An Integrated Framework for the Conceptualization of Consumers' Perceived-Risk Processing

Margy P. Conchar
East Carolina University

George M. Zinkhan
University of Georgia

Cara Peters
Winthrop University

Sergio Olavarrieta
Universidad de Chile

Research on risk is built on a complex array of diverse and sometimes inconsistent definitions, constructs, models, and outcomes. This study examines various literatures to formulate an integrated framework for the conceptualization of perceived-risk processing. The framework specifies three phases (framing, assessment, and evaluation) and their accompanying outcomes of risk attention, perceived risk, and risk-taking propensity. Explicit linkages are specified between situational and individual characteristics. Perceived-risk evaluation is identified as conceptually distinct from assessment of perceived risk, and the construct of risk-taking propensity is separated from those of risk affinity and perceived risk. The framework further presents points of intersection between the literatures on perceived risk and the literatures on consumer decision-making, information search, and satisfaction. Finally, it serves as an anchor for framing future research to promote conceptual and methodological consistency, and to guide progress in directions that are consistent with some leading edge paradigms outside of marketing.

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The concept of risk is important for understanding how consumers make choices (Grewal, Gotlieb, and Marmorstein 1994; Hoover, Green, and Saegert 1978; Mitchell 1999). Bauer ([1960] 1967) and, more recently, Ingene and Hughes (1985) propose risk as the core concept for consumer theory. Cox (1967) is credited with developing the seminal model of perceived risk, and much of the more recent literature takes into account his work. Even looking beyond consumer behavior, the concept of risk cannot be separated from that of choices. Decisions about risk are always about choices among alternatives, each of which is characterized by a variety of relevant attributes, including those that describe associated risk (Fischhoff, Watson, and Hope 1990). There is an extensive literature on risk in marketing and such disciplines as economics, psychology, decision sciences, management, risk and insurance, public policy, and finance. Each literature uses a different approach and focuses on different aspects

of risk: risk as characteristic of a situation; risk preferences or propensities of individuals; how risk is, or should be, evaluated in human decision processes; and consequences of risk in actual choices.

Individuals face risk when a decision or action produces social and economic consequences that cannot be estimated with certainty (Zinkhan and Karande 1991). Risk can be conceptualized as an objective characteristic of a given situation, but the assessment of risk involves an individual bringing his or her own characteristics to the situation and appraisal of risk. In a risk situation, the decision maker knows the different possible outcomes and the probability of occurrence of each outcome, as opposed to a certain situation where the decision maker knows that as a result of a decision, only a given outcome is bound to happen. In the case of certainty, only one outcome is possible, and the probability of occurrence for that outcome is equal to one. As stated by Vann (1983), a risk situation or choice may generally be characterized in terms of a probability distribution of known outcomes, the probability distribution reflecting uncertainty.

In the marketing literature, risk is conceptualized as involving two elements: uncertainty and consequences (Cox 1967; Cunningham 1967; Dowling and Staelin 1994; Hansen 1976; Jacoby and Kaplan 1972; Mitchell and Hogg 1997; Schaninger 1976; Taylor 1974). The perspective on consequences has evolved over time, focusing on adverse consequences. Early studies defined consequences as losses (Cox and Rich 1967), but more recent measurement approaches consider a more integrated conceptualization of risk as the *expectation* and *importance* of losses (Mowen 1992; Peter and Ryan 1976; Peter and Tarpey 1975; Venkatraman 1989; Yavas, Riecken, and Babakus 1993). A consensus has developed among researchers that there are different types of losses. Jacoby and Kaplan (1972) suggested five different types of losses: *financial*, *performance*, *physical*, *psychological*, and *social* losses. Roselius (1971) considered an additional dimension of *time or convenience risk* (Chaudhuri 2000). Berkman, Lindquist, and Sirgy (1996) listed *linked-decision risk* as an additional dimension of risk. Following the above discussion, risk could be reasonably conceptualized as the multidimensional probability distribution of realizing losses on a range of dimensions, such as the types of losses described above.

Consumer choices are most often made relative to situation-specific goals (Cunningham 1967; Stone and Winter 1987), and a priori probabilities of specific outcomes are not known (versus the probabilities of heads/tails outcomes on a coin toss). This has led to a context-based focus on *perceived* risk in the consumer behavior literature. However, there is no widely accepted definition of perceived risk within the field of consumer behavior; definitions often vary according to the context of study (Dowling 1986; Fischhoff et al. 1990; Mitchell 1999; Mitchell and Hogg 1997). For example, among the numerous articles in the seminal book on perceived risk, Cox (1967), Cunningham (1967), Arndt (1967), Cox and Rich (1967), and Newton (1967) conceptualize, define, and operationalize perceived risk differently. There is also a lack of conformity regarding the conceptualization, definition, and operationalization of uncertainty and consequences (the two components of risk). According to Mitchell and Hogg (1997), un/certainty has been defined and measured as confidence, reliability, dependability, trust, likelihood, and probability; consequences have been defined and measured in terms of trust, danger, relevance, and seriousness (pp. 6-7).

In addition, some researchers do not specifically define perceived risk but use the operationalization of perceived risk as its definition (cf. Newton 1967; Schiffman 1972). Two different approaches have been applied for perceived-risk measurement: (a) measures that ask participants to assess directly the riskiness of a given statement or situation presented in an item without separating probabilities and consequences (Bearden and Shimp 1982; Cunningham 1967; Jacoby and Kaplan 1972) and (b) measures that include the distinction between probabilities and consequences, such as Peter and Ryan (1976), who observed assessments of probabilities and importance of losses. Such dispersion in the definition and operationalization of perceived risk is reflective of the controversial nature of risk (Fischhoff et al. 1990), with the term interpreted following the custom of a particular research stream.

The objective of this article is to propose an integrated conceptual framework that clarifies the constructs related to perceived risk and synthesizes the form of perceived-risk processing in a consumer context. The proposed framework is grounded in the extensive literature on perceived risk in marketing and the broader risk literature, identifying antecedents, moderators, and consequences of perceived risk. The article addresses the calls of marketing scholars (Dowling 1986; Mitchell and Hogg 1997) to reduce confusion regarding foundational constructs relat-

(Text continues on page 423)

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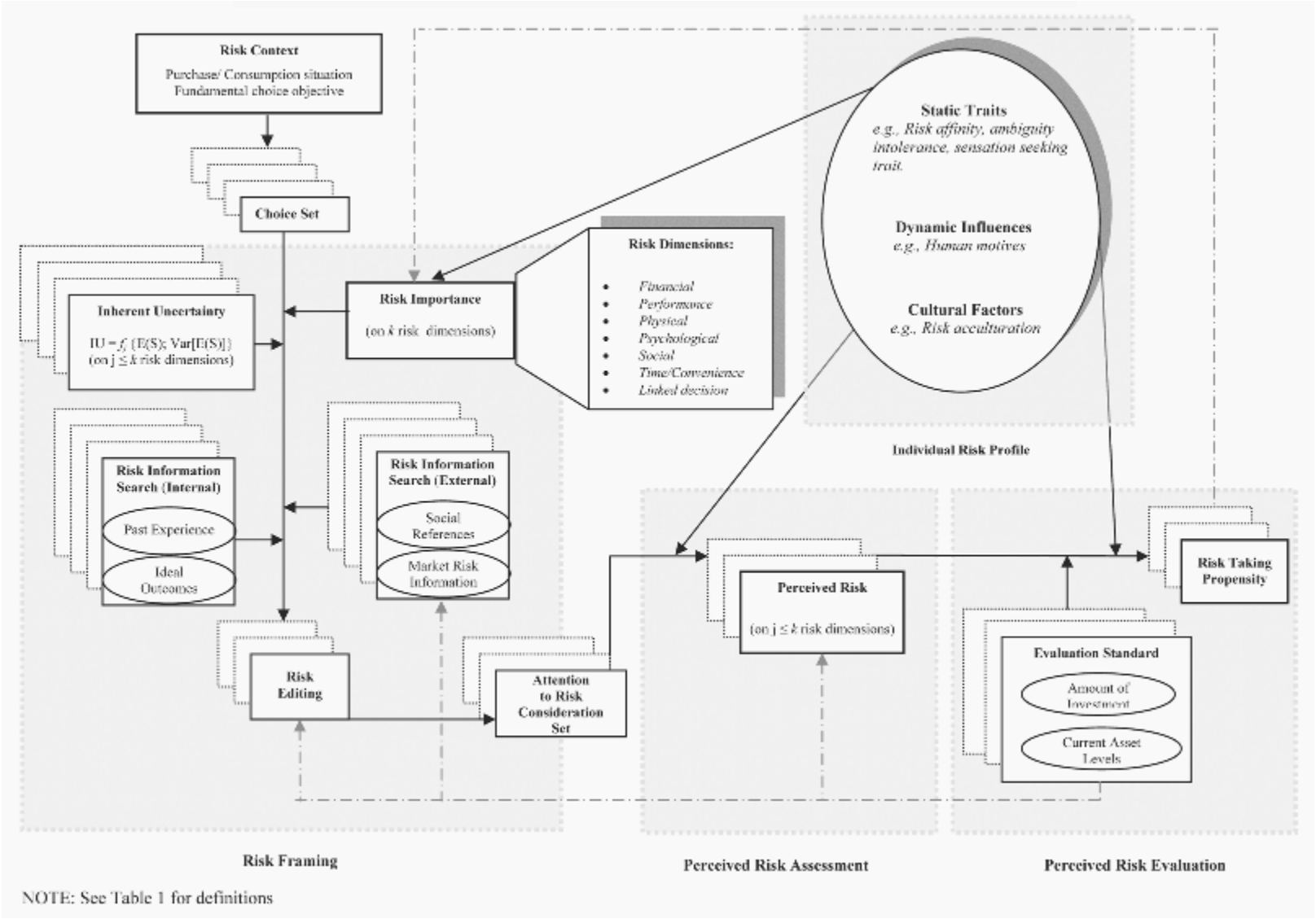
FIGURE 1
An Integrated Framework for the Conceptualization of Consumers' Perceived-Risk Processing



NOTE: See Table 1 for definitions.

TABLE 1
LITERATURE SUPPORT FOR RISK CONCEPTS IN THE FRAMEWORK

Framework Concept	*Citations Within[w] and Outside[o] Marketing*	*Definition Adopted in This Article*
Risk context	[w]Cox (1967); Dowling (1986); Hansen (1976). [o]Altaf (1993); Bem (1980); Bromiley and Curley (1992); Ellsberg (1961); Lopes (1987).	The nature of the consumption situation and the fundamental choice objective of the consumer.
Individual risk profile	[w]Cox (1967); Dowling (1986); Hansen (1976). [o]Bromiley and Curley (1992); Lopes (1987).	The range of static personal characteristics, dynamic needs, and culture that shape the consumer's response to uncertainty and risk.
Static traits		
Risk affinity	[w]Cox (1967); Schaninger (1976); Zinkhan, Joachimisthaler, and Kinnear (1987). [o]Bem (1980); Brockhaus (1980); Bromiley and Curley (1992); Coombs (1975); Hensley (1977); Lopes (1987); Markowitz (1987); Sitkin and Pablo (1992); Kogan and Wallach (1964).	A general tendency to seek or avoid risk, other things being equal (adapted from Dowling 1986:203).
Ambiguity intolerance	[w]Hoch and Deighton 1989; Raju (1980); Kahn and Sarin (1988); Schaninger (1976); Schaninger and Sciglimpaglia (1981); [o]Blake and Perloff (1973); Budner (1962); Camerer and Weber (1992); Einhorn and Hogarth (1986); Ellsberg (1961); Fox and Tversky 1995); Heath and Tversky (1991); Sherman (1974); Taylor (1977).	A tendency to interpret ambiguous situations as sources of threat (Budner 1962:29).
Sensation-seeking trait/ novelty seeking	[w]Arnould and Price (1993); Celsi, Rose and Leigh (1993); Cox (1967); McAlister (1982). [o]Levenson (1990); Zuckerman (1979).	The need for varied, novel, and complex sensations and experiences and the willingness to take risks for the sake of such experiences (Zuckerman 1979:10).
Additional personality traits (self-confidence, anxiety, defensiveness)	[w]Cox (1967); Locander and Hermann (1979); Hisrich, Dornoff, and Kernan (1972); Krueger, Norris, and Dickson (1994); Schaninger (1976); Schaninger and Sciglimpaglia (1981). [o]Hisrich et al. (1972); Kogan and Wallach (1964); Slovic, Fischoff, and Lichtenstein (1990); Wells and Maxwell (1976); Zikmund and Scott (1973).	Specific personality traits that shape the consumer's response to uncertainty and risk.
Dynamic influences		
Human motives	[w]Lynn and Harris (1997); Paskowski (1981). [o]McClelland (1987).	Recurrent conscious or subconscious concerns for a goal state that influences consumers' response to uncertainty and risk (adapted from McClelland 1987:509).
Cultural factors		
Risk acculturation	[w]Arnould and Price (1993); Celsi et al. (1993); Morris, Swazy, and Mazis (1994).	The adoption by an individual of the risk-taking norms of a reference group (adapted from Celsi et al. 1993:18).
Risk dimensions	[w]Jacoby and Kaplan (1972); Chaudhuri (2000); Roselius (1971); Berkman, Lindquist, and Sirgy (1996).	Types of losses that are considered: financial, performance, psychological, physical, social, time/convenience, linked decision (extended from Jacoby and Kaplan 1972:383).
Phase 1: Risk framing	[w]Cox (1967). [o]Bernoulli ([1738] 1954); Kahneman and Tversky (1979).	Assigning weights that reflect the importance to the individual of avoiding risk, searching internal and external sources for information about the risk related to the choice alternatives to focus attention on the risk situation, and editing of the choice alternatives to derive a choice consideration set (adapted from Kahneman and Tversky 1979:274).
Risk importance	[w]Bettman (1973); Cox (1967); Folkes, Koletsky, and Graham (1987); Mitchell (1999); Gaeth (1992); Peter and Ryan (1976); Peter and Tarpey (1975); Taylor (1974); Venkatraman (1989); Yavas, Riecken, and Babakus (1993). [o]Bernoulli ([1738] 1954); Von Neumann and Morgenstern (1947).	A subjective weight system that reflects the importance of avoiding losses on a set of choice alternatives (adapted from Venkatraman 1989:230, 237).

(continued)

TABLE 1 (continued)

Framework Concept	*Citations Within[w] and Outside[o] Marketing*	*Definition Adopted in This Article*
Inherent uncertainty	[w]Berkman et al. (1996); Chaudhuri (2000); Cox (1967); Cunningham (1967); Dowling (1986); Ingene and Hughes (1985); Jacoby and Kaplan (1972); Johnson, Anderson, and Fornell (1995); Peter and Ryan (1976); Pras and Summers (1978); Roselius (1971); Venkatraman (1989). [o]Bem (1980); Bernoulli ([1738] 1954); Coombs (1975); Markowitz (1987); Sitkin and Pablo (1992); Von Neumann and Morgenstern (1947).	A multivariate probability distribution of choice outcomes on the range of risk dimensions and for each choice alternative.
Risk information search (internal and external)	[w]Agarwal and Teas (2001); Bauer ([1960] 1967); Bearden and Etzel (1982); Beatty and Smith (1987); Brucks (1985); Chaudhuri (2000); Cox (1967); Miniard and Cohen (1983); Ozanne, Brucks, and Grewal (1992); Punj and Staelin (1983); Roselius (1971); Sheth (1968); Sheth, Mittal, and Newman (1999); Venkatraman (1989). [o]Sitkin and Pablo (1992).	The gathering of risk-related inputs from internal and external sources to facilitate risk assessment (adapted from Vann 1983:445).
Risk references	[w]Bauer ([1960] 1967); Cox (1967); Kahn (1992); Puto, Patton, and King (1985); Roselius (1971); Sheth (1968); Venkatraman (1989). [o]Bell (1983, 1985); Kahneman and Tversky (1979); Sitkin and Pablo (1992); Tversky and Kahneman (1992); Yates and Stone (1992).	Benchmark positions against which possible outcomes are compared (e.g., past experience, ideal outcomes, social references, market information) (adapted from Yates and Stone 1992:332).
Editing	[w]Folkes et al. (1987); Jacoby (1984); Malhotra (1984); Marshall, Mowen, and Stone (1995); Moorthy, Ratchford, and Talukdar (1997); Puto et al. (1985); Sheth and Venkatesan (1968). [o]Kahneman and Tversky (1979); Slovic et al. (1990).	Sorting and reduction of the choice set until a manageable risk consideration set is identified (Kahneman and Tversky 1979:274).
Attention to risk consideration set		Focus on the important risk-related issues, references for assessment of risk, and the consideration set of choice alternatives relevant to perceived-risk processing.
Phase 2: Risk assessment	[w]Cox (1967); Dowling (1986); Hansen (1976). [o]Fischoff, Waston, and Hope (1990); Lopes (1987).	The assimilation of search information, importance weights, the effects of individual risk profiles, and the distribution of inherent uncertainty to formulate perceived risk.
Perceived risk	[w]Arndt (1967); Bauer ([1960] 1967); Cox (1967); Cunningham (1967); Dowling (1986); Jacoby and Kaplan (1972); Mitchell and Hogg (1997); Newton (1967); Roselius (1971); Vann (1983). [o]Tversky and Kahneman (1992).	A consumer's importance-weighted subjective assessment of the expected value of inherent risk in each of the possible choice alternatives for a given decision goal (adapted from Bauer [1960] 1967:30; Vann 1983:442).
Phase 3: Risk evaluation	[w]Cox (1967); Dowling (1986); Mowen (1992); Peter and Ryan (1976). [o]Edwards (1962); Kahneman and Tversky (1979); Mowen (1992); Tversky and Kahneman (1991, 1992).	A subjective test of perceived risk against one or more evaluation standard(s) to gauge whether perceived risk is worth the potential loss of assets (adapted from Mowen 1992:82; Tversky and Kahneman 1992:299).
Evaluation standard	[w]Cox (1967); Dowling (1986); Peter and Ryan (1976). [o]Edwards (1962); Kahneman and Tversky (1979); Tversky and Kahneman (1991).	The benchmark position with regard to initial asset levels or noninvestment and level of required investment.
Risk-taking propensity	[w]Dowling (1986); Pras and Summers (1978). [o]Blake and Perloff (1973); Kogan and Wallach (1964); MacCrimmon and Wehrung (1990); Sitkin and Pablo (1992); Sitkin and Weingart (1995).	The consumer's willingness to make a risky choice when faced with a specific decision situation.

ing to risk and perceived risk. It also serves to promote consistent perspectives across studies on perceived risk by bringing together the conceptual foundations and findings of a broad array of literatures.

The framework provides a useful tool for marketing scholars and managers by portraying the key constructs emerging from a complex literature in a simple yet comprehensive manner, showing a connectedness between the wide array of contributory studies during an extended period of time. Some specific contributions of the framework include the identification of three phases in consumers' perceived-risk processing, the integration of situational and individual effects on perceived-risk processing, the separation of the construct of risk-taking propensity from those of risk affinity and perceived risk, and the identification of risk evaluation as distinct from assessment of perceived risk. A key contribution of the present study is that it offers a streamlined conceptualization of the important constructs that have been studied, consolidates reported findings with respect to consumer perceptions of the risks associated with choice (Ingene and Hughes 1985; Mitchell 1999), and points to new research streams.

PERCEIVED-RISK PROCESSING

Our understanding of perceived-risk processing developed through several phases of analysis: we (1) examined a wide range of empirical settings and interpretations to identify conceptualizations, definitions, and operationalizations of perceived risk and its antecedents and consequences; (2) scrutinized individual studies to tease out interpretations of stated constructs, the relationships between, and ordering of, those constructs and consulted the literature outside of marketing to corroborate and extend the range of constructs and definitions; (3) isolated a set of distinct constructs and differentiated between three phases of perceived-risk processing; (4) connected the literature to construct a framework that suggests a number of general theses about the nature of consumers' perceived-risk processing; and (5) identified important questions for future research.

The findings of this analysis are presented in the form of an integrated framework for the conceptualization of consumers' perceived-risk processing (see Figure 1) and are discussed by way of presentation of the framework. Definitions of key constructs delineated in Figure 1 are summarized in Table 1, and each is discussed in greater depth following this brief overview of the overarching process. The framework was shaped from evidence provided by the contexts, empirical designs, and significant findings of previous scholarly studies, and it reflects a connective mapping of the mainstream of the literature, both within and outside of marketing, related to perceived risk from the time of the early works of Cox (1967) and Bauer ([1960] 1967). We provide links to appropriate sources that support the structure of the framework in the text and Table 1. At some junctures, support is weak or lacking in the marketing literature. In those cases, we selectively seek direction from other literatures to address identified gaps.

After a consumer decision goal and context have been established, perceived-risk processing occurs in three phases: risk framing, risk assessment, and risk evaluation. Risk framing occurs through assigning weights that reflect the importance to the individual of avoiding risk, searching internal and external sources for information about the risk related to the choice situation, and preliminary editing of the choice alternatives to focus attention on a manageable risk consideration set. In most consumption situations, information about an objective (inherent) value for the riskiness of a choice is lacking. These authors concur with the position that objective risk levels exist independently of subjectively perceived risk (Mitchell 1999) and that the consumer gathers both factual and/or perceptual information during the framing phase that will enable subjective risk assessment.

The framework that emerges from our analysis of the literature is consistent with Bettman's (1979) information processing theory of consumer choice and with the tenets of prospect theory, outlined by Kahneman and Tversky (1979). Prospect theory postulates that persons form decisions in two steps: framing/editing of the problem and maximizing the value function for the problem. Our framework suggests such a distinction between early framing of the risk situation, followed by assessment and evaluation. While the literature in economics and finance focuses on risk evaluation (i.e., changes in the current asset level), marketing is more often concerned with the assessment of perceived risk (subjective expectations of loss).

The process outlined is constructive in its nature (Bettman, Luce, and Payne 1998). Specifically, perceived risk and the chosen processing strategy are dependent on the context and the decision goals; assessment is based on the way in which the choice set is presented (subjective and objective information) rather than on an immutable, objective risk level; processing strategies are adaptive, their form depending (among other reasons) on the potential for incurring losses and the importance of avoiding risk in a given situation.

Individual characteristics serve as a pervasive influence on all aspects of perceived-risk processing, even playing a part in the designation of the initial consumption situation. The first instance where our framework indicates the influence of individual characteristics is in their effects on risk importance framing. Both situational and individual factors influence the assessment of perceived risk in the next phase, risk assessment, when information gathered from the framing phase is tempered by individual characteris-

tics to form perceived-risk assessments for each choice alternative in the risk consideration set (cf. translation of "objective values" into "personal values" in prospect theory). In the risk evaluation phase, cognitive and affective factors moderate perceived risk to arrive at risk-taking propensity. Here, perceived risk is tested against current asset levels to gauge the impact of possible outcomes with losses looming greater than gains (Kahneman and Tversky 1979), and individual characteristics bear upon willingness to make a risky choice. The outcome of the evaluation phase is risk-taking propensity, a willingness to make a choice at an acceptable level of perceived risk. Perceived-risk evaluation is akin to the information evaluation construct in Bettman's (1979) information processing theory of consumer choice and to the "evaluation" construct in prospect theory, where "changes in wealth" represent financial loss. Prospect theory proposes that consumers' decisions depend on how they value potential gains or losses that result from making choices. In the marketing literature, Pras and Summers (1978) focused on the evaluation of risk by measuring the acceptability of risk levels.

A form or sequence for phased perceived-risk processing is laid out in the framework; however, we acknowledge that not all perceived-risk processing will mirror the normative process outlined here. Nor will consumers always follow constructive processes; less complex situations or routine choice situations are more likely to lead to simpler processes or even to ignore risk issues altogether (Mitchell 1999; Payne 1973; Wright 1975). For the sake of explication of our framework, we describe perceived-risk processing for cases where risk is an important consideration and choice is complex.

While we draw parallels between perceived-risk processing and information-processing approaches to consumer decision-making, perceived-risk processing demonstrates characteristics that distinguish it from general consumer decision-making. First, attention is focused specifically on risk-relevant dimensions of decision-making and therefore represents a subspace of the overall decision-making process. Second, risk framing is more encompassing than the process of information search in the consumer behavior literature. In addition to information that will contribute to decision-making, risk framing produces a general attention set of importance weights, information about the choices, and an edited consideration set, which will simplify further risk processing (as conceptualized in prospect theory; Kahneman and Tversky 1979). Third, the framework suggests that consumers first assess levels of risk associated with choice alternatives (risk assessment) and then evaluate their willingness to make a risky decision (risk evaluation) to arrive at a risk-taking propensity. This differs from the combined presentation of these phases in most consumer decision process models under the heading of "alternative evaluation." In the consumer behavior literature, perceived-risk processing is generally treated as occurring in one phase (e.g., the combination of importance and expectations of loss result in perceived risk; Mowen 1992; Yavas et al. 1993). Finally, the outcome of perceived-risk processing is posited in terms of propensity toward behavior, rather than behavior itself.

The process described here might be repeated, at times subconsciously, until a final choice is made. Consumers might exit the loop prematurely and go through multiple cycles of earlier-order processing. They also might ignore steps or process them in parallel; risk might even be ignored altogether when zero importance weights render all the risk dimensions irrelevant for the context. When well-defined, memorable preferences are not readily available, when the potential for loss is large, or when choices are more complex, consumers are more likely to follow constructive approaches to choice decisions (Bettman et al. 1998). In such situations, perceived-risk processing will be more complex and will follow more closely the full form of the process outlined in our framework. Even when the decision task demands careful attention to risk considerations, the consumer may apply heuristic strategies (Plous 1993; Tversky and Kahneman 1974) in order to reduce information overload or time spent on decision-making. For example, a satisficing strategy would specify "acceptable" perceived-risk levels below which alternatives would be eliminated and further risk processing would be simplified. Or, a lexicographic strategy might be adopted if perceived-risk processing is limited to the most important risk dimension (for avoiding loss) in the specific context (Bettman et al. 1998).

Perceived risk is one of the costs of choice and, as such, it forms an integral part of overall decision-making. If choices are made on a benefit-cost basis (in keeping with the relative utility paradigm), then it is important that the process for perceived-risk processing is consistent with the process used for overall decision-making. The proposed framework is broad enough to encompass adaptations to the normative form of perceived-risk processing and can be applied to a broad array of decision processes that have been studied in the marketing literature as well as to broaden the scope of prospect-theoretic applications. In general, this framework presents perceived-risk processing as closely interconnected with the overall consumer decision-making process.

Risk Context

While the context-specific fundamental choice objective is established before consideration of risk in choice between alternative offerings, the choice objective and the nature of the consumption situation are nevertheless critical because the risk context (see Figure 1 and Table 1) that they represent influences all phases of perceived-risk processing through the establishment of importance criteria

that are context-specific, the selection of appropriate references, and so on. One explanation for the apparent irrationality of consumer choice is the fact that people evaluate choices differently depending on the context (cf. Cox's [1967] measurement of perceived risk at the *general* level, due to the influence of traits, habits, and memory, and the *specific* level, to capture the *situation at hand*, and Dowling's [1986] contextual effects). Bromiley and Curley (1992) found, in agreement with Lopes's (1987) Two Factor Model, that risk-taking behavior varies in different situations. For example, perceived risk might differ under contexts of purchasing low-involvement goods, gifts, or high-visibility durables. This view of risk processing reflects one of the major findings of consumer decision research (Bettman et al. 1998; Von Winterfeldt and Edwards 1986). The proposed framework assumes that a context is identified before risk is processed and is distinguished by the nature of the consumption situation and the fundamental choice objective. Before discussing the three phases of perceived-risk processing in detail, we briefly introduce the concept of the individual risk profile, which influences all three phases.

Individual Risk Profile

Researchers within and outside of marketing (Dowling 1986; Hansen 1976; Lopes 1987; Thaler 1991) argue that the study of perceived risk should not only focus on the situation but also on the individual. Cox (1967) captured individual effects via his *psychosocial* dimension of uncertainty/consequences in his schema (his *ego effect* corresponds to the personal and psychological characteristics of the consumer in our framework). However, the field evolved so that most marketing studies focus on perceived risk related to a *situation* (e.g., a single product or a product category) rather than a *person* (Dowling 1986). For example, Bettman (1973) asked individuals to rate the perceived risk of pairs of products, and Venkatraman (1989) measured uncertainty perceived in a purchase and the importance of the purchase. More recently, interest has been renewed in the idea that risk is a concept that can be applied to two different units (Dowling 1986; Sitkin and Pablo 1992). First, situations or problems can be rated as less or more risky. Second, individuals have different perceptions of risk in similar situations, and personality variables affect these perceptions (Bem 1980; Bromiley and Curley 1992; Zinkhan and Karande 1991). Each individual may consider different possible outcome sets and assign different subjective probabilities to the occurrence of these outcomes (Yates and Stone 1992). Even the same individual may assign different subjective probabilities to the same outcome in different situations.

Consumers may be described by a variety of personal characteristics, some of which combine to produce unique risk profiles (see Figure 1 and Table 1) for individual consumers. Researchers have used several terms to identify individual personality (enduring) traits that are related to risk and uncertainty, including risk or loss aversion (Kahneman and Tversky 1979; Zinkhan, Joachimsthaler, and Kinnear 1987), risk preferences (Brockhaus 1980; Sitkin and Pablo 1992), risk tolerance and risk propensity (Sitkin and Pablo 1992), risk-taking propensity (Bromiley and Curley 1992), attitudes toward risk (March and Shapira 1987), intolerance of ambiguity (Kahn and Sarin 1988; Raju 1980; Schaninger and Sciglimpaglia 1981), and uncertainty avoidance (Hofstede 1980).

One of the most popular concepts in economics, finance, and decision sciences is risk aversion, which is introduced under the umbrella of the subjective expected utility theory (SEU) as an a priori assumption that shapes the expected utility functions of individuals. Portfolio theory suggests that individuals will maximize their expected utility, contingent on their risk aversion levels (Kahneman and Tversky 1979). The problem with traditional conceptualizations of risk aversion is that they describe risk aversion as an invariant characteristic of individuals, but many empirical studies have found that risk aversion may change depending on the context (Altaf 1993; Bromiley and Curley 1992). Even the field of economics recognizes that the axioms for rational choice under expected utility theories (e.g., completeness, transitivity, independence, reducibility, and continuity) rarely hold because human behavior is not always rational (Anand 1987; Neumann and Politser 1992). The axioms also do not allow for risk aversion and risk taking by the same person (Friedman and Savage 1948; Kahneman and Tversky 1979; Lopes 1987). The work of Khaneman and Tversky (1979) and Thaler (1991) has entrenched the concept of irrationality (e.g., subjectivity) in decision-making (Bernstein 1996). One approach to address the paradox of mutable risk judgments is to propose that risk affinity (see Figure 1 and Table 1) is a separate construct from risk-taking propensity—the former captures an inherent personality characteristic, while the latter represents a context-dependent willingness to take risks.

In our framework, the individual risk profile captures three fundamental domains, traits that are relatively static in nature (e.g., personality, demographics), dynamic influences (e.g., motives, moods), and cultural factors, which shape the consumer's response to every aspect of risk, from perceptions of the importance of risk dimensions and the extent of information search (in risk framing), to the perception of the extent of risk (in risk assessment), to willingness to make a risky choice (in risk evaluation). The framework highlights several influences that shape an individual's risk perceptions. *Trait-based personality characteristics* that are predictors of risk-taking behavior include risk affinity, ambiguity intolerance, novelty seek-

ing or sensation seeking, self-confidence, defensiveness, and anxiety (Blake and Perloff 1973; Budner 1962; Celsi, Rose, and Leigh 1993; Locander and Hermann 1979; McAlister 1982; Pras and Summers 1978; Roselius 1971; Schaninger and Sciglimpaglia 1981; Venkatraman 1989; Zikmund and Scott 1973; Zuckerman 1979).

As argued above, we separate risk affinity and risk-taking propensity, treating risk affinity as an element of the consumer's individual risk profile and risk-taking propensity as a situation-specific outcome of risk assessment. Risk affinity is defined as a general tendency of an individual to seek or avoid risk, other things being equal. Simply stated, individuals who enjoy the challenge that risks entail will be more likely to undertake risky actions than those individuals who do not. A person with high-risk affinity will prefer an alternative perceived as more risky, even if all alternatives have the same expected return. That is, the outcome associated with a broader distribution of subjective probabilities of possible outcomes will be preferred to the outcome with fewer such probabilities.

Ambiguity is studied in two ways; in one stream of studies, ambiguity intolerance is treated as a personality *trait* (Kahn and Sarin 1988; Schaninger 1976; Schaninger and Sciglimpaglia 1981). A second stream also examines risk preferences, but this time through ambiguity models, such as that developed by Ellsberg (1961), suggesting that consumers do not always act rationally due to the amount of ambiguity present in a *context*, which affects consumers' risk preferences. Thus, some scholars focus on the level of ambiguity inherent in a situation (Ellsberg 1961; Heath and Tversky 1991), while others focus on the individual's tolerance of ambiguity (Raju 1980; Schaninger and Sciglimpaglia 1981). We discuss the former under the topic of inherent uncertainty and the latter as a trait within the individual risk profile. Budner (1962) defined ambiguity intolerance (see Figure 1 and Table 1) as a tendency to interpret ambiguous situations as sources of threat and introduced an Ambiguity Intolerance Scale, which is widely used. Tolerance of ambiguity is a tendency to perceive ambiguous situations as desirable. Ambiguous situations include completely new situations, complex situations where there are a great number of cues, or contradictory situations. One way in which tolerance of ambiguity is different from risk affinity is that it does not consider returns. Rather, it represents the individual's capacity to accept the absence of information about the range and probabilities of possible outcomes (Sherman 1974). Persons who are less tolerant of ambiguity are likely to gather more information during risk processing (Schaninger and Sciglimpaglia 1981; Hoch and Deighton 1989), to consider ambiguous situations as more risky, and to be less willing to take risks (Raju 1980).

In contrast with the accepted view in some disciplines that individuals will try to minimize risk, evidence of an attraction toward risky situations, identified as novelty seeking (McAlister 1982) or the sensation-seeking trait (Zuckerman 1979), is identified for some individuals. Novelty seeking and sensation seeking (see Figure 1 and Table 1) are described as the need for varied, novel, and complex sensations and the willingness to take physical and social risks to achieve those experiences. Evidence of a sensation-seeking/novelty-seeking trait is bolstered by research on consumers' "optimum stimulation level" (Raju 1980). Raju examined the Optimum Stimulation Level (OSL) model and its relationship with personality (e.g., rigidity) and exploratory behavior. OSL has been operationalized in some studies using the Sensation Seeking Scale (Zuckerman 1979). Zuckerman's (1979) scale has also been used widely by researchers, including Levenson (1990), who studied different groups of risk takers and their personalities. Cox (1967) acknowledged that consumers might actively seek risk, for example, as a way of relieving boredom. McAlister (1982) found that novelty seekers demonstrate more risky approaches. We propose that the sensation-seeking trait (or alternatively, novelty seeking) will be positively associated with consumers' willingness to make risky decisions.

Support is found also for the effects of self-confidence, anxiety, and defensiveness on perceived-risk processing (see "additional personality traits" in Figure 1 and Table 1). Krueger and Dickson (1994) and Dulebohn (2002) found a relationship between self-efficacy and risk taking. In one study, Howard and Ostlund (1973) found that consumers who are more self-confident are less likely to choose highly visible (less risky) brands and more likely to try new (more risky) products. This finding, among others (e.g., Bennett and Harrel 1975; Dash, Schiffman, and Berenson 1976), suggests an inverse relationship between self-confidence and perceived-risk assessment, or unwillingness to make risky choices. The treatment of self-confidence focuses on general (conceptualized as a static trait) versus specific self-confidence (confidence in a specific situation; Hisrich, Dornoff, and Kernan 1972; Locander and Hermann 1979; Slovic, Fischhoff, and Lichtenstein 1990; Wells and Maxwell 1976). We suggest that general self-confidence is captured as a personality trait in our framework and that specific self-confidence is more concerned with the level of ambiguity in a choice situation. More research is needed to explore the nature of the relationships between general and specific self-confidence and perceived-risk processing.

Kogan and Wallach (1964) found a positive relationship between attitudes toward risk taking and the individual's levels of defensiveness and anxiety. Schaninger (1976) found that anxiety and perceived risk are positively related. Slovic et al. (1990) reported that denial (of uncertainty) is one way to reduce anxiety when facing uncertainty. This finding suggests that perceived risk or

attempts to seek risk-reducing information may be diminished when anxiety is high (see also Schaninger and Sciglimpaglia 1981). Locander and Hermann (1979) reported no significant relationship between trait anxiety and perceived risk. In brief, the literature is not clear about the relationship between anxiety and perceived risk. It is possible that the relationship will be positive in some circumstances, but inverse in the case of extreme anxiety. Further research is needed to provide clearer direction. Meanwhile, we acknowledge the existence of a relationship between anxiety and perceived risk in our framework. No studies have reported findings about the relationship between defensiveness and consumer attitudes and/or perceptions of risk since Kogan and Wallach's (1964) study. Hence, we recognize the importance of the personality trait of defensiveness on the basis of that study.

Deep-seated, recurrent conscious and subconscious *motives* influence consumers' response to uncertainty and risk by influencing their decisions regarding which risk dimensions are important and in determining a willingness to take risk (see Figure 1 and Table 1). For example, a person with a high need for affiliation is more likely to consider social risk than is a person with a low need for affiliation, and a person who has a high need to achieve will be more willing to take risks than a person who is not motivated by achievement (McClelland 1987). Similarly, the need for power (McClelland 1987) and uniqueness (Lynn and Harris 1997) will likely be associated with perceived-risk processing, but no direction is provided in the risk literature as to such effects. Future research should flesh out the relationships between these and other additional specific human motives or needs (Paskowski 1981) and perceived risk.

Cultural factors, such as the norms of a reference group, may result in acculturation to risk. Risk acculturation (see Figure 1 and Table 1) occurs when a group's tendency to take or avoid risks is adopted by an individual member (Celsi et al. 1993; Morris, Swasy, and Mazis 1994). The process of risk acculturation is a function of both experience and socialization. As the individual consumer gradually assumes the ideology of the marketplace, market norms influence the individual's attitudes toward risk importance and propensity to take risks. In a marketplace where risky choices are considered the norm, individual risk-taking propensity will be greater than in a marketplace where risky choices are punished through losses.

Only a small number of the potential individual factors that influence perceived-risk processing are discussed here. It is not possible to offer a more inclusive range of factors in the framework since we only document those influences that have been reported consistently with a significant effect in the literature. It will be necessary for future studies to extend the framework by studying additional personality characteristics, demographic effects, motives and mood effects, and cultural influences on risk perceptions.

Risk Framing

The first phase of perceived-risk processing is risk framing. During the framing phase, the consumer establishes the scenario for managing further perceived-risk processing (see Figure 1 and Table 1). That is, the decision maker considers the importance of avoiding risk for the current situation or context, as well as external and internal information and references that will influence risk assessment, and identifies the risk consideration set. The literature points to a number of aspects of framing that are presented in our framework. Bernoulli ([1738] 1954) emphasized the utility of choice outcomes through the construct of importance framing. Another aspect of framing is the search for risk-related information. Cox (1967) noted that consumers sort and filter informational cues to select those that will enable them to handle or reduce perceived risk. He proposed that consumers seek out references to help with risky decisions. Consistent with the literature on information search, our framework depicts two sources of risk information, internal and external search.

Cumulative prospect theory (Tversky and Kahneman 1992) also highlights the influence of reference points. Prospect theory distinguishes editing from evaluation in the assessment of risk. Kahneman and Tversky (1979) proposed that individuals engage in a preliminary analysis of the choice alternatives and that this often results in a simplified choice consideration set. Information is evoked and filtering takes place during this analysis. In the proposed framework, risk framing encompasses consideration of the importance of avoiding losses, evocation of references against which risk may be assessed, and editing of the choice alternatives. The outcome of risk framing is risk attention to important risk-related information regarding a manageable consideration set of choice alternatives.

Risk importance. Fischoff, Watson, and Hope (1990) postulated that it is necessary to specify which risk dimensions will be considered before risk processing can occur, that is, which risk dimensions are important (Mitchell 1999) for the choice situation/context. The concept of importance is supported in the early risk literature by the subjective utility component developed in expected utility theory (Bernoulli [1738] 1954) and SEU theory (Von Neumann and Morgenstern 1947). Some researchers focus on importance as a component of the riskiness inherent in a product class, suggesting that the importance of making the correct choice is greater for some product categories than others (e.g., Bettman 1973). Cox describes importance as one of two dimensions of consequences. We maintain that importance is assessed, not relative to *buying*

goals (Cox 1967) or *product class* (Bettman 1973) but relative to the risk of *incurring potential losses* or of adverse consequences (Peter and Ryan 1976; Venkatraman 1989). Thus, the extent of perceived-risk processing is influenced by the importance of avoiding losses in specific risky choice situations (see Figure 1 and Table 1). When it is important to avoid losses, then perceived-risk processing will be more extensive, and when it is of no importance whether losses are incurred, no risk processing will occur. In our framework, importance is judged relative to potential losses on each of the risk dimensions: financial, performance, physical, psychological, social, time or convenience risk, and linked-decision risk (physical risk can refer to the investment of personal effort or energy, as well as to the risk of incurring physical harm). For example, the importance of time loss might be fundamental to the choice of a birthday gift for a coworker, but not relevant when choosing a new home. If importance weights are zero on all risk dimensions, then risk will not be a relevant factor in the decision. If importance of avoiding losses is low on all risk dimensions, then the consumer is less likely to expend energy processing risk. In contrast, the greater importance weights are, the more involved the consumer is likely to become in perceived-risk processing. Importance weights are also context driven, so that the same risk dimension will carry different weights under different decision goals. The importance of avoiding time loss when choosing a birthday gift will be even more important than when choosing a birthday gift for a fiancée.

The assignment of importance weights for a given consumption context and choice objective will, to some extent, depend on the individual's levels of anxiety, self-confidence, intolerance of ambiguity, to name but a few individual traits that form part of the individual's risk profile (Bennet and Harrel 1975; Locander and Hermann 1979; Slovic et al. 1990; Srinivasan and Tikoo 1992). That is, personal traits bear some influence on how seriously the consumer considers risk. For example, a person with high levels of self-confidence might not assign high importance weights to the desire to avoid social embarrassment (social risk), while a more insecure person might consider the importance of avoiding social risk highly important. Hence, we reiterate the influence of individual risk profiles on risk importance.

Inherent uncertainty. Although it is rare that an objective value for risk is known in consumption situations, we postulate that such objective risk levels exist independently of human perceptions of risk (Mitchell 1999). Although it seems somewhat incongruous to present a construct that represents "true" outcome probabilities if these are not accessible to decision makers, we contend that it *is possible* to design an experiment where true probabilities are made known to consumers. Our framework represents this true, immutable value for risk under the construct of inherent uncertainty (see Figure 1 and Table 1). Many marketing studies manipulate risk in a way that closely positions risk as an inherent characteristic of a given product class or situation (Bettman 1973; Cox and Rich 1967; Schaninger 1976; Schiffman 1972; Sheth and Venkatesan 1968), then operationalizing the subjective nature of perceived risk in terms of consumer ratings or projection. Expected value theory (Bem 1980), expected utility theory (Bernoulli [1738] 1954), SEU theory (Von Neumann and Morgenstern 1947), and portfolio theory (Coombs 1975; Markowitz 1987) all assume inherent uncertainty as a component of risk.

The uncertainty inherent in consumer choices incorporates the risky nature of the individual choice alternatives; their likelihood of satisfying the decision goal; and, implicitly, the nature of the goal. According to Cox (1967), inherent uncertainty reflects the extent to which the decision goal is likely to be underachieved, achieved, or overachieved. Inherent uncertainty can be broadly represented by a probability distribution of these possible outcomes for each choice alternative. Each choice alternative is attributed a unique multivariate probability distribution of possible outcomes for the range of risk dimensions. Consumer choices are most often made relative to situation-specific goals (Cunningham 1967; Stone and Winter 1987), and a priori probabilities of specific outcomes are not known (versus the probabilities of heads/tails outcomes on a coin toss). In these circumstances, the probability distribution of uncertainty (and therefore risk) is mutable and must incorporate the concept of ambiguity. While inherent uncertainty is described by a complex system of multivariate probability distribution functions, we reiterate that consumers will filter out less important risk dimensions and reduce the range of choice alternatives to render decisions manageable and concentrate on a manageable set of choice alternatives and trade-offs at any one stage of processing.

Ambiguity has been characterized in terms of the absence of information or ignorance about possible outcomes (Camerer and Weber 1992; Ellsberg 1961; Fox and Tversky 1995). Knight (1964) postulated that uncertainty encompasses both risk and ambiguity; we follow this conceptualization with ambiguity representing a higher level of uncertainty than risk. In summary, inherent uncertainty is defined as the multivariate probability distribution function (PDF; on the range of relevant risk dimensions) of choice outcomes for each choice alternative, where at least some of the outcomes are likely to be unpleasant (see Figure 1 and Table 1). Such a PDF exists for each choice alternative. In addition to the information provided by the central tendency (expectations) of the inherent uncertainty distribution function, the range and variance of possible outcomes serve as further indicators of the extent of uncer-

tainty (Coombs 1975; Markowitz 1987). If the range and variance of possible outcomes are great, then outcomes are subject to wider variation.

Thaler (1991) found that people attempt to minimize future regret when they make choices. In a marketing environment, consumers also attempt to manage the probability of future regret. One summary measure of inherent uncertainty that can be used to express how much risk exists (Fischhoff et al. 1990) is market-level satisfaction, defined as aggregate satisfaction of those who purchase and consume a given offering (Johnson, Anderson, and Fornell 1995). Market evaluations (such as those provided by *Consumer Reports*) provide partial information on inherent uncertainty, and consumers attempt to obtain a fair estimate of inherent risk by combining this information with other sources to assess the likelihood of incurring less-than-satisfactory outcomes. In this way, consumers attempt to minimize the probability of experiencing regret through avoiding choices with higher probabilities of unsatisfactory outcomes.

Hunt (1997) described satisfaction as the evaluation that a purchase or consumption experience "was at least as good as it was supposed to be" (p. 459). Given this perspective, risk can be conceptualized as the probability that negative disconfirmation of the decision goal will occur on at least one risk dimension. Inherent risk represents the unknown "true" probability of being less than satisfied with the choice outcome (or of experiencing loss or regret). Thus, inherent risk represents a subset of the distribution of inherent uncertainty, which includes the probabilities of being satisfied or more than satisfied. The risk literature thus intercepts with the satisfaction literature in the areas of market-level satisfaction and expectations of satisfaction. Through risk processing, consumers assess the level of perceived risk as the subjectively assessed likelihood that they will not satisfy their decision goal, using partial information about inherent risk and other influences.

External and internal risk information search. The relationship between perceived risk, information search (Bloch, Sherrell, and Ridgway 1986; Srinivasan and Ratchford 1991; Urbany, Dickson, and Wilkie 1989), and decision strategies (e.g., Bonoma and Johnston 1979; Peter and Tarpey 1975) has followed two main paths. The first group follows the SEU model, centering on the maximization of expected utility (Bonoma and Johnston 1979; Ellsberg 1961; Kahn and Sarin 1988; Peter and Tarpey 1975). The second group applies the risk management model that focuses on risk-handling strategies, such as information search, shopping, or brand loyalty (Chaudhuri 2000; Greene 1968; Ingene and Hughes 1985; Locander and Herman 1979; Marshall, Mowen, and Stone 1995; Mowen and Mowen 1991; Puto, Patton, and King 1985; Taylor 1974; Zinkhan et al. 1987). In these studies, information search is treated as an outcome of perceived risk, rather than as an input in the assessment of perceived risk.

Consumers search for risk-related information in order to aid with decision-making (Bettman 1979). In this context, information search serves as input to perceived-risk assessment, as proposed by Vann (1983; see Figure 1 and Table 1). In the perceived-risk literature, Cox (1967) lists *past experience*, *habits*, and *reference to similar situations* as influences on perceived risk. Cumulative prospect theory suggests that people assign value to gains and losses relative to a reference point (Tversky and Kahneman 1992). References are benchmark positions against which potential outcomes are compared in the assessment of perceived risk. References incorporate aspects of present and aspired future conditions, as well as aspects of history in their formation. Hence, references serve as one form of information to assist consumers with perceived-risk processing.

Yates and Stone (1992) suggested that several types of references are elicited to compare outcomes: average experienced outcomes, social expectation references, target references or aspiration levels, best-possible references, and regret references. Cox (1967) recognized the role of references as ideal consequences, and Bauer ([1960] 1967) briefly discussed the role of personal and group references as sources of influence. Bell's (1983, 1985) research, which examines regret in decision-making, also argues that consumers compare the actual outcome of a gamble with a reference point of the best possible outcome. In our framework, we consider the role of references at a number of junctures during perceived-risk processing. Target references are represented by buying goals that are in place before perceived-risk processing begins. The individual facing a choice evokes internal references on average experienced outcomes and best-possible outcomes when assessing risk in the current choice situation. Best-possible references might represent outlying potential outcomes that exceed target outcomes. They are sometimes called regret references due to the expected psychological effect on the individual if the opportunity to obtain the best scenario is missed (Yates and Stone 1992). Social expectations (Cox 1967) or peer pressure are examples of external references consulted during risk information search. Here, we consider risk-related information that is obtained both from internal and external sources.

Internal information search includes scanning information that is stored in memory about risk learning and previous experience with risk that pertains to the current situation (Brucks 1985; Punj and Staelin 1983; Thaler 1991). Individuals bring aspects of their history to their assessment of events. Average experienced outcomes are one kind of memory that can be drawn on to provide information about the riskiness of a choice in a new situation (Cox 1967; Sheth 1968). For example, previous success with a brand (Roselius 1971) and long-term product con-

cern (Venkatraman 1989) are related to perceived risk. Sitkin and Pablo (1992) encapsulated these ideas when they stated that the history of an individual may affect risk perceptions. Average experienced outcomes can be related to a specific type of situation or the general average outcome of past decisions. In particular, learning from previous outcomes of similar decisions may condition perceived risk in a new situation. Cognitive processes also are used to generate internal benchmarks, such as best-possible references or aspiration levels, against which to assess the riskiness of alternative choices.

External information search can consider external references, such as social references (Bearden and Etzel 1982; Miniard and Cohen 1983) or market information about choice alternatives (Agarwal and Teas 2001; Bauer [1960] 1967; Beatty and Smith 1987; Ozanne, Brucks, and Grewal 1992). Market information about risk can come from marketers in the form of advertising, salespersons, product or service brochures, store displays, and company Web sites, or from independent sources, such as editorials in the media, general searches on the Internet, or product or industry experts (e.g., pharmacists or racing drivers; Sheth, Mittal, and Newman 1999).

Risk framing is a potentially complex task for decision makers. For instance, our conceptualization of reference framing acknowledges the multiplicity of reference points on a range of choice alternatives. Kahn (1992) noted, however, that "studies have been couched in terms of the adoption of one reference point or another" (p. 305). Assuming the view that decision makers tend to simplify the choice consideration set by means of editing and filtering (Kahneman and Tversky 1979), we suggest that references and other information sources are filtered through an editing process to arrive at a set that is prioritized by relevance and importance in the choice context. In this way, a manageable set of information will be consulted.

Editing. Research that relies on prospect theory (Kahneman and Tversky 1979) recognizes that consumer information search and decision-making begin with the number of brands in the consideration set, which affects perceived-risk processing (Marshall et al. 1995; Moorthy, Ratchford, and Talukdar 1997; Puto et al. 1985). If the number of choice alternatives is large and they share risk levels on risk-relevant attributes, then they will be grouped to simplify the decision until the individual facing the risky choice identifies a manageable set of alternatives (Mitchell 1999). We suggest that editing also occurs according to the amount of variance in the set of choice alternatives on each of the specific important risk dimensions (e.g., *psychological*, *performance*, or *social* risk). The need to consider variance in risk-related attributes is supported by the work of Folkes, Koletsky, and Graham (1987), who showed that customers' response to suppliers is affected by the stability of product failure (i.e., worse than expected outcomes) as well as the importance of avoiding failure.

The range of possible alternatives and the variance of possible outcomes form the basis for editing the choice alternatives. When the number and nature of choices are great, information overload occurs, and it is more difficult for consumers to decide which product will best match the buying goals (Jacoby 1984; Malhotra 1984). During the editing phase, individuals facing risky choices sort and reduce the choice consideration set on the risk dimensions that are relevant to the decision until "a manageable set" of alternatives is identified (Kahneman and Tversky 1979). If there is little variance between the choice alternatives, then there is no risk in choosing among alternatives and risk is not relevant; the consumer may simply pick among the choice alternatives. Under conditions where similar decisions have been faced repetitively over time, perceived-risk processing is also minimal, and a choice is made without apparent risk consideration (Sheth and Venkatesan 1968). We discuss only decision situations where variance exists between alternatives on at least one risk dimension and where the consideration of risk pertains.

To summarize, the consumer gathers as much information as possible, or needed, about the true probability of nonachievement of the decision goal to serve as input to enable an adequate assessment of perceived risk. Assessing risk importance, consulting internal and external information sources in the search for information that will assist with risk assessment, and editing the choice alternatives result in attention focused on the risk consideration set (see Figure 1 and Table 1), thus completing risk framing, whence consumers proceed to into the risk assessment phase.

Assessment Phase

In contrast to inherent uncertainty, perceived risk is subjective, based on consumer perceptions. Errors of assessment arising from imperfect information are reflected in perceived risk, where the information to hand (under the influence of the personal dispositional and affective characteristics of the consumer) is used to estimate the probabilities of possible outcomes. In addition, the relative expectation approach to conceptualizing perceived risk adopted here recognizes the subjective nature of the assessment of uncertainty (Von Neumann and Morgenstern 1947). As stated previously, several researchers note that perceived risk should capture both personality traits and situation-related variables (Dowling 1986; Hansen 1976; Lopes 1987). Similarly, the early work of Cox (1967) proposes two dimensions of perceived risk, performance and psychosocial. Following these works, we include situational and individual factors as influences in the formation of perceived risk.

Perceived risk. Our conceptualization of perceived risk takes its foundation from the definitions proposed by Bauer ([1960] 1967) and Vann (1983). That is, risk perceptions are subjective, multidimensional, and contextual in nature. We suggest that consumers consolidate their perceptions of search output, importance, and inherent risk to formulate a subjective expected value for risk on each choice over a combination of risk dimensions. Perceived risk is defined here as a decision maker's importance-weighted subjective assessment of the expected value of inherent risk in each of the possible choice alternatives for a given decision goal (see Figure 1 and Table 1).

Thus, perceived risk is the combined result of context-dependent importance weights, inherent risk in a specific situation, and the influence of individual factors. As discussed earlier, a probability distribution of possible outcomes on any dimension might be conceived of as a distribution of the probabilities of possible satisfaction levels, relative to the decision goal. By considering the probabilities of satisfaction on the full range of context-relevant risk dimensions and brands, the decision maker derives a multidimensional, subjective assessment of the risk he or she faces.

Evaluation Phase

An important distinction exists between perceived-risk assessment and perceived-risk evaluation. A prominent focus in the marketing literature, risk assessment involves processing of the size and likelihood of gains or losses. Risk evaluation, often studied in the finance and accounting literatures, considers whether perceived risk is worth the potential loss of assets relative to a referent standard (such as current wealth levels). One example of this conceptualization of perceived-risk evaluation is the position of cumulative prospect theory that "carriers of value are gains and losses, not final assets" (Tversky and Kahneman 1992:299).

A study conducted by Arnould and Price (1993) serves as an illustration of the concept of risk evaluation in consumer decision making. The authors describe how consumers who engage in river rafting experiences can be fully cognizant of the related risks and yet seek extraordinary experiences though river rafting. The excitement they seek comes from the inherent risk associated with river rafting, but consumers want risk to be comfortably managed. They are not willing to sacrifice "everything" for the sake of the desired experience. We suggest that consumers manage the consequences of perceived risk through a process of mental accounting (Thaler 1991) that constitutes perceived-risk evaluation.

Another excellent instance of risk evaluation is described by Thaler (1991), who found that poker players who are ahead in a game are more reckless, possibly because they feel they can afford to incur some losses. The present framework postulates that the relationship between potential losses and the initial asset level influence an individual's willingness to take risks. Thus, *risk evaluation* occurs relative to an evaluation standard (financial, psychological, physical, performance, social, time or convenience, and linked-decision investments and asset levels, e.g., the "status quo"). This conceptualization of risk evaluation is supported by evidence in the literature that "initial entitlements do matter" (Tversky and Kahneman 1991:1039). One of the questions that might be answered during perceived-risk evaluation is, "Is this choice, given the risk I believe it entails (i.e., the value of perceived risk), worth the amount of energy/effort it will entail?"

Dowling (1986) also proposed that individuals have differing capacities to absorb losses. His "wealth proposition" (Dowling 1986:203) is grounded in utility theory (Edwards 1962; Kahneman and Tversky 1979). Potential gains might be conceived of as improvements in the individual's capital, while potential losses reduce capital. This conceptualization is congruent with Cox's discussion of risk standards and the judgment of consequences relative to the initial (or "ideal") asset level. If the initial asset level is large relative to the expected loss, then expected losses will be considered less serious (and the consumer will be more willing to take on a risky decision) than if the initial asset level is small, in which case the loss will be more serious (and risky choice will be avoided). In general, the framework suggests that risk evaluation will occur relative to a referent standard (see Figure 1 and Table 1), such as the amount of investment in goal achievement and/or the size of potential loss versus initial asset levels.

Perceived-risk evaluation is influenced by the individual characteristics of the decision maker and the situation (cf. expected utility theory, portfolio theory, and prospect theory). In the risk evaluation phase, while acknowledging general individual effects, we specifically note two factors, sensation seeking and risk acculturation, as individual influences that affect willingness to take action in making a risky decision.

Risk-taking propensity. Risk-taking propensity has been defined in the business literature as the tendency of an individual either to take or avoid risks (Sitkin and Pablo 1992; Sitkin and Weingart 1995) and has generally been measured using Kogan and Wallach's (1964) Choice Dilemma Questionnaire. For example, MacCrimmon and Wehrung's (1990) study of executive risk behavior conceptualizes risk propensity in terms of measures of willingness to take risks. There is some incongruity in the literature regarding the concept of risk-taking propensity. SEU theory and portfolio theory present a treatment of risk aversion that encompasses both risk affinity and risk-taking propensity. Dowling (1986) and Pras and Summers

(1978) have studied risk tolerance in contexts that suggest parallels to risk-taking propensity. Blake and Perloff (1973) measured buying intentions as "willingness to buy" new (risky) products, an approach that is congruent with our view of risk-taking propensity.

Risk-taking propensity is defined here as the willingness of a person to make a risky choice when faced with a specific decision situation (see Figure 1 and Table 1). Given the perceived risk associated with a choice alternative and the individual's personal risk profile, risk-taking propensity derives from the evaluation by individuals of perceived risk relative to the amount of investment and/or initial asset levels. According to our definition, risk-taking propensity represents a dependent variable that mediates the relationship between perceived risk and risk-taking behavior (see also Sitkin and Weingart 1995). This conceptualization of risk-taking propensity as an outcome of perceived-risk evaluation distinguishes risk-taking propensity from the concept of risk affinity, which was defined earlier in terms of an individual trait that influences individuals' sensitivity toward risk.

Both direct and indirect effects of the individual's risk profile on evaluation of perceived risk are recognized. Different individuals will be more or less willing to make a risky choice in the same situation (Bem 1980; Neumann and Pollitser 1992; Sitkin and Pablo 1992), depending on their individual risk profiles. Risk-taking propensity is the end state of the consumer before engaging in risky behaviors. As such, risk-taking propensity is a composite measure of willingness to engage in risky decisions, aggregated across the range of (risk dimension-linked) risk perceptions. Following the propositions of game theory, the individual will make the best of the available trade-offs within the constraints of the context (Von Neumann and Morgenstern 1947). That is, they will be most willing to make the choice that offers the optimal benefit/risk outcome for the individual's investment, current asset levels, and personal profile. Once propensity has been established, the consumer is ready to engage in behavior.

DISCUSSION

Cox (1967) described his seminal model of perceived risk as a "comprehensive and unified conceptual scheme which is composed of a set of interrelated multidimensional components" (p. 5). He suggested that "while it may be possible and desirable to simplify the scheme, . . . complex behavioral phenomena require multidimensional explanatory and predictive models" (p. 635). He further acknowledged that his scheme does not provide a final answer but improves the understanding of the complex nature of risk perception and information handling. The conceptual framework proposed here reports scholarly progress since the early work of Bauer ([1960] 1967) and Cox (1967), and other prominent marketing scholars. More recent studies in marketing are consolidated into a cohesive, expanded framework that incorporates important conceptual and theoretical contributions of scholarly disciplines outside of marketing on risk. We reiterate the complex nature of perceived-risk processing and contend that despite its complexity, the framework contributes to the advancement of understanding of perceived-risk processing in consumption settings.

Taking the perspective of a risk-return model of decision-making, and bearing in mind that potential losses are the foremost concern in consumer decisions, it is critical that marketing managers allay or otherwise address consumer fears regarding the risks that result from choosing and/or consuming a particular product or brand. Risk can form the crucial barrier that prevents consumers from choosing a specific brand or service offering. By carefully managing the risk concerns of potential consumers, managers can increase the probability of their specific brand or service being selected. The three-phase process for the framing, assessment, and evaluation of perceived risk presents a holistic view of perceived-risk processing. The specific constructs identified within each phase of risk processing may help managers to identify particular aspects of risk that they should control or manage through marketing planning, product development and quality control, warranties and service, positioning, advertising, and promotional activities.

The framework presented here suggests a variety of junctures at which marketing strategies and actions can influence the outcomes of perceived-risk processing. One approach for building market-entry and positioning strategies for a firm's portfolio of market offerings might be to *segment their potential market according to risk profile characteristics* (this approach is already practiced in some industries, such as the personal insurance industry). If segments of consumers are identified according to the composition of their individual risk profiles, firms may choose to position their offerings to suit the profiles of selected segments (e.g., ambiguity-intolerant consumers or sensation seekers) and provide market coverage by creating a range of differentiated offerings that cater to the risk needs of specific "risk" segments.

Taking a different view, it would be possible to create *marketing plans that overlay the framework* presented here to ensure that brands prevail through risk processing to become preferred choice alternatives. For example, it is useful for managers to *isolate the important risk dimensions* for their specific industries or categories and focus on these in communicating with potential customers. At a corporate strategic level, *firms might consider incorporating the risk/return paradigm into their overall philosophy for marketplace relationships*. That is, a firm's efforts

might be coordinated to maximize the probability of satisfaction in the marketplace, while simultaneously minimizing consumer risk.

This study answers the call of marketing scholars to clarify the definition of perceived risk and other risk-related concepts. We find that, to a large extent, confusion regarding definitions and contradictory findings of research on perceived risk can be attributed to two inconsistencies in previous scholarly research. First, terms such as *risk*, *perceived risk*, *risk tolerance*, or *risk propensity* are often used interchangeably in a diverse literature to refer to what authors assume to be a common construct. Second, upon close scrutiny of the literature, it becomes clear that many studies that use the same definitional term for the phenomenon under investigation are, in fact, observing conceptually different constructs and relationships. This framework clarifies the distinct constructs and component phases of perceived-risk processing to resolve confusion and to guide consistency in future studies. Consultation of the literature outside of marketing further ensures that (as far as possible) the marketing literature embraces recent important findings from other literatures, and risk-related variables and processes are conceptualized in consistent or compatible ways across different literatures.

Even as the new framework clarifies, updates, and integrates the literature on perceived risk, it also serves as a launching pad for new avenues of inquiry. Two general directions of inquiry are indicated: (1) research that develops, tests, and refines measures of perceived-risk processing and (2) research that investigates the intersection between perceived-risk processing and other aspects of consumer behavior, and cross-disciplinary research. Researchers should develop, and test in a range of contexts, appropriate measures for each construct in the framework. Acknowledging the highly contextual nature of perceived-risk processing, it is unlikely that very broad, standardized measures will be appropriate. The tailoring of risk measures for specific contexts will be necessary to improve their explanatory power, just as Cohen, Fishbein, and Ahtola (1972) found that specific measures improved explanatory power for measurement of attitude and its determinants. Measures for some concepts, such as risk affinity, intolerance of ambiguity, self-confidence, perceived risk, sensation seeking, and risk-taking propensity are reported in the literature. The suitability of these measures within the context of the integrated framework has yet to be established. For example, the measures for perceived risk that have been used in some previous studies may be more closely associated with our definition of inherent uncertainty. Our literature review does not identify measures for other variables and processes such as risk evaluation and acculturation to risk. These issues are left to the attention of future researchers. In our framework, we present some traits that influence perceived risk, but the literature is relatively limited in this area. There may also be additional personality traits that contribute to the individual risk profile. Gender, age, education, income/wealth, and employment categories are demographic factors that may influence risk taking (Hensley 1977; Hoover et al. 1978; Kahneman and Tversky 1979; Zinkhan and Karande 1991; Zuckermann 1979). Further investigation of the relevance of demographic and psychological factors should be a priority.

Points of intersection between the literature on perceived risk and the literatures on satisfaction, information search, and general consumer decision-making are suggested by the framework. The concept of satisfaction is posited as central to the assessment of perceived risk. Inquiry into the link between perceived risk and expectations of satisfaction is an important avenue of investigation for future research. In addition, it is important to undertake studies that integrate risk processing with the overall decision-making process. The concept of simultaneous evaluation of risk and return (benefits) deserves concerted attention in the consumer behavior literature. The application of varying decision strategies for different risk situations should be explored in the context of general decision-making strategies and/or models.

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ABOUT THE AUTHORS

Margy P. Conchar (concharm@mail.ecu.edu; Ph.D., University of Georgia) is an assistant professor at East Carolina University. Her research focuses on consumer behavior and advertising. Her work in consumer behavior concentrates on risk, motives, and optimal consumption experience. Her research in advertising focuses on the interface between advertising and finance, accounting, or economics. She has previously published in the proceedings of the Academy of Marketing Science, the Association for Consumer Research, the American Marketing Association of Educators, and the Society for Marketing Advances.

George M. Zinkhan (gzinkhan@terry.uga.edu; Ph.D., University of Michigan) is the Coca-Cola Company Chair of Marketing at the University of Georgia. His major research interests include advertising, promotion, e-commerce, and knowledge development. Two of his recent coauthored books include *Consumers* (2004, McGraw-Hill) and *Electronic Commerce: A Strategic Perspective* (2000, Dryden).

Cara Peters (petersc@winthrop.edu; Ph.D., University of Nebraska) is an assistant professor at Winthrop University. Her research lies in the general areas of consumer behavior and e-commerce. Primarily using mixed methods, she examines risky consumer behaviors as they relate to sociology and psychology. She has published in the *Journal of Consumer Psychology* and *Consumption, Markets, and Culture*, among other journals.

Sergio Olavarrieta (solavar@negocios.uchile.cl; Ph.D., University of Georgia) is an assistant professor at Universidad de Chile, Santiago, Chile. He is assistant dean of undergraduate programs at the School of Business and Economics at the University of Chile. His research focuses on branding and marketing strategy. He has previously published in the *Journal of Strategic Marketing* and the *International Journal of Product Distribution and Logistics Management*.