Investment Risk: The Experts' Perspective

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Investment management requires managers and their clients to share a general definition of investment risk. Professional portfolio managers and individual investors also seem to share a common conception of investment risk. Specifically, investment risk, as well as risk in other decision domains, appears to be a function of four attributes: the potential for a large loss, the potential for a below-target return, the feeling of control, and the perceived level of knowledge. Based on a survey study, these risk factors explained approximately 77 percent of the variation in security returns between 1965 and 1990.

To assist clients with risk management, advisors must be aware of their clients' risk perceptions. Malkiel (1982) emphasized the practical importance of risk perceptions and measurement as follows:

> The quest for better risk measures is not simply an amusing exercise that accomplishes only the satisfaction of permitting academics to play with their computers. It has important implications for protecting investors. (p. 43)

Early empirical research, using utility-based models, suggested that risk might be measured by return distribution moments such as variance and skewness (Coombes and Bowen 1971, Cooley 1977). Recent studies suggest that the observed correlation between return distribution moments and risk perceptions is spurious and results from decision makers' focus on loss or the possibility of realizing a return below some "target" or "aspiration" level (Payne 1973; Laughhunn and Payne 1980; Shapira 1995). In addition, empirical evidence suggests that decision makers do not treat probabilities and outcomes in the multiplicative fashion assumed by most generalized utility models (Slovic 1967, Camerer 1994). Cognitive research shows that individuals, with their finite information-gathering and -processing capacities, rely heavily on heuristics to reduce the mental strain of decision making. Thus, individuals are subject to "framing effects," which may tend to focus their attention on idiosyncratic risk dimensions (Kahneman and Tversky 1992, March and Shapira 1992, Hogarth and Kunreuther 1995).

The purpose of this study is to see if it is possible to identify a common set of risk attributes that have market significance. The study is unique in that it relies upon survey data gathered from influential expert and knowledgeable novice investors responding in a natural setting.

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RISK AS AN EMERGENT PHENOMENON

Risk belongs to a class of phenomena that physical scientists refer to as "emergent." An emergent phenomenon has unique, measurable dimensions that only arise out of the unique complexity of a situation. For example, time is an emergent phenomenon. By itself, time, like all emergent phenomena, has no independent reality. A "time-measurement" dimension can arise, however, that is dependent upon specific circumstances. For example, if one is concerned with physical aging, time could be measured in chronological years, whereas if weather conditions are important, time might be measured by the passage of the seasons.

Lopes (1987) appears to have had this emergent concept in mind when she stated that risk measures must have "psychological fidelity." That is, risk must be defined and measured in a way that ties a stimulus to a particular behavior. More specifically, risk must be related to the loss of what one values. For example, if avoidance of being plunged into poverty is a primary consideration, risk might be related to the loss of a large amount of wealth. Alternatively, if the demonstration of superior investment ability is of value, risk might be associated with a portfolio return below that of one's colleagues.

RISK AS A MULTIDIMENSIONAL PHENOMENON

Dean and Thompson (1995) recently proposed a risk model continuum that takes into account not only risk's emergent nature but also its multidimensional nature. At one end of the continuum are the "probabilists," who see risk as a function of probabilities and consequences. At the other end are the "contextualists," who believe risk to be

characterized by a varying set of attributes, which may or may not include probabilities. Historically, most financial risk models have leaned toward the probabilist end of the continuum because of finance's close connection with the subjective expected utility (SEU) model of economics. Utility-based models are often referred to as psychophysical models because they do not emphasize cognition or motivation but principally deal with how people experience quantity.

Prospect theory (see Kahneman and Tversky 1992, Olsen 1995), a leading contender among descriptive models of financial choice, shares many attributes of the traditional SEU models and also gives weight to the cognitive limitations of human decision makers. Farther along the continuum toward the contextualist end lie the behavioral capital asset pricing model of Shefrin and Statman (1994), the two-factor model of Lopes (1987), the ambiguity model of Einhorn and Hogarth (1985), and the cost/effort model of Payne and Bettman (1993). The contextualist end of the risk model spec-

DATA: SOURCE AND METHOD

Data were gathered from samples of two investor groups who exert market influence. The first group consisted of professional portfolio managers who had responsibility for positioning institutional investment portfolios. This group was sampled through a series of surveys mailed to individuals selected at random from a directory of U.S.-based Chartered Financial Analysts® (CFA charterholders) who listed their occupation as portfolio manager or portfolio strategist. All responses were anonymous, and response rates exceeded the 25 percent that is typical of this type of survey research.

The second group consisted of wealthy individuals who took an active role in the management of their personal portfolios. This group was sampled by mail from a list of clients prepared by a major West Coast brokerage firm. The typical (median) respondent had a portfolio net worth of $285,000 (exclusive of residential real estate, pension, and life insurance), was 55 years of age, and

Table 1. Suggested Characteristics of Investment Risk

Characteristic Category	Percentage of Time Mentioned First by CFA Charterholders	Percentage of Time Mentioned First by Individuals
A large loss (loss of principal, large drop in price, large negative return, etc.)	22%	40%
Return below target (downward price fluctuation, cut in dividend, nonpayment of interest, etc.)	25	20
Business risk (beta, debt level, cost control, competitive position, industry type, etc.)	22	18
Liquidity (ability to sell quickly, degree of investor interest, volume, etc.)	15	8
Knowledge (amount, quality, and timeliness of information about firm)	7	10
Economic uncertainty (prospect for economy, the market, interest rates, etc.)	9	4

Note: The median number of attributes mentioned per respondent was three.

As can be seen, responses related to loss tend to dominate in importance. The first two categories accounted for 47 percent and 60 percent of all top rankings for CFA charterholders and individuals, respectively, and usually included some reference to an outcome that is below some target or reference level. In no case did any respondent refer to risk as being associated with an unexpectedly high return. These results, suggesting that decision makers are loss averse as opposed to risk averse, are consistent with other studies (see Olsen 1995 and Shapira 1995).

Both respondent groups ranked business risk as third in importance among risk attributes. CFA charterholders ranked liquidity and knowledge fourth and fifth in importance, and individuals ranked these attributes in the reverse order. The greater weight placed on liquidity by CFA charterholders is consistent with a greater desire for liquidity given the higher turnover of institutional portfolios. Individuals probably give greater weight to knowledge because they tend to be farther down the informational "food chain" and have more difficulty evaluating information because of their relatively lower level of expertise.

The business risk and economic uncertainty categories are actually sources of risk rather than risk attributes. In addition, liquidity, which is usually defined as the ability to sell an asset on short notice without appreciable loss, is an element of control. Thus, investment risk appears to be composed of four of the same attributes other researchers have found in investigating risk in other domains (Slovic 1987).

RISK ATTRIBUTES AS DETERMINANTS OF PERCEIVED RISK

The first survey suggested that investment risk is a multidimensional construct with four principal attributes. These include the possibility of a very large loss, the possibility of a below-target return, the ability to control loss, and the investor's level of knowledge. The objective of the second survey was to examine the degree to which each of these attributes influenced investors' perceptions of risk across selected asset types.

Table 2 presents partial correlation and regression coefficients between each risk attribute and the overall level of perceived risk across asset types. The data were obtained by asking respondents to rate each asset type as to level of perceived risk and the other four attributes, on Likert-type scales (see appendix). The statistics in Table 2 indicate that for both CFA charterholders and individuals, the ability to control loss is the most influential risk attribute. This attribute is followed by potential for a large loss, potential for a below-target return, and level of knowledge. Knowledge as a risk attribute is consistent with the implications of the "ambiguity and aversion" literature (Baron 1994).

For CFA charterholders, the coefficients of "potential for large loss" exceed those of individuals by a significant amount. As a group, the individuals in this study tended to hold more conservative portfolios (i.e., greater proportions of bonds, blue chip stocks, etc.). Therefore, individuals' lesser concern for large loss was probably the result of their lower downside exposure. Individuals saw the "ability to control loss" as a more important risk attribute than did CFA charterholders. This difference is probably a function of individuals' lesser ability to respond to sudden market changes, because they cannot monitor their investments as efficiently as can professionals.

The high R^2 in Table 2 implies that the four risk attributes model perceived investment risk well. In addition, the differences in the sizes of the attribute coefficients between CFA charterholders and individuals suggests that idiosyncratic investor characteristics influence risk perceptions.

Do individual asset characteristics influence risk attribute importance? Table 3 presents partial correlation coefficients between the four risk attributes and perceived risk levels, broken down by asset type. The assets are ranked in order of increasing perceived risk.

Table 2. Relation between Risk Attributes and Perceived Risk

	CFA Charterholders (N = 630)		Individuals (N = 740)	
Attribute	Partial Correlation	Regression Coefficient	Partial Correlation	Regression Coefficient
Knowledge	–0.10	–0.06	–0.05	–0.04
Potential for below-target return	0.18	0.14	0.24	0.18
Ability to control loss	–0.51	–0.49	–0.63	–0.64
Potential for large loss	0.41	0.33	0.29	0.19
Constant		–0.11		–0.13
R^2	0.80		0.83	

Note: All coefficients are significant at the 1 percent level.

Table 3. Partial Correlations between Risk Attributes and Perceived Risk by Asset Type

	Potential for Below-	Ability to	Potential for

Table 3. Partial Correlations between Risk Attributes and Perceived Risk by Asset Type

Asset Type	Potential for Below-Target Return	Ability to Control Loss	Potential for Large Loss	Knowledge
Debt assets				
Savings accounts	0.04	–0.38*	0.13	0.01
U.S. Treasury bonds	0.11	–0.51*	0.14	–0.03
High-grade corporate bonds	0.12	–0.62*	0.24*	–0.03
Junk bonds	0.22*	–0.37*	0.22*	–0.03
Equity assets				
Blue chip stocks	0.14*	–0.49*	0.24*	0.02
Over-the-counter stocks	0.23*	–0.36*	0.29*	–0.03
Real estate investment trusts	0.25*	–0.27*	0.47*	–0.04
Stock options	0.20*	–0.64*	0.43*	–0.06
Mean	0.21	–0.44	0.36	0.04
Nonfinancial assets				
Residential rentals	0.29*	–0.30*	0.38*	–0.05
Gold bullion	0.14*	–0.49*	0.25*	0.02

*Significant at the 5 percent level or better.

Notes: N = 137 for each correlation. CFA charterholder and investor responses were combined to provide an adequate sample size.

The four investment risk attributes are similar to those identified in risk studies in other domains. Also, the dominant role of the feeling of control as a risk attribute is consistent with other studies of professional risk taking. In fact, studies of managerial behavior suggest that managers see their personal ability to control or eliminate risk as one of their principal skills (MacCrimmon and Wehrung 1986, Shapira 1995).

APPENDIX

Survey respondents were asked to rate 10 asset classes, on a seven-point scale, along the following dimensions:

- Overall, how risky is each of the following investments?
- How likely is it that each of the following investments will earn a return below what you expect (your target)?
- How knowledgeable do you feel about each of the investments listed below?
- When a loss does occur with an investment listed below, how likely is it that the loss will be very large in relation to the amount of money invested?
- When a loss does occur, how difficult is it by using your skill and diligence to control (limit) the size of the loss in each investment listed below?

Because respondents could not be expected to be familiar with individual issuers of financial assets, the previous questions were asked about the following general asset types: insured savings accounts, long-term U.S. Treasury bonds, long-term high-grade corporate bonds, junk bonds, blue chip stocks, over-the-counter stocks, real estate investment trust shares, stock options, residential rental real estate, and gold bullion. Asset order was randomized among questionnaires to avoid order bias.

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