PERCEIVED RISK: THE CASE OF MAIL ORDER BUYING
VERSUS NON-MAIL ORDER BUYING

DISSERTATION

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the Degree Doctor of Philosophy in the Graduate
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CHAPTER I

INTRODUCTION

This chapter presents an overview of the purpose, objectives, scope, limitations and theoretical questions and problems to be examined in this research study. Statements are made and concepts introduced in most cases without documentation since all are discussed in considerable detail in later chapters.

Purpose

The purpose of this study is to examine the differences in the amount of perceived risk which consumers feel may exist in two buying situations. Through the examination of these differences it is hoped that insights will be gained into the usefulness of the perceived risk concept in consumer research. In addition, this study is designed to answer a number of questions concerning the reasons why consumers prefer buying from stores and salesmen rather than through the mail.

Finally, implications are to be drawn about the possible applications of the perceived risk concept
to the tasks of media selection, choice of selling methods, creative strategy in promotion, and market segmentation.

Background and Setting

This research has been made possible through the kind support of the National Liberty Life Insurance Company of Valley Forge, Pennsylvania. The company has provided data which enables the author to examine the perceived risk concept in the context of a real-world marketing problem which requires specific strategy and policy recommendations.

National Liberty Life is an unusual company in several respects. Despite its name, the company's primary policy is a form of hospitalization insurance best described as "hospital income" insurance. This type of policy pays the policyholder $100 per week in cash while he is in the hospital. It is non-cancellable and requires no medical examination.

The unique aspect of the policy is that it is offered only for persons who are total abstainers from

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the consumption of any form of alcoholic beverages. Proof of non-drinking status is not required by the company in order to take out a policy, however, the contract states that benefits will not be paid if evidence exists that the loss was caused by or contributed to by alcohol or narcotics.

Finally, National Liberty Life is one of the small number of companies that has no sales force. All selling is done through the mail. The company depends heavily on direct mail advertising although print media, especially magazines, is used.

Problems facing the company

In recent months the company has been concerned with the rate of response they have been getting from their direct mail offerings. It is felt that the potential in the total abstainer market has barely been tapped. Since National Liberty knows that the size of this market relative to the total U.S. population is decreasing, it is felt that market penetration must be increased if growth is to continue.

The disappointing growth rate is even more puzzling in light of these circumstances. The policy itself is offered at a price which is lower than an
identical policy for a total population of drinkers and non-drinkers. This is possible because the company has found through its own research that non-drinkers spend about 20 per cent less time in the hospital than persons who drink.

In the selection of persons who are to receive the promotional mailings the company tries, of course, to include only persons who appear to have a high probability of being non-drinkers. The company has no reason to suspect that this quality of its mailing lists has changed recently. In short, the company must determine why its policy is not being accepted more rapidly.

At this point it must be noted that the management has put forward and examined many possible answers to the above question. National Liberty realizes, for example, that in the company's relatively short existence growth may have been achieved due to "skimming-the-cream" off the market. The company further realizes that many persons in the defined target market already feel that their own hospitalization coverage is adequate. While a comprehensive analysis of these factors is outside of the scope of this study, the discussion of hospitalization insurance in Chapter II will provide some background on coverage aspect.
If the company is to continue selling exclusively by mail it feels that it must obtain better guidelines for identifying and reaching those segments of the market which will respond best to mail solicitations. At the present National Liberty is treating the entire non-drinker market as if it were homogeneous. During its period of rapid growth this was quite feasible since the company was getting as much business as it could handle administratively. Now it is faced with the problem of sharpening its definition of specific target markets. Two related aspects of this problem are the determination of meaningful bases of segmentation and the collection of demographic and sociopsychological data which would aid in the identification of the segments.

**Theoretical problems**

Within the context of the marketing problem outlined above there are several theoretical problems which form the framework around which this research is to be built. Since these problems will be examined in detail in Chapter III they will be given only a passing mention at this point, primarily to relate them to the company's marketing problems.
In 1960 Raymond A. Bauer presented a paper in which he introduced the concept of perceived risk. He offered the proposition that a great deal of consumer behavior might be explained in terms of the amount of risk the consumer sees or feels to exist in a product or a buying situation. This concept seems to hold a great deal of potential for offering at least a partial explanation of the non-response problem faced by the company.

The first theoretical problem then is to determine whether consumers perceive significantly different amounts of risk to specific buying situations, that is, buying by mail and buying from a store or a salesman.

The second theoretical problem to be examined is the relationship between the perceived risk concept and the personality concepts of desire for certainty and intolerance of ambiguity. This problem is part of a broader question concerning the nature and effects of a person perceiving risk. Perhaps the question could be posed as "why do people perceive more risk in one situation than in another?"

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Another problem concerns the role that writers in the area of consumer behavior has assigned to the perceived risk concept. Specifically, just where does the concept fit into the various theories or models of buyer behavior and consumer decision-making? The logical extension of this problem is that of drawing some conclusions regarding the place that perceived risk should fill in a theory of consumer behavior.

The final problem is that of measurement. If perceived risk is to be a useful concept in the investigation of consumer decision-making processes an acceptable scheme for its measurement is needed. Although its usefulness as a theoretical concept is not destroyed by lack of measurement techniques, the paucity of empirical testing of the concept has weakened or delayed its acceptance as a major factor in theories of consumer behavior.

As will be shown in Chapter III, most of these problems have been examined in some form or another by researchers in the field. In this study the emphasis is limited to the situation of comparing the degree of risk perceived in mail buying with buying from a store or salesman.
Objectives and Scope of the Study

In the most general sense, the objective of this study is to examine the theoretical questions and problems just outlined above. The exact scope of any research is in the final analysis determined by the research design and methodology actually used. When one is dealing with questions that are quite broad, it is necessary to delimit the precise areas of the problems which will be investigated. This limiting process is demanded in light of the constraints on time, resources and technology. The objectives outlined below and the methodology which has been developed to meet these objectives are presented with these limitations in mind.

Objectives

1. To determine whether or not the perceived risk concept may offer a partial explanation of the differences between respondents and non-respondents to offers of goods or services through the mail.

2. To examine the relationship between differences in the perceived risk of two different buying situations such as from a store or by mail and the personality factor of desire for certainty.
3. To develop a technique for the measurement of the relative amounts of risk perceived in two different buying situations.

4. To examine the similarities and differences in the amount of perceived risk expressed by consumers in different life cycle stages.

5. To conduct a field study to generate data which will allow the above stated objectives to be pursued.

6. To draw whatever conclusions are warranted and necessary for the development of a marketing strategy recommendation for the company.

Although they are not stated as hypothesis, the success of this study in meeting the first two objectives and number 6 is dependent upon the outcome of the actual field study. Objectives number 3, 4, and 5 are in effect the plan of attack for the research to be conducted. These objectives will be spelled out in detail in Chapter IV.

Limitations of the study

Although the limitations of the study are implicit in the statement of objectives, several of the more important should be specifically mentioned.
First, perceived risk is to be treated as a single factor. No attempt is to be made to measure different types of risk such as economic risk and social risk. This is discussed further in Chapter III. Thus, whenever perceived risk is mentioned it is used in the sense of "total perceived risk." There is undoubtedly considerable merit in the examination of the component parts of the perceived risk concept; however, this task has been determined to be outside the scope of this particular study.

Since the field research is to be conducted within a sample that is limited geographically to Columbus, Ohio, and is not a probability sample of the total population of consumers in the United States or elsewhere, no attempt will be made to make hard and fast generalizations beyond the specific population sampled. Although it may be tempting to project findings to broader populations such a practice is fraught with dangers. The author will avoid this temptation and he asks the reader to do likewise.

Finally, this study is concerned only with two buying situations which are broadly defined as "buying through the mail" and "buying from a store or from a salesman." All conclusions are to be limited
to the comparison of these two situations. It may be noted that the stated objective of "developing a methodology to measure perceived risk in two buying situations" was not specifically constrained with this qualification. This was intentional. It is hoped that the technique may be used to compare any two situations. In this study, however, only mail buying and store buying situations will be tested.

Summary

In this chapter, purpose, objectives, scope and limitations of the study were presented. The major concepts and problems to be investigated were introduced and the environment within which they have arisen was described.

In the next chapter the setting of the marketing problem, i.e., the hospital insurance industry is examined.

In Chapter III the concept of perceived risk and the theoretical questions which the study raises are discussed in detail.

Chapter IV is concerned with the methodology employed in the actual field research. Specific hypotheses are stated and the techniques for testing them are described.
Chapter V is the presentation and discussion of the results of the field study.

Finally, Chapter VI is a discussion of the conclusions derived from the field study. At this point implications for both further research and possible marketing strategy are examined.
CHAPTER II

HOSPITALIZATION INSURANCE

Introduction

This chapter is intended to provide a background for the reader who may not be familiar with the industry within which this study takes place. It will be rather brief since it is not intended to be a comprehensive analysis of hospitalization insurance as a product or of the insurance business as an industry. Such an undertaking is beyond both the scope of this study and the capability of the author due to his limited background in the field of insurance.

The various types of hospitalization insurance are first identified, with special emphasis placed on classification of the policy sold by National Liberty Life. This is followed by a discussion of hospital costs. Next there is a brief survey of the methods of marketing hospital insurance and some comments on direct mail advertising and mail order selling. Finally, two specific problems which appear to be related to this study, i.e., the dangers of overinsurance
and the problem of non-registered insurance companies are examined.

Basic Concepts in Hospitalization Insurance

The business of insurance has been described as being concerned with the economic problems created by pure risk.¹ A closer look at this statement and the use of the word risk in the literature of insurance is necessary at this time in order to avoid confusion in the later discussion of perceived risk.

Magee and Bickelhaupt present a definitional framework which clearly delineates the use of the terms which represent the major concepts of insurance.²

At the outset they state that the basic element of risk is "unpredictability," or "a tendency that actual results may differ from predicted results."

They urge caution in the use of the term risk, however:

Uncertainty is often used as a synonym, although when so used it usually refers to objective (measurable or quantified) uncertainty. Economists and statisticians use this concept when they measure probability or chance of loss.³

²Ibid., pp. 3-18.
³Ibid., p. 4.
The authors go on to differentiate their concept as follows:

Note that risk is not only a chance of loss, for anything that is certain not to happen (0% chance of loss) or certain to happen (100% chance of loss) does not involve objective risk. Anywhere between the points of certainty, 0% and 100% probability of less, involves some unpredictability and thus risk. The greatest uncertainty appears at 50% chance of loss.  

A distinction is then drawn between objective uncertainty which was first described above, and subjective uncertainty, "which involves a feeling or a state of mind as to expected results." Variations in prediction of outcomes by individuals can be brought about by factors such as lack of knowledge as to the real facts, prejudices, or unwarranted high hopes. The factors cause subjective risk to occur which, of course, differs from objective risk.

Another important point is that there are distinctions drawn among variations in types of risk based upon the nature of the potential loss. Insurance has been concerned primarily with economic risk, but Magee and Bickelhaupt recognize psychological and spiritual risk as well.  

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4Ibid.
5Ibid.
6Ibid.
There has been some recent discussion within the literature of insurance regarding the proper definition of risk. George L. Head objected to a definition offered by the Commission on Insurance Terminology of the American Risk and Insurance Association. The Committee defined risk as:

1. Uncertainty as to the outcome of an event when two or more possibilities exist, or
2. A person or thing insured.

Head's objection is centered on the ambiguity of the first definition. He questioned whether risk is entirely a psychological phenomenon as the Committee's definition would lead one to believe. While Head does not ascribe to the decision theorists definition of risk as a condition of the external environment or a state of nature, he does feel that risk should be defined in a manner that allows quantitative analysis to be performed more easily. Head's definition is that risk is,

... the objective probability that the actual outcome of an event will differ significantly from the expected outcome.

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8Ibid., p. 205.

9Ibid., p. 214.
It is apparent that the definition of risk is not universally agreed upon. For purposes of this study the similarities between risk and uncertainty are more important than the differences. The operational definition of perceived risk is presented in Chapter III.

The next concept discussed is peril.

In contrast to risk, which is the unpredictability of results or happenings, the word peril should be used to identify the unpredictable occurrence. Thus it refers more specifically to the cause of risk (rather than the general inability to predict).¹⁰

The factors that contribute to the peril are known as hazards. It is recognized that many can be identified or related to a given person. It is the sum total of all hazards that constitute the perils which cause the risk to exist. Two classes of hazard are identified; (1) physical hazards such as unsafe brakes on a car and its associated peril of an auto accident; and (2) moral hazards or psychological hazards which grow out of individual attitudes.

The next concept, loss, is the "undesirable end result of a risk." More precisely, it is defined as:

... the decrease or disappearance of value [in the case of economic loss] in an unexpected

¹⁰Magee and Bickelhaupt, p. 5.
or at least relatively unpredictable manner.\textsuperscript{11}

The authors next identify two types of economic risk, speculative risk and pure risk:

Speculative risks involve both the chance of loss and the chance of gain whereas in pure risks there is only the chance of loss or no loss. Such risks are 'pure' in the sense that they do not mix both profits and losses.\textsuperscript{12}

The manner by which insurance concerns itself with these economic problems is that it provides a means by which the risk, which cannot be eliminated, can be transferred. This process allows an individual to decrease the potentially large losses of some peril by accepting a smaller, but certain loss in its place. The certain loss is the insurance premium cost.

Within the context of the National Liberty Life hospital income policy, the following example may help illustrate the use of the concepts defined above. For a given person, the loss of income or wealth that he may incur due to a hospital stay caused by the perils of accidental injury or sickness is unpredictable. He does not know for sure that the loss will or will not occur. The very nature of this situation is such that a state of risk exists. This person's feeling

\textsuperscript{11}Ibid., p. 7.
\textsuperscript{12}Ibid.
or estimation of the chances that such a loss will occur is his subjective uncertainty about the situation. His estimation may differ from the actual, but unknown, probability of loss that exists in the state of nature.

Types of Hospitalization Insurance

Hospitalization insurance is treated in the insurance literature as a subclass of the broader category health insurance. Faulkner describes health insurance as a protection against the hazard of disability. The cost of this disability has two aspects:

One is the loss of earned income or productiveness by the disabled person; the other is the expense that accrues in the provision of care made necessary by the disability.13

Medical expense protection

Due to the rapid increase in all costs associated with medical care, increasing emphasis has been placed on the medical expense aspect of health insurance in recent years. Thompson says that this category of insurance is designed to deal with

the following types of expenses:

1. hospital charges for room and board, general duty nursing care and other hospital services and supplies;
2. those for medical care or treatment by physicians, surgeons, and private duty nurses;
3. expenses incurred for other necessary medical and health care services and supplies, including dental care, nursing home care, medicines, and prothetic appliances.\textsuperscript{14}

There are two basic types of medical expense insurance policies. The first pays benefits for hospital confinement and limited surgical coverage and professional fees. The second type, known as the major medical policy does not cover the first dollar of expenses but rather protects against the "catastrophic loss" that can occur due to a sickness or injury that requires prolonged hospital confinement or costly medical and surgical procedures.

**Hospital expenses**

It can be seen that insurance for hospital expenses is included under this general category of medical expenses. Magee and Bickelhaupt discuss hospital expenses separately. They say that hospital

expense insurance has the following objectives:

(a) to help pay for costs of room and board
(b) to help pay charges for extra hospital services.\textsuperscript{15}

Policies for the coverage of hospital expenses generally have limits on both the amount that is paid per day of confinement and the total length of time for which the coverage applies. In addition specific expenses for special medical services associated with hospital confinement such as laboratory tests and X-rays are often included in the policy.

Another form of hospitalization insurance covers the major expenses associated with surgery performed while one is in the hospital. These benefits are determined by a specific schedule of operations which specifies the maximum amount payable for any type of operation.

Loss of income protection

The second cost of disability is the loss of income or earning power. Faulkner says:

Health insurance to replace income is regarded as primary because it keeps the family intact, puts bread on the table and maintains a roof over the family's head.\textellipsis

\textsuperscript{15}Magee and Bickelhaupt, \textit{General Insurance}, p. 784.
relatively short durations, benefits are now widely available for total disability in amounts approaching after-tax earned income.16

This form of insurance is often referred to as disability income protection. As part of a total health insurance program it is often included as a rider on a more general hospitalization or medical expense policy.

It is difficult to generalize about this aspect of hospitalization insurance. Magee and Bickelhaupt describe this problem as follows:

Contracts offered by the various insurers vary greatly. Because there are so many different forms of coverage represented by the different policies of one company and by the differences among companies, there tends to be much competition with respect to selling.17

This competition usually takes the form of either broader coverage or lower costs for premiums. One could expect that lower premiums are accompanied by more limited coverage in the policy.

Hospital income policies

The hospitalization policy that is sold by National Liberty Life Insurance Co. does not really

16 Faulkner, Life and Health Insurance Handbook, p. 28.

17 Magee and Bickelhaupt, General Insurance, p. 787.
fit into any of the categories described above. Basically, the policy pays the policyholder $100 per week while he is confined in a hospital. This makes it a form of hospitalization insurance, but it differs in that benefits are not directly tied to expenses incurred, such as the cost of room and board. For the same reason it is not what is commonly known as medical expense insurance.

Dickerson describes policies similar to National Liberty's Gold Star Plan as "hospital income insurance."

It is a difficult creature to classify, since it is a disability income contract intended, in part, to cover hospital expense. ... The insured is paid in cash, with no waiting period, and can use the money for whatever he wants.¹⁸

He goes on to cite the "inflation proof" nature of the contract as an advantage. This advantage is held by the company since its claim rates are influenced only by hospital admission rates and length of stay. Increasing medical and hospital costs will not directly affect the company.

On the side of the policyholder, Dickerson says:

It is more difficult to see the appeal from the insured's standpoint. Apparently such

¹⁸Dickerson, *Health Insurance*, p. 327.
contracts are usually purchased to supplement other hospital insurance which is inadequate in amount. Where the other insurance is on a group basis, this may be better than replacing it with a more adequate policy.19

One area in which hospital income policies seem to have potential for growth is as supplements to Medicare. Kenney, in discussing this possibility notes that on the average, Medicare covers only 40 per cent of the health expenditures of people over 65 years of age.20 This observation is particularly cogent in the case of National Liberty since there is no age limit set for enrollment.

Since the probability that a person will be hospitalized increases with age, there is a rather sharp increase in premiums with age. For National Liberty, they jump from about $4.00 per month under 44 years to $6.50 between 45 and 69 to almost $9.00 per month at age 70 and over.

Special risk policies

National Liberty's Gold Star Plan also belongs to a category of insurance known as "special

19 Ibid.
risk policies." Sommer discusses them as follows:

    So-called 'special risk policies' do not have the same precise meaning to all health insurance companies. The term is used by companies in many different ways. There is no legal definition of the term 'special risk' as applied to health insurance.21

He regards as special risk policies ones which cover very unusual situations such as flag pole sitters, auto racing on ice, aviation insurance, and sports insurance. These are all classes of high risk.

    National Liberty, on the other hand, feels they are writing a policy for a special class of low risks, i.e., persons who are "total abstainers" from the use of alcohol. The company has found, through their own research, that persons who do not drink spend about 20 per cent fewer days in the hospital than persons in the same age category. There is an implicit, but unproven assumption in the companies thinking that a direct causal relationship exists between drinking and occurrence and duration of hospital confinement. It is quite possible that the non-drinking characteristic of these people is but one of a number of factors which leads to a lower incidence of hospitalization.

At any rate, National Liberty has chosen to insure only those persons in this special low risk category total abstainers from the use of alcohol.

At the same time, the lack of an age limit on the policy brings them into the business of insuring another special risk group, i.e., persons over 65 years of age. This comes about due to the fact that older people appear to have a greater chance of being non-drinkers, either by preference or for medical reasons.

Studies made by the company have shown that about 45 per cent of their policyholders are 65 or older. The cost of insuring these people is bound to be higher as this observation by Light shows:

The proportion of both males and females with chronic health impairments increases with increasing age to more than 75% at age 65 and over. It is not surprising, therefore, that persons age 65 use, on the average, more than twice the number of days of general hospitalization required by those of younger ages. 22

A related problem of insuring this group is the rather obvious fact that older people know and realize that

serious illness may strike them at anytime. If they can afford it, they are more willing to accept the certain loss of an insurance premium as protection against an almost certain strain on their limited financial resources due to prolonged hospitalization.

It must be noted that the National Liberty Gold Star Plan policy does contain a clause which protects the company against persons with known illness taking out a policy to cover imminent confinement. On the application form, the statement reads, "I understand that neither I nor any person listed above is covered under this policy for any condition existing prior to the effective date of this policy for a period of three years."

This is a clause that is quite common in the hospital insurance business. It is quite important to National Liberty, however, since they do not require applicants to undergo a physical examination.

**Summary**

In many respects, then, National Liberty is involved in selling a policy designed for the low loss segment of a high loss group. The policy is a form of health insurance known as "hospital income" insurance. The methods used in marketing this policy are discussed below.
Insurance of all types is generally sold either through the agency system or by the technique of direct selling. Although there does not appear to be many significant differences between insurance marketing and the marketing of consumer goods and services in general, the main selling techniques will be briefly examined below.

Agency system

Of the different methods for selling insurance, Magee and Bickelhaupt observe:

Most important is an agency system of representatives who operate under the authority given them by the insurers to make legal transactions with the consumer of insurance. The complex nature of insurance, and its usual significance to the insured, makes such personal contact through an intermediacy essential to the sale of most insurance. 23

There are two major classifications of insurance agency systems; the life insurance agency system and the property insurance agency system. In the life system the agent normally works for only one insurance company. Under the property system some agents, known as exclusive agents, sell for one company

23 Magee and Bickelhaupt, General Insurance, p. 89.
while the predominant method is known as the independent agency system. An independent agent may represent several insurance companies deriving his compensation from commissions or fees.

The obvious benefit of the agency from the consumer's point of view is the close contact he may have with the representative of his insurance company for purposes of planning coverage, modifying policies and filing claims. The insurance company must decide whether the potential market for their type of product is sufficiently broad to support an agency system. In most cases only those companies selling policies designed for the majority of the public or business community make use of the agency system.

Direct-selling systems

The direct selling system differs from the agency system in that the consumer deals directly with the insurance company and its employees. In discussing direct-selling, Magee and Bickelhaupt note:

In specialized and limited lines of insurance these systems may assume some importance. Many health insurers operate in this manner by using direct-mail advertising. All correspondence is direct from the company to the prospect, and the insurance contract is written and serviced without an agent.24

24 Ibid.
This is the system used by National Liberty Life Insurance Co. for marketing their Gold Star Plan.

Direct mail advertising is used primarily because it reaches individuals, not groups. In the case of a company selling a specialized policy, the narrow appeal of the policy necessitates contacting individuals who on some basis of pre-selection have a high probability of belonging to the special group for whom the policy is designed.

Kleppner draws a distinction between direct mail and mail order advertising:

Mail order advertising is that method of selling in which the entire sale is consummated by mail, as distinguished from direct-mail advertising which refers to the method of distributing advertising.25

Since National Liberty performs the entire selling function by means of mail, its form of advertising should be known as mail-order advertising. This reflects the fact that the company does not use advertising to supplement or support the efforts of a field sales force or agency system.

Despite the apparent advantages of this method, one must be aware of the possible disadvantages. Engel, Wales and Warshaw identify four problems.

First is the high cost per thousand prospects reached. Then there is the difficulty in obtaining and maintaining up-to-date lists of names. Generally there is a feeling that direct mail is "junk mail" and as such it has a poor reputation. Finally a high degree of creative skill is required in order to obtain high readership of direct mail pieces. These problems are faced by all mail-order marketers who use direct mail advertising. In the next section some problems peculiar to the direct selling of insurance and the marketing of hospital income policies in general are discussed.

Problems in Marketing Hospital Income Policies

Two problems facing the National Liberty Life Insurance Company are the increasing use of regulatory legislation to limit their potential areas of operation and the concern within the insurance profession over multiple coverage and overinsurance.

Regulatory problems

Government regulation of the insurance business is conducted primarily by the individual state governments.

A high state official, usually known as the superintendent or commissioner of insurance, is charged with administering the laws regulating insurance.

One type of regulation is the licensing of insurers. A company that is licensed in a state has been checked by the regulatory agency to determine whether they meet the state's standards for the amount of required capital and surplus. This requirement is intended to lessen the probability of financial insolvency for companies operating in the state. Licensed insurers are then regulated with respect to the type and form of contracts they may use, rates they may charge, licensing of agents, and taxation among other things.\(^{27}\)

Insurance companies that sell their policies in a state only through the mail belong to a class of insurers known as non-admitted companies. They are non-admitted in the sense that they are not licensed to operate that particular state. Since they are not licensed they do not come under the regulatory powers of the state insurance commission. In recent years the regulatory authorities have become increasingly concerned with the potential

\(^{27}\)Magee and Bickelhaupt, General Insurance, pp. 187-195.
problems that can be caused by unadmitted insurers. Recently, the Superintendent of Insurance for the State of New York said that he is:

... interested in determining how serious the problem is and whether the present laws are sufficient to protect the citizens.28

As noted above, their concern is over the protection of the consumer. It is possible for a small, poorly financed, and perhaps even unscrupulous operator to sell insurance as long as he uses only the mail. The state regulatory authorities are powerless in attempts to halt such operations even if they are fraudulent.

A further difficulty is that the well-known Lloyd's group which underwrites many large and unusual risks is actually a non-admitted insurer. While Lloyds is not a mail-order insurer and while its integrity and financial responsibility are above reproach, the fact that it is a non-admitted insurer cannot be denied.

It is estimated only a very small proportion of all mail order insurers are actually irresponsible. As is often the case when an irresponsible minority of

any group draws public attention through their questionable activities, the majority must suffer. For mail order insurers the "suffering" is being brought about by renewed attempts to bring them under state regulations.

A comprehensive study of the legal aspects of this regulatory effort has been completed by Jon S. Hanson and Thomas E. Obenberger. They have concluded that some type of regulation is needed, preferably on the state level. This exhaustive study is highly recommended to those interested in the legal complexities surrounding this problem.

Several states have passed laws which allow for the regulation and taxation of non-admitted companies. Recent court decisions seem to open the way for additional states to follow this course. The state courts in California and Wisconsin have taken the stance that regulation of mail order insurers is within the scope of the states operations.

The Post Office Department and the Federal Trade Commission do have the power to step in and halt


\[30\text{Ibid.}\]
fraudulent operations, but they have hesitated to do so. Their hesitation stems mainly from the difficulty in determining what the fine line is between legal and fraudulent operations.

At the time of this writing the House of Representatives of the 107th Ohio General Assembly has passed and sent to the Ohio Senate a bill which would provide for the regulation of non-admitted insurers. Briefly, the bill calls for a tax of 5 per cent to be levied on the gross premiums generated in Ohio by a non-admitted company. It provides for a 25 per cent penalty for late payment of the tax plus 6 per cent interest on the total amount. The bill would enable the insurance commissioner to collect the tax from the policyholders of the company if need be. Finally it declares all contracts written by such an insurer to be null and void. 31

National Liberty is well aware of the problems such legislation can cause. As an expense of doing business the taxation provision has an immediate impact. In fact the company now refrains from sending mailings to over twenty states that have such regulations. If the present trend continues, National

31 Sub. H.B. No. 436, 107th General Assembly (Ohio).
Liberty may be faced with effective foreclosure from some of its most attractive markets. The alternative, of course, is gaining admission to the various states with such laws. The expenses involved may be so great as to eliminate much of the advantages gained by operating nationwide by the direct selling method.

**Overinsurance**

Although the problems associated with overinsurance are not posing such an immediate threat to National Liberty Life's operation as is regulation of mail-order insurers, they do deserve some attention. Strain defines overinsurance as follows:

Health overinsurance can be defined as recovery from health insurance an amount in excess of that lost from illness or accident.\(^{32}\)

Other terms which are used to describe the same situation are "double insurance," "other insurance," and "additional insurance."

Overinsurance occurs when a person owns two or more policies which protect against the same loss. Strain notes, however:

The ownership of multiple policies does not necessarily create overinsurance,

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for an insured may still be under insured as to a particular loss.33

Such multiple policies may serve distinct needs such as for persons who have a group policy from their place of employment and maintain individual policies as well. Another function of multiple policies is that the rapidly increasing cost of hospital and medical care may cause existing policies to become inadequate hence forcing the individual to seek additional coverage.

Regardless of the possible advantages of multiple policies, many persons in the insurance industry view the potential danger of overinsurance to be significant. An editorial in The National Underwriter that dealt with the topic of balance in coverage devoted three-fourths of the discussion to the dangers of under-insurance without once mentioning health insurance. In the remaining space, the problem of overinsurance was covered:

Multiple coverage is beneficial where it strengthens an insurance program which might otherwise be inadequate. In too many cases, however, it results in overinsurance. 34

33Ibid.

The editor feels that "unintentional overlapping" of basic hospital and surgical policies with supplementary protection bought due to rising medical costs is the real problem. Much of the overlapping is unintentional. It is often present when both the husband and wife are employed. In such cases both persons may have group plans at their place of employment which covers both husband and wife. If one spouse becomes ill, there would then be two policies which cover the single illness.

The scope of the overinsurance problem is examined in a study by Blue Cross on multiple coverage. In a survey of 7,803 persons they found that 35 per cent had no hospital coverage, 58 per cent had one policy and 7 per cent had two or more policies. A large proportion of the people having no policy were in the 65 year and over age bracket. Most importantly, the persons with multiple coverage were more than twice as likely to be hospitalized than the uninsured persons. In addition, 53 per cent of multiple policyholders had their total bill paid by insurance as opposed to 39 per cent of the persons with one policy.

As part of the same study 991 admissions to short stay hospitals were examined and less than 5 per cent of these cases involved some overpayment of insurance benefits. The average overpayment was $156. They observed, however, that:

Even with hospital overpayments the possibility exists that total charges for health service during the illness may not have been covered.36

The report concludes that taking many factors such as income and family disruption into account it is not "desirable" or "profitable" to become ill in order to take advantage of multiple coverage.

Another aspect of the overinsurance problem is that the methods for determining benefits need revision. With respect to loss of income protection, Brown notes:

The primary objective of loss of time coverage is still to indemnify the insured against inability to earn necessities due to disability.... Beyond the point of necessity, excessive amounts progressively discourage recovery and rehabilitation.37

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36 Ibid.

He says that the traditional indemnity ratio of 75 per cent of earnings is obsolete. It was formed before the era of high income tax rates and social security disability benefits. He notes that a formula of 50 per cent of earnings plus $50 per month seems to be developing, but he feels that it too is outmoded. He suggests that take home pay after taxes should be used as a base with benefits from all sources limited to 80 per cent. This discussion is cited here mainly to show that overinsurance is not a problem limited exclusively to multiple coverage. One can see that the 80 per cent after tax figure could be exceeded by a single large policy.

National Liberty Life's concern with the problem should be with the attempts on the part of the insurance industry to lay the blame for overinsurance. In the discussions cited previously the authors seemed to blame the policyholders explicitly and the firms selling supplemental coverage implicitly.

In his analysis of this topic Solomon notes:

Much concern is expressed over some practices still employed in the health insurance industry. Continuation of advertising to the effect that the plan pays regardless of any other benefits does not assist in solving the overinsurance problem.... As long as the insured is encouraged
to duplicate health insurance benefits the solution is postponed.\textsuperscript{38}

This is a direct criticism of the supplemental insurers such as National Liberty and seems to reflect a good deal of the sentiment in the insurance business.

The health insurance business has taken some direct action to solve the problem, primarily through the drafting of a model "coordination of benefits" provision for health contracts. Shipps notes that the COB provision, as it is called, is being used by most group health insurers in new contracts and those being renewed.\textsuperscript{39}

In effect the COB provision is designed to reimburse the policyholder up to 100 per cent of his insured expenses, but no more than that. It allows for overinsurance against one category of hospital bills to be applied to another area where the policyholder is only partially insured. The provision spells out the manner in which the companies writing the overlapping coverage should share in paying the


expenses. Written cooperation agreements are required among the insurers before the COB provision comes into use. 40

Although the impact of the COB provision on supplemental insurers is not clear, one incident seems to indicate that there are problems. An insurer that specializes in the group sales of policies limited to protection against loss due to cancer has filed an anti-trust suit against the nine largest group health insurance companies. They have charged that the defendant companies have adopted the COB provision which has resulted in the boycott and exclusion of non-cooperating companies. The companies deduct any payments made to policyholders by the plaintiff from the amount they pay the policyholder. The president of the company, which is American Family Life, claims that the action is a boycott because:

... this practice destroys the value of our insurance to that beneficiary, coerces and induces him to stop doing business with us, and effectively forecloses the group health market to us in whole or in part. Such a boycott is contrary to the Sherman Act and to state laws.

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which make it unlawful to boycott a competitor.41

Until this case has been settled in the courts the impact on National Liberty Life will not be known. If American Family Life is unsuccessful in their suit the pressures on other supplementary insurers may be increased by the major companies.

Summary

This chapter presented a brief look at some of the factors which are essential for an understanding of the environment within which this study takes place. The various types of insurance were examined for the purpose of determining where National Liberty's Gold Star Plan fits in the health insurance industry. Marketing techniques were discussed, however, the point was made that insurance marketing does not really differ from the marketing of other consumer goods and services. Finally some of the problems facing mail-order insurers and supplemental insurers were examined.

CHAPTER III

PERCEIVED RISK CONCEPT

Introduction

In this chapter the concept of perceived risk is examined in some detail. After defining the pertinent terms, the reported studies of the concept are examined. The relationship between perceived risk and the psychological concepts of intolerance of ambiguity, desire for certainty and cognitive dissonance are then presented. In order to place the concept into the broader context of consumer behavior theory, the role of perceived risk in the major models of buyer behavior is examined. The chapter concludes with a statement of theoretical questions for this particular research effort.

At this point it should be noted that the author has tried to limit the scope of the discussion to those factors which are most pertinent to the perceived risk concept. The concept itself is rather broad and has far-reaching implications and potential applications. Any lack of restraint could lead to a discussion which would in effect be a statement of a rather general
model of consumer behavior. This is not an objective of this study or of this chapter.

Definitions

In this section perceived risk and several related concepts are defined. In addition to examining the definitions which have appeared in the literature, perceived risk is operationally defined for purposes of this study.

Definitions of perceived risk from the literature

In his initial statement of the concept, Bauer does not explicitly define perceived risk. His paper deals with the theoretical implications of viewing consumer behavior as risk taking. Through the liberal use of anecdotal examples, Bauer points out that there is an element of risk in all individual purchase decisions. He states the role of risk as follows:

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 at least are likely to be unpleasant.1

His attention is then drawn to the manner in which consumers handle the risk involved in these purchase decisions. He feels that it is only on rare occasions such as purchase of a large ticket item that the consumer himself actually looks at the consequences of the decision and develops strategies which are consciously designed to reduce the risk involved, or at least to take them into account.

Bauer cites the following as his tentative explanation of the type of risk reducing behavior that is elicited:

In effect I have suggested mainly one device, namely reliance on some outside source for guidance, whether that outside source be the reputation of the manufacturer of product, an opinion leader or a reference group. This can scarcely exhaust the means that consumers employ to reduce perceived risk, (emphasis added) nor does it tell us how the consumer decides where to place his confidence.\(^2\)

This is the first point in his paper where the term "perceived risk" appears.

Bauer continues with what is the closest thing to a definition that he offers.

It should be noted that I have carefully said 'perceived risk' whenever I refer to risk reduction. This is because the individual can respond to and deal with risk only as he perceives it subjectively. If risk exists in the 'real world' and the

\(^2\)Ibid., p. 395.
individual does not perceive it, he cannot be influenced by it.3

Several of Bauer's students have offered brief definitions of the concept when reporting empirical studies that deal with perceived risk. Scott M. Cunningham defined it as follows:

In its most basic form the perceived risk concept argues that consumers discern some degree of peril, either financial, physical, or social, in the purchase of many products and services.4

Donald F. Cox and Stuart U. Rich offer a somewhat different definition:

'Perceived Risk' refers to the nature and amount of risk perceived by a consumer in contemplating a particular purchase decision.5

Both Cunningham and Cox and Rich elaborate on their definitions by expressing a functional relationship between perceived risk and its component parts. These relationships differ somewhat. Cunningham

3Ibid.


observes that there are two major components; uncertainty, and consequences:

Uncertainty can be described as the probability that a given event will occur. Consequences are defined as the cost to the consumer, should the given event occur.\(^6\)

Cox and Rich on the other hand state:

The amount of risk perceived by the consumer is a function of two general factors - the amount at stake in the purchase decision, and the individual's feeling of subjective certainty that she will 'win' or 'lose' all or some of the amount at stake.\(^7\)

Each of these approaches has some merit. The problem with Cunningham's statement of components is the meaning of the word "uncertainty." As was noted in Chapter II, the use of that term by statisticians and economists implies the ability to quantify, i.e., it is used to connote objective uncertainty.\(^8\) Cox and Rich make this somewhat clearer by referring to what appears to be the same factor as "subjective certainty."


In the discussion in Chapter II, the similar concept of subjective uncertainty was defined as a feeling or state of mind as to expected results. This is much more in keeping with the basic concept of perceived risk as opposed to some form of risk inherent in a state of nature.

Donald H. Granbois, in a study of the family decision-making process examines what he calls "perceived uncertainty" as one of the major situational factors which influences decision-making. In his discussion he is interested in the conditions that cause a decision-maker to seek "outside" information during the decision process. Two of the conditions which must be met are:

First, the decision-maker must face uncertainty of an order high enough to evoke behavior intended to reduce that uncertainty. Second, the perceived consequences of making an error must be important enough to justify an expenditure of effort to reduce the chance of error.\footnote{Donald H. Granbois, "The Role of Communication in the Family Decision-Making Process," Toward Scientific Marketing, ed. Steven A. Greyser (Chicago: American Marketing Association, 1963, published 1964).}

Other conditions mentioned deal with the amount of information available from memory and the uncertainty-reducing strategies which the decision-maker already possesses.
Granbois' discussion of perceived uncertainty is mentioned here because of the great similarity it has to the functional relationships expressed by Cunningham and Cox and Rich. One could conclude that they are actually talking about the same concept. It seems quite logical that perceived risk is synonymous with subjective uncertainty. This is also consistent with the definitions of risk and uncertainty used in the field of insurance. Since all of the research dealing with the concept has come under the heading of perceived risk, there seems to be little advantage in further cluttering the "terminological jungle" by coining a phrase which accounts for the observed differences and similarities.

**Operational definition of perceived risk**

In this study perceived risk is treated in a global sense. No attempt is made to establish or test possible functional relationships among component factors or different types of perceived risk. It is assumed that individuals are aware that certain risks exist in the business of going about life. It is also assumed, on the basis of several well founded arguments, that individuals on the whole do not occupy
themselves by calculating statistical probabilities that a given act in a buying decision will bring about some form of loss.\textsuperscript{10} On the other hand it is assumed that the subjective uncertainty they hold with regard to all types of outcomes, both gains and losses, is something that is very real.

This global view of perceived risk is consistent with the accepted view of perception itself. Psychologists have avoided making precise definitions of perception since they view it as a very broad organizing concept essential to the cohesion of the many elements in any theory of human behavior. Hilgard, for example, draws this distinction between perception and sensation:

The range of sensory experience extends from the detecting of a single stimulus near the threshold value to the appreciation of a sunset or a symphony. It is convenient to make a rough distinction between experiences that are very closely dependent upon specific sense-organ stimulation and those that are the result of complex patterns of stimulation plus past experience and present attitude. The former experiences can be called sensations, the latter perceptions. Thus the redness of the apple is classified as a sensation, while reaction to the whole object as an apple is classified as a perception.\textsuperscript{11}

\textsuperscript{10} Orville G. Brim, Jr., et al., Personality and Decision Processes (Stanford University Press, 1962), Chapter 1.

From this concept of perception one may derive a definition of perceived risk which in effect would be the manner in which an individual organizes the numerous elements that he senses, feels, or thinks exist with respect to the uncertainties he faces and the possible consequences of an act performed under this state of subjective uncertainty.

One further assumption that is vital to this operational definition is that in a situation where an individual is asked how much risk he sees in an act he will respond or verbalize his feelings in a way that expresses both his sensations of uncertainty and his feelings with regard to consequences. This assumption is not unreasonable in light of the great pains writers usually go to in scholarly discussions to separate these elements. In order to increase the probability that this form of response will occur in the present study a series of instructions and cues are utilized that attempt to define risk in the global sense and place respondents into a mental set that is consistent with this definition. This technique is presented in Chapter IV.

To summarize, the operational definition of perceived risk to be used in this study is:

Perceived risk is the amount of risk an individual says that he feels or sees to exist in a given act or object.
Research on the Perceived Risk Concept

There has not been a great deal of actual research performed in the area of perceived risk. The most important work is that of Cunningham, and Cox and Rich. Several other authors have been concerned with perceived risk only as it relates to some other behavioral concept. Foremost among this group is Salomon Rettig and his associates who have been investigating the area of predictive judgments of unethical behavior. In this section the studies of these researchers are presented and evaluated as to their pertinence in this study.

**Telephone shopping study**

The first reported study was conducted by Cox and Rich. They conducted personal interviews with 2,092 women in New York and 853 in Cleveland plus 723 telephone interviews in New York and 461 in Cleveland. The telephone interviews were conducted with women who had indeed shopped by telephone from one of the 18 department and specialty stores cooperating in the study.

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Cox and Rich were primarily interested in strategies that shoppers develop for reducing the uncertainty or risk associated with shopping by phone. On the basis of preliminary results obtained from extensive longitudinal depth interviews with two housewives, they postulated that shoppers develop characteristic styles of reducing uncertainty. One housewife sought information while the other relied on past experience. They hypothesized that information seekers would be more likely to shop by phone and since they are information seekers they would place more reliance on newspaper advertising. With respect to perceived risk, they predicted that:

The shopper who perceives high risk in telephone shopping and is unable to reduce her uncertainty, will either forego the purchase under consideration, or if she is able to, will reduce uncertainty by shopping in person.\(^\text{13}\)

In addition to a questionnaire concerning her shopping behavior, each respondent was given 20 cards bearing the name of a type of merchandise which she was instructed to sort in two piles. One pile, the low risk pile, was labeled "items you feel could be bought by telephone without too much worry over getting what you want." The high risk pile was for

\(^{13}\text{Ibid.}, \ p. \ 34.\)
"items which you would worry about if ordered by phone." The 10 items which received the fewest high risk ratings were designated as low in perceived risk and the remainder were labeled high in perceived risk.

Cox and Rich found from the questionnaire that:

The variable which may be most powerful in separating the minority of women who shop by phone from the majority who do not is the amount of risk perceived in telephone shopping.14

Their conclusion was based on the finding that almost two-thirds of the respondents who had not shopped by phone within the past year said they had not done so because of apprehension regarding the possibility of "not getting what they wanted." In this portion of the study they also found that information seeking and readership of advertising are positively related to the probability of telephone shopping.

By relating the frequency which an item of merchandise was mentioned as being purchased by phone to the perceived risk rating of the item, they found that they could predict in 90 per cent of the cases

14Ibid., p. 35.
that high perceived risk items are medium or low frequency of purchase by telephone items.

The results of the study summarized above have considerable bearing on the present research due to the similarities in lack of personal interaction in the buying situation for both telephone shopping and buying by mail. The greatest apparent weakness is the lack of some standard of comparison against which perceived risk in telephone shopping can be measured. Although Cox and Rich demonstrated that women perceive risk in phone shopping they did not show that the amount of risk perceived was greater than in buying from a store in person.

**Word-of-mouth behavior studies**

Two studies by Cunningham have examined perceived risk as a factor explaining further types of buying behavior. In the first study he was concerned with product-oriented word-of-mouth behavior.\(^{15}\) In a later paper he explored the perceived risk and word-of-mouth aspects of diffusion of new product information.\(^{16}\) Johan Arndt has also examined the role of

\(^{15}\)Cunningham, *Reflections on Progress in Marketing.*

\(^{16}\)Cunningham, *Science, Technology and Marketing.*
perceived risk and word-of-mouth in adoption of a new product. Each of these studies is reported in turn in this section.

In both of his studies Cunningham was concerned with risk reducing behavior. In his first study a telephone survey of 1200 housewives was used to collect information about perceived risk, brand loyalty behavior and word-of-mouth activity for headache remedies, floor wax and dry spaghetti. His major hypothesis was that perceived risk would vary across product categories with headache remedies being highest and dry spaghetti lowest. This hypothesis was supported by the survey data. The second hypothesis was that persons high in perceived risk will try to reduce the risk by talking about the high risk product to a greater extent than persons low in perceived risk would. His findings were as predicted for headache remedies and floor wax, but not for dry spaghetti.

Cunningham concluded that persons high in perceived risk make use of word-of-mouth discussion as a strategy to reduce risk. More importantly

though he said:

... perceived risk does appear to have merit as a useful classifying concept. It is clear that it is a far more complex concept than originally postulated and that it cannot be considered a total model for consumer behavior.18

The second study reported by Cunningham is quite similar to the one just described. It appears that he used data from the same sample in both studies. In the later study, however, he was more concerned with the intricacies of word-of-mouth behavior. In addition to the existence of such behavior he concerned himself with the amount of communication, its content, the nature of informal communications, opinion leadership, and the early trial of new products with emphasis on the amount of informal social contact and sources of new product information.

One important aspect in both studies was the instrument used to measure perceived risk. Since Cunningham defines perceived risk as being composed of uncertainty and consequences, he developed a technique of questioning that generates a response

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18 Cunningham, Reflections on Progress in Marketing, p. 237.
on a four-point rating scale for each component. For uncertainty, he asked:

Would you say that you are: very certain; usually certain; sometimes certain; or almost never certain that a brand of headache remedy (fabric softener, dry spaghetti) you haven't tried will work as well as your present brand?19

For consequences he asked:

We all know that not all products work as well as others. Compared to other products, would you say that there is: a great deal of danger; some danger; not much danger; or no danger in trying a brand of headache remedy (fabric softener, dry spaghetti) you have never tried before?20

These responses were then combined into a nine-point index of perceived risk.

Once again he found that headache remedies were perceived highest in risk, followed by fabric softener and dry spaghetti in that order. By relating the risk perceived in each product with word-of-mouth behavioral factors such as number of people talked to, frequency and recency of the talking, occurrence of positive and negative brand recommendations and initiation of product related conversation, he was

20 Ibid.
able to conclude that there is a significant positive relationship. Specifically he found that:

As was predicted, high risk perceivers were more likely than low risk perceivers to be involved in a conversation in which (1) positive brand information was recommended, (2) negative brand information was recommended, (3) new brands were discussed, and (4) information was requested, as opposed to being volunteered by one of the parties to the conversation.21

In a study of 449 housewives by Johan Arndt, where perceived risk data was collected by structured interviews, similar findings were reported. Arndt was concerned with information flow and risk reducing strategies in the introduction of a new product. His conclusions with respect to perceived risk were:

Perceived risk was associated with a high degree of brand loyalty, which was negatively related to acceptance of the product. There appeared to be a flow of information from those low in perceived risk to the high risk perceivers...the high risk perceivers were more affected by both favorable and unfavorable word of mouth comments. Their adoption of the product was more likely to be accelerated by favorable comments and more likely to be decelerated by unfavorable comments.22

21Ibid., p. 720.
As was the case with Cunningham's studies, Arndt was able to show that perceived risk is an important determinant of a specific type of consumer behavior, i.e., word-of-mouth product discussion. It does appear that consumers who are high in perceived risk adopt word-of-mouth communications as one of their strategies for reducing the risk they see in a purchase decision.

Research Related to Perceived Risk

There are a number of studies with findings that have some bearing on the understanding of the perceived risk concept even though they were not specifically concerned with the concept. In this section these studies are briefly examined.

Risk handling in drug adoption

In a study of how physicians handle the risk involved in adopting new drugs, Bauer reported some interesting findings. He was interested in the comparative influence of ethical drug manufacturers and their detail men as risk reducing factors.

for physicians. In interviews with over 600 physicians at a medical association meeting he found that preference for a given drug company plays an important role in the adoption of and preference for that company's new drugs which are classified as risky or having potentially dangerous side effects.

It seems that great quantity of new drugs and the vast amount of promotional literature describing them virtually swamp the physician with information. Since many new products of competing firms are designed to treat the same illnesses, the physician is forced to make decisions among competing drugs. There are different levels of risk involved which depend first upon the physicians categorization of the illness (mild case or severe case) and the danger involved in using the drug (dangerous or safe). According to Bauer the physician's strategy for reducing risk in this complex situation involves placing trust in the drug firm's reputation as he perceives it. One finding which is particularly relevant today is that the doctors prefer to specify brand names for drugs rather than using the generic name on the prescriptions. Bauer views this as a strategy designed to reduce risk by expressing confidence in the manufacturer.
Ethical risk studies

A series of studies conducted by Salomon Rettig and his associates Harvey E. Rawson and Benjamin Pasamanick were concerned with the functional relationship between perceived risk and unethical behavior. These were laboratory studies utilizing college students as subjects. In these investigations the researchers were not examining any aspect of buyer behavior per se.

Preliminary experimentation had led Rettig to postulate that perceived risk in an ethical situation might allow one to predict the incidence of unethical behavior. In a situation where an individual may act unethically for the purpose of securing personal gain, while the risk of being exposed and punished is at a high level, a high negative relationship was found between unethical behavior and severity of moral judgment.

Rettig designed an instrument which allowed him to vary systematically what he feels are the main

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factors in ethical behavior; (1) expectancy of censure; (2) reinforcement value of censure; (3) expectancy of gain; (4) reinforcement value of gain; (5) severity of the offense; and (6) the reference group which would suffer as a result of the unethical act. A 64 item questionnaire was developed which presented each of these factors at varying levels in the situation of a "student in conflict over taking money that does not belong to him." For each situational item the subjects predicted on a 0-6 scale whether the student would take the money.

With the exception of the reference group, each factor showed a significant effect on the prediction of unethical behavior. Rettig cautiously concludes the perception of ethical risk is the most important antecedent for the engagement in unethical behavior.26

In an additional study, Rettig contrived a situation where a confederate was used to lure the subjects into cheating. One year later the subjects were given the instrument described earlier. Testing was done under a disguised situation. The most

interesting result from this study is that the cheaters were much more sensitive to the risk conditions. Rettig feels this is due to possible prior experience with deception and its subsequent internalization. He feels that perhaps the generalized expectancy construct from Rotter's Social Learning Theory may account for the effect of previous learning on potential behavior in any area.27

These studies are of interest here for several reasons. First, they point out the potential complexities of the perceived risk concept in that several types of perceived uncertainty and consequences may act and interact to elicit a given type of behavior. Secondly, Rettig was not preoccupied with risk reducing strategies but addressed himself to the elicitation of functional relationships between perceived risk and final outcomes. The weakness of the studies is the artificial laboratory situation in which most experiments are conducted. This makes it more difficult to generalize to normal populations and to the consumer decision making situation. This should not be interpreted as a criticism, however.

Risk taking experiments

Within the literature of decision theory there are numerous studies, usually of an experimental nature, in which subjects perform tasks under conditions of artificially imposed risk. The primary objective of these efforts seems to be the development of mathematical decision rules to enable the authors to construct decision making models. With a few exceptions, the experimenters are not concerned with the intermediate stage of perceiving risk or even reducing it. Emphasis is placed, rather on the outcome or decision arrived at under the manipulated conditions. An excellent statement of this point of view is made by Siegel et al.:

Analyses are directed to the ways in which people actually behave, not how they say they behave or would behave, nor to how they might expect others to behave. In our judgment, the hypothesis of maximization of utility can be given a fair test only by research in the behaviorist tradition.28

This approach has become increasingly popular in the fields of economics and management science. It does not reflect the philosophy under which the present

study is approached; however, there is great merit in examining a sampling of their approach to the area of risk.

In a representative study by Sidney Siegel the subject was asked to choose between two alternative outcomes. A chance event with a probability of occurrence of .5 actually determines the outcome. The experimenter then examined the manner in which the subject developed decision rules to predict the outcomes.  

In a later study, Siegel used risk as one of three conditions under which behavior was observed. Subjects were asked to predict which one of two light bulbs would light. Under one condition there was no payoff for correct predictions. The second condition was reward, where the subject was paid for correct predictions. Under the risk condition the subject was rewarded for correct predictions and penalized for errors. Siegel found that the prediction rate was highest under the condition of risk.

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30 Ibid., p. 178.
Peter C. Fishburn, a writer in the field of operations research, dealt with the problems of how a decision maker should consciously make a decision rather than a description of how persons do make decisions. He calls this the personalistic approach to decision making. His emphasis is on probabilities, estimates of probabilities, strategies, probable outcomes, probable consequences and payoffs and their effect on decisions. In other words, this approach attempts to develop normative decision theory through examination of risk handling strategies developed as means to accomplish specific objectives.

One popular form of experimentation appears to be that of having subjects perform games of chance under various conditions of risk. Raynor and Smith related such activity to measures of achievement motivation and authoritarianism. They found that subjects' performance is better on games of skill than on games of chance. The subjects seemed to prefer moderate levels of risk as opposed to the extreme situations.

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James M. Driscoll and his associates examined the relationship between response uncertainty as measured tachistoscopically and subjective uncertainty and information search behavior. They found that search behavior and subjective uncertainty correlate with the subjects' reports of subjective uncertainty.  

Several groups of psychologists have conducted inquiries into the relationships between certain personality variables and decision-making under conditions of risk. Scodel, Ratoosh and Minas conducted a betting experiment where the subject rolled dice while selecting a bet from nine alternative outcomes which were identified with object probabilities but varied in payoff or expected values. They reported that expected payoff is not important determining betting preference. Most importantly they said that intelligence is not related to degree of risk taking but rather to variability in

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risk taking. In a similar study by Gentile and Schipper where subjects predicted the occurrence of an experimentally manipulated event, it was found that neither need achievement nor manifest anxiety were related to decision-making or risk taking behavior.

Strickland, Lewicki and Katz found that subjects exhibited a significant degree of restraint in estimating outcomes in a gambling situation after the physical event which determines the outcome (i.e., the throwing of dice) has occurred. They concluded that a tentative explanation for this phenomenon is that even when persons are in a risk-taking situation, they like to feel that they have some degree of "control" over the event. An example of such perceived control is the action of a superstitious gambler.

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Finally, what is probably the most comprehensive work in the area of risk-taking has been performed by Kogan, Wallach, and Bern. On the whole their emphasis has been placed on the examination of an individual's willingness to take risks. Of greatest relevance to the study of perceived risk is the instrument which they developed and is known as the choice-dilemmas procedure. It is a rather complicated pencil and paper test that requires the subject to state the odds for success in a given situation that he would require before advising the hypothetical person in the dilemma situation to take the proposed action.

This technique holds promise as a technique for identifying a person who, although he perceives high risk in a situation, nevertheless prefers to take the risk. In other words, their work may lead to the


separation of a personality type known as the "high risk lover" or the "risk preferrer."

One of the most significant findings from Kogan et al. is that both personal and group influences affect the willingness of individuals to accept risk. Cunningham feels that this finding has great bearing on potential word-of-mouth activity by persons engaged in behavior designed to reduce uncertainty. 41

To summarize, the type of studies mentioned in this section are representative of a different approach to the subject of risk influenced behavior. Emphasis is largely on behavioral outputs under conditions of risk or examination of functional relationships between some psychological variable and clear-cut cases of risk-taking behavior.

Psychological Concepts Related to Perceived Risk

There are several other concepts from the field of psychology which appear on the surface to be related to the perceived risk concept. In this section these relationships are examined.

41 Cunningham, Science, Technology and Marketing, p. 705.
Desire for certainty and tolerance for ambiguity

While pursuing an inquiry into the nature of attitudes, Orville G. Brim Jr. developed an instrument which has produced results which are of theoretical interest. In his first study he was interested in the relationship between the intensity and content of attitudes as probability determinants of behavior. He predicted that the relationship between the estimates an individual makes concerning the probability of occurrence for some event and the degree of confidence he places in his probability estimate would be similar to the relationship that had been observed between content and intensity of attitudes. This content-intensity relationship has been described as follows:

A person holding an extreme attitudinal position (pro or con) is likely to feel more intense, more certain about the issue than someone who holds a less extreme position.43

When graphed with attitude content or value scores on the horizontal axis and a measure of intensity on


the vertical axis, the function appears to be U-shaped.

The instrument that Brim used to examine the content-intensity relationship for probability estimates is described in detail in Chapter IV. Briefly, the subjects were asked to estimate the probability that a statement would be true. In real life one would not expect persons to have sufficient knowledge to really know the answer. Each subject then expressed his degree of confidence in his probability estimate. The probability estimate was the content while the confidence estimate represented the intensity of the judgment.

Brim found a U-shaped relationship between content and intensity which was very similar to the content-intensity relationship in attitude research. He found that the U-shaped relationship was present despite individual differences among subjects which tended to make some persons respond more intensely to individual items than other persons. As Brim stated it:

We would say instead that the individual differences in intensity of response are not simply verbal habits,

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44 See page 134.
but are the effects of different degrees of motivation to escape from uncertainty. 45

Brim next examined his assumption, derived from the results of the study, that individuals attempt to achieve certainty by denying the ambiguity in an ambiguous situation. They achieve this end by expressing the feeling that "one really knows what the outcome of the situation will be." Brim feels that individual differences in this need for security are expressed as individual differences in tolerance for ambiguity. His instrument was designed to measure these individual differences.

At this point an examination of the tolerance for ambiguity concept is in order. The concept was introduced originally by Else Frenkel-Brunswick who presented subjects with a series of animal pictures in which a figure of a dog was changed gradually into that of a cat. He measured the willingness of individuals to admit that the pictures in the transition phase between dog and cat were really meaningless. Persons who kept calling the ambiguous pictures a dog were said to be intolerant of the

ambiguous situation.\textsuperscript{46} Krech, \textit{et al.} give an excellent definition of the concept:

\textbf{Intolerance of Ambiguity}. A general personality disposition, proposed by Frenkel-Brunswik, according to which people consistently differ in their capacity to tolerate or cope with ambiguous or unstructured objects and events. A person who is high in intolerance of ambiguity will tend to engage in black-and-white thinking and to form simplex, clearly organized cognitive systems.\textsuperscript{47}

In their discussion of the concept, Krech \textit{et al.} observe that persons high in intolerance of ambiguity tend to develop simplified good-evil solutions to complex social, political and economic problems. They have a tendency also to develop "devil-theories" to structure the ambiguous elements in their cognitive worlds.\textsuperscript{48}

To summarize and interpret the findings of Brim's first study, he found that individuals differ in their desire for certainty. The differences are evident in expressed differences in individual tolerance for ambiguity. The instrument which he


\textsuperscript{47} Krech, Crutchfield and Ballachey, \textit{Individual in Society}, p. 67.

\textsuperscript{48} Ibid., p. 46.
developed illustrates the differences in desire for certainty by measuring differences in tolerance for ambiguity in a situation where a statement of subjective certainty and an expression of confidence in that subjective judgment are used. One can see the similarities between this concept and that of perceived risk, especially with the importance of subjective certainty (or uncertainty). It seems that a person who views an object or a situation as being fraught with ambiguity and who has a high tolerance for ambiguity could perceive a high degree of risk in anticipated activities which are related to or deal with the situation. In other words, if some aspect of a buying situation is ambiguous compared to an alternative buying situation, the subjective uncertainty assigned to possible outcomes in that situation would be theoretically higher. Brim, however, claims that a person faced with the ambiguous situation would reduce the feeling of ambiguity by denying that uncertainty exists. This may be just another strategy for reducing the perceived risk in the situation. One would expect then that persons who generally perceive a high degree of risk in relatively ambiguous buying situations such as buying by mail would also exhibit a generally lower tolerance
for ambiguity. This question will be stated formally as a hypothesis in Chapter IV and examined in the field study.

In a later study, Brim and Hoff supported the earlier findings. In addition they found that desire for certainty can be altered, i.e., increased or decreased, by manipulating situational variables. The variables they tested in the laboratory were conditions of frustration and satisfaction. They found that desire for certainty was higher in situations of frustration. This finding is consistent with the tentative hypothesis just presented concerning the relationship between desire for certainty and perceived risk in a buying situation. If one assumes that presence of desired product information and the ability to examine products physically, receiving guarantees of adjustment or simple return procedures which are associated with buying from a store approximate "satisfaction," then the lack of these factors, which are often associated with mail order buying could approximate the condition of "frustration." One would expect a person who is

anxious about mail-order buying to exhibit a greater desire for certainty under the frustration condition.

Based on this discussion, it seems that if a definite relationship could be found to exist between desire for certainty and perceived risk, further research into this area would be warranted.

Zajonc and Morrissette reported a study in which they attempted experimentally to draw a distinction between uncertainty and ambiguity.\(^{50}\) They defined the distinction as follows:

Uncertainty involves inability of the individual to locate precisely the stimulus on a given dimension, while ambiguity refers to choice between alternative dimensions.\(^{51}\)

Both uncertainty and ambiguity may be present in a given choice situation. They found, however, that persons prefer to reduce uncertainty rather than ambiguity when the difficulty of the problem being faced increases. This finding appears to indirectly confirm Brim's conclusions and methodology. A distinction between the two concepts may be useful,


\(^{51}\) Ibid., p. 35.
but the apparent interaction of these two variables may be more meaningful in behavioral terms.

**Theory of cognitive dissonance**

In his original paper on perceived risk, Bauer noted that Festinger's theory of cognitive dissonance has a role in explaining the perceived risk process. Bauer said:

Festinger and his associates have concentrated on the ways in which people reduce perceived risk after decisions are made. People will seek out information that confirms the wisdom of their decisions.  

Bauer's paper was presented in 1960, only three years after Festinger first stated his theory. At that time social psychologists and researchers in consumer behavior were heralding the theory as one which had much broader implications than further research warranted. In a recent paper, Engel and Light concluded that the theory does indeed have limited

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applicability at least in the context of consumer behavior. 55

Festinger's theory states that two elements of knowledge "are in dissonant relation if, considering these two alone, the obverse of one element would follow from the other." 56 It is the conditions under which dissonance occurs and its consequences that are of primary interest. In order for dissonance to occur an individual must first be committed to some action or point of view. Secondly, any behavior that is elicited as a result of dissonance, either "natural" or experimentally induced, must be made by the individual at his own volition. Finally, the act or point of view under consideration must be of importance to the individual. 57

The consequences of dissonance are numerous. Zajonc has placed dissonance theory within the larger


body of theory that attempts to explain the observed tendency of individuals to be consistent in both their actions and the thoughts. When they are faced with conflict or inconsistencies people attempt to erase the conflict. The activities designed to eliminate inconsistencies or to reduce dissonance are in fact the consequences. Brehm and Cohen describe the dissonance reduction process as follows:

In general, of course, he may try to reduce the number and/or importance of dissonant, relative to consonant, cognitive elements, or he may try to reduce the importance of all these relevant elements.

The individual's attempts at dissonance reduction include changing one's attitudes toward the dissonant or consonant elements; search for information to bolster the consonant elements or discredit the dissonant ones, or perhaps distortion of his perception of the various elements. Under the proper conditions any or all of these consequences, plus many others, could be observed.


Zajonc made note of the issue that is of central importance to this discussion which is intended to relate dissonance theory to perceived risk:

First, it is predicted that all decisions or choices result in dissonance to the extent that the alternative not chosen contains positive features which make it attractive also, and the alternative chosen contains features which might have resulted in rejecting it. Hence after making a choice, people seek evidence to confirm their decision and so reduce dissonance.\textsuperscript{60}

In other words, dissonance reducing behavior takes place after a decision has been made. In reality many decisions are made on a recurring basis and the dissonance reducing activity does influence subsequent decisions. Activity to reduce perceived risk is generally thought of as occurring prior to the decision. The similarity between the consequential behavior of the two concepts can be seen, however, when one notes that perceived risk may also exist in situations where continuing similar decisions must be faced. The example of a convenience consumer good is illustrative. The example of information search behavior offers the intriguing possibility that there

are perhaps more areas of commonality in the areas of perceived risk reduction and dissonance reduction.

Another way of viewing this relationship is via the uncertainty concept. If a situation existed in which the decision maker had perfect knowledge of all possible outcomes, then perceived risk would be the same as the actual risk in the given state of nature and the decision maker would be aware of it. There would be no subjective uncertainty in the strictest sense. In such a situation, however, there could still be dissonance since conflicting elements are possible even with perfect knowledge. In this case there would be no behavior aimed at reducing perceived risk yet dissonance reducing behavior would be elicited. The obverse of this case is also possible, i.e., where perceived risk is present while dissonance is not. Even upon relaxation of the perfect knowledge assumption one can see that the two concepts are not identical in their behavioral outcomes for a given situation. Since decisions in the real world are usually made without perfect knowledge, some degree of subjective uncertainty exists. One could hypothesize then that the behavior
elicited by both perceived risk and cognitive dissonance, in a decision-making situation that stands a good chance of being repeated, may be quite similar.

In the context of this study, one could hypothesize that persons who have purchased a policy by mail from National Liberty Life may have taken dissonance reducing action such as engaging in conversation or changing attitudes toward mail buying, that could have the effect of reducing the amount of risk perceived in the act of buying by mail. This hypothesis is not to be tested in this study, but the implications are intriguing.

Some Models of Consumer Behavior: The Role of Perceived Risk

In order to place the perceived risk concept into the broader and more useful context of consumer behavior in general, several models of consumer decision-making that have been developed within the field of marketing are briefly examined in this section.
A recent attempt to present a comprehensive scheme of a consumer decision process was made by Francesco M. Nicosia.\textsuperscript{61}

As a point of departure, Nicosia extensively reviewed the literature of marketing, economics and the behavioral sciences. While marketing and economics have offered insights into the structural complexities of consumer decision processes, he felt that the behavioral sciences offered the greatest contribution to our knowledge of functional relationships between the interpersonal and environmental variables which influence these processes.

He describes his scheme as: "... a computer program that describes the invariant structure of consumer behavior."\textsuperscript{62} It is composed of four "fields" and the interconnecting functional relationships among the fields. Within any field a number of psychological activities take place as they are called for (using the analogy of a computer subroutine). The scheme itself is a closed-loop model with the two main points


\textsuperscript{62}Ibid., p. 155.
being the firm and the consumer. Each decision is activated by a message from the firm and terminates with the decision made by the consumer to purchase or to modify his cognitive structure or some other psychological variables.

The fields are identified as some step in the consumer decision process. Field One is what takes place from the source of a message to the consumer attitudes. Within this field there are two subfields. Subfield One is the firm's attributes while Subfield Two is the consumer's attributes. The subfields are linked by the process of message exposure.

Field Two is the search phase where search and evaluation take place prior to any action. The input to this field is the consumer's attitude which comes from Field One and the output is motivation.

Field Three is the actual act of purchase. Motivation, from Field Two, is the input and purchasing behavior is the output.

Field Four is the feedback stage. Purchasing behavior is the input, and experience is the output. Experience feeds into Subfield Two, the consumer's attributes while a portion of purchase behavior feeds
into the firm's attributes, Subfield One. Thus one
decision cycle is completed. 63

Perceived risk appears to play a role in
Field Two of Nicosia's scheme. He alluded to this
in a footnote where he cited Bauer's drug study 64
although perceived risk itself was not mentioned.
 Basically the perceived risk concept seems to have
found its greatest applicability in the area of word-
of-mouth behavior which is one form of external search.

On the other hand, he includes one factor,
"consumer's attributes" especially toward the product,
in each of the four fields. The basis of a consumer's
attribute is his cognitive structure, i.e., his picture
of the world. Since in the previous discussion of
perceived risk it was offered that the concept encom-
passes all the risk a consumer sees or feels in a
situation and that the level of perceived risk
influences behavior which can lead to further alter-
ations of cognitive structure, it seems plausible that
perceived risk itself may be treated as a consumer
attribute in the model. As such it would affect the

63 Ibid., p. 156
outcome from each field; the attitudes from Field One; the motivation from Field Two; the purchase behavior from Field Three; and the experience from Field Four.

It appears then that perceived risk does have a role which can be accounted for in Nicosia's model. The scope of that role is limited by a lack of evidence on just how perceived risk acts as a consumer attribute or a predictor of outcomes from a specific field in the model.

**Howard's theory of buyer behavior**

John Howard's Theory of Buyer Behavior is recognized as the pioneering effort in the development of a comprehensive model of consumer behavior. As with Nicosia's model it grew out of an attempt to assimilate the pertinent literature of marketing, economics, management science and the behavioral sciences.\(^{65,66}\) The actual model has received broad


exposure since it was incorporated in his widely used advanced marketing text.\textsuperscript{67} In addition, Howard has continued to expand and modify the details of his model. In two recent presentations, the internal mechanisms which he uses to describe buyer behavior have been reorganized to a considerable degree from their original form.\textsuperscript{68,69}

The basic model is based upon psychological learning theory. Howard has defined learning broadly to include any systematic change in behavior. It is not limited to adaptive behavior although the changing environment causes the consumer to adapt to different conditions.

The exogenous variables are importance of purchase, ease of post-decision evaluation, amount of time pressure, financial status, culture, social class, and the state of the alternatives.\textsuperscript{70} These are the


\textsuperscript{68}John A. Howard, The Theory of Buyer Behavior, address delivered before the symposium on consumer behavior at the Univ. of Texas, Austin, Texas (April 18-19, 1966).

\textsuperscript{69}John A. Howard and J. N. Sheth, The Theory of Buyer Behavior, 1966. (Mimeographed.)

\textsuperscript{70}Howard, Marketing Management: Analysis and Planning, p. 39.
variables which are external and not explained by the model. They do, of course, have great influence on the final outcome or behavior. Howard recognizes this influence by relaxing his simplifying assumption that the exogenous variables are constants. He looks at their impact on behavior through their effects on the model's endogenous variables.

As his model has gone through several stages of modification, the list of endogenous, or explained variables has changed considerably. In the basic model he included different sets of variables under different buying situations. These situations are (1) extensive problem solving, (2) limited problem solving, and (3) automatic response behavior. As would be expected the greatest number of variables come into play under extensive problem solving and the least under automatic response behavior. Under the latter, extensive experience in a given purchase decision has caused the learning effect to level off in some of the variables. The original list of endogenous variables included (1) information seeking; (2) search for clarification of alternatives; (3) choice process; (4) state of predisposition;

\[71\text{Ibid.}, \ p. \ 41.\]
(5) state of goals; (6) amount of perceptual bias; and (7) favorableness of post-decision evaluation. His model becomes, then a description of how the endogenous variables, through the reception and processing of information and triggering cues, the interaction of the variables themselves, and through the influence of the exogenous variables, cause a specific response which is purchase of a product. He also includes a feedback loop from purchase to the favorableness of post-decision evaluation variable. (See Figure 1.)

In his later versions he added a sensitivity to information variable which is in a circuit with stimulus integration, arousal potential and exploratory behavior. Sensitivity to information is influenced by the mediators or attitude variable which he uses in place of the state of predisposition. This is a major improvement in the model since it offers a more realistic view of how information seeking behavior takes place.

Within Howard's model there is one logical place where the perceived risk concept is meaningful;
Figure 1 — Howard's Model of Buyer Behavior

Source: John Howard, Marketing Management (see bibliography).
that is in the perceptual bias variable. It is through this "box" that all information cues from what he now calls the stimulus display pass. Perceptual bias acts in several ways. First, the individual may perceive or not perceive the information stimulus. On the other hand he may distort the content of the stimulus. It is the state of the perceptual bias variable that determines the nature and amount of bias that occurs. In his original model, Howard treated perceptual bias as if it were independent of the state of attitudes and goals. He has modified this stand, however, so that the level of perceptual bias is viewed as a function of the state of the mediators, inhibitors, alternatives and previous outcomes.74 One can see then that if one type of perceptual bias, e.g., high perceived risk, is present then the sensitivity to information and the entire stimulus integration and exploratory behavior processes can be affected in some manner. This is consistent with the findings of Cunningham with regard to word-of-mouth behavior.

Referring back to the previous discussions on tolerance of ambiguity and cognitive dissonance

74 Howard and Sheth, The Theory of Buyer Behavior.
one notes that both of these concepts are accounted for in Howard's model. The dissonance concept appeared in the original model under the favorableness of post-decision evaluation, while the role of ambiguity is presented in his more recent modifications. To the extent that perceived risk is related to these other concepts, the model presents at least two additional points where perceived risk plays a theoretical role in influencing buyer behavior.

By way of summary, Howard's Theory of Buyer Behavior, especially in its more recent revisions, provides a theoretical framework within which perceived risk performs a definite function. Although he does not formally include the concept in his model, the broad perceptual bias variable is integrated into the decision process in such a way that the role of perceived risk can be postulated in the context of his theory.

Alderson's theory of consumer behavior

The late Wroe Alderson, who is recognized as one of the leading marketing theoreticians, presented an embryonic theory of consumer behavior
in his final work. His objective was not to develop a theory of buying behavior but rather a theory to account for the entire consumption process. As such his efforts differ from those of Nicosia and Howard since a formal model of decision-making capable of being restated in mathematical form is not offered.

His approach is much more sociological than psychological. His unit of analysis was the family, specifically the husband and wife both interacting and behaving as individuals. He divided the behavior of family members into two categories, instrumental and congenial with the former being behavior that is a means to an end while the latter is behavior that is an end in itself, such as leisure activity.

He classifies families according to degrees of compatibility of behavior, i.e., activities shared by both partners, and coordination of spending which is measured by the proportion of family expenditures that the partners agree on. By computing indexes of coordination and indexes of compatibility and then combining them, he derives an index figure which can be used to diagnose the economic or instrumental behavior aspects of family problems.

75 Wroe Alderson, Dynamic Marketing Behavior: A Functionalist Theory of Marketing (Homewood, Ill.: Richard D. Irwin, Inc., 1965.)
Another element in Alderson's theory is the optimal use of time. He stated that there is a trade-off between time spent in instrumental behavior and that spent in congenial behavior. He assumes that an individual can consume more units of value during a congenial hour than he can create during an instrumental hour. An efficient consumer will divide his time between the two types of behavior so that in the long run the value created will equal the value consumed.

The aspects of Alderson's theory discussed so far do not have any apparent relationship to the perceived risk concept. Alderson did interject some comments on the relationship between the self and the environment which cast light on his thinking about the aspects of consumer behavior which he did not formally state. Of primary interest is his professed affinity to the Gestalt-phenomenological school of psychology. In essence this school believes that perception is the central factor in human behavior and that reality for an individual is what he perceives to exist in his world.

As Alderson stated it:

The individual lives in a world which is the world as he perceives it. He cannot take any action in his
environment except with respect to features which he observes and discriminates.76

If one assumes that risk can be a part of a person's cognitive world, then it may have an influence on behavior. Thus while he did not delineate a specific role for perceived risk in his theory, Alderson at least expressed a belief in an underlying psychological theory that is very receptive to just such a concept.

Engel and associates' model of consumer behavior

A most recent effort to develop a comprehensive model has been undertaken by James F. Engel and his colleagues. The first statement of the model was in the form of a general servosystem model of human behavior in a paper by Engel and Light.77 The complete model with emphasis on the consumer decision-making process is to appear in a forthcoming book by Engel, Blackwell and Kollat.78

The model is similar to Nicosia's in that it is a closed loop or servosystem model which utilizes

76Ibid., p. 155.

77Engel and Light, "The Role of Psychological Commitment in Consumer Behavior...."

the systems and computer technology approach. It differs from Nicosia's, however, in that the firm is not an integral part of the process. The process begins with all types of inputs entering the system through sensory receptors. These may be communications output of a firm, but they also include physical inputs such as the weather and social inputs such as pressures to adhere to membership group norms. Although this difference may seem minor its impact is to make the Engel model more global. The model more closely parallels Howard's in this respect since the categories of physical and social inputs are similar to the inputs Howard includes in his stimulus display.

From the input stages the model proceeds to the perception stage where the inputs are organized by the individual. At this point forces from the other major component of the model come into play. This component is the central control unit which is a "black box" where memory and thinking take place. It is here that personality variables, values and attitudes, and stored information and past experience are stored, organized, and controlled. The functions of the central control unit have an impact on perception through the process of selective perception.
In return perception influences the values and attitudes stored in memory so that a secondary loop occurs.

Following perception the individual passes through a series of stages at which points he may choose to proceed along the circuit closer to actual purchase, search for additional information which places him back at the input stage, or halt the entire process. Regardless of the intermediate decisions made, the results feedback into the central control unit. At the same time the central control unit influences each stage in the process to the extent that experience or learned response sets are evoked in a given situation.

The stages which complete the loop are; (1) problem recognition; (2) external search for alternatives; (3) evaluation of alternatives; (4) purchase; and (5) outcomes including post purchase evaluation and further behavior. All outcomes feedback into both the central control unit and into input.

The role of perceived risk in this model is quite similar to that of the more recent Howard model. The Engel model, however, places the perception process
per se in a more prominent position. Howard concerned himself with perceptual bias and stimulus integration leaving the implication that the processes are more dissimilar than alike. Again, if risk is treated as an input then the perception of risk affects the central control unit which in turn influences the results of the various stages in the decision-making process. Within the framework it is possible that perceived risk may influence perception of other inputs, the nature of problem recognition, the probability and intensity of external search, the evaluation of alternatives, and of course, probability of purchase and the post-purchase outcomes.

In brief, the perceived risk concept appears to fit quite neatly into this model. Due to the realistic treatment of the perception process, the concept fits more comfortably here than in any of the other models examined.

Theoretical Questions

In Chapter I several theoretical problems which appeared to be relevant to this study were outlined. To conclude this discussion of the perceived risk concept, these problems are re-examined below in light of the findings and further problems
identified in the literature reviewed in this chapter. Some tentative conclusions are to be drawn at this point. These are to be regarded as theoretical conclusions which can be restated as testable hypotheses and examined empirically.

**Does the level of perceived risk vary situationally?**

Although there is no conclusive evidence that would answer this question, it seems that an affirmative answer is the only logical one. Since different situations vary in ambiguity, an individual must assign different levels of subjective uncertainty to their outcomes. Cox and Rich showed that people perceive different amounts of risk in the same situation. If there is variation within one situation, one should expect variation among situations.

While this question may seem trivial, one must be satisfied that the answer is "yes" in order to postulate the importance or significance of situational differences in perceived risk. Cox and Rich concluded that they were dealing with one buying situation, i.e., buying by telephone. If they had been dealing with situational variation they would have compared telephone buying with some other means
of purchasing. In the present study the question to be examined involves the differences in perceived risk between the situations of buying by mail and buying from a store or salesman. If such differences are found can they then be related to some objective behavioral criterion such as purchase of a product by mail? If evidence is found that would support these contentions then the theoretical strength of the perceived risk concept as an explanatory variable would be enhanced.

Are perceived risk and tolerance for ambiguity related?

As was noted earlier in this chapter it appears that perceived risk is related to the desire for certainty tolerance for ambiguity concept. One of the objectives of this study is to make the initial empirical test of this hypothesis.

The nature of this relationship is not clear at this time. Based on the studies by Brim, however, it appears that the level of a person's tolerance for ambiguity can affect his expression of degree of perceived risk in a situation. The reasoning for this is as follows. Ambiguity, uncertainty and perceived risk are terms which describe similar
phenomena. If a stimulus or situation is ambiguous, a person is probably uncertain about its precise nature or probable outcomes. The chances are that he will perceive more risk in this situation than in a less ambiguous one. If this same person's tolerance for ambiguity is low, he will attempt to reduce the ambiguity by denying that the uncertainty exists. This action could lead him to perceive less risk in the situation than a similar individual with a high tolerance for ambiguity. What may happen, however, is that he will express the opinion that there is little risk in the situation. In other words, he may state the level of subjective uncertainty lower than a person with high tolerance for ambiguity.

The type of behavior just postulated could affect attempts to measure perceived risk in an ambiguous situation and its impact on behavior. Thus while examination of this relationship is not the primary objective of this study, it is possible that the relationship observed may aid in explaining the results derived from study of the perceived risk concept alone.
What is the role of perceived risk in consumer behavior models?

Examination of several leading models of consumer behavior leads one to conclude that the perceived risk concept may have a definite usefulness in explaining the complexities of consumer decision-making. One must also conclude that the perceived risk concept by itself is not a complete theory of buying behavior.

The question which arises is concerned with the precise role of perceived risk. Is it a concept with a unique role that warrants its inclusion in a model as a separate variable? Is it just a specialized type of perception? These questions must remain unresolved in light of our limited knowledge of the workings of the concept itself.

Cunningham and Arndt have demonstrated that perceived risk does influence search behavior which is an integral part of most models. In the present study the role of perceived risk on choice of buying medium is examined. It may be that the concept will develop as one which screens and directs search behavior and perhaps initiates pre-selection of alternatives. This is a rather tenuous postulate,
especially in light of the elements in existing models, such as perceptual bias from Howard and the selective perception variable in Engel's model, which already account for these functions. If perceived risk can be shown to influence choice of buying method or perhaps the advertising medium which carries the most influence with an individual, then this pre-selection idea would deserve further attention.

Summary

It is with the above questions in mind that this study has been developed. No attempt is to be made to answer all these questions conclusively. In the following chapter some very specific aspects of the rather broad questions are ferreted out and incorporated in an empirical framework that will allow their closer examination. It is the theories, research, and concepts contained in the literature reviewed here that form the basis upon which this study is to build.
CHAPTER IV

METHODOLOGY

Introduction

Having completed examination of the theoretical aspects of perceived risk, attention must now focus on the specific methodology that is to be used in this study. First, the hypotheses and the research design are presented. Next there is a discussion of the sampling and survey procedures. Then the instruments used to collect the data are discussed. Finally methods for analyzing the results are examined.

Research Design

The following hypotheses are statements which encompass the theoretical questions which this research is designed to investigate. It is obvious that these are not the only hypotheses which could be put forward. It is the judgment of the author, however, that these particular ones place the questions of interest in testable form in a way that
best meets the objectives of the study and takes into account the previously defined limitations.

Hypotheses

\( H_1: \) There is a greater degree of perceived risk in the act of purchasing a product by mail than in purchasing it from a store or a salesman.

\( H_2: \) There is a greater degree of perceived risk in the act of purchasing hospitalization insurance by mail than in purchasing it from a salesman.

\( H_3: \) Persons who exhibit a greater desire for certainty or a lower tolerance for ambiguity will perceive a correspondingly lower degree of risk in the act of purchasing by mail than purchasing from a store or a salesman than will persons who have a high tolerance for ambiguity.

\( H_4: \) Persons who have already purchased hospitalization insurance through the mail will exhibit a lower desire for certainty than those persons who have been offered the same plan but have not purchased it.

\( H_5: \) Persons who have already purchased hospitalization insurance by mail will perceive less risk in the act of buying hospitalization insurance by mail as opposed to buying from a salesman than those who have not purchased.

\( H_6: \) Differences exist among the various life cycles with respect to the amount of risk perceived in the act of buying by mail as opposed to buying from a store or a salesman.
H₇: Within a given life cycle, differences exist between persons who have purchased hospitalization insurance by mail and those who have not bought it through the mail with respect to the amount of perceived risk they see in the act of buying by mail versus buying from a store or a salesman.

These hypotheses are listed in their approximate order of importance. Several are quite closely related. Specifically, H₂ is a special case of H₁ and H₇ is a more complex case of H₆. Each hypothesis can stand on its own, i.e., the acceptance of any one of them is independent of the acceptance or rejection of any other.

Research variables

Each hypothesis is stated in such a manner that it fits into a very simple research paradigm. The basic form of this model is best described graphically as follows:

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  independent variable → intervening variable → dependent variable
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This type of model is frequently used in behavioral research.¹ All variables can be fit into one of these categories. The arrows are used to indicate the

direction of causal influence. The independent variable is the action, stimulus or situation that predetermined or manipulated by the researcher through the design of the study. The dependent variable is the outcome or behavior that is elicited under the conditions defined by the independent variable. The intervening variable is a process, event or state that occurs in the object being studied. It is this intervening variable that is said to cause the response observed in the object of investigation and measured by the value of the dependent variable. In the discussion that follows, each hypothesis is examined in such a manner that the variables under study are placed in the context of this model.

$H_1$: There is a greater degree of perceived risk in the act of purchasing a product by mail than in purchasing it from a store or a salesman.

Under Hypothesis $H_1$, the independent variable is the buying situation, i.e., either buying through the mail or buying from a store or a salesman. The dependent variable is the respondent's score on the perceived risk scale. The intervening variable in this case is the process of perceiving risk in a buying situation.
While the action of the intervening variable cannot be seen directly, they can be inferred from the observation of values of the dependent variable. In other words, a high positive score on the perceived risk scale is attributed, by inference, to the operation of the perceived risk process, i.e., the intervening variable.

\[ H_2: \text{ There is a greater degree of perceived risk in the act of purchasing hospitalization insurance by mail than in purchasing it from a salesman.} \]

Under \( H_2 \), the independent and intervening variables are the same as under \( H_1 \), i.e., the buying situation and the perceived risk process respectively. The dependent variable differs slightly. It is the score the respondent gives to hospitalization insurance only on the perceived risk scale.

\[ H_3: \text{ Persons who exhibit a greater desire for certainty or a lower tolerance for ambiguity will perceive a correspondingly lower degree of risk in the act of purchasing by mail than purchasing from a store or a salesman than will persons who have a high tolerance for ambiguity.} \]

Under \( H_3 \), the independent variable once again is the buying situation. In this hypothesis, however, there may be two dependent variables, i.e., score on the perceived risk scale and score on the desire for certainty test. The intervening variable is the
relationship between the two processes, perceived risk and desire for certainty/tolerance for ambiguity.

H₄: Persons who have already purchased hospitalization insurance through the mail will exhibit a lower desire for certainty than those persons who have been offered the same plan but have not purchased it.

Under H₄, the independent variable is changed to the act of purchase or non-purchase of hospitalization insurance through the mail. This again is a previously determined situational stimulus that is controlled within the research design as is seen later in the discussion of the sampling procedure. The dependent variable is the respondent's score on the desire for certainty test. The intervening variable is the personality factor desire for certainty.

H₅: Persons who have already purchased hospitalization insurance by mail will perceive less risk in the act of buying hospitalization insurance by mail as opposed to buying from a salesman than those who have not purchased.

Under H₅, the independent variable is the act of purchase or non-purchase of hospitalization insurance through the mail. The dependent variable is the respondent's score for hospitalization insurance alone on the perceived risk scale. The intervening variable is the process of perceived risk in a buying situation.
H₆: Differences exist among the various life cycles with respect to the amount of risk perceived in the act of buying by mail as opposed to buying from a store or a salesman.

Under H₆, the independent variable is the consumer life cycle. The dependent variable is the respondent's score on the perceived risk scale. The intervening variable again is the process of perceived risk in a buying situation.

H₇: Within a given life cycle, differences exist between persons who have purchased hospitalization insurance by mail and those who have not bought it through the mail with respect to the amount of perceived risk they see in the act of buying by mail versus buying from a store or a salesman.

Finally, under H₇, the independent variable is the act of purchase or non-purchase of hospitalization insurance through the mail. The dependent variable is the score the respondent gives on the perceived risk scale. The intervening variable is the process of perceived risk in a buying situation. This particular hypothesis differs from H₅ only in that the results are examined within life cycle groups alone rather than for the entire sample.
Sampling Procedure

In this section the sample selection and survey procedures are presented. The basic research plan called for a field study composed of 300 in-home interviews with a sample of persons selected from the populations described below.

**Populations**

The persons interviewed were members of one of the three following groups.

The first group is all persons in Columbus, Ohio who are presently hospitalization insurance policyholders of the National Liberty Life Insurance Co. There are approximately 350 persons in this group.

The second group is all persons in Columbus, Ohio, who are on one of the mailing lists of the National Liberty Life Insurance Co., but who are not policyholders of the company. Approximately 10,000 people are in this category.

The third group is composed of all persons in Columbus, Ohio, who are not included in either of the other two groups.
Sample selection

From each of the above populations a sample of 150 was drawn. This size was determined by several factors. Due to the small number of policyholders, it did not seem reasonable to expect a rate of cooperation that will provide more than this number. Each respondent must agree to an interviewing session that is at least 45 minutes long. Another very important factor, of course, is the economics of data collection. The cost of preparing instruments, conducting interviews and providing for a higher than normal call-back rate is considerable. In fact it is in excess of $10 per interview. Finally it has been the practice in much of the research into human behavior to treat a sample of over 100 as being "fairly large." As one statistician explains:

It is a common statistical convention to consider a sample of 30 or more observations as large and a sample of less than 30 as small. This is, of course, highly arbitrary.

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The sample from the population of policyholders which is referred to hereafter as the "policyholders," was drawn by a process of random selection. In effect, the entire population was randomly re-ordered and a list of 150 names was drawn. Since it was anticipated that more than 150 names would be required to obtain 150 completed interviews, the remainder of the population was compiled into another list and the necessary names were drawn at random from this pool.

The second sample was drawn from the mailing list of "prospects" in Columbus. This sample was also selected by a random process from the computer tape on which the company stores prospects' addresses. This list and the list for the policyholder sample was edited to eliminate duplication of names.

The third sample, which is called the "control" sample, is selected by a technique that matched it geographically to the prospect sample. Whenever an interviewer completed an interview in the prospect sample she immediately selected another household in the same block and attempted to complete an interview there. She selected the household by tossing a coin to determine which way she will proceed down the block.
At the same time she glanced at the second hand on her wristwatch and whatever number the hand is on is the number of houses down the block she is to go. If the hand is on ten, she made her first call at the tenth house.

**Survey procedures**

Each respondent was interviewed in his home by a trained and experienced interviewer employed by Dwight Spencer and Associates, a market research firm based in Chicago. While the interviewers were under the overall control of the author, the day-to-day supervision of the data collection was handled by Dwight Spencer and Associates.

Each respondent was contacted prior to the interview in order to set up an appointment time. Due to the severely limited size of the policyholder population, the interviewers were instructed to make as many callbacks as necessary to complete a session.

All data was to be collected within a period of three weeks. Since the respondents in the policyholder and prospect samples were specific persons rather than whomever answered the door, evening and weekend interviews were necessary.
Research Instruments

In this section, the three instruments to be used in the study are examined with emphasis being placed on their development, application, strengths, and weaknesses. The instruments are: (1) the perceived risk scale; (2) the desire for certainty test; and (3) the socio-economic questionnaire.

The Perceived Risk Scale

The perceived risk scale is a graphical/numerical rating scale that is designed to measure relative amount of risk that a respondent feels in one buying situation as opposed to another. The scale, which appears in its complete form in Appendix A, is a pencil and paper test which can be self-administered and completed in less than 20 minutes.

The respondent was instructed to rate a series of 20 products individually with respect to the amount of risk he feels that there is in the act of purchasing each product in one of two buying situations. He then was asked to rate each of the products in the same manner, but with buying situation being the second of the two situations.
Risk categories

The actual rating of the perceived risk in each product under each situational condition was determined by the category representing degree of risk perceived which the respondent chooses: (1) very high risk; (2) high risk; (3) moderate risk; (4) low risk; and (5) very low risk. These categories are printed in full in a horizontal line immediately to the right of the product being rated. It is this aspect of the scale that is similar to a graphic scale; however, the respondent cannot choose just any point along the continuum from "very high risk" to "very low risk." He must choose and circle one specific category which is a discrete point along the continuum. Due to this procedure, the true graphical characteristic of the scale is destroyed.

Products

The products that are to be rated were presented in the following fashion, with one minor exception. A product type, not a brand name is listed and to a certain extent described by using adjectives such as "well-known brand" or "unfamiliar brand" printed immediately under the product. Directly below this there is a statement of quantity
and price for the product, such as "$2.00 per box of 25." Some examples of product statements follow:

1) 19-inch TV set:  
   well-known brand, $99

2) Tulip bulbs:  
   $1.50 per dozen

3) Hi-Fi record album:  
   unfamiliar brand, $1.98

The thinking behind this form of presentation is that the respondent is forced into a fairly specific way of thinking with regard to the product without letting the possibly harmful effects of negative brand preferences come into play. By adding the descriptive adjective "Hi-Fi," for example, the respondent will think only of this type of record, not of a "stereo" record. The price of $1.98 in turn makes him think in terms of a specific record. If these descriptions were not provided, two different subjects could form widely varying mental pictures for the product "record album." One perhaps would think of a $6.00 stereo album while the other would think of a lower priced Hi-Fi record. The descriptions forced the respondents to visualize the products within a much narrower range of alternatives.

During the initial development stages of this scale, the product type was listed without the
qualifying statements and price/quantity designations. It was found that respondents were confused and slowed down by the ambiguity. Typical interviewee statements were "it would make a big difference if I knew what brand it was" or "how much do they want for this product." While it may be impossible to eliminate this problem completely, the procedure as it stands appears to minimize it.

The actual choice of products for the scale is not of critical importance. Since the respondent is to work through the same scale twice, once under the condition of the mail buying and once under the store buying situation, the most important factor is that the products being rated must be the same. This is further reason for using the somewhat specific product and price descriptions. This minimizes the danger of the respondent thinking "$5.00 record album" in the mail buying situation and "$2.00 record album" in the store situation. In other words, the most important factor in the selection of the products and their manner of presentation is the creation of a mental set in each respondent for each product which will remain constant for the two situations or conditions under which the subjects respond to the scale.
It does not matter whether this mental set is the same for all respondents, as long as it is constant for each individual.

Instructions

A related problem is that of placing each respondent into a mental set corresponding to the buying situation under which he is making the ratings. The situation is set by the instructions to the respondent. There are actually three sets of instructions, one general and two specific. Every respondent was given the general instructions which are as follows:

We all know that there is a certain amount of risk involved in the purchase of goods and services. Everybody sees different kinds and amounts of risk when buying different products. For example, if you are thinking about buying a car you may be faced with the risk that the model you are interested in may not be built well as a competitor's model. Or there is the risk that the price you pay may not be the lowest one possible. Then there is the risk that the car may not perform as well as you expect it to. Perhaps if you buy a large expensive car you will be faced with the risk that your friends may think you are trying to put on airs or be a social climber.

On the following pages you are asked to think about the amount of risk which you personally see in a number of buying situations. Example

Suppose you are on a shopping trip and you have decided that you need to buy some milk. One of your choices on the shelf at the store is a half-gallon of an unfamiliar brand of milk selling at 49¢. How much risk do you feel
there would be in the purchase of this product? You can indicate the amount of risk you see in the purchase by circling one of the following choices.

Very High  High  Moderate  Low  Very Low
Risk  Risk  Risk  Risk  Risk

You should consider all kinds of risk in making your choice, such as the risk that the milk is spoiled, the risk that another brand may be better or that the milk may be priced higher than another brand at another store.

Remember, the important thing is to circle the amount of risk that you think there is in purchasing the product.

In the general instructions the first objective is to define risk as broadly as possible through the use of examples. The car buying example gives instances of physical, economic and social risk all related to a specific type of purchases. Emphasis is placed on the individual's personal evaluation of the amount of risk in a purchase. In conversations with pretest respondents it was found that the instructions were clear and that every person did indeed know what he was expected to evaluate in each product. The field interviewers were instructed to answer any questions from respondents regarding "what kind of risk" they are to look for, or "just what is meant by risk" by making a statement to the effect that "all kinds of risk" or "all of the risk" is to be taken into account.
There are two versions of the specific situational instructions. They are intended to orient the respondent so that he rates the perceived risk in each product within the context of either the mail buying or store buying situation. When the scale was given, one-half of the respondents rated the perceived risk under the mail situation first and the other half got the store buying situation first. This minimized order of presentation effects. Each instruction was followed by a copy of the rating scale itself. The instructions were as follows:

Mail Situation First

1) Assume that you have already decided to buy each of the following products through the mail. Assume that you have seen a picture of each product and read a description of it in an advertisement. Please circle the amount of risk that you think exists in the purchase of each one of the products through the mail.

2) Now, suppose that you had the chance to buy each of the products or services from a store or from a salesman. Please circle the amount of risk that you think exists in the purchase of each product. Remember, you are going to buy from the store or salesman that you would normally buy the product or service from rather than buying by mail.

Store Situation First

1) Assume that you have already decided to buy each of the following products from a store or from a salesman. Please circle the amount of risk that you think exists in the
purchase of each product. Remember, you are going to buy each from the store or salesman that you would normally buy the product or service from.

2) Now, suppose that you had the chance to buy each of these products through the mail rather than from a store or a salesman. Assume that you have seen a picture of each product and read a description of it in an advertisement. Please circle the amount of risk that you think exists in the purchase of each one of the products through the mail.

Scoring the Perceived Risk Scale

Introduction

The perceived risk scale generates two types of scores. First there is the individual score for each respondent which represents the amount of risk he sees in the mail buying situation as opposed to the store buying situation. The second is the score for each product. In the latter case it is the amount of risk that a respondent sees in the purchase of the product through the mail as opposed to buying from a store or salesman.

The numerical scores are created by assigning weights to the five risk categories:

<table>
<thead>
<tr>
<th>Category</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>Very High Risk</td>
<td>5</td>
</tr>
<tr>
<td>High Risk</td>
<td>4</td>
</tr>
<tr>
<td>Moderate Risk</td>
<td>3</td>
</tr>
<tr>
<td>Low Risk</td>
<td>2</td>
</tr>
<tr>
<td>Very Low Risk</td>
<td>1</td>
</tr>
</tbody>
</table>
Assumption of equal intervals

While the assignment of these weights is arbitrary, they reflect an important assumption upon which this scale has been built. This assumption is that the intervals or distances in a psychological sense between categories is equal. In other words, the difference between very low risk and low risk is identical to the difference between low risk and moderate risk. One writer summarized this problem as follows:

Obviously, in such a procedure the investigator is assuming without empirical proof that the intervals on this kind of arbitrarily assigned a priori scale represent equal psychological intervals between adjacent numbers. He can, of course, by suitable psychophysical experimentation determine the validity of his assumption. But in the actual use of numerical rating scales such experimentation is seldom done.  

This limitation, although important in the sense that it must be recognized, does not greatly impair the value of the scale. In the first place at this point in the development of the perceived risk concept psychophysical measurement appears to be out of the question. Psychophysical measurement

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is a class of techniques that attempt to measure psychological phenomena by examining physical response to stimuli. Experiments which measure galvanic skin responses are an example of psychophysical measurement. By analogy, the area of attitude measurement which has received intensive attention from behavioral scientists has not reached the stage where a measuring device which purports to have true interval or ratio scaling characteristics can be totally defended by its designer. On the other hand critics of such scales, try as they may, are reduced to attacking the assumptions the designer has made. 5

The debate seems to have as its underlying cause the desire on the part of researchers to apply the more powerful parametric tests of statistical significance to results derived from their scales.

A powerful test is one that will detect statistically significant differences among groups of sample data, when such differences do indeed exist, more often than a less powerful alternative. A researcher has a greater chance of demonstrating

5Ibid.
what he sets out to if he uses the most powerful statistical tests applicable.

On the other hand, when the researcher violates the assumptions underlying a statistical test, he takes the chance that the test he is using may suffer from a lack of conservatism. A conservative test is one that reduces the chance of accepting differences among groups of sample data as being statistically significant when, in fact, an actual difference does not exist.

Strictly speaking, the perceived risk scale and others such as Osgood's semantic differential and the Likert scales have intervals which are ordinal in nature. An ordinal scale is one which measures some psychological response such as an expression of opinion toward some object, idea, or person in such a way that the differences between any two responses A and B can only be described as "A is greater than B" or "B is greater than A." It does not indicate how much greater one response is than


the other. Any assumption about the distance or equality of the distance or intervals between categories of response are just that; an assumption.

In this study the researcher has chosen to make the assumption that the differences between categories approach equality. There are several reasons for treating these intervals as equal intervals. In the first place there is no concrete evidence that would lead one to conclude that these intervals are unequal. In everyday language the use of the adjective "very" appears to be applied with similar intensity to many different concepts. The difference between "hot" and "very hot" is quite similar to the difference between "cold" and "very cold." One sociologist in a study of language patterns of the relatively uneducated classes in Britain observed what he called a "public language." One of its characteristics is that it is entirely a spoken language. He found, among other things that rigid and limited use of adjectives is a primary aspect of the public language. It seems logical

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that a common adjective such as "very" could have just such a rigid and unusual meaning in the American language.

The weakest point in this argument is, of course, the place of the word "moderate." By definition and use it expresses the concept of lack of extremes. Since it is intended to mark a neutral point on the scale, its choice seems appropriate. The alternative to this word would have been a statement such as "neither high nor low risk." This seems to be too limiting though. Since there is no absolute true value for either "high risk" or "low risk" but rather a range of "high" and a range of "low" the respondent will be more likely to express a feeling or "tendency" toward neutrality rather than a strict neutrality.

Another argument is that some behavioral scientists have seen fit to argue that rating scales do have the properties interval and even ratio scales.\(^9\) The argument is that when actual numbers are not used on the categories on the scale, the respondents treat the intervals as if they were equal. This is not a new argument, and it has never been refuted.

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If one is willing to assume equal intervals, then the data generated by this type of scale can be analyzed using parametric tests of statistical significance. While it may appear that the conditions necessary for the use of a test such as analysis of variance have been violated, this cannot be proven unless the assumption of equal intervals is proven to be invalid. In effect, the burden of proof is shifted to the critic. While this may seem to be an unscholarly approach, given the present state of the art of psychological measurement, and the fact that many respected behavioral scientists are following the practice, the author sees little to be gained by not making this critical assumption.

**Numerical scores**

When a respondent has completed the perceived risk scale the data in its raw form consists of two scales, where he has rated the same 20 products under the mail buying and store buying situations.

The first step in scoring is to assign the weights (5, 4, 3, 2, 1) to each response category. A difference score is then computed for each product by subtracting the store situation score from the mail situation score. For example, if the respondent
rated powered lawn mowers "very high risk" on the mail situation and "moderate risk" for the store situation, weights of 5 and 3 are assigned respectively. Using the formula:

\[ D_p = M_p - S_p \]

where \( D_p \) = difference score for product \( p \)
\( M_p \) = score for product \( p \) under the mail situation
\( S_p \) = score for product \( p \) under the store situation

it can be seen that

\[ D_p = 5 - 3 \]
\[ D_p = 7 \]

This score is then summed across all respondents in the study and a mean \( \bar{D}_p \) is computed:

\[ \bar{D}_p = \frac{1}{n} \sum_{r=1}^{n} D_{pr} \]

where \( \bar{D}_p \) = the mean difference score for product \( p \)
\( D_{pr} \) = the difference score on product \( p \) for the \( r^{th} \) respondent
\( n \) = the sample size

Thus \( \bar{D}_p \) is the score that reflects the differences in the way a group of respondents rated a particular product under the mail buying and store buying situations.
The second score that is computed is the individual respondent's perceived risk score. It is possible to derive three actual scores from this data. The first, and most important, is his individual difference score $D_r$. It is computed as follows:

$$D_r = \sum_{p=1}^{20} \frac{D_{rp}}{20}$$

where $D_r = \text{the mean difference score for respondent } r$

$D_{rp} = \text{the difference score for each product for the } r\text{th respondent}$

$n = \text{number of products (20)}$

This score $D_r$ shows whether the respondent saw more risk in the mail buying or the store buying situation across all 20 products. If $D_r$ is positive he perceived more risk in buying by mail and if it is negative the store buying situation is seen as being riskier. The other two individual scores are simply average ratings for each respondent on each situation. For the mail situation the computation is:

$$R_m = \sum_{p=1}^{n} \frac{M_{rp}}{20}$$
where $R_m =$ mean rating of all products in the mail situation for a given respondent

$M_{rp} =$ score for product $p$ under the mail situation for the $r$th respondent

For the store situation, the formula is:

$$R_s = \sum_{p=1}^{n} S_{rp}$$

where $R_s =$ mean rating of all products in the store situation for a given respondent

$S_{rp} =$ score for product $p$ under the store situation for the $i$th respondent

In addition it is possible to compute each of these scores for groups of respondents rather than individuals. This is done by simply calculating the arithmetic mean of difference scores, mail situation ratings or store situation ratings.

Desire for Certainty Test$^{10}$

The desire for certainty test has been developed by Orville G. Brim Jr.$^{11}$ The test is

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$^{10}$The concept of desire for certainty was discussed in Chapter III, p. 73.

$^{11}$Brim, American Sociological Review (1955), pp. 68-76.

Brim, Personality and Decision Processes.
described by its author as being a "projective measure." He further states that:

The test consisted of 32 statements about everyday events in the following form: 'The chances that an American citizen will believe in God are about ___ in 100.' Ss filled in some probability value for each statement. In addition Ss indicated how sure they were of their estimates by rating the estimate on a five-point scale ranging from 1 (Very Sure) to 5 (Not Sure At All).  

The complete test appears in Appendix B.

The statements used are drawn from eight general areas: education, recreation, politics, economics, religion, health, family, and transportation and communications. Four statements are used from each of these areas. All of the statements are ones for which true probability values are either debatable or not well known.  

Assumptions

There is one basic assumption that underlies this test. It is that a strong desire for certainty is expressed by a tendency for persons to choose probability values near the extremes of 0 and 100 and

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the tendency to exhibit a high degree of certainty that these values are correct. As the authors state it, uncertainty is reduced "by jointly claiming a high certainty that something will definitely happen (or definitely not happen)."14

Based on this assumption, the "theoretical point of maximum uncertainty" is a probability estimate of .50 (50 chances in 100) and a confidence estimate of 5 (Not Sure At All).

Another assumption is that the statements are drawn from areas of knowledge broad enough to minimize the effects of special knowledge on the part of respondents. Brim cites a potential problem, however:

. . . . there was no control over the effects of differences in general level of information, e.g., the college graduate certainly knows more in general than does the high school student. This defect would affect the results if groups of differing educational levels were to be studied.15

In this study widely differing educational levels are included in the sample. As will be seen later, the sample groups to be compared are expected to be


fairly homogeneous with respect to demographic factors such as education. If the results are indeed affected, the impact should be fairly consistent over the primary groups to be tested.

**Reliability and validity**

The reliability of a test is the ability of its individual questions or items to elicit consistent responses. If a test is designed to measure aggressiveness and if it contains 20 questions that are supposed to measure this variable, then the responses of a person taking the test should be such that all the answers he gives are highly correlated. If this condition is met, the test is said to be reliable.

Reliability should not be confused with stability which is the characteristic of a test that indicates the consistency of individual responses over periods of time in which the test is repeated.

Validity is the characteristic of that indicates whether the test actually measured the phenomenon that it was designed to measure. In practice it is very difficult to determine the validity of a psychological test since there are few, if any, absolute standards against which the test may be compared.
When the initial study using the test was reported, no reliability study had been performed. In the later study, however, the following was reported:

The reliability of the test on an odd-even split, corrected by the Spearman-Brown formula is .81 based on an N of 50 Ss.\textsuperscript{16}

In another study it was found that the stability of the test was $Y = .673$ using the test-retest method.\textsuperscript{17}

There are no reported studies of validity for the test.

Brim was unable to find significant relationships between desire for certainty scores and standard socio-economic variables or with intelligence. He noted that this was probably due to the homogeneity of the college student samples.

**Scoring**

The test is scored by determining first whether the respondents probability estimate for a given statement is closer to 0 or to 100. The distance from the closest of these figures is then computed. This distance is multiplied by the respondent's certainty value, i.e., confidence

\textsuperscript{16}Ibid.

\textsuperscript{17}D. T. Kollat and R. D. Blackwell, unpublished paper (Columbus: The Ohio State University).
estimate, with a weight of 1 for "Very Sure" through 5 for "Not Sure At All."

This procedure is repeated for each of the 32 statements and the resulting products are summed and averaged. This produces an average score for each subject that will fall within the range 0 to 250. Following this procedure yields scores with numerical values inversely related to the desire for certainty.

Questionnaire

A standard questionnaire is used to gather pertinent socio-economic data such as age, sex, income, occupation, education, religion and family status from each respondent. (See Appendix C.) The questionnaire is administered by the interviewer using direct questions such as "do you own your own home?"

Life cycle data

One portion of the questionnaire deserves special attention. This is a technique devised to determine the life cycle category into which each respondent falls.
The concept of "life cycle position" is rather simple. As an individual progresses through life, his behavior, including purchasing behavior, changes. The traditional way of separating these stages has been along some demographic base such as age or income. Beckman and Davidson have noted:

The critical dates in an individual's life often occur when he experiences a change in family status, such as his marriage or the birth of his first child. Therefore, buying behavior frequently is affected more by progressive changes within the family than by age, geographic location, or certain of the other demographic variables....

This concept should not be interpreted as being a substitute for demographic analysis. It is rather a method whereby several pertinent demographic variables are combined and treated as a single unit of analysis. This combination of factors is thought to be more meaningful when placed within the context of the family. An example of combination appears in a study by Lansing and Kish where they examined factors which affect a family's consumption behavior. These include family income, level of indebtedness whether the wife is working and home ownership.

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immediately sees the obvious impact of these factors on disposable family income, which is by itself an important determinant of a family's level of living. Wells and Gubar have presented a thorough analysis of the use of the life cycle concept in marketing research. They have traced it from its beginnings in the literature of sociology. In addition they have cited a number of studies in which the life cycle concept is directly compared with age to see which is a better indicator of certain types of purchasing behavior. These studies were examined to determine which concept is able to discriminate between probable buyers and non-buyers in various product categories. They found that life cycle is a better discriminator for purchase of products such as washing machines, and other large ticket household appliances, food, children's games and toys, and auto liability insurance, to name just a few representative products. Age, on the other hand, is a better discriminator for medical care and medical products, and luxuries such as furs and whiskey.


21 Ibid., pp. 359-360.
The authors concluded, on the basis of their analysis that:

... the evidence from 'Expenditure Patterns of the American Family' and from the other direct comparisons between life cycle and age weighs heavily in favor of life cycle. Whether the item in question is a product or a service, a durable or a nondurable, life cycle is likely to be a more meaningful way of classifying consumers. 22

At the same time they recognized that certain methodological problems exist such as choosing categories to represent life cycle positions and fitting everybody into the proper category. If each person were perfectly matched into a category which completely described his present position, one would need perhaps millions of categories. In compiling a manageable list of categories, the problems of misfits seems unavoidable but not of such significance to detract greatly from the usefulness of the concept.

For the purposes of this study the composite categories which Wells and Gubar presented were slightly modified. 23 Instead of six categories with

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22 Ibid., p. 360.
23 Ibid., p. 355.
subclasses, ten were used. These were:

1. The bachelor stage; single people under 45
2. Young married couples; under 45 without children
3. The full nest I; married couples under 45 with their youngest child under 6
4. The full nest II; married couples under 45 with their youngest child 6 or over
5. The full nest III; married couples 45 or over with dependent children
6. The empty nest I; married couples 45 or over with the head of the household in the labor force
7. The empty nest II; married couples 45 or over with the head of the household retired
8. The solitary survivors I; single people 45 or over still in the labor force
9. The solitary survivors II; single people 45 or over and retired
10. Non-classified; persons who do not fit into categories 1-9; includes young widows and divorced persons

The specific category into which each respondent fell was determined by the use of a decision tree diagram. The interviewer began at the top of the page and asked each appropriate question. There are only two possible answers to each question, hence the interviewer was directed down the appropriate branch of the tree. When the bottom of a branch was reached the number under the last response was the life cycle category. (See Figure 2.) This technique has proved to be easy to
Figure 2 -- Decision Tree for Determining a Respondent's Life Cycle Category.

Are you married?
  Yes
  Is your husband or wife living?
    Yes
    No
    Have you ever been married?
      Yes
      Are you widowed or divorced?
        Yes
        under 45
        Is your youngest child under 6 years old?
          Yes
          No
          (3) (4)
        No
        What is your age?
          under 45
          45 or over
          (2)
          Is the head of your household working?
            Yes
            No
            (6) (7)
          (8)
          Are you planning to return to work?
            Yes
            No
            (6) (7)
          (8) (9)
        (1)
        What is your age?
          under 45
          45 or over
          (0)
          Is he retired?
            Yes
            No
            (6) (7)
          (8) (9)
    No
    Is any of your children living at home or being supported by you?
      Yes
      No
      (5)
      (6) (7)
  No
  What is your age?
    under 45
    45 or over
    (1)
understand and administer on the part of field interviewers.

Testing the Hypotheses

In this section the manner by which each of the seven hypotheses was examined statistically is discussed. In order to determine whether the hypotheses put forward can or cannot be supported by the data gathered in the field study, tests of statistical significance must be performed on the data. Each of the hypotheses in this study are stated in a manner such that the detection of differences in the values of the data drawn from different groups of respondents is the necessary condition for accepting or supporting each hypothesis. The statistical tests allow the researcher to determine whether the observed differences among various groups of data are significant differences. In other words, these tests estimate the probability of observed differences occurring due to chance alone rather than as a result of actual differences existing in the population sampled.

If the statistical tests reveal that there is a high probability that the observed differences occurred due to chance, the differences are then
attributed to sampling error. In such cases, the researcher is unable to state that the data have supported his research hypothesis. This does not mean that the hypothesis has been disproven. It only means that it has not been proven. The results are then said to be inconclusive.

Each hypothesis is restated in the form of a null hypothesis and the specific statistical technique appropriate for testing it is identified. A null hypothesis is nothing more than the research hypothesis phrased as a negative statement. If the research hypothesis is "A is greater than B," then the corresponding null hypothesis is "A is not greater than B." In each case the statistical test is used in an attempt to reject the null hypothesis which if accomplished allows the researcher to accept the main hypothesis from which the null hypothesis was derived.

**Statistical tests of significance**

The design of this research study called for the use of three different tests of statistical significance. The appropriate test for use on each null hypothesis was determined by the complexity of the hypothesis itself.
Whenever the null hypothesis is to be tested by comparing two sets of sample data, the appropriate test is Student's t-test. This test compares the means of the two sets of sample data and estimates the probability that both samples could have been drawn from the same population. The value derived from the t-test is then used to determine whether the differences observed between the two sets of data could have occurred due to chance alone. If the probability of such a difference occurring due to chance alone is very small, then the researcher is willing to state that the difference is statistically significant. In this study, the probability of such an event occurring must have been less than .05 before the researcher would accept the differences as significant. This is the traditional value used in much of the reported behavioral research.

In this study several hypotheses were tested by comparing data from more than two sample groups. Since the t-test is limited to comparisons of two sets of data, another technique was used. In this case the test chosen is known as one-way analysis.

\[24\] Ferguson, Statistical Analysis in Psychology and Education, p. 137.
of variance, which is abbreviated as ANOV. 25

The principle underlying this test is similar to that for the t-test. The means of the various groups of sample data are compared to see if they could have been drawn from the same population. Once again the differences occurring among the sample means are compared. If the probability of such differences occurring due to chance alone is less than .05, the differences are said to be statistically different.

Examination of the main hypotheses

In this section, the specific techniques for testing the hypotheses are presented. Each hypothesis is restated in the form of a null hypothesis and the statistical test appropriate for testing the hypothesis is identified. It is important to note that the null hypothesis must be rejected, that is, disproven, if one is to accept the main hypothesis.

One comment on the notation used in this section is in order. For a given hypothesis, the main hypothesis is usually labeled $H_1$ and its corresponding null hypothesis is $H_0$. Since there are

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25 Ibid., p. 234.
seven hypotheses in this study, the notation used to keep them separate is as follows; \( H_{11}: \), \( H_{12}: \) \ldots \( H_{17}: \) denotes the main hypotheses one through seven while \( H_{01}: \), \( H_{02}: \) \ldots \( H_{07} \) identifies the null hypotheses.

\( H_{01}: \) The average total difference score for the entire sample, as derived from the perceived risk scale, is equal to or less than zero.

The perceived risk scale was designed so that a score of zero indicates no difference between the ratings in the store situation and the mail situation. To test \( H_{01} \) the t-test was used. The actual mean difference score as derived from the perceived risk scale was compared with the average value for no difference of zero. If the probability of the observed value of this total difference score being equal to or less than zero was less than .05, the null hypothesis \( H_{01} \) could be rejected.

\( H_{02}: \) The average total difference score for hospitalization insurance for the entire sample is equal to or less than zero.

A score of zero for an individual product indicates no perceived differences between the two situations, mail and store. The statistic used for testing \( H_{01} \) is again the t-test. In this case the mean score for hospitalization insurance was compared with the average value for no perceived difference which is
zero. If \( H_{02} \) was to be rejected the probability of the observed difference scores being equal to or less than zero must again be less than .05.

\[ H_{03} : \text{The correlation between tolerance for ambiguity as evidenced by a high score on the Brim desire for certainty test, and the difference in perceived risk between the mail and store situations will be less than or equal to zero.} \]

In order to test this hypothesis the Pearson product-moment correlation coefficient between the Brim score and the perceived risk D score was calculated for all respondents.\(^{26}\) The correlation was performed to determine the nature of the relationship that exists between the individual perceived risk scores and Brim scores. In order to ascertain whether the observed relationship could have occurred due to chance alone, a t-test was performed on the correlation data. As before, the critical probability was set at .05.

\[ H_{04} : \text{The mean score on the Brim desire for certainty test for the policyholders group will be less than or equal to the mean Brim test score for prospects group.} \]

The data used to test \( H_{04} \) are the Brim scores from the policyholder group which were compared with the Brim scores from the prospect group. The t-test was the appropriate statistic and the critical probability was again at .05.

\(^{26}\)Ibid., p. 92.
\(H_{05}\): The average difference score for hospitalization insurance for the policyholder sample will be equal to the average difference score for the prospect sample on the same product and equal to the average difference score for the control sample.

Since the data to be compared in the testing of \(H_{05}\) were derived from three sample groups, analysis of variance was used instead of the t-test. The mean difference score for hospitalization insurance in each of the three sample groups was compared to determine whether any observed differences could have occurred due to chance alone. The critical probability was set at .05 as in the other hypotheses discussed above. One must note that rejection of \(H_{05}\) as the result of the ANOV does not indicate where the differences exist. It only shows that the three sample means are different. If \(H_{05}\) is indeed rejected, further analysis is necessary to determine which of the sample means taken as pairs are different.

\(H_{06}\): The average total difference scores on the perceived risk scale will be the same for all life cycles.

The data used to test \(H_{06}\) were the individual perceived risk scores. These scores were grouped into life cycle categories and the mean score for each life cycle was computed. In order to test for differences among life cycle categories, it was necessary
to use analysis of variance. Since there are ten categories, the t-test could not be used. Once again the critical probability was set at .05. As in H₀₅, rejection of H₀₆ does not tell one where the significant differences exist.

H₀₇: Within a given life cycle the average total D score for the three samples will be equal.

To test H₀₇, the individual perceived risk scores were once again grouped into life cycle categories. They were then separated into their respective sample groups. Each life cycle was then examined to determine whether the mean perceived risk scores were the same in each sample group. This was accomplished by performing an analysis of variance of each life cycle category separately. Since there were ten categories there must be ten separate ANOV's computed. The critical probability was set at .05. Rejection of H₀₇ would not indicate the exact location of the significant differences.

Summary

In this chapter the methodological techniques of the research study have been presented. The main instrument for data collection, the perceived risk scale was described along with Brim's desire for
certainty test and the socio-economic questionnaire.

The seven research hypotheses were listed along with the identification of the exact definitions of the variables that are to be examined.

The research population and the samples to be drawn were defined and the techniques for selecting the sample were outlined.

Finally, the framework of examining the hypotheses was presented in the form of testable null hypotheses and the appropriate statistical techniques for their testing.
CHAPTER V

RESULTS

Introduction

In this chapter the results of the field study are presented and analyzed. The first section is devoted to testing of the null hypotheses. Then the additional findings derived from the study are presented. The findings are analyzed as they are presented.

Examination of the Null Hypotheses

In this section each null hypothesis is restated and the data derived from the field study is examined statistically to determine whether the hypothesis may be rejected. All computations were performed by computer.

Testing $H_{01}$

$H_{01}$: The average total difference score for the entire sample, as derived from the perceived risk scale, is equal to or less than zero.

The basic survey data used to test $H_{01}$ is presented in Table 1. From the total difference score for all
TABLE 1

AVERAGE TOTAL PERCEIVED RISK DIFFERENCE
SCORES (D) FOR POLICYHOLDERS,
PROSPECTS AND CONTROL
RESPONDENTS

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>( \overline{D} ) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders</td>
<td>10.42 (b)</td>
</tr>
<tr>
<td>( n = 100 )</td>
<td></td>
</tr>
<tr>
<td>Prospects</td>
<td>12.54</td>
</tr>
<tr>
<td>( n = 101 )</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>13.16</td>
</tr>
<tr>
<td>( n = 100 )</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12.04</td>
</tr>
<tr>
<td>( n = 301 )</td>
<td></td>
</tr>
</tbody>
</table>

(a) \( \overline{D} \) = the sum across all twenty products of differences between mail buying situation ratings and store/salesman buying situation ratings divided by sample size (n).

(b) Read as: The policyholder sample perceived an average difference of 10.42 out of a total possible difference of ± 80 between the mail buying and store/salesman buying situation. The positive score indicates that this sample saw a greater amount of risk in the mail situation than in the store/salesman situation.

respondents, which represents the total difference in perceived risk between the mail and store/salesman situations, the average total difference score is computed as follows:

\[
\overline{D} = \frac{\text{total } D}{\text{total sample size}} = \frac{3626}{301} = 12.0465
\]

average total difference \( \overline{D} = 12.0465 \)
To determine whether the observed $D$ is a statistically significant difference, student's $t$-test was computed for the data. In this case the $t$-test was computed to determine whether $12.0465$ was greater than zero by an amount that is statistically significant. The value of $t$ was found to be:

computed $t = 0.8996$

critical value of $t = 1.645$ (one-tailed)

degrees of freedom $= 300$

$n = 301$

Reference to a table of critical values for $t$ shows that for a one-tailed test of significance, that is, one which is used to test a hypotheses which predicts the direction in which a difference is expected to be found, the critical value of $t$ at the $.05$ level of significance is $t = 1.96$.\(^1\) To reject the null hypotheses $t$ must equal or exceed the critical value in the table. Since $0.8996$ is less than $1.645$ one can say that the probability of the observed value $D = 12.0465$ being greater than or equal to zero due to chance alone is greater than $.05$. This level of significance, $.05$, was discussed in Chapter IV as the predetermined critical probability. Since the possibility of this

\(^1\)Ferguson, Statistical Analysis in Psychology and Education, p. 308.
result occurring due to chance alone is not less than .05, the null hypotheses cannot be rejected.

Since the null hypotheses cannot be rejected, the main hypotheses cannot be supported. This does not mean that the main hypotheses has been disproven. It means that the results of this particular study are such that the hypothesis cannot be supported. It would take additional research to disprove the main hypothesis. In this study, then, the researcher cannot say that there is a greater degree of perceived risk in the act of purchasing a product by mail than in purchasing it from a store or a salesman when all respondents are analyzed together.

\[
\text{Testing } H_{02}
\]

\[H_{02} : \text{The average total difference score for hospitalization insurance for the entire sample is equal to or less than zero.}\]

Table 2 shows that the average total perceived risk difference score for hospitalization insurance is \( \bar{D} = 0.6678 \). Once again a t-test was performed on the data. The value of \( t \) was found to be:

\[
\begin{align*}
\text{computed } t & = 0.5821 \\
\text{critical value of } t & = 1.645 \text{ (one-tailed)} \\
\text{degrees of freedom} & = 300 \\
n & = 301
\end{align*}
\]
### TABLE 2

**AVERAGE TOTAL PERCEIVED RISK SCORE ($\overline{D}$) FOR EACH PRODUCT IN THE PERCEIVED RISK SCALE RANKED IN DESCENDING ORDER OF $\overline{D}$ N = 301**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Product</th>
<th>$\overline{D}$</th>
<th>$t$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fresh strawberries</td>
<td>1.3654</td>
<td>.898</td>
</tr>
<tr>
<td>2</td>
<td>Children's shoes</td>
<td>1.0332</td>
<td>.690</td>
</tr>
<tr>
<td>3</td>
<td>19-inch TV set</td>
<td>0.8339</td>
<td>.614</td>
</tr>
<tr>
<td>4</td>
<td>Power lawn mower</td>
<td>0.7508</td>
<td>.556</td>
</tr>
<tr>
<td>5</td>
<td>Ready made drapes</td>
<td>0.7475</td>
<td>.602</td>
</tr>
<tr>
<td>6</td>
<td>Hospitalization insurance</td>
<td>0.6678</td>
<td>.582</td>
</tr>
<tr>
<td>7</td>
<td>Bourbon whiskey</td>
<td>0.6412</td>
<td>.471</td>
</tr>
<tr>
<td>8</td>
<td>Metal lawn chair</td>
<td>0.6179</td>
<td>.512</td>
</tr>
<tr>
<td>9</td>
<td>Aluminum siding</td>
<td>0.5581</td>
<td>.509</td>
</tr>
<tr>
<td>10</td>
<td>Christmas cards</td>
<td>0.5515</td>
<td>.421</td>
</tr>
<tr>
<td>11</td>
<td>Stationery</td>
<td>0.5050</td>
<td>.422</td>
</tr>
<tr>
<td>12</td>
<td>Mutual fund</td>
<td>0.5017</td>
<td>.410</td>
</tr>
<tr>
<td>13</td>
<td>Tulip bulbs</td>
<td>0.4850</td>
<td>.396</td>
</tr>
<tr>
<td>14</td>
<td>Double bed sheet</td>
<td>0.4684</td>
<td>.403</td>
</tr>
<tr>
<td>15</td>
<td>Hi-fi album</td>
<td>0.4452</td>
<td>.405</td>
</tr>
<tr>
<td>16</td>
<td>Monopoly game</td>
<td>0.4452</td>
<td>.325</td>
</tr>
<tr>
<td>17</td>
<td>Life insurance</td>
<td>0.4319</td>
<td>.409</td>
</tr>
<tr>
<td>18</td>
<td>Sewing machine</td>
<td>0.3821</td>
<td>.363</td>
</tr>
<tr>
<td>19</td>
<td>Vitamins</td>
<td>0.3621</td>
<td>.315</td>
</tr>
<tr>
<td>20</td>
<td>Aspirin</td>
<td>0.2525</td>
<td>.205</td>
</tr>
</tbody>
</table>

(a) $\overline{D}$ = the sum across all respondents of the difference in perceived risk ratings between the mail buying and store/salesman buying situations divided by sample size.

(b) Read as: For all respondents, the average difference in perceived risk between the mail buying and store/salesman buying situations for fresh strawberries was 1.3654 out of a total possible of + 4. The positive score indicates that more risk was perceived in the mail buying situation.

(c) $t$ = computed test statistic $t$ where $\overline{D}$ was tested against zero to see if a significant difference existed. The critical value of $t$ at the .05 level of significance (one-tail) is 1.645 with 301 degrees of freedom. None of the $t$-tests were significant.
The critical value for $t$ at the .05 level of significance which must be exceeded if $H_{02}$ is to be rejected is 1.645. Since .5821 is less than 1.645, the null hypothesis cannot be rejected. The main hypothesis $H_2$ cannot be supported by the data. The researcher cannot say then that there is a greater degree of perceived risk in the act of purchasing hospitalization by mail than in purchasing it from a store or a salesman.

Testing $H_{03}$

$H_{03}$: The correlation between tolerance for ambiguity as evidenced by a high score on the Brim desire for certainty test, and the difference in perceived risk between the mail and store situations will be less than or equal to zero.

The product-moment correlation coefficient was computed between the Perceived Risk D scores and the respondents scores on the Brim desire for certainty test. The value computed was:

$$r = .032$$

This value was then examined using the $t$-test for correlation coefficients and the value of $t$ was found to be:

- Computed $t = .5956$
- Critical value of $t = 1.645$ (one-tailed)
- Degrees of freedom $= 299$
- $n = 301$
Since .5956 is less than the critical value of \( t = 1.645 \), at the .05 level of significance, the null hypothesis \( H_{03} \) cannot be rejected. The main hypothesis cannot be supported. The researcher cannot say that persons with a lower desire for certainty will perceive correspondingly less risk in the act of purchasing by mail versus store than persons who have a high desire for certainty.

Testing \( H_{04} \)

\( H_{04} \): The mean score on the Brim desire for certainty test for the policyholders group will be greater than or equal to the mean Brim test score for prospects group.

To test this null hypothesis, the Brim scores for the policyholder and prospect groups were compared. As Table 3 shows, the average Brim scores for these groups are:

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholder</td>
<td>86.84</td>
</tr>
<tr>
<td>Prospects</td>
<td>84.08</td>
</tr>
</tbody>
</table>

Since the size of a Brim score is inversely related to the desire for certainty, these results are in a direction opposite that hypothesized in \( H_{04} \). A t-test was computed to test the significance of this observed difference. The results were:

- Computed \( t \) = 0.9977
- Critical value of \( t \) = 1.645 (one-tailed)
- Degrees of freedom = 599
- \( n \) = 301
### TABLE 3

**AVERAGE DESIRE FOR CERTAINTY SCORES FOR POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS**

<table>
<thead>
<tr>
<th>Sample Groups</th>
<th>Desire for Certainty Score (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders</td>
<td>86.84(b)</td>
</tr>
<tr>
<td>n = 100</td>
<td></td>
</tr>
<tr>
<td>Prospects</td>
<td>84.08</td>
</tr>
<tr>
<td>n = 101</td>
<td></td>
</tr>
<tr>
<td>Control</td>
<td>80.02</td>
</tr>
<tr>
<td>n = 100</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>83.33</td>
</tr>
<tr>
<td>n = 301</td>
<td></td>
</tr>
</tbody>
</table>

(a) Scores can range from 50 (lowest desire for certainty) to 250 (highest desire for certainty).

(b) Read as: The average desire for certainty score for the policyholder sample was 86.84.

At the .05 level of significance the critical value of t is 1.645. The computed t does not exceed the critical value, hence the null hypothesis $H_{04}$ cannot be rejected. The main hypothesis $H_4$ cannot be supported. Hence it cannot be said that persons who purchased hospitalization insurance through the mail exhibit a lower desire for certainty than persons in the prospect group.
Testing $H_{05}$

$H_{05}$: The average difference score for hospitalization insurance for the policyholder sample will be equal to the average difference score for the prospect sample on the same product and equal to the average difference score for the control sample.

Table 4 shows that $\overline{D}$ for hospitalization insurance appears to differ among the three sample groups.$^2$

To determine whether this difference is sufficient to warrant rejection of $H_{05}$, a single factor analysis is variance, often referred to as a one-way ANOVA, was performed. The test statistic is the $F$-ratio of 0.9550 which appears in Table 5. Reference to a table of critical values for $F$ indicates that an $F$-ratio greater than 3.87 is required to reject the null hypothesis at the .05 level of significance.$^3$ Since the computed value of $F$ is less than the critical value, the null hypothesis $H_{05}$ cannot be rejected. The main hypothesis $H_5$ cannot be supported. Thus it cannot be said that persons who have purchased hospitalization insurance by mail perceive less risk in that act than persons who have not.

$^2$See Appendix D for individual product $\overline{D}$ score, classified by sample group.

$^3$Ferguson, pp. 310-313.
**TABLE 4**

COMPARISON OF AVERAGE PERCEIVED RISK SCORE ($\bar{D}$) FOR HOSPITALIZATION INSURANCE AMONG POLICYHOLDERS, PROSPECTS AND CONTROL RESPONDENTS

<table>
<thead>
<tr>
<th>Sample Groups</th>
<th>$\bar{D}$ for Hospitalization Insurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders</td>
<td>.5400 (a)</td>
</tr>
<tr>
<td>Prospects</td>
<td>.7129</td>
</tr>
<tr>
<td>Controls</td>
<td>.7500</td>
</tr>
</tbody>
</table>

(a) Read as: The average perceived risk difference score for the policyholder group on hospitalization insurance was .5400 out of a total possible 4.

Perhaps a word of explanation is in order concerning the general format of Table 5. This is an ANOV summary table which is the accepted manner in which results from an ANOV are presented. In this paper, ANOV is used to test several hypotheses. The reader should be concerned primarily with the value of the F-ratio. In cases where the value of F is sufficient to reject the null hypothesis at the desired level of significance, a notation is made in the summary table to that effect. The accepted notation is to state that $P < .05$ if the value of F exceeds the critical value of F at the .05 level of significance and $P < .01$ if the .01 level is exceeded.
TABLE 5

SUMMARY TABLE FOR THE ANALYSIS OF VARIANCE TESTING THE SIGNIFICANCE OF THE DIFFERENCES IN D FOR HOSPITALIZATION INSURANCE AMONG THE POLICYHOLDER, PROSPECT AND CONTROL SAMPLE GROUPS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2.5141</td>
<td>2</td>
<td>1.2571</td>
<td>0.9950(a)</td>
</tr>
<tr>
<td>Within groups</td>
<td>392.2632</td>
<td>298</td>
<td>1.3163</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>394.7773</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) The critical value of F at the .05 level of significance is 3.87 hence F was not significant.
Testing $H_{06}$

$H_{06}$: The average total difference scores on the perceived risk scale will be the same for all life cycles.

To test $H_{06}$ the average total perceived risk scores ($\overline{D}$) were compared among the ten life cycle categories. These scores appear in Table 6. A single factor ANOV was computed for these scores and the ANOV summary is presented in Table 7. The computed F-ratio of 1.6747 does not exceed the critical value of F at the .05 level of significance, which is $F = 1.91$. As a result the null hypothesis $H_{06}$ cannot be rejected. The main hypothesis $H_6$ cannot be supported. Thus the researcher cannot say that differences among life cycle categories exist with respect to the amount of risk perceived in the store/salesman situations as opposed to the mail-buying situation.

Testing $H_{07}$

$H_{07}$: Within a given life cycle the average total $\overline{D}$ score for the three samples will be equal.

Table 8 presents the data used to test $H_{07}$. For each life cycle category, the perceived risk scores $\overline{D}$ for policyholders, prospects and controls are compared. Each comparison is made using single factor ANOV. Since there are ten life cycle categories, ten separate
### TABLE 6
AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES $\overline{D}$ FOR LIFE CYCLE CATEGORIES

<table>
<thead>
<tr>
<th>Life Cycle Category</th>
<th>n</th>
<th>$\overline{D}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bachelor Stage</td>
<td>10</td>
<td>11.80$^{(a)}$</td>
</tr>
<tr>
<td>2. Young Marrieds</td>
<td>7</td>
<td>14.14</td>
</tr>
<tr>
<td>3. Full Nest I</td>
<td>43</td>
<td>12.65</td>
</tr>
<tr>
<td>4. Full Nest II</td>
<td>38</td>
<td>12.87</td>
</tr>
<tr>
<td>5. Full Nest III</td>
<td>31</td>
<td>17.90</td>
</tr>
<tr>
<td>6. Empty Nest I</td>
<td>47</td>
<td>13.57</td>
</tr>
<tr>
<td>7. Empty Nest II</td>
<td>34</td>
<td>7.85</td>
</tr>
<tr>
<td>8. Solitary Survivors I</td>
<td>29</td>
<td>12.28</td>
</tr>
<tr>
<td>9. Solitary Survivors II</td>
<td>44</td>
<td>7.77</td>
</tr>
<tr>
<td>10. Non-Classified</td>
<td>18</td>
<td>12.11</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>301</td>
<td><strong>12.04</strong></td>
</tr>
</tbody>
</table>

$^{(a)}$ Read as: For the 10 respondents in the Bachelor life cycle stage the average total perceived risk difference score was 11.80 out of a possible ± 80. The positive score indicates that more risk was perceived in the mail buying situation than in the store/salesman buying situation.
### TABLE 7

**SUMMARY TABLE FOR THE ANALYSIS OF VARIANCE TESTING THE SIGNIFICANCE OF THE DIFFERENCES AMONG LIFE CYCLE CATEGORIES FOR THE AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>d.f.</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>2649.0200</td>
<td>9</td>
<td>294.3355</td>
<td>1.6747(a)</td>
</tr>
<tr>
<td>Within groups</td>
<td>51144.3223</td>
<td>291</td>
<td>175.7537</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>53793.3423</td>
<td>300</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) The critical value of $F$ at the .05 level of significance is 1.91 hence $F$ was not significant.
## TABLE 8

**AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES D FOR POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS; BY LIFE CYCLE CATEGORY**

<table>
<thead>
<tr>
<th>Life Cycle Category</th>
<th>N</th>
<th>Policyholders</th>
<th>Prospects</th>
<th>Controls</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>D, n</td>
<td>n</td>
<td>n</td>
</tr>
<tr>
<td>1. Bachelor Stage</td>
<td>10(a)</td>
<td>-2.667(b) 3(c)</td>
<td>11.33 3</td>
<td>23.00 4</td>
</tr>
<tr>
<td>2. Young Marrieds</td>
<td>7</td>
<td>23.00 1</td>
<td>13.67 3</td>
<td>11.67 3</td>
</tr>
<tr>
<td>3. Full Nest I</td>
<td>43</td>
<td>1.25 4</td>
<td>15.47 15</td>
<td>12.79 24</td>
</tr>
<tr>
<td>4. Full Nest II</td>
<td>38</td>
<td>14.50 6</td>
<td>12.06 17</td>
<td>13.13 15</td>
</tr>
<tr>
<td>5. Full Nest III</td>
<td>31</td>
<td>14.00 8</td>
<td>23.13 8</td>
<td>17.20 15</td>
</tr>
<tr>
<td>6. Empty Nest I</td>
<td>47</td>
<td>15.14 14</td>
<td>12.35 20</td>
<td>13.77 13</td>
</tr>
<tr>
<td>7. Empty Nest II</td>
<td>34</td>
<td>9.42 12</td>
<td>5.50 10</td>
<td>8.25 12</td>
</tr>
<tr>
<td>8. Solitary Survivors I</td>
<td>29</td>
<td>10.68 19</td>
<td>15.89 9</td>
<td>10.00 1</td>
</tr>
<tr>
<td>9. Solitary Survivor II</td>
<td>44</td>
<td>9.23 22</td>
<td>6.27 15</td>
<td>6.43 7</td>
</tr>
<tr>
<td>10. Unclassified</td>
<td>18</td>
<td>8.36 11</td>
<td>32.00 1</td>
<td>15.67 6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>301</td>
<td>10.42 100</td>
<td>12.54 101</td>
<td>13.16 100</td>
</tr>
</tbody>
</table>

---

(a) Read as: In the bachelor stage of the life cycle there were a total of 10 respondents.

(b) Read as: For the policyholder respondents in the bachelor stage of the life cycle, the average perceived risk difference score was -2.667. The negative value of the score indicates that these respondents perceived more risk in the store/salesman situation than in the mail-order buying situation.

(c) Read as: There were 3 policyholder respondents in the bachelor stage of the life cycle.
tests must be made. Table 9 presents the ANOV summaries for each of the ten tests. Only in the case of life cycle category 1 was the F-ratio of sufficient size to reject $H_{07}$. It appears then that for young single people in the bachelor life cycle stage a difference exists among the sample groups with respect to average total perceived risk $\bar{D}$ scores.

Looking at the data for life cycle category 1, the bachelor stage, the great difference among groups is apparent. The score for policyholders, $\bar{D} = -2.667$ is the only negative group score found. The difference between this score and the $\bar{D} = 23.0$ for the control sample appears on the surface to account for the difference being significant.

For all life cycles other than number one, $H_{07}$ cannot be rejected. Thus on the basis of nine out of ten life cycles exhibiting no significant differences, one must conclude that the main hypothesis $H_7$ has not been supported.

Discussion

It is rather difficult to discuss the results of a study when they are as inconclusive as those just presented. It is important to note, however, that the results obtained were, with one minor exception in the
TABLE 9

SUMMARY TABLES FOR THE ANALYSES OF VARIANCE TESTING THE SIGNIFICANCE OF DIFFERENCES AMONG POLICYHOLDER, PROSPECT, AND CONTROL SAMPLES FOR AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES D; BY LIFE CYCLE CATEGORY

<table>
<thead>
<tr>
<th>Life Cycle</th>
<th>Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Between groups</td>
<td>1130.2669</td>
<td>2</td>
<td>565.1334</td>
<td>8.4288(a)(b)</td>
</tr>
<tr>
<td>Bachelor</td>
<td>Within groups</td>
<td>469.3333</td>
<td>7</td>
<td>67.0476</td>
<td></td>
</tr>
<tr>
<td>Stage</td>
<td>Total</td>
<td>1599.6002</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Between groups</td>
<td>92.5238</td>
<td>2</td>
<td>48.7619</td>
<td>0.3099</td>
</tr>
<tr>
<td>Young</td>
<td>Within groups</td>
<td>629.3333</td>
<td>4</td>
<td>157.3333</td>
<td></td>
</tr>
<tr>
<td>Marrieds</td>
<td>Total</td>
<td>726.8571</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Between groups</td>
<td>639.3259</td>
<td>2</td>
<td>319.6629</td>
<td>1.8698</td>
</tr>
<tr>
<td>Full</td>
<td>Within groups</td>
<td>6838.4414</td>
<td>40</td>
<td>170.9610</td>
<td></td>
</tr>
<tr>
<td>Nest I</td>
<td>Total</td>
<td>7477.7673</td>
<td>42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Between groups</td>
<td>28.1676</td>
<td>2</td>
<td>14.0838</td>
<td>0.0796</td>
</tr>
<tr>
<td>Full</td>
<td>Within groups</td>
<td>6196.1742</td>
<td>35</td>
<td>177.0335</td>
<td></td>
</tr>
<tr>
<td>Nest II</td>
<td>Total</td>
<td>6224.3418</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Between groups</td>
<td>347.4349</td>
<td>2</td>
<td>173.7174</td>
<td>0.9808</td>
</tr>
<tr>
<td>Full</td>
<td>Within groups</td>
<td>4959.2748</td>
<td>28</td>
<td>177.1170</td>
<td></td>
</tr>
<tr>
<td>Nest III</td>
<td>Total</td>
<td>5306.7097</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Between groups</td>
<td>64.9174</td>
<td>2</td>
<td>32.4587</td>
<td>0.1907</td>
</tr>
<tr>
<td>Empty</td>
<td>Within groups</td>
<td>7488.5717</td>
<td>44</td>
<td>170.1948</td>
<td></td>
</tr>
<tr>
<td>Nest I</td>
<td>Total</td>
<td>7553.4890</td>
<td>46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 9 — Continued

<table>
<thead>
<tr>
<th>Life Cycle</th>
<th>Variance</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Squares</th>
<th>F-Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>7. Empty</td>
<td>Between groups</td>
<td>86.5980</td>
<td>2</td>
<td>43.2990</td>
<td>0.2450</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>5479.6666</td>
<td>31</td>
<td>176.7634</td>
<td></td>
</tr>
<tr>
<td>Nest II</td>
<td>Total</td>
<td>5566.2645</td>
<td>33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Solitary</td>
<td>Between groups</td>
<td>170.7989</td>
<td>2</td>
<td>85.3995</td>
<td>0.5784</td>
</tr>
<tr>
<td>Survivors I</td>
<td>Within groups</td>
<td>3838.9940</td>
<td>26</td>
<td>147.6536</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4009.7929</td>
<td>28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Solitary</td>
<td>Between groups</td>
<td>93.2160</td>
<td>2</td>
<td>46.6080</td>
<td>0.3696</td>
</tr>
<tr>
<td>Survivors II</td>
<td>Within groups</td>
<td>5170.5110</td>
<td>41</td>
<td>126.1100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>5263.7270</td>
<td>43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Unclassified</td>
<td>Between groups</td>
<td>625.8990</td>
<td>2</td>
<td>312.9495</td>
<td>0.6914</td>
</tr>
<tr>
<td></td>
<td>Within groups</td>
<td>6789.8785</td>
<td>15</td>
<td>452.6586</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7415.7775</td>
<td>17</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Read as: For the bachelor stage life cycle category the analysis of variance yielded an F-ratio of 8.4288.

(b) The critical value of F at the .05 level of significance is 4.74 hence the computed F was significant at the .05 level.
direction hypothesized. Table 8 shows that for all sample groups and life cycle categories, except young unmarried policyholders, positive \( \bar{D} \) scores were obtained. A positive score indicates more risk perceived in the mail-buying act than for store-buying. Of course, the resulting statistical analysis indicated that the probability of these results occurring due to chance alone is greater than .05. The consistency in direction, however cannot be ignored.

The problem at this point becomes one of explaining, if possible, the reasons why the inconclusive results were obtained. The first explanation, of course, is that a large amount of sampling error may have occurred. In fact this is what one says, in effect, when the null hypothesis is not rejected at a specified level of significance. The researcher must attribute the observed differences in the sample means compared to measurement error, or sampling error.

Examination of the perceived risk scale

There are several reasons why sampling or measurement error could have occurred in this study. The possible reason that is of most immediate concern is that the measurement instrument used may have been
faulty. Since the dependent variable of most interest in this study is the difference in perceived risk between the store/salesman-buying and mail-buying situation, the perceived risk scale is the instrument which must be examined.

Since there is no absolute standard against which the validity of the perceived risk scale can be measured, one must be satisfied with a means of approximating this attribute. The most common type of validation is known as face validity or apparent validity. It simply means that the researcher, upon examination of the results an instrument produces makes a judgment about whether it seems to be measuring the factor. Examination of the data generated by the perceived risk scale allows one to draw some tentative conclusions about its validity as is discussed below.

**Perceived risk $\bar{D}$ scores for individual products**

Table 2 contains the average $\bar{D}$ score for each product in the scale ranked from highest to lowest. As the values of $t$ indicate, the statistical examination showed that these scores were not significantly different from zero. In addition, the product which received what is apparently the highest scores is fresh strawberries.
Among all the other products it seems logical that purchase of fresh strawberries through the mail would be viewed as a riskier act than buying them from a store/salesman, due to the spoilage problem. The second ranking product, children's shoes, seems logically consistent due to the common difficulties parents encounter in fitting children with the help of a sales clerk. Persons who are aware of this difficulty would indeed be wary of buying their children's shoes by mail. This assumes, of course, that the parents are aware of the importance of proper fitting and that they are concerned with their children's wellbeing.

At the other end of the scale the validity is not quite so apparent. The product showing the least amount of perceived risk difference between situations is an "unfamiliar brand of aspirin" selling at 17 cents per bottle of 100. Due to the lack of familiarity and the low price, one would expect the buyer to see a high degree of risk in buying them by mail.

**Perceived risk rating scores**

One problem with estimating the validity of the scale on the basis of the perceived risk D scores is that these scores do not give any indication as to the
level of risk perceived in each individual buying situation. Since the scale is composed of two separate ratings of perceived risk, one for each buying situation, some interesting relationships can be found upon examining the raw rating scores. No formal hypotheses have been stated concerning these raw scores; however, some informal propositions are in order as an aid in directing this phase of the analyses.

The first proposition is that one would expect the average perceived risk rating for the products to vary within a given buying situation. Table 10 shows that the range of average product perceived risk was 1.76 in the store/salesman situation and 0.88 in the mail situation. This seems to indicate that the respondents tended to discriminate among product risk levels to a considerably greater degree in the store/salesman situation than in the mail buying situation. Table 10 also indicates that the relative levels of risk perceived at the extremes was fairly stable. Note that 4 out of the 5 products receiving the highest perceived risk ratings in store situations are among the 5 highest in the mail buying situation. At the same time 3 out of the 5 lowest store risk ratings are
### TABLE 10

LEVEL OF RISK PERCEIVED IN PURCHASING FROM A STORE OR SALESMAN AND BY MAIL FOR EACH PRODUCT IN THE PERCEIVED RISK SCALE, RANKED IN DESCENDING ORDER BY LEVEL OF PERCEIVED RISK IN THE STORE/SALESMAN SITUATION

\( N = 300 \)

<table>
<thead>
<tr>
<th>Product and Rank in the Store/Salesman Situation</th>
<th>Average Perceived Risk Rating Score</th>
<th>Rank in the Mail Situation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Store/Salesman Situation</td>
<td>Mail Situation</td>
</tr>
<tr>
<td>1. Life insurance (a)</td>
<td>4.12 (b)</td>
<td>4.55</td>
</tr>
<tr>
<td>2. Sewing machine</td>
<td>3.88</td>
<td>4.26</td>
</tr>
<tr>
<td>3. Vitamins</td>
<td>3.70</td>
<td>4.06</td>
</tr>
<tr>
<td>4. Aluminum siding</td>
<td>3.56</td>
<td>4.11</td>
</tr>
<tr>
<td>5. Aspirin</td>
<td>3.40</td>
<td>3.65</td>
</tr>
<tr>
<td>6. Mutual fund</td>
<td>3.34</td>
<td>3.84</td>
</tr>
<tr>
<td>7. Hi-fi album</td>
<td>3.30</td>
<td>3.74</td>
</tr>
<tr>
<td>8. Hospitalization insurance</td>
<td>3.22</td>
<td>3.89</td>
</tr>
<tr>
<td>9. Bourbon whiskey</td>
<td>3.04</td>
<td>3.69</td>
</tr>
<tr>
<td>10. Ready-made drapes</td>
<td>2.97</td>
<td>3.71</td>
</tr>
<tr>
<td>11. Monopoly game</td>
<td>2.91</td>
<td>3.36</td>
</tr>
<tr>
<td>12. Power lawn mower</td>
<td>2.85</td>
<td>3.40</td>
</tr>
<tr>
<td>13. Tulip bulbs</td>
<td>2.77</td>
<td>3.26</td>
</tr>
<tr>
<td>14. 19-inch TV set</td>
<td>2.74</td>
<td>3.57</td>
</tr>
<tr>
<td>15. Metal lawn chair</td>
<td>2.66</td>
<td>3.28</td>
</tr>
<tr>
<td>16. Stationery</td>
<td>2.61</td>
<td>3.11</td>
</tr>
<tr>
<td>17. Christmas cards</td>
<td>2.58</td>
<td>3.13</td>
</tr>
<tr>
<td>18. Children's shoes</td>
<td>2.54</td>
<td>3.57</td>
</tr>
<tr>
<td>19. Double bed sheet</td>
<td>2.44</td>
<td>2.93</td>
</tr>
<tr>
<td>20. Fresh strawberries</td>
<td>2.36</td>
<td>3.67</td>
</tr>
</tbody>
</table>

(a) Read as: Life insurance was ranked first, that is, highest in perceived risk of all the twenty products for the store/salesman buying situation.

(b) Read as: Life insurance received an average perceived risk rating score in the store/salesman situation of 4.12 out of a total possible of 5, where 1 = very low risk and 5 = very high risk.
in the same group in the mail situation. This may offer a partial explanation of why the perceived risk D scores were so low.

Table 10 also helps explain some of the apparent inconsistencies in the ranking of products by perceived risk D scores. In Table 2 it was shown that aspirin had the lowest D score among the 20 products. Research cited in Chapter III indicated that aspirin, as a type of headache remedy is considered by many people as a product whose purchase involves a high degree of perceived risk. Examination of the raw rating scores for aspirin indicates that it ranks sixth in perceived risk in the store/salesman situation and eleventh in the mail situation. Furthermore these data show that of the 6 products ranked in the 5 lowest perceived risk D score rankings (there is a tie for fifteenth position) 4 are in the 5 highest perceived risk ratings for the store/salesman situation and 3 for the mail situation. These products are life insurance, sewing machine, and vitamins for the mail situation, plus aspirin in the mail situation. One might interpret this as an indication that as the degree of risk perceived in a product itself increases, the importance of the situational risk factor declines
in importance. This is merely a proposition and further study is needed to examine the possibility.

Another proposition is that differences may be observed among the policyholder, prospect, and control samples if the raw rating scores are used instead of perceived risk \( R \) scores. Table 11 contains the perceived risk rating scores in the mail situation. Table 12 is the ANOV summary table testing the proposed differences. Tables 13 and 14 contain the equivalent data for rating scores in the store/salesman situation.

| TABLE 11 |

AVERAGE PERCEIVED RISK RATING SCORES IN THE MAIL BUYING SITUATION FOR POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Mean Mail Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders</td>
<td>71.29(a)</td>
</tr>
<tr>
<td>Prospects</td>
<td>73.70</td>
</tr>
<tr>
<td>Controls</td>
<td>73.31</td>
</tr>
</tbody>
</table>

(a) Read as: For respondents in the policyholder sample the average perceived risk rating score in the mail buying situation was 71.29 out of a total possible score of 100.
TABLE 12
SUMMARY OF THE ANALYSIS OF VARIANCE TESTING THE SIGNIFICANCE OF THE DIFFERENCES IN MEAN MAIL RATING SCORES AMONG POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>334.6866</td>
<td>2</td>
<td>167.3433</td>
<td>1.0825(a)</td>
</tr>
<tr>
<td>Within groups</td>
<td>45912.9658</td>
<td>297</td>
<td>154.5891</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46247.6523</td>
<td>299</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) F = 1.0825 is less than the critical value F = 3.04 at the .05 level of significance, hence F was not significant.
### TABLE 13

**AVERAGE PERCEIVED RISK RATING SCORES IN THE STORE/SALESMAN SITUATION**  
FOR POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>Mean Store Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policyholders</td>
<td>60.87(a)</td>
</tr>
<tr>
<td>Prospects</td>
<td>61.15</td>
</tr>
<tr>
<td>Controls</td>
<td>60.15</td>
</tr>
</tbody>
</table>

(a) Read as: For respondents in the policyholder sample the average perceived risk rating score in the store/salesman buying situation was 60.87 out of a total possible score of 100.

### TABLE 14

**SUMMARY OF THE ANALYSIS OF VARIANCE TESTING THE SIGNIFICANCE OF THE DIFFERENCES IN MEAN STORE/SALESMAN RATING SCORES AMONG POLICYHOLDERS, PROSPECTS, AND CONTROL RESPONDENTS**

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>DF</th>
<th>Mean Square</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between groups</td>
<td>53.2267</td>
<td>2</td>
<td>26.6133</td>
<td>0.1697(a)</td>
</tr>
<tr>
<td>Within groups</td>
<td>46590.7988</td>
<td>297</td>
<td>156.8714</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>46644.0254</td>
<td>299</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) $F = 0.1697$ is less than the critical value $F = 3.04$ at the .05 level of significance, hence $F$ was not significant.
As can be seen from Tables 11 and 13, the differences among samples are small in relationship to the 100 point range possible on the scale. Tables 12 and 14 show that whatever differences were observed were not statistically significant.

These findings appear to confirm the failure of the data to support $H_5$, which predicted a difference among the sample groups on $D$ scores for hospitalization. In the next section these perceived risk rating scores are used in conjunction with the difference scores to examine observed variation among socioeconomic and purchase behavior variables.

**Socio-economic and purchase behavior variables**

Another proposition examined is that the probable insensitivity of the perceived risk scale to detecting differences in the impact of the situational variable may have led to some relationships among socio-economic and purchase behavior variables being covered up. Suppose, for example that people actually do not see any difference in the amount of risk involved in purchasing from a store or by mail. If this assumption were true, and if the perceived risk scale were a perfect measuring instrument, then any attempt
to identify differences among people using the $\bar{D}$ scores would be doomed to failure. This is because all $\bar{D}$ scores would be zero. This possibility was not anticipated when this study was designed, but came to mind when the data failed to support the hypothesis $H_6$ which concerned differences among life cycles.

Since the demographic information was available to examine a number of cross-classifications with perceived risk scores, a general statistical analysis was executed to see if any differences would drop out. The general format for the analysis was that used to test $H_6$, that is, differences would exist among various levels of following demographic and purchase behavior factors: 1) sex; 2) age category; 3) education level; 4) family income category; 5) religion; 6) whether respondent had purchased from a seed catalog within the last year; and, 7) whether respondent had purchased from a department store catalog or a mail-order catalog within the last year. (See Appendix E for additional demographic analysis.)

For each of the demographic and purchase behavior factors, one-way ANOV's were computed first using perceived risk $\bar{D}$ scores, then the raw perceived risk rating score in each of the two buying situations.
In all, 21 ANOV's were computed. This is not an ideal research design since the large number of statistical tests performed increases the probability that one or more test may show significance due to chance alone. Since no solid conclusions are to be drawn from the analysis, the researcher is willing to accept this risk.

Table 15 is a summary of the 21 ANOVs computed. A total of 8 tests indicated the presence of significant differences. Of this number, 6 were significant at the .01 level of significance which indicates that the chances of such a difference occurring due to chance alone are less than 1 in 100. The other 2 tests were significant at the .05 level. This number of significant differences appears to be greater than chance alone would account for, although the exact probability of occurrence has not been determined.

Upon examining the findings in Table 15, one point seems to dominate. It appears that the raw perceived risk ratings for the store situation exhibit the greatest amount of differences among the levels of the demographic and purchase behavior variables. Significant differences were found within the age,
TABLE 15

SUMMARY OF F-RATIOS COMPUTED TO TEST THE SIGNIFICANCE OF DIFFERENCES AMONG CATEGORIES WITHIN SOCIO-ECONOMIC AND PURCHASING BEHAVIOR VARIABLES FOR PERCEIVED RISK DIFFERENCE SCORES ($\overline{D}$) AND PERCEIVED RISK RATING SCORES

<table>
<thead>
<tr>
<th>Variable</th>
<th>$\overline{D}$ Difference Scores</th>
<th>Store/Salesman Rating Scores</th>
<th>Mail-Order Rating Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td>$0.1395^{(a)}$</td>
<td>$0.0589$</td>
<td>$0.1177$</td>
</tr>
<tr>
<td></td>
<td>(1, 298)</td>
<td>(1, 298)</td>
<td>(1, 298)</td>
</tr>
<tr>
<td>Age</td>
<td>$2.0253$</td>
<td>$3.6684^{(d)}$</td>
<td>$0.6209$</td>
</tr>
<tr>
<td></td>
<td>(298, 7)</td>
<td>(292, 7)</td>
<td>(7, 292)</td>
</tr>
<tr>
<td>Education</td>
<td>$2.9600^{(d)}$</td>
<td>$4.8218^{(d)}$</td>
<td>$0.7770$</td>
</tr>
<tr>
<td></td>
<td>(290, 9)</td>
<td>(290, 9)</td>
<td>(9, 290)</td>
</tr>
<tr>
<td>Family income</td>
<td>$2.5677^{(c)}$</td>
<td>$3.8322^{(d)}$</td>
<td>$3.2305^{(d)}$</td>
</tr>
<tr>
<td></td>
<td>(292, 7)</td>
<td>(292, 7)</td>
<td>(292, 7)</td>
</tr>
<tr>
<td>Religion</td>
<td>$0.6016$</td>
<td>$1.2469$</td>
<td>$0.3073$</td>
</tr>
<tr>
<td></td>
<td>(291, 8)</td>
<td>(291, 8)</td>
<td>(8, 291)</td>
</tr>
<tr>
<td>Purchase from seed catalog</td>
<td>$3.7586$</td>
<td>$4.3448^{(c)}$</td>
<td>$0.0276$</td>
</tr>
<tr>
<td></td>
<td>(298, 1)</td>
<td>(291, 1)</td>
<td>(8, 298)</td>
</tr>
<tr>
<td>Purchase from dept. store or mail order catalog</td>
<td>$0.6892$</td>
<td>$9.7909^{(d)}$</td>
<td>$2.8134$</td>
</tr>
<tr>
<td></td>
<td>(1, 298)</td>
<td>(298, 1)</td>
<td>(298, 1)</td>
</tr>
</tbody>
</table>

(a) Read as: The F-ratio for test of differences among sex categories for perceived risk difference scores is $0.1395$.
(b) Numbers in parentheses are the degrees of freedom associated with the F-ratios.
(c) F is significant at the .05 level of significance.
(d) F is significant at the .01 level of significance.
education, family income, seed catalog purchase, and department store or mail-order catalog variables. For the mail situation raw perceived risk scores only family income showed a significant difference, but it was at the .01 level of significance. The perceived risk $\bar{D}$ scores displayed significant differences for two variables; education, $P < .01$ and family income, $P < .05$. These results would lead one to suspect that people in different categories of demographic and purchase behavior variables exhibit greater differences in the degree to which they perceive risk when faced with the store/salesman buying situation than they do in the mail buying situation. This could be due to some peculiarity of the perceived risk scale or it could be an underlying difference in the manner in which people evaluate the risk in the two situations.

When the perceived risk $\bar{D}$ score was used, differences were found in the education variable, $P < .01$ and in the family income variable, $P < .05$.

**Family income.**—The variables in which significant differences were found require closer analysis. The most important single category seems to be family income since significant differences were observed using all three perceived risk scores. Table 16 shows the nature of the differences observed. Note that there are two
TABLE 16

AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES (D), PERCEIVED RISK RATING IN THE STORE/SALESMAN SITUATION AND RISK RATINGS IN THE MAIL SITUATION BY FAMILY INCOME LEVEL

<table>
<thead>
<tr>
<th>Family Income</th>
<th>n</th>
<th>D Score</th>
<th>Mean Store/Salesman Rating Score</th>
<th>Mean Mail Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $4000</td>
<td>68</td>
<td>10.69(a)</td>
<td>65.926(b)</td>
<td>76.618</td>
</tr>
<tr>
<td>$4000-$4999</td>
<td>24</td>
<td>10.75</td>
<td>61.250</td>
<td>72.000</td>
</tr>
<tr>
<td>$5000-$5999</td>
<td>28</td>
<td>4.43</td>
<td>65.143</td>
<td>69.571</td>
</tr>
<tr>
<td>$6000-$7999</td>
<td>46</td>
<td>13.11</td>
<td>58.891</td>
<td>72.000</td>
</tr>
<tr>
<td>$8000-$9999</td>
<td>43</td>
<td>12.81</td>
<td>58.140</td>
<td>70.953</td>
</tr>
<tr>
<td>$10,000 and over</td>
<td>49</td>
<td>15.43</td>
<td>56.490</td>
<td>71.918</td>
</tr>
<tr>
<td>Unknown</td>
<td>39</td>
<td>13.18</td>
<td>58.872</td>
<td>72.051</td>
</tr>
<tr>
<td>No response</td>
<td>3</td>
<td>26.67</td>
<td>55.667</td>
<td>82.333</td>
</tr>
</tbody>
</table>

(a) Read as: The average perceived risk difference score for persons with family incomes under $4000 per year was 10.69 out of a total possible ± 80.

(b) Read as: The mean perceived risk rating score in the store/salesman buying situation for persons with family incomes under $4000 per year was 65.926 out of a total possible score of 100.
categories for which no income level is available. The "unknown" group are persons who claimed they did not know their family income level. The three persons in the "no-response" category refused to answer the question.

A clear-cut pattern does not emerge from the data. With the $D$ scores it appears that the $5000 - 5999$ and $10,000$ and over categories have the greatest variation from the total group with the former perceiving less difference and the latter more difference between the two buying situations. (The no-response category is so small that its influence is probably minimal.) There is no logical explanation for these findings. A slight trend is discernible in that the magnitude of $D$ seems to increase with income to a certain extent.

For the perceived risk ratings in the store/salesman situations the patterns appear to be one of level of perceived risk decreasing as income rises. This may be explained by the decreasing importance of financial risk as level of income grows. The same trend, but to a lesser extent is present in the mail situation ratings. Finally, with the exception of the $5000 - 5999$ category there is little consistency across
the various perceived risk scores. This income category is probably somewhat "purer" than the two lower categories since there are fewer retired people who have this level of income. Since the policyholder sample contains a considerable number of older and retired people earning small incomes it is possible that the results from these people may have introduced bias.

**Education.**—The education category also deserves attention since differences significant at the .01 level were observed for both D scores and store situation ratings. The most apparent trend that emerges from Table 17 is with the D scores. It seems as if the difference in perceived risk between store and mail situations is directly related to level of education. It does not look like a linear relationship. It seems, rather, that a sharp break occurs between education completed at grade 10 and grade 11. The trend in the mean store situation ratings is less pronounced. It does appear that the amount of perceived risk in this situation decreases with an increase in level of education.

One should note that the relationship observed between level of perceived risk rating and the size of the perceived risk D scores in Table 17 is consistent
TABLE 17
AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES (\(\overline{D}\)) AND PERCEIVED RISK RATING SCORES IN THE STORE/SALESMAN AND MAIL BUYING SITUATION BY EDUCATION LEVEL

<table>
<thead>
<tr>
<th>Education Last year completed</th>
<th>n</th>
<th>(\overline{D}) Score</th>
<th>Mean Store/Salesman Rating Score</th>
<th>Mean Mail Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade 1-6</td>
<td>17</td>
<td>6.12 (a)</td>
<td>65.706 (b)</td>
<td>71.824</td>
</tr>
<tr>
<td>7-9</td>
<td>51</td>
<td>6.35</td>
<td>67.490</td>
<td>73.843</td>
</tr>
<tr>
<td>10</td>
<td>13</td>
<td>6.15</td>
<td>66.615</td>
<td>72.769</td>
</tr>
<tr>
<td>11</td>
<td>24</td>
<td>15.58</td>
<td>62.542</td>
<td>78.125</td>
</tr>
<tr>
<td>12</td>
<td>81</td>
<td>13.28</td>
<td>58.395</td>
<td>71.679</td>
</tr>
<tr>
<td>College 1</td>
<td>15</td>
<td>10.20</td>
<td>62.267</td>
<td>72.467</td>
</tr>
<tr>
<td>2</td>
<td>20</td>
<td>17.60</td>
<td>55.850</td>
<td>73.450</td>
</tr>
<tr>
<td>3</td>
<td>11</td>
<td>18.64</td>
<td>49.273</td>
<td>67.909</td>
</tr>
<tr>
<td>4</td>
<td>26</td>
<td>14.73</td>
<td>57.885</td>
<td>72.615</td>
</tr>
<tr>
<td>5 or over</td>
<td>42</td>
<td>13.38</td>
<td>58.643</td>
<td>72.024</td>
</tr>
</tbody>
</table>

(a) Read as: The average perceived risk difference score for persons whose last completed year of education was between grades 1-6 inclusive was 6.12 out of a total possible score of 100.

(b) Read as: The mean perceived risk rating score in the store/salesman buying situation for persons whose last completed year of education was between grades 1-6 inclusive was 65.706 out of a total possible score of 100.
with the relationship observed between the same variables for the individual products in the scale. (Tables 2 and 10.) The relationship appears to be that the amount of difference in the risk perceived between the store/salesman and mail situation declines as the level of perceived risk in the store/salesman situation increases.

**Store/salesman buying situation.**—This situation deserves special attention since 5 of the 8 significant differences observed were for the perceived risk raw rating scores for store/salesman buying. The education and family income variables have already been discussed. Table 18 presents the results for the age variable, and Table 19 has record of purchase data for seed catalog and department store or mail-order catalog. The only two categories in which significant differences were not observed are sex and religion.

**Age.**—There is no immediately apparent difference in the data for the age variable. Aside from the store/salesman situation rating scores, however, one should note that the sample is quite skewed toward the older age categories. This is in line with other studies conducted by National Liberty Life and reflects the distribution of the age variable within the population. The greatest differences in store/salesman
<table>
<thead>
<tr>
<th>Age Level</th>
<th>n</th>
<th>$\overline{D}$ Score</th>
<th>Mean Perceived Risk Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Store/Salesman Buying Situation</td>
</tr>
<tr>
<td>Under 25</td>
<td>10</td>
<td>8.20$^{(a)}$</td>
<td>55.800$^{(b)}$</td>
</tr>
<tr>
<td>25-34</td>
<td>46</td>
<td>13.72</td>
<td>58.348</td>
</tr>
<tr>
<td>35-44</td>
<td>48</td>
<td>12.52</td>
<td>60.771</td>
</tr>
<tr>
<td>45-54</td>
<td>51</td>
<td>15.20</td>
<td>57.431</td>
</tr>
<tr>
<td>55-64</td>
<td>52</td>
<td>14.60</td>
<td>58.038</td>
</tr>
<tr>
<td>65 and over</td>
<td>91</td>
<td>8.23</td>
<td>65.648</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>9.00</td>
<td>66.000</td>
</tr>
<tr>
<td>No Response</td>
<td>1</td>
<td>7.00</td>
<td>71.000</td>
</tr>
</tbody>
</table>

(a) Read as: The average perceived risk difference score for persons under 25 years of age was 8.20 out of a total possible score of ± 80.

(b) Read as: The mean perceived risk rating score in the store/salesman buying situation for persons under 25 years of age was 55.800 out of a total possible of 100.
# TABLE 19

AVERAGE TOTAL PERCEIVED RISK DIFFERENCE SCORES (\( \bar{D} \)) AND PERCEIVED RISK RATING SCORES IN THE STORE/SALESMAN AND MAIL BUYING SITUATION BY RECORD OF PURCHASE FROM CATALOGS

<table>
<thead>
<tr>
<th>Purchase Record</th>
<th>n</th>
<th>Mean Perceived Risk Rating Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Store/Salesman</td>
</tr>
<tr>
<td>Purchase from a Seed Catalog within the last year?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>47(a)</td>
<td>15.51(b)</td>
</tr>
<tr>
<td>no</td>
<td>253</td>
<td>11.40</td>
</tr>
<tr>
<td>Purchase from a Department or Mail-order Catalog within the last year?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yes</td>
<td>116</td>
<td>12.85</td>
</tr>
<tr>
<td>no</td>
<td>184</td>
<td>11.53</td>
</tr>
</tbody>
</table>

(a) Read as: 47 people did purchase from a seed catalog within the last year.

(b) Read as: The average perceived risk difference score for persons who did purchase from a seed catalog within the last year was 15.51 out of a total possible score of +80.

(c) Read as: The mean perceived risk rating score in the store/salesman situation for persons who did purchase from a seed catalog within the last year was 57.255 out of a total possible score of 100.
situation perceived risk rating scores are at the extremes. Ignoring the unknown and no response categories (total n = 2), the lowest score is the youngest category, under 25 and the highest score is in the oldest group, over 65. This could perhaps be explained by the increasing conservatism and skepticism that comes with age. In addition, the generally limited financial resources of older people may explain their higher level of perceived risk. This may reflect an increasing importance of the financial risk component, although the perceived risk scale cannot elicit such information.

**Purchase behavior.**—The data for past purchase behavior (Table 14) are particularly confusing. Significant differences in the mean store/salesman perceived risk rating score were found between persons who did and did not purchase from a seed catalog. (Table 15) There was no significant difference along this variable using the mail situation rating score. One would expect this variable to be more important in discriminating among mail situation rating scores since seed catalog buying is a form of mail order buying. The same hypothesis would be made for the department store or mail order catalog purchase variable. (Table 19) Once again, a significant
difference occurs only with the store/salesman rating scores. (Table 15)

An extremely tenuous proposition can be derived from these findings. This is that perhaps an underlying factor which could be called general perceived risk operates to influence purchase behavior tendencies. This tentative theory would predict that persons who generally perceive less risk in a wide variety of situations would be more likely to choose riskier alternatives or undertake purchases in situations where the potential for high perceived risk is present. To test this proposition, a measure of general risk perception is needed. This theory will be examined further below in relation to findings concerning the relationship between perceived risk and desire for certainty.

Summary.—This section has been presented for the express purpose of shedding some light on the potential strengths and weaknesses of the perceived risk scale. It has been shown that while the hypotheses put forward in this study have not been supported, the primary measuring instrument has generated some results which appear to be valid.

Perhaps the most apparent criticism that can be made of the perceived risk scale is that it did not
measure risk levels precisely enough to detect small but possibly significant differences between the two buying situations. This cannot be proven, but it is a possibility. The failure of the perceived risk scale data to support the hypothesis that people perceive more risk in the mail buying situation than in the store/salesman buying situation leads one to this conclusion more than any other factor.

On the other hand, the additional statistical analysis presented in this section at least leaves open the possibility that the results were not entirely the fault of the instrument. It has been shown that the scale can detect differences among different levels of demographic and purchase behavior variables.

The most important item to come out of the additional analysis is that the raw perceived risk rating scores for the store situation appears to detect differences among levels of demographic variables. While it may not be prudent to conclude that these findings are definitive, one cannot ignore them. This being the cause, they were merely reported and discussed as tentative propositions. One proposition which deserves further investigation is that the more significant results found using store/salesman situation ratings alone may reflect a tendency of people to have
better developed concepts or feelings of risk in that situation. In other words, their greater familiarity with the store/salesman situations may give them a better basis upon which evaluation of risk can take place. One could say perhaps that whatever attitudes people have about the risk involved in shopping from a store or buying from a salesman may be strongly anchored in the values they have concerning shopping strategy. Since store buying is more prevalent than mail buying, these values may be deeper and stronger. As a result they may make the risk evaluation task easier for the individual and perhaps more accurate in the store buying situation.

Perceived Risk and Desire for Certainty

The examination of $H_3$ showed that the data generated in the study could not support the prediction that a negative correlation exists between the Brim desire for certainty test scores and perceived risk $D$ scores. Another way of stating this hypothesis was possible since a high Brim score indicates a low desire for certainty. $H_3$ could have been that a positive correlation exists between desire for certainty and the perceived risk $D$ scores. The results of the
statistical test would have been the same.

Further analysis of the relationship between perceived risk and desire for certainty was undertaken since it seems to offer a possible explanation of some of the other results obtained. As in the discussion of the perceived risk scale results above, several tentative hypotheses or propositions are suggested and informally examined.

The first proposition is that desire for certainty is related to the level of risk perceived. The nature of this relationship was not identified by the data in the test of $H_3$ since perceived risk $D$ scores were used rather than the raw rating scores. Furthermore, one could logically expect three possible relationships to occur. These three possibilities are discussed below before the results of the actual test of it are presented.

**Possible relationships between desire for certainty and perceived risk**

The first possibility is that desire for certainty is directly related to perceived risk; i.e., the correlation between them is positive. This relationship would follow since an individual who is high in desire for certainty (low Brim score) is one who has a
low tolerance for ambiguity. This low tolerance for ambiguity could lead him to avoid ambiguous situations. Note that this was the basis of hypothesis $H_3$, since it was suggested that the individual's dislike of the relatively more ambiguous mail buying situation would be reflected in generally higher perceived risk. D scores alone would not reveal this. If one looked at the total amount of risk the person perceives, however, this relationship, if it exists, could be observed.

On the other hand, an argument can be constructed that would lead one to expect the opposite relationship to occur. In the discussion of desire for certainty and tolerance for ambiguity in Chapter III it was mentioned that persons with low tolerances for ambiguity develop strategies to reduce the ambiguity in a situation. One such strategy is to deny that ambiguity is actually present. In the desire for certainty test this is done by assigning a high degree of certainty to ambiguous situations. Could it be possible that persons with high desire for certainty utilize such strategies in responding to the perceived risk scale? If they do, one could predict that they would generally express less perceived risk on a measuring instrument than they really see in the
situation. In other words, the act of expressing lower levels of perceived risk when responding to the perceived risk scale could be a strategy to deduce the ambiguity in the scale. Implied in this proposition, of course, is the assumption that risky situations are generally ambiguous. One can readily see the ramifications of this proposition. The presence of this type of behavior could cause serious distortions in many scaling devices.

The third proposition is that no relationship exists between desire for certainty and perceived risk. A logical defense of this one is more difficult to come by. It is actually a null hypothesis for the "testing" of the two previously mentioned propositions. As such it is fraught with all the difficulties inherent in any attempt to "prove" that something is not true or does not exist. As such it is presented here only for the purpose of showing that a third alternative proposition is available.

**Determination of the relationship.**—In order to observe which of the above relationships seems to exist in the data collected, a product-moment correlation was computed between total perceived risk
rating scores (store plus mail) and the Brim scores. The resulting correlation coefficient was \(-0.15\) which was significant at the .05 level.

Based upon the above computed relationship one could tentatively conclude that there is a significant but very slight direct linear relationship between high level of perceived risk and high desire for certainty. In terms of the propositions put forward this finding would tend to support the proposition that persons who have a low tolerance for ambiguity generally see more risk in buying situations. One must note, however, that the correlation coefficient \( r = -0.15 \) yields an \( r^2 \) of only 0.0225. In other words, the desire for certainty or tolerance for ambiguity personality variable accounts for only 2.25 per cent of the variance in total perceived risk scores.

Perhaps the most important aspect of the above finding is that it does not appear likely that the proposition concerning the impact of tolerance for ambiguity on perceived risk scale responses holds true. Due to the small value of \( r^2 \) the relationship between the two variables is slight so that it becomes insignificant.

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4. Total perceived risk is the sum of mail situation rating scores and store/salesman situation rating scores.
Summary

In this chapter the results of the field study were presented. Since none of the hypotheses presented were supported by the data, the analysis was limited to examination of additional data in an attempt to present a defense for the perceived risk scale. It was shown that the scale did show the potential of being able to discriminate among levels of several demographic variables. It was also proposed, on the basis of further analysis, that one part of the perceived risk scale, the store/salesman situation rating scale, appears to discriminate better than either the mail situation rating portion or the entire scale itself. The use of the store rating scores alone, however, did not produce significant differences among the samples.

Finally, the nature of the relationship between the level of perceived risk and desire for certainty was examined. It appeared to be a slight direct linear relationship.
CHAPTER VI

SUMMARY AND CONCLUSIONS

In this chapter discussion is concentrated on four topics. First, the entire study is briefly summarized. Next the conclusions from this research are drawn. Following this the areas of potential for further research are discussed. Finally, the results of the study are evaluated in light of their usefulness for National Liberty Life Insurance Company in its task of determining possible changes in marketing strategy.

Summary of the Study

This study was undertaken to determine whether differences in the way in which people perceive risk in buying situations can account for differences in buying behavior. Emphasis was placed on one product, hospitalization insurance, and two buying situations, purchase from a store or salesman and purchase by mail.

Samples were drawn from three groups of people. The first sample consisted of persons who had purchased
hospitalization insurance by mail from National Liberty Life Insurance Company. The second group had been offered the same plan the first group had bought. They had not purchased the plan at the time of the study. The third group included persons not in either of the other groups. The groups were labeled the policyholder sample, the prospect sample, and the control sample respectively.

It was hypothesized that the prospect sample would perceive a greater difference in the risk involved in the act of purchasing hospitalization insurance by mail as opposed to buying it from a store or salesman than would the policyholder sample. It was thought that the observed acts of purchase or non-purchase could be explained by differences in the risk perceived in the buying situations.

It was further hypothesized that people in general perceived more risk in the act of buying by mail than buying from a store or salesman. In addition, variations in perceived differences of risk were expected to exist among persons at various stages in the family life cycle.

Finally, it was hypothesized that a direct negative relationship existed between the personality
variable tolerance for ambiguity as measured by the Brim desire for certainty test and the differences in perceived risk in the two buying situations.

A scale was developed for the purpose of measuring the differences in risk perceived in the store/salesman buying situation and the mail buying situation. It contained the names of twenty products. The respondents were asked to rate the amount of risk they saw in the purchase of each product in both the store situation and the mail situation. The difference in these risk ratings for each product were treated as measures of the difference the respondents perceived between the mail buying situation and the store buying situation.

A field study was conducted to examine these hypotheses. The three groups described previously (301 respondents) were interviewed individually in their homes. Each respondent completed the perceived risk scale and the Brim desire for certainty test. Socio-economic data were collected on each respondent.

The hypotheses were tested using analysis of variance and student's t-test. It was found that none of the stated hypotheses could be supported. Although the results came out in the direction hypothesized,
that is, that people perceive more risk in purchasing by mail than from a store or a salesman, the differences were not statistically significant. The same conclusion applies to the hypothesized differences between the purchasers and non-purchasers of hospitalization insurance by mail.

Further analysis of the data gave indications that people exhibit greater differences in their perception of the risk involved in buying from a store than in their perceptions of the risk in the mail buying situation.

Conclusions from the Research Study

At the outset of this study several objectives and theoretical problems were outlined. Foremost among the list of objectives was the desire to determine whether the perceived risk concept might explain the differences between purchasers and non-purchasers of hospitalization insurance offered for sale through the mail. In a more general sense the problem was one of determining whether the buying situation, such as buying by mail or buying from a store or salesman, can account for differences in the amount of risk perceived by consumers faced with specific product purchase decisions.
The results reported in Chapter V were inconclusive with respect to the objectives above. The researcher was unable to show that differences in perceived risk exist between persons who are buyers and non-buyers of hospitalization by mail. One cannot conclude that there are no differences. The only safe conclusion is that this particular study failed to discern any such statistically significant differences in the population studied. On the other hand it must be pointed out that the failure of the study to show statistically the existence of a situational factor that influences perceived risk may be a significant finding in itself. Within the confines of statistical hypothesis testing one is of course prevented from "proving" that something does not exist. Such a proof would be tantamount to accepting the null hypothesis. The results of this study could tend to suggest, however, that the situational factor may not exist. Additional research is needed before one may safely conclude that the situational factor is not of importance.

Although the primary objective was not accomplished, the data examined have uncovered several phenomenon that do shed some light on the nature of
perceived risk in the context of a specific buying situation. This reference is to the significant differences found among levels of family income, age, education and records of purchase behavior from seed catalogs and department store or mail order catalogs. Since these differences were found to a much greater extent in the respondent's perceived risk rating scores for products in the store/salesman buying situation than in the mail buying situation, one could tentatively conclude that some as of yet unknown factor is at work here. In other words, it appears that within a given buying situation differences exist among respondents grouped into categories representing various levels of demographic variables with respect to the amount of risk they see in the buying situation. Note, however, that none of the evidence examined would tend to indicate that differences exist in the level of risk perceived in one situation as compared directly with another.

Another objective at the outset was to determine what the relationship, if any, is between the perceived risk concept and the desire for certainty or tolerance for ambiguity personality variables. On the basis of correlation between the Brim desire for certainty test scores and the total level of perceived risk scores
derived from the perceived risk scale, one is led to conclude that a statistically significant but very slight direct linear relationship exists between level of perceived risk and desire for certainty. Due to the slight magnitude of the relationship \( r = -.15 \) one is hesitant to draw a firm conclusion about this relationship. The most that can be said is that based upon the results from this particular sample of a very narrowly defined population, it appears that the observed relationship might indicate that level of risk perception for an individual is a function of his desire for certainty or tolerance for ambiguity. This conclusion says, in effect, that the possibility of such a relationship existing should not be ignored in future investigations of perceived risk.

Another objective of the study was to determine whether individuals in different life cycle categories expressed different amounts of perceived risk in the store buying and mail buying situations. The results of the study were such that no statistically significant differences were detected among life cycles. The conclusion at this point is that the objective was not met. That is to say that the existence of such differences among life cycles were neither shown to exist or not exist.
The final objective, and one which pervaded the entire study was to develop an instrument that would measure the relative amounts of perceived risk in two buying situations. Since no such differences were found, one must conclude that this objective was not met. At this point one must proceed cautiously since the apparent failure of this objective is related to another very important factor. This factor is that even if the perceived risk scale were capable of detecting situational differences in perceived risk, such differences would not be found unless it were known that the differences actually exist. In this study the existence of such differences was only hypothesized. While it seems logical that such differences do exist it has not been demonstrated experimentally. Thus the failure of the perceived risk scale to detect differences should not be taken as conclusive proof that it cannot perform the task for which it was designed.

Suggestions for Further Research

It is a much easier task to discuss the possible avenues for continued research effort after viewing the results of a study than it is to design a study in the first place. One would hope, however, that the experience
gained in the empirical examination of a concept or theory would lead the researcher closer to achievement of his initial objectives regardless of the outcome of any particular study undertaken. In the case of the study at hand the preponderance of inconclusive results places additional importance upon the task of suggesting the more fruitful and perhaps the most necessary areas for additional research.

A logical first step appears to be a laboratory study of the situational variable. If a differential in perceived risk between two situations could be created artificially, then the validity of the perceived risk scale could be given a fair test. This suggestion is still fraught with the same dangers of circularity observed in the present study. In other words, how can the perceived risk scale be tested in an experimental condition where a risk differential unless some means are available to determine whether or not such a differential has been created? This presents a serious methodological problem which must be overcome before further field study becomes feasible.

The presence of considerably more numbers of demographic variables displaying significant differences among category levels using the perceived risk rating
scores in the store situation than for using mail situation scores suggest another area for investigation. Specifically, it should be determined whether differences in respondent familiarity or experience with the situations being compared can cause some form of response bias. If the subject anchors his responses to items in the less familiar situation to his attitudes pertaining to the more familiar situation, ratings in the less familiar situation could be affected. In the actual administration of the perceived risk scale the store and mail situation items were systematically rotated so that the subjects responded to one situation first 50 per cent of the time. As a result, the effect of the anchoring, if present, is buried in the data.

An experiment could be designed in which a larger number of situations with a known degree of familiarity for the subjects are used. By controlling the familiarity or experience factor and using corollary attitude measures it may be possible to examine this hypothesized effect. If the functional relationship between familiarity and ability to discriminate among degrees of perceived risk were known, it could be possible to explain and perhaps compensate for differences in the discrimination capability of the two rating scales of the perceived risk scale.
One area that deserves immediate attention is research into the possible determinants of risk perception. Within this category one must include examination of personality variables and objective purchase behavior data. The objective of this research would be to isolate individuals who have a tendency to be high or low risk perceivers. Some of the research reported in Chapter II generated data along this line. In addition, the author understands that some research is in progress in this area. Nevertheless, the surface has hardly been scratched. It seems that the logical starting point for this phase of investigation has been largely ignored. This first step should involve an examination of all possible socio-economic variables and their cumulative effect on risk perception.

Of particular interest would be an examination of the influence of needs or product specific desires on individual level of perceived risk. It is possible that persons who express a strong desire for a product may perceive less risk in the act of purchasing it regardless of the buying situation being considered.

If a thorough multivariate analysis leads to derivation of identifiable segments of people with varying levels of risk perception, the task of examining
situational differences experimentally would become considerably easier. This would be due to the capability of the investigator to design experiments with groups of subjects participating whose tendency to perceive a given degree of risk can be predicted.

Finally, while this research and most of the other research into perceived risk has demonstrated that people do perceive risk in buying, there has been a failure to determine how important it is in the buying decision itself. Research is needed to determine how perceived risk relates in importance to price, product availability, brand awareness, experience with product and brand, and many other possible marketing variables.

Further research into the company's problem

There are additional areas of research not directly related to the perceived risk question which may be useful if followed up by National Liberty Life.

The first area would be an inquiry into the reaction of prospects to direct mail advertising. Do these people consider the mailings to be "junk mail"? Would their reaction to the policy be more favorable if it were not offered only through the mail? There has been no satisfactory answer given to general question of consumer acceptance of direct mail advertising.
Another factor which may relate to the companies declining growth rate is the effect of competition. The question to be answered here must revolve around the potential customer's opinions on what constitutes a competitive policy. Do people view the Gold Star Plan policy as a supplement to Medicare or is Medicare perceived as a substitute for private hospitalization insurance?

Further research could be undertaken to determine the relationship between income or savings funds availability, and the demand for hospitalization insurance. In other words the nature of demand for this specific type of policy should be examined as a possible cause for the declining growth rate.

While the major thrust of this study was the examination of the influence of perceived risk in the buying situation and its relationship to purchase of hospitalization insurance by mail, it is recognized to any number of factors including these just outlined may influence the sales growth of National Liberty's Gold Star Plan.
Conclusions for Management

The inconclusive nature of the results of this study places severe limitations on their usefulness for National Liberty Life Insurance Company. Since it was not shown that prospects and persons in the control sample perceive more risk in the act of buying hospitalization insurance by mail than from a salesman one cannot make recommendations for a change in their present basic marketing strategy.

To make a more positive statement it is recommended, therefore, that National Liberty make no changes away from their strategy of mail order selling.

A very important point is that management must not interpret this lack of evidence for the proposition that their prospective market view purchase of insurance by mail as a high risk act as proof that such a situation does not exist. In other words, it would have been better from the company's standpoint if a small but significant difference had been found. For its purposes a small difference may have been easy to live with. Instead it is left in a state of uncertainty knowing neither the probability of existence nor the magnitude of the potential problem.
Placed in the perspective of the broad range of management problems which face any company the discussion above may be seen in its proper proportions. Failure to explain the slowdown in growth that the company is faced with using the perceived risk hypothesis is disappointing to say the least. The recommendations offered at this time must include the continued search for the reasons underlying the declining growth rate.

Finally, the company must be made aware of the fact that all conclusions drawn from this study are for the limited population sampled. Another study performed in another geographical area may obtain different results. This point is not so important as it would have been if significant results had been obtained.
APPENDIX A

Perceived Risk Scale
We all know that there is a certain amount of risk involved in the purchase of goods and services. Everybody sees different kinds and amounts of risk when buying different products.

For example, if you are thinking about buying a car you may be faced with the risk that the model you are interested in may not be built as well as a competitor's model. Or there is the risk that the price you pay may not be the lowest one possible. Then there is the risk that the car may not perform as well as you expect it to. Perhaps if you buy a large expensive car you will be faced with the risk that your friends may think you are trying to put on airs or be a social climber.

On the following pages you are asked to think about the amount of risk which you personally see in a number of buying situations.

Example

Suppose you are on a shopping trip and you have decided that you need to buy some milk. One of your choices on the shelf at the store is a half-gallon of an unfamiliar brand of milk selling at 49¢. How much risk do you feel there would be in the purchase of this product? You can indicate the amount of risk you see in the purchase by circling one of the following choices.

| Very High | High | Moderate | Low | Very Low |
| Risk      | Risk | Risk     | Risk| Risk     |

You should consider all kinds of risk in making your choice, such as the risk that the milk is spoiled, the risk that another brand may be better or that the milk may be priced higher than another brand at another store.

Remember, the important thing is to circle the amount of risk that you think there is in purchasing the product.
Assume that you have already decided to buy each of the following products through the mail. Assume that you have seen a picture of each product and read a description of it in an advertisement. Please circle the amount of risk that you think exists in the purchase of each one of the products through the mail.

(TURN THE PAGE)
1. Double bed sheets:  
   well-known brand, $3.98  
   High  High  Moderate  Low  Very  High  High Risk (16)
2. Life insurance:  
   unfamiliar company  
   Very  High  Moderate  Low  Very  Low Risk (17)
3. Power lawn mower:  
   well-known brand, $99  
   Very  High  Moderate  Low  Very  Low Risk (18)
4. Ready-made drapes:  
   $15 per pair  
   High  High  Moderate  Low  Very  Low Risk (19)
5. 19-inch TV set:  
   well-known brand, $99  
   High  High  Moderate  Low  Very  Low Risk (20)
6. Hi-Fi record album:  
   unfamiliar brand, $1.98  
   High  High  Moderate  Low  Very  Low Risk (21)
7. Christmas cards:  
   $2.00 per box of 25  
   High  High  Moderate  Low  Very  Low Risk (22)
8. Metal lawn chair:  
   $5.98  
   High  High  Moderate  Low  Very  Low Risk (23)
9. Tulip bulbs:  
   $1.50 per dozen  
   High  High  Moderate  Low  Very  Low Risk (24)
10. Monopoly game:  
    $6.00  
    High  High  Moderate  Low  Very  Low Risk (25)
11. Children's shoes:  
    well-known brand, $8.99 per pair  
    High  High  Moderate  Low  Very  Low Risk (26)
12. Bourbon whiskey:  
    well-known brand, $5.95 per bottle  
    High  High  Moderate  Low  Very  Low Risk (27)
### Hospitalization insurance:
Pays $100 per week in cash while you are hospitalized, costs $7.00 per month.

### Fresh strawberries:
49¢ per quart.

### Stationery:
$2.00 per box.

### Aspirin:
Unfamiliar brand, 17¢ per bottle of 100 tablets.

### Vitamins:
Unfamiliar brand, $3.49 per bottle of 100.

### Aluminum siding:
Well-known brand, $75 per square foot installed.

### Sewing machine:
Unfamiliar brand, $75.

### Well-known mutual fund:
$15 per share.
Now, suppose that you had the chance to buy each of the products or services from a store or from a salesman. Please circle the amount of risk that you think exists in the purchase of each product. Remember, you are going to buy from the store or salesman that you would normally buy the product or service from rather than buying by mail.

(TURN THE PAGE)
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Price</th>
<th>Brand</th>
<th>Cost/Unit</th>
<th>Installed Cost</th>
</tr>
</thead>
<tbody>
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<td></td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>Lawn mower:</td>
<td>$99</td>
<td>well-known</td>
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<tr>
<td>3</td>
<td>Aluminum siding:</td>
<td>$75</td>
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<td></td>
<td>per square foot installed</td>
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<td>Hi-Fi record album:</td>
<td>$1.98</td>
<td>unfamiliar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Fresh strawberries:</td>
<td>49¢ per quart</td>
<td></td>
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</tr>
<tr>
<td>6</td>
<td>Aspirin:</td>
<td>17¢</td>
<td>unfamiliar</td>
<td></td>
<td>per bottle of 100 tablets</td>
</tr>
<tr>
<td>7</td>
<td>Metal lawn chair:</td>
<td>$5.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Ready-made drapes:</td>
<td>$15 per pair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Monopoly game:</td>
<td>$6.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Tulip bulbs:</td>
<td>$1.50 per dozen</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Life insurance:</td>
<td></td>
<td>unfamiliar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Children's shoes:</td>
<td>$8.99 per pair</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Product Description</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------</td>
<td>----------------</td>
<td>-----------</td>
<td>---------------</td>
<td>----------</td>
</tr>
<tr>
<td>13</td>
<td>Bourbon whiskey: well-known brand, $5.95 per bottle</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>14</td>
<td>19-inch TV set: well-known brand, $99</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>15</td>
<td>Vitamins: unfamiliar brand, $3.49 per bottle of 100</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>16</td>
<td>Well-known mutual fund: $15 per share</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>17</td>
<td>Double bed sheet: well-known brand, $3.98</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>18</td>
<td>Hospitalization insurance: pays $100 per week in cash while you are hospitalized, costs $7.00 per month</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>19</td>
<td>Sewing machine: unfamiliar brand, $75</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
<tr>
<td>20</td>
<td>Christmas cards: $2.00 per box of 25</td>
<td>Very High Risk</td>
<td>High Risk</td>
<td>Moderate Risk</td>
<td>Low Risk</td>
</tr>
</tbody>
</table>
APPENDIX B

Brim's Desire for Certainty Test
Instructions. On the following pages you will find a series of statements on a variety of subjects. For each statement you are asked to state the number of chances out of 100 that the statement is true. Also, you are asked to indicate how sure you are that your estimate is right.

**Example**

The chances that it will rain tomorrow are ____ in 100.

<table>
<thead>
<tr>
<th>Very Sure</th>
<th>Partly Sure</th>
<th>Not Sure At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

If you feel that the chances are very high that it might rain tomorrow you might say that they are "90 in 100." If you are not very sure of the estimate you would circle the number "4" which is in between Partly Sure and Not Sure At All.

Please make an estimate for every statement.

1. The chances that an adult American male will earn at least $4000 a year are about ____ in 100.
   

2. The chances that a student entering law school will quit before getting his law degree are about ____ in 100.
   

3. The chances that frequent thumbsucking during childhood will make the teeth stick out (cause buck teeth) are about ____ in 100.
   

4. The chances that the President of the United States will be a man without a college education are about ____ in 100.
   

5. The chances that a major league baseball team will win the pennant if it is in first place July 4th are about ____ in 100.
   

6. The chances that a sexual pervert will have a low intelligence (IQ 80 or less) are about ____ in 100.
   

7. The chances that a high school graduate will go on to a freshman year in college are about ____ in 100.
8. The chances that a couple getting married this year will later have divorce are about _____ in 100.  
   Very Sure | Partly Sure | Not Sure At All.  
   1 | 2 | 3 | 4 | 5 | (23)  

9. The chances that an American male now at the age of 40 will live beyond the age of 55 are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (24)  

10. The chances that an American family will live in a place without a telephone are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (25)  

11. The chances that an American family will own its own home are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (26)  

12. The chances that the telephone number you call will be busy are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (27)  

13. The chances that an American citizen will believe in God are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (28)  

14. The chances that a varsity football player in an American university will be subsidized (given money for his football ability) are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (29)  

15. The chances that an American city of over 50,000 people will have a chapter of the League of Women Voters are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (30)  

16. The chances that the governor of a state will be elected for a second term in office are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (31)  

17. The chances that a son will go into the same kind of work as his father are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (32)  

18. The chances that a man 70 years old will need financial help from someone to support himself are about _____ in 100.  
   1 | 2 | 3 | 4 | 5 | (33)  


<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Very</th>
<th>Partly Sure</th>
<th>Not Sure At All</th>
</tr>
</thead>
<tbody>
<tr>
<td>19.</td>
<td>The chances that spanking a child will make him tell the truth next time are about __ in 100.</td>
<td>1 2 3 4 5 (34)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.</td>
<td>The chances that an American-born baby will get a poor and inadequate diet during his first year of life are about __ in 100.</td>
<td>1 2 3 4 5 (35)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21.</td>
<td>The chances that an adult male will stay home instead of going to church on Sunday are about __ in 100.</td>
<td>1 2 3 4 5 (36)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22.</td>
<td>The chances that a sixth grade teacher in the public schools will be a man are about __ in 100.</td>
<td>1 2 3 4 5 (37)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>The chances that a child whose parents are divorced will be neurotic are about __ in 100.</td>
<td>1 2 3 4 5 (38)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>24.</td>
<td>The chances in the United States that a girl will be married before the age of 17 are about __ in 100.</td>
<td>1 2 3 4 5 (39)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>The chances that a world's champion boxer comes from a poor family are about __ in 100.</td>
<td>1 2 3 4 5 (40)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>The chances that an American citizen will be bilingual (speak two languages) are about __ in 100.</td>
<td>1 2 3 4 5 (41)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>The chances that a five card deal will have two cards of the same kind (one pair) are about __ in 100.</td>
<td>1 2 3 4 5 (42)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>The chances that a man with a broken neck will die are about __ in 100.</td>
<td>1 2 3 4 5 (43)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>The chances that a crime in the United States will be solved (someone arrested and convicted for it) are about __ in 100.</td>
<td>1 2 3 4 5 (44)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very Sure</td>
<td>Partly Sure</td>
<td>Not Sure At All</td>
<td></td>
</tr>
<tr>
<td>---</td>
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<td>-------------</td>
<td>-----------------</td>
<td></td>
</tr>
<tr>
<td>30. The chances that the number of auto accidents in a year will be higher than for the year just before are about ___ in 100.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31. The chances that a small business (for example, gas station, motel), will fail within 2 years after starting are about ___ in 100.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32. The chances that the person one marries will have the same religion are about ___ in 100.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
APPENDIX C

Socio-economic Questionnaire
The following questions are a vital part of this research study. Please answer all of the questions. This information will be kept in the strictest confidence.

16. Sex:  
   a) Male (1)  
   b) Female (2)  

17. Life Cycle Stage  
   1 thru 9 (Use Attached Guide to Determine Correct Stage)  

18. Age:  
   a) Under 25 (1)  
   b) 25 - 34 (2)  
   c) 35 - 44 (3)  
   d) 45 - 54 (4)  
   e) 55 - 64 (5)  
   f) Over 65 (6)  
   g) Unknown (7)  

19. Education: Last Year Completed  
   a) 1 thru 6 (1)  
   b) 7 thru 9 (2)  
   c) 10 (3)  
   d) 11 (4)  
   e) 12 (5)  
   f) Freshman (6)  
   g) Sophomore (7)  
   h) Junior (8)  
   i) Senior (9)  
   j) Grad School (0)  

20. Occupation:  
   a) Industrial worker (1)  
   b) Housewife (2)  
   c) Self-employed (3)  
   d) White collar (4)  
   e) Professional (5)  
   f) Government (6)  
   g) Education (7)  
   h) Unemployed (8)  
   i) Retired (9)
21. Annual Family Income:
   a) Under $4000 (1)
   b) 4000 - 4999 (2)
   c) 5000 - 5999 (3)
   d) 6000 - 7999 (4)
   e) 8000 - 9999 (5)
   f) $10,000 and Over (6)
   g) Unknown (7)  (21) ____

22. Family Size (include yourself)  (22) ____

23. Are either you or your (husband/wife)'s parent living?
   a) No (1)
   b) 1 (2)
   c) 2 (3)
   d) 3 (4)
   e) 4 (5)
   f) More (6)  (23) ____

24. Family members living at home who are now employed  (24) ____

25. Type of Dwelling
   a) Single occupant home (1)
   b) Multiple occupant home (2)
   c) Apartment (3)
   d) Institution (4)  (25) ____

26. Do you own or rent?
   a) Own (1)
   b) Rent (2)
   c) Free (3)  (26) ____

27. Approximate value of home if owned
   a) Under $10,000 (1)
   b) 10,000 - 14,999 (2)
   c) 15,000 - 24,999 (3)
   d) Over 25,000 (4)
   e) Unknown (5)
   f) Not applicable (6)  (27) ____
28. Approximate Monthly Rent
   a) Less than $40 (1)
   b) $40 - $59 (2)
   c) $60 - $79 (3)
   d) $80 - $99 (4)
   e) $100 - $149 (5)
   f) Over $150 (6)
   g) Unknown (7)
   h) Not applicable (8)

29. Religion
   a) Baptist (1)
   b) Methodist (2)
   c) Presbyterian (3)
   d) Other protestant (4)
   e) Catholic (5)
   f) Jewish (6)
   g) Interdenominational (7)
   h) None (8) (Go to 32)
   i) No Response (9) (Go to 32)

30. How often do you attend religious services?
   a) Once a week (1)
   b) Once a month (2)
   c) Several times a year (3)
   d) Once a year (4)
   e) Less than once a year (5)
   f) Never (6)

31. Do you belong to a local church activity group?
   (Circle, WSCS, Officer, Choir, etc.)
   a) Yes (1)
   b) No (2)
### PART B

#### 32-40. Have you purchased anything from any of the following types of merchants or salesmen within the last year?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>32. Department store</td>
<td>1</td>
<td>2 (32)</td>
</tr>
<tr>
<td>33. Grocery store</td>
<td>1</td>
<td>2 (33)</td>
</tr>
<tr>
<td>34. Seed catalog</td>
<td>1</td>
<td>2 (34)</td>
</tr>
<tr>
<td>35. Insurance salesman</td>
<td>1</td>
<td>2 (35)</td>
</tr>
<tr>
<td>36. Door-to-door salesman</td>
<td>1</td>
<td>2 (36)</td>
</tr>
<tr>
<td>37. Telephone salesman</td>
<td>1</td>
<td>2 (37)</td>
</tr>
<tr>
<td>38. Department store or mail order house catalog</td>
<td>1</td>
<td>2 (38)</td>
</tr>
<tr>
<td>39. Discount house</td>
<td>1</td>
<td>2 (39)</td>
</tr>
<tr>
<td>40. Newspaper or magazine ad</td>
<td>1</td>
<td>2 (40)</td>
</tr>
</tbody>
</table>

#### 41-60. Have you purchased any of the following products for your own use within the last year?

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
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</thead>
<tbody>
<tr>
<td>41. Stationery</td>
<td>1</td>
<td>2 (41)</td>
</tr>
<tr>
<td>42. Monopoly game</td>
<td>1</td>
<td>2 (42)</td>
</tr>
<tr>
<td>43. Aspirin</td>
<td>1</td>
<td>2 (43)</td>
</tr>
<tr>
<td>44. Children's shoes</td>
<td>1</td>
<td>2 (44)</td>
</tr>
<tr>
<td>45. Tulip bulbs</td>
<td>1</td>
<td>2 (45)</td>
</tr>
<tr>
<td>46. Vitamins</td>
<td>1</td>
<td>2 (46)</td>
</tr>
<tr>
<td>47. Metal lawn chair</td>
<td>1</td>
<td>2 (47)</td>
</tr>
<tr>
<td>48. Well-known mutual fund</td>
<td>1</td>
<td>2 (48)</td>
</tr>
<tr>
<td>49. Bourbon whiskey</td>
<td>1</td>
<td>2 (49)</td>
</tr>
<tr>
<td>50. Sewing machine</td>
<td>1</td>
<td>2 (50)</td>
</tr>
<tr>
<td>51. Aluminum siding</td>
<td>1</td>
<td>2 (51)</td>
</tr>
<tr>
<td>52. Hospitalization insurance</td>
<td>1</td>
<td>2 (52)</td>
</tr>
<tr>
<td>53. Life insurance</td>
<td>1</td>
<td>2 (53)</td>
</tr>
<tr>
<td>54. Christmas cards</td>
<td>1</td>
<td>2 (54)</td>
</tr>
<tr>
<td>55. 19-inch TV set</td>
<td>1</td>
<td>2 (55)</td>
</tr>
<tr>
<td>56. Hi-Fi record album</td>
<td>1</td>
<td>2 (56)</td>
</tr>
<tr>
<td>57. Fresh strawberries</td>
<td>1</td>
<td>2 (57)</td>
</tr>
<tr>
<td>58. Double bed sheet</td>
<td>1</td>
<td>2 (58)</td>
</tr>
<tr>
<td>59. Ready-made drapes</td>
<td>1</td>
<td>2 (59)</td>
</tr>
<tr>
<td>60. Power lawn mower</td>
<td>1</td>
<td>2 (60)</td>
</tr>
</tbody>
</table>
APPENDIX D

Average Total Perceived Risk Difference Scores (D)
and Perceived Risk Rating Scores for Twenty Products,
by Sample Group
<table>
<thead>
<tr>
<th>Product</th>
<th>Policyholders</th>
<th></th>
<th>Prospects</th>
<th></th>
<th>Controls</th>
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<td>Mail Ratings</td>
<td>Store Ratings</td>
<td>Mail Ratings</td>
<td>Store Ratings</td>
<td>Mail Ratings</td>
</tr>
<tr>
<td>Stationery:</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>$2.00 per box</td>
<td>.35</td>
<td>3.02</td>
<td>.55</td>
<td>3.16</td>
<td>.58</td>
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<tr>
<td>Monopoly game:</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>$6.00</td>
<td>.50</td>
<td>3.43</td>
<td>.37</td>
<td>3.41</td>
<td>.47</td>
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<td>Aspirin:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>unfamiliar brand, 17¢ per bottle of 100 tablets</td>
<td>.17</td>
<td>3.59</td>
<td>.19</td>
<td>3.63</td>
<td>.40</td>
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<tr>
<td>Children's shoes:</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>well-known brand, $8.99 per pair</td>
<td>.97</td>
<td>3.61</td>
<td>1.02</td>
<td>3.57</td>
<td>1.11</td>
</tr>
<tr>
<td>Tulip bulbs:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$1.50 per dozen</td>
<td>.38</td>
<td>3.19</td>
<td>.47</td>
<td>3.30</td>
<td>.62</td>
</tr>
<tr>
<td>Vitamins:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>unfamiliar brand, $3.49 per bottle of 100</td>
<td>.29</td>
<td>3.91</td>
<td>.32</td>
<td>4.13</td>
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<td>Metal lawn chair:</td>
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<td></td>
<td></td>
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<tr>
<td>$5.98</td>
<td>.58</td>
<td>3.29</td>
<td>.61</td>
<td>3.25</td>
<td>.66</td>
</tr>
<tr>
<td>Well-known mutual fund: $15 per share</td>
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</tr>
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<td></td>
<td>.44</td>
<td>3.80</td>
<td>.46</td>
<td>3.82</td>
<td>.60</td>
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<tr>
<td>Product</td>
<td>Policyholders</td>
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<td>Controls</td>
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<td>D Ratings</td>
<td>Ratings</td>
<td>D Ratings</td>
<td>Ratings</td>
<td>D Ratings</td>
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<tr>
<td>Bourbon whiskey: well-known brand, $5.95</td>
<td>.50 3.69</td>
<td>3.19</td>
<td>.60 3.77</td>
<td>3.17</td>
<td>.83 3.60</td>
</tr>
<tr>
<td>per bottle</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sewing machine: unfamiliar brand, $75</td>
<td>.35 4.07</td>
<td>3.72</td>
<td>.50 4.38</td>
<td>3.88</td>
<td>.30 4.33</td>
</tr>
<tr>
<td>Aluminum siding: well-known brand, $75</td>
<td>.41 4.02</td>
<td>3.61</td>
<td>.65 4.13</td>
<td>3.48</td>
<td>.61 4.19</td>
</tr>
<tr>
<td>$75 per square foot installed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitalization insurance: pays $100 per week in</td>
<td>.54 3.66</td>
<td>3.12</td>
<td>.72 4.04</td>
<td>3.32</td>
<td>.75 3.98</td>
</tr>
<tr>
<td>cash while you are hospitalized, costs $7.00 per</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>month</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life insurance: unfamiliar company</td>
<td>.47 4.40</td>
<td>3.93</td>
<td>.40 4.55</td>
<td>4.15</td>
<td>.44 4.71</td>
</tr>
<tr>
<td>Christmas cards: $2.00 per box of 25</td>
<td>.59 3.17</td>
<td>2.58</td>
<td>.53 3.16</td>
<td>2.63</td>
<td>.53 3.05</td>
</tr>
<tr>
<td>Product</td>
<td>Policyholders</td>
<td></td>
<td>Prospects</td>
<td></td>
<td>Controls</td>
</tr>
<tr>
<td>------------------------------------</td>
<td>---------------</td>
<td>----------------------</td>
<td>-----------</td>
<td>----------------------</td>
<td>----------</td>
</tr>
<tr>
<td>product</td>
<td>Mail Ratings</td>
<td>Store Ratings</td>
<td>Mail Ratings</td>
<td>Store Ratings</td>
<td>Mail Ratings</td>
</tr>
<tr>
<td>19-inch TV set: well-known brand,</td>
<td>.69 3.49</td>
<td>2.80</td>
<td>.98 3.64</td>
<td>2.66</td>
<td>.82 3.59</td>
</tr>
<tr>
<td>$99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hi-Fi record album: unfamiliar</td>
<td>.36 3.64</td>
<td>3.28</td>
<td>.57 3.79</td>
<td>3.22</td>
<td>.41 3.80</td>
</tr>
<tr>
<td>brand, $1.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fresh strawberries: 49¢ per quart</td>
<td>1.15 3.47</td>
<td>2.32</td>
<td>1.43 3.73</td>
<td>2.30</td>
<td>1.51 3.81</td>
</tr>
<tr>
<td>Double bed sheet: well-known brand,</td>
<td>.50 2.93</td>
<td>2.43</td>
<td>.50 2.98</td>
<td>2.48</td>
<td>.40 2.80</td>
</tr>
<tr>
<td>$3.98</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ready-made drapes: $15 per pair</td>
<td>.65 3.62</td>
<td>2.97</td>
<td>.84 3.77</td>
<td>2.93</td>
<td>.74 3.75</td>
</tr>
<tr>
<td>Power lawn mower: well-known brand,</td>
<td>.51 3.29</td>
<td>2.78</td>
<td>.84 3.49</td>
<td>2.65</td>
<td>.90 3.41</td>
</tr>
<tr>
<td>$99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX E

Additional Socio-economic Analysis
Differences in Level of Life Cycle Among Policyholders, Prospects, and Control Respondents

<table>
<thead>
<tr>
<th>Stage</th>
<th>Policyholder</th>
<th>Prospects</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Bachelor Stage</td>
<td>4</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2. Young Marrieds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Full Nest I</td>
<td>4</td>
<td>15</td>
<td>24</td>
</tr>
<tr>
<td>4. Full Nest II</td>
<td>6</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>5. Full Nest III</td>
<td>8</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>6. Empty Nest I</td>
<td>14</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>7. Empty Nest II</td>
<td>12</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>8. Solitary Survivors I</td>
<td>19</td>
<td>9</td>
<td>1</td>
</tr>
<tr>
<td>9. Solitary Survivors II</td>
<td>22</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>10. Non-Classified</td>
<td>11</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>101</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ x^2 = 49.59 \]
\[ df = 16 \]

significant at .05 level
Differences in Level of Age Among Policyholders, Prospects and Control Respondents

<table>
<thead>
<tr>
<th>Age Level</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 25</td>
<td>2</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>25-34</td>
<td>6</td>
<td>15</td>
<td>25</td>
</tr>
<tr>
<td>35-44</td>
<td>10</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>45-54</td>
<td>13</td>
<td>14</td>
<td>25</td>
</tr>
<tr>
<td>55-64</td>
<td>23</td>
<td>20</td>
<td>9</td>
</tr>
<tr>
<td>Over 65 &amp; Unknown</td>
<td>46</td>
<td>30</td>
<td>17</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>101</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\[ x^2 = 35.93 \]
\[ df = 10 \]

significant at .001 level

Differences in Sex Among Policyholders, Prospects, and Control Respondents

<table>
<thead>
<tr>
<th>Sex</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>41</td>
<td>29</td>
<td>21</td>
</tr>
<tr>
<td>Female</td>
<td>59</td>
<td>72</td>
<td>79</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td><strong>101</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\[ x^2 = 8.66 \]
\[ df = 2 \]

significant at .02 level
### Differences in Level of Family Income Among Policyholders, Prospects and Control Respondents

<table>
<thead>
<tr>
<th>Income</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under $4000</td>
<td>29</td>
<td>23</td>
<td>16</td>
</tr>
<tr>
<td>$4000-$4999</td>
<td>13</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td>$5000-$5999</td>
<td>15</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>$6000-$7999</td>
<td>15</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>$8000-$9999</td>
<td>9</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>$10,000 &amp; Over</td>
<td>10</td>
<td>16</td>
<td>23</td>
</tr>
<tr>
<td>No Response/Unknown</td>
<td>9</td>
<td>16</td>
<td>17</td>
</tr>
</tbody>
</table>

|          | 100 | 101 | 100 | 301 |

\[ x^2 = 23.18 \]
\[ df = 12 \]

significant at .05 level
### Differences in Level of Education Among Policyholders, Prospects and Control Respondents

<table>
<thead>
<tr>
<th>Last Year Completed</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-6</td>
<td>8</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>7-9</td>
<td>22</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>10</td>
<td>6</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11</td>
<td>10</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>26</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>Freshman</td>
<td>1</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Sophomore</td>
<td>4</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Junior</td>
<td>5</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Senior</td>
<td>10</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>Grad School</td>
<td>8</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td><strong>100</strong></td>
<td><strong>101</strong></td>
<td><strong>100</strong></td>
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</tbody>
</table>

\[ x^2 = 30.93 \]

\[ df = 18 \]

significant at .05 level
<table>
<thead>
<tr>
<th>Family Size</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>34</td>
<td>17</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>28</td>
<td>33</td>
<td>30</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>15</td>
<td>17</td>
</tr>
<tr>
<td>4</td>
<td>8</td>
<td>17</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>6</td>
<td>4</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>7 &amp; Over</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>100</td>
<td>101</td>
<td>100</td>
</tr>
</tbody>
</table>

\[ x^2 = 28.44 \]

\[ \text{df} = 12 \]

significant at .01 level
### Differences in Level of Occupation Among Policyholders, Prospects and Control Respondents

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial worker</td>
<td>23</td>
<td>11</td>
<td>6</td>
</tr>
<tr>
<td>Housewife</td>
<td>23</td>
<td>41</td>
<td>59</td>
</tr>
<tr>
<td>White collar</td>
<td>17</td>
<td>8</td>
<td>13</td>
</tr>
<tr>
<td>Professional</td>
<td>16</td>
<td>19</td>
<td>12</td>
</tr>
<tr>
<td>Retired/Unemployed</td>
<td>21</td>
<td>22</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td><strong>100</strong></td>
<td><strong>101</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\( x^2 = 32.92 \)
\( df = 8 \)
significant at .001 level

### Differences in Number of Parents Living Among Policyholders, Prospects and Control Respondents

<table>
<thead>
<tr>
<th>Number Living</th>
<th>Policyholder</th>
<th>Prospect</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>69</td>
<td>51</td>
<td>32</td>
</tr>
<tr>
<td>1</td>
<td>15</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>8</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>4</td>
<td>3</td>
<td>15</td>
<td>21</td>
</tr>
<tr>
<td>Unknown/More</td>
<td>2</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td><strong>100</strong></td>
<td><strong>101</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

\( x^2 = 32.77 \)
\( df = 10 \)
significant at .001 level


. The Theory of Buyer Behavior. Address delivered before the symposium on consumer behavior at the University of Texas, Austin, Texas (April 18-19, 1966).


