers in consumer finance have contributed the chapters that provide a comprehensive overview of the current research. All chapters have received blind reviews by peers who are qualified researchers, some of whom are also chapter contributors. In each chapter, the author first critically reviews the research publications on the focused topic, then assesses the status of the research, and provides directions for future research. The authors were asked to search literature in multiple fields for the latest research in consumer finance, compile the findings, and present it in a manner accessible to people who are not specially trained in the field. In several chapters, the authors also present their original research.

The handbook is divided into four parts consisting of 25 chapters. Part I has six chapters that review research on basic concepts and theories in consumer finance such as risk tolerance, financial wellness, retirement savings, financial education, behavior theory application, and consumer economic socialization. Part II reviews consumer finance research in the Internet setting including e-banking, online insurance, and online shopping. The nine chapters in Part III describe consumer financial issues among special populations such as high school students, college students, older consumers, low-income consumers, family business owners, individual
investors, and racial and ethnic minority consumers (Hispanic, African, and Asian Americans). Part IV discusses consumer financial issues on special topics such as healthcare, marriage, family communication, bankruptcy, workplace, regulation, and applied research.

The first of its kind to provide a comprehensive picture of consumer finance research, this book lays the foundation on which to develop more quality research in consumer finance. It helps to generate helpful information for financial educators, researchers, and policy makers to improve consumer financial well-being and quality of life. In addition, most contributors are professors who teach consumer finance and related courses at the university level making the material accessible to graduate and undergraduate students as well as professionals. Overall, it enriches the literature of consumer science, economics, finance, business, family studies, human development, and related fields.

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Part I
Concepts and Theories of Consumer Finance
Chapter 1
Risk Tolerance

John E. Grable

Abstract  This chapter provides an overview of the important role financial risk tolerance plays in shaping consumer financial decisions. A review of normative and descriptive models of risk tolerance is provided. Additional discussion regarding the measurement of risk tolerance is also presented. The chapter includes the presentation of a conceptual model of the principal factors affecting financial risk tolerance with recommendations designed to enhance the consumer finance field’s knowledge of risk tolerance. The chapter concludes with a summary of additional research needed to better understand the multidimensional nature of risk tolerance.

The specific study of how a person’s perceptions of risk influence behaviors has gained importance over the past two decades as consumers, investment advisers, researchers, and policy makers have come to face new and ever increasingly complex changes in the economic landscape. This is especially true in relation to the consumer finance field’s examination and understanding of the role financial risk tolerance plays in shaping individual financial behaviors. One of the first definitions of risk tolerance appropriate for use by researchers interested in consumer and personal financial issues was proposed by Kogan and Wallach in 1964. They stated that risk tolerance is the willingness of an individual to engage in a behavior where there is a desirable goal but attainment of the goal is uncertain and accompanied by the possibility of loss. Okun (1976) described a key facet of risk tolerance as a person’s perception of change and danger. According to Okun, “all risk-taking situations necessitate the evaluation of (a) the relative value of a given alternative and (b) the likelihood or probability of achieving it successfully” (p. 222). Weber, Blais, and Betz (2002) conceptualized a person’s attitude toward taking financial risks to include risk perception and attitude toward perceived risk. Using their definitional framework, risk tolerance is “a person’s standing on the continuum from risk aversion to risk seeking” (p. 264). Sometimes the term “risk preference” is used.
to describe risk tolerance. Risk preference is a person’s “tendency to be attracted or repelled by alternatives that he or she perceives as more risky over alternatives perceived as less risky” (Weber & Milliman, 1997). This definition decomposes risk tolerance into two parts: risk attitude and risk perception. Many personal and consumer finance researchers conceptualize risk tolerance as the maximum amount of uncertainty someone is willing to accept when making a financial decision or “the willingness to engage in behaviors in which the outcomes remain uncertain with the possibility of an identifiable negative outcome” (Irwin, 1993, p. 11).

Risk tolerance is an important factor that influences a wide range of personal financial decisions (Snelbecker, Roszkowski, & Cutler, 1990). Risk tolerance is an underlying factor within financial planning models, investment suitability analyses, and consumer decision frameworks. The debt versus savings decision individuals regularly make, the type of mortgage selected, and the use and management of credit cards are examples of situations where a person’s financial risk tolerance can influence behavior (Campbell, 2006). Financial risk tolerance also affects the way people invest their resources for short- and long-term goals such as saving for a significant purchase and retirement. It is reasonable to expect that people with varying levels of risk tolerance should act differently when making investment decisions, with those having a high risk tolerance investing more aggressively.

Much of the early theoretical and empirical research conducted on the topic of risk tolerance involved testing and assessing individuals’ perceptions and susceptibility to health, environmental, and physical risks (Csicsaky, 2001; MacCrimmon & Wehrung, 1986; Slovic, 2004) as evaluated through experimental economics methodologies (e.g., Bateman & Munro, 2005; Kahneman & Tversky, 1979). Outside of economics, the study of risk tolerance has been diverse. The earliest work on the recognition of risk and the willingness to engage in risky activities was concentrated in the area of consumer behavior (MacCrimmon & Wehrung, 1984). Researchers in the fields of finance (e.g., Cohn, Lewellen, Lease, & Schlarbaum, 1975; Markowitz, 1952; Siegel & Hoban, 1982), business (e.g., Fitzpatrick, 1983), natural hazards (e.g., Kunreuther, 1979), and natural and man-made disasters (e.g., Newman, 1972; Slovic, Fischhoff, & Lichtenstein, 1978) have also given attention to measuring risky situations and surveying propensities of individuals to take risks. Over the past quarter century there has been a growing movement to better understand risk tolerance from a household financial and psychological perspective (Dixon, Hayes, Rehfeldt, & Ebbs, 1998).

Researchers and theorists have attempted to explain risk tolerance, the likelihood of taking risks, and outcomes from risky actions through normative and descriptive models. Normative models describe how people ought to make decisions, whereas descriptive models attempt to explain how and why individuals actually make risk evaluations. The primary normative model is expected utility theory. Descriptive models, on the other hand, tend to be based on varied behavioral and/or psychosocial perspectives. Expected utility theory and a sampling of descriptive frameworks are reviewed below.
The Expected Utility Theory Framework

The use of expected utility theory (EUT) modeling is the primary approach used by researchers to describe how risk tolerance is conceptually linked with risk-taking behaviors. The conceptualization of EUT was advanced by Von Neumann and Morgenstern (1947). They argued that consumers should select choices with the highest expected outcomes. A consumer’s utility function is typically assumed to resemble a constant relative risk aversion utility function (Hanna, Gutter, & Fan, 2001). “In the expected utility framework, risk preference is operationalized as risk attitudes that are descriptive labels for the shape of the utility function presumed to underlie a person’s choices. Choice of a sure amount of money over a lottery with equal expected value would classify a person as risk averse” (Weber & Milliman, 1997, p. 124). Constant relative risk aversion is generally represented graphically so that as wealth increases marginal utility slowly increases but at an ever slowing rate. Low risk tolerance is represented with a concave utility function, whereas a convex utility function is representative of high risk tolerance. In its most basic form, EUT assumes that consumers are rational and that risk preferences remain constant. As such, a consumer should make the same choice (tradeoff) in terms of riskiness regardless of the situation or event.

Modern portfolio theory (MPT) was originally conceptualized by Markowitz (1952) as an extension of EUT to the analysis of investment portfolios. According to Mayo (2003), “The Markowitz model is premised on a risk-averse individual constructing a diversified portfolio that maximizes the individual’s satisfaction (generally referred to as utility by economists) by maximizing portfolio returns for a given level of risk” (p. 170). Within MPT, investors develop risk and return trade-offs. Economists depict these trade-offs with indifference curves where investors prefer high returns with low risks. Trading off risks for returns is one way investors maximize utility. In general, MPT predicts that investors should only be willing to take additional risk if the return associated with the risk is high.

The shape of the utility function used within EUT and MPT frameworks is generally measured using a person’s response to a series of hypothetical income gambles. For example, Hanna and Lindamood (2004, p. 37) asked a progression of questions similar to the following:

“Suppose that you are about to retire, and have two choices for a pension: Pension A gives you an income equal to your pre-retirement income. Pension B has a 50% chance your income will be double your pre-retirement income, and a 50% chance that your income will be 20% less than your pre-retirement income. You will have no other source of income during retirement, no chance of employment, and no other family income ever in the future. All incomes are after tax. Which pension would you choose?”
Using their approach, additional questions ask respondents to choose among different percentage changes in income. The result allows for the calculation of a person’s relative risk aversion. Risk aversion, or the theoretical opposite—risk tolerance, can then be used to help explain household portfolio allocations. In its most basic form, risk tolerance is important within the context of EUT because only measures of risk tolerance based on hypothetical gambles have been directly linked to the theory. For example, Hanna and Chen (1997) showed that risk aversion has little impact for consumers investing for the long run, but does make a significant difference for those investing with shorter time horizons. The normative implication of this result is substantial. The long-run riskiness of stocks is less than commonly thought. Further, because wealth accumulation is positively associated with high return investments (e.g., stocks), it is important for everyone, even those with low risk tolerance, to invest a portion of investment assets in stocks. Individuals who eschew stocks and other high return investments must either be extremely thrifty today or run the risk of living in relative poverty in the future.

Behavioral Finance and Psychosocial Descriptive Frameworks

Even though EUT has traditionally been a favorite method for conceptualizing risk tolerance and risk-taking behaviors among economists, groups of researchers, primarily those housed in departments of psychology and behavioral sciences, have traditionally questioned the notion that risk tolerance can be represented within an economic utility framework (Olson, 2006). There is a growing body of evidence to suggest that the assumption that “risk is an immutable attribute of a decision alternative that is perceived the same way by different decision makers” (Weber, 1997, p. 129) may be incorrect. Consider the normative directive indicated by EUT that everyone saving for a long-term goal should invest in high return investments. Only a small part of the population follows this advice. Descriptive models attempt to explain why people often stray from this and other normatively appropriate behaviors.

The conflict between what consumers should do and what they actually do has been widely studied. Friedman and Savage (1948) were the first to challenge the standard utility function assumption by showing that few people have a constant risk aversion throughout the entire domain of wealth. They noted a paradox among consumers who purchase insurance but also gamble. Others have documented similar inconsistencies of behavior linked to differences in risk tolerance. One of the first to note such a paradox was Allais (1953). He asked individuals to choose a preference in each of two circumstances as shown in Table 1.1.

When offered the choice, nearly all individuals choose 1a over 1b; however, in the second situation most people choose 2b over 2a. This is a violation of the relative risk aversion assumption within economic utility theory. According to Schoemaker (1980), “The first preference implies, of course, that \( U(1) > .1U(5) + .89U(1) + .01U(0) \) where the amounts are in millions. Combining terms, this simplifies to
Table 1.1 The Allais paradox.

<table>
<thead>
<tr>
<th>Choice 1a</th>
<th>Choice 1b</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Situation one</strong></td>
<td><strong>Situation two</strong></td>
</tr>
<tr>
<td>$1 million for certain</td>
<td>$1 million with a probability of .1</td>
</tr>
<tr>
<td></td>
<td>$1 million with a probability of .89; and</td>
</tr>
<tr>
<td></td>
<td>$0 with a probability of .01</td>
</tr>
<tr>
<td>Choice 2a</td>
<td>Choice 2b</td>
</tr>
<tr>
<td>$1 million with a probability of</td>
<td>$5 million with a probability of .1 and</td>
</tr>
<tr>
<td>.11 and</td>
<td>$0 with a probability of .9</td>
</tr>
<tr>
<td>$0 with a probability of .89</td>
<td></td>
</tr>
</tbody>
</table>

$11U(1) > .11U(5) + .01U(0)$. The second preference, however, implies exactly the opposite ..., $11U(5) + .01U(0) > .11U(1)$” (p. 18). Similar evidence showing that a conflict between normative theory and actual behavior has been noted by Bell (1982), Coombs (1975), Ellsberg (1961), Kahneman and Tversky (1979), Loomes and Sugden (1982), Payne, Laughhunn, and Crum (1984), Shefrin and Statman (1985, 1993), Tversky (1969), and Tversky and Kahneman (1981). This growing body of empirical evidence has led to the development of a new sub-discipline within economics and finance—behavioral economics/finance (Kahneman & Tversky, 1979).

Kahneman and Tversky (1979) noted that “the magnitudes of potential loss and gain amounts, their chances of occurrence, and the exposure to potential loss contribute to the degree of threat (versus opportunity) in a risky situation” (p. 266). This observation led them to conclude that people are consistently more willing to take risks when certain losses are anticipated and to settle for sure gains when absolute rewards are expected. This insight is the fundamental tenet of prospect theory—a major behavioral finance theory (Statman, 1995; Tversky & Kahneman, 1981).

Although there have been a number of behavioral theories put forth as substitutes (e.g., regret theory, Ellsberg’s paradox, satisficing theory), prospect theory (Kahneman & Tversky, 1979) continues to be the primary descriptive alternative to EUT. Within the prospect theory framework, value, rather than utility, is used to describe gains and losses. A value function, similar to a utility function, can be derived; however, “the value function for losses (the curve lying below the horizontal axis) is convex and relatively steep. In contrast, the value function for gains (above the horizontal axis) is concave and not quite so steep” (Plous, 1993, p. 95). One of the primary outcomes associated with prospect theory is that a person’s risk tolerance will depend on how a situation or event is framed. Risks with sure gains are predicted to produce risk-averse behaviors, while risks with sure losses are expected to bring about risk-seeking preferences.

One argument critical of EUT, prospect theory, and behavioral frameworks is that each is consequential in nature. The underlying assumption in these frameworks is that individuals make decisions based on an assessment of consequences. A relatively new theory of risk tolerance and risk taking suggests that this assumption is incorrect. According to Loewenstein, Weber, Hsee, and Welch (2001), existing
frameworks “posit that risky choice can be predicted by assuming that people assess the severity and likelihood of the possible outcomes of choice alternatives, albeit subjectively and possibly with bias or error, and integrate this information through some type of expectations-based calculus to arrive at a decision. Feelings triggered by the decision situation and imminent risky choice are seen as epiphenomenal—that is, not integral to the decision-making process” (p. 267). In response, Loewenstein and his associates proposed a “risk-as-feelings” theoretical perspective.

The risk-as-feelings hypothesis puts forward the notion that emotional reactions to risky situations often diverge from reasoned assessments. When this happens, emotional reactions directly influence behavior. Within the framework, emotional responses, such as worry, fear, dread, and anxiety influence judgments and choices. For example, people in good moods tend to view risky situations with less threat than individuals in a bad mood (Loewenstein et al., 2001; Olson, 2006). The risk-as-feelings framework is unique in terms of acknowledging the influences of cognitive and emotional factors on risk tolerance and risk-taking behaviors. The risk-as-feelings hypothesis offers a fresh approach to understanding both risk tolerance and risk-taking behaviors.

**Risk Tolerance Measurement Issues**

The formal assessment of risk tolerance can take on many forms (Roszkowski & Grable, 2005). In practice, risk tolerance tends to be measured and assessed using one of the six methods: (a) personal or professional judgment, (b) heuristics, (c) objectively, (d) single item questions, (e) risk scales, or (f) mixed measures.

Those that rely on personal or professional judgments have a tendency to use one of the four methods to assess the risk tolerance of other people. A judgment can be made based on the assumption that others have the same risk tolerance as the judge. It is also possible to perceive others as less risk tolerant. This is known as risk-as-value, where the judge perceives his or her own risk tolerance as being more desirable. An alternative is to predict that others have only slight differences in risk tolerance compared to the judge. The final approach involves relying on stereotypes to arrive at a judgment. Unfortunately, the literature on personal and professional judgment has not shown those that use this method to be particularly accurate (Roszkowski & Grable, 2005).

The use of heuristics is another way that some attempt to assess risk tolerance. A heuristic is a simplified rule that results in a mental shortcut to solve a problem. In terms of risk assessment, for instance, some people believe that, holding all other factors constant, males are more risk tolerant than females or that those that are self-employed tend to be more risk tolerant than others. Other risk-tolerance heuristic examples include associating general risk-taking behaviors with a willingness to take financial risks (e.g., skydiving to investing) and viewing occupational choice as a proxy for risk-taking preferences. The preponderance of research on the topic of heuristic validity suggests that very few heuristic rules can be used reliably.
The majority of risk-tolerance heuristics can lead to potentially serious miscalculations and incorrect categorizations of individuals into risk-tolerance groups (Grable, 2000; Grable & Lytton, 1998, 1999a).

Another technique that is sometimes used to describe a person’s risk tolerance involves objectively assessing an individual’s current investment approach and inferring risk tolerance from the observation. Using this method, someone who holds the majority of their investment assets in equities would be assumed to have a relatively high risk tolerance. Alternatively, someone who holds their investment assets in certificates of deposit would be classified as having a low risk tolerance. Researchers who use this approach measure relative risk aversion by looking at the ratio of risky assets to wealth (Riley & Chow, 1992). The validity of this assessment method has been questioned (Campbell, 2006; Cordell, 2001). Unless sufficient information is known prior to the judgment, this type of objective measure cannot account for the effect of outside influences, such as allocations based on the recommendations of advisors or friends and emotional biases at the time the portfolio allocation decision was made. Actual stock market results obtained by investors, compared to average market returns, suggest that objective measures are a weak substitute to scale measures. When compared to the markets, investors tend to underperform indices in both up and down markets (Barber & Odean, 2001; Odean, 1998). This implies that investors do not always actually invest in ways that match their true underlying risk tolerance.

Another approach for assessing risk tolerance involves the use of a valid and reliable scale. In some situations, however, a scale is either not available or requires too much time to administer. In these cases, single item questions are sometimes used to assess risk tolerance. One risk-tolerance question is widely used among those interested in consumer finance issues—the Survey of Consumer Finances (SCF) risk-tolerance item. The question is simple to use and assess, as shown below:

Which of the following statements on this page comes closest to the amount of financial risk that you are willing to take when you save or make investments?

1. Take substantial financial risk expecting to earn substantial returns.
2. Take above-average financial risks expecting to earn above-average returns.
3. Take average financial risks expecting to earn average returns.
4. Not willing to take any financial risks.

This question is popular among researchers because it is one of the only risk-tolerance assessments asked in national surveys of consumers. This allows responses to the item to be compared to national averages. The downside associated with the use of this, or any other single item, is that it may not be a “good proxy for people’s true risk aversion” (Chen & Finke, 1996, p. 94). Historical response patterns indicate that a large percent of those answering the question have no risk tolerance (Hanna and Lindamood, 2004). This skewed response pattern toward maximum risk aversion conflicts with actual risk-taking behaviors observed in everyday financial situations. Grable and Lytton (2001) also noted that the question does not
fully represent the spectrum of financial risk tolerance. Instead, the item is most closely linked with investment choice attitudes.

Another method for assessing risk tolerance involves the use of a psychometrically designed scale (Roszkowski, Davey, & Grable, 2005). The history of risk scales can be traced back to the late 1950s. One of the earliest measures of risk tolerance was proposed by Atkinson (1957). Atkinson hypothesized that risk taking can be described by six factors: (a) assessment of the subjective probability of achieving success; (b) assessment of the subjective probability of failure; (c) the incentive value of success; (d) the incentive value of avoiding failure; (e) an achievement motive; and (f) the motive to avoid failure. Although Atkinson’s work did not lead directly to a usable scale, his hypothesis laid the groundwork for the development of later scales that incorporated the multidimensional nature of risk.

A major advancement in the study of choice in risky situations occurred in the late 1950s and early 1960s. Wallach and Kogan (1959, 1961) developed the widely used Choice Dilemmas Questionnaire to measure risk preferences in everyday life situations. The original questionnaire required subjects to advise other individuals regarding 12 choices with two outcomes: a sure gain or a sure loss. An example of these questions includes the following: “Mr. A, an electrical engineer, has the choice of sticking with his present job at a modest, though adequate, salary or of moving on to another job offering more money but no long term security. Please advise Mr. A by deciding what probability of success would be sufficient to warrant choosing the risky alternative” (Wallach & Kogan, 1959, p. 558). These types of choice dilemmas were commonly used to measure risk-taking propensities for three decades. Beginning in the early 1980s, the choice dilemma approach came under increased attack for lack of validity and reliability.

The lack of consistency between and among distinctive choice dilemma questionnaires administered by different researchers was revealed as far back as 1962 by Slovic who concluded that choice dilemma measures lacked sufficient validity and reliability to be of much predictive use. Slovic came to this conclusion after examining all forms of the choice dilemma instrument, including dot estimation tests, word meanings tests for category width, life experiences inventories, multiple choice exams, recreational activity measures, job preference inventories, gambling assessments, and peer ratings. Kogan and Wallach (1964), the creators of the Choice Dilemmas Questionnaire, also found no evidence of general risk propensity across situations. Later researchers concluded that these findings were partially attributable to the one-dimensional type questions used in the instruments. MacCrimmon and Wehrung (1986) showed that one-dimensional questions (e.g., “how risk tolerant are you?”) measure only a small part of the multidimensional nature of risk and that most people overestimate their risk preferences in these situations. MacCrimmon and Wehrung also concluded that “there is no particular reason to believe that a person who takes risks in one area of life is necessarily willing to take risks in all areas” (p. 51).

The development of more accurate risk-tolerance scales took a leap forward in the 1980s and 1990s. Researchers concluded that a scale must, at a minimum, gauge a person’s attitude toward and behavior regarding the following dimensions:
(a) general risk-taking propensities, (b) gambles and speculations, (c) losses and gains, (d) experience or knowledge, (e) comfort, and (f) investing. Grable and Lytton (1999b) collapsed these diverse factors into three core risk-tolerance dimensions: (a) investment risk, (b) comfort and experience, and (c) speculation.

While there are few publicly available scales that have been designed to measure the multidimensional nature of risk tolerance, there have been a small number of attempts to measure risk attitudes using scaling methods (e.g., Barsky, Juster, Kimball, & Shapiro, 1997; Grable & Lytton, 1999b; Hanna and Lindamood, 2004; Roszkowski, 1999). One of the most reliable scales is the Survey of Financial Risk Tolerance© that was originally created by Roszkowski for The American College. The survey attempts to measure risk tolerance directly through a combination of closed- and open-ended questions. The survey includes 40 items. Some items require multiple responses, while others are phrased as multiple-choice questions. Roszkowski reported a reliability coefficient of 0.91 for this measure, which is exceptionally high. The validity of the items also appears high; however, there is no published data describing the survey’s criterion (i.e., concurrent) validity. A publicly available alternative is a 13-item risk scale developed by Grable and Lytton (1999b). This multiple-choice question scale has been tested and shown to offer acceptable levels of validity and reliability (alpha = 0.75). A more traditional Likert-type scale was designed by Weber et al. (2002). The instrument, using a five-point likelihood agreement scale, is intended to be used to assess risk tolerance in five content areas, including investing versus gambling, health/safety, recreation, ethical, and social decisions. Alternative scales include experimental measures using hypothetical questions based on percentage changes in income. These scales are most often used to derive a person’s relative risk aversion within EUT frameworks. Two of the most popular instruments were developed by Barsky et al. (1997) and Hanna and Lindamood (2004). In the case of the later measure, Hanna and Lindamood noted a statistically significant positive correlation between scale scores and risk-tolerance levels as measured with the SCF item.

The final method for assessing risk tolerance involves using a combination of the approaches listed above. Although there is scant research to support the idea that multiple measures may lead to more accurate descriptions of a person’s risk tolerance, the logic of doing so is apparent. The concept of triangulation, where an answer to a complex question is derived from multiple perspectives (Lytton, Grable, & Klock, 2006), used in the social sciences indicates that a combination of approaches may produce meaningful results.

A Conceptual Model of the Factors Affecting Financial Risk Tolerance

An issue of particular importance to consumers, investment advisers, researchers, and policy makers involves understanding the factors associated with risk tolerance. Because a person’s tolerance for risk has such a significant impact on the way
individuals make decisions it is important to have a conceptual understanding of the factors that influence risk tolerance (Campbell, 2006). There are a number of demographic, socioeconomic, psychosocial, and other factors generally thought to be associated with financial risk tolerance. Table 1.2 summarizes consensus findings from the literature regarding the influence of certain individual characteristics on risk tolerance.

Based on relationships shown in Table 1.2 and additional risk-tolerance research conducted throughout the last two decades, it is possible to better understand, conceptually, how financial risk tolerance is influenced by personal and environmental factors. Figure 1.1 presents a conceptual model of the principal factors affecting financial risk tolerance. The model is an adaptation of an intervention model developed by Irwin (1993) who was among the first to develop a valid model showing the relationship between risk tolerance and risk-taking behaviors. Building upon a causal model of adolescent risk-taking behavior created by Irwin and Millstein (1986), Irwin determined that there are a number of predisposing factors that

<table>
<thead>
<tr>
<th>Individual characteristic</th>
<th>Assumed to be more risk tolerant</th>
<th>Level of support in the literaturea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>High</td>
</tr>
<tr>
<td>Age</td>
<td>Younger</td>
<td>Moderate</td>
</tr>
<tr>
<td>Marital status</td>
<td>Single</td>
<td>Moderate</td>
</tr>
<tr>
<td>Marital/gender interaction</td>
<td>Single male</td>
<td>High</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Non-Hispanic White</td>
<td>Moderate</td>
</tr>
<tr>
<td>Income</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Net worth</td>
<td>High</td>
<td>Moderate</td>
</tr>
<tr>
<td>Financial satisfaction</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Financial knowledge</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Education</td>
<td>Bachelor’s degree or higher</td>
<td>Moderate</td>
</tr>
<tr>
<td>Employment status</td>
<td>Employed full-time</td>
<td>Moderate</td>
</tr>
<tr>
<td>Occupation</td>
<td>Professional</td>
<td>Moderate</td>
</tr>
<tr>
<td>Income source</td>
<td>Business owner</td>
<td>High</td>
</tr>
<tr>
<td>Income variability</td>
<td>Stable and predictable</td>
<td>High</td>
</tr>
<tr>
<td>Household size</td>
<td>Large</td>
<td>Moderate</td>
</tr>
<tr>
<td>Homeownership</td>
<td>Owner</td>
<td>Low</td>
</tr>
<tr>
<td>Religiosity</td>
<td>Less religious</td>
<td>Moderate</td>
</tr>
<tr>
<td>Self-esteem</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Locus of control</td>
<td>Internal</td>
<td>Low</td>
</tr>
<tr>
<td>Personality</td>
<td>Type A</td>
<td>High</td>
</tr>
<tr>
<td>Sensation seeking</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Mood</td>
<td>Happy</td>
<td>High</td>
</tr>
</tbody>
</table>

Coding (approximate percent of reviewed articles supporting assumed relationship): high—80–100 %; moderate—50–79 %; low—0–49 %

aStatistics compiled from a review of 125 studies published between 1960 and 2006. Some studies dealt only with one or a few characteristics. In some cases, the number of studies was small (e.g., n < 5)
influence both risk tolerance and risk taking. In general, Irwin’s research showed that many of the demographic, socioeconomic, attitudinal, and psychological factors shown in Table 1.2, as well as other factors, can be used to better understand risk tolerance. The model presented here uses comparable terminology to that first suggested by Irwin (Fig. 1.1).

Similar to Irwin’s (1993) model, the framework “highlights the importance of biopsychosocial factors which are primarily endogenous and environmental factors that are primarily exogenous” (p. 21). The model also delineates the role of predisposing and precipitating factors, both of which may lead to increased or decreased levels of risk tolerance, which, in turn, can cause a person to initiate, change, or terminate a risky behavior. Additionally, the model borrows language from Loewenstein et al. (2001) by showing that certain factors, such as cognition, emotion, and probability assessment, precipitate a person’s willingness to take risks. A brief description of the primary factors in the model is presented below.
**Biopsychosocial Factors**

Biopsychosocial factors include beliefs, gender, sensation-seeking traits, aggressiveness, self-esteem, personality, locus of control, social development, developmental issues, age, genetics, hormonal influences, internationalization, money ethics, and ethnicity. According to Irwin (1993), “attitudes, perceptions, motivations, and intentions all predict the onset of behaviors” (p. 22). As suggested in Fig. 1.1, these biopsychosocial factors are predisposing characteristics, meaning that they are inherent traits or personality dimensions over which a person has little or no initial control.

**Environmental Factors**

Environmental factors are also predisposing factors, but they differ from biopsychosocial characteristics in one significant way; rather than being innate traits unique to a person or individual, these factors result from influences in the social environment. As suggested by Irwin (1993), “the protective role of supportive environment must be acknowledged” (p. 23). Examples of environmental factors include support and control, family situation, family involvement, socioeconomic status, structure, lack of knowledge of consequences, peer behavior, social transitions, and societal denial. Environmental and biopsychosocial factors are shown to interact with each other.

**Precipitating Factors**

As the model indicates, biopsychosocial and environmental factors are predisposing characteristics that influence an individual’s tolerance for financial risk. Tolerance for financial risk plays a key role in a person’s assessment of the risks and benefits associated with a course of action; however, before assessing and engaging in a risky financial behavior, individuals are often subject to precipitating factors. These are aspects of a person’s life that impact the assessment of risk by influencing the decision-making process or causing a person to adjust their core level of risk tolerance prior to or when engaging in a behavior.

Lack of experience or knowledge and lack of skills are factors that influence both risk tolerance and risk taking (Campbell, 2006). For example, a person’s risk tolerance may be very low when it comes to investing in stocks or stock mutual funds; however, when confronted with evidence from a salesperson or a neighbor who appears to be more knowledgeable and wealthy, the person may conclude that the risks associated with high risk investing are lower than they really are. The person in this example may make a risky purchase, even though this behavior runs counter to the person’s true level of risk tolerance.
The use of predisposing and precipitating factors within a single framework offers a unique conceptual vantage point to better understand financial risk tolerance. Although many of the factors shown in Fig. 1.1 can be measured directly or through scaling methods, there have been few research attempts to predict a person’s risk tolerance using predisposing and precipitating personal characteristics concurrently. A need exists, primarily from a descriptive rather than normative perspective, to evaluate financial risk tolerance using all or most of the factors shown in Fig. 1.1. Additionally, the following challenges remain in the development and application of this and other models of the principal factors affecting financial risk tolerance:

(a) Specification and standardization of predisposing and precipitating factor measures
(b) Further specification of possible modifiers and interaction effects with factors not specified in the current model
(c) Detailed specification of factor relationships through path analyses
(d) Standardization of “positive” and “negative” outcomes from risk-taking behavior
(e) Development of cohort and historical influence measures

Future Research Directions

Over the past two decades great strides in the consumer finance field’s knowledge about risk tolerance have been made. These strides have led to a better understanding of the role risk tolerance plays when people make risky financial decisions; however, additional theoretical and empirical studies are needed. Such research can help elevate the field of consumer finance and the practice of financial planning from the use of hit-and-miss assessment techniques and qualitative assessments into a world of quantified practice standards. To borrow from Campbell (2006), a better understanding of risk tolerance may contribute to definitions of financial literacy as well as help explain why certain households maximize wealth accumulation over time while others do not.

Future research devoted to the fusing of financial risk-tolerance insights into useful tools for consumer finance researchers may require additional refinement of existing measures of predisposing and precipitating factors affecting risk tolerance and the development of new measures (Webley, 1995). Ultimately, two distinct, yet related, research programs are needed. The first program ought to be devoted to the testing of the relationships between and among predisposing factors, precipitating factors, and a person’s tolerance for financial risk. The second program should be devoted to creating a standardized measure of financial risk tolerance. This second research agenda needs to build upon research conducted in the first program by creating scale items or multidimensional measures that incorporate the multifaceted nature of financial risk tolerance with known predispositions of individual decision