



Rethinking Risk Tolerance

Despite being a requirement for FINRA-registered brokers, and a matter of fiduciary self-protection for RIAs, most financial planners today give short shrift to risk tolerance questionnaires. At best, a relatively simple questionnaire is used – likely provided as a required element from a compliance department – and the client completes it quickly, and moves on to the “real” portfolio design process with the planner. At worst, the risk tolerance questionnaire itself is used to select an investment portfolio directly, with an entire client’s net worth invested on the basis of a few flimsy questions.

From a practical perspective, few planners seem to put much stock into today’s questionnaires. Some are skeptical about whether the questionnaire is capable of measuring much; others seem to doubt whether risk tolerance is something that even *can* be measured in the first place. And of course, many financial planners have witnessed the “standard” recurring client pattern with risk tolerance – i.e., clients are very risk tolerant in bull markets, and very risk adverse in bear markets – so what’s the point in trying at all (aside from what the compliance department requires)?

But does all this really mean that risk tolerance questionnaires are universally worthless, and that there’s no value to trying to measure a client’s risk tolerance by any means? Absolutely not! Instead, what’s necessary is to delve deeper on both fronts. This month’s newsletter will explore in greater depth exactly what risk tolerance *is* and what we’re trying to measure, how it fits in with other aspects of a client’s overall risk profile, and to consider what’s required to truly design a quality measurement of risk tolerance.

About the Author

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Changing the Risk Tolerance Paradigm

Today’s paradigm for viewing a client’s risk tolerance has the following basic framework, as shown in Figure 1 below:

Figure 1. Framework of current risk tolerance paradigm.

- A) Longer time horizons = more risk tolerance
- B) Need for income (as opposed to a high growth objective) = lower risk tolerance
- C) Availability of other assets for emergencies = more risk tolerance
- D) Higher knowledge level about investments = more risk tolerance
- E) Unwillingness to stay invested in down markets = lower risk tolerance

Risk tolerance questionnaires in use today typically have 1-3 questions to address the various aspects of the framework shown above, which results in a typical questionnaire of approximately 7-15 questions. Most questions operate on a scale, where a response at the “conservative” end indicates a lower risk tolerance, and a response on the “aggressive” end indicates a higher risk tolerance. For example, a typical question to address the time horizon might be:

- 1) *I do not expect to take significant withdrawals from this portfolio for at least:*
- a) Less than 2 years
 - b) 2-5 years
 - c) 5-10 years
 - d) 10-20 years
 - e) 20+ years

Responses would be scored on a 1-5 scale, where {a} = 1, {b} = 2, etc., up to {e} = 5. The scores across multiple questions would be added up to give the client a total composite risk tolerance score for the entire questionnaire, which would then be used to determine the client’s overall risk tolerance for the investment portfolio (and possibly the allocation of the portfolio itself).

The greatest flaw of the risk tolerance paradigm shown in Figure 1 is that it conflates what are actually multiple factors associated with risk, which operate *independently* of each other. As a result, most risk tolerance questionnaires mix together an evaluation of factors that should remain separate, and as a result leads to often faulty conclusions.

For example, in Figure 1, the factors shown as (A), (B), and (C) could really all be grouped together into a single meta-factor called “risk capacity” – which is essentially an evaluation of how much risk the client can *afford* to take while still trying to achieve his/her goals.

Factor (D) from Figure 1, on the other hand, is not part of the client’s risk capacity. Instead, it deals more with the client’s “risk perception” – it evaluates the extent to which the client understands the financial markets, and thus heavily influences how “risky” the client *perceives* the market to be. After all, it’s human nature to have a fear of the unknown. As a result, many financial planners have witnessed that clients who have a better knowledge and understanding of the markets tend to be more comfortable with market volatility, because the client simply doesn’t perceive as much risk in something that he/she understands well.

Factor (E) from Figure 1 is the only metric that begins to directly evaluate a client’s true *attitudes* about risk (i.e., the client’s actual tolerance and behavioral response to taking on risk in exchange for the possibility of a better return). Although factor (E) is actually a rather poor way to measure the client’s risk attitude (as will be discussed in greater depth later), it does at least focus in on really examining whether a client is willing to tolerate market declines in pursuit of obtaining a higher market return over time.

Thus, the new paradigm for evaluating a client’s risk metrics – a total composite that I call the client’s overall “risk profile” – would be composed of the client’s risk capacity, risk perception, and risk attitude. This is shown in Figure 2 to the right. (Note: The use of the term risk “attitude” to address the client’s psychological and behavioral tendencies towards risk will be used from this point forward, in lieu of risk “tolerance” which can convey different meaning when using in various contexts.)

Although the distinctions between these terms might seem like minutiae, the

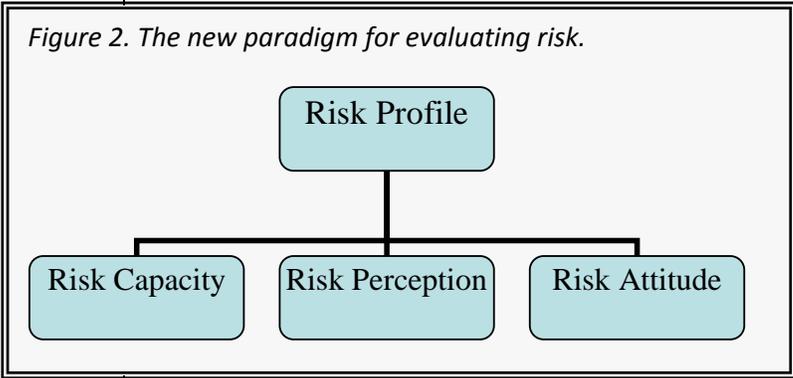
differences are quite important and are more than mere semantics. Moreover, a proper and consistent use of risk terminology helps to emphasize and illustrate the flaws of the current approach used in practice today, to help develop an improved approach for the future. To demonstrate the importance of evaluating these factors of the overall risk profile separately – risk capacity, perception, and attitude – let’s look in further depth at how each factor actually applies in client situations.

Distinguishing Risk Capacity from Risk Attitude

Most risk tolerance questionnaires incorporate questions about income needs, time horizon, and the client’s willingness to trade off risk for return. As we now know, this is actually a combination of risk capacity and risk attitude questions. But when they are evaluated separately, they can lead to opposite conclusions.

For example, John Smith needs to generate income for a retirement that will begin in 15 years, and his income goal is \$15,000/year from a portfolio projected to have \$1,500,000. With these goals, John should have an extremely high capacity for risk. A withdrawal of \$15,000/year from a \$1.5 million portfolio is a withdrawal of only 1%, and even if his portfolio underperforms its accumulation goal by 33%, it would only change the withdrawal rate from 1% to 1.5% (i.e., \$15,000/year from a \$1 million portfolio, instead of from a \$1.5 million portfolio). By any standard, John Smith’s retirement goal has the capacity for taking a great deal of risk without being adversely impacted. In other words, whether John takes on a conservative portfolio *or an aggressive portfolio*, his probability of success is very high.

On the other hand, Daniel Jones wishes to retire immediately, and has a retirement goal of \$65,000/year from a portfolio of only \$1,000,000. In this case,



Daniel's risk capacity would be much lower than John's. The reason is that Daniel does not have the financial capacity to absorb a significant market decline. In fact, Daniel's portfolio will need relatively favorable returns simply to sustain this initial withdrawal rate of 6.5%. Thus, the high potential for an unfavorable market result to cause a failure of the retirement goal indicates that there is a low capacity for risk. Simply put, Daniel cannot afford to have an adverse risk event occur with this retirement goal. Notably, though, with Daniel's current goal, he will *need* to have a fairly aggressive portfolio to achieve his goal; becoming more conservative may actually *reduce* the likelihood for success even further! Thus, what Daniel's goal reflects is both a risk of being exposed to an aggressive portfolio, yet also a need to be so exposed.

The above two client scenarios are a look at different levels of risk capacity – i.e., the client's *financial capacity* to sustain an adverse risk event (e.g., a severe market decline) in the portfolio. Notably, though, evaluating the two scenarios occurs *completely independently* from looking at the underlying client's risk attitude. In point of fact, we have evaluated the risk capacity of the two scenarios without yet asking any questions about John's or Daniel's risk attitude and actual willingness to trade off risk for return.

Of course, we will ultimately need to evaluate the risk attitude of both John and Daniel to arrive at a proper investment recommendation. However, conclusions and recommendations that we might provide from a financial planning perspective will be quite different, given that we started with an evaluation of their risk capacity.

For example, let's assume that both John and Daniel actually have an extremely low risk attitude score, indicating little willingness or tolerance of volatility or potential losses. In John's case, if we delivered an "industry standard" risk tolerance questionnaire, John's score would have likely come out somewhere in the middle of the range, as he would have had a low score for risk attitude, and

a very high score for risk capacity. On a single test, his mid-range score would have likely led to a recommendation of a moderate growth-oriented portfolio. However, putting John in a moderate growth portfolio completely ignores the fact that we already indicated – that John has an extremely low tolerance for risk! In this case, we would be setting up for failure – that John would end out in a portfolio that has more risk than he is comfortable with, resulting in sleepless nights, a stressed client, a likely-to-be-fired financial planner, and a potential lawsuit in a severe market decline. Ironically, not only did John, despite his conservative attitude towards risk, end out in a moderate growth portfolio – which can occur when we fail to measure attitude and capacity separately – but the scenario also indicates that John didn't even *need* the high risk portfolio! In other words, John's goals were so modest relative to his portfolio that it led to him having a high *capacity* for risk, but in reality he could have succeeded with a far more conservative portfolio (because he didn't *need* high growth in the first place)! Thus, in the end, a traditional combined risk tolerance questionnaire would have put John into a portfolio that was both more aggressive than what he wanted and needed, and potentially put his goals at risk when they didn't need to be.

For Daniel, on the other hand, the implications of a low risk attitude are far different. Daniel's retirement goals are already stretched to the max, and in fact the whole retirement scenario itself has a great deal of inherent risk. If Daniel's portfolio were simply invested conservatively – given his near-term income needs, short time horizon until withdrawals, and extremely low risk tolerance – he would almost assuredly have too

little growth in his portfolio and fail his original retirement goal. In Daniel's case, the mismatch between a low risk attitude and a scenario that requires a great deal of aggressiveness indicates that the best result is neither a conservative portfolio nor an aggressive portfolio. Instead, *it is for Daniel to reconsider his retirement goals in the first place!* In Daniel's case, a conservative portfolio would generate insufficient growth, and an aggressive portfolio would cause sleepless nights (and other potentially adverse consequences!), but a standard risk tolerance questionnaire

Out and About

- Michael will be presenting "Rethinking Risk Tolerance" at the FPA Mid-Oregon chapter on September 16th
- Michael will be speaking on "Implementing Monte Carlo in your Client's Retirement Plan" at the FPA Michigan chapter on September 18th
- Michael will be moderating "The Value and Stewardship of Using Variable Annuities Vs. Mutual Funds" – a debate between Harold Evensky and John Huggard – at the FPA Annual Convention in Boston on October 6th

Interested in booking Michael for your own conference or live training event? Contact him directly at speaking@kitces.com, or see his list of available presentations at www.kitces.com/presentations.php.

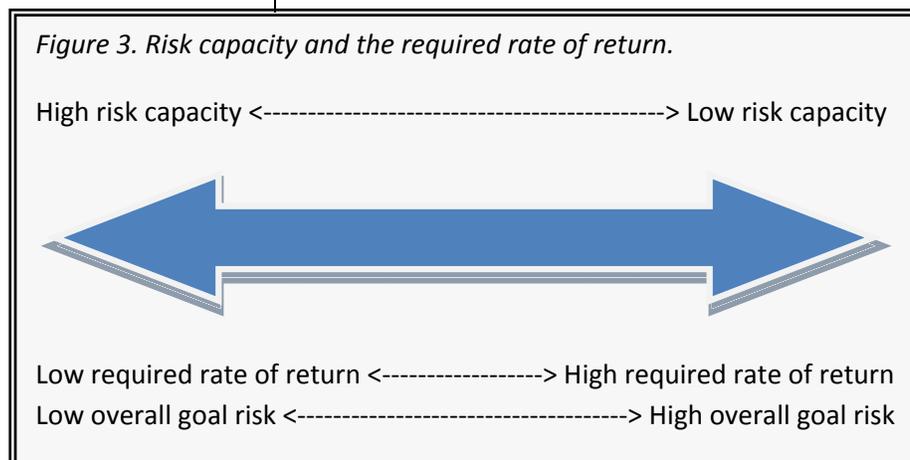
would fail to uncover the problem in the first place! In reality, Daniel shouldn't even proceed forward with this retirement goal in the first place, given his low risk attitude. In other words, Daniel's goals themselves are so aggressive that they should only be pursued if Daniel has a high tolerance for risk.

In summary, the traditional approach would have put John into a moderate growth portfolio, even though such a portfolio would be both above his tolerance for risk and more risk than he needed to accomplish his goals. For Daniel, the traditional approach would have led to an extremely conservative portfolio, due to both his low risk attitude and his short time horizon and immediately income needs, even though such a portfolio would be virtually assured to *fail* his retirement goals!

For more modest scenarios in the middle, a third situation can occur. In this case, the portfolio necessitates some risk, but an excessive amount of risk simply introduces unnecessary potential for failure. In such a scenario, a client with an extremely high level of risk tolerance might be encouraged to invest *more conservatively*, because the financial situation doesn't actually have the capacity to sustain as much financial risk as the client is willing to take. For example, a highly risk tolerant client might be willing to retain a heavy investment concentration in a single stock – after all, the client is highly risk tolerant! However, the client's risk capacity clarifies that in reality, the retirement (or other) goals do not need, and potentially cannot handle, the risk of such a portfolio concentration. As a result, the client can be encouraged to diversify, communicated from the perspective that the plan doesn't have the capacity to take on such risks, and that the client's aggressive tolerance is risking not only the financial asset, but also the achievement of the goal itself.

Another way to think of risk capacity is that it *measures the required rate of return necessary to achieve the client's goals*. Clients with aggressive goals (a low risk capacity) would effectively have a *high* required rate of return (i.e., as with Daniel's scenario above, if the potential portfolio doesn't achieve a high rate of return, the goal itself will fail). Clients with more conservative goals, on the other

hand, will have a low required rate of return (a higher risk capacity), and consequently have the luxury of either sticking with the low required rate of return, or if the client has a high tolerance for risk, changing the goals themselves to something more aggressive and then investing accordingly. Figure 3 below provides a graphic example of this approach:



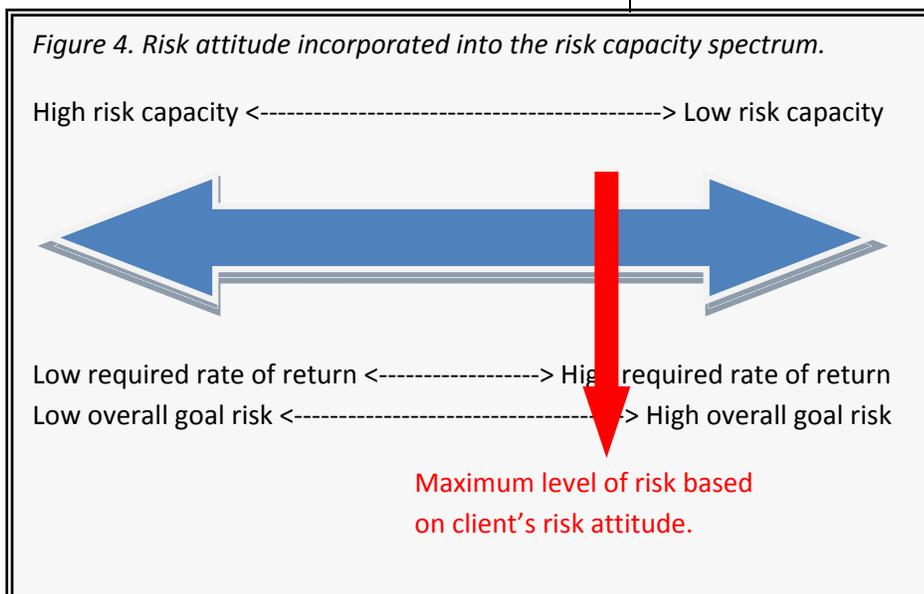
Thus, we see that in fact it can be critical to evaluate risk attitude independently of risk capacity. Under this framework, a low capacity for risk means that the client's goals have a high required rate of return, and consequently the client must *also* be highly tolerant of risk to pursue the goal – otherwise, it's time to change the goal. It should be noted here that "goals" can be interpreted very broadly – the client's target savings, years until retirement, standard of living in retirement, and decisions about personal versus financial use of assets are all part of the overall "goal" set.

On the other hand, a high capacity for risk means the client does not need a high rate of return, thereby giving the client the luxury of *choosing* whether or not to be aggressive, based on his/her risk attitude and other potential goals. In John's case, the extremely low risk attitude should lead to an extremely conservative portfolio, notwithstanding his significant wealth and long time horizon, because John simply doesn't have the tolerance for risk and moreover because he doesn't *need* it either. On the other hand, if John did have a high risk attitude, he could choose to be more aggressive and to seek out more wealth, comfortable in the knowledge that he has the tolerance to do so, and the capacity to support it.

In the end, a low risk capacity scenario with a high required rate of return means that the client's goals necessitate a high risk attitude (or you need to change the goal!); with a high risk capacity scenario, the

modesty of the portfolio goal allows the client the luxury to choose any amount of risk up to the maximum level of tolerance based on other (e.g., legacy) goals.

In addition, viewed from this perspective, risk attitude acts as an upper limit to the spectrum of risk. The financial planning goals will dictate the amount of risk necessary to optimally achieve the goals – the required rate of return for the goal – and the risk attitude will determine whether the goal itself (and the associated required risk) is reasonable. This is shown in Figure 4 below.



In the graphic above, the client's risk attitude creates a barrier to the maximum risk that can be tolerated. If the client's actual goals indicate a low risk capacity and the need for a portfolio that is more aggressive (falls to the right) of the red line, the client needs to reconsider the goals themselves. If the client's goals dictated a lower required rate of return (to the left of the red line), then the goals are aligned with the client's risk attitude and a portfolio can be determined within the appropriate range of risk.

Notably, under this approach, the process of evaluating a client's risk profile will essentially lead to the most conservative portfolio capable of achieving the client's goals, which also does not exceed the client's risk attitude. This is significantly different than the standard approach, which determines the maximum level of the client's tolerance (through a combination of risk capacity and attitude), and automatically applies to them the highest level of portfolio risk that the client can withstand.

What about Risk Perception?

By now, many of you are probably thinking "sure, this risk attitude and capacity stuff is a nice idea, but the tolerance of my clients changes with the direction of the markets, so what's the point?"

Most financial planners have experienced this phenomenon – that clients are more tolerant of risk in bull markets, but suddenly their attitude changes to something more risk averse in bear markets. In other

words, when markets are going up the clients want risk, but then the risk suddenly becomes intolerable once account balances begin to go down.

Notwithstanding this common client experience, is it really true that a client's attitudes about risk are so unstable? Or alternatively, is it possible that risk attitude only appears so unstable because planners are doing a poor job of evaluating true risk attitude in the first place?

Emerging research indicates that risk attitude, when

measured accurately, is in fact relatively stable, *and doesn't change over time* (or at least, does not change materially over time spans as short as a few weeks, months, or years; there is some evidence that it may change structurally over a lifespan). When planners interact with clients that profess a desire to own more stocks in bull markets (i.e., to take more risk), and then wish to own less stocks in bear markets (i.e., to take less risk), we assume that this means the client's attitude is changing over time, and isn't stable.

In reality, though, this confuses what are actually two independent variables – the client's attitudes about risk, and the client's *perception* of risk. In point of fact, it appears that for most individuals, risk attitude can be evaluated as a stable trait; however, their *perception* of risk can change over time, sometimes dramatically.

Viewed from this framework, when a client wishes to own more stocks in a bull market, it is not because they are actually more tolerant of risk; it is because in a bull

market, the client *perceives* that there is not as much risk in the first place! Likewise, in a bear market, the client wishes to own less in stocks because the client suddenly perceives a dramatic increase in risk, and responds accordingly. So it's not actually the client's attitude about risk that is changing. It's the perception of risk, and a tendency to over- and under-estimate the amount of risk involved.

Here's another way to think about it: imagine the client is offered the chance to play a betting game, based on the flip of a coin. If the coin is heads, the client wins \$2. If the coin comes up tails, the client wins nothing. A client's risk tolerance represents the odds a client will take; in other words, how much they're willing to pay to play the game and risk losing.

If the client is willing to bet \$1, it's an even bet. Played 100 times (for \$100, at \$1 per game), on average the client will win the \$2 prize 50 times (for a winnings of \$100), and lose 50 times (getting nothing). In the end, they'll pay \$100 (100 games at \$1/game), and win \$100 on average (50 wins at \$2/win), breaking even. So in theory, no client should be willing to pay more than \$1 to play. Assuming that everyone wants *some* odds of winning, a highly risk tolerance client would probably be willing to pay \$0.95 to \$0.99 to play. On the other hand, a client with a very low risk attitude might insist that they'll only play if it costs \$0.75, or \$0.50 per coin toss. In this scenario, the client with a conservative risk attitude may expect to win an average of \$100 for 100 coin tosses, but isn't willing to gamble any more than \$0.50 per coin toss, or \$50 for 100 coin tosses. In other words, their risk tolerance is so low that they won't bet any more than \$50 for a chance to win \$100.

For most clients, there is some price at which they'll play the game – their risk attitude dictates some price level that will induce the risk-return tradeoff. And that risk attitude tends to be stable over time. In other words, those who are very risk tolerant and willing to play for \$0.95 will tend to be willing to play for \$0.95 at any time. Those who are very risk averse will tend to only play the game if the cost is very low, and will continue to only play as long as the cost remains low, requiring a big payoff (relative to the size of their bet) to be induced to play. This is analogous to a client's risk attitude for investing; some clients are not willing to take a risk of loss or market decline unless there is a significant potential reward. Others are very risk tolerant, and will sustain the risks of the market for even just a small potential gain.

So how does risk perception fit into the equation? Well, what if the client started playing the game at \$0.75 per coin toss, and the first five coin tosses in a row were all heads. At this point, the client already has winnings of \$10 for five consecutive wins, and only paid \$3.75 to play! Although it could merely be chance, some clients would start to wonder if maybe it was a "lucky" coin, or alternatively that maybe they're fortunate enough to be playing with a coin that is weighted towards heads. If over the next 5 coin tosses, the coin comes up heads again every time, the client now has won 10 straight coin tosses, and is up to \$20 in winnings for only \$7.50 in payments. So what happens at this point? The person running the game changes the rules a little, and says that it will cost \$0.95 to keep playing. The client, so pleased with the winning streak, is not only happy to take the bet, but in fact offers to double up, paying \$1.90 per game with a chance to win \$4 for each coin flip that comes up heads. After all, if the client is winning on each coin flip, why not bet more to win more each time you play the game!

However, in reality what happened? The client got lucky (assuming an evenly weighted coin, where the win streak really was nothing more than random chance), and allowed the stakes to be changed – in the process, departed dramatically from the original trade-off point based on the client's risk attitude. Suddenly, a client who wasn't willing to bet \$0.95 per play in the first place – because it was too risky – is suddenly willing to bet that amount, and double it up, for the chance to keep going on a hot winning streak. Thus, the client turned a slow and steady favorable bet, based on a moderate risk attitude, into a much riskier proposition!

But does that mean the client's *risk attitude* itself has changed? If the client converted from only playing the game with very favorable odds, to being willing to play a more expensive game with narrow odds, does that mean the client became more tolerant of risk? **No!** Because in the client's mind, there was *no additional risk* – the client was on a winning streak! So when the client allowed the terms of the game to be changed to something much less favorable, it wasn't because the client was suddenly more tolerant of the risks – it's because the *client thought the new terms were still consistent with his/her risk attitude, given the fact that the coin "always" comes up heads.*

The process with clients invested in the markets is surprisingly similar. In the midst of a bull market, the client perception slowly transforms from a risk-reward tradeoff, to the expectation of only reward (positive returns) and more reward. Consequently, the client is willing to keep playing the game, and in fact invest in it

even more, even though the “odds” are actually getting worse as the market continues to rise (i.e., as the market’s valuation becomes less favorable). But in this situation, the client doesn’t change their attitude about risk itself; the client simply changes the perception that there *is* any risk in the first place, but in the process makes a poor risk decision! In the end, it doesn’t matter how risk averse you are – if you perceive that you’ll win the game every time, you’ll play it at any cost.

Risk Perception and Behavioral Finance

So why does our risk perception shift all over the place? Why does it seem that we are constantly misjudging – over- or under-estimating – the amount of risk? It appears that we have to look no further than our own brains for the answer to this problem.

In short, our brains as thinking machines have all sorts of mental shortcuts – called heuristics – that we use to make decisions quickly so that we can interact with our world in a functional manner. Although in today’s world we often have a great deal of time to evaluate the risk of certain situations, historically as a species, if you heard a sound that might be a lion, you reacted immediately to the idea that the sound indicated something you should run away from. If you paused to analyze the situation, you were the one that didn’t survive. After a few million years of evolution, the theories suggest that we’ve developed these mechanisms to get pretty good at quickly assessing the risk of a situation and reacting appropriately. At least, the behavioral response is appropriate *most* of the time.

Modern psychology in recent decades has begun to evaluate our mental heuristics, and how we utilize them in our daily lives. The field of behavioral economics looks more directly at how our mental shortcuts affect our financial decisions. Thanks to the research of these overlapping fields, we can begin to understand why and how we continue to make such erratic and often poor assessments of risk that lead to damaging misperceptions.

Some of the most common heuristics derived from behavioral finance studies

that seem to influence risk perception in particular include:

- *Availability Heuristic*. The availability heuristic leads us to a bias in favor of information that is most vivid or easiest and most convenient to recall – in other words, the information is easily made available to the mind, and thus we act on it accordingly. The availability heuristic is what tends to make us think of the most vivid and dramatic events while making a decision. For example, when faced with a decision about what to do when the market declines, we tend to remember prior losses associated with dramatic market declines more than the long stretches of moderate increases, because the significant decline is the more vivid memory and more easily available.

- *Overconfidence*. The overconfidence heuristic stems from our tendency to credit ourselves for our successes, and blame external factors for our failures. This leads us to sometimes become unreasonably confident in our own abilities. From a risk perception perspective, this behavior tends to manifest itself as a client (or sometimes, a financial planner!) who believes he/she is a good investment/stock picker based on their successes, and either doesn’t realize that the success may have been partially (or fully) luck, or fails to fully acknowledge the failures that also occurred. In either case, this leads to the individual becoming excessively confident and overestimating the likelihood for future success, and consequently eschewing either new data that might contradict them, or a financial professional that might be able to help.

- *Loss Aversion*. The loss aversion heuristic reveals that we tend to experience more negative distress from our losses than we experience positive feelings from our successes. As a result, we tend to overweight the negative feelings of our failures and losses, and become excessively averse to them, even though the actual magnitude of the losses may be similar to the magnitude of prior gains and successes. The tendency to experience stronger negative feelings from losses can also feed more vivid memories and experiences into the availability heuristic as well.

- *Representativeness*. The representativeness heuristic tends to cause us to

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overgeneralize one type of experience (or risk) to be representative of a broader potential series of risks. For instance, significant losses on a particular stock might lead the investor to eschew all stocks in that sector or segment of the market (e.g., losing money in one tech stock makes the client not wish to own *any* tech stocks). In a more extreme case, significant losses in stocks in general may lead the investor to believe that consequently, all stocks produce significant losses and must be avoided.

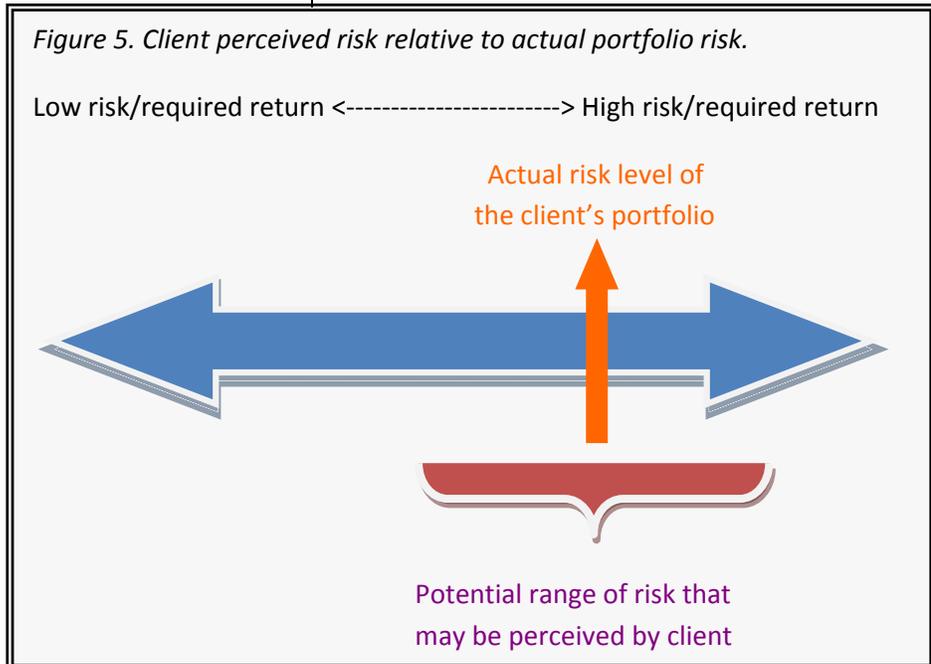
- *Familiarity*. The familiarity heuristic reflects our tendency as human beings to be more comfortable with things that are more familiar to us. An excellent example of this behavior is the tendency for clients to hold excessive amounts of stock in the company at which they work; the comfort due to the familiarity with the company can lead the client to have a potentially incorrect perception of the risk associated with the company. Likewise, the familiarity heuristic tends to make clients more comfortable with U.S. stocks than foreign stocks.

- *Recency*. Thanks to the recency heuristic, we tend to weight recent events more significantly than older events. As a result, we tend to project current trends as continuing, even if they have only occurred for a relatively short period of time. The recency bias lends heavily to the client tendency to expect that a recent bull or bear market will continue in the same direction, where the client tends to underweight a prior bear or bull market that preceded it. This can result in significant distortions of risk perception, particularly if the current trend has continued for an extended period of time.

In addition to the above heuristics, behavioral finance and psychology research has also shown that we have a tendency to perceive less risk and have more

confidence in areas in which we are otherwise knowledgeable and educated. In other words, we find comfort in what we understand, and have a fear of the unknown. This psychological challenge provides one of the major *psychologically-based* reasons to provide client education about investments; beyond simply the intellectual value of the knowledge itself, clients that have a better knowledge and understanding of their investments tend to perceive less risk and have more confidence, as the investment is better understood and less unknown. Arguably, a major factor in the difference between how many clients view market risk and how most planners view market risk can be heavily attributed to the extensive difference in knowledge about the investments themselves, and is evident in the relatively higher (on average) confidence of the knowledgeable planner compared to the less educated (about investments, at least) and consequently more fearful client.

Figure 5 below shows how client risk perception can fluctuate around the actual amount of risk inherent in the portfolio. The goal of the planner should be to keep the client's risk perception centered on the actual level of risk.



Integrating Risk Attitude, Capacity, and Perception

At this point, we can see that risk attitude, risk capacity, and risk perception all overlap to affect how much risk a

client can and should take on when determining and designing a portfolio.

Risk capacity determines how much risk a client can afford to take, how much risk a client would be required to take to achieve the specified goals, and indirectly reveals whether the risk in the portfolio should be driven by a *need* for risk or by a client's voluntary decision to take (or not take) any risk.

Risk attitude establishes the upper limit of acceptable risk in the portfolio, above which the client's portfolio should not roam. Depending on the client situation, the client's risk attitude may be revealed to be too conservative to support the goals, such that the goals themselves need to be changed (i.e., low tolerance for risk with a high required rate of return based on risk capacity). Or an examination of risk attitude may show that the client can tolerate some moderate amount of risk, but the client is taking more risk than is required and may be creating a higher risk of failure than is necessary even though the client can tolerate it. Alternatively, evaluating the client's risk attitude may reveal that the client has so much tolerance for risk, that they can withstand almost any portfolio and goal risk level, providing the freedom to choose aggressive or conservative goals and implementing a portfolio to pursue them accordingly.

Risk perception is the wild card of the client experience. It operates independently of the client's underlying risk attitude, causing them to potentially misjudge whether the risk they're actually taking is more or less than they intended. As we've seen from the earlier discussion, a client's risk perception is wrong as much (if not more often) than it is right, and requires constant adjustment to remain in a neutral (i.e., "accurate") perspective relative to the actual amount of risk involved. When the client's risk perception over- or under-estimates how much risk there is, the client may make incorrect decisions by misjudging whether a decision is consistent with his/her risk attitude. However, where the client's risk perception remains centered, the client can accurately evaluate the situation based on their true risk tolerance. But given that risk perception is constantly fluctuating, and it's not necessarily clear when a client is accurately judging risk versus over- or under-estimating it, how *can* a client's "true" risk attitude be objectively evaluated in the first place?

Psychometrics and Risk Tolerance Questionnaires

Traditionally, risk attitude has been measured using a risk tolerance questionnaire. However, as discussed earlier, there are many flaws with the traditional risk tolerance questionnaires, including that they overlap questions about risk attitude with questions about risk capacity and even risk perception (which should be assessed independently), and that in many cases the questions and answers themselves are poorly designed. Studies have shown many risk tolerance questionnaires fail to predict investor behavior, and that a client may show inconsistent levels of risk tolerance simply depending on which risk tolerance questionnaire is taken.

But does that mean risk tolerance questionnaires are useless and that the trait of risk attitude can't be measured? Not necessarily. It may simply be due to the poor quality of most risk tolerance questionnaires in the first place.

In point of fact, there is now a discipline dedicated to the proper construction and application of psychological tests, called psychometrics. The field of psychometrics provides a framework to evaluate whether a risk tolerance questionnaire (or any other measure of an individual's psychological trait(s)) has been well-designed, both in the process of its construction and in evaluating the results that it provides. Not surprisingly, given the average planner's own experience with risk tolerance questionnaires, it appears that virtually no risk tolerance questionnaires currently in use have been designed following this level of scientific focus.

The starting point to creating a risk tolerance questionnaire under the psychometric process is to carefully evaluate the test questions themselves. The questions should be tested with a (representative) sample of potential test takers, simply to determine whether the questions are truly understandable and clearly answerable. Are the questions and the associated answers – intentionally or unintentionally – using an unnecessary amount of technical jargon? Are they poorly worded? Can an 'average' person understand the question, the available answer choices, and reasonably select amongst them?

From what will likely be a large bank of initial test questions, a subset of questions will emerge that appear to have strong ratings for being understandable and answerable. The answers to these questions can then be further assessed in comparison to the sample of test takers. In the context of designing a risk tolerance questionnaire, the answer results can be evaluated to see if they were accurately predicting risk-taking behaviors. Do those who score conservatively on the potential test

questions actually hold conservative portfolios and exhibit risk averse behaviors? Do those with high scores exhibit more aggressive attitudes towards risk in their portfolios, suggesting that test was actually measuring the anticipated client behaviors? Do the results of the potential test questions at least line up with the test takers' own assessments of their risk tolerance? In other words, can you determine whether the test questions are actually doing a good job of providing high scores for those who have an aggressive risk attitude, and low scores for the risk averse? Through an iterative process, a list of quality questions can be established, that have been tested to evaluate whether they actually are predictive of the risk attitudes and behaviors that are trying to be measured. Ultimately, the final risk tolerance test should be able to demonstrate that it is both valid and reliable.

Validity evaluates whether the test is actually measuring what it purports to measure – for example, does your risk tolerance questionnaire actually measure risk attitude and associated behaviors, or is it really more of a test of the individual's financial literacy (due to its poor understandability), or is it actually primarily a measure of their risk capacity? Ideally, if it's supposed to be a risk tolerance questionnaire, it should actually be measuring the client's risk attitudes, not other knowledge or traits.

Reliability is an evaluation of whether the test consistently provides similar results for a similar situation or even the re-evaluation of the same client. For example, if an individual receives a significantly different score taking the test twice in two months, it indicates some flaw with the questionnaire and the test would have a low reliability. Mathematically, reliability can be demonstrated when an individual's scores over time show a high degree of correlation, indicating that the test is consistently measuring the same individual's risk attitude with the same results. When a test has low reliability, there is a high risk that the "noise" of the erratic scoring may mask what the individual's true risk attitude score really is.

Ideally, a well-designed risk tolerance questionnaire should have results that show a strong validity and reliability, indicating that it is a well-designed measure of the risk attitude trait.

Approaches to Properly Measure Risk Tolerance

With all due respect to various companies' compliance departments, it seems clear that most risk tolerance questionnaires in use today have not been created via a rigorous application of the psychometric process. Additionally, most financial planners do not have the background knowledge and experience, nor the inclination, to apply the process properly and create their own questionnaire. So what should planners do?

For many planners, the solution is to simply eschew the risk tolerance questionnaire process. Instead, the planner generally uses a conversation-driven approach to discuss and evaluate client risk attitude. The risk attitude conversation may explore potential annual portfolio declines, maximum top-to-bottom declines, and client attitudes about risk and market volatility. The discussion is generally oriented around helping the client understand potential portfolio volatility, its implications for their plan, and to gauge client sensitivity to market declines of varying magnitudes based on portfolios with varying levels of risk.

Although some planners are highly effective at the conversational approach to determining risk attitude, it is a problematic methodology. First of all, it is difficult to apply consistently to each client, unless the conversational approach itself is rigorously defined and conducted in a structured manner with each client. If the approach isn't applied consistently, there is a risk that the client's risk attitude could be gauged incorrectly.

Beyond the consistency challenge, there is also a significant risk that the planner will subconsciously steer a client in a particular direction, simply due to the way questions are worded, and the non-verbal communication that occurs while the questions are asked. Asking a client "Would you be willing to stay invested in this portfolio if it experienced a 20% decline?" will likely elicit a different response than asking "Do you think you would liquidate this portfolio if it experienced a 20% decline?" as the planner may unwittingly be implying, through the question itself and the manner in which it is stated, an 'expected' correct answer that the client is supposed to deliver. To the extent that the planner, even unintentionally, leads the client towards certain responses in the risk attitude conversation, the conclusions about the client's level of tolerance may be flawed. In addition, for larger firms that have multiple advisors, a rigorous training process becomes necessary, simply to ensure that the risk attitude conversation is delivered and evaluated in a consistent manner. Even then, it is difficult to apply reliably.

Another challenge of the risk attitude conversation is that it is difficult to evaluate multiple clients together – for instance, a married couple. Planners will rarely discussed risk attitude in depth as a *separate* conversation with each member of the couple, and consequently may fail to realize significant differences in risk attitude amongst the couple, that could nonetheless cause conflict down the road.

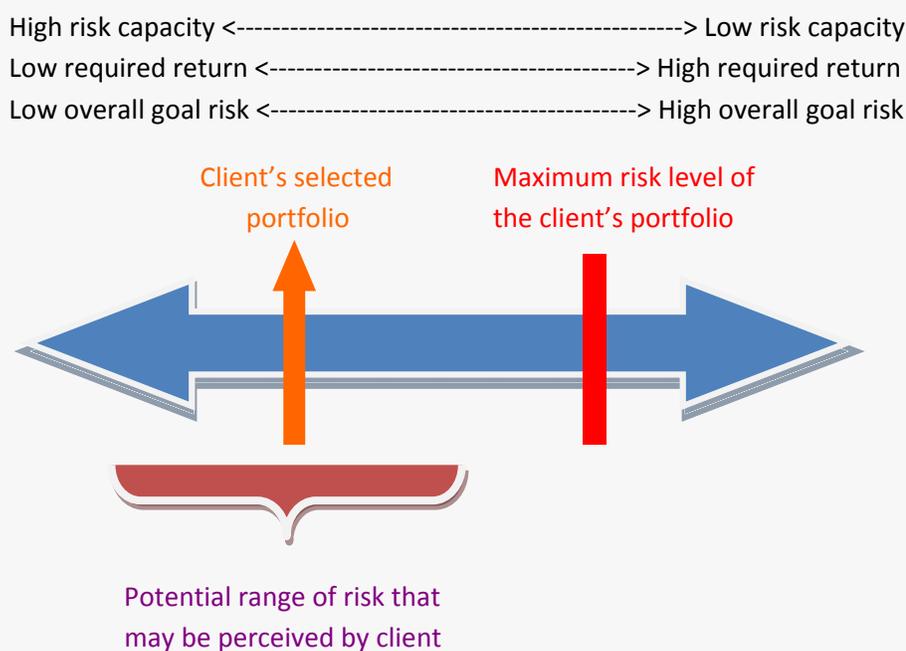
Fortunately, though, an alternative does exist: to use a third-party risk tolerance questionnaire that *has* been constructed according to psychometric standards. Thus far, the leading company in this space is the personal risk profiling system developed by the company FinaMetrica (at www.finametrica.com, although the advisor information site is at www.riskprofiling.com). Their psychometrically designed questionnaire can be administered with clients, providing a quality evaluation of client risk attitude that the planner can apply in their own process of financial planning and portfolio design/recommendations.

One of the challenges that occurs when obtaining a true measure of an abstract concept like “client risk attitude” is that the resulting abstract score can be difficult to apply to specific client situations. For instance, if a client scores a 12 on a scale that goes from 1 to 30, what exactly does that *mean*? Should the client hold 12/30ths (40%) of their portfolio in equities? Not necessarily – depending on how the exam is designed and normalized, it may turn out that a score of 12 out of 30 represents the most conservative end of the scale. Fortunately, FinaMetrica also provides some guidelines about the portfolio risk commonly taken for clients with various risk attitude scores, to help advisors connect abstract questionnaire results with appropriate recommendations for their own clients.

Bringing It All Together – Creating a Client Risk Profile

Once risk capacity, attitude, and perception are all viewed as independent parts of the whole risk tolerance profile for a client, they can be addressed separately as part of the planning and investment process for clients. Figure 6 below provides a summary of how risk capacity, attitude, and perception all integrate into the overall client’s risk profile.

Figure 6. Full client risk profile based on capacity, attitude, and perception.



For financial planners, risk capacity should be measured based on the individual’s financial plan itself. Thanks to the financial planning process, the plan itself will already incorporate an evaluation of the client’s time horizon and ultimately growth and spending needs, to determine the required rate of return and optimal portfolio risk level necessary to achieve those goals. Perhaps most importantly, though, is to note that when the time horizon, spending needs, and other financial goals are addressed as a part of the financial planning process itself, it is no longer necessary or appropriate to analyze them as a part of the risk attitude analysis as well. These factors can, and should, be evaluated separately. Financial planners already have the tools to evaluate risk capacity effectively, through a combination of retirement projections, safe withdrawal

rates, Monte Carlo analysis, and other approaches. This provides the planner the freedom to independently evaluate risk attitude, and apply it as a constraint to the overall portfolio selection.

As discussed above, risk attitude itself is best measured using an objective questionnaire, assuming that instrument has itself been rigorously tested using the psychometric process to ensure it validly measures what it purports to measure, and that it can do so reliably. Although a conversational approach to determining risk attitude can also be reasonably effective, it is fraught with uncertainty about whether it will be applied accurately and consistently.

Once risk attitude has been determined, and the client's risk capacity evaluated, a portfolio policy can be established that falls within the client's comfort zone for risk (as measured by risk attitude), and that is also capable of meeting the client's goals (as measured by risk capacity, including goals for savings, retirement date, retirement standard of living, other financial goals, etc.). To the extent that the financial planning process determines that the optimal portfolio requires more risk than the client can 'tolerate' based on the client's risk attitude scores, this approach reveals that the correct next step is *not* to insist that the client withstand the risk anyway based on a long time horizon. Instead, this approach will properly force the client to re-evaluate the goals themselves. In this manner, it can be ensured that the client always has goals that are realistic relative to the portfolio selected, and that the portfolio itself is within the comfort zone of the client's risk attitude. Notably, this approach departs radically from the traditional approach of using the risk tolerance questionnaire itself to dictate a recommended portfolio, which would automatically lead the client to receive the riskiest portfolio that is tolerable, rather than receiving the optimal portfolio to achieve the client's goals that is also consistent with the client's risk attitude.

How does risk perception fit into the picture? The client's perception of risk will ultimately affect the client's comfort level with the actual portfolio implemented to achieve the client's goals. If the client is over-estimating the amount of risk, the client may believe that a chosen portfolio is "too risky" when in fact it is consistent with the client's risk attitude and goals. Alternatively, in the midst of a bull market, a client may underestimate risk and consequently try to select a portfolio that actually exceeds the client's risk comfort level based on the client's risk attitude. The focus of the financial planner on providing financial education, and managing client expectations about the

markets to keep those expectations reasonable, helps the client to correctly perceive the actual risk of the portfolio – no more and no less – to ensure a proper portfolio selection.

In addition, the challenges of a client's ever-varying risk perception creates the need for an ongoing process of managing expectations, to avoid the potential for the client to make inappropriate portfolio changes *in the future* by misjudging the actual risk of the markets at some future point. When a client wishes to change portfolio policies in the midst of a bull or a bear market, it indicates that the client has materially changed his/her risk perception. On the other hand, as financial planning professionals, it is also incumbent upon the planner to stay fully educated and aware of market risks, to ensure that the planner also does not inappropriately shift his/her own risk perception and subsequently provide poor guidance to clients. The planner needs to be cognizant and self-aware of how some risk perception heuristics that can affect clients may be equally challenging for planners themselves.

Perhaps most importantly, though, utilizing this approach avoids the process of selecting the client's portfolio itself, based on the results of a risk tolerance questionnaire, which is analogous to determining how much pain a client can withstand and then giving his/her that exact amount of pain, *regardless* of need. Instead, by separating risk attitude and capacity, where the portfolio is determined by analyzing capacity and the client's attitude forms an *upper* limit on risk, *not the target level of risk*, a portfolio can be identified that will optimally achieve the client's goals, while also being within the client's level of tolerance.

Summary

In the end, this broad approach to evaluating a client's overall risk profile allows the planner to incorporate the financial planning process (to determine risk capacity and portfolio needs) with an objective measure of the client's risk attitude (to ensure the portfolio is consistent with the client's comfort zone). It is also important for the planner to understand that the expectations management aspect of a long-term financial planning relationship is crucial to ensure that risk perception remains properly rooted in reality – arguably, this is one of the primary reasons for quality communications with clients about investments in the first place. For some planners, applying this approach requires them to re-think their own process and views about risk tolerance, and potentially incorporate new measures of risk

attitude to ensure clients are assessed properly. Ultimately, though, all planners must deal with the natural human tendencies to misjudge changes to risk over time, and constantly manage client expectations to ensure that perceptions of investment risk remain accurately grounded in reality.

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