Risk Profiling

Art and Science

New Zealand Version

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Executive Summary

Investment suitability is the foundation upon which good investment advice is built. Not only must the investment be suitable with regards to the investor's goals (risk required) but also with regard to the investor's risk capacity and risk tolerance.

Ensuring that investors receive investment recommendations that meet their needs requires sound processes, robust tools and advisory skills. This is a blend of art and science. The science lies in the tools the advisor uses. The art lies in the advisor's ability to use the tools effectively, to work collaboratively with clients to obtain an in-depth understanding of their needs, to assist clients in resolving mismatches by identifying and explaining alternatives, and to guide the decision-making process.

To make suitable recommendations, an advisor needs a proven methodology to manage these risk-related issues with clients. The process for determining a suitable investment strategy with regard to risk is broadly called "risk profiling." It involves:

- making separate assessments of risk required, risk capacity and risk tolerance, so that they can be understood;
- comparing the assessments to identify any mismatches; and
- finding a resolution for any such mismatches.

The outcome will be an optimal solution for the investor, given the investor's often-conflicting needs.

Since the FinaMetrica risk profiling system was launched in 1998, our focus has been on investment suitability with regard to risk. This paper is based upon what we have learned over the past 14 years. Our major markets are Australia, the US and the UK, and we have significant presences in New Zealand, Canada, Germany, South Africa and India. The paper has been written for those in the investment advice supply chain - advisors, advisory networks, compliance services providers and investment managers, as well as educators, the media and those responsible for regulating investment advice. Our aims are to provide a comprehensive guide to the concepts of risk profiling, to illustrate its application, to clarify the terminology typically used and to identify the mistakes commonly made.

Risk profiling has developed in four stages over the last 30 years, from a primitive Stage 1 to a sophisticated Stage 4.

Stage 1 Early-mid 80s	The first risk profile questionnaires covered a mix of goals, time horizon, risk tolerance and investment experience. Scoring was rudimentary and arbitrary. Scores were mapped to a set of asset allocations/model portfolios.
Stage 2 Late 80s/early 90s	Stage 1 questionnaires were used to select an asset allocation/model portfolio for which expected returns were projected against goals. Projection techniques were rudimentary, but broadly recognised that risk tolerance could be a constraint on what otherwise might be recommended.
Stage 3 Mid-late 90s	The introduction of psychometric risk tolerance testing marked the introduction of science into the risk tolerance assessment process.
Stage 4 Early-mid 00s	Risk capacity was introduced into the mix as a separate constraint evaluated through stress-testing in modelling software.

The advisory industry is positioned across the stages, with most advisory firms and regulators still at Stage 1 or just beyond. The evolution has been, and will increasingly be, driven by regulatory agencies, which all require that advisors pay some regard to risk and are evolving the specifics.

Currently, the UK regulator, the Financial Services Authority, is setting global benchmarks for consumer protection, having provided the first detailed guidance about suitability with regard to

risk. This represents an important milestone because it is the first time a regulator has made a comprehensive study of how advisors arrive at suitability. The FSA found widespread inadequacies in the UK advice process. Other regulatory organisations will now be under pressure to match the protection available to UK investors.

The core of this paper deals with the specifics of risk profiling and its role in the investment advising process. Separately and in detail, it discusses the assessment of risk required, risk capacity and risk tolerance. It also provides guidance as to how to bring these different risk components together so as to identify and resolve mismatches between them. In all of these, we examine the complementary roles of art and science.

Although standards are improving rapidly in the UK, in most regulatory jurisdictions and markets, risk profiling is still characterized by one or more significant flaws including: poor or non-existent assessment of the critical risk factors; failure to consider the risk factors separately; inappropriate weightings; resolution of mismatches by the advisor without the client's properly informed consent; historical data used in projections rather than forward-looking data; unrealistically optimistic return assumptions; insufficient allowance made for possible increases in future expenses; and insufficient allowance made for longevity.

In general, we find that while risk profiling is often performed in an inadequate or unstructured manner in the more advanced advisory markets, it has become an accepted discipline. Meanwhile, there remains some degree of opposition to risk profiling in the less advanced markets.

We also find that risk perception, while not strictly a factor in risk profiling, does have an influence on all decisions involving risk. Advisors have a key role to play in managing clients' risk and return expectations through education.

Investment advising standards are raised through a combination of pull and push. The pull comes from the example set by leading advisors who continually seek best practices. The push comes from regulators, usually in response to customer dissatisfaction—and, as mentioned earlier, the UK regulator is setting the pace.

While there are many advisors who now follow risk profiling best practice, the majority have not yet evolved their practices in either the art or science of matching risk metrics to investment suitability. However, standards are being raised, which will eventually impact investors, their advisors, and generally all those involved in the investment supply chain. This important evolution can only help in restoring the public's trust in the financial services industry.

FinaMetrica is open to working with advisors and others in the investment advisory industry to improve industry practice through sharing our knowledge, skills and experience.

Introduction

Risk profiling lies at the heart of financial planning[1]. It is the process for determining an appropriate investment strategy with regard to risk.

Risk has three primary aspects:

- Risk required – the risk associated with the return that would be required to achieve the client's goals (a financial characteristic).
- Risk capacity – the extent to which the future can be less favourable than anticipated without derailing the client's plans (a financial characteristic).
- Risk tolerance – the level of risk the client prefers to take (a psychological characteristic).

Each of these three risk aspects has an impact on the selection of an appropriate investment strategy.

Risk profiling involves: making separate assessments of risk required, risk capacity and risk tolerance so that they can be understood and compared; comparing the assessments to identify any mismatches; and finding a resolution for any such mismatches.

As with many aspects of investment advising, good practice requires sound processes, robust tools and advisory skills - a blend of art and science.

Advisors and clients share a common interest: neither one wants the relationship to end unhappily. Sloppy risk profiling makes advisors vulnerable to (legal) claims by unhappy clients. One of the most likely causes of an abrupt, unhappy ending to the advisor/client relationship is mismanaged risk. In a bear market, what was previously thought of as a "risk" becomes a reality. This may trigger, at best, simple dissatisfaction and, at worst, a claim for losses sustained.

On the other hand, sound risk profiling practices will result in suitable advice, where investors understand the potential consequences of their portfolio decisions. Matching tolerance to potential outcomes results in happier clients who are easier to service and more likely to refer, and to greater investment persistency.

This paper provides a comprehensive review of risk profiling and its role in the investment advising process as follows:

- The Development of Risk Profiling
- Compliance
- Risk Profiling in Practice
- Risk Profiling Mistakes
- Opposition to Risk Profiling
- Risk Perception
- Conclusion

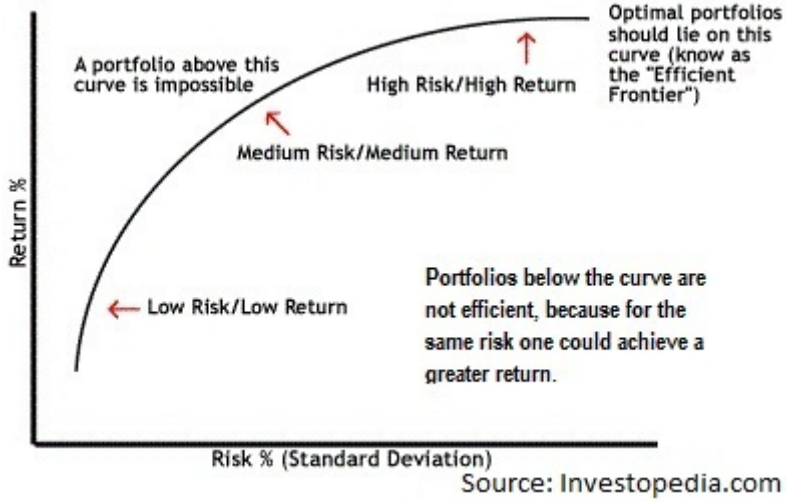
[1] From ISO Standard 22222 – Personal Financial Planning:

- Personal financial planning is a process designed to enable consumers to achieve their personal financial goals.
- The personal financial planner shall produce and provide to the client, in a clear and reasonable manner, an evaluation of the client's status that identifies areas of strengths and vulnerability, comparing them against the client's goals, plans, restrictions and assessment of financial risk tolerance.
- Personal financial planners shall be able to compare the client's tolerance for financial risks and the financial risks that may be involved in achieving his or her goals and assist the client in resolving any differences.
- Risk Tolerance: the extent to which a consumer is willing to risk experiencing a less favourable financial outcome in the pursuit of a more favourable financial outcome.

The Development of Risk Profiling

In the earliest days of retail investment advising, advisors followed what might be described as a shopping basket approach. Advisors recommended (sold) individual shares or mutual funds based on their specific characteristics and the sales story that could be built around them, influenced to no small degree by the commission payable and, in the case of stockbrokers, by which shares were being underwritten or were being held by the brokerage house. For investors, the result was often a hodgepodge of investments, each of which had been selected in isolation without consideration of their performance as a whole or the investors' needs.

As the concepts of Modern Portfolio Theory found their way into retail investment advising, this advisor-centric process began to change. MPT attempts to maximize expected portfolio return for a given amount of portfolio risk (or equivalently to minimize risk for a given level of expected return) by carefully choosing the proportions of various asset classes in the portfolio. MPT gave rise to the idea of an efficient frontier where the frontier represents the optimal risk/return relationship. For retail investment advising, this meant that advisors needed to be able to (1) offer portfolios that were on or close to the efficient frontier and (2) determine where, on the efficient frontier, a particular investor's portfolio should appropriately be positioned.



Source: Investopedia.com

To meet the first requirement investment advisory firms usually established sets of around six asset allocations, each of which was optimised with regard to the efficient frontier and which collectively provided a (limited) range of choices from low risk/return to high risk/return. To meet the second requirement advisory firms developed the first risk profiling questionnaires whose aim was to select the asset allocation most appropriate for the investor.

These questionnaires asked, typically, up to 10 questions covering goals, time horizon, risk tolerance, and investment experience. The answers to the questions were scored and the resulting scores were then mapped to the model portfolios which the advisory firm had created.

The scoring was based on rough rules of thumb: the longer the time horizon, the higher the risk/return; the lower the risk tolerance, the lower the risk/return; the greater the investment experience, the higher the risk/return. The scoring was usually arbitrary and subjective, with the result that an investor could be classified as “Balanced” by one firm’s questionnaire but “Conservative” (or “Aggressive”) by another firm’s questionnaire.

Overall, these Stage 1 questionnaires produced results that tended to be skewed towards higher risk/return allocations. It is perhaps not coincidental that those who work in financial services have higher risk tolerance than investors. It is also true, again generally, that the higher the risk/return, the higher were the fees and commissions payable.

The investment advisory industry is bedevilled by the quest for easy answers to difficult and involved issues. The design of these Stage 1 questionnaires is a prime example of this fundamentally misguided approach. They were flawed both with regard to the process they formed part of and as tools. The three aspects of risk (required, capacity and tolerance) were intermingled so that any mismatches were resolved by averaging rather than by a process which identified them separately and then resolved differences with regard to the client’s needs. Further, the questions

used were selected arbitrarily rather than through an objective analysis of their efficacy. However, investors were usually no more sophisticated in their self-analysis or ability to critique the questions they were being asked, so these questionnaires went unchallenged, and had the great benefit of quickly and easily delivering an asset allocation/model portfolio recommendation upon which a sale could be based.

Nonetheless, despite their shortcomings, these Stage 1 questionnaires were an improvement on the shopping basket approach.

The most immediately obvious flaw in Stage 1 questionnaires was that they provided no information about whether or not the recommended asset allocation would actually achieve the client's goals. Some advisors tried to overcome this deficiency by projecting expected returns for the asset allocation across the time horizon over which the goals were to be achieved (though by today's standards these projections were rudimentary). As a result, Stage 1 questionnaires did not disappear; instead, they were used as a starting point for doing projections on the basis that they constituted a (form of) risk tolerance questionnaire[2].

It was also at this time that risk tolerance first began to be used as a constraint on what otherwise might be recommended to a client. Ironically, it was only when advisors separated projections and risk tolerance assessment that they created the possibility of a scenario where risk required was greater than risk tolerance. However, the structure of Stage 1 questionnaires often meant that for medium and long term time horizons results were skewed towards high risk because of the over-weighting given to time horizon. Any gap between risk tolerance and risk required went largely undetected.

Using the return assumptions for the asset allocation/model portfolio recommended by a Stage 1 questionnaire as the starting point for performing investment performance projections marked Stage 2 in the development of risk profiling.

Once advisors recognised that by projecting expected returns they were only dealing with the risk required aspect of risk profiling, some turned their attention to the Stage 1 questionnaire itself and began questioning whether or not it actually measured risk tolerance.

Many advisors had doubts and a few developed their own risk tolerance questionnaires. Most, however, either could not see any viable alternative and continued to use Stage 1 questionnaires, or simply abandoned them altogether and thereafter relied on their interviewing and communication skills to obtain an understanding of their client's risk tolerance. Some in this latter group became so confident in their ability to produce 'accurate' projections of the risk required to achieve goals that the projection became the dominant determinant of the efficacy of the investment strategy, with risk tolerance either being ignored or trivialised.

Meanwhile the fact that there was a scientific discipline, psychometrics, for assessing attributes such as risk tolerance remained virtually unknown in the world of the investment advisor.

The first risk tolerance test to incorporate psychometric principles was the 1994 Survey of Financial Risk Tolerance (SOFRT) developed by the American College's Dr Michael J Roszkowski. The SOFRT was a paper-based test comprising 57 questions with a completion time of around 30 minutes. The completed questionnaire had to be returned to the College for scoring and the resulting report provided little more than a risk tolerance score. The process could hardly have been described as user friendly and the instrument did not gain any element of market acceptance. Nonetheless it was the first proof of concept for a questionnaire of this type.

FinaMetrica's web-based psychometric risk tolerance test was launched in Australia in 1998, the US in 2002 and the UK in 2004, and is now being used in 19 different countries. Other providers followed FinaMetrica's lead. There are now half a dozen psychometric risk tolerance tests - albeit of varying degrees of robustness - in regular use, predominantly in the UK due to the UK's proactive regulator.

The availability of a psychometric risk-tolerance test marked progression to Stage 3 in the

[2] Such questionnaires make very poor risk tolerance tests because they include questions about matters which have no bearing on risk tolerance, such as time horizon. While time horizon is very relevant information for the advice to be given and will impact on the risk actually taken, it has no bearing on the client's risk tolerance.

development of risk profiling.

Despite this progression one glaring omission from the risk profiling process at Stage 3 was any consideration of risk capacity. Without a consideration of risk capacity, an investment strategy which might be appropriate with both regard to risk required and risk tolerance, could involve a level of risk which the investor simply could not afford to take financially.

As risk profiling had been developing, so had financial planning software. Today state-of-the-art financial planning software packages allow a financial plan to be stress-tested so that investors' risk capacity - their ability to achieve goals in the event of investment underperformance - can be predicted. The addition of risk capacity into the mix in the mid 2000s marked Stage 4 of the development of risk profiling.

The Development of Risk Profiling	
Stage 1 Early-mid 80s	The first risk profile questionnaires covered a mix of goals, time horizon, risk tolerance and investment experience. Scoring was rudimentary and arbitrary. Scores were mapped to a set of asset allocations/model portfolios.
Stage 2 Late 80s/early 90s	Stage 1 questionnaires were used to select an asset allocation/model portfolio for which expected returns were projected against goals. Projection techniques were rudimentary but broadly recognised that risk tolerance could be a constraint on what otherwise might be recommended.
Stage 3 Mid-late 90s	The introduction of psychometric risk tolerance testing marked the introduction of science into the risk tolerance assessment process.
Stage 4 Early-mid 00s	Risk capacity was introduced into the mix as a separate constraint evaluated through stress-testing via modelling software.

Even in those parts of the world where there is a developed retail investment advisory industry, very few advisory firms are yet at Stage 4. While there are still a few laggards at Stage 1, most have progressed to Stage 2 and a reasonable number are operating at Stage 3. In the UK and to a lesser extent Australia, advisors are under regulatory pressure to move to Stage 4, as the following section confirms.

Compliance

Without exception, regulators in developed markets require advisors to have regard to their clients' needs including their risk tolerance. However, with one notable exception, there is no guidance given on precisely what this means or how advisors should discharge their obligations.

The exception is the UK's Financial Services Authority (FSA) which is overseeing a major process-oriented and principles-driven transformation of the financial services industry that began early last decade - the Retail Distribution Review[3] (RDR). The FSA is acknowledged internationally as the leading regulator with regard to consumer protection. Treating Customers Fairly[4] established principles-based process criteria that advisory firms must meet to demonstrate that they are providing fair treatment to their clients. The RDR has imposed progressively higher professional standards, set criteria for independent advice and banned commissions for all investment advisors from January 2013. These initiatives are in tandem with the raising of standards in the European Union resulting from the EU's Markets in Financial Instruments Directive (MiFID).

With a particular focus on the advice process, the FSA's March 2011 Guidance Paper[5] set standards for advice suitability with regard to willingness and ability to take risk - risk tolerance and risk capacity, respectively. The paper followed on from a thematic review carried out by the FSA which found widespread inadequacies in the UK advice process. In more than half of the unsatisfactory reviews, unsuitability was primarily due to risk tolerance and/or risk capacity being mismanaged.

From our experience, we would suggest that standards in the UK were similar to those in other developed markets and their regulators would have found the same problems if they conducted a similar study, which is why what the FSA has said should be considered in some detail by all giving investment advice and not just those in the UK.

In the guidance paper, the FSA made the following criticisms of common industry practices:

- *In some instances information such as the customer's attitude to risk and their capacity for loss is gathered together along with information related to the term of the investment or the age of the customer and conflated into a single output. By bundling information on different factors together, the value of each distinct piece of information is potentially lost because arbitrary weightings are applied to different factors, which may negate a preference or need. This can result in output that does not accurately reflect the trade-off decisions that a customer is willing or able to take. Although most advisors and investment managers considered a customer's attitude to risk when assessing suitability, many failed to take appropriate account of their capacity for loss.*
- *Some advisors placed an inappropriate emphasis on the risk customers were willing to take, at the expense of their other needs. Others placed an inappropriate emphasis on the risk customers needed to take to achieve their goals.*
- *Questionnaires often used poor question and answer options, had oversensitive scoring or attributed inappropriate weighting to answers, which could result in inappropriate conflation or interpretation of customer responses. Statements within descriptions were not balanced or used language that was misleading, judgemental, emotive or not objective (for example, "you are a sensible investor").*
- *Advisors did not recognise that risk profiling tools had limitations, which meant there are circumstances in which they may produce flawed results, and did not take steps to mitigate these limitations through the 'know your customer' process.*
- *Nine of 11 risk profiling tools were found to be unsatisfactory.*
- *There were many examples of poor descriptions of attitudes to risk where firms used categories which were not fit for purpose because they were vague and did not effectively explain or differentiate levels of risk.*

[3] Retail Distribution Review http://www.fsa.gov.uk/pages/About/What/rdr/index.shtml

[4] Treating Customers Fairly http://www.fsa.gov.uk/pages/doing/regulated/tcf/

[5] Assessing suitability: Establishing the risk a customer is willing and able to take and making a suitable investment selection. http://www.fsa.gov.uk/pubs/guidance/fg11_05.pdf

- *Because of poorly worded questions and the number of questions, in some cases the resulting risk category was effectively determined by the answer to one question.*
- *Extremely wide risk categories that capture customers across a broad spectrum of views can lead to investment selections that technically fit within the risk category but do not meet the specific needs of the customer. For example, where the risk a customer is willing and able to take is at the low end of a wide category but the investment selection is reflective of the high end of the category this is likely to lead to unsuitability.*
- *Having too large a gap between the risk profiles of different categories. For example, where there is a significant difference in the proportion that can be invested in equities for consecutive risk categories, this may create large jumps in the risk taken.*

The FSA guidelines also provided advice on how risk profiling should be performed, which included,

- *In circumstances where a customer's needs conflict with the level of risk a firm has established the customer is willing and able to take, we expect the firm to have a detailed discussion with the customer. The firm should draw the customer's attention to any mismatches in their investment objectives, financial circumstances, risk tolerance and capacity for loss. It should also explain the implications for the customer of making alternative trade-off decisions – for example, saving more, spending less, retiring later or taking more risk.*
- *Where the customer does not have capacity to sustain the potential loss of a higher-risk strategy, the firm should explain that the customer's need for a higher return cannot realistically be met.*
- *If the customer is able to sustain greater capital losses and is willing, following discussion, to tolerate a higher level of risk to potentially generate the desired level of return, the firm should document that this is the risk that the customer is willing and able to take, along with the reasons for this. A firm needs to take care to establish the suitability of any investment selection that requires a customer to take on a higher level of risk than originally identified.*

Some European regulators have already indicated that they intend to follow the FSA's example. In Australia the Financial Ombudsman Service quickly published its views, which read as a précis of the FSA's guidance paper, and indicated that this would be the suitability standard[6] to be applied to cases in which it is required to adjudicate.

One surprising aspect of the FSA's findings was the advice industry's muted reaction to them. After all, the findings suggest that there had been significant failures in industry practices with regard to suitability. The logical conclusion from this is that over the years many investors, perhaps millions of investors, had received unsuitable advice. One would have expected there to be some public outcry and the equivalent of a product recall. Neither would appear to have happened perhaps due to the lack of informed coverage outside of the trade press.

It may be that the investing public has been so abused by the financial services industry in recent times that this latest abuse is seen as par for the course. One can only hope that the FSA does not let the matter rest because investors may well be disappointed if they have to rely on the industry lifting its game in the absence of direct action by the regulator.

The professional behaviour of advisers in New Zealand is covered by the Code of Professional Conduct for Authorised Financial Advisers, issued in May 2011[7].

At Code Standard 7 advisers are told that they must ensure that each client must have sufficient information to make an informed decision to follow any financial advice provided.

[6] Risk Profiling in Financial Advice Disputes
http://fos.org.au/centric/the_circular_6_home/risk_profiling_in_financial_advice_disputes.jsp

[7] Code of Professional Conduct for Authorised Financial Advisers http://www.fma.govt.nz/media/283463/afa-code-of-conduct.pdf

At Code Standard 8 advisers are told that they must take reasonable steps to ensure that the personalised service is suitable for the client. The adviser must have an up-to-date understanding of the client's financial situation, financial needs, financial goals, and tolerance for risk.

At Code Standard 9 advisers are told that they must provide a written explanation of the basis on which services are provided and that they must have taken reasonable steps to ensure that the client is aware of the benefits and risks in following the advice provided.

Risk Profiling in Practice

As noted above, risk profiling involves:

- making separate assessments of risk required, risk capacity and risk tolerance so that they can be understood and compared,
- comparing the assessments to identify any mismatches, and
- finding a resolution for any such mismatches.

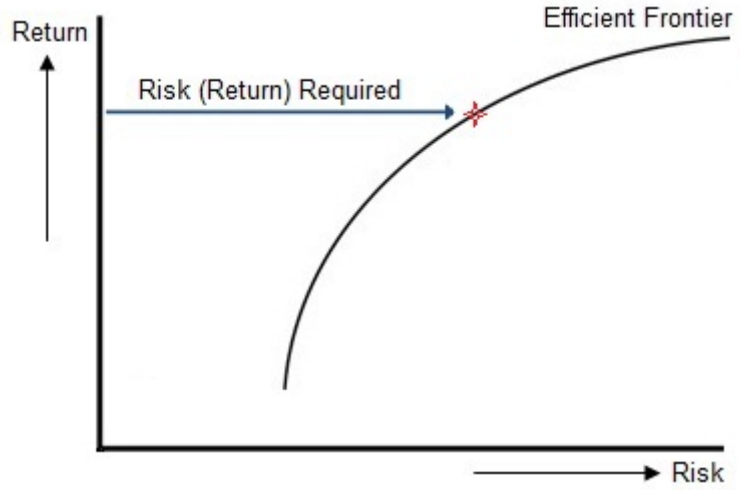
And, as we shall see, good practice requires sound processes, robust tools and advisory skills.

Risk profiling applies across a spectrum of situations. This paper will cover the spectrum by dealing with scenarios at either end of it: a simplified advice scenario and a comprehensive advice scenario.

In a simplified advice scenario, a particular sum and/or savings stream is being directed towards a specific goal. The investor is only seeking advice about how to invest those monies for that purpose. In a comprehensive advice scenario, there will be multiple goals with different priorities and timing, and an investment strategy that may involve multiple portfolios.

Assessing Risk Required

How can risk be required? Strictly, it's not risk that's required. Rather, the projection capabilities of good planning software are used to determine the return required to achieve goals given the resources available. There will be a level of risk associated with that return—and this is the risk required. In terms of the efficient frontier, portfolio selection based on risk required can be envisaged as follows.



Of course, the first time the inputs are fed through the projection software to calculate a return required, the return might be impossibly high, e.g., inflation plus 20%. In this case, some review of the magnitude and timing of goals and the resources being applied will be needed to bring the risk (return) required down to a level that is feasible.

In a simplified advice scenario, determining risk required is usually a straightforward exercise. However, in a comprehensive advice scenario, there are more 'moving parts' to be considered.

Good practice requires that the advisor be skilled in eliciting information from clients about their goals (quantified, prioritised and dated), current and anticipated income and expenses, and current and anticipated assets and liabilities.

New clients usually need help in articulating goals to ensure that all goals are identified, quantified, prioritised and dated. Similarly, clients generally will need assistance in predicting future income and expenses, and government benefits. Issues such as children's education, down-sizing the primary residence, retirement villages, long-term healthcare, longevity, inheritances, tax minimisation and similar issues may also need to be explored.

With risk required, the science lies in the financial planning software - in its comprehensiveness, flexibility, sophistication and robustness. The art lies in explaining the relevant issues to the client,

in eliciting the appropriate information from the client and in helping to resolve conflicts within couples. With couples, there is often a difference of opinion about goals and their relative importance, e.g. when and how much support to be provided to adult children and grandchildren, as against their own lifestyle and other goals. And there is both art and science in determining expected returns for portfolios and the capital market assumptions upon which they are based.

Assessing Risk Capacity

Risk capacity is the extent to which an individual's financial plan can withstand the impact of unexpected (negative) events.

In a simplified advice scenario, suppose that a client is saving for her children's' education using an investment strategy which has an expected return sufficient to fund the anticipated expenses.

What could go wrong? Unfortunately 50% of the time the actual return will be less than the expected return. Additionally, there is the possibility that the educational expenses will be higher than anticipated. In either situation, the client's risk capacity is the extent to which she can fund the shortfall from other sources, which could include a temporary reduction in lifestyle spending. In some cases the client may be able to fully fund the shortfall, in others the client may have no capacity to fund it at all, and in others still, the client's capacity will lie somewhere in between those two extremes.

However, where a client draws funds from other sources to meet these particular expenses, those monies will not now be available for whatever other purpose they would have funded - robbing Peter to pay Paul, which leads us to consideration of a comprehensive advice scenario.

Here we will have multiple goals with different priorities and timing, and an investment strategy that may involve multiple portfolios. In addition to investment performance and the possible variability of future expenses, issues such as longevity will also need to be considered.

Clearly, unexpected negative outcomes might derail the client's plan and this means that the plan must be stress-tested. All forms of stress testing (the most common of which is Monte Carlo Modelling) are driven by assumptions: Capital Market Assumptions for investment returns, life expectancy for longevity and so on. If we do a poor job on these assumptions any form of statistical stress test will be compromised.

Let's suppose that there is only a single goal – an income stream in retirement – and investment returns are the only variable. Our stress test estimates the likelihood of achieving the goal. If the likelihood is 50%, then the plan has no risk capacity[8], because any underperformance by the investments[9] will result in the goal not being achieved.

For a goal as important as income-in-retirement, a 50% chance of success is unlikely to be acceptable, which means that trade-offs will be required. Trade-off decision-making is a topic in itself and will be discussed below. For the present, it is sufficient to note that in a comprehensive scenario, risk capacity is measured by the excess over 50% of the likelihood of achieving goals.

With risk capacity, the science is in the calculations, particularly in a comprehensive advice scenario. The art lies in explaining the concept to the client.

Assessing Risk Tolerance

Unlike risk required and risk capacity, which are financial parameters, risk tolerance is a psychological parameter. Risk tolerance is how an individual feels about taking risk. Where does the person strike the emotional balance between seeking a favourable outcome versus risking an

[8] Risk capacity is presented here in a somewhat simplistic manner. For example, a stress test failure for a fully self-funded retirement is quite different to a stress test failure for a partially self-funded retirement, where, say, a pension is providing a basic retirement income. In the former, failure means no further income at all whereas in the latter the pension income continues. Further, risk required and risk capacity are not necessarily independent variables. Financial-planning thought leaders are making progress towards a clear articulation of risk capacity but are not there yet.

[9] It is important to note that in both an accumulation scenario and a de-accumulation scenario, it is not just the average return (arithmetic or geometric) that determines performance but rather the dollar-weighted return. With any investment strategy there will be 'good' years and 'bad' years. In an accumulation scenario, you hope the "good" years occur at the end and in a de-accumulation scenario at the beginning.

unfavourable outcome?

Psychologists have been studying risk tolerance for more than 60 years, and have developed a substantial body of knowledge which has only recently begun making its way into finance and economics.

Risk tolerance is domain specific. Physical, social, ethical, financial and health domains have been identified. Individuals behave consistently within domains but not across domains. For example, a hang glider is more likely to be a mountain climber than the man or woman in the street, but may, or may not, be a financial risk taker. Within financial risk tolerance, there are no sub-domains. Financial risk tolerance impacts all financial decisions, be they about investment, finance or insurance.

Risk tolerance is a psychological trait - a relatively enduring way one individual differs from another. Like personality generally, risk tolerance is a function of nature and nurture, i.e. genetics and life experiences, and is largely settled by early adulthood, as is personality generally. Risk tolerance does decrease slowly over time and, as with other aspects of personality, may be changed by life events but otherwise is stable[10] even through financial market highs and lows.

Psychology provides a scientific discipline, psychometrics, for assessing characteristics such as risk tolerance. Psychometrics concerns itself with validity and reliability - a valid test being one that actually does test what it purports to test and a reliable test being one that tests consistently with a known level of accuracy.

Psychology tells us that test-based assessments are more accurate than interview-based assessments, known technically as subjective clinical judgements. A psychometric test does not replace discussion between advisor and client, but rather provides an information-rich, objective starting point for that discussion.

Advisors who use industry-standard, non-psychometric questionnaires and/or interviewing techniques will find it difficult to establish objectively that they are making valid and reliable assessments of their clients' risk tolerance. Independent studies show that advisors' assessments of their clients' risk tolerance are highly inaccurate,[11] which suggests very strongly that industry-standard non-psychometric methods are ineffective.

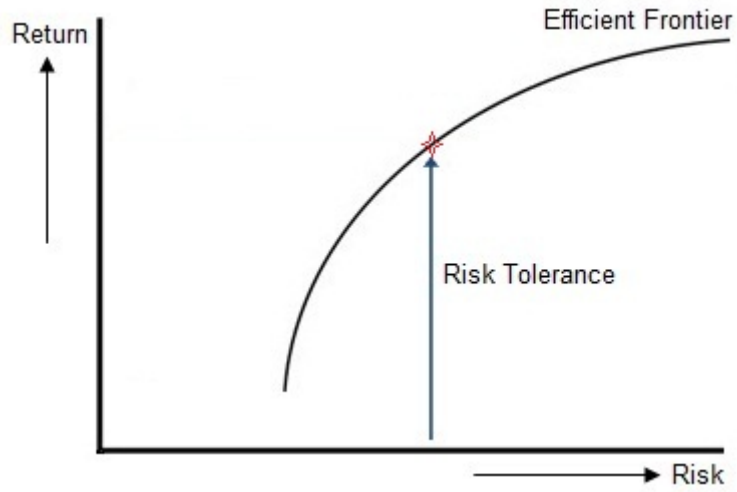
All of us are inconsistent to a greater or lesser extent. With risk tolerance assessment, this will be evident in inconsistencies in answers given. Some answers are likely to show more risk tolerance than the assessment as a whole, and some less. For example, a respondent may say that it is very important that his investments maintain their purchasing power and also that any fall in the value of his investments would make him feel uncomfortable. Any such inconsistencies should be highlighted in the report produced from the questionnaire. They will form part of the discussion between advisor and client. As was noted above, a risk tolerance test is the starting point for that discussion. The final assessment resulting from the discussion may differ from the raw results of the test. Any such difference should, of course, be properly documented and agreed to by the client.

It is important to remember that risk tolerance is not an upper limit on a negative but is more properly thought of as a comfort zone on the risk/return continuum for that individual. Each individual strikes his or her own balance between making the most of their opportunities and putting their financial well-being at risk.

With risk tolerance, the science is in the questionnaire and scoring algorithms, and, with the scoring algorithms, not only in how a risk tolerance score is calculated but also in how that score can be expressed in terms of parameters that can be linked to the efficient frontier, as shown below.

[10] Risk Perception and Risk Tolerance Changes Attributable to the 2008 Economic Crisis: A Subtle but Critical Difference, Michael J. Roszkowski & Geoff Davey, *Journal of Financial Service Professionals*, July 2010, http://www.riskprofiling.com/Downloads/Risk_Perception_and_Risk_Tolerance_JFSP.pdf

[11] Studies show that advisors' estimates of their clients' risk tolerance correlate at about .4, which means that there are gross errors, two or more standard deviations, in one in six cases. Put another way, advisors would be more accurate if they made no attempt to assess clients' risk tolerance and simply assumed everyone was average.



The art is in the discussion between advisor and client: explaining the risk tolerance report, resolving inconsistencies, arriving at a final assessment, obtaining acceptance of the assessment and confirmation that the advisor is entitled to rely on it as the client's instructions about their preferred level of risk.

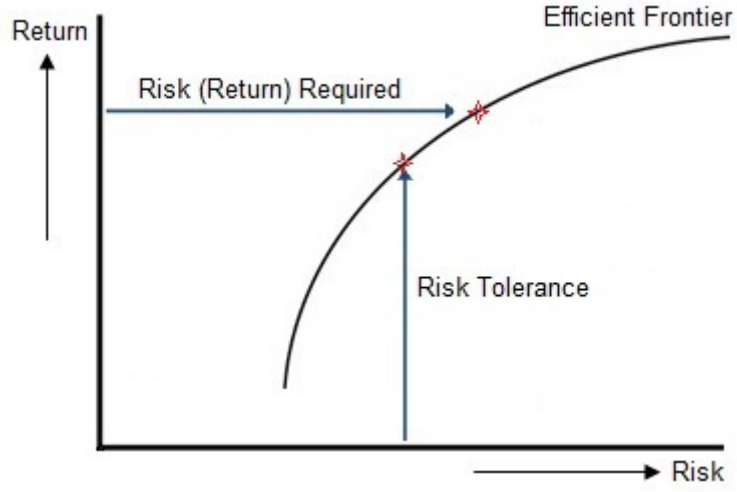
Identifying and Resolving Mismatches

Mismatches are common. Anecdotally, in about 60% of cases, there is no investment strategy that will achieve the client's goals (with the desired risk capacity) where the risk is consistent with risk tolerance - an undershoot. In a further 30% of cases, risk required, risk capacity and risk tolerance are more or less in line. In the remaining 10% of cases, the risk required to achieve the client's goals (with the desired risk capacity) is less than risk tolerance - an overshoot.

Undershoots are common because we tend to be overly optimistic about our futures. Further, we are inclined to overweight the present as against the future and to underestimate the monies that will be required to fund retirement. In simple terms, given the resources we have available, we have overly ambitious goals.

In both undershoot and overshoot situations, trade-off decisions will be required. However, an undershoot is the more difficult of the two because here the trade-off decisions will require the client to give something up.

Let's start with an undershoot mismatch where risk tolerance is less than risk required.



Risk required can be reduced by lowering or delaying the goal, increasing savings through earning more and/or spending less or by converting personal use assets to investment assets, e.g. downsizing the family home and investing the difference. Alternatively, or additionally, the client may agree to take (somewhat) more risk than they would prefer but not so much as would cause a panicked sale in a downturn. Risk tolerance can be stretched … but only so far.

Before going any further it should be noted that a mismatch problem is the client's problem, not the advisor's problem. Resolving the mismatch will require trade-off decisions which, because they involve the client's life, must be made by the client according to his or her values. The advisor's role is to suggest alternatives, illustrate, explain and guide - but not to decide.

Where the client is a couple, there is commonly an additional dimension to a risk tolerance mismatch; namely, a significant difference in risk tolerance between the two. In situations where it is a second marriage for both, it is not uncommon for their financial affairs to be largely managed separately, and this separation can accommodate differences in risk tolerance.

More commonly, though, they are acting jointly. Here, there are a number of alternatives. If one of them takes primary responsibility for financial decision-making, they could agree to proceed according to that person's risk tolerance. Even so, when the nightly news is all doom and gloom, the non-involved partner can begin to assert his or her opinions, i.e. "I don't care what you say, our retirement savings are disappearing and I can't sleep."

Alternatively, they could choose the lesser risk tolerance of the two. Or they could average. However, in any solution that involves taking more risk than the less risk tolerant of the two would prefer, it is very important to make sure that both are aware that from time to time, when markets fall, this person may be uncomfortable, perhaps considerably so, and both should sign off on their understanding.

In a different type of undershoot, risk tolerance is consistent with risk required but the investment strategy does not have sufficient risk capacity, i.e. there is not enough certainty that the goal(s) will be achieved.

In a simplified advice scenario, the client has three choices:

- to commit additional funds during the term of the investment, and/or
- to extend the time horizon, i.e. delay the goal, and/or
- to reduce the goal,

all of which will reduce the risk required. Failing that, the client will need to accept the fact that underperformance of the investment would mean that the goal cannot be fully achieved in the desired timeframe.

In a comprehensive advice scenario, the issues are similar but here there is also the option to forego less important goals. However, there is a degree of complexity in a comprehensive advice scenario that must be clearly understood.

Let's consider a client's retirement goal and suppose that the client has a desired retirement income stream of $60,000 per annum. It behoves the advisor to explore with the client what would be the minimum acceptable retirement income stream in the event things don't go as well as anticipated. Let's suppose that this is $50,000 per annum. Further, let's suppose that the client wants a 50% likelihood of achieving the desired outcome and a 95% likelihood of achieving the minimum acceptable outcome.

It can easily be that the asset allocation which has a 50% likelihood of delivering the desired outcome has only a 90% likelihood of delivering the minimum acceptable outcome and that the asset allocation which would deliver the minimum acceptable outcome with a 95% likelihood has only a 40% likelihood of delivering the desired outcome. Again, this particular mismatch will be resolved by making trade-off decisions involving a combination of easing goals, increasing resources and taking more risk. Interestingly, the more risk tolerant the clients, the more likely they are to favour their desired outcome as against the minimum acceptable outcome.

By way of contrast, the far less common overshoot situation presents only happy choices. The client will have options to increase, accelerate or add goals, spend more now or have a less volatile journey.

Mental accounting[12] can add a degree of complexity to mismatches. An investment strategy will often be implemented through multiple portfolios. These separate portfolios can arise for tax reasons, e.g. a particular type of account offers tax benefits, or for ownership reasons, e.g. some of the investor's assets are held by a family company, or because monies are being set aside for a particular purpose, e.g. emergencies. The investor may still think of all the portfolios as a being part of a whole, in which case the dollar-weighted asset allocations of the portfolios can be combined to give an overall asset allocation that can then be compared with risk tolerance.

However, the investor may think differently about different portfolios because they are targeted at different goals. The adviser then needs to know whether the investor wants to take less (or more) risk with a particular portfolio than with his/her investments generally.

It may be that the investor would prefer less risky portfolios for goals with shorter time horizons. Then the question will become whether or not the investor will take these lower risk portfolios into account when considering the risk in long-term portfolios. If he/she does and is happy to think about risk for the portfolios as a whole, then the long-term portfolios can be riskier than would otherwise be the case because the additional risk there would be offset by the lower risk in the short-term portfolios[13]. If, on the other hand, he/she is going to think about risk on a portfolio-by-portfolio basis then the risk in the riskiest portfolio cannot be greater than the risk consistent with his/her risk tolerance generally and so the portfolios as a whole will be less risky than otherwise would be the case.

With mismatches, the science lies in identifying them and the art is in guiding the client to a resolution. Identifying and helping to resolve mismatches is where the advisor can shine. Here the client's hopes and dreams are evaluated against financial realities. The advisor is uniquely positioned to guide clients through the trade-off decisions in a manner that is understandable and transparent, so that clients can arrive at optimal solutions which are based on their preferences and to which they can commit themselves.

[12] Some people compartmentalise their financial affairs into mental accounts and think differently about different accounts. For example, imagine an investor has three portfolios: one for an emergencies fund, one for children's education and one for retirement. An investor who has a mental accounting mindset is likely to place differing levels of importance on these three portfolios and the (emotional) value to the investor of a £1 loss (or gain) may differ from one portfolio to the others.

[13] Imagine that an investor has a risk tolerance consistent with a 50% equities portfolio and they have two portfolios - a $100,000 medium-term portfolio for education expenses that is invested 30% in equities and a $200,000 portfolio for retirement expenses. If the investor is prepared to think of the two portfolios as a whole then the total allocated to equities would be $150,000 (50% of $300,000.) As there is $30,000 in equities in the medium-term portfolio, $120,000 in equities in the retirement portfolio would bring the overall equities allocation to 50% and the retirement portfolio would be 60% equities.

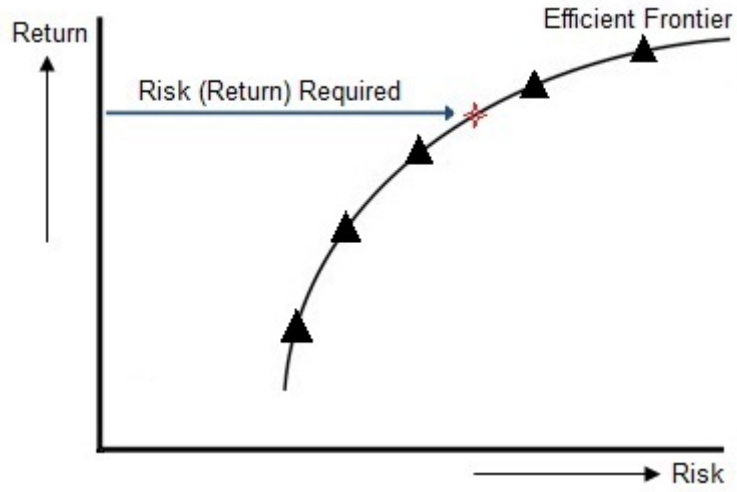
Risk Profiling Mistakes

Unfortunately, risk profiling mistakes are widespread. These mistakes won't necessarily result in bad advice, but when they do, they are likely to lead to unhappiness for both advisor and client.

With regard to assessing risk required, the following mistakes are common:

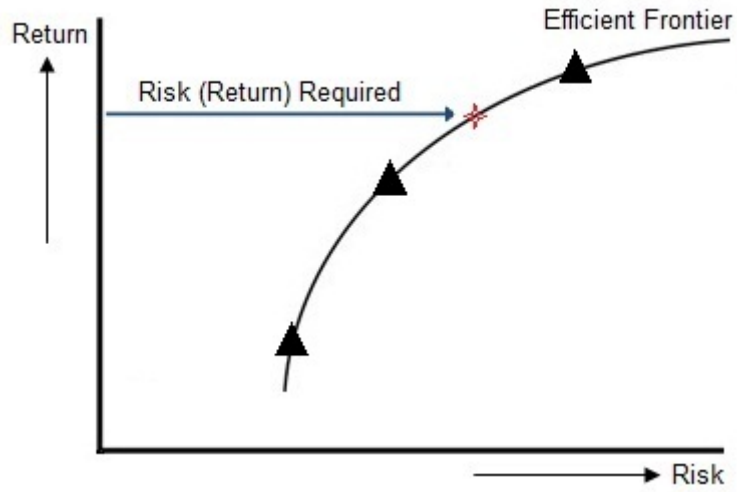
- projections use arithmetic means when geometric means[14] are more appropriate,
- projections use historical data blindly rather than forward-looking expected returns,
- unrealistically optimistic assumptions are made about expected rates of return,
- insufficient allowance is made for possible increases in expenses, particularly health and long-term care expenses,
- insufficient allowance is made for longevity, particularly the likelihood of their clients living (significantly) longer than life expectancy,
- portfolios are not rebalanced, so that over time the risk/return of the portfolio drifts away from the risk/return required, and
- the advisor has too few choices with regard to asset allocations or they are too widely spaced.

This last point - one of the flaws identified by the FSA, may require some clarification. Advisors who custom-build asset allocations can, in effect, position a portfolio at any point on the efficient frontier. However, most advisors work with a limited set of model portfolios, usually five or six, because this simplifies administration and so reduces costs. But this means that an advisor can only offer a portfolio at one of five or six positions on the efficient frontier, which in turn means that where the risk required would suggest a portfolio between one of these positions, the advisor is only able to offer a portfolio with either more or less risk (and return) than what is required.

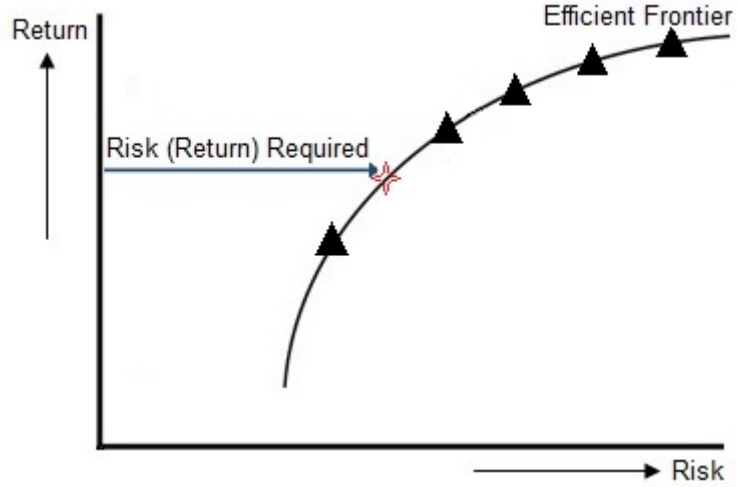


The more asset allocations available to the advisor from which to choose, the smaller should be the gaps between asset allocations and hence the more precisely the asset allocation will target the risk required. However some advisors use as few as three asset allocations which means there are large gaps between them and much imprecision in terms of targeting.

[14] The arithmetic mean return for a period is the average of the yearly returns. The geometric mean, i.e. the annual return actually achieved over the period, will be less than the arithmetic mean due to volatility drag. Volatility drag arises because to recover from a fall of a given percentage requires a rise of a greater percentage, e.g. to recover from a 10% fall requires a rise of 11%.



Even with five or six asset allocations, there can still be large gaps if several of them are positioned close together on the efficient frontier.



Having too large a gap between the available asset allocations was one of the failures specifically identified by the FSA in its guidance paper.

With regard to risk capacity, in a comprehensive advice scenario it is very difficult to assess risk capacity without Monte Carlo modelling or some other form of stochastic testing. While stochastic testing adds a degree of complexity, it will be a valuable educational experience for the client in that it demonstrates the virtual impossibility of being 100% certain of achieving goals, while also identifying which of the variables the plan is most sensitive to, i.e. the things that really matter. Additionally, the exercise will educate the client about the trade-offs between upside potential and downside protection. However the single biggest risk capacity mistake is that it is simply ignored.

With regard to assessing risk tolerance, the following mistakes are common:

- making no serious attempt to address the client's risk tolerance. Advisors either
    - use simplistic questionnaires (most commonly Stage 1 questionnaires) to mollify compliance departments allowing them to get on with the 'real' business of advice, or
    - explain the risk in their recommendation and, assuming that the client has understood this explanation, proceed unless the client objects,
- relying on interviewing skills to make an assessment (a "subjective clinical judgement" as referred to above),
- asking couples to complete a risk questionnaire jointly, rather than each doing their own, and
- relying solely on the results of a risk tolerance questionnaire and not dealing with inconsistencies in a client's answers.

With regard to identifying and resolving mismatches, the common mistakes are:

- not identifying them in the first place, particularly with regard to risk capacity,
- not having a robust methodology for translating a risk tolerance score into a tolerable asset allocation,
- downplaying the importance of risk tolerance, particularly where the advisor is highly risk tolerant,
- overplaying the importance of time horizon in the mistaken belief that there is more certainty about investment results in the longer term[16],
- presenting a solution (based on the advisor's values and risk tolerance) rather than finding a solution through a collaborative process which gives due regard to the client's values and risk tolerance.

In larger organisations, and even in some smaller ones, these mistakes are compounded by inconsistent behaviour across advisors. The organisation uses different risk tolerance tests in different departments, advisors do not use the results of the test consistently, advisors use different descriptions of risk in their communication with clients and this is often different from the way risk is described in the investment products recommended.

While advisors cannot be expected to behave as clones of one another, in a given client situation their advice should be broadly consistent.

It must also be remembered that a risk profile is based upon information, and decisions made, at a particular point in time, and thus has a relatively short half-life. While a client's risk tolerance is unlikely to change, everything else can: circumstances, aspirations, expectations and, not least, the efficient frontier and capital market assumptions. Hence, clients should be made aware that their risk profile will need to be updated on a regular basis and advisors should be monitoring the need to do an update by reviewing the factors upon which the profile was based. Too many advisors take a set-and-forget attitude to risk profiling.

Opposition to Risk Profiling

There is always opposition to any new concept, and risk profiling has been no exception. However, as the logic of the concept has become better understood, its merits have been more obvious and opposition has melted away. Nonetheless, there are still isolated pockets of opposition.

Where there is opposition, it is invariably centred on risk tolerance and comes from advisors who, at best, do not consider risk tolerance to be important or, at worst, ignore it. These advisors typically have an I-am-the-expert advice model which says to clients "tell me your situation and I will tell you what to do". They will often assist the client in the completion of the risk questionnaire leading to answers more in line with what the advisor intends to offer rather than the risk tolerance of the client.

They also often have an idiosyncratic approach to investment, offering only a limited choice of asset allocations and/or illogically constructed portfolios.

They will point to flaws in industry-standard risk questionnaires as evidence that risk tolerance cannot be reliably assessed. Essentially this is an argument that, because risk tolerance assessment done poorly doesn't work, risk tolerance assessment cannot be done well. They seem unaware of, or ignore, the fact that psychometrics provides a well-established scientific discipline for assessing risk tolerance. They will argue, despite the evidence to the contrary[17], that risk tolerance is highly unstable, depending heavily on mood and the financial environment.

Investors generally know that their risk tolerance is important and that it is vital that their advisors understand their risk tolerance. Presently, clients are largely unaware of risk tolerance assessment methodologies and have no reason to doubt the method their advisor chooses. This position will change as high-quality risk tolerance assessment becomes more widespread. In the medical field,

[16] The fact that the standard deviation of annualised returns decreases over time is often mistakenly interpreted to mean that results are more certain in the long-term, see The Spray, pages 5 to 7 at http://www.riskprofiling.com/Downloads/AVM_Part3_AUS.pdf

[17] A summary of the evidence for the stability of risk tolerance, six independent studies across more than a decade, can be found at www.riskprofiling.com/RTstability.

patients today are largely well aware of the role of blood tests, X-rays, etc. in helping their doctor provide appropriate advice. In future investors will be similarly informed about the assessment of their risk tolerance, to the point where they may even ask about the credentials of the test that the advisor intends to use with them.

Risk Perception

Before concluding, it is appropriate to give some consideration to risk perception. Investors, especially new investors, are usually not well-informed about investment risk, particularly the relationship between risk and return, and the range and likelihood of possible outcomes, including the possibility of extreme events.

Investors will make decisions based on their perception of the risks involved. Risk is likely to be under-estimated in a rising market and over-estimated in a falling market. In the former, investors may need to be cautioned and in the latter, encouraged.

As we have seen, risk profiling usually involves clients making trade-offs decisions where one of the elements involved in evaluating the alternatives will be the investment risk for those alternatives. It is critically important that advisors manage investors' risk and return expectations through education. The risk profiling process presents a unique educational opportunity because the education can be directly tied to the real-life issues being considered and decisions being made.

In this context, advisors are often placed at a disadvantage by the explanations of risk provided by internal or external investment managers. While these may be technically correct, they do not capture the pattern of outcomes the investor might experience. In particular, they often do not provide adequate warning of extreme events, which can have most unpleasant consequences for all parties.

Conclusion

Investment suitability is the foundation upon which good investment advice is built. Not only must the investment be suitable with regards to the investor's goals, but also with regard to the investor’s risk capacity and risk tolerance. Risk profiling provides a proven methodology to ensure the suitability of investment advice. It requires sound processes and robust tools (which are now readily available), and advisory skills. It is a blend of art and science. The science lies in the tools the advisor uses. The art lies in the advisor's ability to use the tools effectively, to work collaboratively with clients to obtain an in-depth understanding of their needs, to assist clients in resolving mismatches by identifying and explaining alternatives, and to guide the decision-making process.

Standards are raised through a combination of pull and push. The pull comes from the example set by those leading advisors who continually seek best practices. The push comes from regulators, where the UK regulator is setting the pace for the rest of the world.

While there are many more advisors who now follow risk profiling best practices, the majority still operate without full understanding of the state of the art. However standards are moving toward greater sophistication, which is to the benefit of both investors and their advisors. This can only help in restoring the public's trust in the financial services industry.