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Personality and Risk Taking

There is a long-standing and persistent belief that risk taking is a stable personality trait, often referred to as risk attitude. The belief implies that a given individual will take similar risks across a range of situations and that some people will be more risk-averse (or more risk-seeking) across situations than others. The article reviews different definitions of risk attitude that show cross-situational consistency to varying degrees. Sect. 1 shows that risk attitude defined within the expected utility (EU) framework varies greatly across situations as a function of decision content and outcome framing. Sect. 2 describes a more promising conceptualization of risk taking, within a risk–value framework. It models risk taking as a function of (a) decision makers' perception of the riskiness and value or return of different courses of action, and (b) their attitude towards perceived risk, i.e., their willingness to trade off (perceived) risk for return. Two individuals might differ in their recreational pursuits, for example, either because they assess the relative risks of skydiving, bungee jumping, and playing poker very differently (based on past experience, person A may perceive playing poker to be riskier than skydiving and thus choose to go skydiving out of risk aversion—a negative attitude toward risk, while person B may perceive playing poker as the less risky option and engage in it, also out of risk aversion) or, whether their risk perceptions agree or not, because they have different attitudes toward risk as they see it (with person C and D agreeing on the greater risk posed by skydiving, but person C being attracted by this risk and thus taking it on, and person D being repelled by it and thus choosing to play poker instead).

When modeled within this framework (as described in Sect. 3), situational differences in risk taking turn out to result from differences in the perception of risk in different situations rather than differences in willingness to take on (perceived) risk, thus restoring credibility to the notion of attitude towards perceived risk (PRA) as a stable trait. Individual differences in PRA exist, but are smaller and less systematic than individual and group differences in risk perception. While the determinants of risk perception are relatively well known at this point (see *Risk: Empirical Studies on Decision and Choice*; *Risk: Theories of Decision and Choice*) not much is known about the determinants of PRA. Personality differences in variables known to be related to risk taking seem to have their effect via differences in risk perception, as described in Sect. 4.

1. *Domain and Framing Effects on Risk Taking*

In the EU framework, the dominant normative model of risky decision making, the term 'risk taking' is used to characterize choice patterns. Choice of a sure outcome over a lottery with equal expected value is modeled by a concave utility function and described as risk-averse; choice of the lottery is modeled by a convex utility function and described as risk-seeking. Despite the fact that risk taking simply describes the curvature of the utility function that is derived from a series of choices, 'those who coined the term *risk aversion* had in mind the psychological interpretation that someone who prefers the expected value of a gamble over playing the gamble *does not like to take risks*' (von Winterfeldt and Edwards 1986, p. 256). Popular as well as managerial folklore tends to interpret risk taking as a personality trait.

Bromiley and Curley (1992) review the evidence for risk taking as a personality trait, i.e., as a preference for risk that is stable across situations, and find it lacking. Risk taking seems to be influenced jointly by the situation and characteristics of the decision maker. Decision domains in which the same person often shows different degrees of risk taking include games of chance/gambling, financial investing, business decisions, health decisions, recreational choices, social choices, and ethical decisions (MacCrimmon and Wehrung 1986, Weber et al. 2000).

Modeling risk taking within EU theory and defining risk attitude as the curvature of a utility function thus is clearly problematic for the notion of risk attitude as a personality trait. Attempts to restore cross-situational consistency to the construct of risk attitude by factoring differences in marginal value (e.g., the incremental value of an additional dollar or an additional life saved) out of the utility function (see *Risk: Theories of Decision and Choice*) were not successful (Keller 1985, Weber and Milliman 1997).

Prospect theory (Kahneman and Tversky 1979) generalizes EU by postulating different utility functions for outcomes that are framed as gains as opposed to losses. When outcomes are framed as gains, choices tend to be risk-averse; when the same outcomes are framed as losses (relative to a higher reference point), choices tend to be risk-seeking, further complicating the interpretation of risk taking in the EU sense as a stable trait.

2. *Risk Taking and Risk Perception*

In the risk–value framework (see *Risk: Theories of Decision and Choice*), risk taking is a compromise between greed (value) and fear (risk). Risk–value

models in finance equate 'value' with the expected value of a risky option and 'risk' with its variance. Generalized risk–value models allow for a broader range of risk measures. *Risk: Empirical Studies on Decision and Choice* reviews evidence that risk is perceived differently by different individuals, cultures, or subcultures. Situational differences such as outcome framing also result in different risk perception (Mellers et al. 1997). As a result, apparent differences in risk taking may be the result of differences in the perception of the riskiness of the choice options, and not of differences in attitude towards (perceived) risk. Cooper et al. (1988) report, for example, that—contrary to managerial folklore—the characteristic that differentiates entrepreneurs from other managers is not a more positive attitude towards risk, but instead an overly optimistic perception of the risks involved. For an outside observer who perceives risk more realistically, entrepreneurs will thus appear to take great risks. However, when differences in risk perception are factored out, entrepreneurs—just as other managers—demonstrate a preference for tasks that they see as only moderate in risk (Brockhaus 1982).

3. *Perceived-risk Attitude as a Stable Trait*

PRA is a measure of the degree to which individuals find perceived risk attractive (or unattractive) and therefore will choose alternatives that carry greater (or less) risk, all other things being equal. Weber and Milliman (1997) examined its cross-situational consistency by asking commuters to choose between pairs of trains that had risky arrival times (that depended on making a connection that had a stated probability) and to judge which of the two trains was the riskier one. The two trains in each pair had arrival times with equal expected value but different variance. Some pairs of trains had only positive arrival times (faster or equal to current travel times), others had only negative arrival times (slower or equal to the status quo). There was little consistency in people's risk taking across the gain and the loss domain when risk taking was defined in the EU sense. Few commuters had preferences that resulted in utility functions that were either both risk-seeking (convex) or both risk-averse (concave). However, consistency across the two domains was very high when PRAs were compared. The majority of commuters were risk-averse in both domains, i.e., consistently chose the train in a given pair that they had judged to be the less risky of the two.

In another study, MBA students participated in two sessions of an investment game where they had to pick one of six stocks (described by standard financial indicators) in each of 10 investment periods, and had to rate the riskiness of the stocks at different points throughout each session (Weber and Milliman 1997). In one session, participants lost money in most of the 10 periods, whereas in the other session they mostly made money. Choices were very different across sessions (with more switching between stocks in the failure session), as were the ratings of the riskiness of the six stocks. However, over 80 percent of investors had the same PRA in both sessions, with three-quarters consistently investing in stocks that they perceived to be less risky and one-quarter consistently investing in stocks that they perceived to be more risky.

In a cross-national study, Weber and Hsee (1998) obtained risk judgments as well as minimum buying prices for risky financial investment options from respondents in the USA, Germany, the People's Republic of China, and Poland. Both risk judgments and buying prices showed significant cross-national differences, with Americans perceiving the most risk and Chinese paying the highest prices. However, after differences in risk perception were taken into consideration, the proportion of individuals who were perceived risk-averse or perceived risk-seeking were not significantly different in the four countries, with the majority again being perceived risk-averse, and only a small percentage in each country being perceived risk-seeking.

4. *Personality, Risk Perception, and Perceived-risk Attitude*

Some psychologists have questioned the assumption of finance models that people will and should strive to minimize risk, arguing instead that people's ideal point for risk or uncertainty could differ, either as a personality difference (Lopes 1987) or as a situational difference (Weber and Kirsner 1997). Ideal-point models (Coombs 1975) assume a person will perceive the riskiness of an alternative as the deviation between the alternative's level of uncertainty or unpredictability and the person's ideal point on the uncertainty continuum. Perceived risk of an alternative with a high objective level of uncertainty would be high for a person with a low ideal point, but low for a person with a high ideal point. Individual differences in ideal points for risk and uncertainty have been measured by the construct of sensation seeking (Zuckerman 1979), which seem to have some biological basis (Zuckerman et al. 1988) and vary with age and gender (see *Sensation Seeking: Behavioral Expressions and Biosocial Bases*). Bromiley and Curley (1992) report evidence linking sensation seeking to behavioral correlates that include greater risk taking, especially in the health/safety and recreational domain. Weber et al. (2000) also report high positive correlations between sensation seeking and its subscales in several content domains, with especially high correlations between the thrill-and-adventure-seeking subscale and recreational risk

taking and the disinhibition subscale and ethical risk taking. Consistent with the predictions of ideal-point models, the path by which differences in sensation seeking seem to affect risk taking appears to be differences in the perceptions of risk, rather than differences in attitude towards perceived risk. In other words, groups known for high levels of sensation seeking (e.g., teenage boys) seem to take large risks because they perceive the levels of risk to be smaller than other groups, and not because they cherish (perceived) risk to a greater extent.

5. *Summary, Caveats, and Future Directions*

The current research consensus suggests an interactional model of risk taking (e.g., Sitkin and Weingart 1995) in which situational characteristics as well as person-centered characteristics jointly influence risk taking. Situational constraints include the content domain of the risky decision as well as contextual variables such as outcome framing and aspiration levels (Lopes 1987). Person-centered characteristics include age, gender, culture, and personality. These variables influence risk taking mostly by changing people's perception of the riskiness of decision alternatives, rather than by affecting their willingness to take on more or less risk.

Because of the domain specificity of risk taking, measures of risk attitude that employ choice situations across a range of content domains (e.g., the Choice Dilemmas Questionnaire of Kogan and Wallach 1964) have little predictive validity. Domain-specific scales of risk taking, that help to diagnose apparent differences in risk taking into differences in either risk perception and/or PRA have recently developed (Weber et al. 2000). Future research will provide additional insights into the complex interactions between personality and situation that have been explored for a range of other traits (Mischel 1999) with respect to risk taking. A combination of task analysis and theory about the reasons for risk taking and its cognitive and emotional constraints should lead to the development of gender-, culture-, and domain-specific risk taking profiles, that predict level of risk taking in a situation- and person-contingent fashion.

See also: Personality Psychology; Risk: Empirical Studies on Decision and Choice; Risk: Theories of Decision and Choice; Sensation Seeking: Behavioral Expressions and Biosocial Bases

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Personality and Social Behavior

The link between personality and social behavior can be approached in two ways. The first question is to what extent social behavior is caused by personality