Getting Risk Right

By Geoff Davey

As Daniel Kahneman says, client and advisor share a common objective: Neither wants the relationship to end unhappily.

An unhappy ending most commonly occurs when client and advisor discover in a bear market that they got risk wrong—that the client was overexposed to risk and didn’t understand the risks being taken. Possible causes include the following:

- too much greed and too little fear
- the advisor being much more risk tolerant than the client
- risk capacity being mistaken for risk tolerance
- risk capacity and risk tolerance being conflated
- an unreliable risk tolerance assessment technique
- the advisor not understanding the risks in the strategies being recommended
- the risks not being well-explained and understood, and therefore the client is incapable of giving properly informed consent

Getting risk right lays the foundation for a productive long-term relationship built on trust and an in-depth understanding of the client.

Both advisor and client benefit when the risks in the client’s investment strategy are appropriate given the client’s circumstances, aspirations, and preferences, and those risks are understood and accepted. With sound process, robust tools, and advisor skills, this is an achievable objective.

Risk Profiling

Getting risk right starts with the risk profiling process, which has three steps:

1. Determine the target asset allocation—the asset allocation that will achieve the client’s goals with the desired likelihood.
2. Compare the risk in that asset allocation to the client’s risk tolerance and, in the case of a couple acting jointly, to the risk tolerance of each.
3. If there is a risk tolerance mismatch, which there usually is, particularly with couples, guide the client through the trade-off decisions needed to resolve the mismatch.

The client’s risk profile is the level of risk in the asset allocation that results from the process described.

It can help to talk with clients about their risk profiles as combining consideration of (1) risk required, or the risk associated with the return required to achieve goals; (2) risk capacity, or the level of risk they can afford without danger that plans will be derailed by worse-than-expected outcomes; and (3) risk tolerance, or the psychological willingness to take risk (see figure 1).

Risk capacity can be easily misunderstood and confused with risk tolerance. Investors with modest goals for their financial resources and no near-term need to draw on their investments have high risk capacity. A near-term disaster won’t jeopardize their goals. Investors with ambitious goals for their resources and immediate needs to draw on their investments have low risk capacity. A near-term disaster will definitely put their goals at risk.

Risk Required and Risk Capacity

A client’s investment strategy is driven primarily by goals, so the first step in risk profiling is to determine whether a sound investment strategy exists that can be expected to achieve the client’s goals with the resources and time horizons available. This is a number-crunching exercise accomplished with modeling software. It will involve some form of stress testing to ensure that the strategy can withstand negative events with a desired likelihood.

If the numbers suggest that an unrealistically high return is required, e.g., inflation...
plus 20 percent, trade-off decisions will be required. The client will need to consider some combination of the following:

- easing goals—reducing, delaying, or possibly forgoing the less important
- increasing resources—increasing income, reducing expenses, or converting personal use assets to investment assets

The outcome of the first step in risk profiling is a target asset allocation. The next step is to compare the risk in this target asset allocation with the client’s risk tolerance.

Risk Tolerance
An advisor will have completed an assessment of the client’s risk tolerance before starting the risk profiling process as part of know-the-client. Risk tolerance is a psychological trait—a relatively enduring way one individual differs from another (Weber et al. 2002). The five risk tolerance domains are physical, social, ethical, health, and financial. People behave consistently within domains but, by and large, not across domains. A physical risk taker may or may not be a financial risk taker. For the balance of this article a reference to risk tolerance should be understood as a reference to financial risk tolerance.

Risk tolerance represents an individual’s general willingness to take risk, and it will guide individual behavior in any risky situation.

Risk tolerance, like other aspects of personality, is a function of genetics and life experiences and is more or less settled by early adulthood. Average risk tolerance decreases slowly with age and males are, on average, significantly more risk tolerant than females, but other demographic correlations are weak. Like personality as a whole, risk tolerance may be changed by major life events, good or bad.

It is a common misconception that risk tolerance fluctuates markedly as markets rise and fall. We do see changes in investor behavior from boom to bust, but these changes are a function of much more than risk tolerance. Investors’ goals, their perceptions about market risk, the alternatives available and the riskiness of those alternatives, and their risk capacity, all play a part in decision making. The better studies show that risk tolerance is stable over time.1 Risk perception is influenced by markets. Risk is underestimated in bull markets and overestimated in bear markets. In the absence of other information, changes in behavior are best attributed to changes in risk perception. On examination, studies that show risk tolerance rising and falling can be seen to be measuring risk perception, not risk tolerance.

The stability of risk tolerance is good news for advisors. If clients’ risk tolerance collapsed when markets collapsed, advisors would struggle to persuade against a panicked sale. However, advisors can influence clients’ perceptions of risk through sound education about the performance of markets and portfolios. Nobody enjoys seeing the value of their investments fall, but if what is happening is within the client’s range of expectations, the client’s reaction will be far different than if the fall is totally unexpected. Clients’ situations and aspirations change as their lives evolve and can be influenced by external events, but their risk tolerance is more or less a constant.

Assessing Risk Tolerance
Assessing risk tolerance is not easy. Fortunately psychology provides a large body of knowledge about testing procedures and methodologies for developing assessment tools and standards against which these tools can be evaluated (Roszkowski et al. 2005). Psychometrics, a blend of psychology and statistics, is the discipline for constructing a risk tolerance test. Psychometrics is focused on obtaining a valid and reliable test score, where valid means that you are testing what you think you are testing and reliable means that repeated tests for the same individual produce consistent scores.

The established psychometric process involves usability and norming trials, a range of statistical techniques to analyze trial results, and internationally accepted standards against which a test can be evaluated for validity and reliability. It is standard practice for a test publisher to provide a technical manual that details the trials and the analysis that supports validity and reliability. However, the psychometric details are not evident to those taking the test. The questionnaire and the report should be in plain English and jargon-free.

The questionnaire results are an objective starting point for the all-important risk discussion. We know from psychology that the best assessments result from a good test leading into an interview. For advisors, discussing the test results and financial risk generally is a great way to start building an in-depth understanding of the client and that leads to better client relationships and greater client trust.

The report must facilitate this conversation. A risk tolerance score will tell you how an individual compares to others—more or less risk tolerant than X percent—and the report should be a fertile source of talking points. If the test only produces a score or a score with very little explanation of what it means, the conversation is going to be severely restricted.

Ideally, the scoring scale should be segmented statistically so that it is possible to categorize a score as belonging to a particular range, like clothing sizes. Each grouping of scores should have a description of the attitudes, values, motivations, experiences, and preferences of those who fall within that range. The description should be more informative and evidence-based than the cryptic clichés that industry-standard questionnaires produce, e.g., a cautious investor is primarily concerned with conserving capital and is willing to accept a lower return in order to ensure the safety of his or her investment.

Of course, each client is an individual and each will answer some questions differently from others in the same group. Exploring these differences leads to a rich conversation about risk. Exploring differences is also important for the integrity of the assessment. We are all inconsistent to a greater or lesser extent and this inconsistency will show up in how we answer the questionnaire. Some inconsistencies are material and some are not.

Imagine a client with a score well above average but who also says in answer to a
particular question that any fall in the value of her investments would make her feel uncomfortable. On this particular aspect, the client is choosing a far less-risky option than would typically be chosen by people with similar scores. This is a material difference that should be explored by the advisor in discussion with the client. It is quite likely that client and advisor will agree to use a lower score for investment decision making. This is an example of the test results not being the endpoint in the assessment process but rather objective input into the discussion that results in the final assessment.

In particular, couples find that seeing where they are similar and where they are different generates healthy, informed conversation around issues that can otherwise be challenging.

Risk Tolerance and Portfolio Risk

The second step in the risk profiling process is to compare the client’s risk tolerance to the risk in the target asset allocation. How can this be done when we are dealing with two quite different constructs? How can an advisor do an apples-to-apples comparison? Does average risk tolerance correspond with average portfolio risk? What does average portfolio risk actually mean?

To find a way of mapping the vagaries of human nature to the uncertainty of investment markets is quite a challenge. The only way we at FinaMetrica can see how to do this objectively is through comparing how clients typically answer the quantitative questions in our risk questionnaire with the parameters of portfolio construction. The details of the analysis are beyond the scope of this article, but we can provide a somewhat simplified summary.

Using the answers to our preferred portfolio question from a sample of nearly 80,000 completed risk tolerance tests, we were able to establish a correlation between the percentage of growth assets in a portfolio and the risk tolerance scores on our mean 50, standard deviation 10 scale (see figure 2).

Similarly, using the answers to our downside risk question, we were able to establish a relationship between the size of the fall in the value of investments needed to cause discomfort and risk tolerance scores (see figure 3).

The downside percentage analysis provides an opportunity to test the percentage growth analysis.

We use 11 illustrative asset allocations, ranging from 0-percent growth assets to 100-percent growth assets in steps of 10 percent, as a basis for analyzing historical portfolio performance. First we use the percentage growth correlation to find a matching risk tolerance score for each of the 11 portfolios. Then we use the downside percentage correlation to determine a downside percentage number for each of the 11 portfolios calculated on a risk tolerance basis.

Figure 4 shows, for example, that clients whose risk tolerance scores on average map to Portfolio 7 (60 percent growth), on average choose a downside comfort zone of up to –30 percent.

This can then be compared with performance information for these 11 portfolios. Two types of comparison are done, historical performance and predictive performance. For historical performance we use the biggest fall since January 1972; predicted performance is the mean minus 3.5 standard deviations for estimated returns.
Identifying and Resolving Mismatches

The ability to map risk tolerance scores to portfolios allows advisors to identify a portfolio risk/risk tolerance mismatch. For example, imagine a new client couple, Bill and Susie, whose risk tolerance scores are 45 and 60, respectively. Their portfolio is 50-percent growth and your analysis suggests that they require a 70-percent growth portfolio to achieve their goals with the desired likelihood. You can then present this portfolio risk/risk tolerance mismatch to them.

Their current portfolio is at the upper end of Bill’s comfort zone and marginally too conservative for Susie (see figure 6). The target portfolio is within Susie’s comfort zone but well above Bill’s, as would surely be discovered in the next bear market.

Now that the mismatch has been discovered, we move on to the third step in the risk profiling process—resolving any mismatches. The only hard and fast rule here is that the ultimate decision is the client’s, not the advisor’s. The advisor’s role is to suggest alternatives, explain the risk in those alternatives, and guide the client through the trade-off decision making.

A mechanical solution might be to have Bill’s 401(k) and their joint investments at 55-percent growth and Susie’s 401(k) at 80-percent growth, providing that Bill and Susie are both willing to be marginally discomfited from time to time.

More likely though, they will have to give up something. The return required to achieve their goals with the desired likelihood, and hence the riskiness in the portfolio, can be reduced by one or a combination of the following:

- easing goals—reducing, delaying, or even foregoing the less important goals,
- being willing to accept a decreased likelihood of achieving those goals, and/or
- increasing resources through earning more, spending less, or converting personal use assets to investment assets.

They can also choose to take more risk than they would prefer, particularly Bill, but not with engineering precision. Fortunately, it is not necessary to chase that fool’s gold.

Risk tolerance doesn’t drive an investment strategy; rather it acts as a loose constraint on what a client might otherwise do. If a client’s risk tolerance indicates comfort with a 50-percent growth portfolio, then clearly the client also would be comfortable with 51 percent, 49 percent, and so on, and probably would not register a significant difference until the percentage growth was around 40 percent on the low side or 60 percent on the high side. Simplistically it can be said that the goal is not to be precisely right but rather to be highly confident of not being terribly wrong.
so much as to cause a panicked sale in a downturn. When the more risk tolerant of the two is much more risk tolerant as well as dominant in the financial decision making, it is critically important to obtain the properly informed consent of the less risk tolerant. In a major bear market, the less risk tolerant may panic and seize the role of dominant decision-maker. Or, if the less risk tolerant outlives the more risk tolerant partner, the surviving client likely will want to leave an advisor whom he or she feels never listened or showed any consideration.

Of course, clients almost always will have multiple portfolios, quite possibly with different levels of risk and return, e.g., Bill and Susie have three portfolios—a joint investment account, Bill’s 401(k), and Suzie’s 401(k) (see figure 7). In identifying portfolio risk/risk tolerance mismatches it is best to start with the client’s total position. Once that has been resolved, additional consideration can be given to each portfolio. Suppose that Bill and Susie also had a five-year education savings plan, invested for 50-percent growth. If this was being funded sufficiently to meet the anticipated expenses with the desired likelihood, Bill and Susie may want to leave things as they are. The question then becomes whether or not they want to think about these monies in isolation or in aggregate with their other investments. If the latter, then more risk could be taken with other investments. If not, then more funding may be required for the other investments.

It is important not to be taken in by the proposition that clients will have a mental account for each goal and a portfolio for each mental account, and that risk tolerance needs to be assessed for each mental account because it may differ from one to another. The practical difficulties here are obvious. Experienced advisors know that clients use mental accounts to varying degrees and do not all have the same mental accounts, and that mental accounts are not necessarily stable over time. The proposition would require multiple risk tolerance assessments on a regular basis. Additionally, if multiple accounts are being considered in isolation administration is more onerous, particularly when one account looks like it is overshooting and another is undershooting the respective goals.

Fortunately, the proposition is not soundly based. It seems to arise where behavior is observed through finance theory glasses rather than from a psychological perspective. Imagine a client with two different investment goals, a short-term goal and a long-term goal, who is taking minimal investment risk for the short-term goal and significantly more investment risk for the long-term goal. Nothing unusual here, but does this mean the client has two different risk tolerances?

Let’s step out of an investment context temporarily. Imagine an extrovert at both a wedding and a funeral. Not surprisingly more extroversion is evident at the wedding than at the funeral. Does this person have two different extroversions? No, it’s just that the situations are different and the person would have different goals in each. But if you were to compare the extrovert’s behavior with that of an introvert, you would expect the former to display more extroversion in both situations.

This leads to the realization that goals are not one-dimensional. Take retirement as an example. There will be a desired standard of living in retirement as well as a minimum acceptable standard and maybe a my-dreams-came-true standard. Each will have a different desired likelihood, say, 90 percent for minimum acceptable, 50 percent for desired, and 10 percent for my-dreams-came-true. Achieving the different aspects of a goal with the desired likelihood is a risk capacity issue. The balance the investor strikes between the various likelihoods is a risk tolerance issue. For example, risk tolerance will influence...
whether an investor would be willing to reduce the likelihood of a minimum acceptable outcome to 80 percent if this increased the likelihood of a my-dreams-came-true outcome to 20 percent.

One consequence of the interplay between risk tolerance and risk capacity in the context of multidimensional goals is that risk tolerance is virtually never an issue for short-term investment because the virtually mandatory requirement of at least getting one’s money back means that risk capacity dominates. Risk tolerance usually only begins to come into play for medium-term investments and then only for those with low risk tolerance. With long-term investments both risk tolerance and risk capacity will act as constraints.

Explaining Portfolio Risk

Risk profiling satisfies the first requirement for lasting happiness in the client-advisor relationship, namely, that the risks in the client’s investment strategy are appropriate given the client’s circumstances, aspirations, and preferences. The second requirement is that the client understands and accepts the risks involved in investment strategy. The second requirement obviously has most value in its own right but also has additional value as a check on the first requirement.

For the vast majority of clients, explaining risk in terms of means, standard deviations, and confidence levels just doesn’t cut it. The numeracy required is too much for all but a very few.

To provide a meaningful explanation the advisor needs to exercise some creativity and empathy. The aim is to ensure that clients have realistic expectations about the journey ahead. Obviously, they need to know that investment returns are variable and uncertain, and that from time to time they can expect to experience losses.

A critical, if not the most critical, ingredient is the explanation of downside risk. It’s not enough for clients to know that they can expect to experience the occasional loss. For the explanation to resonate it should cover the frequency, magnitude, and duration of losses.

One of the ways of doing this is to analyze the past performance of a representative set of portfolios. Then the client can see what would have happened to their portfolio in the past and, although the future will be different, it does give the client a feel for the pattern of likely experiences. In particular, it can illustrate the difference in the pattern of experiences for portfolios at different levels of risk. This is particularly useful when comparing the alternatives in trade-off decision making that happen in step three of the risk profiling process.

For example, using information from FinaMetrica’s Risk and Return Guide,2 the differences in downside between Bill and Susie’s current 50-percent growth portfolio and their target (70-percent growth) portfolio can be illustrated starting with an overview.

Quarterly analysis shows these historical rising, falling, and recovering frequencies as shown in figure 8. For both portfolios, quarterly performance reporting will show that the portfolio is rising in value more than half the time and falling about a quarter of the time—not much difference there. But what about the depth and length of these falls?

Table 1 shows all the falls that have occurred since January 1972.

The total number of falls is about the same and in both cases roughly two-thirds have been small and short-lived. However for those that weren’t, the 70-percent growth portfolio has deeper and longer falls.

But how deep and how long?

Table 2 shows the top 10 falls for both portfolios.

Now the difference is quite clear. With a 70-percent growth portfolio the larger falls are around 50 percent deeper than for the 50-percent growth portfolio. This is going to be an issue for Bill. A risk tolerance score of 45 typically indicates a downside comfort of −20 percent. In the 2007–2009 bear market, Bill would have experienced a fall of nearly twice that, well outside his comfort zone, and even Susie might have been feeling some discomfort. Would their advisor have been struggling to prevent a sell-out in late 2008/early 2009?

Let’s suppose that Susie is the dominant decision-maker in this couple, which leads to specific danger here, particularly as risk tolerance correlates with overconfidence. In good times it is likely that Bill’s fears will not be properly addressed, and he will be swept along by Susie’s confidence and comfort.
Thirdly, a meaningful explanation of portfolio risk and return, particularly downside risk, is essential. Fourthly, the glue that holds this all together is advisor skill—the ability to work collaboratively with clients to help them obtain an informed understanding of the financial parameters that apply to the situation and circumstances and to guide them through the decision-making process.

The result will be that clients understand the risks and can give properly informed consent to an investment strategy that can be expected to achieve their goals with the desired likelihood at a level of risk consistent with their risk tolerance.

Geoff Davey, co-founder of FinaMetrica®, specializes in risk tolerance and its role in the investment advising process. He earned a BSc from the University of Melbourne. Contact him at geoff.davey@finametrica.com.

### Endnotes

1. The FinaMetrica white paper, “On the Stability of Risk Tolerance,” summarizes the results of seven studies conducted over more than a decade involving large heterogeneous samples, and it attests to the stability of financial risk tolerance as a psychological trait; see www.riskprofiling.com/stability.

2. The FinaMetrica Risk and Return Guide and Portfolio Reports are based on the analysis of 40+ years of monthly portfolio performance for a representative set of portfolios ranging from 0-percent growth assets to 100-percent growth assets in steps of 10 percent; see System Resources under Resources and FAQs at www.riskprofiling.com.

### References


with risk. In bad times, however, when Bill’s fears have become a reality, the couple’s decision-making balance can change quite dramatically. In a case like this it is critically important for the advisor to ensure that Bill is given a proper hearing and, if the risks in the final agreed strategy are outside his comfort zone, that Bill does specifically acknowledge this and consent to it.

### Conclusion

Whether the objective is simply to avoid client-advisor relationships ending unhappily or, more positively, to build a stronger business through fostering productive long-term relationships, getting risk right is a critical step with several key components. Firstly, have a sound process that clients will understand so that they can commit to the result. Secondly, robust tools are needed—quality financial planning software and a quality risk tolerance test.