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USING PERCEIVED RISK AS A MEDIATOR BETWEEN PRODUCT/SERVICE FEATURES AND EVALUATIVE JUDGMENT: A TWO-STAGE INTEGRATIVE MODEL

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USING PERCEIVED RISK AS A MEDIATOR BETWEEN PRODUCT/SERVICE FEATURES AND EVALUATIVE JUDGMENT: A TWO-STAGE INTEGRATIVE MODEL

By

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ABSTRACT

USING PERCEIVED RISK AS A MEDIATOR BETWEEN PRODUCT/SERVICE FEATURES AND EVALUATIVE JUDGMENT: A TWO-STAGE INTEGRATIVE MODEL

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Progress in developing relationships between perceived risk and its antecedent and criterion variables has been hampered by the lack of valid measures and a theoretical structure to guide its application. The objectives of this dissertation have been to develop a consumer-based, valid measure of perceived risk, and a theoretical structure suitable for applying the measure to substantive marketing research issues. The financial industry was chosen for the domain of the research.

Focus group interviews were used to provide the basis for developing a set of consumer-based semantic differential scales, which were evaluated for reliability and validity. The evaluations established four valid dimensions of perceived risk: safety risk, personal risk, social risk, and control risk.

Safety risk and personal risk combined to provide an analysis of perceived risk that has not been observed in earlier research. The two dimensions characterized the consumer as an evaluator, who distinguishes between the risk involved in purchasing and using an object and his or her ability to cope with the risk.

Social risk provided an assessment of the perceived social acceptability of an object, and control risk reflected the concerns an individual has about losing control of invested funds.

A model was developed that portrayed perceived risk as perceptual meaning. The construct was operationalized as a mediating variable

between service features and evaluative judgment. Empirical verification showed the model to accurately represent the relationships between service features, perceived risk, and evaluative judgment, providing information about investors' preferences for service features.

The perceived risk model, by including descriptors of individual and situational characteristics, provides guidance for theory based segmentation strategies.

Application of the perceived risk model to areas outside of the financial domain are possible because of the potential generalizability of the safety, personal, and social risk dimensions. Expanding the perceptual dimension beyond perceived risk would also give the perceived risk model the potential to become a consumer attitude model, with more explanatory power than currently exists in popular models.

Dedicated to
the memory of

Harold G. Hartman

who was concerned that by
sending his son to college,
he was depriving the world of
a good truck driver.

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I. INTRODUCTION

IMPORTANCE OF PERCEIVED RISK

Researchers have recognized since the early 1960's that perceived risk plays an important role in determining consumers' behavior (Bauer 1960). Developing and applying the construct evolved slowly, plagued with a number of inconsistencies among researchers (Bettman 1973; Ross 1975; Dowling 1986) which resulted in contradictory or inconclusive findings (Gemünden 1985). Meanwhile, the importance of understanding the effects of perceived risk on consumer behavior is increasing as product proliferation, product sophistication, and an extensive service component make consumers' decisions more formidable.

Research in the area of perceived risk established a number of important relationships. Brand preference was found to be inversely related to perceptions of risk (Peter and Tarpey 1975; Peter and Ryan 1976; Evans 1981) and extrinsic cues, including warranty and manufacturer's reputation, influenced affect indirectly through perceived risk (Bearden and Shimp 1982). Researchers also identified consumers' preferences for major brands and stores with a reliable image as preferred risk control strategies (Cunningham 1967a; Sheth and Venkatesan 1968; Roselius 1971).

Other research has been less conclusive. A clear relationship between individual characteristics and perceived risk has not been established (Locander and Hermann 1979; Capon and Burke 1980; Brooker 1983) and the effect of product features on perceived risk is unclear (Zikmund and Scott 1977). A meta-analysis by Gemünden (1985) of the effects of perceived risk on information search was equivocal at best. Gemünden concluded that this was due in part to inconsistencies in operationalizing the perceived risk construct and the lack of validation of the perceived risk measures.

Other reviewers of the perceived risk literature have drawn similar conclusions. Ross (1975) completed a thorough review of the perceived risk literature and concluded:

> The manner in which the construct has been operationally and even conceptually defined has varied so much across studies, that efforts at synthesis are hampered . . .

A current review by Dowling (1986) suggests that little has changed since 1975. He concluded:

> Little consensus has been reached regarding the precise nature of the construct. Perceived risk is a somewhat "fuzzy" concept.

INCREASING IMPORTANCE

The importance of developing better methods of measuring perceived risk is manifest by the complicated decisions consumers are required to make in today's market place. Technically complex products and expanding product lines add to the difficulty and number of decisions required of the consumer. With increasingly complicated choices, the consumer is likely to face greater uncertainty, resulting in a higher degree of perceived risk.

The growth of the service sector (Berry 1983) adds to the risk faced by consumers. The intangible nature of services makes the prepurchase evaluation more complex than is generally the case with products (Zeithaml 1981). Surveys of consumers and sales people indicate that service transactions are often more complicated and less satisfying than a comparable product transaction (George and Kelly 1983). When comparing products to services, consumers give services higher risk evaluations (Guseman 1981).

Finally, understanding how consumers react to risk has important policy implications. Protecting the consumer from risk is becoming increasingly difficult, as evidenced by the concern about the future soundness of the Social Security program and the ability of the Federal Deposit Insurance Corporation and the Federal Savings and Loan Insurance Corporation to withstand continued financial losses. The resolution of these and related concerns may result in shifting much of the risk burden to the consumer.

OBJECTIVES

This dissertation will examine the development and application of the perceived risk construct, delineating the strengths and limitations. A new measure of perceived risk will be developed to improve upon the shortcomings of earlier measures. Furthermore, a theoretical structure will be developed which is capable of guiding the perceived risk measure's application to substantive marketing issues. The proposed outcome of the research is a better understanding of the role played by perceived risk in determining consumer behavior.

PLAN OF THE DISSERTATION

For background, a review of the perceived risk literature is presented in the Literature Review Chapter, including the conceptualization and development of the construct. Applications of the measure to marketing issues are discussed and analyzed disclosing a number of weaknesses in the operationalization of the construct.

Theoretical foundations will be developed in the Theoretical Development Chapter, leading to a perceived risk model that positions the construct as a mediator variable between product/service features and evaluations. The Methodology Chapter presents the methodology for developing a measure of the construct and for empirically testing the perceived risk model. The results of the empirical verification will be presented in the Analysis Chapter. A discussion of the results and summary conclusions is presented in the Discussion and Conclusion Chapters.

II. LITERATURE REVIEW

THE PERCEIVED RISK CONSTRUCT

Foundations for the construct

The roots of the perceived risk concept are found in interviews with two consumers conducted by Cox (1967) in the fall of 1959. He used the in-depth interview as an exploratory research tool to gain deeper insight into consumer behavior. As the interviews progressed, the concept of perceived risk began to emerge from the data. Cox observed that much of the behavior of the consumers was influenced by their feelings of concern about the outcome of a purchase. The concerns included not only the expected fears of non-performance and loss of money but also the psychosocial fears of how other people would feel about the purchase or the individual making the purchase. Surprisingly, the concerns were not limited to major purchases, but included everyday purchases such as soap and tissues. Because consumers acted to reduce feelings of risk or avoided purchases that were felt to be too risky, Cox began to see perceived risk as central to consumer behavior.

Based largely on the data from Cox's interviews, Bauer (1960) wrote his seminal article on perceived risk, which formed the basis for much of the perceived risk research to follow. Bauer observed, "Consumer behavior involves risk in the sense that any action of a consumer will produce consequences which he cannot anticipate with anything approximating certainty, and some of which are likely to be unpleasant." Bauer placed special emphasis on "perceived" risk as opposed to objectively determined risk because an individual can respond to and deal with risk only as he or she perceives it subjectively.

Conceptual development

Underlying the concept of perceived risk is the assumption that consumer behavior is goal-oriented (Cox 1967), which suggests that a consumer is drawn into a transaction in anticipation of achieving a goal or set of goals. If rational consumer decisions are assumed, the goals

may be thought of as expectations of improved states. The problem a consumer faces, however, is inadequate information about the outcome of any given transaction (simply not knowing the future), which makes it impossible to make completely rational decisions about transactions (Bauer 1960).

As a result, consumers face situations that offer both the potential of improved states and the potential of losses (risk). The nature and importance of potential losses becomes a function of the importance of the goals to be attained, the seriousness of the penalties for non-attainment of the goals, and the amount of the means committed to achieving the goals (Cox 1967).

Taylor (1974) included the concept of perceived risk in a theoretical development of risk-taking in consumer behavior. He observed that the central problem of consumer behavior is choice. Since the outcome of a choice can only be known in the future, the consumer is forced to deal with uncertainty or risk, which Taylor felt are equivalent.

The perception of risk becomes a key aspect of consumer behavior in Taylor's theory of risk-taking as it leads to feelings of anxiety. Anxiety is defined as a normal human emotion, often felt to be uncomfortable or even painful. The discomfort of this feeling will direct consumer behavior in ways that will reduce the perception of risk and consequently the anxiety felt.

In Taylor's theory, choice situations involve two aspects of perceived risk: uncertainty about the outcome and uncertainty about the consequences. Uncertainty about the outcome is the consumer's subjective assessment that an unfavorable outcome may result from a transaction. Uncertainty about the consequences is the consumer's subjective assessment of the importance of a possible loss. To reduce the felt anxiety of a perceived risky situation, a consumer will employ strategies to reduce one or both of the aspects of risk. For example, uncertainty about outcome may be controlled with additional information (by seeking trusted advice), and uncertainty about consequences may be controlled by limiting the amount at stake (by buying the cheaper model)

(Taylor, 1974).

Peter and Ryan (1976) reacted to what they saw as a paradox in the development of perceived risk by Cox (1967), Bauer (1960), and Taylor (1974). If perceived risk were equivalent to uncertainty, and if a consumer were perfectly certain a loss would occur, there would be no perceived risk by definition. However, if there is no perceived risk, the product should be acceptable. They resolved the paradox by defining perceived risk only in terms of downside risk or expectations of negative utility. It is the consumer's expectations of negative utility or the expectation of losses associated with a purchase that act as an inhibitor to a purchase.

Construct components

Drawing on the conceptual writings of Cox (1967), Cunningham (1967), and Bauer (1960), several researchers operationalized the construct of perceived risk by using the two components: uncertainty and consequences (Kogan and Wallace 1964; Roselius 1971; Taylor 1974; Peter and Tarpey 1975; Peter and Ryan 1976). Uncertainty was variously defined as equivalent to risk, the subjective probability of loss (Peter and Tarpey 1975; Peter and Ryan 1976), and the percentage of acceptable brands within a product type (Bettman 1973, 1975). Consequences were defined as danger of loss (Cunningham 1967), amount of loss (Kogan and Wallace 1964), and importance of loss (Bettman 1973; Peter and Tarpey 1975; Peter and Ryan 1976).

One of the first operationalizations of the perceived risk construct was made by Cunningham (1967). He measured the uncertainty component by asking subjects how certain they were that a new or different brand of a product would work as well as their present brand. The consequence (danger) component was measured by asking subjects how much danger there would be in trying an unfamiliar brand. Each component was measured at three levels and the scores were combined multiplicatively to obtain a value for perceived risk.

Bettman (1972 and 1973) distinguished between the risk a consumer

feels toward a product class where there is no brand knowledge and the risk a consumer feels toward a familiar and preferred brand in the same product class. In the first case, Bettman referred to the risk as inherent risk which is specific to the product class. He hypothesized that inherent risk increased with the importance of the product and perceived price, and decreased with the percentage of acceptable brands within the product class.

In the second case, handled risk is the reduction of inherent risk through information gathered about a product. According to Bettman, "Handled risk thus includes the effects of particular brand information, whereas inherent risk deals with the riskiness a consumer feels if no information is assumed."

In an empirical test of the above relationships, Bettman (1973) measured inherent risk by asking subjects to rate the risk levels of products in an imaginary store where all brand labels were covered and only product type and size information were available. Handled risk was measured in a similar manner, only the subjects were asked to rate the risk levels of products in terms of shopping in their usual grocery stores. Importance was measured by asking subjects to rate the importance of choosing a satisfactory brand within a product class. Information held about a product class was determined by consumers' self ratings.

The results were as expected. Inherent risk ratings were higher than handled risk ratings. Inherent risk was primarily a function of the importance of the product and, to a small degree, the percentage of available acceptable brands. The data for perceived price was unreliable. Handled risk was primarily a function of inherent risk and to a lesser degree a function of information.

An argument has been advanced suggesting that Bettman's conceptualization is logically inconsistent (Vann 1983). If it is assumed that attitudes held toward a product class (concerns about riskiness) are superordinate to individual product brands, then attitudes toward a product class will depend on knowledge of individual product

brands. In other words, an individual will form his or her opinions about a product class by the experience he or she has with individual brands. In conclusion, Vann (1983) states, "Inherent risk can only be estimated by people for whom it no longer exists."

The multiplicative combining of uncertainty and danger of loss, as suggested by Cunningham (1967), has been a major area for examining the perceived risk construct and its operationalization. In a comparison study of the Cunningham and Bettman models of perceived risk, Bettman (1975) tested the adequacy of the multiplicative relationships and the interaction of the multiplicative combining with different formulations of the construct. The Cunningham formulation was uncertainty times consequences (i.e., danger in trying a brand not previously used). The Bettman formulation was the percentage of brands falling above an acceptable level of quality times the importance of making a satisfactory brand choice within the product class.

Bettman tested the adequacy of the multiplicative representation by using a factorial design with the components of perceived risk as independent variables and an overall risk rating as the dependent variable. He hypothesized that if the multiplicative relationship holds, a graphic representation of data should produce a diverging fan of lines indicative of the interaction between the two components. The Cunningham data produced essentially parallel lines with a slight tendency towards convergence suggesting a dominance of the consequence (danger) scale. The Bettman data produced a slightly diverging fan with a hint of nonlinearity.

In summary, neither model produced results in line with expectations that would support combining the components of perceived risk multiplicatively. Bettman concluded that a more fruitful direction for perceived risk research would be to examine the "theory" used to establish the perceived risk construct.

Another investigation of the combining of the components of perceived risk was done by Peter and Ryan (1976). The authors based their investigation on the assumption that the primary determinant of behavior

is the utility of the expected outcomes of a transaction and not the expected outcomes themselves. For example, the expected cost of operating a compact automobile may be $1,200 per year. To an individual of modest means this may seem like a large expense while it may seem inconsequential to a wealthy individual. The utility (negative utility in this case) of a given purchase will vary according to an individual's perspective but is more relevant to consumer behavior than the absolute value of the outcome. The authors used importance of loss as a proxy for negative utility in place of danger of loss as the consequence component of perceived risk.

The relationship Peter and Ryan developed between the probability of loss and the importance of loss was somewhat simpler than the usual multiplicative formulation. Using the foregoing utility argument, they concluded that the importance of loss will vary across individuals but not across brands within a product class. Importance of loss may, therefore, serve as a segmentation variable dividing consumers on the basis of their risk averseness. Probability of loss was then used to predict brand preference within the risk groups.

Peter and Ryan drew comparisons between their formulations and Bettman's inherent and handled risk conceptualization. They believed importance of loss relates to Bettman's inherent risk or the intrinsic amount of risk the consumer feels a product class holds. The probability of loss relates to Bettman's handled risk or the consumer's preference for a brand which is felt to represent the lowest amount of risk within the product class.

Peter and Ryan predicted that probability of loss summed over the various facets of risk (financial, physical, performance, social, and psychological) for each risk group would be a better indicator of brand preference than the multiplicative formulation of probability and importance. They also predicted that it would be a stronger indicator of brand preference in the high risk averse group than in the low risk averse group.

The data confirmed the authors' hypotheses. They concluded that

consumers who are highly risk-averse tend to view products and brands more in terms of potential losses, and perceived risk may be a predictor of brand preference only for market segments that perceive it as important. They felt importance of loss serves better as a segmentation variable than as a component of the perceived risk construct.

Dimensionality

In addition to the two components of perceived risk, early writers suggested that consumers experience a variety of types of risks (Bauer 1960; Cox 1967; Cunningham 1967). From in-depth interviews with consumers, Cox (1967) felt risk is perceived, not only in relation to purely functional and economic aspects of purchases, but also relative to psychosocial gratifications.

In an exploratory study of risk dimensions, Cunningham (1967) had consumers list the various types of dangers involved in purchasing three types of products: headache remedies, fabric softeners, and dry spaghetti. He found respondents were specific about the dangers involved within each product category, and he found a unique pattern of perceived "dangers" across product categories. There was one common danger in all categories which related to concerns about health.

Noting the lack of formalization of risk dimensions, Jacoby and Kaplan (1972) reviewed the existing literature and cataloged the different varieties of perceived risk. Additionally, they developed a series of hypothetical purchase situations and examined them for types of risks potentially operative in each situation. The authors identified five types of risk that they felt were functionally independent: financial, performance, physical, psychological, and social. Time loss or inconvenience risk, as identified by Roselius (1971), was acknowledged in a footnote.

Surveying 148 undergraduate students, Jacoby and Kaplan found a strong relationship between overall perceived risk and the various risk types. They also found a clear distinction of risk levels and patterns among twelve consumer products. Performance and financial risks were the

major predictors of overall perceived risk.

Jacoby and Kaplan concluded that overall perceived risk should be modeled as a function of the five identified risk types and each risk type should be decomposed into the components of uncertainty and consequences. They offered no theoretical justification for this decomposition.

Using the dimensions of risk suggested by Jacoby and Kaplan, Peter and Tarpey (1975) developed a model of brand preference for automobiles. The authors factor analyzed the five types of risk. They found financial, performance, physical, and time risk loaded on the first factor; and social and psychological risk loaded on the second factor. The authors concluded that there are two major dimensions of risk: external to the consumer and internal to the consumer.

Zikmund and Scott (1977) examined the question of whether or not product attributes or purchase situations would have an effect on the nature of perceived risk. Their premise was that consumers' perceptions of certain product-specific characteristics (newness, complexity, etc.) vary among product classes, and these characteristics influence the types of risk consumers perceive.

The authors had consumers rate three products - portable color televisions, metal lawn furniture, and personal stationery - on the basis of a large number of potential risks developed prior to the survey. The results were factor analyzed for risk dimensions. Six types of risk were identified for televisions, seven for furniture, and three for stationery. The major dimensions identified for all products were performance risk and social risk. Television and furniture had the unusual dimension of lost opportunity suggesting a concern about the products going out of style. A major dimension for stationery was shopping frustration.

In summary, Zikmund and Scott's findings reveal that consumer durable goods pose performance and social risks. Their findings also suggest that there are risks unique to the product class, such as style changes or shopping difficulties.

OPERATIONALIZATION

Operationalizing the perceived risk construct has varied greatly among researchers and may account for much of the inconsistency in their findings (Ross 1975; Gemünden 1985; Dowling 1986). There are, however, three techniques often used by researchers when developing a measure of perceived risk: direct questioning of subjects about their feelings of risk; decomposing overall perceived risk into risk types (usually those suggested by Jacoby and Kaplan); and decomposing risk types into the components of uncertainty and consequences as suggested by Bauer.

An example of the direct questioning, two component technique was Peter and Tarpey's (1975) perceived risk scales used as part of a brand preference model. They measured the uncertainty or probability component of social risk by asking subjects to respond to the following statement:

> I think that it is (improbable/probable) that the purchase of a (brand) would lead to a social loss for me because my friends and relatives would think less highly of me.

The second component, importance of social risk, was measured with the statement:

> As far as I'm concerned, if this social loss happened to me it would be (unimportant/important).

In each case the responses were recorded on a seven point scale anchored by the word pairs in parentheses.

In their study of risk dimensions and product features, Zikmund and Scott (1977) developed a similar direct question, two component perceived risk scale. To measure uncertainty or the probability that a social risk will occur, they asked respondents, "Your friends will not like the (product/brand)," rated on a seven point scale anchored by "very likely" and "very unlikely." Importance of the social risk was measured by asking respondents the same question rated on a seven point scale anchored by "unimportant to avoid" and "important to avoid."

Both Peter and Tarpey, and Zikmund and Scott combined the components of uncertainty and importance multiplicatively in the tradition of

Cunningham. Neither pair offered a theoretical justification other than it was accepted practice in the literature.

Typically, scales as illustrated above were developed by researchers on an a priori basis covering each risk type that the researcher felt to be appropriate for the project at hand. Peter and Tarpey's (1976) model of overall perceived risk as illustrated in Equation 1 is a good example of this operationalization.

(1) $$OPR_j = SUM (PL_{ij} \times IL_{ij})$$

OPR_j = Overall perceived risk for brand j
PL_{ij} = Probability of loss i from the purchase of brand j
IL_{ij} = Importance of loss i from the purchase of brand j

In this example the types of loss included financial, social, performance, psychological, physical, and convenience.

Zikmund and Scott's approach was unique and insightful. As indicated above, they developed the risk dimensions from the subjects' responses to a large number of possible risks associated with three different types of products.

EMPIRICAL FINDINGS

Antecedents to perceived risk

A number of researchers have investigated the factors that influence the levels of perceived risk among consumers. Some of the more important investigations include differences among product class, brands, individual characteristics, social characteristics, product features, and situational characteristics. See Figure 1 for a listing of articles in this area. The following is a brief review of the major findings from these articles.

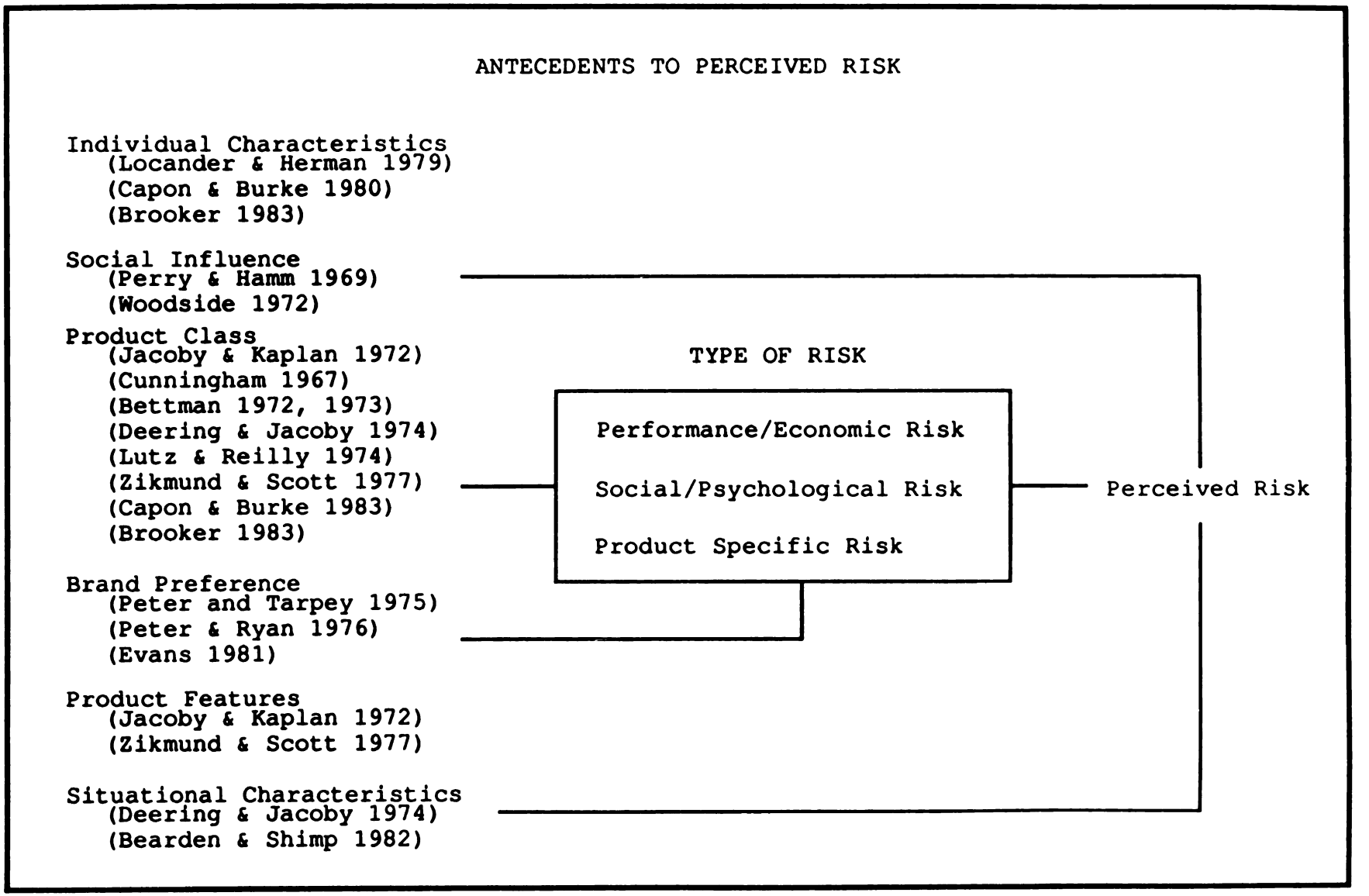
ANTECEDENTS TO PERCEIVED RISK
Individual Characteristics
(Locander & Herman 1979)
(Capon & Burke 1980)
(Brooker 1983)
Social Influence
(Perry & Hamm 1969)
(Woodside 1972)
Product Class
(Jacoby & Kaplan 1972)
(Cunningham 1967)
(Bettman 1972, 1973)
(Deering & Jacoby 1974)
(Lutz & Reilly 1974)
(Zikmund & Scott 1977)
(Capon & Burke 1983)
(Brooker 1983)
Brand Preference
(Peter and Tarpey 1975)
(Peter & Ryan 1976)
(Evans 1981)
Product Features
(Jacoby & Kaplan 1972)
(Zikmund & Scott 1977)
Situational Characteristics
(Deering & Jacoby 1974)
(Bearden & Shimp 1982)
TYPE OF RISK
Performance/Economic Risk
Social/Psychological Risk
Product Specific Risk
Perceived Risk

Figure 1

Establishing perceived risk ratings for a variety of consumer products was a major focus of the early investigations into perceived risk (Cunningham 1967; Perry and Hamm 1969; Jacoby and Kaplan 1972). Their research established that consumers do perceive a difference in risk levels among products (Perry and Hamm 1969; Zikmund and Scott 1977), and risk levels are closely related to price (Jacoby and Kaplan 1972). When decomposing overall perceived risk into risk types, the best predictors of overall perceived risk were performance/economic risk and social risk (Perry and Hamm 1969; Jacoby and Kaplan 1972). Specific types of risks were also found to be important, depending on the product characteristics (Zikmund and Scott 1977).

Investigation of brands provided information similar to the investigation of product types. It was found that consumers do perceive a difference in risk levels among brands (automobiles) and the difference in perceived risk levels is inversely related to brand preference (Peter and Tarpey 1975; Peter and Ryan 1976; Evans 1981). In addition to evaluations of overall perceived risk, research has included evaluations of key dimensions of risk as suggested by Jacoby and Kaplan. Factor analysis suggests there are two major risk dimensions: performance/economic and social/psychological.

A clear link between product features and perceived risk has not been established (Zikmund and Scott 1977), although extrinsic cues, including product warranty and positive manufacturer's reputation, have been shown to significantly reduce perceptions of product risk (Deering and Jacoby 1974; Bearden and Shimp 1982). A number of researchers have attempted to relate individual characteristics to levels of perceived risk with varying success. It was found that an interaction between self-confidence and perceived risk (Locander and Hermann 1979) and an interaction between social status and perceived risk (Capon and Burke 1980) had an impact on the amount of information a consumer would seek. There were no established links between individual characteristics and perceived risk.

Investigations of social influence on consumers in relation to perceptions of risk revealed that consumers are more open to personal influence when perceived risk is high (Perry and Hamm 1969), and they are more inclined to accept higher levels of risk when acting as part of a group or on behalf of a group (Woodside 1972).

In summary, empirical research has established that consumers perceive a difference in risk levels among brands within a product class and among product classes. The perception of risk is multidimensional, and the major dimensions are performance/economic and social/psychological risks. Extrinsic cues are used by consumers as a method of controlling perceived risk. Other relationships to perceived risk are not as clear, particularly the effects of individual and product characteristics on risk perceptions.

Criterion variables

A number of studies have focused on the effects of perceived risk on consumer behavior primarily in the areas of risk control, information search, and product evaluation. See Figure 2 for a list of these relationships.

A great deal of research has focused on behavior designed to control perceived risk (Cunningham 1967a; Roselius 1971; Derbaix 1983). Early writers, noting that the components of perceived risk were uncertainty and consequences (importance), felt the reduction of perceived risk must deal with one or both of the components (Cunningham 1967a; Taylor 1974; Lutz and Reilly 1974).

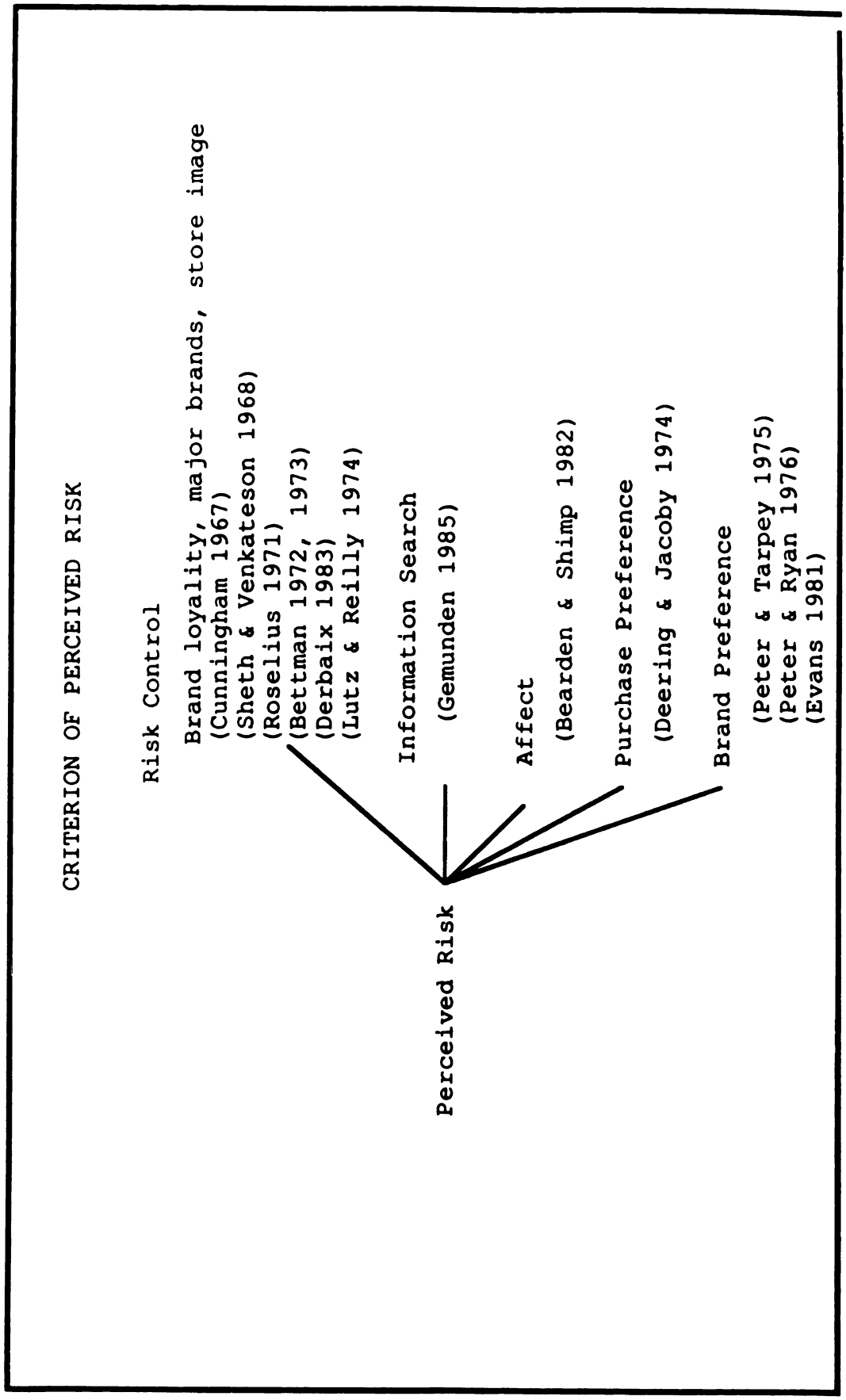
CRITERION OF PERCEIVED RISK
Risk Control
Brand loyality, major brands, store image
(Cunningham 1967)
(Sheth & Venkateson 1968)
(Roselius 1971)
(Bettman 1972, 1973)
(Derbaix 1983)
(Lutz & Reilly 1974)
Information Search
(Gemunden 1985)
Affect
(Bearden & Shimp 1982)
Purchase Preference
(Deering & Jacoby 1974)
Brand Preference
(Peter & Tarpey 1975)
(Peter & Ryan 1976)
(Evans 1981)
Perceived Risk

Figure 2

The uncertainty component, resulting from the lack of information, can be reduced by gathering information about the product under consideration (Taylor 1974; Bettman 1973). The consequence component is dependent on the amount a consumer has at stake and can be controlled only by limiting the amount at stake. Lutz and Reilly (1974) believed that the consumer had more control over uncertainty through information search than through limiting the amount at stake, and that the consumer would, for the most part, seek to reduce risk by reducing uncertainty in the purchase situation.

Empirically, Roselius (1971) found consumers preferred a variety of risk reduction strategies that varied only slightly across the types of risks faced. The most preferred risk reducing strategies were brand loyalty and buying a major, well-known brand with a good reputation. Other strategies included buying at a store with a dependable reputation, using a free sample on a trial basis, shopping and comparing, and buying a brand that had been tested and approved by a government agency.

Derbaix (1983) used Nelson's 1974 classification of products as a basis to study methods used by consumers to reduce perceived risk. Nelson's classifications include search goods, when the product qualities can be determined by inspection prior to purchase, and experience goods, when the product qualities cannot be determined until the product has been used. Derbaix's findings revealed that the best risk relievers were brand loyalty for the non-durable experience goods, money-back guarantee and store image for the durable experience goods, and shopping and comparing for search goods.

An unusually large number of researchers has investigated the link between perceived risk and information search. Gemünden (1985) has done a meta analysis of this body of research and offers some interesting insights. He reviewed 100 empirical studies and found 51 of them falsified the perceived-risk-information-search hypothesis. Thirty four of the studies confirmed the hypothesis at the $p < .05$ level or better and 15 tended to confirm the hypothesis with p between .05 and .10.

This is a remarkably high falsification rate for a relationship that is so deeply imbedded in the marketing literature. Based on his review of the 100 studies, Gemünden offers five explanations:

1. In many of the studies, perceived risk remained below a critical threshold of "tolerated risk" which would result in no motivation for information search. This was particularly true for routinized and low involvement buying tasks. There is also evidence of tolerated risk rising with task-complexity, which reduces the motivation to search for information in complex buying tasks.
2. There were cases in which perceived risk exceeded tolerated risk but was reduced by other means. Among other risk reducing alternatives, Gemünden found price-oriented quality evaluation, brand loyalty, store image, brand image, and use of information stored in memory.
3. Decision makers may perceive available information sources as not trustworthy or incompetent. When personal and independent sources of information were used, the falsification rate was low.
4. The cost of searching, storing, and processing information can be quite high and may present a barrier to information search. In some situations, the request for information may present a high social cost for the consumer.
5. The acquisition of information may actually increase perceived risk rather than reduce it. A rational buyer may wish to clarify the potential risks inherent in a purchase instead of neglecting them.
6. Perceived risk may represent a state of cognitive dissonance. It may induce a selective search for congruent information and an active avoiding of potentially dissonant information.

The bottom line in perceived risk research is relating the construct to consumers' evaluations of products and services. The research in this area has been encouraging, as it shows a significant inverse relationship between perceived risk and affect.

An interesting study by Deering and Jacoby (1972) formed the hypothesis that perceived risk has a non-linear relationship with product evaluations. The authors felt that variety-seeking consumers would view low risk products as boring and would tend to avoid them. At the opposite end of the continuum, the authors felt high perceived risk products would be viewed as threatening and would also be avoided. Products perceived in the medium ranges of risk would, therefore, receive the highest product evaluations.

The Deering and Jacoby study included measures of perceived risk for 20 different product classifications and a product preference rating. This is a questionable technique. Comparing perceptions of risk across product classifications and relating those perceptions to product preferences is difficult because of the large number of confounding variables that are not included. Even so, the results are interesting. There was a clear inverse relationship between perceived risk and product preference; and the non-linear relationship was not supported.

Peter and Ryan (1976) studied the difference in perceived risk at the brand level and the relationship to brand preference among automobiles. As indicated earlier, the authors separated the components of perceived risk using importance of loss as a segmentation variable and probability of loss as an indicator of brand preference. The authors argued that importance of loss operates across brands of a product class and adds little information regarding brand choice.

The results of their study revealed a significant inverse relationship between perceived risk and brand preference for the segment of subjects that found perceived risk to be important. The probability of loss (perceived risk) was not a significant predictor of brand preference in the low importance segment.

Finally, Bearden and Shimp (1982) investigated the role of

extrinsic cues - product warranty, manufacturer's reputation, and price - in new product adoption. They found significant negative relationships between perceived product warranty and perceived risk, and between perceived manufacturer's reputation and perceived risk. They also found a positive relationship between perceived price and perceived risk. When perceived risk was related to affect, the authors found a significant inverse relationship. An interesting and unexpected finding was the mediating effect perceived risk had on the relationships between the perceived extrinsic cues and affect, by reducing them to non-significant levels.

EVALUATION OF THE PERCEIVED RISK RESEARCH

Construct measure

A number of potential problems arise with the traditional model and similar operationalizations of perceived risk. First, there is no assurance that the multiplicative combining of the components of perceived risk adequately represents the cognitive algebra of the consumer (Ross 1975). Researchers, who have compared models of perceived risk, question the adequacy of the multiplicative model and provide evidence that single component models perform as well or better than the multiple component models (Bettman 1973, 1975; Peter and Ryan 1976). There is little agreement, however, about which single component model might be the better alternative. Bettman (1973) found, for example, importance of loss to have the greater explanatory power, while Peter and Ryan (1976) found probability of loss to be the better performer when relating to choice among brands. To add to the confusion, it is not always clear what the researcher is measuring. Does the probability of loss actually measure uncertainty or does it measure importance (Ross 1975)?

Second is the use of a priori, summated dimensions. Research suggests that perceived risk may be very product/service, individual, and situation specific (Zikmund and Scott 1973; Vincent and Zikmund 1976; Bearden and Shimp 1982). By having subjects respond to a fixed set of

risk dimensions, the researcher's ability to tap a broader range of potentially important dimensions is limited. Summating the dimension into an overall measure of perceived risk restricts the explanatory power of each dimension in relation to criterion variables which may vary from situation to situation.

Third, the dimensions are estimated with essentially single item measures (two components combined multiplicatively). Single item measures have a number of drawbacks including a high degree of specificity, an inability to make fine distinctions among people, a high degree of measurement error, and a low degree of reliability (Nunnally 1978; Peter 1979; Churchill 1979).

Finally, the measures typically ask the subjects how important a loss would be and how probable a loss seems. This intrusive type of questioning is likely to sensitize subjects to the concept of risk at times when they would not have considered a situation to be risky (Ross 1975). Cox (1967) addressed this concern early in the development of the perceived risk literature. He felt perceived risk could be inferred from consumer behavior, such as the use of risk reducing strategies. He believed consumers were typically unaware of feelings of risk and would be unwilling or unable to articulate these feelings if directly questioned.

Lack of consistency

A number of authors have supported and used the "traditional" model of perceived risk similar to the model formulated by Peter and Tarpey (1975; Peter and Ryan 1976; Vincent and Zikmund 1976; Bearden and Mason 1978; Dowling 1986). However, researchers using variations on this model have been more the rule than the exception.

Reviewers of the perceived risk literature (Ross 1975; Gemünden 1985; Dowling 1986) agree that the construct lacks theoretical definition, and research progress is hampered by inconsistencies in operationalization and conceptual definition. Ross (1975) found synthesis of research results to be impossible across studies. He wondered if the

studies were "really talking about the same thing."

Gemünden (1985) was concerned that the inconclusive results of his meta analysis on perceived risk and information search was influenced by the variation in risk measures. He encouraged researchers to take more care when developing risk measures by validating them with other behavioral measures. He also recommended placing a higher priority on theoretical development than on better scaling procedures.

Consistent with the conclusions of Ross and Gemünden, Dowling (1986) found no consensus among researchers about the nature of perceived risk. He found little agreement about the type of risk measures to use in a given purchase situation, and no theoretical guidance to help researchers to choose among the variety of perceived risk operationalizations.

The lack of consistency in modeling the perceived risk construct undoubtedly accounts for much of the contradictory findings and the inability to synthesize the literature as noted by Ross (1975). Researchers have tended to rely on the prescriptions of the literature when building their models and adjusting them to suit their own tastes in spite of continued criticism by others. The result is a variation in findings due to a variation in method, rather than one attributable to real differences in behavior.

III. THEORETICAL DEVELOPMENT

FOUNDATIONS FOR A MODEL OF PERCEIVED RISK

Perceived risk modeled as a mediating variable

Traditionally, perceived risk measures have been used to rate consumers' perceptions of risk among product classes and product brands. Typically, the construct has not been integrated into a theoretically defined relationship with antecedent and criterion variables. In this research, perceived risk will be modeled as perceptual meaning based on theories of abstraction. The construct will be operationalized as a mediating variable between product/service features and evaluative judgment, as shown in Figure 3. The following sections will build the logic and justification for this approach showing that the model reflects the cognitive processes of abstraction and that abstractions play a major role in forming evaluations.

Abstraction

The evaluation process that is built into the perceived risk model is supported by research in marketing and psychology. Research has shown that individuals have limited information processing capacity and can be easily overwhelmed by available product information (Jacoby, Speller, and Kohn 1974; Malhotra 1982). Studies have shown that when information overload occurs, individuals will segment information into meaningful groups by creating equivalences among non-identical stimuli (Rosch 1978). The segmenting or clustering of information serves the individual by reducing the information load and facilitates further information processing (Gati and Tversky 1982). Therefore, it is probable that consumers combine product/service features into summary concepts as a method of coping with a large volume of market information.

Traditionally, researchers have assumed a strong correspondence between memory of product/service features and evaluative judgment of the object (Bettman 1979). Research in psychology (Lichtenstein and Srull 1985) has shown that the relationships between consumer memory and

judgment are not as strong as generally believed. Storage and retrieval of product information and evaluative judgments have been found to be separate cognitive processes, making subsequent decision processes very different, depending on the information available in memory. For example, if a consumer had stored evaluative judgments about a class of products, later decisions could be made by simply retrieving and comparing the judgments. If only the facts about the product features were stored, a subsequent decision would require retrieving the facts and computing the evaluations, a far more difficult task (Lichtenstein and Srull 1985).

In general, psychological research reveals two important aspects about consumer behavior that are relevant to the proposed model. First, consumers tend to abstract information to conserve on cognitive limitations in terms of energy and capacity. Second, storing and retrieving abstractions is a separate process from storing and retrieving factual information, and there is a weak correspondence between decisions made on the basis of the two different sets of data. Consumers are therefore expected to make many of their product/service decisions on the basis of recalled perceptions which may be weakly related to evaluations of product features. On this basis, the two-stage model is a good representation of the cognitive processes and should provide a good explanation of consumer behavior.

Means-end paradigm

A stream of research pursued by Gutman and Reynolds (1978) and Gutman, Reynolds and Fiedler (1985) has produced results that not only support the abstraction process, but establish the value-laden nature of abstraction.

This research has been partially based on the means-end paradigm (Howard 1977), which links an individual's self concept to his or her behavior intentions. Gutman and Reynolds (1978) found evidence that consumer behavior is directed by centrally held values reflected in higher levels of abstraction, consistent with the means-end chain.

Reynolds, Gutman, and Fiedler (1985) found that subjects used object attributes to compare objects, but used higher levels of distinctions (values) when expressing preferences.

This research supports the concept that consumers hold perceptions of products and services in abstracted form. More importantly, however, the higher levels of abstraction tend to be value-laden. These implications recommend the measurement of abstracted perceptions as a better method of explaining and predicting preference than the measurement of feature evaluations, which is the basis of product distinctions.

CONTEXTUAL CHARACTERISTICS

Implicit in the foregoing discussion is the role played by individual and situational characteristics in the formation of perceptions. While product/service features form the basis for the perceptions of risk, risk assessments are made in the context of the individual's personal and social background (Hirschman 1979; Friedmann 1986). Following is a review of the effects of these characteristics to determine their place in the structure of a perceived risk model, beginning with the role played by individual characteristics.

The perceptual meaning of a product/service is formed from the combination of objective attributes and attributes subjectively assigned to the object based on the individual's cultural and personal experiences (Hirschman 1979; Friedmann 1986). The more the characteristics of a product allow its perceptions to be formed by idiosyncratic experiences, the more the meaning of the product varies among individuals. Services, for example, have intangible characteristics and are evaluated primarily through individual experiences (Zeithaml 1985). It is expected, therefore, that services are exposed to a high degree of subjective interpretation and have a high degree of varied meaning among individuals. To account for the varied meaning, the inclusion of a variable representing individual characteristics as a modifier is important.

Situational characteristics will have an important additional

effect on how an individual views a product/service (Belk 1975). A distinction should be made between the characteristics of a product and those of a situation. If a characteristic is lasting and a general feature of a product/service, it is a product/service characteristic. If the attribute is specific to a time and place, it is a characteristic of the situation (Belk 1974).

In examining a number of studies on the effects of the situation on consumer preference for products, Belk (1975) found the best explanation for product preference was the interaction between situation and product, and the interaction between situation and person.

Similar results were found by Srivastava, Leone, and Shocker (1981) in their study of financial services. They found the intended use for a financial service (situation) contributed greatly to the consumer's preference for various types of financial services. In fact, situation was a major determinant of market structure defining the order of competition among services.

Situational characteristics are aligned to a consumer's preference for products and services, but what about the relationship of situational characteristics and perceptions of risk? If the situational characteristics of a given transaction raise doubts in the consumer's mind about the suitability of a product/service, there will be an increase in the assessment that a loss may occur as the result of the purchase. The sense of an impending loss is the basis for the perception of risk. It is reasonable, therefore, to expect situational characteristics to influence the perceptions of risk. To control for their effects, situational characteristics should be included as a modifier of perceived risk, in addition to individual and product/service characteristics.

THE PERCEIVED RISK MODEL

Model design

A theoretical structure is needed to model the perceived risk construct as a mediating variable between the consumer's environment and attitude formation. This structure should allow for an examination of the elements leading to a heightened or lowered sense of risk and the effect a sense of risk has on evaluative judgment. A model patterned after Holbrook's (1981) "Integrative Model of Evaluative Judgment" is proposed to represent this theoretical structure. The perceived risk construct will become a mediating variable between the objective features of a product or service and the evaluation of the object. See Figure 3 for a diagrammatic representation of this model.

It is not intended for the model to maximally explain changes in evaluation. Only "perceptions of risk" are being modeled as antecedents to evaluation. There are certainly many other variables that could be considered (Cox 1967; Cunningham 1967). It is expected, however, that the construct will play a major role in attitude formation (Peter and Ryan 1976; Bearden and Shimp 1982), particularly for high involvement purchases (Chaffee and McLeod 1973; Rothchild 1979), and when the perception of risk is high (Cox 1967; Bettman 1972, 1973).

The first stage of the model is the psychophysical relationship (Holbrook 1981) linking the objective features of the object being evaluated to perceptions of the object. In this case, the perceptions will be perceived risk. The first link also includes contextual variables consisting of individual characteristics (age, education, income) and situational characteristics (purpose for the investment) modeled as moderators to perceptions.

The second stage of the model relates perceptions to evaluations forming the investor's attitude structure (Holbrook 1981). Evaluation is modeled as a function of perception similar to a multiattribute model.

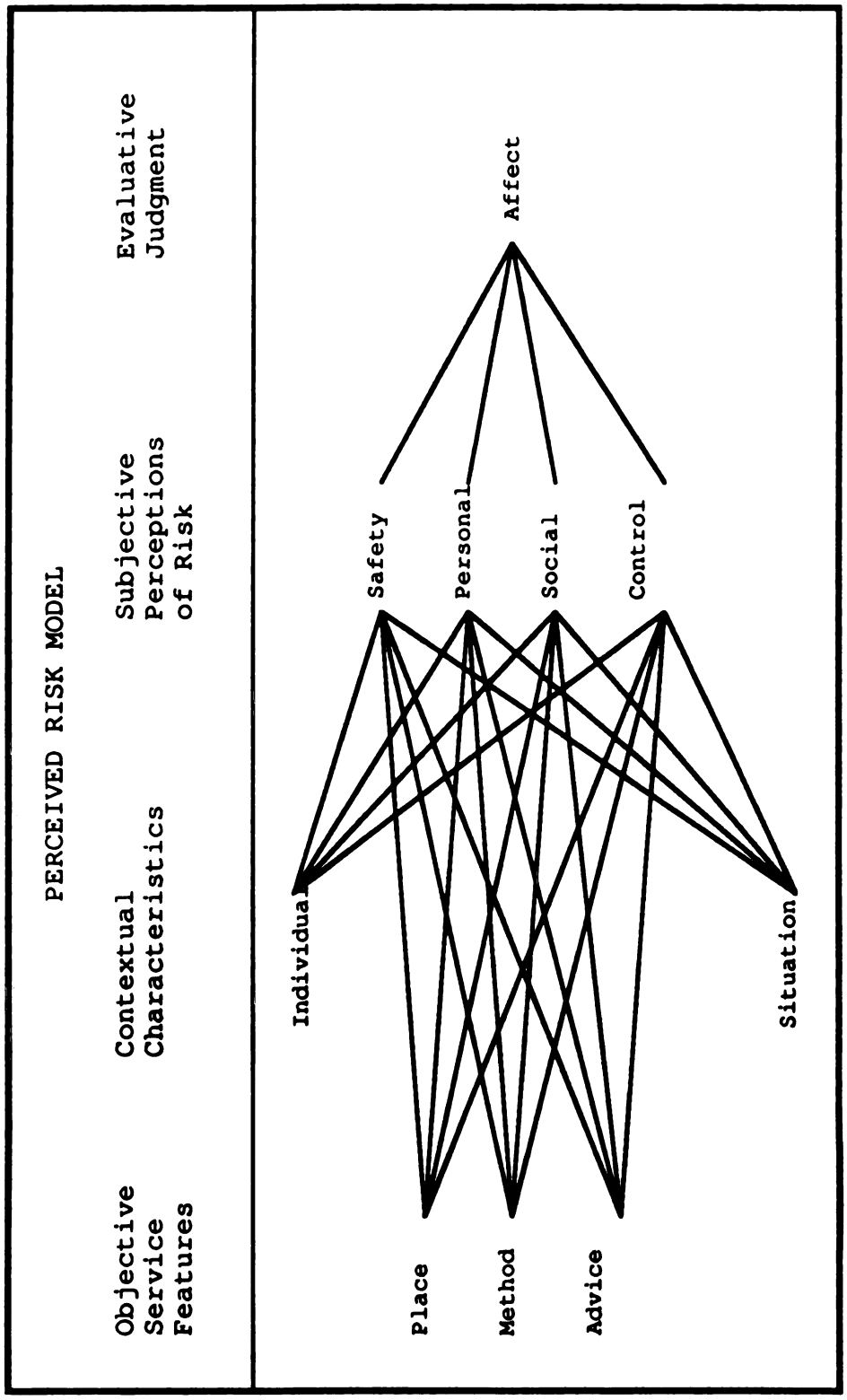
PERCEIVED RISK MODEL
Objective Service Features
Contextual Characteristics
Subjective Perceptions of Risk
Evaluative Judgment
Individual
Place
Method
Advice
Situation
Safety
Personal
Social
Control
Affect

Figure 3

Traditional consumer attitude models

Traditional consumer attitude models have contributed successfully to marketing practice and theory (Green and Wind 1975; Green and Srinivasan 1978; Holbrook 1981; Bagozzi 1984), but limitations of the traditional models suggest the proposed two-stage model will offer additional explanatory and predictive power. Attitude models generally fit into one of two categories, compositional or decompositional. The multiattribute model developed by Rosenberg (1956) and Fishbein (1967) typifies the compositional model and has made important contributions to consumer research (Bagozzi 1984). The multiattribute model is generally the summation of beliefs about the outcomes of an activity times the evaluation of the outcomes. The score is indicative of the overall attitude toward performing the activity (making a purchase).

The multiattribute model is comparable to the second stage of the proposed two-stage model in that it relates perceptions to evaluative judgment. The shortcoming of the multiattribute model is its inability to relate the product/service features to the perceptions formed about the product/service features.

The second category of attitude models, decomposition, is typified by conjoint analysis. This model starts with an overall product evaluation composed of experimentally manipulated features drawn from a factorial design. The utility values (part worths) of the features are inferred from the evaluations of the products or concepts. Conjoint analysis is used to determine the values by using statistical routines such as dummy regression and monotonic analysis of variance (Green and Rao 1971). In practice, conjoint analysis usually links evaluative judgment with product features (Green and Wind 1975; Green, Carroll, and Goldberg 1981), although it has been suggested that links between perceptions and product features could be made with this analysis (Green and DeSarbo 1978). Whether product features or perceptions of product features are used, the decompositional model faces the same trade-off disadvantages that were discussed for the multiattribute model. There

is no integrated link between product features, perceptions of the product, and evaluative judgment.

The two-stage model combines the strengths of both the compositional and decompositional models by decomposing the perceptual meanings of a product/service into the antecedent features and combining the perceptual meanings into an overall evaluation. The trade-off for the two-stage model is that it gives up the parsimony of the previously discussed attitude models. This trade-off is worthwhile when evaluating products/services that tend to be involving, complex, or risky because of the greater depth of the analysis.

Previous use of the two-stage model

Two-stage formulation has been used in previous research to link objective product/service features, perceptions, and evaluations (Tybout, Hauser, and Koppelman 1978; Reibstein, Lovelock, and Dobson 1980; Holbrook 1981). In their study of public transportation, Tybout et. al. (1978) related the perceptions of public transportation to consumer usage of the transportation system, and found that perceptions played a significant role in explaining consumer behavior. Reibstein et. al. (1980) also found a relationship between perception and evaluative judgment in their study of the choice of transportation modes. Holbrook (1981) used the two-stage model to study aesthetic preferences among piano performances. His research question was whether a subject's aesthetic perceptions of piano performances play an intervening role between the objective features of the music and his evaluative judgment of the music. The results of the research answered the question in the affirmative - perceptions do play a significant intervening role. Holbrook's study is one of the few efforts to form the complete feature, perception, and affect link.

RESEARCH HYPOTHESES

The foregoing discussion of perceived risk and a theoretical structure suitable for modeling the construct gives rise to a number of rela-

tionships that can be tested empirically. Four relationships are developed in the next sections and formed into hypotheses for empirical verification. The relationships are also modeled in a two-stage model of perceived risk, as illustrated in Figure 3.

Product/service features

When questioned about the risk levels of products, consumers are able to make distinctions among product classes (Cunningham 1967; Perry and Ham 1969; Zikmund and Scott 1977) and among product brands (Peter and Tarpey 1975; Peter and Ryan 1976) on the basis of perceived risk. The basis for variations in perceived risk is thought to result from product features described as value (Jacoby and Kaplan 1972), newness, complexity, and product life (Zikmund and Scott 1977).

The summing of product/service features into perceptions of risk is consistent with research in psychology where researchers have found that individuals abstract environmental features in order to cope with the volume of data available (Gati and Tversky 1982). Additionally, there is a tendency to store the abstractions as product evaluations (i.e., perceptions of risk) for ease of recall and facilitating future decisions (Lichtenstein and Srull 1985).

Perceived risk, acting as an abstraction of environmental information, is expected to be influenced by product/service features as reflected in the first stage of the perceived risk model.

H1: Objective product/service features, singularly or in combination, will influence the level of perceived risk attributed to the product/service as a whole.

Contextual characteristics

While product/service features form the basis for the amount of risk perceived by an individual, the risk assessments of features are made in the context of the individual's personal and social characteristics (Hirschman 1979; Friedmann 1986) and the situation in which the product/service will be used (Belk 1975; Srivastava, Leone, and Shocker 1981). Various levels of individual and situational characteristics are

expected to modify the levels of perceived risk formed from the product/service features. The individual and situational characteristics are presented as contextual characteristics in the first stage of the perceived risk model.

H2a: Individual characteristics will modify the level of perceived risk associated with a given set of product/service features.

H2b: Situational characteristics will modify the measures of perceived risk associated with a given set of product/service features.

Affect

Perceived risk research, focusing primarily on product evaluations, has established that individuals are able to classify products on the basis of perceived risk (Cunningham 1967; Deering and Jacoby 1974). The ability to distinguish among products has been related to preference by manipulating extrinsic cues (Bearden and Shimp 1982) and varying product brands (Peter and Tarpey 1975; Peter and Ryan 1976). The results have shown that individuals prefer products and brands associated with low levels of perceived risk. Services, being intangible in nature, are difficult for a consumer to evaluate prior to purchase and use (Zeithaml 1981). Difficulty with pre-purchase evaluations is expected to lead to high levels of perceived risk associated with service transactions (Guseman 1981; George and Kelly 1983) and make evaluation of services subject to the same inverse relationship as products.

H3: Perceived risk will have an inverse effect on the evaluation of a service.

Perceived risk as a mediator

For reasons discussed in the section on product/service features, individuals have a tendency to store information in the form of perceptions. Storage and recall of perceptions have been found to be a separate process from the storage and recall of features (Lichtenstein and Srull 1985). Furthermore, the correspondence is low between product evaluations based on recall of abstractions and product evaluations based on recall of features (Lichtenstein and Srull 1985). Abstractions

reflect evaluations in the form of perceptual meaning (Hirschman 1979; Friedmann 1986), and the higher the abstraction, the more it reflects centrally held values (Reynolds, Gutman, and Fiedler 1985). It is expected that the perceptions of product/service features will reflect the transformation of the features into perceptual meaning, which will in turn form the basis for evaluative judgment. This is reflected in the perceived risk model, where the construct is modeled as the mediator variable between product/service features and evaluative judgment. The resulting hypothesis is:

H4: The direct effects of product/service features on evaluative judgment will be significantly different from the total effects.

IV. METHODOLOGY

FOCUS OF THE DISSERTATION

The review of the perceived risk literature has established that perceptions of risk play an important role in influencing consumer behavior. The major difficulties faced in the research of perceived risk have been the development of a valid measure of the perceived risk construct and the establishment of nomological relationships with antecedent and criterion variables.

This section of the paper will address these issues, beginning with the construct measure. The measures of risk will be drawn entirely from subjects' expressions of concern about investing. Dimensions will be developed through the interaction of subjects with stimulus objects. Validity will be tested by relating the perceived risk measures to variables, independent of the construct, that have a relationship to perceived risk based on prior research.

Once the validity of the perceived risk measure has been established, the nomological relationships of the perceived risk construct will be addressed. This will be done by developing a theoretical structure that will model perceived risk as perceptual meaning and relate the construct to antecedent and criterion variables as a mediator variable.

Achieving these objectives will provide an understanding of how consumers interpret product/service features and relate their interpretations to overall evaluations. This understanding can be a valuable marketing tool when used for designing products and services and developing promotional programs.

CONSTRUCT MEASURE

Definition and domain

A concise definition of a construct is essential to insure the development of valid measures of the construct (Churchill 1979). The Webster

Encyclopedic Dictionary's definition of risk is "an exposure to the chance of loss." Three important implications are to be drawn from this definition. First is exposure to the risk. A loss may occur in an individual's environment, but if it has no effect on the individual there is no risk (MacCrimmon and Wehrung 1986). Second, risk is an uncertain event. For example, if an individual is certain a loss will occur, there is no risk involved. Third, the chance of a loss occurring is necessary. If an individual has nothing at stake, there is no risk taken.

Decision theorists have defined risk as the probability that a given loss will occur (Dowling 1986). This is the negative portion of expected outcome. Expected outcome is the probability that an outcome will occur, times the value of the outcome, summed over all probability/outcome combinations (MacCrimmon and Wehrung 1986). The decision theorists' definition of risk makes two vital assumptions: the probability distribution is known and the outcomes are known.

Consumer behaviorists define risk as the subjective probability that a subjective loss may occur. The major difference between decision theorists and consumer behaviorists is that consumer behaviorists assume that probability of loss and consequences of loss are not known. The consumer behaviorists' risk is correctly called perceived risk but retains the decision behaviorists' format of uncertainty times consequences, which relies on known distributions and outcomes.

In this research, the definition of perceived risk which was used to develop the construct measure followed the consumer behaviorists' concept: a subjective probability of a subjective loss. For measurement purposes, however, the emphasis was changed from asking a subject to convert feelings of concern into measures of subjective probabilities and subjective consequences, to developing perceptual measures designed to capture the investor's full range of concerns. The methodology relied on psychometric principles. The form of the measure was multiple item scales that formed the construct through weighted summations of scale ratings.

The empirical validation of the perceived risk measure was performed in the financial industry using various forms of financial investments as stimulus objects. This format was chosen, in part, because of the substantial risk usually associated with investing behavior and the opportunity to alter the risk levels of stimulus objects without materially changing the nature of the concept. For example, a consumer has a range of investment alternatives available on most investment occasions. At the low risk end of the scale is the savings account which is government insured, convenient, and flexible. At the high risk end of the scale is a common stock which is costly to buy and sell, unpredictable, and less convenient to transact than a savings account.

The domain of the perceived risk construct was the perceived risk experienced by individuals considering a financial investment. Perceived risk occurs as the result of an individual's concern about the chance of a loss or combination of losses occurring when making a financial investment.

Semantic differential scales

Semantic differential scales were chosen as the method for measuring the perceived risk construct because of their sensitivity to perceptual meaning, flexibility for measuring a variety of stimulus objects, and ability to capture construct dimensionality.

Semantic differential scales had been developed by Osgood (1952) as a way of observing and measuring the psychological meaning of things and concepts in "semantic space." Osgood observed that this procedure is well suited for measuring concepts because concepts depend on the shared meanings of words for their definitions. Perceived risk, a concept of product/service performance, fits well into the category of meaning as Osgood defined it.

Individuals often express the characteristics of concepts and physical objects in terms of adjectives. Using this natural inclination, it is possible to capture the perceptual meaning of concepts and objects by

having subjects rate stimulus objects on the basis of descriptive adjectives. Most adjectives have a logical opposite, and if one does not exist, the opposite can usually be created with the prefix "un" or "in." Adjectives that are opposite in meaning provide a clear perceptual direction for a subject to rate a concept or object. By separating the adjective pairs with a space marked in equal intervals, the strength of the subject's response can be recorded. Thus, a semantic differential scale measures both the direction and the strength of the subject's perceptual meaning of a stimulus object (Green and Tull 1978; Nunnally 1978).

One of the strong advantages for using semantic differential scales to measure perceived risk is the flexibility they offer (Nunnally 1978). A set of bipolar adjectives can be found to measure any concept. Once a measure has been developed, it can easily be applied to other concepts as long as the adjective pairs are logically descriptive of the new concept to be measured. This aspect is appealing for the measure of perceived risk, since the construct can be used to evaluate a number of stimulus objects.

The literature supports the multi-dimensionality of the perceived risk construct. Because semantic differential scales make it possible to measure varying shades of meaning, this method supports the exploration of the dimensionality of perceived risk (Nunnally 1978). Furthermore, the dimensionality can be developed from the subjects' responses rather than having subjects respond to a priori dimensions of risk, as with the more traditional measures.

Content validity

Once the domain of the construct had been defined, items for the multi-item, semantic differential scales were generated to reflect the domain. To insure reliable representation of the domain, two methods were employed, focus group interviews and a word association survey.

The participants of the focus group interviews were drawn randomly

from a metropolitan area and were screened on the basis of: 1. household financial decision maker; and 2. household liquid assets[1] of $3,000 or better to insure that participants had some experience in handling financial investments. Four groups were formed with approximately twelve participants in each group. The participants were assigned to groups on the basis of gender and liquid assets, with the asset screening point at $15,000. A group, for example, consisted of females with liquid assets greater than $15,000 or males with liquid assets less than $15,000. Assignment of participants into groups was to guard against dominance of one gender over another or of a high asset group over a low asset group.

The participants were given two assignments. First, they were asked to discuss experiences they may have had with investing, good and bad. Second, they were given the assignment to decide on an appropriate investment for a hypothetical savings, and then to make their recommendations to the group, including suggesting investments to avoid and why.

The word association test was based on Friedmann's (1986) survey for stimulus-bound associations and was given to approximately sixty graduate students. The stimulus objects were chosen to represent financial investments with a range of risks from safe to fairly risky. The subjects were asked to write the words or short phrases that came to mind as they considered investing in each of the stimulus objects.

Recordings of the focus group interviews and the results of the word association surveys were reviewed for expressions of concern when considering a financial investment. The expressions were listed as adjectives and adjective phrases and paired with their antonyms. To insure adequate coverage of the domain, 174 adjective pairs were obtained.

The face validity of the adjective pairs was tested by having ten

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1 Household liquid assets include cash, bank deposits, and securities that can be readily liquidated.

judges rate them. The basis for ratings was made on a five point scale, which indicated whether or not the scales appear to be measuring what they are intended to measure. To ensure reliable results, the judges chosen had an understanding of both the testing procedure and the subject matter being investigated. The ratings were tested for internal consistency. Forty of the top rated scales were then selected to form the initial perceived risk measure.

Internal consistency

The surviving items were submitted to a convenience sample of approximately 200 evening MBA students to test for internal consistency and dimensionality. Evening MBA students were used because they are generally older than day students, and have had more experience with financial investing.

The subjects were asked to rate three stimulus objects - savings accounts, corporate bonds, and mutual funds - using the perceived risk scales. These stimulus objects had been chosen because they are common forms of investments and they represent a range of objective risks faced by investors.

While rating the stimulus objects, the subjects were given a scenario to follow. They were told that they have an extra amount of money in their checking account, that they want to invest it for approximately one year, and to spend the money for a specific purpose at the end of the period. The subjects were asked to rate the stimulus objects on the basis of their feelings toward them as investment alternatives for the suggested purpose.

The results of the survey were factor analyzed for each stimulus object to determine what dimensions, if any, exist. The emerging dimensions were then compared across stimulus objects. Scale items found to form common dimensions across stimulus objects were retained. This screening of scale items is done to insure the measurement of common dimensions across stimulus objects.

The retained scale items were tested for internal consistency by

determining the coefficient alpha for each dimension, coefficient alpha if item is deleted, and item to total correlation. Dimensions not attaining a coefficient alpha of .70 or better (Nunnally 1978) were examined for re-working or dropping. Scale items making a significant negative contribution to the dimension coefficient alpha and achieving a low item to total correlation were examined for re-working or dropping.

The scale items, which were retained after tests for internal consistency, were examined for congruency. The tests for congruency included coefficient of congruence and root mean square (Harman 1967; Rummel 1970). Upon establishing congruency, the data were combined and submitted to confirmatory factor analysis restricting each item to one factor to test for unidimensionality (Gerbing and Anderson 1988). Items found to be influenced by multiple factors were removed. The remaining items were tested for reliability to insure that the results were not due to random error.

Test for stability

A test of the purified scales' stability over time was made using the test-retest reliability method. A convenience sample of masters students was asked to rate two investment objects using the new scales. The test was repeated in two weeks using the same set of scales and the same sample. A straight test-retest often shows inflated reliability (Peter 1979) due to memory effects. This was unavoidable in this case because an alternative form was not available.

Construct validity

At this point the purified scales should have the qualities of content validity, reliability, and unidimensionality. The next step was to assess construct validity to determine whether the measures are actually capturing the construct, perceived risk. Validation tests were made using a sample of 200 adult members of community service clubs.

Validation tests made use of the relationships perceived risk formed with other constructs and behaviors. Prior research has identified a number of variables which will be reviewed below and were used

for validation testing. Achieving the expected relationships through testing provides evidence that the measures represent the perceived risk construct, construct validity. The following constructs and behaviors were used in the validation tests:

1. Affect: Research relating perceived risk to product preference has consistently found an inverse relationship (Peter and Tarpey 1975; Peter and Ryan 1976), i.e., individuals tend to prefer brands they rate low in perceived risk. Other research has found the same inverse relationship between perceived risk ratings and product evaluations when variations were made in extrinsic cues about the product (Bearden and Shimp 1982).

   The relationship between perceived risk and affect were used as a test for validity. Measures of affect (evaluative judgment) were drawn from psychology (Osgood, Suci, and Tannenbaum 1957; Russell and Mehrabian 1977). Subjects used the affect measure and the new scales to rate investment objects. A negative relationship between these measures, both across objects and across subjects, provided evidence for construct validity.

2. Involvement: Research in the area of product involvement reports a concurrent relationship between involvement and perceived risk (Chaffee and McLeod 1973; Rothchild 1979). A threshold level of involvement is thought to be required, however, before perceived risk becomes a factor (Rothchild 1979). Once the threshold level has been achieved, higher levels of perceived risk lead to higher levels of involvement (Chaffee and McLeod 1973). If the threshold level is not reached, higher levels of perceived risk may lead to lower levels of involvement.

Measures of involvement developed by McQuarrie and Munson (1987) were used in the second validation test. These were felt to be appropriate measures because they were carefully validated, and a financial service (credit cards) was used in the validation process. As with affect, the subjects rated investment objects using the involvement scales and the results were compared to the ratings obtained with the new perceived risk scales. A significant relationship was expected but the sign of the relationship was not determinable.

3. Risk Control Methods: If risk control methods popular with investors can be identified, they would provide an excellent test for construct validity. The perceived risk literature provides some guidance. Favored risk control strategies for purchases of products have been brand loyalty, major brands, and store reputation (Cunningham 1967; Sheth and Venkatesan 1968; Roselius 1971; Bettman 1972, 1973). Information search is often cited as a risk control method (Cunningham 1967; Taylor 1974), although results of research have been equivocal (Gemünden 1985), which may be due to the research method more than the relationship being tested. Research in the area of finance has found a risk return relationship (Weston and Copeland 1986): Investors are willing to accept a lower rate of return for a safer investment.

   Drawing from this research, the following risk control methods were used:

   A. The subject's willingness to purchase expert advice.

   B. The subject's interest in using a full service broker at a higher brokerage fee.

   C. The subject's interest in subscribing to financial news about the proposed investment.

D. The subject's willingness to trade a lower interest rate for higher security.

Subjects' ratings of agreement or disagreement with statements reflecting these risk control methods were compared with the new scales' ratings. Positive relationships were expected, indicating that high risk ratings are associated with the desire to invoke risk control methods. As with involvement, there may be a problem of threshold level. Gemünden (1985) felt that one of the reasons for the lack of relationship between perceived risk and information in his meta analysis was that perceived risk remained below the "tolerated level" in many of the studies.

4. The final test compared the new scales' ratings with the traditional scales' ratings. Scales patterned after the Peter and Tarpey (1976) model, including the dimensions of financial, performance, social, and convenience risk were used to rate the investment objects.

Using the two methods to evaluate two objects forms the basis for testing convergent and discriminant validity. For convergent validity, a highly positive relationship between the two sets of ratings is expected when the same object is being rated. For discriminant validity, relationships between the two sets of ratings are expected to have less strength when different objects are being rated, provided the objects represent significantly different levels of perceived risk.

If, in an empirical study, a number of the above relationships achieve the expected associations, evidence for construct validity exists.

ESTIMATING THE PERCEIVED RISK MODEL

Service features

Estimating the perceived risk model began with the development of the service features to be analyzed. The objective of the first stage of the model is to define the relationship between the service features of interest and the dimensions of the perceived risk construct. The approach to defining this relationship was patterned after the decompositional technique of conjoint analysis.

In conjoint analysis, the value a consumer places on individual product/service features is inferred from his or her overall evaluation of the product concepts (Green and Srinivasan 1978). The process requires developing a set of pre-specified product/service concepts in terms of the features that are to be evaluated. The task of the researcher is to find the importance weights or part worths that are most consistent with the consumer's overall evaluations of the product/service concepts.

Normally, the analysis is based on a linear compensatory estimation process, even though there is evidence that consumers use more complex decision rules such as lexicographic or conjunctive or a combination (Wright 1975). The linear compensatory method has been found to produce results closely approximating the outcomes of other types of decision rules. This is particularly true when preference functions are monotonic and there are errors in the measurement of attribute levels (Green and Srinivasan 1978). These conditions apply to the proposed perceived risk model supporting the use of the linear compensatory estimation procedure.

The dependent variable in the first stage of the proposed model is perceptions of risk measured at the interval level. With interval dependent variables, dummy regression is the preferred method to use to estimate the importance weights (Green 1974; Green and Srinivasan 1978).

A conjoint analysis project usually consists of asking the consumer either to rank order the product/service concepts or to rate them on a

preference scale. The perceived risk model deviates from the common practice by using perceived risk ratings as the dependent variable. Conjoint analysis has been recommended from time to time as an analysis of perceptual variables in addition to evaluative judgment (Green and Wind 1973; Green and DeSarbo 1978). Green and DeSarbo (1978) demonstrated the use of perceptual variables with good results in an analysis of perceptions of similarities between vacation alternatives.

The product/service concepts evaluated were methods of ordering mutual funds. The features tested were: 1. place of purchase (bank or securities dealer); 2. method of purchase (by phone or in person); and 3. advice (with or without).

Mutual fund concepts were formed from combinations of the features. For example, a concept might include a mutual fund that is purchased at a bank, ordered in person, with advice. Eight concepts are required to represent all combinations of the three features with two levels each, for a full factorial design. Developing a full factorial design is important because it provides for the systematic evaluation of all main effects and all interaction effects (Winer 1971). Evaluation of the concepts was done by having subjects rate them using perceived risk and evaluative judgment scales. The ratings became the dependent variables discussed above.

Hierarchical regression

At this stage of development, all of the relevant variables for the perceived risk model - service features, contextual variables, dimensions of perceived risk, and evaluative judgment - have been identified and measured. The next step tested the hypotheses proposed in the Theoretical Development Chapter by estimating the model's parameters.

The data used to estimate the model came from a sample of 200 subjects drawn at random from a large Midwest metropolitan area. The subjects were asked to evaluate the eight service concepts using the newly developed perceived risk scales and evaluative judgment scales. The contextual variables were quantified from the subjects' demographic data

and their assignment to one of two investment situations.

The model's parameters were estimated using a three stage hierarchical regression procedure as suggested by Alwin and Hauser (1975) and Holbrook (1981). This procedure is particularly well suited for testing the mediating role hypothesized for the perceived risk construct. Additionally, this procedure allows for the testing of interactions between service features and the testing of non-linear relationships if they are suspected. The test for mediating variables, which uses a simplified version of the perceived risk model, is described in Appendix A.

The first stage of the procedure regressed evaluative judgment on the exogenous variables: service features, individual characteristics, and situational characteristics. The standardized coefficients of regression give the total effects of the exogenous variables on the dependent variable. Significant main effects for at least some of the service features are required to support testing of the model. If no main effects are found, there are no relationships between the service concepts and the dependent variables, and all of the hypotheses of the Theoretical Development Chapter - stated in the null form - would be supported. When significant main effects are found, testing can proceed to the second stage.

Evaluative judgment was then regressed on the dimensions of perceived risk as well as the exogenous variables. The standardized coefficients of regression provide estimates of the direct effects of the exogenous variables on evaluative judgment partialed for perceived risk. The estimate of the direct effects of the exogenous variables on evaluative judgment provide the basis for testing H4 (the dimensions of perceived risk will act as a mediator between the exogenous variables and evaluative judgment). Total effects of the exogenous variables obtained in the first stage were compared with the direct effects obtained in the second stage. When perceived risk serves as a mediator variable, there is a significant change in the value of the parameters.

Next the direct effects between perceived risk and evaluative judgment were considered. H3 is supported when there is a significant negative relationship, which indicates that high levels of perceived risk lead to lower levels of evaluative judgment.

Finally, perceived risk was regressed on the service features and contextual characteristics, including tests for interactions between service features. When interactions are negligible, significant main effects support H1, H2a, and H2b, indicating that the service features combine to form the risk perceptions as modified by the contextual characteristics. Significant main effects for the contextual characteristics have important implications for marketing, including segmentation strategies.

Empirical Verification

The next step of the research was the empirical testing of the conceptual and theoretical relationships which have been developed in this chapter. The research proceeded through four steps of empirical verification as outlined in Table 4-1. In the following analysis chapter the results of empirical surveys will be presented and discussed following the outline of Table 4-1.

Table 4-1

THE FOUR STEPS OF EMPIRICAL VERIFICATION

Step 1 Item Generation

1. Focus group interviews
   A. Four interviews
   B. Eight to twelve participants per interview
   C. Participants: Drawn randomly from the Detroit Metropolitan area
2. Word association survey
   A. Forty-one subjects
   B. Subjects: Students in an evening master's level marketing management class
3. Judging by experts
   A. Ten judges
   B. Judges: Members of marketing faculties, and senior marketing and finance Ph.D. students of three Midwest universities

(Table 4-1 continued)

Step 2 Reliability

1. Internal reliability survey
   A. Two-hundred-thirty-eight subjects
   B. Subjects: Students in evening MBA marketing and finance classes in four Midwest universities
   C. Tests: Made for factor congruency, unidimensionality, and internal consistency
2. Test-retest reliability
   A. Ninety-five subjects
   B. Subjects: Students in MBA marketing classes in a Midwest university
   C. Tests: Made for temporal stability

Step 3 Construct Validity

1. Subjects: 203 members of community service clubs
2. Validation testing
   A. Affect
   B. Involvement
   C. Risk control methods
3. Comparison testing
   A. Traditional scales
4. Analysis
   A. Across subjects
   B. Across objects

(Table 4-1 continued)

Step 4 Nomological Validity

1. Survey
   - A. Two-hundred-fifteen subjects
   - B. Subjects: Selected randomly from the Detroit Metropolitan area
2. Survey design and procedures
3. Results
   - A. Empirical verification of the perceived risk model
   - B. Hypotheses testing

V. ANALYSIS

The Methodology Chapter detailed the procedures for developing and validating a measure of perceived risk and then suggested a theoretical structure for relating the construct to its antecedent and criterion variables. The next phase of the research is to empirically test the relationships developed in the Methodology Chapter. The results of the empirical tests will be reported in the current chapter as the four steps of empirical verification outlined in Table 4-1.

CONTENT VALIDITY

Focus Groups

The first step of the research, as shown in Table 4-1, started with focus group interviews. The interviews were used to learn the types of concerns investors have when they consider making an investment. The interviews were used to build content validity into measures by drawing the initial set of items from comments made by users of the service. The participants in the interviews were asked to discuss their experiences with investing, emphasizing the concerns they had realized. Their expressions of concern then became guidelines for developing a set of investor based adjective pairs to be used as semantic differential scales.

Four focus group interviews were conducted during November 1987. There were eight to twelve participants per group. The characteristics of the participants matched those outlined in Chapter 4. Interviews lasted approximately 90 minutes, were tape recorded, and reviewed at a later date.

Table 5-1

INVESTMENT CONCERNS	
Classifications	Expressions
1. Safety	A safe bet/A gamble
2. Control	Available/Unavailable
3. Personal Ability	
A. Understanding	Understandable/Puzzling
B. Means	Attainable/Unattainable
4. Performance	
A. Amount	High return/Low return
B. Reliability	Reliable/Unreliable
5. Personal Effort	
A. Understanding	Easy/Difficult
B. Monitoring	Convenient/Inconvenient
6. Social	Modern/Obsolete

Concerns about investing were identified and grouped according to similarities, resulting in six major classifications and six sub-classifications. A list of the classifications and representative adjective pairs are presented in Table 5-1.

The fear of losing all or part of invested principal was the most prominent concern observed. This concern was expressed as: "Investing in stocks is like gambling"; "I invest only what I do not need"; and "I cannot recover from a securities loss because of limited income."

Five additional expressions of concern were identified, though less prominent than the concern about safety. The first was the concern for the loss of control of invested funds. This was evinced by the perceived need for liquidity, i.e., "What would happen if I had a large expense and my funds were tied up?" Second was the individual's concern about his or her ability to make a financial investment, due either to a lack of understanding of the investment process or the financial inability to make the investment. The concern about understanding was expressed as a need for information or advice. The concern about financial inability was articulated through feelings that the participant was not a big enough investor to participate in the securities market.

Third was the concern about the time and effort required to understand and monitor an investment. Several participants felt the effort to gain sufficient information to fully understand an investment was a major factor that deterred them from investing in securities. Others were concerned about the amount of time required to monitor a security to insure that an investment remains safe. Fourth was the concern about the performance of an investment. While similar to safety, this concern had a distinct meaning for many of the participants, particularly those who were retired and depended on investments for income.

Finally, several participants expressed concerns about the social acceptability of an investment. This concern was expressed by questions about how modern and up-to-date a particular investment is or what an individual who is important to the participant would think of the investment.

Word Association

A word association test was given to 41 students in an evening master's level advertising class to augment the focus group studies. The average age of the subjects was 28 years, 57% reported incomes over $30,000, and most were engaged in professional careers. All of the subjects reported money in a savings account, 33% had invested in a certificate of deposit, 24% had invested in a government bond, and 47% had invested in a mutual fund.

The test consisted of four sheets of paper with a stimulus word at the top of each sheet. The stimulus words were four types of investments: savings account, time certificate of deposit, corporate bond, and mutual fund. A series of short blank lines followed the stimulus word. Each subject was given a test set with instructions to write as many adjectives as came to mind describing his or her feelings about investing in each type of investment. One minute was allowed for each stimulus. The subjects produced 247 different nouns and adjectives, of which 35.8% were expressions of concern about the investment or the

investment process.

The words that expressed concern were classified into the six categories developed from the earlier focus group interviews. These words were supplemented with additional words and short phrases observed in the focus group interviews.

The words and phrases were then matched with their antonyms drawn from the word association survey, the focus group interviews, and from a thesaurus. After screening the list for duplicate and nonsense words, a list of 137 pairs of words and short phrases was prepared for reliability and validation testing. The first test, performed by expert judges, was for content validity.

Judging

If a measure has content validity, the items making up the measure will appear to represent the domain of the construct (Churchill 1987). To determine which of the items in the proposed list most represents the concerns an individual has about investing, the list was given to ten experts or judges for evaluation. The judges were chosen on the basis of their familiarity with both semantic differential scales and financial investments. The ten volunteers were professors or senior doctoral students in the marketing or finance department of a major Midwest university.

The judges were given the list of 137 adjective pairs, a five point rating form, and a brief description of the six concerns expressed by the focus group participants. They were asked to rate each adjective pair, from good to poor, based on how well the item reflected the category in which it was placed. A sample of the packet sent to the judges is included in Appendix B.

Nine judges returned completed forms. The internal consistency among the judges was high, as evidenced by a standardized item alpha of .79 (Nunnally 1978). Table 5-2 includes the item to total correlation

for each of the judge's ratings, and the alpha coefficient if a judge's ratings are omitted. Both evaluations support a high degree of internal consistency among the judges.

Table 5-2

JUDGES' RELIABILITY

Judge	Item/Total Correlation	Alpha if Item Del
1	.458	.762
2	.539	.758
3	.531	.757
4	.416	.768
5	.478	.765
6	.505	.759
7	.426	.767
8	.431	.767
9	.516	.754
Coefficient Alpha		.793

The judges' ratings were used to select the adjective pairs with the highest content validity - they appear to measure what is intended to be measured. The seven adjective pairs which had the best ratings for each category, providing the rating was better (lower) than the mean rating of 2.80, were selected. Seven items for each category were felt to be required to allow for future shrinkage and to leave enough items to capture the meaning of the category (Nunnally 1978; Churchill 1984). Using this method did not produce seven items for each category. Four items with ratings as high as 3.00 were added, and in some cases revised, to reflect the sentiment of the judges. The final list contains 40 items appearing to represent the domain of interest, consisting of seven items for each category except for performance, for which only five items could be identified. This list may be seen in Appendix C.

The evaluation now turns to sorting through the items to select

those that would provide the most reliable measure of the construct i.e., items that are free of random error and yield consistent results (Peter 1979).

RELIABILITY

Survey Design

Evaluating the newly developed 40 items for reliability and dimensionality was the focus of the second step of the research depicted in Table 4-1. This process began with a survey given to 238 subjects who were evening MBA students selected from four Midwest universities. A convenience sample of evening MBA students was felt to be acceptable because of their maturity in age and experience with handling savings. The survey was given during the subjects' normal class period. Two hundred thirty usable forms were obtained.

The subjects were asked to evaluate three stimulus objects - a savings account, a corporate bond, and a mutual fund - as vehicles for a hypothetical investment. The investment was for a significant amount of money (say $10,000), for one year, and was then to be withdrawn for a particular purpose. The objects were chosen because they are common investment forms and familiar to most individuals. The subjects' investing experience was as follows: 95% had a savings account, 20% had invested in a corporate bond, and 62% had invested in a mutual fund. Their average age was 30 years, and 65% was female.

Exploratory Factor Analysis

The data for each of the stimulus objects were factor analyzed. The principal components method was used for factor extraction with the number of factors extracted limited to those with an eigenvalue of one or more. Communalities were calculated using the squared multiple correlation method. A varimax rotation was used to enhance the interpretability of the factors.

Eleven, seven, and eight factors were extracted for savings accounts, corporate bonds, and mutual funds, respectively. A scree test

for each case revealed an elbow between the sixth and seventh factors suggesting an appropriate cut-off at that point. The amount of total variance accounted for by the first six factors for the three data sets was: 50.1%, 61.4%, and 59.2%.

Initial Screening

One of the objectives for developing a measure of perceived risk is to insure that the measure can be generalized to a variety of investment situations. With this objective in mind, the factor loadings obtained from each data base were compared for similarity. Items that did not exhibit strong loadings, (.60 or better) on a single factor in each data base, were removed. Only the items that formed similar factor loading patterns in each analysis were retained. In other words, if a group of adjective pairs each having achieved a factor loading of .60 or better on a single factor was identified, the group was selected as a possible dimension of perceived risk.

A high degree of correspondence was found between the corporate bond and the mutual fund data, i.e., adjective pairs had similar loading patterns. The data from savings accounts did not conform as well. This may have been due to the lack of objective risk presented by that form of investing. Savings accounts are insured by the Federal Government and funds are generally available on demand which makes them safe and liquid. While the scales are designed to measure perceptions of risk, they may not be sensitive to investors' feelings about savings accounts, a nearly risk free form of investment. For this reason, more weight was given to the similarity in factor loadings between corporate bonds and mutual funds than the similarities or dissimilarities with savings accounts.

The reliability of the items was next taken into account. Coefficient alphas were calculated for each factor. Alpha-if-item-were-removed and item-to-total correlations were calculated for each adjective pair. If the coefficient alpha showed a sizable increase with the removal of an adjective pair and the item-to-total correlation was

low (.40 or less), the item was removed.

This screening procedure removed 17 of the original 40 items. The remaining 23 items were resubmitted to an exploratory factor analysis to re-assess their dimensionality and develop a basis to determine factor congruency.

Second Exploratory Factor Analysis

The 23 items in each data base were factor analyzed using the factor extraction techniques discussed above. Tables 5-3 though 5-5 present the results of the analysis. The scales are identified by the positive side only and factor loadings less than .35 have been omitted. Five factors with eigenvalues of one or greater were extracted from the savings account data accounting for 58.3% of the total variance. The first factor accounts for 33.3% of the total variance. Four factors with eigenvalues of one or greater were extracted from the corporate bond data. A fifth factor was obtained by reducing the eigenvalue cut-off to .97. The eigenvalues drop off rapidly thereafter, with the sixth value being .73. The five factors account for 69.6% of the total variance, with the first factor accounting for 40.7%. Five factors with eigenvalues of one or greater were extracted from the mutual fund data. The eigenvalues drop off sharply thereafter, with the sixth value being .73. The five extracted factors account for 67.5% of the total variance, with the first factor accounting for 32.7%.

The question at this point is, "Have the subjects evaluated the three investment alternatives along the same dimensions even though the investments have different characteristics?" This question will be addressed by comparing the factors extracted from the three data bases to determine whether they are congruent.

Table 5-3

FACTOR ANALYSIS: Savings Accounts

Scales	Fac1	Fac2	Fac3	Fac4	Fac5	
Easy to understand	.80					
Straight-forward	.77					
Convenient	.62				.35	
Knowable	.60	.42				
Accessible	.57				.37	
Clear	.56					
Simple	.55					
Low risk		.79				
Safe		.76				
A safe bet		.67				
Predictable		.48				
Requiring no research			.71			
Requiring no review			.68			
Easy to decide			.59			
Requiring little time			.46			
Progressive				.83		
Innovative				.77		
Modern				.75		
Progressive				.63		
Obtainable					.70	
Available					.63	
Stable					.52	
Certain		.32	.41		.42	
Percent of Total Variance	33.3	9.4	5.6	5.4	4.6	Total 58.3%

Table 5-4

FACTOR ANALYSIS: Corporate Bonds

Scales	Fac1	Fac2	Fac3	Fac4	Fac5	
Stable	.82					
Safe	.79					
Certain	.78					
A safe bet	.78					
Predictable	.77					
Low risk	.75				.32	
Straight-forward		.85				
Knowable		.80				
Easy to understand		.75				
Clear		.75				
Simple	.30	.65				
Obtainable			.87			
Available			.82			
Accessible			.73			
Convenient		.41	.43			
Progressive				.82		
Innovative				.81		
Modern				.80		
Trendy	-.44			.55		
Requiring no research					.78	
Easy to decide		.38			.63	
Requiring no review	.38				.62	
Requiring little time	.32	.33			.58	
Percent of Total Variance	40.7	11.0	7.5	6.2	4.2	Total 69.6

Table 5-5

FACTOR ANALYSIS: Mutual Funds

Scales	Fac1	Fac2	Fac3	Fac4	Fac5	
Stable	.82					
Safe	.78					
Low risk	.76					
A safe bet	.76					
Predictable	.74					
Certain	.71	.32				
Easy to understand		.80				
Knowable		.78				
Clear		.78				
Straight-forward		.74				
Simple		.68		.39		
Easy to decide		.45		.42		
Innovative			.88			
Modern			.87			
Progressive			.82			
Trendy	-.32		.65			
Requiring little time				.76		
Requiring no research				.74		
Requiring no review				.69		
Available					.80	
Obtainable					.79	
Accessible					.73	
Convenient		.43		.32	.49	
Percent of Total Variance	32.7	15.3	8.3	6.3	4.9	Total 67.5

Factor Congruency

Testing for factor congruency helps determine whether the factor patterns in separate data bases have sufficient similarity to be combined and analyzed as a combined data base. There are a number of methods available for making factor comparisons to determine congruency as discussed by Harman (1967) and Rummel (1970). Three of these methods - visual matching, coefficient of congruence, and root mean square - were used in this analysis to assess the factor congruency of the three data bases.

Visual matching is recommended by Rummel (1970) as a preliminary analysis to mathematical methods. He feels that researchers, who are familiar with their data, are able to develop an overall impression of the agreement between variables and factors that offers a sensitivity often lacking in mathematical methods.

A visual review of the data presented in Tables 5-3 through 5-5 indicates that the five factors identified by the first factor analysis have been retained. This is particularly the case for corporate bonds and mutual funds where all of the items re-formed into their original groups. The one exception in the corporate bond data is "easy-to-decide," where the strongest factor loading is on the personal effort dimension. The savings account data conformed less well. There are four variables loading outside of their original dimension - "convenient," "accessible," "stable," and "certain." As indicated earlier, more weight is placed on the corporate bond and mutual fund data because there is more objective risk involved with these investments than with a savings account. The results suggest that five of the original six dimensions of perceived risk have been retained and are present in all three data bases.

The second method of factor comparison is coefficient of congruence (Harman, 1967, pp. 269-70; Rummel, 1970, pp. 461-3). This coefficient is similar to a correlation coefficient in that it ranges from -1.00 to +1.00. A coefficient of +1.00 is interpreted as perfect similarity between the two factors that are being compared. The measure does not

standardize the data as a correlation coefficient does. The results are only measures of similarity and are not measures of magnitude of similarity.

Before calculating the coefficient of congruence, the factors were reordered by meaning, as opposed to strength or amount of variance accounted for, to insure comparisons of similar dimensions. The order of the factors is: safety, personal ability, social, and personal effort. The original order of the factors for corporate bonds is maintained and only the last two factors for mutual funds are reordered. The reordering of the savings account factors is fairly significant.

Tables 5-6 through 5-8 present the coefficients of congruence for the pairwise comparison of the three data bases. Congruence is demonstrated when diagonal values approach one and off-diagonal values are significantly less. This is the case for all three comparisons. The weakest value is .79 for Factor 2 in the savings account/mutual fund comparison. The other diagonal values are above .80 and the diagonal values in the corporate bond/mutual fund comparison are above .90.

The final assessment is the root means square coefficient. This method is considered to be the most discriminating of the factor comparison tests (Rummel 1970). The coefficient treats the factors as vectors and measures the Euclidean distance between two factors at a time. If the coefficient is near zero, the two factors are similar in magnitude and direction. Table 5-9, which presents the root mean square coefficient for the three data bases, shows there is a high degree of similarity between all pairs of factors.

The above analysis supports the factor congruence for the three data bases, particularly between corporate bonds and mutual funds. The congruence between savings accounts and the other two data bases is strong but less convincing. As discussed above, the perceived risk measures of savings accounts are likely to be less valid. Therefore, more weight is placed on the analysis of the corporate bonds and mutual funds strongly supporting the factor congruence of the data sets.

Table 5-6

COEFFICIENT OF CONGRUENCE
Savings Accounts By Corporate Bonds

	Corporate Bonds				
S/A	Fac1	Fac2	Fac3	Fac4	Fac5
Fac1	0.9010	0.3562	0.6329	0.5670	-0.2359
Fac2	0.6560	0.8334	0.5244	0.4150	-0.1155
Fac3	0.5926	0.6163	0.9519	0.6263	-0.1551
Fac4	0.6872	0.3550	0.6259	0.9104	-0.2516
Fac5	-0.3013	-0.1504	-0.2268	-0.2665	0.9598

Table 5-7

COEFFICIENT OF CONGRUENCE
Savings Accounts By Mutual Funds

	Mutual Funds				
S/A	Fac1	Fac2	Fac3	Fac4	Fac5
Fac1	0.8903	0.2922	0.5779	0.4849	-0.1832
Fac2	0.6207	0.7891	0.4772	0.3635	-0.0613
Fac3	0.5392	0.5413	0.9480	0.5270	-0.0661
Fac4	0.6514	0.2918	0.5963	0.8446	-0.2367
Fac5	-0.2302	-0.0413	-0.1272	-0.2904	0.9463

Table 5-8

COEFFICIENT OF CONGRUENCE Corporate Bonds by Mutual Funds					
	Mutual Funds				
CB	Fac1	Fac2	Fac3	Fac4	Fac5
Fac1	0.9895	0.2831	0.5594	0.5787	-0.2420
Fac2	0.3254	0.9486	0.4787	0.2761	0.0313
Fac3	0.5611	0.4319	0.9779	0.5343	-0.1184
Fac4	0.5960	0.2773	0.5892	0.9465	-0.3251
Fac5	-0.2219	0.0870	-0.1065	-0.3391	0.9655

Table 5-9

COEFFICIENT OF ROOT MEAN SQUARE					
	Fac1	Fac2	Fac3	Fac4	Fac5
SAxCB	0.2043	0.1858	0.1262	0.1389	0.0921
SAxMF	0.1942	0.2002	0.1294	0.1834	0.1164
CBxMF	0.0697	0.1056	0.0859	0.1063	0.0947

Confirmatory Factor Analysis

Having established a reasonable congruency of factors among the three data sets, the next task is to determine whether unidimensional measures exist in the combined data set. Establishing unidimensionality for constructs that are measured by multi-indicators insures the clarity of interpretation of the construct. The lack of unidimensionality often results in the confounding of the construct interpretation, since the variance of the indicators is influenced by multiple sources (Gerbing and Anderson 1988).

The analysis of the data set was accomplished by using confirmatory factor analysis, as suggested by Gerbing and Anderson (1988). This provides a more rigorous analysis than exploratory factor analysis. While exploratory factor analysis is useful for reducing a large number of variables to a more manageable set, the analysis does not clearly define unidimensional measures of the factors. Each factor is defined as a weighted sum of all observed measures. In confirmatory factor analysis, the measures are restricted to loading on one factor. The result is a more rigorous evaluation of the unidimensionality of the multiple indicator measurement model (Gerbing and Anderson 1988).

The data sets were combined and analyzed by confirmatory factor analysis using the LISREL VI program (Joreskog and Sorbom 1984). The fit between the reproduced variance-covariance matrix and the original matrix for a five factor, 23 indicator model was poor as indicated by a chi square of 281.97 for 220 degrees of freedom ($p = .003$), the goodness-of-fit index of .893 and the root means square residual of .046.

The value of the normalized residuals is generally lower than one with the exception of two indicators, trendy/conservative and convenient/inconvenient. Both indicators have normalized residuals higher than two, which suggests that they are being influenced by multiple sources and should be removed to insure unidimensionality (Gerbing and Anderson 1988). This respecification of the model is confirmed by the modification indices showing high values for both of these indicators.

The two variables were removed and the revised model was resubmitted to confirmatory factor analysis in a five factor, 21 indicator form. A satisfactory fit was achieved, as indicated by a chi square of 190.47 with 179 degrees of freedom ($p = .265$), a goodness-of-fit index of .918, and a root means square residual of .036. All of the normalized residuals are less than two; in fact, all except two residuals are less than one. The surviving 21 indicators were checked for reliability to verify that the observed relationships are due to systematic variance and not random error (Peter 1979). The results are supportive of systematic variance, with all factors having a coefficient alpha above .70 as recommended by Nunnally (1978). Table 5-10 lists the 21 indicators along with the factor scores obtained from the confirmatory factor analysis and the results of the reliability analysis.

Table 5-10

CONFIRMATORY FACTOR AND RELIABILITY: Combined Data							
Indicator	Fac1	Fac2	Fac3	Fac4	Fac5	Alpha if Del	Item-tot Corr
A safe bet	.90					.95	.87
Certain	.88					.95	.86
Low risk	.92					.95	.89
Predictable	.87					.95	.85
Safe	.89					.95	.87
Stable	.87					.95	.86
Clear		.86				.93	.83
Knowable		.86				.93	.83
Easy to understand		.89				.92	.86
Straightforward		.88				.92	.86
Simple		.88				.93	.83
Accessible			.83			.79	.69
Available			.77			.78	.70
Obtainable			.79			.76	.72
Innovative				.90		.86	.81
Modern				.83		.87	.79
Progressive				.88		.83	.83
Easy to decide					.83	.88	.76
Requiring little time					.84	.88	.79
Requiring no review					.82	.88	.77
Requiring no research					.88	.86	.83
Alpha for Factor	.96	.94	.84	.90	.91		

The evidence is supportive of a high degree of reliability as well as unidimensionality among the scales. The analysis now turns to whether the factors represent independent dimensions. An examination of the factor correlation matrix listed in Table 5-11 suggests that they are independent. All of the correlations between factors are less than one at $p < .05$ level, indicating that each dimension is unique. A significant amount of correlation among the factors is expected, as each dimension is designed to represent a different facet of the same construct, perceived risk.

Table 5-11

Factor Correlation Matrix[1]

	Fac1	Fac2	Fac3	Fac4	Fac5
Fac1	1.00				
Fac2	.84	1.00			
Fac3	.62	.72	1.00		
Fac4	.68	.60	.39	1.00	
Fac5	.89	.87	.65	.74	1.00

1 The 95% confidence interval for all of the off diagonal correlations does not include zero or one

Test for Stability

The stability of the 21 item scale over time was assessed by using the test-retest reliability method. The 21 items surviving the confirmatory factor analysis were supplemented with two re-worked items to maintain at least four items per dimension. Trendy/conservative was changed to trendy/out-of-date and usable/unusable was changed to money-is-usable/unusable. The "money-is" prefix was added to the three other items in the control dimension to clarify the meaning of those items. The survey consisted of two identical forms given two weeks apart to the same subjects. Both the test and the retest required approximately five minutes per test to complete.

The subjects consisted of 95 MBA marketing students who completed the survey during their regular class time. They were asked to evaluate two investment alternatives, a corporate bond and a mutual fund, using the perceived risk scales. Subjects were instructed to evaluate the investment alternatives as candidates for a future investment.

Fifty-three usable surveys were obtained. Thirty-three of the 95 surveys obtained from the first administration could not be matched with surveys obtained from the second administration, and 9 surveys were eliminated due to completion irregularities.

The test-retest reliabilities were calculated by correlating the test and the retest at the aggregate level, the dimensional level, and the item level. The overall reliability for the scales is .71. The reliabilities for the dimensions are: safety, .77; personal ability, .73; control, .61; social, .77; and personal effort, .66. The average reliability for the individual items is .54 and the range is from .28 to .67. Two items, money-is-usable/unusable and easy-to-decide/difficult-to-decide, achieved low scores of .28 and .35, respectively. They were retained for the next series of tests, but would be considered for elimination when the results of the validation tests were reviewed. The remaining individual reliabilities are above .50, indicating a satisfactory degree of stability over time for exploratory research.

At this point, testing has produced a measure consisting of 23 items representing five dimensions. A high degree of reliability, both internally and over time, and unidimensionality has been demonstrated. The scales are measuring something consistently, but is it the perceived risk construct? The next section addresses this question by relating the 23 items to measures of other constructs that are either theoretically or logically related to measures of perceived risk.

CONSTRUCT VALIDITY

Survey Design

The third step of the research illustrated in Table 4-1 focused on determining whether the scales are valid - measuring what they are intended to measure. To test for validation, the purified scales were given to a new sample to evaluate additional investment objects. The sample consisted of 203 volunteers who were members of community service clubs. One-hundred-eighty-two usable surveys were completed. The average age of the subjects was 42, and their average income was approximately $40,000. Sixty-four percent of the subjects was male. Their investing experience was fairly high: 69% had invested in time certificates of deposit, 66% had invested in mutual funds, 64% had invested in common stocks, and 26% had invested in corporate bonds.

The survey was constructed in six parts. The first five parts were designed to obtain perceived risk ratings with the new scales, perceived risk ratings with the traditional scales, evaluative judgment ratings, involvement ratings, and risk control ratings. The sixth part asked for personal data. Subjects were asked to evaluate a one year investment of $10,000 in either a corporate bond or a mutual fund, both of high quality. A complete copy of the survey is in Appendix F.

The measure of evaluative judgment was made of scales drawn from Osgood, Suci, and Tannenbaum (1957) and Russell and Mehrabian (1977), and was pretested along with the original 40 perceived risk items. Analysis of the combined data sets (savings accounts, corporate bonds, and mutual funds) reveals that the seven items are unidimensional and have a reliability of .80. An inverse relationship is expected between the perceived risk scales and evaluative judgment.

The subjects' feelings of involvement with the stimulus objects were measured with scales taken from McQuarrie and Munson (1987). The scales consisted of three dimensions: importance, pleasure, and risk. The scales making up the risk dimension were not used because of the redundancy with the perceived risk scales. A significant relationship

is expected between the perceived risk scales and the involvement scales, although the sign of the relationship is not determinable at the outset.

Four items representing risk control methods for financial investing have been included. They are: 1. interest in expert advice; 2. interest in gathering information; 3. interest in using a full service broker; and 4. willingness to give up return for safety. A positive association between perceived risk ratings and risk control methods is expected.

Traditional measures of perceived risk were included to serve as a test of convergent and discriminant validity and for a comparison of performance between the new and traditional scales. The traditional scales included measures of financial risk, performance risk, social risk, convenience risk, and overall perceived risk as recommended by Jacoby and Kaplan (1972) and Roselius (1971). The form of the measures, except for overall perceived risk, was a multiplicative combining of the measures of probability of loss and importance of loss (Peter and Tarpey 1975; Peter and Ryan 1976). The expectation is, of course, a positive relationship between the two alternative measures of perceived risk.

Data Analysis

The analysis of the validation data began with an exploratory factor analysis of the 23 perceived risk variables, the 11 involvement variables, and the 7 affect variables. The factors were extracted using the principal components method with the number of factors limited to those with eigenvalues of one or greater. Communalities were calculated using the squared multiple correlation method.

The factor analysis results for the perceived risk scales are shown in Table 5-12. Six dimensions were extracted accounting for 65% of the total variance. The first five dimensions are essentially the same as those identified by the reliability analysis. The sixth factor, accounting for 5.2% of the total variance, is uninterpretable. Coefficient alpha for each of the first five factors is high except for factor

4 with a score of .66. The reliability scores are shown in the last row of Table 5-12.

Two factors accounting for 65.7% of the total variance were obtained for the involvement scales, as shown in Table 5-12. The factors can be interpreted as pleasure/importance and social significance or sign value. The first factor was a combination of McQuarrie and Munson's first two factors, while the second factor, sign value, was a dimension the authors had expected to find but it did not materialize in their data.

There is one factor for the evaluative judgment scales which accounts for 75% of the total variance.

Table 5-12

FACTOR ANALYSIS: Validation Data[1]

Scales[2]	Fac1	Fac2	Fac3	Fac4	Fac5	Fac6
Easy to understand	.76					
Clear	.74					
Simple	.73					
Knowable	.64					
Easy to decide	.61					.47
Straight-forward	.47					
Safe		.79				
A safe bet		.76				
Certain	.46	.71				
Stable		.54				.59
Predictable		.53				.45
Low risk		.48		.43		
Money is available			.81			
Money is obtain-able			.81			
Money is accessi-ble			.78			
Money is usable			.67			
Modern				.78		
Trendy				.78		
Progressive				.68		.42
Innovative						.63
Percent of total variance	27.9	10.6	9.2	6.7	5.6	5.2
Coefficient Alpha	.83	.84	.79	.66	.70	

1. Factor loadings less than .40 are not shown.

2. Only the positive side of the scale is shown.

Table 5-13

INVOLVEMENT: Factor Loadings & Reliability[1]		
Adjective Pairs	Fac1	Fac2
Fun/Not fun	.87	
Exciting/Unexciting	.84	
Interesting/Uninteresting	.76	
Appealing/Unappealing	.75	.41
Important/Unimportant	.70	
Relevant/Irrelevant	.59	
Says something about me /Says nothing about me		.82
Tells me about a person /Shows nothing		.79
Matters to me /Doesn't matter	.42	.71
Of concern to me /Of no concern	.45	.63
Means a lot to me /Means nothing to me	.46	.60
Percent of Variance	54.2	11.5
Coefficient Alpha	.90	.85

1. Factor loadings less than .40 are not shown.

Analysis Across Objects

Risk ratings for the two stimulus objects, corporate bonds and mutual funds, were compared using ANOVA. See Table 5-14 for a listing of the results for both the new scales and the traditional scales.

The analysis shows no appreciable difference in the levels of overall perceived risk between the two objects as measured by the new scales and as measured by the traditional scales. This is a reasonable finding because the subjects were instructed to consider both investments to be of high quality to eliminate concern about credit or financial risk and to focus their evaluations on the unique risks associated with the investment type.

Examining the new scales' ratings at the dimension levels shows that this strategy was effective. The subjects found corporate bonds to present a higher control risk than mutual funds. This is consistent

with attitudes observed during the focus group interviews, where individuals were concerned about losing control of funds invested in long term instruments such as bonds.

On the basis of the new scales' ratings the subjects found mutual funds to present more safety and personal effort risk than corporate bonds. This is consistent with attitudes expressed during the focus group interviews, where participants were concerned about the safety of their investments in mutual funds. Since the value of mutual funds is determined on a daily basis by market fluctuation, participants felt that continued monitoring was required to insure the safety of the investment. The traditional scales made no distinctions between the two types of investments at the dimension level.

With the stimulus objects receiving equal overall perceived risk ratings, no distinctions are expected on the basis of the criterion variables: affect, involvement, and risk control. Analysis of these variables show this to be the case, except for the second factor of involvement (sign value), which rates mutual funds higher than corporate bonds.

This data provides some support for construct validity through the consistency of results obtained for each of the measures. The evidence is not convincing, however, and further analysis is required. For this reason, the analysis will turn to an evaluation of the data across subjects. Variation among subjects is expected to be substantial because of the normal variation in individual characteristics - age, education, income, experience. These differences are expected to produce variations in individual capabilities leading to differences in levels of perceived risk.

Table 5-14

PERCEIVED RISK RATINGS
Corporate Bonds and Mutual Funds

	CB	MF	Range	P-val[1]
New Scales				
Per Abil	20.78	21.40	6 to 42	.556
Safety	19.40	22.26	6 to 42	.004
Control	17.15	15.05	4 to 28	.012
Per Efft	11.72	12.81	3.to 21	.050
Social	14.37	12.65	4 to 28	.656
OPR	83.43	84.17	23 to 161	.779
Trad Scales				
Finance	20.25	22.28	1 to 49	.207
Social	9.86	10.59	1 to 49	.656
Perform	11.46	12.06	1 to 49	.347
Conven	21.25	20.77	1 to 49	.814
OPR	3.76	3.96	1 to 7	.382

1. The p-value is the significance level testing whether the difference between the means of CB and MF is greater than zero.

Analysis Across Subjects

Combining the two data sets and analyzing the difference in ratings among subjects provides another approach to interpreting the scales. The analysis in this section will proceed along the lines of the previous section. Perceived risk ratings obtained with the new scales will be compared with those of the traditional scales and the criterion variables.

If the traditional measures and the new scales are measuring the same construct, there should be significant, positive correlations between the two measures when compared across subjects. Table 5-15 shows the results of this correlation analysis, which are essentially as expected. The measures of overall perceived risk (OPR) for both sets of scales correlate highly at .49. The new scales' dimensions of personal ability and safety and overall perceived risk correlate positively with all of the traditional scales' dimensions.

The control risk dimension has a positive correlation only with convenience risk, which is reasonable as availability and obtainability can easily be considered a matter of convenience. The personal effort dimension has a positive correlation with financial risk and convenience risk, which is also reasonable as a financial risk requires more research and is less convenient. There are no significant correlations between social risk and the traditional risk dimensions.

The correlations suggest that the two sets of measures are tapping the same construct. This is evidenced by a pattern of strong correlations between logical combinations of variables, including financial with safety, control with convenience, and personal effort with financial and convenience. The lack of relationship between the new scales' social risk dimension and the traditional scales is puzzling. Either the dimension is not measuring an aspect of perceived risk or it is measuring an aspect of perceived risk not measured by the traditional scales, even though they include a social risk dimension. The consideration of additional criterion variables will address this question.

Table 5-15

CORRELATION ANALYSIS: Traditional and New Scales

	New Scales					
Trad Scales	Per Abil	Safety	Control	Per Efft	Social	OPR
Finance	.24**	.51**	.05	.16*	.05	.45**
Social	.37**	.12*	-.02	-.09	.00	.17*
Perform	.35**	.25**	.04	.07	-.03	.30**
Conven	.37**	.13*	.14*	.18*	.05	.39**
OPR	.29**	.51**	.06	.21*	.03	.49**

* $p < .05$ ** $p < .001$

The first criterion variable to be considered is affect. The results of the correlation analysis between affect and the new perceived risk scales are presented in Table 5-16. Four of the five dimensions have a strong negative relationship, as expected. This indicates that

individuals who are uncomfortable with an investment tend to rate it low on evaluation. The exception is personal effort, which does not form a significant relationship with affect.

The correlation analysis between the two dimensions of involvement and the new perceived risk scales is presented in Table 5-16. The results show a general tendency toward negative relationships, the expected outcome if the subjects' involvement with the investments does not reach the threshold level. High levels of perceived risk may be acting as a deterrent to individuals who, in actual practice, choose not to become involved with investments because of their apprehensions about the market place. If an individual generally experiences high levels of perceived risk when considering investing, the normal state of his or her involvement may be below the threshold level, which makes it difficult to achieve a threshold level of involvement in an artificial testing situation. The observed negative relationships are reasonable and defensible and lend support to construct validity.

The pattern of the relationships is quite interesting. The first dimension of involvement, pleasure/importance, has an external orientation with a focus on the object as opposed to the self. It relates to the two dimensions of perceived risk that share this external orientation, safety and control. The second dimension of involvement, sign value, has an internal orientation with a focus on self as opposed to the object. Sign value relates to the personal dimension of perceived risk, which shares this internal orientation. Both dimensions of involvement relate to the social dimension of perceived risk. This is reasonable because socially formed values play a major role in determining the importance of objects and the relationship of those objects to the individual (Hirschman 1979). The personal effort dimension did not form a significant relationship with either of the involvement dimensions.

The traditional perceived risk scales were also related to the criterion variables, affect and involvement. The results are presented in Table 5-17. Affect has the expected negative relationship with

overall perceived risk, but none of the other three dimensions have a significant relationship. Financial risk has a negative relationship with both dimensions of involvement, and social risk has a positive relationship with the first dimension of involvement (pleasure/importance). None of the other dimensions has a significant relationship with involvement.

Table 5-16

CORRELATION ANALYSIS:
Perceived Risk with Affect and Involvement
(New Scales)

	Per Abil	Safety	Control	Per Efft	Social	OPR
Affect	-.13*	-.27**	-.21*	-.04	-.38**	-.46**
Inv 1	-.06	-.13*	-.21*	.10	-.24**	-.24**
Inv 2	-.13*	-.02	-.08	.00	-.21*	-.20*

* $p < .05$ ** $p < .001$

Table 5-17

CORRELATION ANALYSIS:
Perceived Risk with Affect and Involvement
(Traditional Scales)

	Financial	Social	Perform	Conven	OPR
Affect	-.39**	.00	-.08	-.12	-.34**
Invl	-.14*	.19**	-.03	-.03	-.11
Inv2	-.14*	-.05	.03	-.09	-.11

* $p < .05$ ** $p < .01$

The third set of criterion variables is risk control methods. Correlation analysis between the risk control variables and the new perceived risk scales is presented in Table 5-18. A revision of the risk control questions during the administration of the survey limited this analysis to 83 subjects. In general, the relationships are not strong although in the expected direction. The significant relationships are between an interest in information and control risk, and an

interest in using a full-service brokerage and personal ability risk. In the first relationship, individuals who are concerned about the availability of their funds are interested in having more information about the investment. In the second relationship, individuals who are concerned about their ability to analyze an investment are interested in making their investment through a full-service broker. Both relationships are perfectly logical, but it is questionable whether they are sufficient to support construct validity. The fact remains that a majority of relationships did not achieve a level of significance - the test may not be supporting construct validity.

The lack of relationships may be due to the "tolerated risk" situation referred to by Gemünden (1985). The artificial testing situation may not have raised the subjects' level of perceived risk above their "tolerated risk" level to motivate them to seek methods for risk control. Another possibility is the lack of understanding among researchers about the risk control methods normally preferred by investors. This is clearly an area which is open for additional study.

Table 5-18

CORRELATION ANALYSIS:

Perceived Risk with Risk Control Methods[1]

	Per Abil	Safety	Control	Per Efft	Social	OPR
Expert Advice	.04	-.05	-.16	.15	.13	.04
Inform	.21	.06	.23*	.15	.02	.26*
Broker	.19*	-.10	.04	.10	.17	.19*
Risk/ Return	.01	-.05	-.17	.02	.04	-.07

1 n = 83 * p < .05

Conclusions

Analysis of the data provides support for the construct validity of the new perceived risk scales. Comparison with the traditional scales shows a high degree of similarity between the two measures, indicating that they are measuring the same construct. The relationship between the new scales and affect is clearly the relationship expected for all dimensions except personal effort. Involvement, if the threshold level has not been reached, forms a highly supportive relationship with all dimensions except personal effort. The relationships found between the risk control variables and the new scales are less supportive of the measures, but the lack of findings may be due to a weakness in the testing situation.

The dimensions of personal effort risk and social risk deserve special mention. While personal effort established a significant relationship with the traditional measures of perceived risk, it failed to relate to affect or involvement. This dimension becomes suspect as a measure of perceived risk. It may be measuring an evaluation of the investment process and not a concern about investing.

The social dimension formed no relationship with the traditional measures, but formed strong and logical relationships with affect and involvement. This dimension may be measuring an aspect of perceived

risk not achieved by the traditional measures, even though they include a social risk dimension. A social concern is often sensitive and a direct, intrusive question about social risk, as in the traditional scales, may not elucidate the intended information from the subject. The new scales, which use multi-indicators and an indirect approach, have a better chance of measuring the social aspect of perceived risk.

NOMOLOGICAL VALIDITY

The nomological validity of the newly developed perceived risk scales will be examined in this section. Nomological validity is established by relating the scales to antecedent and criterion variables that are positioned within a theoretical framework as discussed in the Theoretical Development Chapter. The antecedent variables are the features comprising mutual fund concepts, individual characteristics, and situational characteristics. The criterion variable is evaluative judgment.

Sample Design

The fourth and final step of the research illustrated in Table 4-1, concentrated on the nomological validity of the newly developed perceived risk scales. Data for this research was obtained by giving a new survey to a sample of 215 subjects recruited from a data bank of individuals who had indicated their willingness to participate in a marketing survey. The data bank was developed by Opinion Search, Inc. through random mail solicitations to residents living within a 15 mile radius of their office in Southfield, Michigan. The subjects were screened on the following basis: age 21 to 69, a participant in household financial decisions, familiar with mutual funds, and not employed with a financial institution or an advertising agency. Two-hundred-ten usable surveys were obtained from the sample. Each subject was paid $25.00 to participate in the survey.

The subjects' mean age was 39.9 years, and the subjects' mean household income was $43,133 per year. The percent of subjects in the

education categories was: grade school, .9%; high school, 10.0%; vocational school, 14.8%; some college, 41.0%; college graduates, 17.6%, and post graduates, 15.7%. The percent of the subjects in family status categories was: single, 16.2%; married, 61.9%; divorced, 16.7%; widowed, 3.8%; and separated, 1.4%. The percent of subjects in the occupation categories was: professional, 8.1%; manager, 3.8%; semi-professional, 21.9%; sales, 14.3%; skilled, 28.1%; low skilled, 9.5%; and other, 14.3%.

Survey Design

The subjects were given eight concept cards, each describing a different mutual fund concept. They were asked to evaluate each of the concepts using the newly developed perceived risk scales and the scales for evaluative judgement. A copy of the survey instrument is included in Appendix G.

The perceived risk scales consisted of 18 items reduced from the 23 items tested in the previous sections. The reductions were made to improve the quality and parsimony of the scales. The four items comprising the personal effort dimension were eliminated because of their poor performance in the validation tests. The reduction also included the item "requiring much time/requiring little time," which scored poorly in the test-retest reliability. Another item having a low test-retest reliability, "money is usable/unusable," was eliminated. The safety dimension contained six items and it was felt that one could be removed for parsimony without affecting the scales' performance. The item chosen was "unstable/stable." Two items were also dropped from the evaluative judgment measure on the same basis.

Eight mutual fund concepts were developed from all possible combinations of the three features - place, method, and advice - with two alternatives for each feature. The alternatives for place were purchasing a mutual fund at a bank or through a securities dealer; the alternatives for method were placing the mutual fund order by phone or in person at the seller's office; the alternatives for advice were to

purchase the mutual fund from a list of mutual funds selected by investment experts or from a list of all mutual funds. Eight concepts make a full factorial analysis possible, wherein main effects and all interactions can be analyzed.

The scales comprising the risk dimensions and evaluation were randomly sorted. The items were alternately reflected based on positive and negative expressions to reduce response bias. All subjects used similarly arranged scales to rate all concepts.

For simplicity and to avoid problems with multicollinearity, individual characteristics were represented only by the income variable. Income was chosen because it was felt to represent a number of other characteristics including age, education, and occupation. The situation variable represents the reason an investment is made in a mutual fund. The subjects were asked to choose their own situations by selecting the more likely reason they would have for investing in a mutual fund - investing for future income or investing for a future expenditure. They were asked to keep this purpose in mind as they rated the mutual fund concepts. Ninety-five subjects chose future income, 112 chose future expenditure, and 3 did not make a choice.

Before it was administered to the larger sample, the survey was given to five convenience subjects to identify ambiguities in wording, time requirements for completing the survey, and the best procedure for administering the survey.

Survey Procedure

The concept cards were presented to the subjects in a random order. The subjects were asked to arrange the cards according to preference and place them in a stack with the most preferred cards toward the top. Subjects were then asked to rate the eight concepts in their preferred order, using the provided scales. The forms contained 22 items (17 perceived risk scales and 5 evaluative judgment scales), which meant the

subjects were asked to make 176 (8 X 22) ratings in total. The task required approximately 50 minutes to complete, including instructions and completion of a brief personal data questionnaire.

Survey Results

The seventeen perceived risk items were factor analyzed using the principal components method of factor extraction with the number of factors extracted limited to those with eigenvalues of one or greater. Communalities were calculated using the squared multiple correlation method. Four factors were extracted accounting for 65.7% of the total variance. Varimax rotation was used to improve the interpretability of the factors. The results of this procedure are presented in Table 5-19.

The factor loading pattern is a precise reproduction of the a priori risk dimensions, with the items comprising a given dimension loading together on a single factor. The items comprising the evaluative judgment scales were also factor analyzed using the technique described above. The results are presented in the last column of Table 5-19. One factor was extracted accounting for 70.2% of the total variance.

Table 5-19

FACTOR SCORES: Perceived Risk & Evaluation [1]

Scale Items[2]	Dimensions of Perceived Risk				Evaluation
	Fac 1 Safety	Fac 2 Personal	Fac 3 Social	Fac 4 Control	
SAFETY					
Safe bet	.79				
High risk	.76				
Certain	.71				
Predictable	.77				
Safe	.78				
PERSONAL					
Clear		.74			
Knowable		.59			
Easy to understand		.89			
Straight forward		.63			
Simple		.71			
SOCIAL					
Innovative			.78		
Modern			.82		
Progressive			.84		
Trendy			.82		
CONTROL					
Accessible				.82	
Available				.71	
Obtainable				.85	
EVALUATION					
Wise					.78
Satisfying					.86
Pleasing					.85
Desirable					.80
Like					.87
Percent of Total Variance	34.1%	14.9%	9.1%	7.6%	70.2%

1 Factor loadings of .35 or less are not shown.
2 Only the positive side of the adjective pair is shown.

Analysis of the perceived risk model proceeded through four stages of hierarchical regression. The first stage determined whether the features and context have an influence on affect; the second stage determined whether perceptions have an influence on affect; the third stage reconsidered features and context partialling for perception; and the fourth stage determined whether features and context have an influence on perceptions.

Determining the total effects of features and context on affect is accomplished by using dummy regression and encoding the features and situational characteristics as 0 or 1. The individual characteristic, income, was analyzed as a metric variable. The regression analysis was made across the 210 subjects' evaluations of eight mutual fund concepts for a total of 1,680 data points. The results are presented in Table 5-20.

Two of the three features and situation formed a significant relationship with affect. The sign of the feature relationships indicates that ordering a mutual fund in person is preferred to ordering by phone, and that receiving advice is preferred to not receiving advice. The sign of the situational characteristic indicates that individuals who are investing for future income like mutual fund investments better than individuals who are setting money aside for a future expenditure. The place feature establishes a marginally negative relationship with affect, indicating that individuals tend to prefer a securities dealer over a bank as a place to purchase a mutual fund. The personal characteristic, income, did not develop a statistically significant relationship with affect.

The possibility of interactions between the features was investigated by including an interaction term in the regression equation for all two-way and three-way interactions. There are no significant interactions.

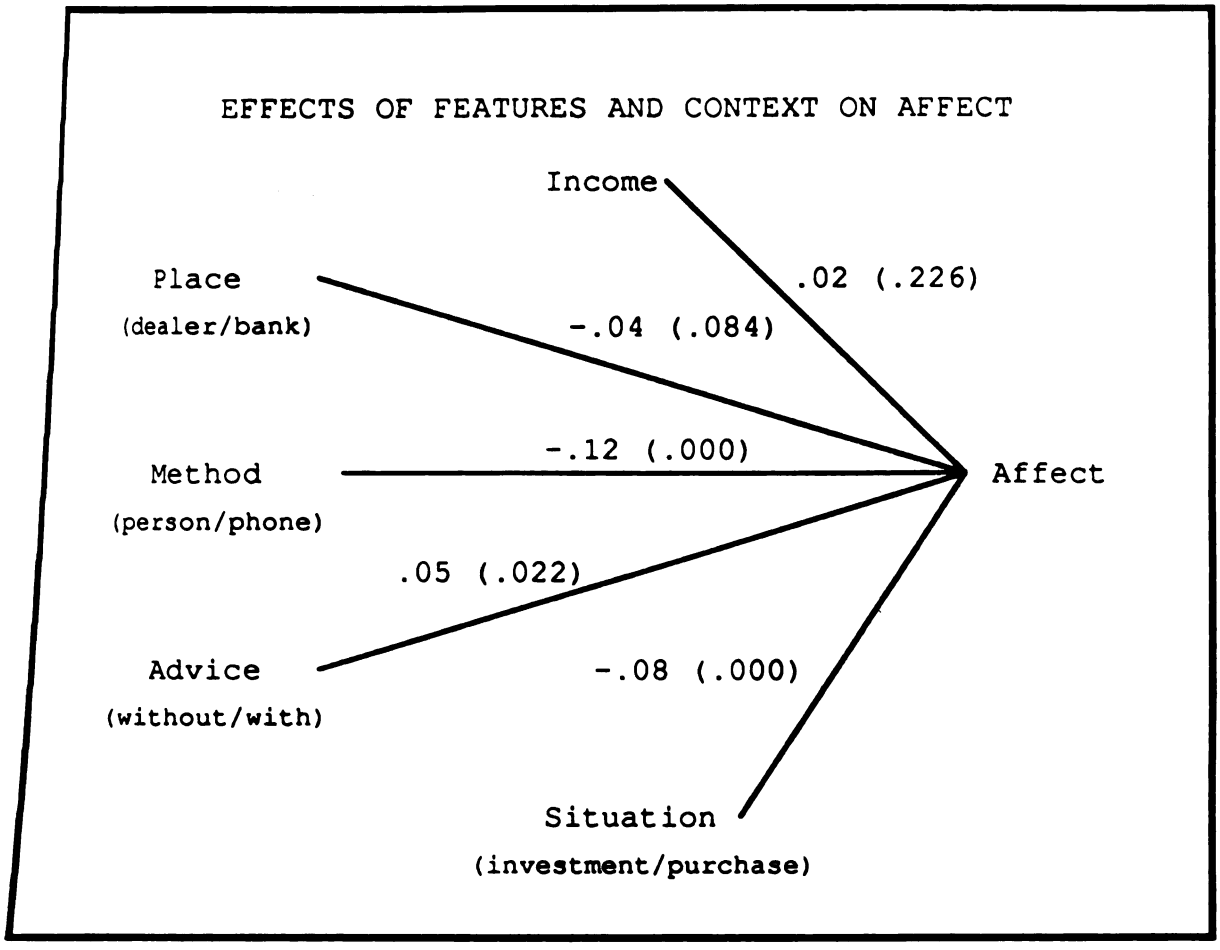
While the amount of variance explained by the predictor variables is low (adjusted R squared equals .0256, $p = .000$), it is significantly

above the level of chance and warrants further consideration. Figure 4 is a diagrammatic representation of this analysis showing the paths for the total effects.

Table 5-20

Effects of Features, Income, and Situation on Affect			
Independent Variables	Beta	t_{1680}	p-value
Place (dealer/bank)	-.04	-1.72	.084
Method (person/phone)	-.12	-5.14	.000
Advice (without/with)	.05	2.28	.022
Income	.02	1.21	.226
Situation (inc/purchase)	-.08	-3.52	.000
Multiple R = .17 ($F_{5,1674}$ = 9.82, p = .000)			

The total effects of perceived risk on affect are determined in the second stage. An inverse relationship is expected to exist, indicating that individuals who find a service to be risky will tend to give it a low evaluation. The analysis was done by regressing affect on the four perceived risk dimensions. The values of affect and the risk dimensions were represented by factor scores with factor coefficients determined by the regression method (Norusis 1988). The results, listed in Table 5-21, show a significant, negative relationship for each of the risk dimensions with affect. The amount of variance explained by the risk dimensions is high, as indicated by the adjusted R square of .58. The results refute the null of hypothesis H3, that the perceptions of risk have no effect on evaluative judgment.



The open values represent standardized coefficients of regression. The values in parentheses represent p-values.

Figure 4

Table 5-21

Effects of Perceived Risk on Affect			
Independent Variables	Beta	t_{1680}	p-value
Safety	-.51	-32.41	.000
Personal	-.39	-25.10*	.000
Social	-.34	-21.92*	.000
Control	-.20	-21.81*	.000
Multiple R = .76 ($F_{4,1675}$ = 581.28, p = .000)			

In contrast to the total effects determined in the first stage of the analyses, the direct effects of features and context on affect are determined in the third stage. This is accomplished by simultaneously regressing affect on features, context, and perceptions, which partials out perceptions. The results are shown in Table 5-22.

The strength of the relationship between perceptions and affect is substantially unchanged from the analysis in the second stage indicating that the total and direct effects are approximately equal. There are a number of changes in the relationships between features and context, and affect from the analysis in the first stage. Place and income increased from a non-significant relationship to -.07 each, which is significant at the p = .000 level. The relationship of advice to affect changed from .05 to -.04, and income and situation were reduced substantially, -.12 to -.05 and .08 to .0 respectively. The differences between the total effects and the direct effects reflect the mediating role played by the perceptual variables. If the null of H4, perceived risk will not play a mediating role between features and evaluation, is correct, no significant difference will be found between total and direct effects.

To evaluate H4, the total and direct effects have been summarized in Table 5-24, along with the resulting indirect effects. The indirect

effects are calculated by subtracting direct effects from total effects (Alwin and Hauser 1975). Analyzing the differences between the means for total and direct effect, a significant difference at the $p < .05$ level is found for four of the five cases. The one exception is in the place feature. This analysis refutes H4, indicating that perceived risk may be playing a mediating role between features and evaluation.

Table 5-22

Effects of Features, Income, Situation, and Perceived Risk on Affect

Independent Variables	Beta	t_{1680}	p-value
Safety	-.51	-32.43	.000
Personal	-.40	-25.24	.000
Social	-.34	-21.78	.000
Control	-.21	-13.50	.000
Place	-.07	-4.48	.000
Method	-.05	-3.48	.000
Advice	-.04	-2.48	.013
Income	-.07	-4.11	.000
Situation	.00	.02	.980

Multiple R = .77 ($F_{9,1670}$ = 272.57, p = .000)

In the fourth stage, the direct effects of features and context on the risk dimensions are determined. This was done by regressing each perceived risk dimension on features and context. The results are presented in Table 5-23.

The results show that a number of significant relationships are formed between the antecedent variables and the risk dimensions. In particular, the method relationship indicates that ordering a mutual fund by phone increases safety and personal risk but reduces social risk; and ordering a mutual fund without advice increases safety and personal risk. Individuals with high incomes are less concerned about safety, personal, and control risk, but are more concerned about social

risk. Situation shows that individuals who invest in a mutual fund for a future purchase are less concerned about personal and control risk than individuals who invest in a mutual fund for future income.

The place feature does not form a significant relationship with any of the risk dimensions, and none of the features form a significant relationship with control risk. The multiple R statistic for each of the regression equations, shown in the last row of Table 5-23, is significant at the p = .000 level. Features were again tested for interactions and none are found.

The results of the fourth stage address H1, H2a, and H2b. The null of H1, service features will not have an effect on perceived risk, is refuted because two of the three features have a significant influence on perceived risk. The null of H2a and H2b, contextual characteristics will not have an effect on perceived risk, is refuted by the significant effects found for both income and situation.

The foregoing analysis is summarized in pathanalytic form in Figure 5, which shows only the significant paths. Since this is a recursive model, the standardized coefficients of regression have been used for the path coefficients. The direct effects between features, context, and perceptions and affect are taken from Table 5-22, and the direct effects between features and context, and perceptions are taken from Table 5-23.

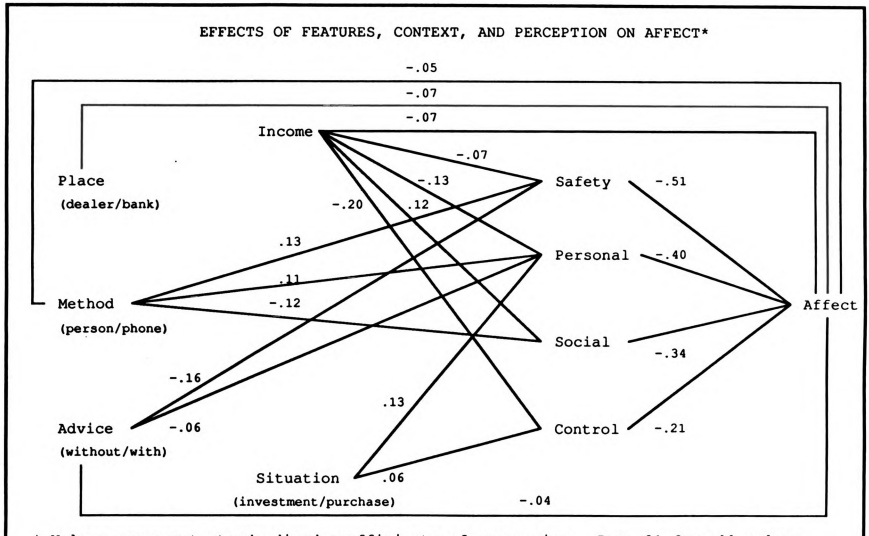

EFFECTS OF FEATURES, CONTEXT, AND PERCEPTION ON AFFECT*
-.05
-.07
-.07
Income
-.07
Place
(dealer/bank)
-.13
Safety
-.51
-.20
.12
.13
Personal
-.40
.11
Method
(person/phone)
-.12
Affect
Social
-.34
-.16
.13
Advice
(without/with)
-.06
Control
-.21
Situation
(investment/purchase)
.06
-.04
* Values represent standardized coefficients of regression. P < .01 for all values.

Figure 5

Table 5-23

Effects of Features, Income, and Situation on Perceived Risk

	Safety	Personal	Social	Control
Place (dealer/bank)	-.03[1] (.214)	-.04 (.134)	.00 (.884)	.00 (.964)
Method (person/phone)	.13 (.000)	.11 (.000)	-.12 (.000)	.00 (.930)
Advice (without/with)	-.16 (.000)	-.06 (.013)	.02 (.497)	.02 (.377)
Income	-.07 (.002)	-.13 (.000)	.12 (.000)	-.20 (.000)
Situation (inc/purchase)	.01 (.657)	.13 (.000)	.03 (.194)	.06 (.011)
Multiple R	.22 (.000)	.23 (.000)	.17 (.000)	.22 (.000)

1 The open values represent standardized coefficients of regression except for the last row. The values in parentheses are p-values.

To summarize further the analysis of the perceived risk model, table 5-25 presents an alternate method for calculating the indirect effects. This is accomplished by tracing the influence of the exogenous variables through perception to affect. To determine the indirect effect, the path coefficients between the exogenous variables and perceptions are multiplied by the path coefficients between perceptions and affect and summed over the perceptual dimensions (Kenny 1979). The results confirm the indirect effect presented in Table 5-24.

This analysis provides another method to evaluate H4. If the null of H4 were true, the indirect effects would be equal to or smaller than the direct effects. In four of the five cases, the indirect effects are larger than the direct effects, which tends to disprove the null of H4. Even though data is not available to establish the level of significance for the difference between direct and indirect effects, the results confirm the earlier evaluation of H4.

Table 5-24

Direct and Indirect Effects of Features and Context on Affect

Features and Context	Total Effects	Direct Effects	Indirect Effects
Place	-.042	-.070	.028
Method	-.124	-.055*	-.069
Advice	.055	-.039*	.094
Income	.029	-.067*	-.096
Situation	-.085	.000*	-.085

* The difference between total effects and direct effects is greater than zero at the $p < .05$ level.

Table 5-25

Indirect Effects Determined by Path Tracing				
Risk Dimensions	Direct Effects of Features and Context on Risk		Direct Effects of Risk on Affect	Indirect Effects of Features and Context on Risk
PLACE				
Safety	-.030	X	-.518	.015
Personal	-.036	X	-.405	.014
Social	.003	X	-.345	-.001
Control	.001	X	-.216	.000
Total				.028
METHOD				
Safety	.132	X	-.518	-.068
Personal	.107	X	-.405	-.043
Social	-.124	X	-.345	.042
Control	-.002	X	-.216	.000
Total				-.069
ADVICE				
Safety	-.155	X	-.518	.080
Personal	-.059	X	-.405	.024
Social	.016	X	-.345	-.006
Control	.021	X	-.216	-.005
Total				.094
INCOME				
Safety	-.073	X	-.518	.038
Personal	-.134	X	-.405	.054
Social	.117	X	-.345	.040
Control	-.205	X	-.216	.044
Total				.096
SITUATION				
Safety	.011	X	-.518	.006
Personal	.138	X	-.405	.056
Social	.031	X	-.345	.011
Control	.060	X	-.216	.013
Total				-.085

VI. DISCUSSION

PERCEIVED RISK CONSTRUCT

Through the use of psychometric methods, the perceived risk research establishes a valid measure of the construct in the context of financial investments. This research demonstrates an effective use of the perceived risk measure as a marketing research tool, and provides insight for the generalization of the measure to additional applications.

Three of the obtained dimensions - safety risk, personal risk, and social risk - have the potential for generalization to other applications and may, in fact, be basic dimensions of perceived risk. Additional research in areas other than financial investment will be required to make that determination. The fourth dimension, control risk, is highly specific to the investment application and has a more limited generalizability. Continued research in perceived risk will undoubtedly produce many dimensions that are specific to a market and a product. Indeed, prior research has demonstrated this specificity (Zikmund and Scott 1977).

Throughout the four stages of the research, safety risk has been the dominant factor. In the early focus group interviews, it was noted as the most talked about concern, and this factor accounted for the greatest share of total variance in the ending nomological survey. The safety dimension measures an individual's assessment of the risk involved when making an investment. This is similar to the inherent risk measure discussed by Bettman (1973). Because the objects which were evaluated in this study were financial investments, the dimension measured subjects' concerns about a financial loss and, as a result, it is closely related to the financial risk dimension of the traditional scales. This is supported by the high correlation between the two measures. Using the safety dimension for a different application may produce a different pattern of association with the traditional scales. For example, if it were to be applied to a health care service, safety

risk might have a stronger association with performance risk than with financial risk. The pattern of association with the traditional scales will depend on the consumer's impression of what is at risk. The point is, safety risk, by reflecting the concerns that individuals have about the product or service under consideration, has the potential for adaptation to a variety of applications.

The personal risk dimension provides an important contrast to safety risk as well as an assessment of perceived risk that has not been reported in prior research. The inward orientation of the dimension focuses on an individual's ability to understand and cope with the object of interest. Personal risk combines with the external orientation of safety risk to provide a broader understanding of the consumer's assessment of risk. The combination of the two orientations provides a more complete view of the concerns experienced by consumers, and should be diagnostically helpful with efforts to control high levels of perceived risk. For example, if a consumer rates a product/service high on safety risk and low on personal risk, the producer can best solve the problem by redesigning the product. On the other hand, if a consumer rates a product high on personal risk and high or low on safety risk, the producer has a consumer education problem first, and then a possible product design problem.

This external-internal orientation of the safety risk and personal risk dimensions is confirmed by the two dimensions of involvement. The involvement dimension, interpreted as pleasure/importance, has an external orientation which focuses on the qualities of the object (fun/not fun), and has a strong association with safety risk, but not with personal risk. The second involvement dimension, interpreted as social significance, has an internal orientation focusing on the individual (says something about me/says nothing about me; matters to me/doesn't matter), and has a strong association with personal risk, but not with safety risk.

An external-internal dichotomy was observed by Peter and Tarpey (1975), in their study of consumer decision strategies. The external

aspect of the study consisted of financial, performance, physical, and time risks and the internal aspect consisted of social and psychological risks. While Peter and Tarpey's external aspect approximates safety risk, their internal aspect is quite different from personal risk. Their internal aspect is an assessment of the social appropriateness of the purchase (what my friends will think) and the psychological appropriateness of the purchase (fits well with my self-image). In this research the internal dimension of personal risk does not appear to reflect a concern about social acceptability or personal image, but measures an individual's concern about understanding and coping with the object of interest.

Concerns about social acceptability are reflected in the third dimension of the perceived risk measures, social risk. Similar to personal risk, the social risk dimension adds a new measure to the study of perceived risk. Although the traditional scales include a social risk scale, there is no relationship between the two measures of social risk. The implication is that at least one of the measures in not measuring the perception of social risk.

The validation tests provide information supporting the new scales over the traditional scale. First, the new scales' relationship with the criterion variable, affect, was significant and negative, as expected. There was no significant relationship between the traditional scale and the same variable. Second, the new scales formed a significant and negative relationship with both involvement dimensions. The negative sign is logical and it is consistent with the relationship developed by the safety risk and personal risk dimensions. The traditional scale formed a significant, positive relationship with the external dimension of involvement, which is inconsistent with prior relationships found in this research.

The findings from the validation study support the validity of the new scales' social risk dimension but not the validity of the traditional measures of social risk. This conclusion is not surprising. Concerns about social risk are sensitive issues and consumers are often

unaware of social risk or unwilling to be candid about their feelings. The direct questioning approach used by the traditional scales is likely to produce defensive answers reducing the validity of the scale. The indirect, multiple-item technique used with the new scales has a better chance of accurately measuring a sensitive issue such as perceptions of social risk.

Social risk is the third dimension offering the possibility of generalizability to other applications. It compliments the safety risk and personal risk dimensions by providing an assessment of the social acceptability of the object of interest. Social risk has implications for both the external and internal risk evaluations since socially formed values play an important role in determining how a consumer evaluates an object (external) and how a consumer relates to an object (internal) (Hirschman 1979). This is confirmed by the significant relationship that social risk forms with both dimensions of involvement.

The fourth dimension, control risk, is supported by the criterion variables, affect, the external dimension of involvement, and a limited but logical relationship with the traditional scale's convenience risk. Evidence of control risk during the focus group interviews was the expression of concern about liquidity, or the ability to meet future expenses. Control risk, as operationalized for this research, is specific to financial investments. The concern about loss of control, which may be present in other domains, may require scales designed specifically for the area of interest.

THE LOST DIMENSIONS

The participants of the focus group studies expressed concerns about six distinct aspects of investing. The six aspects were carefully coded into semantic differential scales using the subjects' words and compatible words drawn from the word association survey. Four of the original aspects were confirmed as dimensions of perceived risk through reliability and validation tests. The performance risk and personal effort risk dimensions did not survive the testing.

The loss of the performance dimension is surprising because a number of the focus group participants clearly expressed concerns about investment performance, i.e., default on payments of interest and dividends. The difference in the characteristics of the samples used for the focus groups and the reliability testing may account for the dimension's lack of development. The focus group participants were drawn randomly from a metropolitan area, and included a number of retired individuals. Because retirees depend heavily upon invested assets to meet daily expenses, performance is a prime concern for them. The subjects in the reliability sample consisted of evening MBA students, who may not share the same sense of concern about performance since their income is primarily from wages. As a result, an importance may not have attached to the performance aspect of investing, allowing the performance scales to associate with other dimensions, primarily the safety dimension.

Unlike performance, the personal effort scales formed a distinct dimension in both the reliability and validation tests, but in the validation tests they failed to develop the expected relationships with the criterion variables, affect and involvement. The personal effort dimension may have measured a perception of investing related to the time and effort required to transact and monitor an investment. This perception may have been translated into a cost in terms of time and effort, but it was not a risk in terms of loss. Individuals may see the time and effort required to understand and monitor a security as a means of preventing a loss. They may not see the time and effort as an investment that would be lost if the security turned out poorly.

SCALE COMPARISON

Caution is required when comparing the new scales with the traditional scales because they were developed under very different circumstances. The new scales were developed specifically to measure perceived risk in a financial investment domain; the traditional scales evolved over time in response to an effort to measure perceived risk in

products. The comparisons that were made in this research are general in nature and should provide a basis for evaluating the two sets of scales.

The first comparison, in which both sets of measures are used to evaluate the two investment alternatives, is performed in the third step of the research. The reader may recall that the investment alternatives, corporate bond and mutual fund, were presented to the subjects as high quality investments. The investment alternatives were appropriately rated by both sets of measures as equal in overall perceived risk. The new scales were sensitive to variations in perceived risk at the dimensional level, indicating that individuals found that investment alternatives presented different types of risk. The traditional scales were insensitive to these distinctions. The reason for this difference becomes clear in the next comparison, tests for validation.

Both sets of measures were related to two criterion variables, affect and involvement. The four surviving dimensions[1] of the new scales formed significant and expected relationships with the criterion variables. The only dimension of the traditional scales to pass the validation tests was the financial risk dimension. This may have been an artifact of the research, since the testing was done in the financial industry. All of the other traditional scale dimensions either did not form a significant relationship with the criterion variables or formed a relationship that was inconsistent with expectations. If the traditional scales have only one valid dimension, the lack of sensitivity at the dimensional level in the first comparison is understandable.

In summary, the new scales tested better on the validation tests than the traditional scales and performed better when measuring per-

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1 The personal effort dimension was not supported by the criterion variables and was dropped from the perceived risk measure.

ceived risk in financial investments. The objective of developing an improved measure of perceived risk has been achieved within the domain of financial investments.

IMPLICATIONS FOR STAKEHOLDERS

Once the validity of the newly developed perceived risk scales has been established, application to substantive marking research issues can be made. The perceived risk model, illustrated in Figure 3, has been used to provide a theoretical structure to relate perceived risk to its antecedent and criterion variables. The empirical verification of the model, which was completed in a financial setting, has established the nomological validity of the construct.

In addition to establishing nomological validity, the empirical validation process provides information relevant to the financial industry. The relationships also suggest implications for research in areas beyond the financial domain, including marketing research in services and products, public policy making, and consumer behavior models. The following discussion will first delineate the findings applicable to the financial industry and will then turn to areas of more general interest demonstrating the variety of concerns to which the perceived risk model can be applied.

Financial Industry

The setting in which the perceived risk model was verified specifically addressed the question of what is the preferred mutual fund ordering system. The empirical data not only provide answers about the preferred ordering system, but supply reasons for the preferences. Additionally, information is furnished for identifying market segments with different preferences based on individual characteristics and usage situations.

The assessment of implications for the financial industry will begin with a discussion of the relationships of services features - place, method and advice - with perceived risk, as shown in Figure 5.

The place feature, a choice between a securities dealer and a bank, has no significant direct effects on the four perceived risk dimensions. This is the logical result of the instructions given to the subjects, who were told to consider both alternatives as high quality institutions to eliminate concerns about reputation or mendacity. Consequently, the subjects made no distinctions between the alternatives on the basis of perceived risk.

The place feature has an interesting relationship with evaluative judgment (affect) which provides unexpected insight into the mutual fund ordering question. The total effects of place on affect are non-significant as illustrated in Figure 4. The direct effects of place on affect as shown in Figure 5 are significant, indicating a preference for a securities dealer. The reason for this change is as follows: 1. When all things are considered, the total effects indicate that subjects have no preference for one organization over another; 2. When the indirect effects that flow through the perceived risk dimensions are separated out of the total effects, the remaining direct effects show that the securities dealer is preferred over the bank; 3. The direct effects of place on the perceived risk dimensions show that the ratings for a securities dealer are higher than the ratings for a bank on the safety and personal risk dimensions. While the direct effects of place on the perceived risk dimensions are individually insignificant, the combination of all direct effects on the perceived risk dimensions shows that the bank is seen as a lower risk alternative when compared to the securities dealer. These results indicate that commercial banks, on the average, have a competitive advantage over securities dealers, which becomes a significant factor when mutual fund services are offered to customers who rate mutual funds high on the perceived risk dimensions.

The next service feature to consider is method, which offers the subject the option of ordering a mutual fund in person or by phone. The method feature, as shown in Figure 5, has significant direct effects on the perceived risk dimensions of safety, personal, and social. Ordering a mutual fund in person lowers an individual's concern about safety and

personal risk, but increases the concern about social risk. This suggests that individuals have more confidence in their ability to accurately place an order in person. There is a conflict, however, as the by-phone method is seen as more socially acceptable; it is perceived as modern and progressive. This perception may result from the convenience and time saving qualities inherent in the use of the telephone.

Mutual fund strategies implied by this feature suggest an important competitive advantage for a commercial bank. When offering mutual fund services to consumers, the vendor should offer convenient, in-person ordering facilities to attract individuals who have concerns about safety and personal risks. Although the study suggests that this is the feeling of the subjects on the average, it may be more representative of first time investors or infrequent investors. Most commercial banks have a competitive advantage in this situation because their network of neighborhood offices is available to support a convenient in-person ordering system. The second phase of the method strategy would offer a by-phone ordering system, since individuals are likely to overcome safety and personal concerns with experience, and may eventually prefer the convenience of ordering by telephone.

The third feature, advice, offers the options of ordering a mutual fund without advice or with advice. The significant direct effects, shown in Figure 5, are between advice and the perceived risk dimensions of safety and personal. An interpretation is that individuals have less safety and personal concerns when ordering a mutual fund with advice, a perfectly logical conclusion. The interesting aspect of the advice feature is its relationship with affect. The total effects of advice on affect, as shown in Figure 4, reveal that subjects prefer ordering mutual funds with advice. The direct effects of advice on affect, as shown in Figure 5, reveal the opposite, individuals prefer to order mutual funds without advice. In the testing situation, advice was offered at no additional cost. Why would the subjects on the average not want advice?

The answer may be found by reviewing the form in which the advice

was offered. If the mutual fund was ordered with advice, the subjects were to choose it from a list of mutual funds pre-selected by experts on the basis of investment objectives. If the mutual fund was ordered without advice, the subjects were to choose it from a list of all possible mutual funds. When all things were considered, the subjects preferred the assistance of advice. When the indirect effects that flow through the perceived risk dimensions were separated from the total effects of advice on affect, the without-advice option was preferred. A possible explanation is that the subjects found the form of advice to be restricting. When their concerns about safety risk and personal risk were separated out of their overall evaluation of advice, their preference changed to the without-advice option. The implication is that a different form of advice may have more appeal to mutual fund investors. For example, advice that increases the investors' evaluation ability, such as a mutual fund evaluation guide or a mutual fund rating system, may be more acceptable.

Even though the three service features evaluated in this study are a limited part of the total evaluation process of a mutual fund, the model was able to isolate the effects of these features and to provide meaningful and constructive information. The foregoing analysis illustrates how this information can be used for developing marketing strategies for a mutual fund ordering system which would include guidelines for service design and promotional activities.

The discussion will now turn to the effects of the contextual characteristics on perceived risk and will consider the usefulness of this information for identifying market segments with unique preferences. Individual characteristics, the first contextual variable, were represented by income that reflects a number of individual characteristics including education, age, and profession. The income variable has significant effects on all of the perceived risk dimensions, as shown in

Figure 5. Individuals with high incomes[2] were revealed to have lower concerns about safety, personal, and control risk, and to have higher concerns about social risks.

The results can be interpreted as follows: Individuals with high incomes have greater financial ability to recover from a financial loss, which is reflected in the lower concerns about safety risk. High income individuals may have higher education, more experience with investing, and higher level employment skills than low income individuals, which is reflected in the lower concerns about personal and control risks. The concerns about social risk, which were expressed by high income individuals, probably reflect their society, which includes friends who are involved in investing.

Income also has direct effects on affect indicating that high income individuals tend to give mutual funds a low evaluation. It is possible that high income individuals prefer making their own decisions about the securities in which they invest rather than leaving the decision to a fund manager.

Combining the effects of service features and income on the perceived risk dimensions provides the basis for developing a segmentation strategy. From the income analysis it has been learned that low income individuals experience higher concerns about safety and personal risk and lower concerns about social risk when investing in mutual funds than high income individuals experience. Designing a mutual fund ordering system with in-person and with-advice features addresses the concerns of low income individuals. A mutual fund ordering system with this design, added to the "safe" image of a commercial bank and a network of neighborhood offices, provides a service suited to the needs of low income individuals.

This segmentation strategy may provide a commercial bank with a

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2 An analysis of the income data, not reported in this study, reveals that the model is classifying individuals with incomes of $75,000 and over in the high income categories and individuals with incomes less than $50,000 in the low income categories.

significant opportunity for growth in the mutual fund business. By the model's definition of low income, this segment includes families with incomes up to $50,000 per year, and may consist of young professional families who are interested in starting an investment program. By utilizing its competitive advantage, a commercial bank could establish an investing relationship with this market segment before these new investors become loyal clients of securities dealers. This market segment, a part of the baby boom generation, offers the advantages of size and significant growth potential over the next five to ten years as professional incomes grow.

Following the opposite strategy, offering mutual funds to a high income segment, has a lower probability of success for a commercial bank. High income individuals, family incomes over $75,000, are less concerned about safety, personal, and control risk and more concerned about social risk than their low income counterparts. The in-person feature, which reduces concerns about safety and personal risk and increases concerns about social risk, would have less meaning to this segment. This reduces a commercial bank's competitive advantage of offering in-person services through its branch network. This segment's low safety and personal risk concerns also reduces the bank's "safe" image advantage. Additionally, high income individuals express a dislike for mutual funds, which suggests their preference for other types of securities and a possible relationship with a securities dealer.

Contextual characteristics also included situation, which adds one last piece of information about mutual fund ordering systems. In the testing situation, the subjects were asked to select one of two purposes for a hypothetical investment in a mutual fund. One was to make the investment for a long term with income as the investment objective. The other was a shorter term investment with the objective to save money for an intended purchase.

The situation variable, as shown in Figure 5, has significant effects on the personal risk and control risk dimensions. The results

indicate that individuals who are investing for a future purchase experience higher concerns about personal and control risk than individuals who are investing for future income. These are logical relationships. First, individuals investing (saving) to make a purchase probably have not had the opportunity to gain investing experience, which is reflected in the high personal risk scores. Second, these individuals would be concerned about having the money available at the time the purchase is to be made, which is reflected in the high control risk scores. The conclusion to be drawn from this analysis is: mutual fund investments are not well suited for a market segment, regardless of income, that is interested in investing for a future purchase. This market segment would be better served with time certificates of deposit or bank savings accounts.

Marketing Research

The development and validation of the perceived risk model in the financial industry limits its application to other areas of research without additional validation. It does, however, offer an approach for marketing researchers to analyze consumer preferences in a wide variety of industries.

The structure of the model reflects consumers' evaluation processes as described by theories of abstraction and perceptual meaning. Therefore, the model design is generalizable to a variety of research interests involving consumer attitudes including non-financial services and products.

The perceived risk scales are the limiting factor for generalization to other uses. Developed in the financial domain, they primarily reflect the concerns of individuals considering a financial investment. This is particularly true of the control risk dimension, which has a specific financial orientation. The other dimensions - safety, personal, and social, - are less specific by content and may be generalized to a variety of applications with only minor modifications. Additional

research may establish these dimensions as the basic dimensions of perceived risk.

The contextual characteristics add richness to data obtained from the model about consumer attitudes, but they are not germane to the central evaluative process. A researcher is essentially free to add whatever variables he/she feels are dictated by theoretical considerations or research interests. As was demonstrated in the previous section, these variables are particularly useful for developing segmentation strategies or preferences related to usage situations. Repeated evaluations with the introduction of new variables with each evaluation would provide information about a wide variety of contextual characteristics.

In summary, the basic design and flexibility of the model permit its applicability to a wide variety of marketing research areas limited only by the validation of the scales for areas outside of the financial industry.

Public Policy

The Federal Government has endeavored to protect consumers from financial risk with depository insurance programs such as the Federal Savings and Loan Insurance Corporation. This program has proven to be expensive for the taxpayer and adds considerable cost to the operations of insured financial institutions. Ultimately, instead of protecting the public from financial risk, the deposit insurance program may have fostered additional risk, by allowing the existence of savings and loan mis-management practices. The resolution of this dilemma, and other attempts to protect the public from risk, may shift more of the burden of risk to the individual.

If it becomes necessary for individuals to accept more of the responsibility for their personal financial risks, the perceived risk model could provide two areas of investigation which would have value for policy makers. First, the model is able to provide an understanding of the types of risks depositors are willing to accept and the types of

risk they find bothersome. Supplied with this information, programs offering alternatives to deposit insurance can be developed to provide nearly as much depositor satisfaction. For example, a reduction in deposit insurance may be acceptable to depositors if one or more of the followings alternatives are offered: a higher rate of interest, reliable information about the credit-worthiness of the financial institutions, facilities for spreading deposits among financial institutions, and private deposit insurance available to depositors.

Second, the perceived risk research could provide a means of investigating the methods used or preferred by depositors to control risks. Many of the preferred methods may rely on heuristics and extrinsic cues, which may result in a reduction of perceived risk, not objective risk. A better understanding of the risk control process has implications for public policy in terms of public education, which could increase the use of effective risk control methods, i.e., portfolio investing.

The perceived risk research has the potential of providing an understanding of the risks consumers are willing to accept and the methods they use to control risks. This information offers the means for the reduction of protection provided by the government to consumers by substituting satisfactory risk control alternatives and increasing the consumers' ability to handle risk.

Consumer Attitude Models

In the theoretical development section of this dissertation, the two-stage integrative model is proposed as an alternative to the popular consumer attitude models, such as multiattribute and conjoint analysis. A greater depth of analysis is achievable when product/service features, perceptions, and evaluation are linked together in one model. By using the two-stage integrative model to test the nomological validity of the perceived risk construct, an opportunity has been provided to observe the effectiveness of the two-stage integrative model as a means for analyzing consumer attitudes.

The empirical verification of the perceived risk model supports the

value of the two-stage integrative model in consumer behavior research. By including perceptions as a mediating variable, information was gained about the preferred service feature alternatives and why they were preferred. For example, the in-person method of ordering a mutual fund was preferred by subjects because it lowered their safety and personal risk concerns. On the other hand, the model uncovered a conflict; the in-person method was rated lower on evaluation because it raised concerns about social risk.

Neither the multiattribute model nor the conjoint analysis model would have provided this information. The multiattribute model may have provided the researcher with information about perceived benefits or an evaluation of features, depending on its operationalization. It would not have provided the integrated information about the relationship of features to perceptions and, in turn, to evaluation. This is also true of the conjoint analysis model. Typically, the conjoint analysis model only provides an evaluation of the features.

A researcher armed with the additional information provided by the perceived risk model could design and promote a service that takes consumers' concerns into account. An example is the segmentation strategy described in the Financial Industry section. For many projects, the extra information gained through the use of the perceived risk model may more than justify the effort required to administer the model.

At this stage of development, the perceived risk model is an incomplete model of consumer perceptions. The "unabsorbed" direct effects on evaluation observed in the empirical study, which will be discussed further in the limitations of the study section, suggests the absence of key perceptual variables. The character of the direct effects indicates that the missing perceptual variables may be positive or motivational in nature. If future research can identify these variables, their addition to the perceived risk dimensions would permit the development of a model of perceptual evaluation instead of a model limited to risk perceptions.

LIMITATIONS OF THE RESEARCH

Addressing the areas of the research limitations will clarify some of the research findings and identify possibilities for future study. The areas of research limitations are: 1. the problem of under-specification, 2. the inability to test for convergent and discriminant validity, 3. the poor performance of the risk control variables, and 4. the difficulty of administering the model.

The first limitation results from the restricted research design. The purpose of the research was to focus on perceived risk, and the effects mutual fund order features have on perceived risk. As a result, in the limited specification model, a number of important variables are left out of the model, which results in an obvious under-specification and a high portion of unexplained variance.

One area of under-specification involves the feature-perception link in the first stage of the model. An investor considering a mutual fund investment is influenced by a number of variables other than the service features modeled, i.e., financial market trends. Consequently, the amount of perceived risk variance explained, in comparison to the total amount experienced, is small as evidenced by the low R squares. In support of the model, the variables analyzed are under the control of the practitioner and the model was able to discern an influence on perceptions by these controllable variables.

Another area of under-specification results from limiting the perceptual dimensions to perceived risk. All of the exogenous variables, except situation, had significant direct effects on evaluation indicating that one or more additional perceptual dimensions should have been included in the model. The missing dimensions may represent a perception equivalent to perceived satisfaction and, if they are included, more of the direct effects may be absorbed by the perceptual variables. Even though the perceptual dimensions were limited, an impressive amount of evaluative variance is explained.

The inability to test for convergent and discriminant validity

resulted from the lack of distinction between the stimulus objects in the validation tests. This drawback prevented testing for discriminate validity and weakened the assessment of convergent validity. A future test of perceived risk should include an evaluation of similar investment forms, but maximally different financial risks, to provide the basis for a multi-trait and multi-method test of convergent and discriminant validity (Campbell and Fiske 1959). The lack of distinction, however, provides evidence of the new scales' ability to distinguish between two investment forms of similar credit strength.

The poor performance of the risk control variables found in the validation study is a concern for two reasons. First, on the basis of the perceived risk literature, risk control methods should serve as an excellent criterion variable for perceived risk. Second, an understanding of preferred risk control methods would contribute greatly to the management of perceived risk in the consumer markets.

The lack of results is consistent with prior research, as reported by Gemünden (1985) in his meta-analysis of risk control methods, where he found 51% of the studies disconfirmed a relationship between perceived risk and information search. Gemünden attributed the findings to a number of factors which are reported earlier in this dissertation. A particularly interesting possibility suggested by Gemünden is "tolerated risk." He felt that the testing situation and stimulus objects may present a scenario to subjects which does not raise their concern above a tolerated level, and they are not stimulated to seek information to control risks. Another possibility is simply the lack of understanding about investors' preferred risk control methods. This area requires additional study.

The fourth limitation of the research is the difficulty of administering the model. A potentially large task confronts subjects when they are asked to evaluate product/service concepts. In this research, the number of features were limited to three, with two levels each, to insure a manageable full factorial design. This design required that the subjects make 176 judgments and took approximately 50 minutes to

complete. A larger task would risk subject fatigue and jeopardize the results of the survey.

A full factorial design is required if an assessment of all interactions between the service features is desired (Winer 1973). Using a fractional factorial design allows for a larger number of features in the analysis without adding greatly to the subjects' task, but the power of the analysis is reduced by eliminating some of the interaction effects (Green, Carroll, and Carmone 1978). This may be an acceptable alternative if only the higher order interactions are eliminated, i.e., three-way and four-way interactions.

The administration of the survey requires working directly with subjects either individually or in a group. Pre-testing revealed that the complexity of rating product/service concepts necessitates working with subjects through each step of the survey so that the instructions do not overwhelm them. This rules out more efficient methods of gathering data, such as phone or mail surveys.

SUGGESTIONS FOR FUTURE RESEARCH

The restricted design of the model provides an excellent place to begin when considering future research. As discussed under the limitations of the study, the number of significant direct effects of features on evaluation reveals the need for the development of additional perceptual dimensions. While perceived risk provides insight into some of the constraints on consumer behavior, it would be equally instructive to include an analysis of the more positive, goal-oriented perceptions that guide consumer behavior. Recalling the word association survey conducted in the early part of the research, only 35% of the words reflected concerns about investing. The remaining 65% were expressions of positive or neutral associations with investing behavior, an indication of untapped perceptual dimensions.

The need for additional study of risk control methods has been noted earlier in this dissertation. An understanding of this area is important for practitioners and policy makers. For the practitioner,

including the preferred methods of risk control with his/her service would develop a stronger, more satisfied clientele. For the policy maker, the importance may be in helping the investor to develop effective risk control strategies, an important issue as the government considers shifting more of the banking industry's financial risk to the consumer.

The disappearance of the performance dimension suggests that there is a need for a better understanding of the types of subjects used when purifying scales. Basic attitude dimensions, such as the external/internal evaluations observed in this study, appear to be robust. There may be other important dimensions, at a lower level of abstraction, which are capable of adding to the understanding of an attitude structure, but are lost if a convenience sample does not share the importance of the dimensions. A controlled study of the robustness of dimensions across samples may offer guidelines for the types of samples suitable for developing scales.

VII. CONCLUSIONS

Prior research has identified that perceived risk plays an important role in consumer activities (i.e., Peter and Tarpey 1975; Bearden and Shimp 1982). Progress in developing relationships between perceived risk and its antecedent and criterion variables has been hampered by the lack of valid measures and a theoretical structure to guide its application (Ross 1975; Dowling 1986; Bettman 1986). The objectives of this research have been to correct these weaknesses and to provide a better understanding of the role played by perceived risk in determining consumer behavior.

This perceived risk research, which was conducted in the financial industry, initially uncovered six areas of concerns which related to investing: safety, personal ability, social, personal effort, control, and performance. Reliability and validity testing reduced the areas of concern to four valid dimensions of perceived risk: safety risk, personal risk, social risk, and control risk.

Safety risk and personal risk combine to form an interesting approach for analyzing perceived risk, which has not been reported in earlier research. Safety risk, by analyzing the object under consideration, determines an individual's assessment of the risk inherent in the object. In contrast, personal risk provides an analysis of the individual's ability to cope with the perceived object risk. Earlier measures did not make this distinction, as they focused primarily on the perceived risk which was experienced with the purchase and the use of a product.

Uncertainty, recognized by researchers as a factor contributing to perceived risk, was included in the traditional measures as the probability of loss. Researchers felt that reducing uncertainty would reduce perceived risk. Reducing uncertainty is equivalent to increasing an individual's understanding of possible outcomes and could lead to an increased ability to cope with the risks involved, but does not change the risk inherent in the product. The dissertation research recognizes

this difference and characterizes the individual as capable of separating the inherent risk of the object from his or her ability to cope with the risk. For example, an experienced investor may rate an investment high on safety risk, which reflects the investor's evaluation of the loss potential imposed by the investment. At the same time, the investor may rate the investment low on personal risk, based on his or her perceived ability to evaluate and cope with the risk.

The social risk dimension forms a social back-drop by providing an analysis of an object in terms of its social acceptability. The assessment of social risk also reflects an object-oriented and self-oriented analysis, as evidenced by a strong relationship with both the internal and external dimensions of involvement, which was found during validation testing.

The three risk dimensions - safety, personal, and social - have the potential of generalization to applications outside of the financial industry. Additional research may establish that the three dimensions, or similar measures, form the basic dimensions of perceived risk that could be found in a wide variety of situations.

The fourth risk dimension, control risk, is highly specific to the financial industry by content, and it would appear to have little generalization to other applications. It is possible, however, that the concern about a loss of control has an importance for other applications, but a complete redevelopment of the measures would be required before they could be utilized.

When the newly developed perceived risk scales are compared to the traditional scales, there is a significant improvement in the ability to measure the perceived risk construct. Testing the traditional scales for validity reveals only one valid dimension out of four. The valid dimension is financial risk, a possible artifact of the research, since the testing was done within a financial domain. On the other hand, the new scales have four valid dimensions of perceived risk. Both sets of scales, when used to measure the perceived risk of two forms of investments with similar credit ratings, evaluate the investments as equal in

overall perceived risk. The new scales, however, are sensitive to various types of risks that investors experience with different forms of investments. This is not true for the traditional scales. For example, subjects using the new scales rated corporate bonds higher on control risk, because of their longer maturities, than they rated mutual funds.

Using a theoretical structure that portrays perceived risk as perceptual meaning, the measures of perceived risk form the basis for an effective model of consumer attitudes. When used to evaluate mutual fund concepts, the model is able to distinguish investors' preferences for mutual fund features and explain their preferences in terms of perceived risk. Information about the "why" of the preferences has valuable diagnostic implications that can be used in marketing research to improve the design, promotion, and delivery of products and services.

By including descriptors of individual and situational characteristics, the model provides information useful for developing theoretically based segmentation strategies. For example, the model recommends matching high income individuals, who are investing for future income, with mutual funds sold through securities dealers, by-phone, and without advice (presumably at a lower cost).

Because only measures of perceived risk are included as dimensions of perceptions, the perceived risk model is a limited specification model. Data developed during the empirical verification of the model indicate an obvious under specification in this area. The model did function as predicted by theory. There is a strong tendency for individuals to abstract service features into perceptual meaning and, in turn, to relate the perceptual meaning to overall evaluation. While this provides an effective method of relating perceived risk to antecedent and criterion variables, the potential of expanding the model to include a broader array of perceptual dimensions is offered. The unabsorbed direct effects of service features on evaluation suggest that perceptions of satisfaction are missing in the model. Future research has the potential of identifying the missing perceptions and developing this model into an effective consumer attitude model. If this can be

achieved, the model has the ability to offer greater power than the current models to explain consumer attitudes.

In summary, a valid measure of perceived risk, well suited for the evaluation of financial investments, has been developed in this dissertation. The objective of achieving an improved measure of perceived risk, within the domain of financial investments, has been accomplished. Evidence of this accomplishment is provided by the measure's sensitivity to investment risks and strong dimensional relationships with criterion variables. The research has established that similar sensitivity and dimensional strengths were not incorporated in the traditional scales.

The method used to relate the measures to antecedent and criterion variables is effective and accomplishes the second objective of the dissertation. The method's proficiency is evidenced by its ability to measure the effects of managerially controllable variables on perceptions and to provide an evaluation of the role perceived risk plays in determining consumer behavior. Modeling perceived risk as perceptual meaning provides additional information about the effects of service features on evaluations, that is not available in prior consumer behavior models. The insight gained about the place and advice features illustrates the value of the additional information.

Even though the model is under specified by design, its sensitivity to the effects of service features on perceptions and evaluation provides useful information for designing services, developing segmentation strategies, and creating promotional programs. Future research has the potential of increasing the generalizability and completeness of the model, extending its usefulness as a marketing research tool.

APPENDICES

APPENDIX A

Parameter Estimation Procedure

The following is the procedure for estimating the parameters of the reduced perceived risk model in Figure 6 and testing for a mediating variable:

Step 1: Estimate the total effects of Xa and Xb on X2

X2 = P2aXa + P2bXb

Step 2: Estimate direct effect of Xa and Xb on X2

X2 = P2aXa + P2bXb + P2aX1

If X1 is a mediating variable, parameters, P2a and P2b, will change significantly from Step 1 to Step 2.

Step 3: Estimate the direct effects of Xa and Xb on X1

X1 = P1aXa

X1 = PabXb

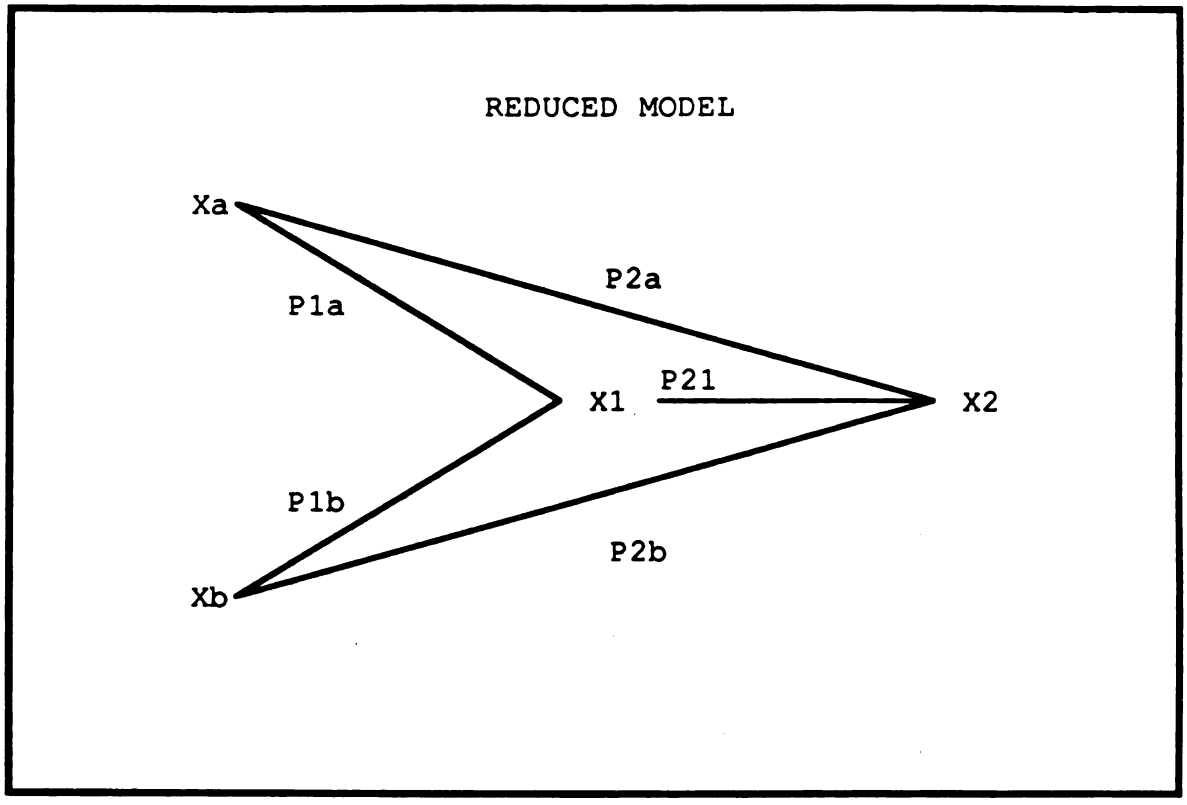

Figure 6

APPENDIX B

Judges' Packet

January 25, 1988

Dear :

Thank you for agreeing to judge the attached scales for face validity.

The objective of this phase of my project is to develop scales that will measure an individual's perception of risk when he or she considers various investment opportunities. The scales will be the semantic differential type where each scale will be anchored by a pair of adjectives or phrases. Candidate words and phrases have been selected from a free association survey of 50 advertising professionals and four focus group interviews comprised of individuals chosen randomly from the Detroit metropolitan area. Candidate words and phrases were paired with antonyms then added to the list of scales.

By reviewing the words and phrases for similarity in concepts, six possible dimensions of risk perception were identified. Definitions of these dimensions are attached.

Your task is to evaluate each pair of words or phrases. The basis for your evaluation should be: Will this pair of words or phrases capture perception of risk an individual may experience when considering an investment? Each evaluation should be referenced to the dimension of risk it is intended to measure.

Your evaluations are to be indicated by circling one of the numbers following the pair being evaluated. Circle the number "1" if you feel the pair is a good measure of the risk dimension or number "5" if you feel it is a poor measure. Use the numbers "2", "3", and "4" for intermediate and undecided feelings.

Any suggestions or comments you have about the pairs will be welcome.

Upon completion, please return your evaluations to me in the enclosed envelope (my mail box in the Marketing Department).

Your assistance is very much appreciated.

Sincerely,

David E. Hartman

Box 359
DeWitt, Michigan 48820

(517) 669-8512

DEFINITIONS

Dimensions of Risk for Financial Investments.

1. **Safety Risk**

   Safety risk reflects the concern an individual has about losing all or part of his or her money when it is placed in an investment such as a corporate bond or mutual fund.

2. **Control Risk**

   This risk dimension reflects the concern an individual has about giving up control of funds that are invested. Concerns are expressed about not being able to meet unplanned expenses while his or her money is "tied up." Fixed maturities and penalties for early withdrawal are examples given in support of this concern.

3. **Personal Ability Risk**

   Concerns are often expressed by individuals about their ability to make an investment. These concerns come from the perceived lack of understanding about the investment process as expressed by statements of "confusing" and "hard to understand." There are also concerns about not having the means available to make the investment which is reflected in statements about the minimum investment required.

4. **Performance Risk**

   The concern about performance or the amount of return on an investment is expressed in terms of adequacy and reliability. Adequacy reflects the concern that a given investment may not be the best alternative available. Reliability reflects the concern about a return fluctuating that it can not be relied upon for living expenses or other needs.

5. **Personal Effort Risk**

   This dimension of risk reflects the concern an individual has about the effort required to make the investment. The amount of effort required is related to the difficulty an individual will have in gaining an understanding of the investment transaction itself and the inconvenience that will be experienced when making that transaction.

6. **Social Risk**

   Social risk is the concern an individual has about the approval of others when making an investment. This concern is reflected in assessments of the "popularity" of certain investment types and the seeking out opinions of others about an investment.

PROPOSED SCALES FOR MEASURING PERCEIVED RISK

		MEASURES	
DIMENSION 1:	**SAFETY RISK**	Good	Poor
1 .	**a certain gain - a certain loss**	1...2...3...4...5	
2 .	**a potential gain - a potential loss**	1...2...3...4...5	
3 .	**a safe bet - a gamble**	1...2...3...4...5	
4 .	**always there - a possible loss**	1...2...3...4...5	
5 .	**assured - not assured**	1...2...3...4...5	
6 .	**certain - uncertain**	1...2...3...4...5	
7 .	**definite - chancy**	1...2...3...4...5	
8 .	**dependable - not dependable**	1...2...3...4...5	
9 .	**dependable - speculative**	1...2...3...4...5	
10 .	**fluctuating - not fluctuating**	1...2...3...4...5	
11 .	**low risk - high risk**	1...2...3...4...5	
12 .	**not worrisome - worrisome**	1...2...3...4...5	
13 .	**predictable - unpredictable**	1...2...3...4...5	
14 .	**protected - unprotected**	1...2...3...4...5	
15 .	**reliable - unreliable**	1...2...3...4...5	
16 .	**safe - risky**	1...2...3...4...5	
17 .	**safe - unsafe**	1...2...3...4...5	
18 .	**secure - insecure**	1...2...3...4...5	
19 .	**secure - risky**	1...2...3...4...5	
20 .	**unchanging - changing**	1...2...3...4...5	
21 .	**unquestionable - questionable**	1...2...3...4...5	

DIMENSION 2: CONTROL RISK		Good Poor
22 .	accessible - locked away	1...2...3...4...5
23 .	accessible - not accessible	1...2...3...4...5
24 .	available - tied up	1...2...3...4...5
25 .	available - unavailable	1...2...3...4...5
26 .	controllable - uncontrollable	1...2...3...4...5
27 .	flexible - inflexible	1...2...3...4...5
28 .	liquid - not liquid	1...2...3...4...5
29 .	non-committed - committed	1...2...3...4...5
30 .	non-restricted - obligated	1...2...3...4...5
31 .	non-restricted - restricted	1...2...3...4...5
32 .	obtainable - not obtainable	1...2...3...4...5
33 .	short term - long term	1...2...3...4...5
34 .	tentative - contracted	1...2...3...4...5
35 .	unconstrained - constrained	1...2...3...4...5
36 .	uncontrolled - controlled	1...2...3...4...5
37 .	unrestricted - restricted	1...2...3...4...5
38 .	usable - not usable	1...2...3...4...5

DIMENSION 3: PERSONAL ABILITY RISK		Good Poor
39 .	clear - perplexing	1...2...3...4...5
40 .	clear - unclear	1...2...3...4...5
41 .	clear-cut - complex	1...2...3...4...5
42 .	comfortable - uncomfortable	1...2...3...4...5
43 .	easily understood - puzzling	1...2...3...4...5
44 .	easy - complicated	1...2...3...4...5

DIMENSION 4: PERFORMANCE RISK		Good Poor
67 .	advantageous - disadvantageous	1...2...3...4...5
68 .	certain return - uncertain return	1...2...3...4...5
69 .	constant - fluctuating	1...2...3...4...5
70 .	constant - variable	1...2...3...4...5
71 .	dependable - undependable	1...2...3...4...5
72 .	established - ever-changing	1...2...3...4...5
73 .	high potential - limited potential	1...2...3...4...5
74 .	high return - low return	1...2...3...4...5
75 .	invariable - variable	1...2...3...4...5
76 .	lucrative - not lucrative	1...2...3...4...5
77 .	money making - money losing	1...2...3...4...5
78 .	profitable - unprofitable	1...2...3...4...5
79 .	reliable - unreliable	1...2...3...4...5
80 .	rewarding - unrewarding	1...2...3...4...5
81 .	satisfying - disappointing	1...2...3...4...5
82 .	satisfying - not satisfying	1...2...3...4...5
83 .	satisfying - unsatisfying	1...2...3...4...5
84 .	stable - changeable	1...2...3...4...5
85 .	stable - unstable	1...2...3...4...5
86 .	steady - variable	1...2...3...4...5
87 .	well-paying - poor paying	1...2...3...4...5
88 .	worthwhile - not worthwhile	1...2...3...4...5

DIMENSION 5: PERSONAL EFFORT RISK		Good Poor
89 .	convenient - inconvenient	1...2...3...4...5
90 .	easy - difficult	1...2...3...4...5
91 .	easy access - difficult access	1...2...3...4...5
92 .	easy process - difficult process	1...2...3...4...5
93 .	efficient - inefficient	1...2...3...4...5
94 .	feasible - not feasible	1...2...3...4...5
95 .	needing little time to study - needing much time to study	1...2...3...4...5
96 .	needing little watching - needing a lot of watching	1...2...3...4...5
97 .	nothing to it - troublesome	1...2...3...4...5
98 .	practical - impractical	1...2...3...4...5
99 .	practical - troublesome	1...2...3...4...5
100 .	requiring little knowledge - requiring much knowledge	1...2...3...4...5
101 .	requiring little time - requiring much time	1...2...3...4...5
102 .	requiring no review - requiring continuous review	1...2...3...4...5
103 .	requiring research - requiring no research	1...2...3...4...5
104 .	simple - difficult	1...2...3...4...5
105 .	workable - unworkable	1...2...3...4...5
106 .	worthwhile - waste of time	1...2...3...4...5

DIMENSION 6: SOCIAL RISK		Good Poor
107 .	acceptable - unacceptable	1...2...3...4...5
108 .	accepted - not accepted	1...2...3...4...5
109 .	agreeable - disagreeable	1...2...3...4...5
110 .	approved - disapproved	1...2...3...4...5
111 .	approved - not approved	1...2...3...4...5
112 .	attractive - unattractive	1...2...3...4...5
113 .	contemporary - old fashioned	1...2...3...4...5
114 .	conventional - unconventional	1...2...3...4...5
115 .	current - out-of-date	1...2...3...4...5
116 .	established - unusual	1...2...3...4...5
117 .	fashionable - out-of-fashion	1...2...3...4...5
118 .	fulfilling - unfulfilling	1...2...3...4...5
119 .	innovative - conservative	1...2...3...4...5
120 .	interesting - dull	1...2...3...4...5
121 .	interesting - uninteresting	1...2...3...4...5
122 .	modern - obsolete	1...2...3...4...5
123 .	not objectionable - objectionable	1...2...3...4...5
124 .	orthodox - unusual	1...2...3...4...5
125 .	pleasing - not pleasing	1...2...3...4...5
126 .	popular - obsolete	1...2...3...4...5
127 .	popular - old fashioned	1...2...3...4...5
128 .	progressive - behind-the-times	1...2...3...4...5
129 .	qualified - unqualified	1...2...3...4...5
130 .	recognized - not recognized	1...2...3...4...5
131 .	satisfactory - unsatisfactory	1...2...3...4...5

132 .	**sensible - ridiculous**	1...2...3...4...5
133 .	**shrewd - unattractive**	1...2...3...4...5
134 .	**smart - out-of-fashion**	1...2...3...4...5
135 .	**suitable - not suitable**	1...2...3...4...5
136 .	**traditional - non-traditional**	1...2...3...4...5
137 .	**trendy - conservative**	1...2...3...4...5

APPENDIX C

Forty Item Perceived Risk Measure

MASTER

	(Safety Risk)	
a safe bet	..1..2..3..4..5..6..7..	a gamble
uncertain	..1..2..3..4..5..6..7..	certain
definite	..1..2..3..4..5..6..7..	chancy
high risk	..1..2..3..4..5..6..7..	low risk
predictable	..1..2..3..4..5..6..7..	unpredictable
unreliable	..1..2..3..4..5..6..7..	reliable
safe	..1..2..3..4..5..6..7..	unsafe
	(Control Risk)	
unaccessible	..1..2..3..4..5..6..7..	accessible
available	..1..2..3..4..5..6..7..	unavailable
uncontrollable	..1..2..3..4..5..6..7..	controllable
flexible	..1..2..3..4..5..6..7..	inflexible
unobtainable	..1..2..3..4..5..6..7..	obtainable
unrestricted	..1..2..3..4..5..6..7..	restricted
unusable	..1..2..3..4..5..6..7..	usable
	(Personal Ability Risk)	
clear	..1..2..3..4..5..6..7..	unclear
puzzling	..1..2..3..4..5..6..7..	knowable
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
hard to understand	..1..2..3..4..5..6..7..	easy to understand
familiar	..1..2..3..4..5..6..7..	unfamiliar
confusing	..1..2..3..4..5..6..7..	straight-forward
uncomplicated	..1..2..3..4..5..6..7..	complicated
	(Performance Risk)	
uncertain outcome	..1..2..3..4..5..6..7..	certain outcome
constant	..1..2..3..4..5..6..7..	variable
undependable	..1..2..3..4..5..6..7..	dependable
profitable	..1..2..3..4..5..6..7..	unprofitable
stable	..1..2..3..4..5..6..7..	unstable
	(Personal Effort Risk)	
inconvenient	..1..2..3..4..5..6..7..	convenient
efficient	..1..2..3..4..5..6..7..	inefficient
difficult process	..1..2..3..4..5..6..7..	easy process
requiring little time	..1..2..3..4..5..6..7..	requiring much time
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
requiring no research	..1..2..3..4..5..6..7..	requiring much research
complex	..1..2..3..4..5..6..7..	simple
	(Social Risk)	
acceptable	..1..2..3..4..5..6..7..	unacceptable
unconventional	..1..2..3..4..5..6..7..	conventional
innovative	..1..2..3..4..5..6..7..	old fashioned
obsolete	..1..2..3..4..5..6..7..	modern
popular	..1..2..3..4..5..6..7..	unpopular
behind-the-times	..1..2..3..4..5..6..7..	progressive
trendy	..1..2..3..4..5..6..7..	conservative

APPENDIX D

Reliability Survey

INSTRUCTIONS

The purpose of this survey is to test the reliability of the measuring instrument (the attached lists of word pairs and phrases) more than it is to evaluate the investment alternatives. The test is achieved by having you evaluate investment alternatives using the measuring instrument.

In this survey, you will be presented with three investment alternatives to be evaluated, savings account, corporate bond, and mutual fund. Investment definitions to use for this survey are attached. You task is to evaluate the alternatives using the word pairs and phrases provided.

While making your evaluations, you should think of a situation where you have some extra money in your checking account and would like to invest it. Your intention is to leave the money in the investment for a year or more at which time it will be used for a specific purpose.

The evaluation is completed by circling a number within each pair of words or phrases. You are to choose a number that lies in the direction of the word or phrase that better reflects your feelings. The numbers closest to the word or phrase you are considering represent the strongest reflections of your feelings.

For example, if the word pair is:
Like ..1..2..3..4..5..6..7.. Dislike
and:

1. You strongly like or dislike the investment, circle 1 or 7;
2. You tend to like or dislike the investment, circle 2 or 6;
3. You slightly like or dislike the investment, circle 3 or 5;
4. You are neutral, circle 4.

It is important to remember to:

1. Respond to every pair of words or phrases for every investment.
2. Not circle more than one number for each pair of words or phrases.

Upon completing the evaluation forms, turn to the last page and rank the investment alternatives as indicated.

Your assistance with this project is very much appreciated.

DEFINITIONS OF INVESTMENTS

SAVINGS ACCOUNT

A savings account is the type available at commercial banks, savings and loans, and credit unions. Money in the account is insured by a Federal Government agency.

CORPORATE BOND

A corporate bond is an obligation of a well-known, large corporation. It can be purchased and sold through a security dealer during most business days.

MUTUAL FUND

A mutual fund represents a group of common stocks. It can be purchased and sold through a security dealer or directly through the mutual fund itself during most business days.

Please rate a SAVINGS ACCOUNT as an investment alternative for you.

a safe bet	..1..2..3..4..5..6..7..	a gamble
high risk	..1..2..3..4..5..6..7..	low risk
safe	..1..2..3..4..5..6..7..	unsafe
uncontrollable	..1..2..3..4..5..6..7..	controllable
unrestricted	..1..2..3..4..5..6..7..	restricted
puzzling	..1..2..3..4..5..6..7..	knowable
familiar	..1..2..3..4..5..6..7..	unfamiliar
uncertain outcome	..1..2..3..4..5..6..7..	certain outcome
profitable	..1..2..3..4..5..6..7..	unprofitable
inconvenient	..1..2..3..4..5..6..7..	convenient
requiring little time	..1..2..3..4..5..6..7..	requiring much time
complex	..1..2..3..4..5..6..7..	simple
innovative	..1..2..3..4..5..6..7..	old fashioned
behind-the-times	..1..2..3..4..5..6..7..	progressive
valuable	..1..2..3..4..5..6..7..	worthless
displeasing	..1..2..3..4..5..6..7..	pleasing
like	..1..2..3..4..5..6..7..	dislike
difficult process	..1..2..3..4..5..6..7..	easy process
requiring no research	..1..2..3..4..5..6..7..	requiring much research
unconventional	..1..2..3..4..5..6..7..	conventional
uncertain	..1..2..3..4..5..6..7..	certain
predictable	..1..2..3..4..5..6..7..	unpredictable
unaccessible	..1..2..3..4..5..6..7..	accessible
flexible	..1..2..3..4..5..6..7..	inflexible
unusable	..1..2..3..4..5..6..7..	usable
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
confusing	..1..2..3..4..5..6..7..	straight-forward
constant	..1..2..3..4..5..6..7..	variable
stable	..1..2..3..4..5..6..7..	unstable
efficient	..1..2..3..4..5..6..7..	inefficient
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
acceptable	..1..2..3..4..5..6..7..	unacceptable
obsolete	..1..2..3..4..5..6..7..	modern
trendy	..1..2..3..4..5..6..7..	conservative
unsatisfying	..1..2..3..4..5..6..7..	satisfying
desirable	..1..2..3..4..5..6..7..	undesirable
popular	..1..2..3..4..5..6..7..	unpopular
foolish	..1..2..3..4..5..6..7..	wise
attractive	..1..2..3..4..5..6..7..	unattractive
boring	..1..2..3..4..5..6..7..	interesting
definite	..1..2..3..4..5..6..7..	chancy
unreliable	..1..2..3..4..5..6..7..	reliable
available	..1..2..3..4..5..6..7..	unavailable
unobtainable	..1..2..3..4..5..6..7..	obtainable
clear	..1..2..3..4..5..6..7..	unclear
hard to understand	..1..2..3..4..5..6..7..	easy to understand
uncomplicated	..1..2..3..4..5..6..7..	complicated
undependable	..1..2..3..4..5..6..7..	dependable

Please rate a CORPORATE BOND as an investment alternative for you.

difficult process	..1..2..3..4..5..6..7..	easy process
acceptable	..1..2..3..4..5..6..7..	unacceptable
behind-the-times	..1..2..3..4..5..6..7..	progressive
attractive	..1..2..3..4..5..6..7..	unattractive
a safe bet	..1..2..3..4..5..6..7..	a gamble
unreliable	..1..2..3..4..5..6..7..	reliable
flexible	..1..2..3..4..5..6..7..	inflexible
puzzling	..1..2..3..4..5..6..7..	knowable
uncomplicated	..1..2..3..4..5..6..7..	complicated
profitable	..1..2..3..4..5..6..7..	unprofitable
requiring little time	..1..2..3..4..5..6..7..	requiring much time
unconventional	..1..2..3..4..5..6..7..	conventional
trendy	..1..2..3..4..5..6..7..	conservative
displeasing	..1..2..3..4..5..6..7..	pleasing
uncertain	..1..2..3..4..5..6..7..	certain
safe	..1..2..3..4..5..6..7..	unsafe
unobtainable	..1..2..3..4..5..6..7..	obtainable
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
uncertain outcome	..1..2..3..4..5..6..7..	certain outcome
stable	..1..2..3..4..5..6..7..	unstable
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
innovative	..1..2..3..4..5..6..7..	old fashioned
foolish	..1..2..3..4..5..6..7..	wise
desirable	..1..2..3..4..5..6..7..	undesirable
definite	..1..2..3..4..5..6..7..	chancy
unaccessible	..1..2..3..4..5..6..7..	accessible
unrestricted	..1..2..3..4..5..6..7..	restricted
hard to understand	..1..2..3..4..5..6..7..	easy to understand
constant	..1..2..3..4..5..6..7..	variable
inconvenient	..1..2..3..4..5..6..7..	convenient
requiring no research	..1..2..3..4..5..6..7..	requiring much research
obsolete	..1..2..3..4..5..6..7..	modern
valuable	..1..2..3..4..5..6..7..	worthless
boring	..1..2..3..4..5..6..7..	interesting
high risk	..1..2..3..4..5..6..7..	low risk
available	..1..2..3..4..5..6..7..	unavailable
unusable	..1..2..3..4..5..6..7..	usable
familiar	..1..2..3..4..5..6..7..	unfamiliar
undependable	..1..2..3..4..5..6..7..	dependable
efficient	..1..2..3..4..5..6..7..	inefficient
complex	..1..2..3..4..5..6..7..	simple
popular	..1..2..3..4..5..6..7..	unpopular
unsatisfying	..1..2..3..4..5..6..7..	satisfying
like	..1..2..3..4..5..6..7..	dislike
predictable	..1..2..3..4..5..6..7..	unpredictable
uncontrollable	..1..2..3..4..5..6..7..	controllable
clear	..1..2..3..4..5..6..7..	unclear
confusing	..1..2..3..4..5..6..7..	straight-forward

Please rate a MUTUAL FUND as an investment alternative for you.

available	..1..2..3..4..5..6..7..	unavailable
familiar	..1..2..3..4..5..6..7..	unfamiliar
efficient	..1..2..3..4..5..6..7..	inefficient
popular	..1..2..3..4..5..6..7..	unpopular
boring	..1..2..3..4..5..6..7..	interesting
uncontrollable	..1..2..3..4..5..6..7..	controllable
confusing	..1..2..3..4..5..6..7..	straight-forward
difficult process	..1..2..3..4..5..6..7..	easy process
behind-the-times	..1..2..3..4..5..6..7..	progressive
like	..1..2..3..4..5..6..7..	dislike
a safe bet	..1..2..3..4..5..6..7..	a gamble
flexible	..1..2..3..4..5..6..7..	inflexible
uncomplicated	..1..2..3..4..5..6..7..	complicated
requiring little time	..1..2..3..4..5..6..7..	requiring much time
trendy	..1..2..3..4..5..6..7..	conservative
uncertain	..1..2..3..4..5..6..7..	certain
unobtainable	..1..2..3..4..5..6..7..	obtainable
uncertain outcome	..1..2..3..4..5..6..7..	certain outcome
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
foolish	..1..2..3..4..5..6..7..	wise
definite	..1..2..3..4..5..6..7..	chancy
unrestricted	..1..2..3..4..5..6..7..	restricted
constant	..1..2..3..4..5..6..7..	variable
requiring no research	..1..2..3..4..5..6..7..	requiring much research
valuable	..1..2..3..4..5..6..7..	worthless
high risk	..1..2..3..4..5..6..7..	low risk
unusable	..1..2..3..4..5..6..7..	usable
undependable	..1..2..3..4..5..6..7..	dependable
complex	..1..2..3..4..5..6..7..	simple
unsatisfying	..1..2..3..4..5..6..7..	satisfying
predictable	..1..2..3..4..5..6..7..	unpredictable
clear	..1..2..3..4..5..6..7..	unclear
profitable	..1..2..3..4..5..6..7..	unprofitable
acceptable	..1..2..3..4..5..6..7..	unacceptable
attractive	..1..2..3..4..5..6..7..	unattractive
unreliable	..1..2..3..4..5..6..7..	reliable
puzzling	..1..2..3..4..5..6..7..	knowable
obsolete	..1..2..3..4..5..6..7..	modern
unconventional	..1..2..3..4..5..6..7..	conventional
displeasing	..1..2..3..4..5..6..7..	pleasing
safe	..1..2..3..4..5..6..7..	unsafe
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
stable	..1..2..3..4..5..6..7..	unstable
innovative	..1..2..3..4..5..6..7..	old fashioned
desirable	..1..2..3..4..5..6..7..	undesirable
unaccessible	..1..2..3..4..5..6..7..	accessible
hard to understand	..1..2..3..4..5..6..7..	easy to understand
inconvenient	..1..2..3..4..5..6..7..	convenient

A. INVESTMENT RANKINGS

1. Please rank the following investment alternatives according to how risk you feel that are. A one (1) indicates the highest risk and a three (3) indicates the lowest risk.

Corporate bond _____

Savings account _____

Mutual fund _____

B. PERSONAL INFORMATION

1. Gender: Male _____ Female _____
2. Age: _____
3. Country of origin: _____
4. Have you personally invested in a :
   Savings account: _____
   Corporate bond: _____
   Mutual fund: _____

APPENDIX E

Test-Retest Reliability Survey

FINANCIAL INVESTMENT SURVEY I

Form ID:
Your first initial _____
Last three digits of
your phone number _____

INSTRUCTIONS

This is a survey in which you will be asked to express you feelings about two types of investments. The purpose of the survey is to test the reliability of the survey form which is done through your evaluation of familiar types of financial investments.

Attached are two rating forms: one for a corporate bond and one for a mutual fund. The corporate bond we have in mind is a 20 year obligation of a well known corporation with a AAA credit rating. The bond may be traded in the market on most business days. The mutual fund represents a group of high quality common stocks and is managed by a well known and respected fund manager.

Please indicate your feelings about the two investment types on the survey forms. Think about the investment types as though you are considering them for a possible future investment. Make your indications by circling one number for each pair of words or phrases on the survey form. Choose a number that lies in the direction of the word or phrase that best expresses your feelings. The closer the number is to the word, the stronger it represents your feelings.

For example, the word pair may be:

boring..1.2.3.4.5.6.7..interesting

If you feel the investment type is fairly interesting, you would circle number "6".

For our records, please indicate whether you have:

1. Taken a class in finance? Yes____ No____
2. Purchased a common stock, a mutual fund, or a corporate bond? Yes____ No____

You may turn the page at this time and begin the survey.

Thank you for your participation.

David E. Hartman
Doctoral Candidate
Dept of Marketing and Transportation
Michigan State University

INVESTMENT EVALUATION

Please circle one number in each of the following pair of words or phrases that best reflects your feelings about CORPORATE BONDS.

unpredictable	..1..2..3..4..5..6..7..	predictable
puzzling	..1..2..3..4..5..6..7..	knowable
money is unaccessible	..1..2..3..4..5..6..7..	accessible
money is usable	..1..2..3..4..5..6..7..	unusable
behind-the-times	..1..2..3..4..5..6..7..	progressive
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
a safe bet	..1..2..3..4..5..6..7..	a gamble
safe	..1..2..3..4..5..6..7..	unsafe
easy to understand	..1..2..3..4..5..6..7..	hard to understand
money is available	..1..2..3..4..5..6..7..	unavailable
old fashioned	..1..2..3..4..5..6..7..	innovative
trendy	..1..2..3..4..5..6..7..	out-of-date
requiring no research	..1..2..3..4..5..6..7..	requiring much research
high risk	..1..2..3..4..5..6..7..	low risk
unstable	..1..2..3..4..5..6..7..	stable
confusing	..1..2..3..4..5..6..7..	straight-forward
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
modern	..1..2..3..4..5..6..7..	obsolete
requiring much time	..1..2..3..4..5..6..7..	requiring little time
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
certain	..1..2..3..4..5..6..7..	uncertain
clear	..1..2..3..4..5..6..7..	unclear
simple	..1..2..3..4..5..6..7..	complex

INVESTMENT EVALUATION

Please circle one number in each of the following pair of words or phrases that best reflects your feelings about MUTUAL FUNDS.

safe	..1..2..3..4..5..6..7..	unsafe
confusing	..1..2..3..4..5..6..7..	straight-forward
money is usable	..1..2..3..4..5..6..7..	unusable
requiring much time	..1..2..3..4..5..6..7..	requiring little time
a safe bet	..1..2..3..4..5..6..7..	a gamble
unstable	..1..2..3..4..5..6..7..	stable
simple	..1..2..3..4..5..6..7..	complex
old fashioned	..1..2..3..4..5..6..7..	innovative
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
high risk	..1..2..3..4..5..6..7..	low risk
clear	..1..2..3..4..5..6..7..	unclear
money is unaccessible	..1..2..3..4..5..6..7..	accessible
modern	..1..2..3..4..5..6..7..	obsolete
requiring no research	..1..2..3..4..5..6..7..	requiring much research
certain	..1..2..3..4..5..6..7..	uncertain
puzzling	..1..2..3..4..5..6..7..	knowable
money is available	..1..2..3..4..5..6..7..	unavailable
behind-the-times	..1..2..3..4..5..6..7..	progressive
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
unpredictable	..1..2..3..4..5..6..7..	predictable
easy to understand	..1..2..3..4..5..6..7..	hard to understand
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
trendy	..1..2..3..4..5..6..7..	out-of-date

FINANCIAL INVESTMENT SURVEY II

Form ID:
Your first initial _____
Last three digits of
your phone number _____

INSTRUCTIONS

This is the SECOND survey in which you will be asked to express you feelings about two types of investments. The purpose of this survey is to learn if the survey form provides consistent informations with repeated administrations.

As with the first survey you completed, there are two rating forms attached: one for a corporate bond and one for a mutual fund. The corporate bond we have in mind is a 20 year obligation of a well known corporation with a AAA credit rating. The bond may be traded in the market on most business days. The mutual fund represents a group of high quality common stocks and is managed by a well known and respected fund manager.

Please indicate your feelings about the two investment types on the survey forms. Think about the investment types as though you are considering them for a possible future investment. Make your indications by circling one number for each pair of words or phrases on the survey form. Choose a number that lies in the direction of the word or phrase that best expresses your feelings. The closer the number is to the word, the stronger it represents your feelings.

For example, the word pair may be:

boring..1.2.3.4.5.6.7..interesting

If you feel the investment type is fairly interesting, you would circle number "5" or "6".

You may turn the page at this time and begin the survey.

Thank you for your participation.

David E. Hartman
Doctoral Candidate
Dept of Marketing and Transportation
Michigan State University

INVESTMENT EVALUATION

Please circle one number in each of the following pair of words or phrases that best reflects your feelings about CORPORATE BONDS.

safe	..1..2..3..4..5..6..7..	unsafe
confusing	..1..2..3..4..5..6..7..	straight-forward
money is usable	..1..2..3..4..5..6..7..	unusable
requiring much time	..1..2..3..4..5..6..7..	requiring little time
a safe bet	..1..2..3..4..5..6..7..	a gamble
unstable	..1..2..3..4..5..6..7..	stable
simple	..1..2..3..4..5..6..7..	complex
old fashioned	..1..2..3..4..5..6..7..	innovative
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
high risk	..1..2..3..4..5..6..7..	low risk
clear	..1..2..3..4..5..6..7..	unclear
money is unaccessible	..1..2..3..4..5..6..7..	accessible
modern	..1..2..3..4..5..6..7..	obsolete
requiring no research	..1..2..3..4..5..6..7..	requiring much research
certain	..1..2..3..4..5..6..7..	uncertain
puzzling	..1..2..3..4..5..6..7..	knowable
money is available	..1..2..3..4..5..6..7..	unavailable
behind-the-times	..1..2..3..4..5..6..7..	progressive
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
unpredictable	..1..2..3..4..5..6..7..	predictable
easy to understand	..1..2..3..4..5..6..7..	hard to understand
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
trendy	..1..2..3..4..5..6..7..	out-of-date

INVESTMENT EVALUATION

Please circle one number in each of the following pair of words or phrases that best reflects your feelings about MUTUAL FUNDS.

unpredictable	..1..2..3..4..5..6..7..	predictable
puzzling	..1..2..3..4..5..6..7..	knowable
money is unaccessible	..1..2..3..4..5..6..7..	accessible
money is usable	..1..2..3..4..5..6..7..	unusable
behind-the-times	..1..2..3..4..5..6..7..	progressive
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
a safe bet	..1..2..3..4..5..6..7..	a gamble
safe	..1..2..3..4..5..6..7..	unsafe
easy to understand	..1..2..3..4..5..6..7..	hard to understand
money is available	..1..2..3..4..5..6..7..	unavailable
old fashioned	..1..2..3..4..5..6..7..	innovative
trendy	..1..2..3..4..5..6..7..	out-of-date
requiring no research	..1..2..3..4..5..6..7..	requiring much research
high risk	..1..2..3..4..5..6..7..	low risk
unstable	..1..2..3..4..5..6..7..	stable
confusing	..1..2..3..4..5..6..7..	straight-forward
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
modern	..1..2..3..4..5..6..7..	obsolete
requiring much time	..1..2..3..4..5..6..7..	requiring little time
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
certain	..1..2..3..4..5..6..7..	uncertain
clear	..1..2..3..4..5..6..7..	unclear
simple	..1..2..3..4..5..6..7..	complex

APPENDIX F

Validation Survey

INTRODUCTION TO
FINANCIAL INVESTMENT SURVEY

Purpose

This research is sponsored by Michigan State University and a major Michigan financial institution. The objective of the research project is to learn about individuals' feelings toward financial investments. The results of the research will be used in the design and delivery of financial products that are more acceptable to investors. Your participation in the project will contribute greatly to achieving this objective.

Your task

You are to rate a type of financial investment on the basis of your opinions about it. The investment type will be given to you on the next page. You will be asked to rate the investment type from five different points of view: 1.Investment Evaluation, 2. Investor's Attitude, 3. Investor's Involvement, 4. Risk Evaluation, and 5. Risk Control. The last section of the survey is a brief personal questionnaire. The survey will take about 10 minutes to complete.

Confidential

All information given on this survey is strictly confidential. Your name or other personal identification will not appear on any of the forms.

How to complete the survey

You are to rate the investment type by circling a number between a pair of words or short phrases. As an example, if a savings account is being rated and one of the word pairs used to rate the savings account is,

Like ..1..2..3..4..5..6..7.. Dislike

you are to circle a number that lies in the direction of the word that better reflects your feelings. The closer the number is to the word, the stronger it reflects your feelings. If, in this example, you feel strongly that a savings account is not a good type of investment, six or seven may be your choice.

The instructions that follow will guide you through the survey. Please turn the page now for a discription the investment type.

Survey prepared by:

David E. Hartman
Department of Marketing and Transportation
Michigan State University
E. Lansing, Mich 48824

(517) 669-8512

(Please do not unstaple the forms)

TYPE OF INVESTMENT

The type of investment you are to rate is a CORPORATE BOND. You are to think of the bond as a 20-year obligation of a well known corporation with good credit such as General Motors, IBM, or Exxon.

While making your ratings, you are to think of investing a fair amount of money, say $10,000, for at least one year. At the end of that time, you intend to use the money for a special purpose: a major purchase, child's education, vacation, etc.

Part 1

INVESTMENT EVALUATION

Please circle one number in each of the following pair of words or phrases that best reflects your feelings about CORPORATE BONDS.

unpredictable	..1..2..3..4..5..6..7..	predictable
puzzling	..1..2..3..4..5..6..7..	knowable
money is unaccessible	..1..2..3..4..5..6..7..	accessible
money is usable	..1..2..3..4..5..6..7..	unusable
behind-the-times	..1..2..3..4..5..6..7..	progressive
requiring no review	..1..2..3..4..5..6..7..	requiring constant review
a safe bet	..1..2..3..4..5..6..7..	a gamble
safe	..1..2..3..4..5..6..7..	unsafe
easy to understand	..1..2..3..4..5..6..7..	hard to understand
money is available	..1..2..3..4..5..6..7..	unavailable
old fashioned	..1..2..3..4..5..6..7..	innovative
trendy	..1..2..3..4..5..6..7..	out-of-date
requiring much research	..1..2..3..4..5..6..7..	requiring no research
high risk	..1..2..3..4..5..6..7..	low risk
unstable	..1..2..3..4..5..6..7..	stable
confusing	..1..2..3..4..5..6..7..	straight-forward
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
modern	..1..2..3..4..5..6..7..	obsolete
requiring much time	..1..2..3..4..5..6..7..	requiring little time
easy to decide	..1..2..3..4..5..6..7..	difficult to decide
certain	..1..2..3..4..5..6..7..	uncertain
clear	..1..2..3..4..5..6..7..	unclear
simple	..1..2..3..4..5..6..7..	complex

Please turn the page for Part 2.

Part 2

INVESTOR'S ATTITUDE

We are interested in whether you like or dislike a CORPORATE BOND for the investment purpose suggested. Please express your feelings by circling a number in each of the following word pairs.

wise	..1..2..3..4..5..6..7..	foolish
worthless	..1..2..3..4..5..6..7..	valuable
satisfying	..1..2..3..4..5..6..7..	unsatisfying
unattractive	..1..2..3..4..5..6..7..	attractive
pleasing	..1..2..3..4..5..6..7..	displeasing
undesirable	..1..2..3..4..5..6..7..	desirable
like	..1..2..3..4..5..6..7..	dislike

Part 3

INVESTOR'S INVOLVEMENT

We are interested in knowing how involving you find investing. Please circle a number in each of the following pairs of words or phrases to indicate how involving you find investing in a CORPORATE BOND.

relevant	..1..2..3..4..5..6..7..	irrelevant
not fun	..1..2..3..4..5..6..7..	fun
of concern to me	..1..2..3..4..5..6..7..	of no concern
unexciting	..1..2..3..4..5..6..7..	exciting
means a lot to me	..1..2..3..4..5..6..7..	means nothing to me
tells me about a person	..1..2..3..4..5..6..7..	shows nothing

unimportant	..1..2..3..4..5..6..7..	important
interesting	..1..2..3..4..5..6..7..	uninteresting
matters to me	..1..2..3..4..5..6..7..	doesn't matter
unappealing	..1..2..3..4..5..6..7..	appealing
says something about me	..1..2..3..4..5..6..7..	says nothing about me

Please turn the page for Part 4.

CB-1 #___
Sec _____

Part 4

RISK EVALUATION

We are interested in knowing how much risk you feel is involved when making the suggested investment in a CORPORATE BOND. The following statements ask about various possible losses an investor may experience. Please express your feelings about these types of losses by circling the appropriate number in the rating scales.

What is the possibility this investment will lead to a financial loss?	very low ..1.2.3.4.5.6.7..very high
If a financial loss should occur, how important would that be to you?	not important..1.2.3.4.5.6.7..very important
What is the possibility this investment will lead to a social loss because your friends and relatives will be critical of the investment?	very low ..1.2.3.4.5.6.7..very high
If a social loss should occur, how important would that be to you?	not important..1.2.3.4.5.6.7..very important
What is the possibility this investment will lead to a performance loss because of slow payment of interest/dividends or difficulties in collecting your money when disinvesting?	very low ..1.2.3.4.5.6.7..very high
If a performance loss should occur, how important would that be to you?	not important..1.2.3.4.5.6.7..very important
What is the possibility this investment will result in a convenience loss for you by wasting a lot of time and effort when investing, monitoring, and disinvesting?	very low ..1.2.3.4.5.6.7..very high
If a convenience loss should occur, how important would that be to you?	not important..1.2.3.4.5.6.7..very important
In general, how much risk would you say is involved in making an investment of this type?	little risk..1.2.3.4.5.6.7..large risk

Please turn the page to Part 5.

Part 5

RISK CONTROL

The following statements refer to methods some investors use to control risks when investing in CORPORATE BONDS. Please indicate how much you agree or disagree with each statement by circling the appropriate number in the rating scales.

I am willing to pay as much as 2% of the investment for expert advice regarding this type of investment.	strongly agree ..1..2..3..4..5..6..7.. strongly disagree
It is <u>not</u> important to me to subscribe to a news letter or financial magazine to learn about this type of investment.	strongly agree ..1..2..3..4..5..6..7.. strongly disagree
It is important to me to purchase this investment through a full service broker who provides advice even though his or her fees may be 50% higher than a discount broker.	strongly agree ..1..2..3..4..5..6..7.. strongly disagree
I prefer making this investment in a security that offers a return 2% higher than the average rate of return even though the risk may be higher.	strongly agree ..1..2..3..4..5..6..7.. strongly disagree

Part 6

PERSONAL INFORMATION

Gender: Male____ Female____

Age: Under 25 ____ 25-44 ____ 45-64 ____ Over 64 ____

Annual household income: Under $30,000 ____ $30,000 - 50,000 ____ $50,000 - 70,000 ____ Over $70,000 ____

Do you participate in an employer sponsored pension and/or profit sharing program? Yes ____ No ____

Have you personally invested in a:	Yes	No
Time certificate of deposit	____	____
Corporate bond	____	____
Mutual fund	____	____
Common stock	____	____

APPENDIX G

Nomological Survey

MUTUAL FUND CONCEPT SURVEY

Survey Sponsors: Department of Marketing and Transportation
Michigan State University
East Lansing, Michigan
A major Michigan financial institution

Introduction to Survey

Survey Purpose

The purpose of this survey is to learn about individuals' attitudes toward various methods of investing in mutual funds. In particular, we are interested in knowing if the place you make the purchase or if the method used to make the purchase makes a difference to you.

Some Definitions

Mutual Fund:

A collection of stocks and/or bonds held by an investment company so that individuals may invest in a variety of securities by purchasing shares of the investment company.

Bank:

Your personal bank or a bank you would find acceptable as a place to open a checking account.

Securities Dealer:

A brokerage you do business with or any brokerage company you would find acceptable such as Merrill Lynch or Shearson Lehman Hutton. The dealer does not have to be located in your community and may be the mutual fund itself.

Advice:

A mutual fund would be chosen from a limited list of mutual funds preselected by the seller on the basis of investment objectives, i.e., growth, income, tax-exempt, money market, or government.

No Advice:

A mutual fund would be chosen from a list of all available mutual funds.

Brokerage Fee:

When comparing alternative sellers of mutual funds, you may assume that all of the fees will be equal.

The Request

In this survey, you will be asked to evaluate eight mutual fund concepts. The concepts will be varied on three categories as follows:

1. The place the mutual fund is purchased and sold
   - at a bank
   - at a securities dealer
2. The method used to purchase and sell the mutual fund
   - by telephone and delivery by mail
   - in person
3. Whether or not expert advice is available
   - chosen from a limited list of mutual funds preselected by an investment advisor
   - chosen from a list of all available mutual funds

You will be asked to evaluate the eight mutual fund concepts by two different methods.

First, you are to <u>rank order</u> the eight concepts according to your preferences.

Second, you are to <u>rate</u> the eight concepts using the attached rating forms.

The survey will take about 40 minutes to complete.

Two More Explanations

Mutual Fund Concepts

The eight mutual fund concepts are on eight cards in an envelope labeled "Concept Cards". Each card describes a different mutual fund concept. You may wish to take out the cards and become familiar with them.

Rating Forms

Rating forms will be used to rate the mutual fund concepts. The forms are made up of 22 rating scales similar to the following:

Like..1..2..3..4..5..6..7..Dislike

When rating a concept, you are to circle <u>one</u> number in <u>each</u> rating scale to reflect your feelings. For example, this rating scale asks if you like or dislike a concept. If you strongly like the concept, you would circle "1". If you strongly dislike the concept you would circle "7". Use the other numbers to express less strong feelings.

The survey will be a step by step process. It is important to complete the steps in order. For the most part, it will be better to work on each step as the moderator directs you. This completes the introduction to the survey. If you have any questions please feel free to ask them of the survey moderator now or at any time during the survey.

You may now turn the page to begin the first step of the survey.

Steps for Survey Completion

Step 1 If you were to make an investment in a mutual fund at this time, which of the following statements would better explain the purpose for your investment (please check one):

___ Money would be invested for a long term to provide future income.

___ Money would be invested for a specific future need such as a child's education, down payment on a house, retirement, etc.

Please keep your investment purpose in mind as you evaluate the mutual fund concepts.

Step 2 Take the eight concept cards that were in the envelope and order them according to your preference. Place them in a stack with the most preferred cards toward the top and the least preferred cards toward the bottom.

Step 3 Turn to the next page and list the rank order of the cards in the spaces provided.

Step 4 Now rate the mutual fund concepts using the attached rating forms. The concepts should be rated in the order of your preference starting with the most preferred concept. First, place the number of the concept at the top of the form. Rate the concept by circling a number in each of the rating scales. Work through the forms quickly and rely on your first impressions.

Please continue the rating procedure until all eight concepts have been rated.

Step 5 The last page is a brief personal questionnaire. This information is needed to aid with our statistical analysis.

The information you give in this survey is strictly confidential. Your name or identification will not appear on any of the forms.

Rank Order of

The Mutual Fund Concepts

First preference: _____

Second preference: _____

Third preference: _____

Fourth preference: _____

Fifth preference: _____

Sixth preference: _____

Seventh preference: _____

Eighth preference: _____

CONCEPT RATING FORM

First, enter the CONCEPT NUMBER _____

Second, indicate your feelings about this concept by circling the appropriate number in each of the following rating scales:

clear	..1..2..3..4..5..6..7..	unclear
money is available	..1..2..3..4..5..6..7..	unavailable
wise	..1..2..3..4..5..6..7..	foolish
a safe bet	..1..2..3..4..5..6..7..	a gamble
puzzling	..1..2..3..4..5..6..7..	knowable
money is unobtainable	..1..2..3..4..5..6..7..	obtainable
satisfying	..1..2..3..4..5..6..7..	unsatisfying
high risk	..1..2..3..4..5..6..7..	low risk
easy to understand	..1..2..3..4..5..6..7..	hard to understand
old fashioned	..1..2..3..4..5..6..7..	innovative
pleasing	..1..2..3..4..5..6..7..	displeasing
certain	..1..2..3..4..5..6..7..	uncertain
confusing	..1..2..3..4..5..6..7..	straight-forward
modern	..1..2..3..4..5..6..7..	obsolete
undesirable	..1..2..3..4..5..6..7..	desirable
unpredictable	..1..2..3..4..5..6..7..	predictable
simple	..1..2..3..4..5..6..7..	complex
behind-the-times	..1..2..3..4..5..6..7..	progressive
like	..1..2..3..4..5..6..7..	dislike
safe	..1..2..3..4..5..6..7..	unsafe
money is unaccessible	..1..2..3..4..5..6..7..	accessible
trendy	..1..2..3..4..5..6..7..	out-of-date

PERSONAL INFORMATION

Gender Male____ Female____

Age
- Under 25 ____
- 25-34 ____
- 35-44 ____
- 45-54 ____
- 55-64 ____
- 65-69 ____
- 70 or older ____

Education
- Grade school or less ____
- Some high school ____
- Vocational/Technical school ____
- Some college - 3 years or less ____
- Graduated college ____
- Post graduate work ____

Family status
- Single ____
- Married ____
- Divorced ____
- Widowed ____
- Separated ____

Number of dependents ____

Occupation

_____

Do you belong to an employer sponsored profit sharing plan? Yes____ No____

Total household income
- Below $30,000 ____
- $30,000 to 39,999 ____
- $40,000 to 49,999 ____
- $50,000 to 74,599 ____
- $75,000 to 99,999 ____
- $100,000 or more ____

How many family members are working outside of the home? _____

Have you		Yes	No
invested	Savings account	____	____
in a:	Time certificate of deposit	____	____
	Government bond	____	____
	Corporate bond	____	____
	Mutual fund	____	____
	Common stock	____	____

Thank you for your participation in this survey.

CONCEPT # 1

Investment in a Mutual Fund that is:

Purchased and sold through a bank

Purchased and sold in person at one of the bank's offices

Chosen from a limited list of preselected mutual funds

CONCEPT # 2

Investment in a Mutual Fund that is:

Purchased and sold through a securities dealer

Purchased and sold in person at the securities dealer's office

Chosen from a general list of mutual funds

CONCEPT # 3

Investment in a Mutual Fund that is:

Purchased and sold through a bank

Purchased and sold in person at one of the bank's offices

Chosen from a general list of mutual funds

CONCEPT # 4

Investment in a Mutual Fund that is:

Purchased and sold through a securities dealer

Purchased and sold in person at securities dealer's office

Chosen from a limited list of preselected mutual funds

CONCEPT # 5

Investment in a Mutual Fund that is:

Purchased and sold through a bank

Purchased and sold by telephone and delivered by mail

Chosen from a general list of mutual funds

CONCEPT # 6

Investment in a Mutual Fund that is:

Purchased and sold through a securities dealer

Purchased and sold by telephone and delivered by mail

Chosen from a limited list of preselected mutual funds

CONCEPT # 7

Investment in a Mutual Fund that is:

Purchased and sold through a bank

Purchased and sold by telephone and delivered by mail

Chosen from a limited list of preselected mutual funds

CONCEPT # 8

Investment in a Mutual Fund that is:

Purchased and sold through a securities dealer

Purchased and sold by telephone and delivered by mail

Chosen from a general list of mutual funds

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