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## Asset Allocation Mappings Guide

### Comparing Risk Tolerance and Investment Risk

The Asset Allocation Mappings allows you to identify and manage the resolution of any conflict between

- ❖ your client's risk tolerance, and
- ❖ the level of risk they need to take with their investments to achieve their goals,

The guide is in two parts:

#### A. Understanding the Asset Allocation Mappings

We explain the rationale behind FinaMetrica's methodology for comparing risk tolerance with investment risk and for dealing with mismatches.

#### B. Using the Asset Allocation Mappings

We demonstrate the methodology by taking you through various scenarios framed as questions, namely:

1. *When do I use the Asset Allocation Mappings?*
2. *How do I use the Asset Allocation Mappings with an existing client?*
3. *How do I use the Asset Allocation Mappings with a new client?*
4. *What if my client is a couple?*
5. *What if my client has a very low risk tolerance (and a long time horizon)?*
6. *What if I'm only advising about part of my client's investments?*
7. *What if I use a standard set of asset allocations?*

### A. Understanding the Asset Allocation Mappings

The Asset Allocation Mappings tool enables you to objectively incorporate your clients' risk tolerance scores into the process of selecting investment strategies. Selecting an investment strategy will usually involve trade-offs. Trade-off decisions can only be made effectively if the elements of the trade-off are clear and explicit.

A common trade-off decision is between:

- ❖ risk tolerance, and
- ❖ the risk required to achieve goals.

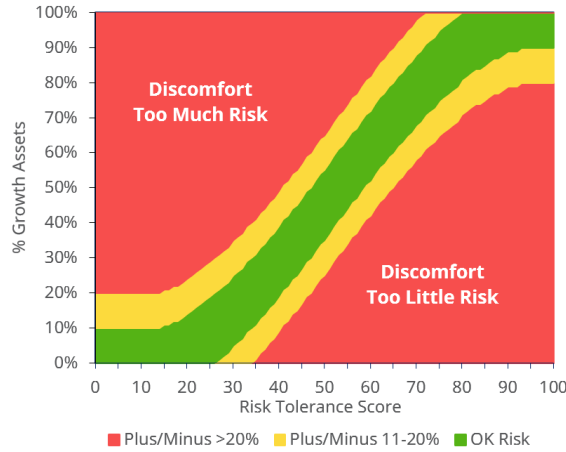
Often, risk required exceeds risk tolerance. In order to identify such a gap, advisors must be able to do an apples-to-apples comparison between risk tolerance and investment risk.

The expected risk/return of a well constructed portfolio is determined, broadly, by its Defensive/Growth split, where defensive assets include Cash and Fixed Interest and growth assets include Property/Real Estate and Equities/Shares/Stocks. A FinaMetrica risk tolerance score can be expressed in terms of the percentage of growth assets. (See Appendix for details of the supporting research.)

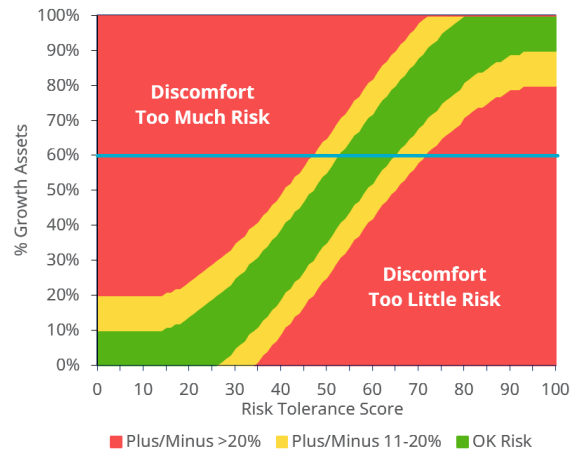
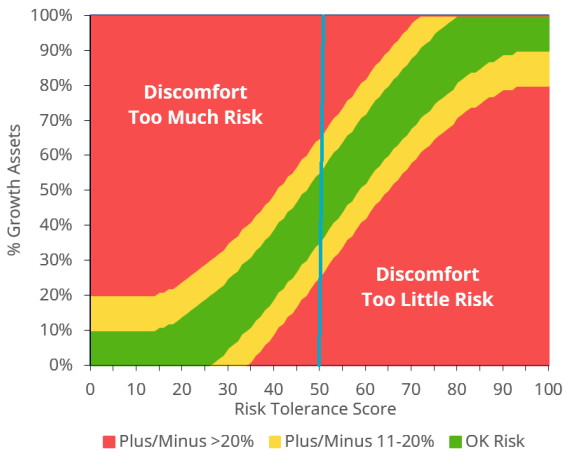
For example, a risk tolerance score of 50 translates to 45% growth assets, meaning that a client with a risk tolerance score of 50 will be comfortable with an asset allocation that has 45% growth assets (and 55% defensive assets). However, in a well-constructed portfolio, volatility is not highly sensitive to the percentage of growth assets. For example, a client who is comfortable with 45% growth assets will also be comfortable with 46% or 44%, 47% or 43% and so on.

Risk tolerance is not just an upper limit on a negative. Rather, it is where the individual balances the chance of a positive outcome against the chance of a negative outcome. So, not only can a person be exposed to too much risk, they can also be exposed to too little risk.

Hence, there will be a shading-in between comfort and discomfort on both the upside and the downside. For an individual with a risk tolerance score of 50 there should be a comfort zone from 36% to 55% growth assets and discomfort from either too much risk or too little risk shouldn't begin to occur until the proportion of growth assets goes outside this range. The chart below shows the gradation from Comfort (green) through to Discomfort (red) for the 0 -100 risk tolerance score range.



The chart can be used to see how asset allocations fit with a particular risk tolerance score, e.g. for a score of 50, or how risk tolerance scores fit with a particular asset allocation, e.g. for an asset allocation with 60% growth assets.



In the Comfort Zone Calculators worksheet of the Asset Allocation Mappings Excel file you will find two ready reckoners that simplify doing the reading-offs described above. They allow you to see, for a particular risk tolerance score, the Comfort/Discomfort ranges for the percentage of growth assets in a portfolio and vice versa.

Risk Tolerance Score = 50	Growth Assets = 60%
<b>% Growth Assets Ranges</b>	<b>Risk Tolerance Score Ranges</b>
<b>Too Little Risk: &lt; 26%</b>	<b>Too Much Risk: &lt; 47</b>
<b>Marginal: 26% - 35%</b>	<b>Marginal: 47 - 52</b>
<b>OK Risk: 36% - 55%</b>	<b>OK Risk: 53 - 64</b>
<b>Marginal: 56% - 65%</b>	<b>Marginal: 65 - 71</b>
<b>Too Much Risk: &gt; 65%</b>	<b>Too Little Risk: &gt; 71</b>

Figure 1

### Gap Analysis

The Gap Analysis section of your clients' risk tolerance report (or Gap Analysis A of the Excel file) allows you to compare risk tolerance with the risk in both the current and target portfolios, as shown in Figure 2.

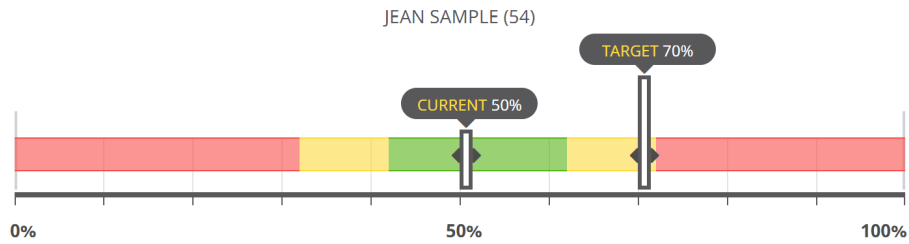


Figure 2

The target portfolio being the one required to achieve the client's goals having regard to the client's risk capacity. The graphic shows horizontally, on a % growth assets scale, a vertical cross-section of the first chart in Figure 1 for a particular risk tolerance score and superimposes the current and target portfolios.

For Jean, whose risk tolerance score is 54, her current portfolio of 50% growth assets is within her comfort zone but her target portfolio of 70% growth assets is not. You can also add in additional portfolios either individually or by selecting from your standard set under My Portfolios .

You'll notice that under the Gap Analysis calculator, there is a snapshot of our Risk and Return analysis for 11 illustrative portfolios ranging from 0% to 100% Growth assets. The most relevant illustrative portfolios are highlighted for the Current and Target portfolios (and any other portfolios selected). At a glance you can see comparable historical risk and return information for your client's Current and Target portfolios. For more details on our Risk and Return reports, please refer to the Risk and Return Guide under [System Resources](#).

## B. Using the Asset Allocation Mappings

Here we explain how to use the FinaMetrica methodology through a series of questions relating to common scenarios. It is an expansion on the discussion in our QuickStart Guide.

### 1. When do I use the Asset Allocation Mappings?

Arriving at suitable investment advice usually involves consideration of risk required, risk capacity and risk tolerance, typically in that sequence. However there are some situations where it is clear that the most appropriate solution for your client is going to be interest-bearing deposits. Such situations would include, for example:

- ❖ setting monies aside or saving for an emergency fund or short-term goal, and
- ❖ setting monies aside or saving for a medium-term goal where it was important that the return achieved was at least that of interest-bearing deposits.

But when it appears that something other than interest-bearing deposits is going to be appropriate, then risk required, risk capacity and risk tolerance must be considered.

Risk required will be a function of the client's goals, financial resources and time horizons. Risk capacity will be a measure of the extent that the client can sustain underperformance of their investments or other negative events. Both of these can be determined using financial planning software.

Where risk required as modified by risk capacity suggests that an investment strategy involving more risk (and return) than interest-bearing deposits should be considered, it is time to look to risk tolerance and the Asset Allocation Mappings.

### 2. How do I use the Asset Allocation Mappings with an existing client?

Suppose your client, Peter, whose risk tolerance score is 60, has a (well-diversified) portfolio comprising 70% growth assets and 30% defensive assets. How does the risk inherent in this portfolio compare with Peter's risk tolerance? To find out, enter 70% growth assets for the Current portfolio in the Gap Analysis calculator (or in Gap Analysis A of the Excel file). Figure 3 shows the Comfort/Discomfort risk tolerance score ranges for Peter.

Peter's risk tolerance score of 60 means that his current portfolio is within his comfort zone.

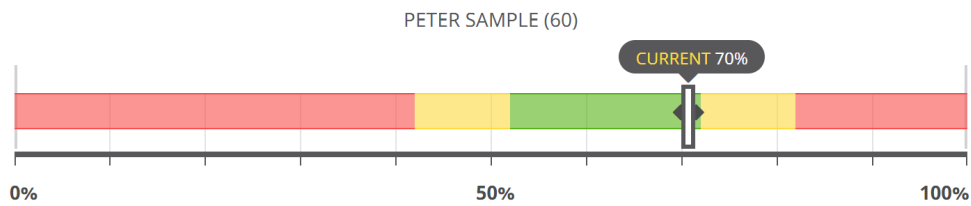


Figure 3

Note that if Peter's investment strategy was being implemented via multiple portfolios of differing % growth assets, then a decision will need to be made as to whether these portfolios should be aggregated to determine the % growth assets for Peter's strategy or whether they should be treated separately. This decision will depend upon how Peter sees his portfolios. If he sees them as part of a whole then they should be considered as an aggregate, e.g. if Peter has a \$200,000 in a pension portfolio with 50% growth and \$100,000 in an ordinary portfolio with 100% growth, his overall strategy is 67% growth assets, (50% of \$200k plus 100% of \$100k)/\$300k, which falls in his comfort zone. However, if Peter thinks of these two portfolios separately then the pension portfolio is within his comfort zone but the ordinary portfolio is well outside his comfort zone on the upside. Peter, with your assistance, will need to decide what to do about this. Maybe he can increase the risk in his pension fund and reduce the risk in his ordinary portfolio so that both will fall within his comfort zone.

### 3. How do I use the Asset Allocation Mappings with a new client?

Ideally, you will be able to find an asset allocation that can be expected to achieve your client's goals and is consistent with your client's risk tolerance. For example, your client, Bob, has a risk tolerance score of 55 and your modelling software shows that Bob's goals can be achieved with an investment strategy based on a portfolio with 50% Growth assets.

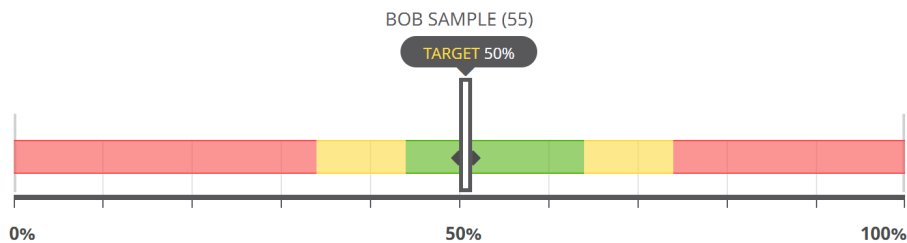


Figure 4

Clearly, an asset allocation of 50% growth assets is within the Comfort Zone of a client with a risk tolerance score of 55. So, Bob can achieve his goals within his risk tolerance. However, more often than not, the client's goals are such that the asset allocation required to achieve them will take your client outside their Comfort Zone. Suppose that achieving Bob's goals was going to require 70% growth assets.

A portfolio with 70% growth assets is within Bob's higher Marginal range. The level of risk in this portfolio is significantly greater than Bob would normally choose to take. He can resolve the problem by some combination of lowering/deferring/foregoing goals, investing more (spending less and/or earning more) and/or taking more risk (than he would normally choose.) Again, you can advise, illustrate and guide ... but the decision must ultimately be Bob's<sup>1</sup>.

### 4. What if my client is a couple?

Suppose Mark and Jane, with risk tolerance scores of 38 and 59 respectively, currently have a 40% growth portfolio but your analysis shows that they will need a 55% growth portfolio to achieve their goals.

The target portfolio is within Jane's comfort zone but is well above Mark's comfort zone. Your role here is to help them resolve their problem. If Jane manages their financial affairs they may choose to go with her risk tolerance score with the knowledge that Mark is likely to be severely discomfited in a downturn; but it will be important that both acknowledge this risk in writing.

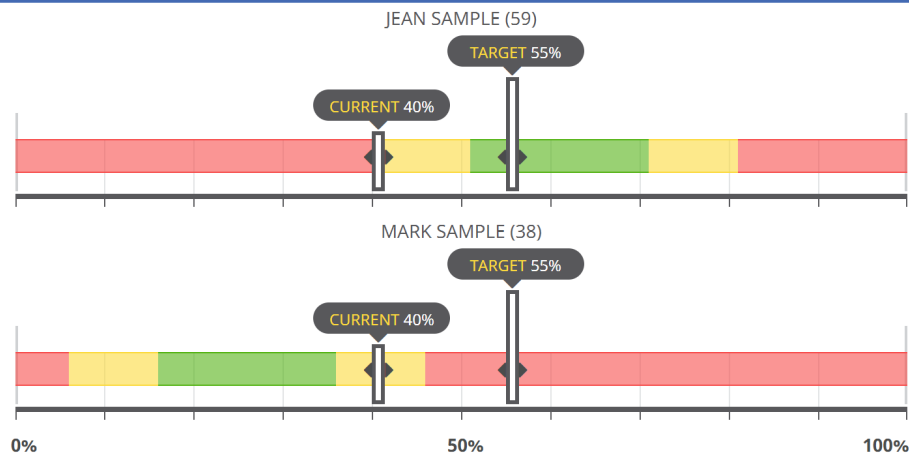


Figure 5

Alternatively, they might choose to split their funds into two portfolios, one each or into a joint portfolio and two individual portfolios, and so on. They might also consider easing their goals or applying more financial resources to achieving them, both of which would mean that the target portfolio could be less risky<sup>1</sup>. You can guide, advise, illustrate, etc. but the ultimate decision must be theirs. Additionally, you can use the multiple portfolios facility where different portfolios are associated with different mental accounts, e.g. emergency fund, children's education, retirement, etc.

### 5. What if my client has very low risk tolerance (and a long time horizon)?

As we saw above, for short time horizons, a cash-only solution is likely to be the best alternative, regardless of risk tolerance; and for medium term time horizons a cash-only solution might still be the best alternative, again regardless of risk tolerance. However, for a client with very low risk tolerance (score less than 30) and a long time horizon, unless your client's goals are very modest in relation to the resources available to fund them, there will be a gap, possibly a very big gap, between the risk required to achieve their goals and their risk tolerance. Your client has a (big) problem!

There is no easy solution here. While a cash-only solution might provide a comfortable journey there is likely to be much unhappiness when the accumulation goal is not achieved and/or the funds run out while there are still living expenses to be met. On the other hand, a portfolio that would achieve the client's goals will be likely to cause a panicked bail-out at some stage during the journey, resulting in an unhappy client, possibly even a plaintiff. What's more, the client may then be in a worse position than if they had been cash-only from the beginning and so their goals will now be even further out of reach.

Some tough trade-off decisions will be required from the client and the result may be far from optimal. Unless the client can find significant additional financial resources, the result is likely to be that the client takes significantly more risk than they would prefer but not enough to achieve his goals AND that they will have to be satisfied with a much more modest future than they had hoped for. You may wish to consider declining to take on such an individual as a client because unhappiness, either sooner or later, is virtually guaranteed.

Where the client is a couple, one of whom has very low risk tolerance, the situation may be somewhat less difficult, particularly if the more risk tolerant of the two is the primary financial decision-maker. However, the danger is that in a market downturn the less risk tolerant one's anxiety will become dominant. Any solution which involves the less risk tolerant one taking significantly more risk than they would prefer must be very carefully explained and the decision-making process must be carefully documented.

### 6. What if I'm only advising about part of my client's investments?

Your client, Sue, is seeking your advice about investing \$50,000. She also has another \$200,000, invested 50% in growth assets, on which you are not advising.

Suppose Sue has a risk tolerance score of 60, so she will be comfortable with up to 72% growth assets. This

means, for her investments as a whole, up to \$180,000 (72% of \$250,000) could be in growth assets. At present, she has \$100,000 (50% of \$200,000) in growth assets. Hence, all of the \$50,000 you're advising on could go into growth assets and, overall, Sue would still be within her comfort zone (providing she can think of her investments as a whole rather than thinking of each in isolation.)

In fact, in theory Sue could borrow \$37,500 to add to her \$50,000 and invest the whole \$87,500 in growth assets and still be within her comfort zone (again, providing she can think of her investments as a whole rather than thinking of each in isolation.) Of course, before borrowing is recommended, alternative strategies need to have been explored and, more generally, any recommendation should be derived from the client's stated goals. It is not sufficient to recommend borrowing (or any other strategy) simply because it is possible to implement that strategy. The strategy must be appropriate for the client given their situation and goals. On the other hand, if Sue wants to think about the \$50,000 as a standalone investment then 72% growth assets would be the maximum level of risk, given her risk tolerance.

### 7. What if I use a standard set of asset allocations?

Many advisors use a standard set of asset allocations to simplify the administrative aspects of portfolio construction and management. All investment strategy recommendations are made in terms of one of the standard set of asset allocations.

Each of the standard set of asset allocations represents a point along the continuum from 100% defensive to 100% growth - in effect, a point on the efficient frontier. The number of asset allocations varies. Some advisors use as few as three. Others use as many as 11. The number used is a compromise. On the one hand, the fewer used the less likely it is that investment strategy recommendations can be precisely targeted to clients' goals, i.e. more clients fall into the gaps between asset allocations. On the other hand, the greater the number of asset allocations the less the saving in administration. Typically, a standard set will comprise five or six asset allocations.

Suppose you use a standard set of six asset allocations, named Conservative, Cautious, Prudent, Balanced, Growth and High Growth which have growth assets of 0%, 20%, 40%, 60%, 80% and 100% respectively. You can calculate Comfort/Discomfort and Best Fit ranges in the My Portfolios section (see Figure 6) or by using the Standard Asset Allocations Calculator in the Excel file.

Asset Allocation	Growth Assets	Risk Comfort/Discomfort Zones for Each Asset Allocation					
		Best Fit	Too Much Risk	Marginal	OK Risk	Marginal	Too Little Risk
Conservative	0%	0 - 24	n.a.	n.a.	0 - 25	26 - 33	> 33
Cautious	20%	25 - 40	< 14	14 - 25	26 - 40	41 - 46	> 46
Prudent	40%	41 - 53	< 34	34 - 40	41 - 52	53 - 58	> 58
Balanced	60%	54 - 65	< 47	47 - 52	53 - 64	65 - 71	> 71
Growth	80%	66 - 82	< 59	59 - 64	65 - 79	80 - 92	> 92
High Growth	100%	83 - 100	< 72	72 - 79	80 - 100	n.a.	n.a.

Figure 6

The table provides Comfort zone score ranges for each of the asset allocations. For example, the Prudent asset allocation's Comfort Zone is a risk tolerance score of 41 to 52. The table also provides Best Fit ranges for each of the asset allocations. Essentially, these answer the question, "Given that I have these six asset allocations from which to choose, how do I divide up the 0 -100 scale so that I can see, for any particular score, which asset allocation best fits that score?"

You can use this information, for example, in the Mark (score 38) and Jane (score 59) situation described above. Jane's score fits best with "Balanced". Knowing this, you could begin your modelling using the expected performance figures for "Balanced" to see if their goals can be achieved within Jane's risk tolerance.

If so, then you could try modelling "Cautious" (the best fit for Mark's score.) If "Cautious" would not achieve their goals, you would then need to start the discussion about taking more risk (than Mark would normally choose), investing more and/or lowering/deferring/foregoing goals, etc..

## Appendix

### Adjusted Risk Tolerance Scores

It is important to remember that, as a result of discussion of the client’s Risk Tolerance Report, advisor and client may agree to “adjust” the client’s risk tolerance score - see QuickStart Guide under System Resources, Discussing Your Client’s Risk Tolerance Report. While this is not common, it does happen. In such a case, a reference in this document to “risk tolerance score” should be read as a reference to the adjusted score.

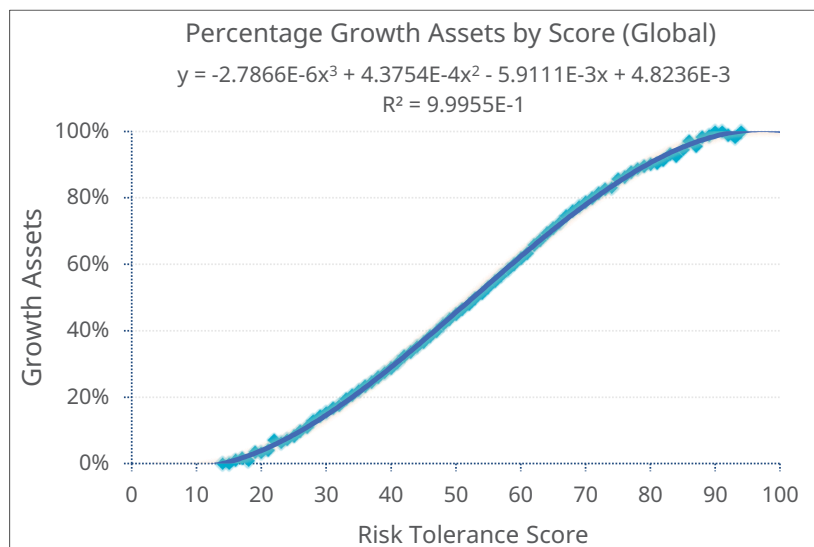
### Risk Tolerance Research

Q16 in the FinaMetrica risk questionnaire asks respondents to select their preferred portfolio from a set of seven portfolios. Each portfolio is expressed as a mix of investments categorised as low risk/return, medium risk/return and high risk/return. Cash and interest-bearing bank deposits are given as examples of low risk/return investments and stocks/shares/equities and property/real estate are given as examples of high risk/return investments.

To analyse the answers in terms of a Defensive/Growth split, these mixes were converted by equating Low to defensive, High to growth and splitting Medium 50/50. This conversion allows each of the seven portfolios to be categorised in terms of their percentage of Growth Assets as shown below.

Portfolio	Risk/Return			Growth Assets
	Low	Medium	High	
1	100%	0%	0%	0%
2	70%	30%	0%	15%
3	50%	40%	10%	30%
4	30%	40%	30%	50%
5	10%	40%	50%	70%
6	0%	30%	70%	85%
7	0%	0%	100%	100%

Using our database of completed risk profiles, the average % growth assets was calculated for each specific risk tolerance score by using the answers to Q16 (Q8 on the 10-Question test). These averages are consistent with answers to other investment-related questions. The averages were plotted and a line-of-best-fit was calculated<sup>2</sup>.



The line-of-best-fit equation is used to determine (from a risk tolerance score) a specific percentage of growth assets compatible with that score. In the Comfort/Discomfort charts in the guide proper, the line-of-best-fit equation corresponds to the mid point of the OK Risk comfort zone.



### A Note on Comfort

“Risk tolerance” is often confused with “loss tolerance”. How somebody feels about taking risk in choosing between alternative courses of action which include the possibility of unfavourable outcomes (“risk tolerance”) is one thing. How somebody will subsequently feel if one of the possible unfavourable outcomes actually occurs (“loss tolerance”) is another. Risk tolerance is relevant to how someone makes decisions. Loss tolerance is relevant to how someone reacts to an event.

When we talk about a client being “comfortable” with a portfolio we mean comfortable with the level of risk inherent in that portfolio. We are not predicting how the client will feel if one of the “bad” risks eventuates. How the client will react to an unfavourable outcome (“loss tolerance”) is not predictable with any certainty.

Essentially, the FinaMetrica system enables your client to give you clear instructions about the level of risk they choose to take at the time decisions are being made. You are entitled to rely on those instructions. While nobody enjoys an unfavourable outcome, there is a significant difference between being unhappy with the outcome and being unhappy with the advice that led to the outcome.

It is likely, though by no means certain, that a client’s reaction to an unfavourable outcome will be consistent with what they said about the level of risk they were willing to take. The better the client knows themselves the more consistent the reaction will be. But in any event, with FinaMetrica you are able to take them back to what they said at the time the decision was made and to show them step-by-step how they decided on the course of action they followed. This may make them feel better and it may not. But it will demonstrate that they have no cause for complaint about the advice that led to the decision. For a more expansive discussion on these issues see our *Advising in a Volatile Market* series at <http://www.riskprofiling.com>.

### Reference

<sup>1</sup> See Resolving the Gap in the QuickStart Guide under [System Resources](#).

<sup>2</sup> Analysis of the other quantitative questions in the risk questionnaire revealed similarly, but not identically, shaped correlation curves. Given that we are trying to match the quirks of human personality to the vagaries of investment markets, identical correlations would be highly problematic. Having in mind that we are not trying to do a one to one mapping but rather to identify comfort zones we are confident in using answers to Question 16 as the key indicator.

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