Is Risk Tolerance a General Trait or Is It Domain Specific?

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Risk does not exist in a vacuum. It always occurs in some type of context. For instance, depending on the circumstances, people take some degree of risk when engaging in behaviors such as eating, driving, changing jobs, asking for a date, filing tax returns, and investing. Researchers have classified these contexts for risk taking in a variety of ways into more limited categories, calling these narrower constructs the “domains” of risk. These classifications are typically made on the basis of how similar people’s behaviors are in various situations, using statistical procedures such as factor analysis to analyze the data. The primary difference between these classifications lies in how narrowly or broadly one “slices the pie.” Notably, all classification schemes include a financial dimension.

The Domains of Risk

A prominent group of researchers (Weber, Blais, & Betz, 2002) determined that most contexts for risk taking fall into five domains: (a) ethical, (b) financial, (c) health/safety, (d) social, and (e) recreational. Examples of behaviors subsumed under each domain are as follows "Passing off somebody else’s work as your own" (Ethical), "Investing 5% of your annual income in a very speculative stock." (Financial), "Eating high cholesterol foods" (Health/Safety), "Disagreeing with an authority figure on a major issue" (Social), and "Bungee-jumping off a tall bridge" (Recreational). According to another similar classification (Nicholson, Soane, Fenton-O’Creevy, & Willman, 2006) there exists a sixth domain: career risk.

A more parsimonious scheme consists of the following four-fold classification: (a) physical, (b) social, (c) ethical, and (d) monetary (Jackson, Hournay, & Vidmar, 1972). Physical risks can result in bodily harm (e.g. scuba diving, rock climbing). Social risks can lead to a loss of self-esteem or the respect of another (e.g. public speaking, criticizing a colleague). Ethical risks exist when one faces the possibility of compromising one’s moral, religious, or legal standards with the possibility of penalties if caught (e.g. using pirated software, having an extramarital affair). Monetary risks pose the danger of losing money (e.g. poor investments, job change, gambling). These four contexts for risk can be described, based on their consequences, as the potential loss of life (physical), face (social), freedom (ethical), and capital (monetary). However, there may be merit to splitting the physical domain into two more specific dimensions, based on whether the physical harm arising out of taking the risk is immediate (accidents) or chronic (illness) (Rohrmann, 2005).

Consistency in Risk Taking Across Domains

An ongoing debate among researchers into risk tolerance is the degree of consistency in the amount of risk an individual is willing to accept in the different domains of risk. For example, will someone who bungee jumps also necessarily prefer high risk investments? One can find many investigations supporting the notion that there is little consistency across domains, which means that one can find many people who enjoy bungee jumping (physical domain) but dislike risky equities (monetary domain) because the appetite for risk in these two situations is unrelated (Bromiley & Curley, 1992; Corter & Chen, 2006; Figner & Weber, 2011; Haednoch, Johnson, &
Yet there also exist numerous other studies showing high consistency in risk taking across domains (Abay & Mannering, 2016; Barsky, Juster, Kimball, & Shapiro, 1997; Dohmen, et al., 2011; Einav, Finkelstein, Pascu, & Cullen, 2016; Eysenck & Eysenck, 1978; Falk, Dohmen, Falk, & Huffman, 2015; Grable & Rabbani, 2014; Szrek, Chao, Ramlagan, & Peltzer, 2012), particularly when adjustments are made for unreliability (Beauchamp, Cesarini, & Johannesson, 2017).

A General Risk-Taking Trait

When the inter-correlations in degree of risk tolerance among different risk domains are high, this suggests that the presence of an underlying general risk-taking trait, and indeed factor analytic procedures have been able to extract such a factor. This means that scores on the global factor, and even single items self-ratings of overall risk-taking propensity, can be predictive of risky behavior across different domains of risk taking (Dohmen, et al., 2011; Szrek, Chao, Ramlagan, & Peltzer, 2012). A number of investigators have reported that a single-item global self-rating of overall willingness to take risks (no context specified) correlated with domain-specific risk taking: smoking, alcohol consumption, investment choices, active sports participation, and entrepreneurship (Dohmen et al., 2011; Falk, et al, 2015; Beauchamp, et al, 2015). But even though the predictions of risky behavior on the basis of general risk taking proclivity are statistically significant, the extent to which it explains differences in actual risk-taking behavior among people is not large, explaining only a small fraction of the differences in risky behaviors (e.g., Barsky et al., 1997).

Genetic Underpinnings for Risk Taking

Earlier this year, a major new finding regarding the generality versus specificity of risk tolerance was reported, which has received considerable attention because of the number of people involved in the research (over one million) and because this study looked at the genetic underpinnings of risk behaviors (Karlsson Linner, Biroli, Kong et al., 2019). Variations across the entire genomes of the sample were examined to see whether any specific areas of the genome are associated with risk tolerance (an approach called genome-wide association studies or GWAS). It provides genetic evidence supporting the existence of a general risk tolerance attitude. The study participants were asked two global questions: their self-reported “general risk tolerance” (i.e., willingness to take risk without a context being specified) and their “adventurousness” (whether they would describe themselves as either adventurous or cautious). In addition, the study participants had to answer questions about their engagement in four risky behaviors: driving faster than the speed limit, number of alcoholic drinks consumed per week, whether they ever smoked, and their lifetime number of sexual partners. A first principal component was then extracted from these four behaviors, which the researchers consider to also reflect a general tendency to take risks across different situations (general risk tolerance).

Shared genetic influences were found across the seven variables (i.e. three measures of general risk tolerance and extent of risky behavior in four activities: driving, drinking, smoking, and sex). Specifically, the researchers found 124 sectors (called SNPs) of the genome to be associated with
general risk tolerance. Furthermore, 72 of the 124 sectors were associated with at least one of the amount of risk people assumed in the four risky behaviors. The degree of difference among people in general risk tolerance attributable to any single genetic variation in these 124 sectors explains only 0.02% of the variation in risk tolerance among people, but this increases to 1.6% when all relevant sectors are considered together. Given the small percentage, obviously one’s environment must also shape the willingness to take risks. Risk tolerance is influenced by both “nature and nurture.”

Implications for Advisors

So how are financial advisors supposed to act on this new information that further corroborates that people possess a genetically based proclivity to take (or not take) risk in various contexts? It is tempting to conclude that instead of measuring financial risk tolerance, one can identify a client for whom a high risk portfolio is appropriate by determining whether he or she speeds, smokes, drinks, and is promiscuous. Or perhaps conduct the assessment by just asking the client how much of an overall risk taker he or she is. However, that should not be the takeaway from this study. The existence of a general risk tolerance factor does not mean that financial risk tolerance need not be assessed (Grable, 2014). Recommendations still need to be made on the basis of financial risk tolerance rather than general risk tolerance for a number of reasons.

First, not all research points to the existence of a general risk tolerance across contexts. Second, people vary in their ability to assess themselves on global personality characteristics; some are very good at it and some are very bad on this type of task (Grable & Roszkowski, 2007; John & Robins, 1994; Vazire, 2010; Vazire & Mehl, 2008). Third, while a genetically-based general risk tolerance predisposition may guide a person to take similar risks across contexts, it is far less likely that the individual will display exactly the same degree of risk in all life situations. Past experience and other environmental circumstances shape how one reacts to risk in a particular situation, hence some differences among risk domains should be expected. Whether one takes a particular risk depends not only on the general risk tolerance of the person, but also on how much risk he or she perceives in a particular situation (Blais & Weber, 2006; Figner & Weber, 2011).

It is noteworthy that the recent genome study (Karlsson Linner, Biroli, Kong et al., 2019) found the correlations between general risk tolerance and the domain-specific risk tolerance to be larger at the genetic level than the phenotypic (actual observed) level, which shows the impact of environmental factors. One important environmental factor is whether the person has experienced negative consequences from taking a risk. Negative experiences have a stronger effect on one’s psyche than positive experiences, and it may take decades to desensitize from a bad investment (Bonaparte, 2017). Frequently it is only after experiencing a risk that people come to appreciate the real extent of it in a given situation (McKenna & Albery, 2001; Parry, Miles, Tridente, & Palmer, 2004). Other factors impacting on an individual’s risk tolerance in a particular situation include familiarity and perceived controllability. The more familiar and controllable is the risk, the more willing is the individual to undertake the risk (and vice-versa) (Weber, 2010).

It is possible that two individuals with the same exact general risk tolerance will have different financial risk tolerances because the one person perceives more risk in financial matters than the other individual due to their past experiences with investments, and therefore the two individuals will differ in their financial risk tolerance. Conceivably, general risk tolerance is inborn (“nature”)
whereas the environment ("nurture") shapes how that genetic risk-taking proclivity will be expressed in a specific risk-taking context, but research is needed to further explore this hypothesis. In other words, both a general and domain specific propensities to accept risk are likely to play a role in a risky decision, although large swings are less likely if a strong general factor is operating. Research dating back to the 1980s (MacCrimmon & Wehrung, 1986) showed that differences exist between people in the degree to which they are consistent across different aspects of risk tolerance, and even within a particular domain (Hartnett, Gerrans, & Faff, 2019; Roszkowski, Delaney, Cordell, 2009).

Assessment of general risk tolerance may provide an insight into our genetic (nature) predisposition whereas a domain specific assessment can refine it by also capturing tendencies influenced by the environment (nurture). It is an axiom of prediction, that the closer the alignment (greater similarity) between predictor and criterion, the better the prediction will be. Specific attitudes are likely to predict similar specific behaviors, whereas general attitudes will best predict general behaviors (Ajzen & Fishbein, 1977; Davidson & Jaccard, 1979; Jaccard, King, & Pomazal, 1977). If one’s purpose is to predict how a person will act on average in numerous risky situations, then relying on a general risk tolerance measure may make sense. But if one wants to predict behavior in a particular domain of risk, then more specific measures are called for (Meertens & Lion, 2008). On this basis, one would expect measures of financial risk tolerance (a specific) to be a better predictors of investing behavior (a specific) than would a global risk tolerance question (a general). Since the financial advisor needs to be as precise as possible in determining whether the investment is suitable for the client in terms of financial risk tolerance, it is advisable to focus on financial risk tolerance.

In a number of studies (including the recent genome study of risk tolerance), the general risk tolerance is measured by a single item. Single items of this type have been worded in a number of ways, such as “Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?” and “Would you describe yourself as someone who takes risks?” Single items scales can be questioned on a number of grounds (Churchill, 1979; Nunnally & Bernstein, 1994; Roszkowski, Davey, & Grable, 2005). First, people’s impressions of their overall risk-taking tendencies are driven primarily by their physical risk taking and not financial risk taking (Rohrmann, 2005). Second, single item measures are notoriously unreliable (although exceptions to the rule do exist). This is because any test item is subject to measurement error. In some cases, the item underestimates the characteristic of interest, whereas in other instances, it overestimates the characteristic. When multiple items are used to measure a characteristic, errors of underestimation and overestimation are likely to cancel each other out when the items are summed into a total score or are averaged. Obviously, that is not possible with just a single item. All other things being equal, the greater the number of items used to measure a characteristic, the higher will be the reliability of the score. Third, single items may not be sensitive enough to capture differences between people because they do not allow for a fine discrimination between degrees of risk tolerance, especially if only a yes or no answer is permitted. Lastly, the characteristic may be too complex to be measured with just one item.

Conclusion

So, is risk tolerance a general trait or is it domain specific? Neither extreme position is tenable. Most likely, it is both. One can have a general factor as well as specific factors operating. The
challenge facing researchers is to develop a theoretical framework that includes both general and context specific risk tolerance and how the two interplay in a risky decision. Nothing in the debate about whether risk tolerance is a general or a domain specific characteristic relieves the financial advisor from assessing the client’s financial risk tolerance. After finding support for a general risk tolerance trait in their study, John Grable and Abed Rabbani (2014, p. 181) conclude in their article with the following admonition: “…financial counselors and planners are cautioned to note that findings do not suggest that these other risk indicators should be used as a substitute for financial risk tolerance when making financial recommendations. The correlation coefficients, while positive, were only of modest effect size. Practitioners are encouraged to use specifically designed measures of financial risk tolerance whenever developing portfolios or in calculations that require specific information about a person’s willingness to take financial risk. This is not only prudent, but it may be a legal requirement as well …”. Assessment of general risk taking can serve as a supplement rather than a substitute for financial risk tolerance.
References


