Advising in a Volatile Market
- The New Uncertainties.

Part 3: How misinformation and misunderstanding lead to unrealistic expectations about long-term investment performance

Obviously, short-term risk is most likely to first cause grief in a relationship. However long-term risk is no less problematic ... and explaining it can be as difficult, if not more so.

There are two prime causes of this difficulty: misinformation and misunderstanding.

Misinformation is information that, while not necessarily wrong, is misleading. The future is rosy once the hurdle of short-term volatility is overcome ... or so they would have us believe.

Misunderstanding arises through a lack of knowledge about the principles of portfolio construction and a lack of mathematical/statistical skill in evaluating/analysing portfolio performance.

The overall effect of misinformation and misunderstanding has been to build overstated perceptions of long-term returns and understated perceptions of long-term risks.

Risk is accepted in the hope of attaining a commensurate return. Whether or not a particular level of risk will be acceptable to your client will depend on the expected return associated with that risk. Realistic expectations about expected returns are a necessary pre-condition for informed decision-making about risk.

This article considers three major misconceptions, caused by misinformation and misunderstanding, which must be overcome in helping clients understand long-term investment returns. Without this understanding, your client will have difficulty in both appreciating the long-term aspects of an investment strategy and developing realistic expectations about long-term risks.

The Fairy Floss Mountain

'Mountain' charts, like the one below, are a classic example of misinformation.

They are generally used to encourage consumers to invest in "growth" investments. As will be seen, they do this by presenting an exaggerated view of the potential returns while minimising the risks.

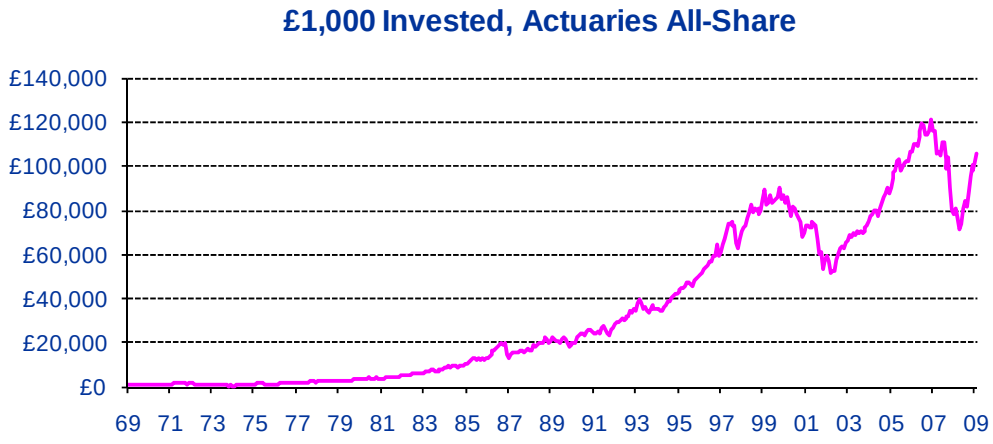

Chart 1

How accurate an impression does this create of expected returns from UK equity investment? Let's see.

The first quibble, and it's a relatively minor one, is that index performance overstates reality because of 'survivor' bias[1].

How much of the 'value' in your illustrations is simply the inflationary air in fairy floss?

The second quibble, and it is not minor, is about inflation. How often do you see a 'mountain' chart expressed in real dollars rather than nominal dollars? You're lucky if inflation is even plotted on the chart and, even then, does that really make the point to a novice investor? To set the record straight, what's needed is a chart done in real dollars, like the next one.

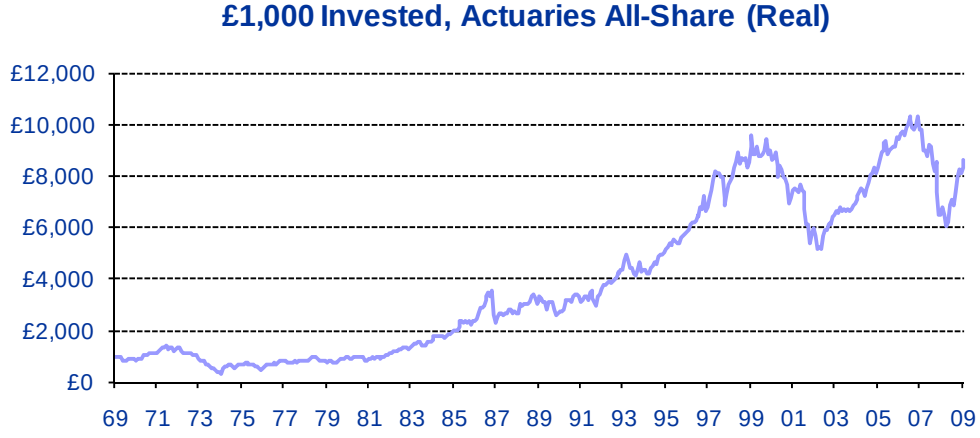

Chart 2

Chart 2 doesn't look quite as exciting does it? In fact, of the £105,726 that appeared to accumulate over the period in Chart 1, £97,095 (92%) was illusory in that it represented inflation. It was the air in the fairy floss.

If you really want to make the point, put nominal and real on the same chart, as below:

1 Changes to the composition of the index favour good performers over poor performers.

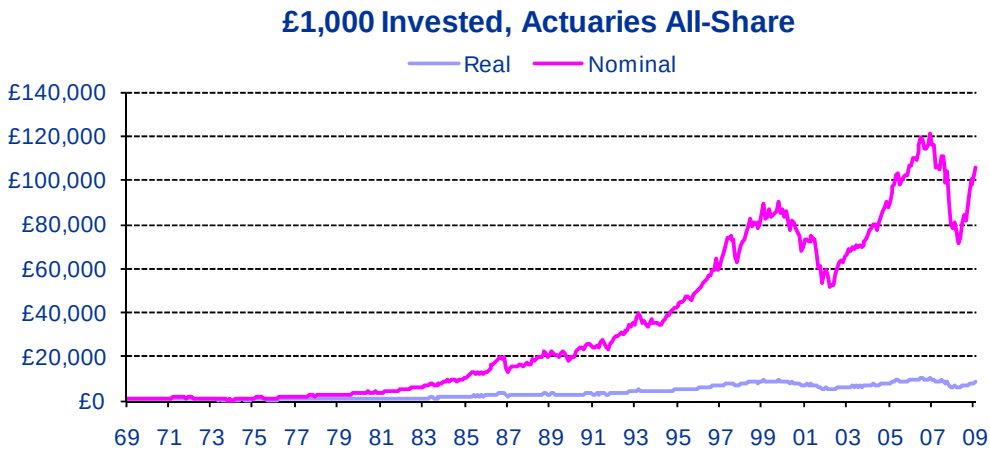

Chart 3

Anything else wrong with 'mountain' charts? You bet there is.

Firstly, investors never actually enjoy even the real returns because of taxes/fees/costs. In a single-digit return environment, even with low inflation, taxes/fees/costs can swallow a large slice of the real return – in some cases, even all of the real return and more.

Secondly, a 'mountain' chart only shows what happened to someone who invested at the start of the period and remained invested to the end. It is a sample size of one. How good or bad it looks depends on the start and end dates chosen. Admittedly, most have end-dates that are current or close to current. But you don't see too many that start in the early 70s, like those above, because of the poor returns that followed[2].

Thirdly, where's the volatility in any of the above charts? Sure, there are a few dips towards the end but the early ones disappear. However, if we consider rolling twelve-month periods[3] a very different picture emerges as can be seen in the chart below.

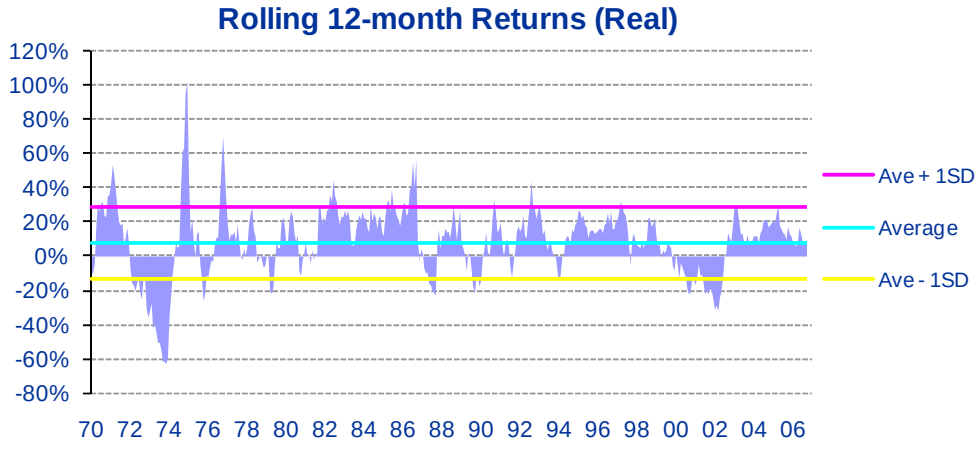

Chart 4

Now, of course, with twelve-month periods we're talking about short-term risk. But even the novice investor can guess that with that level of risk in the short term there's likely to be quite some risk over the long term[4] ... and they'd be right.

2 Note that if you invested on 1st January 1970, ten years later you were showing no real gain over the period (for most of which you had been experiencing a real loss.)

3 Rolling twelve-month periods present a far more accurate picture than annual returns based on either financial years or calendar years, as these tend to hide volatility. The best illustration of this is that the October '87 Crash all but disappears if you're looking at calendar year returns.

4 If it is difficult to predict the next week's weather, how much more difficult is it to predict the next month's weather? Predicting portfolio performance has essentially the same degree of difficulty.

Let's suppose we look at 1970 to 2009 and construct a 'mountain' chart for each of the 120-month periods, the first starting January 1970 and ending December 1979, the second starting February 1970 and ending January 1980, and so on.

Next let's suppose we superimpose all 361 of these 120-month mountain charts on top of one another so that they all have the same starting point of £1000 at month zero. Then we will be able to see the full range of lump sum investment[5] experiences over all the 120-month periods from 1st January 1970 to 31st December 2009.

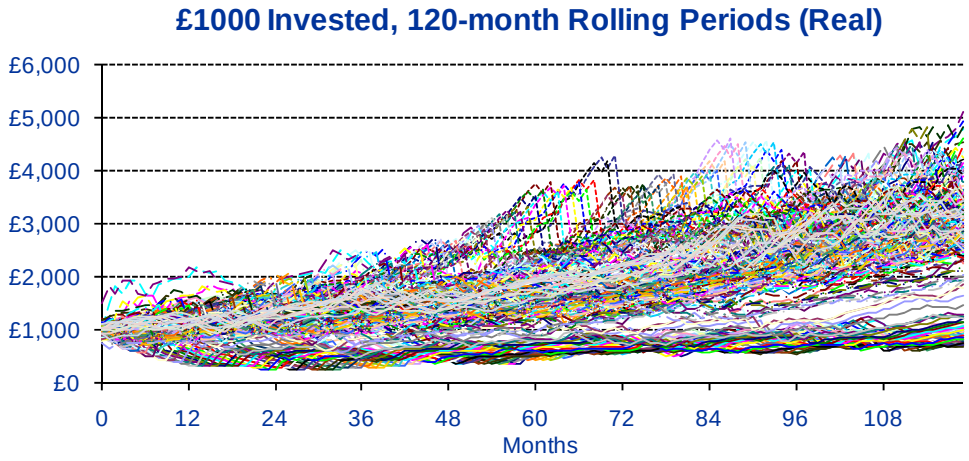

Chart 5

Clearly, there is quite a bit of volatility in the end-results of a ten-year investment. This will be examined in more detail in **The Spray** below.

For the present, it is sufficient to note that the average end-value over 120-month periods is £2,440 and the standard deviation is £998. The best result was £5,096 and the worst was £679, more than 30% less than the amount originally invested!

Does all the above mean that 'mountain' charts have no value?

Not at all. Provided they are accompanied by the sort of balancing information set out above, advisers can use them with clients as *a classic example of the misinformation that is fed to the investing public.*

The Cake Mix

Most cakes are made from flour, milk, eggs, sugar, butter, bicarbonate of soda and something to add flavour. To make a cake that tasted nice, you could try tasting the ingredients and then use them in proportion to how nice they tasted individually ... but you'd likely finish up with a very strange cake.

Yet, judging by industry discussion/debate about which is the best performing asset class, at least some take this approach to portfolio construction.

This approach is indicative of a failure to fully understand diversification.

There are two aspects to diversification. The first is splitting your bet. By having a series of small bets running simultaneously you minimise the likelihood of a really bad result (and of a really good result too.) The second is co-variance. By investing in a range of asset classes that perform out of sync with one another you can expect to obtain both risk and return benefits.

Here are two trick questions.

- Suppose you knew which asset class was going to be the best performer over the next ten years. Would the best strategy have to be to put all your investments into that asset class?

5 Of course, this is not really the full range because by using month-end values, it ignores day-to-day fluctuations in value during a month. However, it is close enough to the full range.

- Suppose you added to an existing portfolio a new asset class that had lower return and higher risk than the original portfolio. Must the new portfolio have lower return and higher risk than the original one?

In both cases, the correct answer is "No". If you are puzzled by this, consider the following hypothetical.

There are three asset classes A, B and C. Over three years, A is the best performer - $1000 invested in A grows to $1,134 versus $1,129 and $1,128 for B and C, respectively

	Asset Classes		
	A	B	C
Year 1	20%	-5%	12%
Year 2	-10%	9%	-5%
Year 3	5%	9%	6%
Simple Average	5.00%	4.33%	4.33%
Compound Average	4.28%	4.12%	4.09%
End Value (£1000)	£1,134	£1,129	£1,128

Table 1

But what happens if you construct a 50/50 portfolio of B and C?

	Asset Classes			Portfolio
	A	B	C	50/50 BC
Year 1	20%	-5%	12%	3.5%
Year 2	-10%	9%	-5%	2.0%
Year 3	5%	9%	6%	7.5%
Simple Average	5.00%	4.33%	4.33%	4.33%
Compound Average	4.28%	4.12%	4.09%	4.31%
End Value (£1000)	£1,134	£1,129	£1,128	£1,135

Table 2

Not only does the diversified portfolio outperform each of its component asset classes, it also outperforms A!

Admittedly, the figures in the hypothetical were chosen specifically to illustrate the argument and it was assumed that the 50/50 portfolio was rebalanced[6] each year. But the basic point is that this result is mathematically possible ... a fact that many would previously have had difficulty accepting.

The message for portfolio construction is that, to obtain the full benefits of diversification, it is not sufficient to consider the potential performance of the component parts in isolation. Rather, they must be considered in combination with one another.

Arguments about which is the best performing asset class are, in fact, evidence that the participants do not understand diversification - the central issue of portfolio construction.

Even if you knew which was going to be the best performing asset class in the future, the best result is probably not going to be obtained by putting all your investments into that asset class. So why bother trying to crystal ball the future, let alone argue over the past?

If you want your client's investment 'cake' to taste great, focus on how best to combine the ingredients rather than the ingredients themselves.

The Spray

It is generally accepted that volatility decreases over time and this is demonstrated by tables and "funnel" charts that look like those below:

6 Re-balancing strategy is a non-trivial topic in its own right and beyond the scope of this article.

	Actuaries All-Share, Annualised Rates of Return (Real)				
	Rolling Period (Months)				
	12	24	36	60	120
Max	101.7%	41.4%	35.9%	29.3%	17.7%
Min	-62.8%	-49.4%	-34.4%	-19.3%	-3.8%
Average	7.7%	6.7%	6.5%	6.8%	7.9%
Std Dev	20.8%	14.3%	12.2%	8.8%	5.4%
Avg + SD	28.5%	21.0%	18.6%	15.6%	13.3%
Avg - SD	-13.0%	-7.6%	-5.7%	-2.0%	2.5%

Table 3

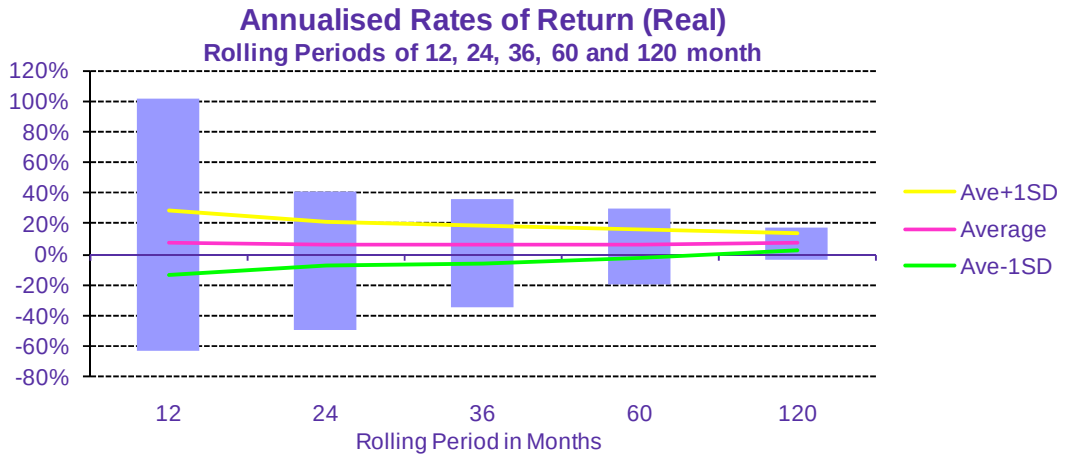

Chart 6

These show clearly that the standard deviation reduces dramatically over time. But does this mean that volatility decreases over time?

The mathematical trick in these illustrations of the 'funnel' is that the calculations are based on annualised rates of return.

Investors can't 'eat' annualised returns. What they 'eat' is the end-value of their investment. End-value is determined by compounding the annualised rate of return over the period of the investment.

Small variations in the annualised rate of return will have large effects over long periods.

Let's reproduce 'the funnel' table and chart from above but this time based on end-values rather than annualised rates of return.

	£1,000 Invested, Actuaries All-Share, End-Values (Real)				
	Rolling Period (Months)				
	12	24	36	60	120
Max	£2,017	£2,000	£2,507	£3,615	£5,096
Min	£372	£256	£282	£343	£679
Average	£1,077	£1,158	£1,252	£1,481	£2,362
Std Dev	£208	£286	£390	£569	£1,031
Avg + SD	£1,285	£1,444	£1,642	£2,050	£3,393
Avg - SD	£870	£873	£862	£912	£1,331

Table 4

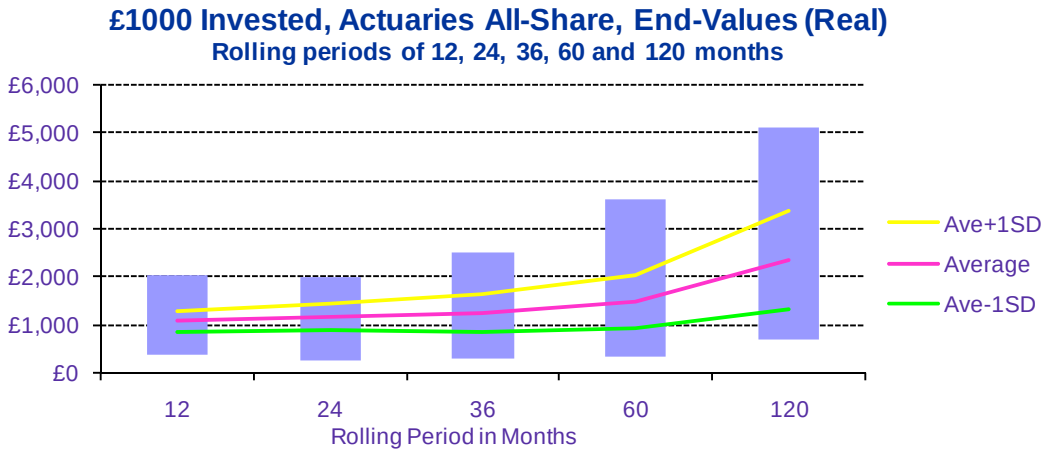

Chart 7

This looks very different. For 12-month periods, the standard deviation is 19% of the average. For 120-month periods, the standard deviation is 44% of the average. There's not much decrease in volatility over time when you look at the right parameters ... in fact, the very opposite!

Clearly, 'the funnel' is misinformation. It's accurate but misleading. It creates the false impression that uncertainty is only really a problem in the short term.

In reality, 'the spray' is a more valid analogy. If you've been thinking about long-term risks in a 'funnel' framework, then you'll need to re-think the advice you give to your clients.

Summary

If we are to ensure that our clients have realistic expectations about long-term outcomes, then we must accept that expected real rates of return will be low and that, for any expected rate of return, the range of expected outcomes increases with time. Further, we must remember to focus on the performance of the portfolio as a whole rather than that of its component parts.