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Risk Taking Propensity of Entrepreneurs¹

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The risk taking propensities of entrepreneurs of new ventures were objectively obtained using the Kogan-Wallach choice dilemmas questionnaire and were compared to those of managers and to normative data developed for the measurement instrument. The findings suggest that risk taking propensity may not be a distinguishing characteristic of entrepreneurs. They refute assumptions based on research that has been subjective and noncomparative and that used established entrepreneurs.

Palmer has suggested that psychological testing of entrepreneurs "be directed most toward the measurement of an individual's perception and handling of a risk" (1971, p. 38). The major purpose of the present research is to determine whether founders of new ventures and newly hired managers or newly promoted managers differ in their risk taking propensities. In order for this study to be understood completely, the varied definitions of the term "entrepreneur" must be presented and a functional definition for use in this study must be developed.

Webster's Third New International Dictionary (1961) defines an entrepreneur as "the organizer of an economic venture, especially one who organizes, owns, manages, and assumes the risk of a business." *Funk and Wagnall's Standard Dictionary* (1958) offers a similar definition. It states that an entrepreneur is "one who undertakes to start and conduct an enterprise or business, assuming full control and risks." Schumpeter (1954) credits J. S. Mill with bringing the term into general use among economists. Mill (1848) included as entrepreneurial functions direction, control, superintendence, and risk bearing. Mill appeared to believe that the inclusion of risk bearing distinguished the term "entrepreneur" from the term "manager."

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In his own writings, Schumpeter stressed that the role of innovation was of major importance in defining the entrepreneur. He placed less emphasis on the role of risk because he believed that both entrepreneurs and managers are subject to the risk of failure.

McClelland (1961) was less restrictive and did not require that the entrepreneur be the owner of the business. He believed that an innovative manager who has decision making responsibility is an entrepreneur. Thus in McClelland's terms a manager in a corporation can be entrepreneurial.

However, Hartmann's (1959) thorough historical discussion of the differences between entrepreneur and manager found that a useful distinction can be made. He supported Weber's (1947) concept, which considered the entrepreneur the ultimate source of all formal authority within the organization. Such a definition, Weber stated, distinguished the entrepreneur from the manager.

Most present day writers would consider the owner-manager of a business to be an entrepreneur. Today, it is further generally accepted that a person who provides capital would not be considered an entrepreneur if he did not also manage the venture. However, many authors, such as Collins and Moore (1964) and Hornaday and Aboud (1971) are even more restrictive in their studies and have examined only business ventures that were successful.

Although it should be noted that different definitions do exist, the definition to be used in this study does not prevent the review of the findings based on somewhat different definitions. However, previous findings based on different definitions may not be true for those defined as entrepreneurs in this study.

In this study, an entrepreneur is defined as a major owner and manager of a business venture who is not employed elsewhere. Such a definition allows for a more distinct comparison of the entrepreneur with the manager than would be obtained if managers with entrepreneurial-like positions were considered as entrepreneurs rather than managers. However, distinction between successful and unsuccessful entrepreneurs will *not* be made. Respondents were selected who very recently had made the decision to become owner-managers. For this reason, the validity of this study will not depend upon a venture's degree of success as would a study based upon entrepreneurs in business long enough to be considered successful or unsuccessful.

ENTREPRENEURIAL RISKS

Liles (1974) speculated about what he believed is at risk in a new venture. He suggested that in becoming an entrepreneur an individual risks financial well-being, career opportunities, family relations, and psychic well-being. The personal financial obligations that the entrepreneur makes to an unsuccessful enterprise can result in major losses to the entrepreneur

as an individual and could jeopardize his future standard of living. Moreover, because the entrepreneur is likely to have devoted himself to the venture at a personal level, the failure of the venture becomes, in effect, the failure of the individual and therefore can have major emotional consequences.

Realizing that the financial and emotional consequences of failure could be devastating, Liles suggested that the potential entrepreneur is well advised to analyze carefully the risks associated with his specific business proposal and then to determine whether or not he is willing to undertake them. Liles concluded that the decision depends to a great extent upon the potential entrepreneur's perception of the risk involved.

Risk Preferences

Expectance theorists, especially Atkinson (1957), have stimulated much study of risk preferences. Atkinson's risk taking model is derived from the relationship that McClelland found between need for achievement and preference for moderate probabilities of success. Atkinson's model involves six variables: the subjective probability (i.e., expectance) of success (P_s), the subjective probability of failure (P_f), the incentive value of success (I_s), the incentive value of avoiding failure ($-I_f$), the achievement motive (M_s), and the motive to avoid failure (M_f). Atkinson assumed that I_s is a positive linear function of difficulty and can be represented by $(1 - P_s)$. He assumed further that $-I_f$ is a negative linear function of difficulty and can be represented by $-P_s$. The variables are combined multiplicatively in the following equation: Resultant motivation = $(M_s \times P_s \times I_s) + (M_f \times P_f \times -I_f)$. The resultant motivation function has a maximum at $P_s = .5$ if M_s is greater than M_f . Where M_f is greater than M_s , the resultant motivation function would be a maximum either at the lowest value of P_s or the highest value of P_s .

The major prediction that follows from Atkinson's theory is that performance level should be greatest when there is greatest uncertainty about the outcome (when subjective probability of success is .50). This prediction should be true regardless of whether the motive to achieve or the motive to avoid failure is stronger within an individual. However, persons in whom the achievement motive is stronger should prefer intermediate risk, and those in whom the motive to avoid failure is stronger should avoid intermediate risk, preferring instead either very easy and safe undertakings *or* extremely difficult and speculative ones. This preference is based on the theory that an individual with a stronger motivation to avoid failure will tend either to succeed with the safe task or will be easily able to explain failure of a very speculative task without assuming personal blame, which he finds particularly painful.

McClelland (1961) has stated that the situations in which an individual's degree of control or skill is most important are moderately risky situations rather than very risky or very certain ones. According to McClelland, the

individual needs no more than average ability to perform successfully the functions that fall within the limits of the safe end of the continuum, but no amount of skill can help in the situation of pure chance.

Entrepreneurial Risk Preferences

These three levels of risk preferences—low, intermediate or moderate, and high—could affect an individual's decision to start a business venture. Mancuso (1975) stated that individuals who are considered established entrepreneurs tend to be moderate risk takers, but he did not provide empirical support for his viewpoint, nor did he suggest what the propensity for risk taking might have been at the time the entrepreneurial decision was made. Perhaps in some instances, as the entrepreneur becomes more aware of his business environment, he realizes that the venture has been more risky than he originally perceived it.

As noted earlier, no studies have considered the risk taking propensity of individuals whose business ventures failed before becoming reasonably well established. These individuals may have considered their ventures to involve moderate or low risks, or they may have recognized the highly speculative nature of their proposed ventures and even believed that there was a greater likelihood for failure than for success. As stated above, if their motivation to avoid failure was very strong, they may have preferred to fail in a high-risk environment where failure could be explained without assuming personal blame, instead of in a more moderate risk setting, where they might more likely be blamed personally for failure. Previous researchers who studied established (and, therefore, at least moderately successful) entrepreneurs may have eliminated from their studies those entrepreneurs who chose high-risk ventures and failed, as well as those who started what they considered to be low-risk ventures and failed.

Although previous research has not specifically compared the risk taking propensity of individuals who decided to start their own business venture with that of individuals not so inclined, research conducted by Meyer, Walker, and Litwin (1961), studied "managers" of shop operations in manufacturing plants and "staff specialists" to determine the relationship between measured motive patterns of individuals and their adjustment to particular job roles. The authors hypothesized that managers in jobs with definite entrepreneurial characteristics would score higher on a measure of need for achievement than would specialists whose jobs were nonentrepreneurial. Further, they hypothesized that in situations requiring decisions involving risk, the "entrepreneurs" would prefer risks with odds of success near 50-50, because previous research had shown this preference to be associated with achievement motivation. The study found that managers selected to represent the entrepreneurial role did show greater preference for intermediate risks on a risk preference questionnaire than did specialists of comparable age, education, and job level.

If managers holding positions with entrepreneurial characteristics have greater preferences for moderate level risks than do specialists whose jobs are nonentrepreneurial, then perhaps these findings can be generalized to include actual entrepreneurs. The writings previously referred to may suggest that actual entrepreneurs have a stronger preference for moderate risks. However, it is conceivable that the preference for moderate level risk is not associated with actual ownership of a business but rather with the managerial demands of any job. If this conjecture is true, then there should not be a significant difference in risk taking propensities between owner-managers and managers whose jobs are entrepreneurial with the exception of ownership.

Entrepreneurial literature since the writings of Mill has included risk bearing as a major distinguishing characteristic between the functions of a manager and those of an entrepreneur. Entrepreneurial risk can be divided into three components: the general risk taking propensity of a potential entrepreneur, the perceived probability of failure for a specific venture, and the perceived consequences of failure. Because the latter two components require intimate knowledge of the specific venture before they can be evaluated, a study based on them would be very difficult and very likely subject to uncontrolled independent variables. However, the general risk taking propensity of the entrepreneurs and managers can be compared empirically to determine whether this component of risk distinguishes entrepreneurs from managers.

Definition of Risk Taking Propensity

For the purpose of this study, 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. Such a definition might best describe the situation that faces the potential entrepreneur when he decides to establish a new business venture.

METHOD

Participants

The study was conducted using three groups of participants. One group was composed of individuals who within the three months prior to the study ceased working for their employers and at the time of the study owned as well as managed business ventures. Because their businesses had not existed long enough to have failed, a broad spectrum of entrepreneurs is included, i.e., those who will be successful and those who will be unsuccessful.

The entrepreneurial group was compared with two groups of managers who were similar otherwise to the entrepreneurs. Members of both groups of managers also had changed positions within three months prior to the study. One group of managers had changed organizations, and the other had only changed positions within an organization.

This study initially involved only these three groups, and a comparison of the entrepreneurs with a more general population was not planned prior to the study. However, after the initial data analysis was conducted, comparison with a more generalized population seemed desirable. The normative data obtained by Kogan and Wallach (1964) was used as the best available data approximating the general population.

Measurement Instrument

Wallach and Kogan (1959, 1961) developed the choice dilemmas questionnaire (CDQ) to obtain probability preferences in everyday life situations. On this test a subject is presented with 12 hypothetical situations. Each item requires the respondent to choose between a safe alternative and a more attractive but risky one. In addition, the respondent is asked to indicate the probability of success sufficient for him to select the risky alternative. A typical item is:

Mr. A, an electrical engineer, who is married and has one child, has been working for a large electronics corporation 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 which has 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 survived 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.

The items contained in the CDQ are not in any respect a representative sample of all possible items in the universe. Therefore, instruments similar to the CDQ could readily be constructed. There is no basis known for the creation of any other possible scale as a measure of risk taking propensity. The CDQ score summarizes the responses made to a particular set of 12 choice dilemmas. A maximum score of 120 is possible, and 12 is the minimum score. Lower scores are associated with less conservatism in risk taking situations.

Kogan and Wallach (1964) reported reliabilities of .53 for the men and .62 for women using odd-even coefficients stepped up by the Spearman-Brown formula and considered to be adequate.

Items from the CDQ have been extensively used by researchers of risk taking propensity. Unfortunately, all reported research in the United States that utilized all of the items has used college students or elderly persons as subjects. Thus a comparison of the results of the present research with the results of previous research is necessarily of limited value.

However, after a thorough search of the literature, it was concluded that the most widely used and most appropriate instrument for the present research was the CDQ, despite its limitations. The limitations were determined to be of less importance because the primary purpose for inclusion of this instrument was to measure the relative differences between groups.

Procedure

The businesses whose owners served as participants were selected from the listing of businesses licensed by St. Louis County, Missouri, during the months of August and September 1975.

From this total listing of businesses, branch outlets of existing businesses were eliminated. Also eliminated were businesses that had been established previous to August but had recently relocated and were being licensed to do business at the new location. After this elimination procedure, the names of 93 businesses remained.

Each of these businesses received a letter informing the owner of a meeting to be offered at four different times at the School of Business and Administration of Saint Louis University. One purpose, stated in the letter for the meeting, was to gather information anonymously about the beliefs, attitudes, and background of the business owners. The second purpose mentioned was to allow the owners to meet one another socially and exchange information.

Each business was contacted by telephone to see if the owner would attend one of the meetings. If a business had more than one owner, the first one contacted by telephone was the only one who was considered for this study. Furthermore, if the owner was employed elsewhere he was eliminated from this study.

A total of 58 questionnaires were either provided during the meetings or mailed to those entrepreneurs unable to attend a meeting. Of these, 31 were completed in usable form. Five others were returned but were not completed as requested and therefore were disregarded.

The names of managers were obtained from St. Louis area newspaper articles that deal with personnel changes. Only one manager per organization was asked to serve as a participant. These managers received letters similar to those sent to the entrepreneurs except that these letters stated that managers were the focal point of the meetings.

A total of 106 questionnaires were either provided during the meetings or mailed to managers unable to attend any of the sessions. Of the 51 questionnaires provided to the promoted managers, 38 were returned but 3 were not correctly completed, leaving 35 in usable form for the study. Of

the 55 managers who had joined a new organization, 40 returned questionnaires but 4 did not complete them correctly, leaving 36 in usable form.

To allow both managerial groups to be equal in size to the group of entrepreneurs, four questionnaires from individuals promoted within an organization and five questionnaires from individuals who had recently joined a new organization were randomly selected and eliminated from further data analysis.

It was necessary to determine whether significantly different results would have been obtained if all of the participants had responded. To make this assessment, two procedures were used.

First, the data provided by each primary group of respondents who attended the meetings was compared with the data for the same primary group of respondents who mailed in their responses. No significant differences were found to exist between either segment of any of the three groups. Second, the types of businesses and/or positions held by respondents of each primary group were compared with those of nonrespondents for each primary group. Once again no apparent differences were observed. However, these comparisons do not assure that similar results would definitely have been obtained had all participants responded.

RESULTS

The null hypothesis developed for this study is presented below:

Individuals who, within the past three months, have ceased working for their employers and now own as well as manage business ventures, will have the same risk-taking propensity as will

- a) *individuals who, within the past three months, have ceased working for their employers and now are managers for different employers, and*
- b) *individuals who, within the past three months, have assumed new managerial positions with the same firms with which they have been associated for a year or more.*

In order to test the hypothesis, data from the Kogan-Wallach CDQ were used. The mean CDQ score for the entrepreneurs was 71, while the transferred managers' mean score was 72.52, and the promoted managers' mean score was 66.97 (Table 1).

TABLE 1
Means and Standard Deviations on Kogan-Wallach
Choice Dilemmas Questionnaire

<i>Group</i>	<i>Number of Respondents</i>	<i>Mean</i>	<i>Standard Deviation</i>
Entrepreneurs	31	71.00	11.94
Transferred managers	31	72.52	12.19
Promoted managers	31	66.97	10.84

TABLE 2
Summary of Analysis of Variance on Kogan-Wallach
Choice Dilemmas Questionnaire

<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Level of Significance</i>
Between group	2	509.87	254.94	1.87	.1579
Within group	90	12262.71	136.25		
Total	92	12772.58			

If the range of differences among the three group means was similar to the range reported by Kogan and Wallach (1964), there is a 73 percent probability that it would have been discovered. This probability of detection or "power" of the statistical test was based on the range of means reported by Kogan and Wallach, 3 groups of 31 participants each and a Type I error of 5 percent. Although no generally accepted convention for significant power value exists, Cohen (1969) recommended 80 percent but noted that values larger than 60 percent should be considered acceptable. It therefore is concluded that if a difference in risk taking propensity had existed it probably would have been discovered.

A one-way analysis of variance test (Table 2) indicated that the CDQ scores of the three groups were not significantly different from each other. Therefore, the null research hypothesis was accepted in its entirety; the entrepreneurs appear to have the same risk taking propensity as managers.

In order to understand more fully the significance of risk taking propensity as it relates to the decision to start a business venture, additional exploratory analysis was conducted using the CDQ scores of the entrepreneurs together with the mean scores and standard deviations reported by Kogan and Wallach (1964) for 114 undergraduate male students and 103 undergraduate female students.

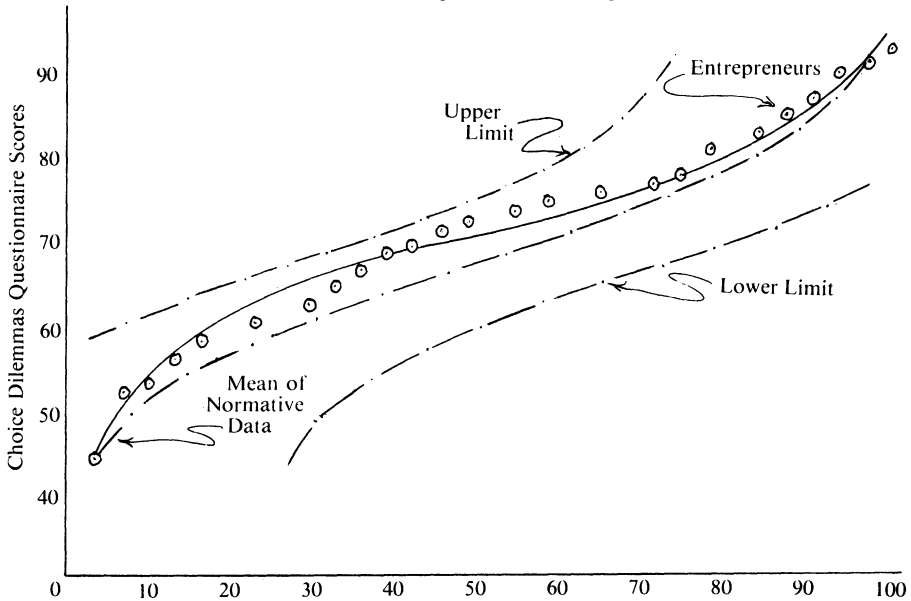
The chi-squared test of significance indicates that no significant difference exists at the .25 level of confidence between the distribution of the entrepreneurs' scores and those scores obtained from the Kogan-Wallach study, assuming normal distribution for the Kogan-Wallach data.

A Kolmogorov confidence band with a confidence coefficient of 95 percent was established using the data reported by Kogan-Wallach and assuming that the data were normally distributed. All individual scores for entrepreneurs were found to lie within this band, as illustrated in Figure 1. It therefore is concluded that the distribution of risk taking propensity held by entrepreneurs is the same as the distribution of risk taking in the general population, i.e., the population used by Kogan-Wallach to establish norms for the CDQ instrument.

DISCUSSION

The failure of risk taking propensity to distinguish entrepreneurs from managers appears to be a major deviation from the widely reported theory

FIGURE 1
Kolmogorov Confidence Band Based on Kogan-Wallach's CDQ Data
and Plot of Entrepreneurs' CDQ Scores



that entrepreneurs are the more moderate risk takers. However, the failure to find differences does not imply that entrepreneurs are not moderate risk takers. In fact, a comparison of the responses on the CDQ of the entrepreneurs and the managers who participated in this study with data from the original Kogan and Wallach (1964) study revealed that both groups were best described as moderate risk takers because their scores were clustered around the mean score reported by Kogan and Wallach.

However, if the *entire* range of scores obtained from entrepreneurs in this study are compared to the *entire* range of scores obtained in the Kogan-Wallach study an interesting comparison can be made: Figure 1 consists of a plot based on the scores obtained by entrepreneurs in this study compared with plots based on the Kogan-Wallach studies that were used to establish normative data. (The Kogan-Wallach plots were obtained by using the reported mean and standard deviations, and it is assumed that the Kogan-Wallach data were normally distributed.) This Kolmogorov confidence band indicates that the distribution of entrepreneurs' scores from this study and that of Kogan-Wallach subjects are not significantly different at the .05 level of confidence. In other words, the distribution of the risk taking propensity of the entrepreneurs of new ventures is similar to the distribution of risk taking propensity found to exist by Kogan and Wallach in a more general population. Thus, the data in

this study indicate that the level of risk taking propensity does not distinguish new entrepreneurs either from managers or from the general population.

Just as the majority of the established entrepreneurs who were interviewed in earlier studies, such as Mancuso's (1975) study, expressed a desire for moderate levels of risk, over 64 percent of the entrepreneurs in this current study were found to have a propensity for moderate levels of risk, as indicated by their CDQ scores' being within one standard deviation of the mean for the Kogan and Wallach subjects. However, by definition, approximately 68 percent of the general population also would be expected to have scores in this range. Thus earlier studies concerned with the entrepreneurs' risk taking propensity may have *correctly* found the majority of entrepreneurs to have a tendency toward moderate levels of risk, but they may have failed to recognize that this same characteristic is also true of the population in general. Therefore, although a majority of the entrepreneurs of established ventures may in fact have preferred moderate levels of risk, this preference need not be a distinguishing characteristic. But even this statement must be followed with several cautions.

Because this study dealt with entrepreneurs of new ventures, it is possible that the risk taking propensity of established entrepreneurs might differ from that of a new entrepreneur. This difference might occur for several reasons. First, the process of being an entrepreneur may increase the desire for moderate levels of risk, thus causing a larger percentage of established entrepreneurs to appear to be moderate risk takers. Furthermore, those entrepreneurs who have a propensity for low or high levels of risk may tend to cease to be entrepreneurs at a greater rate than do those who have a propensity for moderate levels of risk. An additional source of error is introduced by certain difficulties already mentioned in using the data reported by Kogan and Wallach for comparison with data collected for this study.

Despite the limitations of this present study and the need for additional research, the finding that general risk taking propensity does not distinguish entrepreneurs from nonentrepreneurs, if confirmed by future research, would result in the revision of the importance of a variable that is widely accepted as an entrepreneurial characteristic.

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