STUDY EXAMINES INVESTORS' RISK-TAKING PROPENSITIES

by Robert Masters

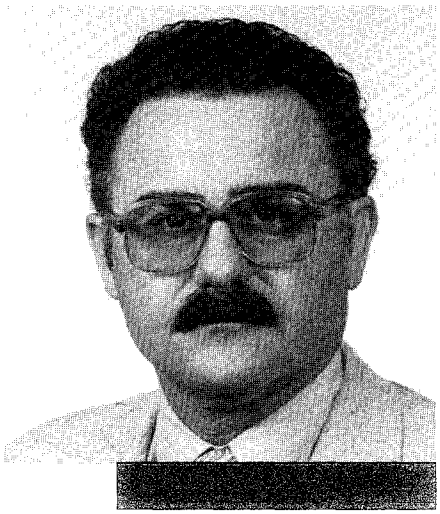
This study indicates that a relationship exists between the risk-taking prospensity and the level of investment risk taken by an individual investor. That is, people who are less inclined to take risks tend to be conservative to moderate in their investments, and those inclined to take risk tend to invest in riskier portfolios. The study shows that the investor's general education level is not always a factor influencing investment decisions, but that the greater the individual's knowledge of investments, the greater the willingness to take risks. The author also found that while gender has little influence on risk taking, occupation and marital status do.

Today, more than ever before, a wide variety of investment instruments are available to the individual investor. These financial instruments range from virtually risk free to very risky. The level of investment risk selected depends upon the decision made by the investor. This decision inherently involves risk, and it may be influenced by the risk-taking propensity of the investor.

This study attempts to determine if a relationship exists between the risk-taking propensity of the investor and the level of investment risk by the individual. The study also investigates if the variables of gender, education, marital status, occupation, and investment information influence an individual's risk-taking propensity.

The Literature

According to the literature on risk taking, there are three types of decision makers — risk takers, risk neutrals, and risk avoiders.[1,2,3] In investing, the risk taker will prefer decisions that have a chance for high return, though risky. The risk avoider will shun decisions that have a risk of low return. The risk neutral is indifferent or neutral to risk as long as the risk is equal to the return. Therefore, the investor is a decision maker involved with different degrees or levels of risk taking. The level of risk taking depends upon individual risk-taking propensity, which varies from person to person, and the type of investment instruments available to the investor, each having different levels of risk. MacCrimmon and Wehrung said the willingness to take risk and the riskiness of the situation comprise the two components of risk taking.[4]



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Life Cycle Influences

Studies have attempted to profile the individual investor and risk-taking situations. Cohen, Zinbarg, and Zeikel claim that the portfolio objectives of an individual are influenced by the willingness to take risk and the life-cycle stage.[5] The young investor typically does not have a large accumulation of capital for investment. Therefore, the young investor usually avoids large financial risks. The investor at midstream in the life cycle has more capital available for investment. This individual can be more aggressive and invest in a more speculative portfolio. As the individual moves toward retirement, risk aversion becomes greater. The investor on the verge of retirement will shift the portfolio toward more conservative, income-producing investments. Milne said that attitudes toward risk taking are crucial to the risk-return trade-off made at each stage of the life cycle.[6] Again, it should be emphasized that risk taking is viewed differently among individuals, even in similar life situations.

McInish studied individual investors and risk taking using "Locus of Control" (internal/external) and beta coefficient in combination with demographic and investment information. He found that individuals who are internally controlled choose conservative portfolios, while those externally controlled choose risky portfolios. Sex, educational level, and marital status were found to have no influence upon risk level; however, age, assets, and value of common stock held were found to be significant determinants of risk level.[7]

Markese and Perritt studied the relationship of individual investor portfolio decisions and attitudes toward such factors as risk, diversification, and market efficiency. They found investor attitudes were influenced by investor characteristics such as age, education, amount of total assets, and income level.[8] Peers said many of the stereotypes about risk taking and investing are old wives' tales. She cited research that questions previous research regarding age, gender, and income differences, and financial risk taking.[9] Although certain inconsistencies exist regarding the available research on financial risk and its influence on investing, strong evidence supports the link between risk-taking propensity and decision making.

Risk-Taking Propensity

Weiss said, "Taking risks means different things to different people. What one person sees as a threat because he thinks he will fail, another person sees as a challenge because she thinks she will succeed."[10] Sheth indicated that perceived risk is always present when making decisions under uncertainty.[11] Typically, the degree of risk

is related to both uncertainty and adverse consequences of the decision. Moore and Gergen indicated that individual risk taking involved a propensity to take or avoid risks. They said, "The process of risk taking involves both making the decision to take risk and developing a strategy that minimizes the risk. Well-seasoned risk taking requires careful decision making."[12] Other researchers have indicated that a propensity to take or not to take risk is often linked to previous training and experience, attitudes, available information, and knowledge.[13,14,15,16,17]

Purpose of Study

For the purpose of this study, the Brockhaus definition of risk-taking propensity will be used.

The propensity for risk taking is defined as the perceived probability of receiving the rewards associated with success of a proposed situation, which is required by an individual before he will subject himself to the consequences associated with failure, the alternative situation providing less reward as well as less severe consequences than the proposed situation.[18]

Purpose of Study

The propositions developed for this study, stated in null form, are as follows.

Proposition 1: There is no difference between risk-taking propensity and the level of financial investment risk.

Proposition 2: There is no difference in risk-taking propensity toward level of financial investment by gender.

Proposition 3: There is no difference in risk-taking propensity toward level of financial investment by education.

Proposition 4: There is no difference in risk-taking propensity toward level of financial investment by marital status.

Proposition 5: There is no difference in risk-taking propensity toward level of financial investment by occupation.

Proposition 6: There is no difference in risk-taking propensity toward level of financial investment by investment information.

Measurement Instrument

The Choice Dilemmas Questionnaire (CDQ) was developed by Wallach and Kogan for obtaining probability preferences in 12 everyday situations.[19,20] The questionnaire requires the respondent to give advice about the level of risk one should take in pursuing a desired goal. The respondent must choose between a risky and a safe course of action and indicate the probability of success needed for selecting the risky alternative. The task of the CDQ is to produce a deterrence of failure index.[21] A sample question from the CDQ is:

> Mr. A., an electrical engineer, is married with one child, has worked for a large electronics operation since graduating from college five years ago. He is assured of a lifetime job with a modest, though adequate salary, and liberal pension benefits upon retirement. On the other hand, it is very unlikely that his salary will increase much before he retires. While attending a convention, Mr. A is offered a job with a small, newly founded company with a highly uncertain future. The new job would pay more to start and would offer the possibility of a share in the ownership if the company survives the competition of the larger firms.
>
> Imagine that you are advising Mr. A. Listed below are several probabilities or odds of the new company's proving financially sound.
>
> Please check the *lowest* probability that you would consider acceptable to make it worthwhile for Mr. A to take the new job.
>
> ☐ The chances are 1 in 10 that the company will prove financially sound.
> ☐ The chances are 3 in 10 that the company will prove financially sound.
> ☐ The chances are 5 in 10 that the company will prove financially sound.
> ☐ The chances are 7 in 10 that the company will prove financially sound.
> ☐ The chances are 9 in 10 that the company will prove financially sound.
> ☐ Place a check here if you think Mr. A should not take the new job no matter what the probabilities.

FIGURE 1
Listing of Investment Levels*

Levels	*Percent of Investment*
Investment Level I: — Savings Accounts — Commercial Paper — Treasury Bills	_____%
Investment Level II: — EE or HH Bonds — Certificates of Deposit (CD) — Money Market Accounts — Money Market Funds (Mutual)	_____%
Investment Level III: — High-Grade Government Bonds & Notes — High-Grade Municipal Bonds — High-Grade Corporate Bonds — Income Funds (Mutual)	_____%
Investment Level IV: — Balanced Funds (Mutual) — Blue Chip Common Stock	_____%
Investment Level V: — Growth Funds (Mutual) — Other Common Stock	_____%
Investment Level VI: — Junk Bonds — Limited Partnerships — Futures Contracts — Options Market	_____%
Total	_____ 100%

*Participants were further grouped into three categories for purposes of data analysis:
Low (Investment Levels I and II)
Moderate (Investment Level III)
High (Investment Levels IV, V, and VI)

TABLE 1
CDQ LS MEANS for Proposition 1

Level	*CDQ*	*Std. Error*
Low	77.13	3.46
Moderate	81.85	3.05
High	75.43	3.03

Significance level $p < .028$ for moderate to high.

TABLE 2
CDQ LS MEANS for Propositions 2, 3, and 4

	CDQ	*Std. Error*	*Significance Level*
Proposition 2			
Gender			
Male	79.08	2.72	.541
Female	77.20	3.23	
Proposition 3			
Education			
High School	76.44	2.95	.224
College	79.83	2.87	
Proposition 4			
Marital Status			
Married	73.74	2.21	.017
Single	82.54	3.86	

TABLE 3
CDQ LS MEANS for Propositions 5 and 6

	CDQ	*Std. Error*	*Significance Level*
Proposition 5			
Occupation			
Nonprofessional	84.38	4.47	.018
Professional	74.13	2.76	
Nonprofessional	84.38	4.47	.066
Retired	75.90	2.94	
Proposition 6			
Investment Information			
Knowledge	70.70	5.46	.037
No Knowledge	81.94	2.99	

The CDQ is scored in such a way that the maximum score is 120 and the minimum is 12. The higher scores are associated with greater conservatism, while lower scores are associated with less conservatism. Kogan and Wallach (1964), using the Spearman-Brown formula, determined an odd-even reliability coefficient for the CDQ and reported reliabilities of .53 for men and .62 for women. They concluded that the internal consistency of the instrument is adequate.

Survey Sample

A list of 480 randomly-sampled, known investors was acquired from a Midwestern investment firm. The data for this study were collected by a mail survey. Usable responses totaled 158, for a response rate of 33 percent. Sample-size determination followed techniques offered by Krejcie and Morgan.[22] Information was collected on each respondent's gender, marital status, age, income, education, and occupation. In addition, each respondent was asked to provide investment information including the amount in dollars of the total investment portfolio. To assess individual investment activity, each respondent was asked to indicate the percentage of the total investment portfolio committed to different levels of investment instruments. According to Halbe, there is a pyramid of investment risk, and this pyramid is divided into different levels based upon the degree of risk.[23] The levels range from relatively risk-free savings to high-risk speculatives. A listing of the investment levels used in this study is found in Figure 1.

Finally, each participant was asked to complete the Choice Dilemmas Questionnaire.

Methodology and Results

Data were analyzed using SAS (Statistical Analysis System). The analysis of covariance procedure was used with the CDQ score as a dependent variable.

Gender, education, marital status, occupation, investment information, and the level of investment composed the independent variables. Covariates were age, annual income, and portfolio size. The overall mean CDQ score for the 158 respondents was 77.0 with a standard deviation of 15.8. Kogan and Wallach (1964) reported an overall mean score of 70.3 and a standard deviation of 12.1. A null hypothesis that the overall investors group mean is greater than or equal to 70 was tested at the 0.05 significance level. The null hypothesis was not rejected. This indicates results consistent with those reported by Kogan and Wallach. The overall mean age was found to be 60 and the overall mean annual income was $60,949. The overall mean investment portfolio size was $402,614.

The results by proposition were as follows:

Proposition 1 regarding no difference between risk-taking propensity and the level of risk of the financial investment was rejected. (See Figure 1 and Table 1.)

In general, the mean CDQ score reflected higher risk-taking propensity as the investment level increased from moderate to high investment levels. In other words, conservative investors reflected more conservative CDQ scores while risk-taking investors displayed more risk-prone CDQ scores. The mean CDQ score of the moderate risk-level investor was 81.85 with a standard error of 3.05, and the mean CDQ score of the high-risk-level investor was 75.43 with a standard error of 3.03. This was significant at $p < .028$. No significant difference was found between low-and moderate-risk-level investors.

Proposition 2 indicating no difference in risk-taking propensity toward the level of financial investment by gender was not rejected. The data showed no significant difference in mean CDQ score whether the investor was male or female. (See Table 2.)

Proposition 3 stating no difference in risk-taking propensity toward the level of financial investment by the level of the investor's education was not rejected. The data showed no significant difference in mean CDQ score. (See Table 2.)

Proposition 4 regarding no difference in risk-taking propensity toward the level of financial investment by marital status was rejected. The analysis indicated that single respondents were more conservative than married respondents. Mean CDQ score for married respondents was 73.74 with a standard error of 2.21, while mean CDQ score for single respondents was 82.54 with a standard error of 3.86. This was significant at $p < 0.017$. (See Table 2.)

Proposition 5 stating no difference in risk-taking propensity toward level of financial investment by occupation was rejected. The data showed a significant difference by occupation level. Nonprofessionals were more conservative in risk-taking propensity than both professionals and retired persons. The mean CDQ score for nonprofessionals was 84.38 with a standard error of 4.47. The mean CDQ score for professionals was 74.13 with a standard error of 2.76. Retired respondents had a mean CDQ of 75.90 with a standard error of 2.94. Comparisons between nonprofessionals and professionals was significant at $p < 0.018$. Comparisons between nonprofessionals and retired persons was significant at $p < 0.066$. (See Table 3.)

Proposition 6 indicating no difference in risk-taking propensity toward the level of financial investment by investment information was rejected. The data showed that respondents with knowledge of investments were more inclined to take risks than those with little or no investment knowledge. The mean CDQ for those with virtually no investment knowledge was 81.94 with a standard error of 2.99, while those with a greater amount of investment knowledge had a mean CDQ of 70.70 and a standard error of 5.46. This was significant at $p < 0.037$. (See Table 3.)

Conclusion and Implication

The purpose of this study was to determine if a relationship exists between risk-taking propensity and the level of investment risk of a group of known investors. The research indicated a significant relationship does exist. People who tend to be conservative to moderate in their investments tend also to be less inclined to take risks. People inclined to invest in more risky portfolios tend to display a higher risk-taking propensity.

This study should be of special significance to the financial advisor for several reasons. First, this study reinforces previous studies that stated that education level is not always a factor influencing investment decisions. However, this study points out that regardless of the education level, knowledge of investments is a significant variable in an individual's willingness to take investment risks. The more investment information acquired, the more the risk inclination. Therefore, it is important that investment advisors consider the investment knowledge base of clients prior to an actual investment commitment.

A second issue this research found relates to occupation levels. Nonprofessionals (clerical workers, farmers, unskilled and skilled laborers) tend to be more conservative in investment decision than professionals (educators, doctors, lawyers, business owners, and managers) and retired persons. This does not mean that they have any less money to invest but, as a group, they probably will invest differently. The investment advisor should be aware of this possibility and advise clients accordingly.

A third area that should be of concern to financial advisors is gender.

This research indicates no gender difference in propensity toward risk taking. This finding does not concur with past research which showed women to be more conservative than men in decisions involving risk.[24] Investment advisors should be aware that gender differences in risk-taking propensity may be less pronounced than in the past, and they should be cautioned regarding sex-role stereotyping. This research indicated that women have no less money to invest and are no less risk taking than men in financial investment decisions.

Regarding marital status, singles appear to be more conservative investors than marrieds. However, the research is inconclusive on this item because no statistical explanation can be offered. Factors such as dual incomes, group decision making, and life cycle stages may be influences, but additional research in this area is recommended.

Finally, the effects of risky shift in group risk taking were considered; however, shifting risk-taking propensity was not a concern of this study.[26] Determining individual investment risk level, along with other characteristics and comparing them to individual risk-taking propensity was the fundamental task of this study. ▨

Editor's Note: This article underwent review procedures typical in academic research. The Journal *publishes such articles to encourage academic research in financial planning.*

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