

Using Psychometrics to Assess Risk Tolerance

By Geoff Davey

Financial planners have a professional, ethical, and legal obligation to assess their clients' risk tolerance; yet, when we seek advice on how to measure risk tolerance, the answers are almost always drawn from finance and economics instead of psychology.

Psychologists have investigated risk tolerance for more than 50 years. Based on a large body of knowledge and many studies, psychology tells us that risk tolerance is an aspect of personality. It is a psychological trait, or a relatively enduring way one person differs from another.

An individual's risk tolerance influences the amount of risk he or she wants to take, something CPA financial planners need to know to guide and counsel their clients. However, assessing a psychological trait such as risk tolerance is not easy. Fortunately, a scientific discipline known as "psychometrics" can help us do this.

Psychometrics and Trials

Psychometrics, a blend of psychology and statistics, provides a discipline for developing valid and reliable tests and standards against which the bona fides of a test can be evaluated.

To meet psychometric standards, a test must go through rigorous development. In *usability trials*, questions are created and tested on representative samples of the intended population to see if the audience can understand and answer the questions.

Industry-standard risk questionnaires typically include questions that would fail usability trials. For example, in questions about rates of return, the more informed will want to know if the rates are before or after inflation, and any mention of "after inflation" in a returns' question is too difficult for most respondents.

The goal is to have a valid questionnaire. Having questions with high usability means the planner does not need to be involved in explaining the questions. The questionnaire also can be completed at the client's convenience. In fact, the planner should not be involved at all in explaining questions in order to avoid biasing the results.

Next, in *norming trials*, the questions are tested on further representative samples using statistical criteria. The results are examined to determine if the statistical characteristics of the questions and the scoring algorithm make sense. Questions that, at first, appear insightful are often revealed to have little or no statistical value in differentiating one respondent from another. Typically, question development requires multiple loops through both trial processes.

Tests Must Be Valid and Reliable

In psychometric terms, a *valid test* measures what it claims to measure and a *reliable test* measures consistently with known accuracy. The critical aspects of validity are content validity and criterion-related validity.

If a test's content is valid, the questions are seen to be very relevant by those with expertise in the field. In a risk tolerance test, the questions address attitudes, values, preferences, and decisions involving financial risk. In addition to questions that would fail usability trials, industry-standard risk questionnaires also include irrelevant questions relating to time horizon, stage of life, investment experience, and other areas. Although

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Risk Tolerance Resources

This article is the second in a series of articles on risk tolerance. The first article appeared in the *July/August Planner* and covered the interaction between risk required, risk capacity, and risk tolerance.

Geoff Davey has several examples of a valid risk tolerance questionnaire on www.riskprofiling.com. In addition, a recording of his spring seminar, *Best Practice Risk Profiling* is available to PFP Section members, along with presentation materials. Section members may register for a *free 30-day trial* of the FinaMetrica system and are eligible for a 10% discount.

these are matters a planner should explore, they are not germane to risk tolerance and including them in a risk tolerance questionnaire will cause an invalid result.

For criterion-related validity, respondents' behavior must be consistent with the strength of the psychological trait. With risk tolerance, the criterion would be actual behavior reflecting risk-taking propensity, for example, the percentage of stocks owned within a portfolio. If the criterion is collected at the same time the test is administered, it is called *concurrent* validity. If it does not materialize until some later time, it is called *predictive* validity.

Let's now look at reliability. The score on any test consists of two parts, a true score and an error (test score = true score \pm error of measurement). All tests have some margin of error, so it is a matter of degree. Reliability can be considered as the correlation of the true score to the test score. In other words, reliability tells us what percentage of the test is nonerror.

If the error component is large, then the test is unreliable and will fail to give consistent results from one testing to the next, even if the client's risk tolerance has not changed. The error generally comes from sources in the test itself, such as ambiguous wording. With everything else being equal, the more questions asked, the more reliable the test becomes. For satisfactory reliability, the correlation should be .8 or greater. For industry-standard risk questionnaires, the correlation is typically \sim .4, which leads to gross errors.

Psychologists divide behavior into cognitive (intellectual) and affective (emotional) domains. Risk tolerance falls into the affective domain. Years of research shows it takes typically more than 20 questions to reliably assess affective traits than cognitive ones.

What Will Clients Think?

Although clients need no persuading that it is important for planners to have an accurate understanding of their risk tolerance, they may need some encouragement:

- Surveys of respondents show they consider it a worthwhile exercise, which leads to a better understanding of themselves (and, in couples, to one another) in relation to financial risk.
- A valid, reliable, 20-question psychometrically designed test will really only take about 15 minutes to complete.
- A psychometric risk tolerance test should be a bright spot in the otherwise somewhat burdensome initial fact-finding experience.

"Know the client" has always been a cornerstone of financial planning. Knowing the client's risk tolerance is an essential component of that obligation, and even more so in a fiduciary environment. Although it might seem unconventional, a psychometric test ensures that a valid, reliable, and accurate assessment is made, allowing the planner to provide more informed advice and service.

In the next article in this series, the shortcomings of industry-standard approaches to assessing risk tolerance will be examined. For the present, independent studies show planners who use an industry-standard approach make disturbingly inaccurate estimates of their clients' risk tolerance. The errors are so large that planners would be more accurate if they made no attempt at all to assess a client's risk tolerance and simply assumed everyone was average. ■