

# User Guide to FinaMetrica's Linking Spreadsheet: Comparing Risk Tolerance and Investment Risk

## Introduction

This guide is intended to be read as you familiarise yourself with FinaMetrica's Linking Spreadsheet. You should print it and have the Linking Spreadsheet open as you read on.

The guide is in two parts:

- A: Understanding the Linking Spreadsheet
- B: Using the Linking Spreadsheet

In A, we explain the rationale behind FinaMetrica's methodology for comparing risk tolerance with investment risk and for dealing with mismatches.

In B, we demonstrate the methodology by taking you through various scenarios framed as questions, namely,

- When do I use the Linking Spreadsheet?
- How do I use the Linking Spreadsheet with an existing client?
- What if my client is a couple?
- What if my client has a very low risk tolerance (and a long time horizon)?
- How do I use the Linking Spreadsheet in selecting an asset allocation to recommend to a new client?
- What if I'm only advising about part of my client's investments?
- What if I use a standard set of asset allocations (rather than construct a specific asset allocation for each client)?

If the guide doesn't answer all your questions or if you wish to comment on it, please email [support@finametrica.com](mailto:support@finametrica.com)

## A. Understanding the Linking Spreadsheet

The Linking Spreadsheet is a tool that 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, advisers must be able to do an apples-to-apples comparison between risk tolerance and investment risk.

An investment strategy will be implemented via an investment portfolio. 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 A for details of the supporting research.)

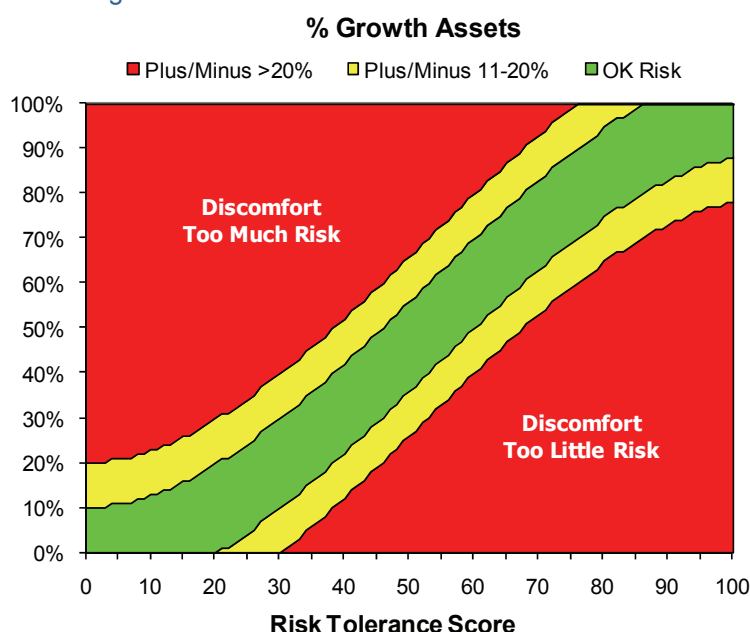
For example, a risk tolerance score of 50 translates to 46% growth assets, meaning that a client with a risk tolerance score of 50 will be comfortable with an asset allocation that has 46% growth assets (and 54% defensive assets.)

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 46% growth assets will also be comfortable with 47% or 45%, 48% or 44% and so on.

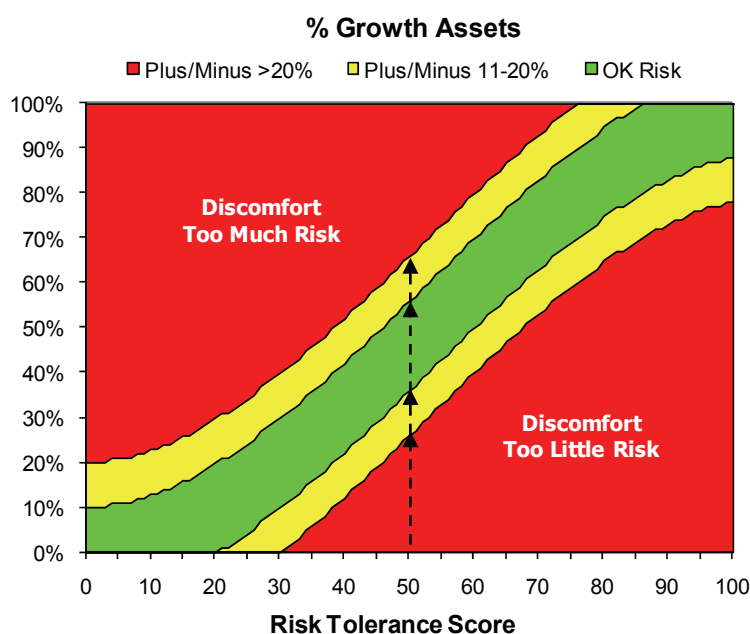
Moreover, risk tolerance is not just an upper limit on a negative. Rather it is where the individual balances the chance of a positive outcome against the chance of a negative outcome. So, not only can a person be exposed to too much risk, they can also be exposed to too little risk.

Hence, there will be a shading-in between comfort and discomfort on both the upside and the downside.

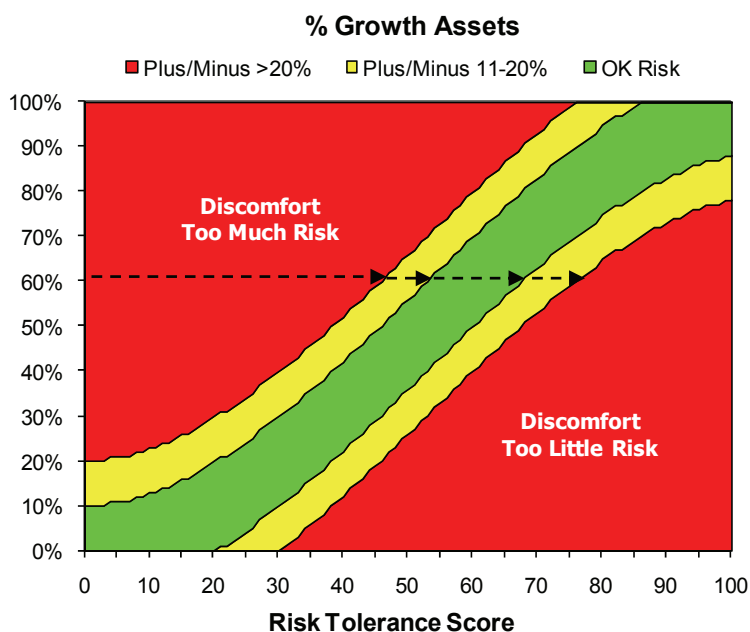
For an individual with a risk tolerance score of 50 there should be a comfort zone from 37% to 56% growth assets and discomfort from either too much risk or too little risk shouldn't begin to occur until the proportion of growth assets goes outside this range. The chart below shows the gradation from 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 as below.



The chart can also be used to see how risk tolerance scores fit with a particular asset allocation, as on the next page for an asset allocation with 60% growth assets.



In the Comfort Zone Calculators worksheet you will find two ready reckoners that simplify doing the reading-offs described above.

The first, see Figure 1, allows you to see, for a particular risk tolerance score, the Comfort/Discomfort ranges for the % of growth assets in a portfolio.

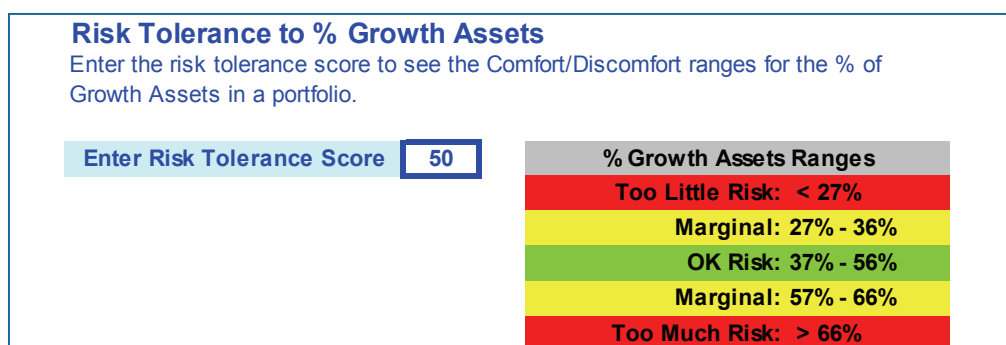


Figure 1

The second, see Figure 2, allows you to see, for the particular % of growth assets in a portfolio, the Comfort/Discomfort ranges for risk tolerance scores.

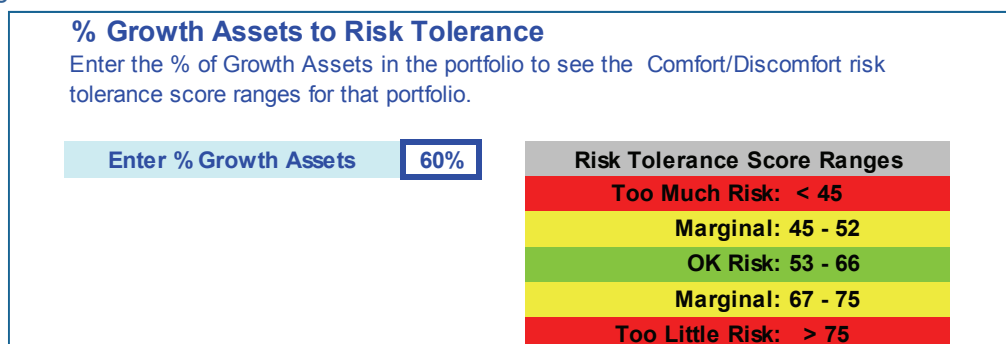


Figure 2

In the Gap Analysis worksheet you will find a further two calculators which allow you to do gap analysis for both Individuals and Couples.

These calculators allow you to compare risk tolerance with the risk in both the current and target portfolios, as shown below in Figure 3. 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 chart in Figure 1 for a particular risk tolerance score and superimposes the current and target portfolios.

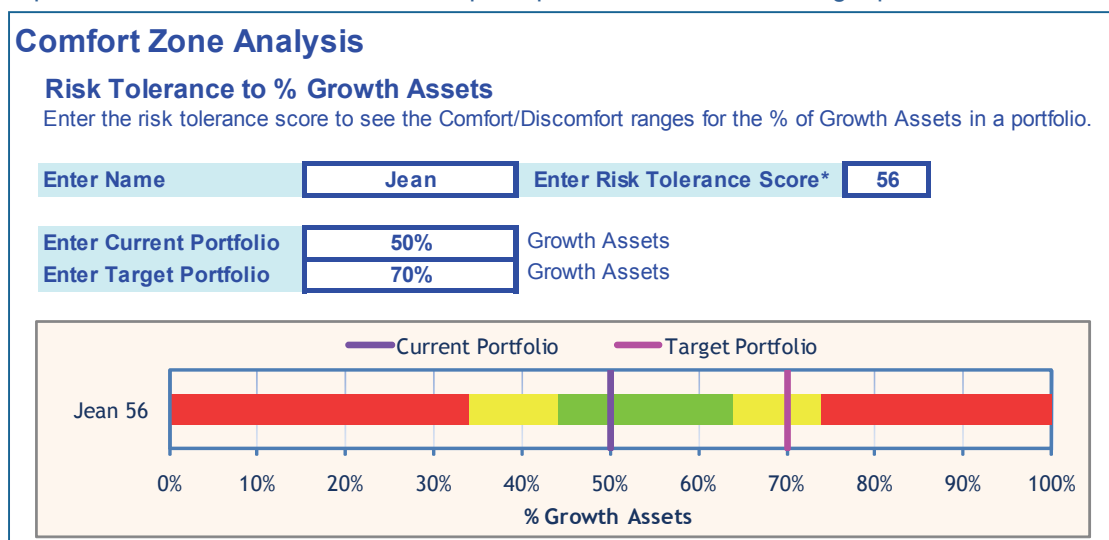


Figure 3

For Jean, whose risk tolerance score is 56, her current portfolio of 50% growth assets is within her comfort zone but her target portfolio of 70% growth assets is not.

#### 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 lead 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 Bear Market series at <http://www.riskprofiling.com>.*

#### A Note on Scores

*It is important to remember that, as a result of discussion of the client’s Risk Profile report, adviser and client may agree to “adjust” the client’s risk tolerance score—see QuickStart Guide, Discussing Your Client’s Risk Profile 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.*

## B. Using the Linking Spreadsheet

This part explains 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.

### When do I use the Linking Spreadsheet?

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,
- setting monies aside or saving for a 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. 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 Linking Spreadsheet.

### How do I use the Linking Spreadsheet 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, you can use the % Growth Assets to Risk Tolerance Comfort Zone Calculator in the Linking Spreadsheet. Entering 70% growth assets into the calculator gives you the Comfort/Discomfort risk tolerance score ranges shown in Figure 4.

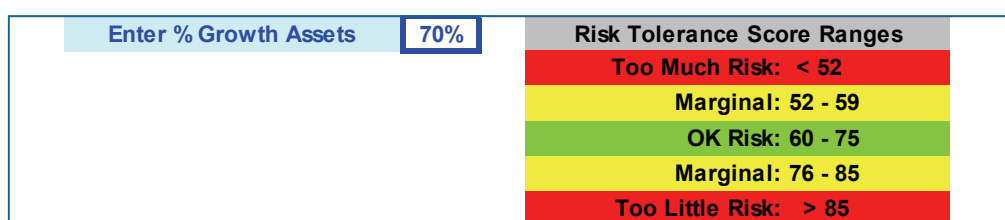


Figure 4

More graphically, you could use the gap analysis calculator as shown in Figure 5.

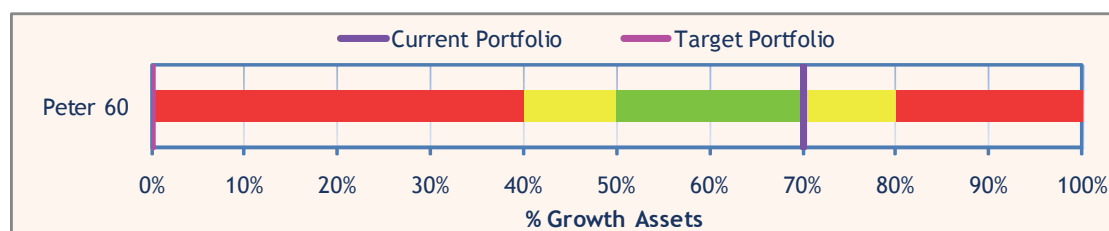


Figure 5

As can be seen Peter's risk tolerance score of 60 means that his comfort zone includes his current portfolio, but only just.

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 portfolio. 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 just 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.

## What if my client is a couple?

Suppose Mark and Nicki, 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, as shown in Figure 6.

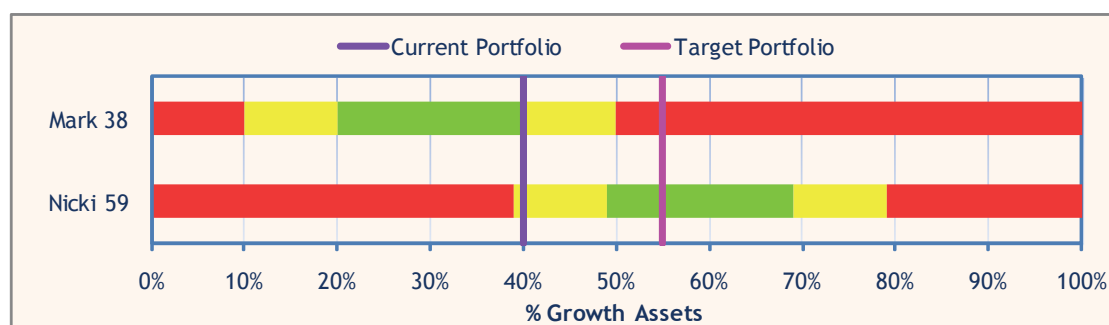


Figure 6

Clearly, they have a problem. The target portfolio is within Nicki's comfort zone but is way above Mark's comfort zone. Your role here is to help them resolve their problem. If Nicki 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. Alternatively, they might choose to split their funds into two separate portfolios, 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.

## 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.

<sup>1</sup> See Resolving the Gap in the QuickStart Guide.

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 (austere?) 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.

## How do I use the Linking Spreadsheet in selecting an asset allocation to recommend to 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, suppose your know-the-client fact-find shows 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.

Entering Bob's score of 55 in the **Risk Tolerance to % Growth Assets Comfort Zone Calculator** gives you the % growth assets ranges for Bob's risk tolerance as shown in Figure 7.

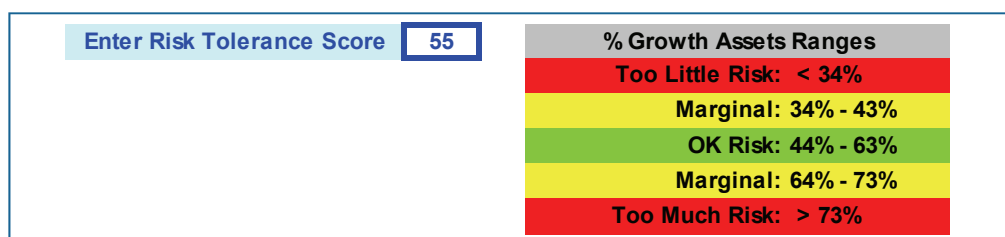


Figure 7

More graphically, you could use the gap analysis calculator as shown in Figure 8.

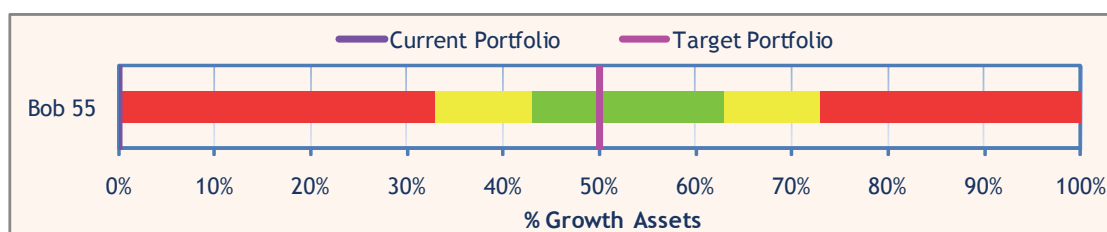


Figure 8

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 towards the end of 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>2</sup>.

<sup>2</sup> See Resolving the Gap in the QuickStart Guide.

## 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 70% growth assets. This means, for her investments as a whole, up to \$175,000 (70% 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 \$25,000 to add to her \$50,000 and invest the whole \$75,000 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 70% growth assets would be the maximum level of risk, given her risk tolerance.

## What if I use a standard set of asset allocations (rather than construct a specific asset allocation for each client)?

Many advisers 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 advisers use as few as three. Others use as many as 11. A very few use even more.

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 by using the Risk Tolerance Score Ranges for Standard Asset Allocations Calculator in the Linking Spreadsheet as shown in Figure 9.

			Risk Tolerance Score Ranges					
	Asset Allocation	Growth Assets	Best Fit	Too Much Risk	Marginal	OK Risk	Marginal	Too Little Risk
1	Conservative	0%	0 - 16	n.a.	n.a.	0 - 19	20 - 29	> 29
2	Cautious	20%	17 - 38	< 2	2 - 19	20 - 37	38 - 45	> 45
3	Prudent	40%	39 - 53	< 29	29 - 37	38 - 52	53 - 59	> 59
4	Balanced	60%	54 - 68	< 45	45 - 52	53 - 66	67 - 75	> 75
5	Growth	80%	69 - 88	< 60	60 - 66	67 - 85	86 - 100	n.a.
6	High Growth	100%	89 - 100	< 76	76 - 85	86 - 100	n.a.	n.a.

Figure 9

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 38 to 52.

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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 Jack (score 50) and Jill (score 70) situation described above. Jill's risk tolerance score fits best with "Growth", the fifth asset allocation in your standard set.

Knowing this, you could begin your modelling using the expected performance figures for the "Growth" asset allocation to see if their goals can be achieved within Jill's risk tolerance.

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

## **Summary**

The Linking Spreadsheet allows you to follow best practice in identifying any conflict between

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

and then in managing the resolution of that conflict.

Your client will be able to give their properly informed commitment to any trade-offs they make in finalising their investment strategy.

## Appendix A

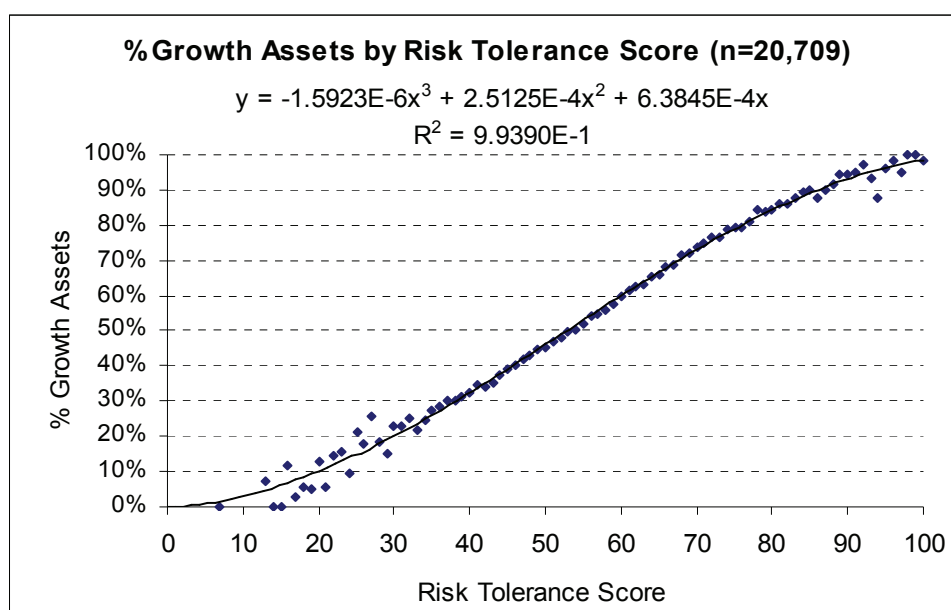
### Risk Profile Research

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 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. These averages are consistent with answers to other investment-related questions. The averages were plotted and a line-of-best-fit was calculated.



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.