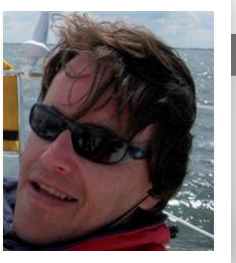
Less Is More

How Less Risk Equals More Return – Part 2

Modern portfolio theory tells us a 'no pain, no gain' story about investing on the part of taking risk. It puts forward the idea that on average, more risk will bring higher returns and for higher returns more risk will be needed, as long as one can manage the portfolio efficiently. Mind the 'on average' here. As we are going to show from a more encompassing expectancy standpoint rather than a solely probabilistic view, on average less (risk) might well mean more (profit) with a greater certainty.



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» In financial markets, a domain swamped by uncertainty, given all the biases a trader is prone to, he could be a loaded gun as well as a loose cannon. Further to the downside, a lot of things don't have to be (and a lot aren't) what they seem at first glance. No matter how many people take them for granted or acknowledge them nor how long it has been postulated that way.

Examples are plenty. Having brains blue-printed ten to twenty thousand years ago, we subconsciously value survival and procreation as the highest objectives. Evolution rewarded overzealous pattern detection regardless of a high degree of false positives (a lot of patterns mean nothing – think of the faces and figures we see in clouds). Extrapolation is another thing our ancestors were rewarded for being good at, and as such, we inherited (think extrapolating the course of predator/prey or a projectile aimed at us). Causal agent detection is another one. Consensual validity is yet another (everybody around us seems to do/agree with it). That is also why in the financial industry we keep using normal distributions as being a good enough approximation. Black swans show us, from time to time, how big and dangerous that mistake really is. We diversify without thinking about the disadvantages (see articles by Dirk Vandycke in TRADERS´ 03/2014 and 04/2014). And on and on the list goes. So perhaps we should be sceptic by default on the things and common wisdom we take for granted.

Back to Risk and Return

In part 1 of this article we saw that we can not only invest too much, but too little as well, given the expectancy of a setup. That seemed pretty consistent with Markowitz's theory on mean variance returns versus the risk taken. But from the viewpoint of one portfolio, the probability weighed average return seems not solely based on risk. What's more, the relation between returns achieved and risk taken might well show an inverted U-curve, rather than a purely proportional connection.

So more return doesn't necessarily need to ask for more risk (this is again consistent with Markowitz's theory). But where Markowitz talks about averages and dispersion, for an individual investor, although more risk can (possibility), of course, lead to more return, it is to be expected that in the long run taking more risk eventually will eat away at total return and lower expectancy (probability). In short, what is possible therefore isn't necessarily (highly) probable. Think back on the coin toss game in the previous article, where the odds where in your favour. Even though this is a game with a positive expectancy, meaning you have to make money from playing it and you want to do so as long as possible, risking your total stake on each turn would mean killing that expectancy at once when the first toss against you would wipe you out.

Therefore, if a causal relationship between risk and return exists, we can almost certainly rule out the fact that risk would be the driver of return. If risk can drive return altogether, it is probably due to its absence. Of course, since there is no linear connection, this can't hold limitlessly. We will need risk (just a little bit) to obtain higher than risk free returns. But it is just a catalyst in the process, not a reactant.

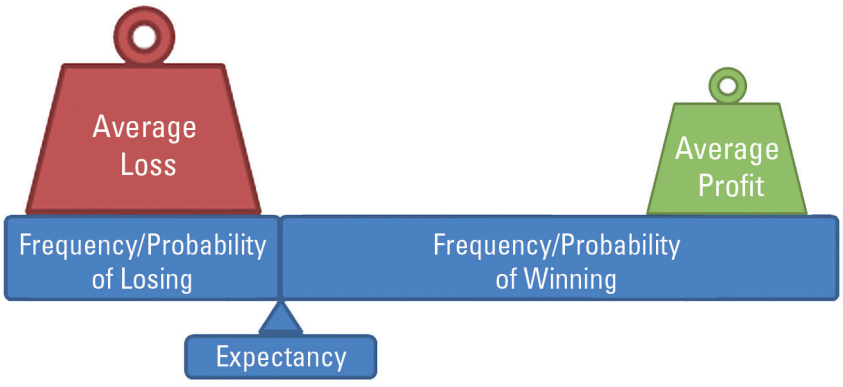
So going from higher than risk free returns being impossible without at least some exposure to risk, to stating that higher returns must imply taking higher risk, is quite a stretch.

Expectancy, Once More

To understand why less risk means more (probable) results, we have to get back to the formula behind profitability. We discussed at large where this formula comes from in our articles on diversification. To sum it up in essence, take a look at Figure 1.

Net profit (or loss) is the resultant of two dimensions. Frequency of losing and winning on the one hand, while on the other hand the average size of losses and gains. Being right 95 per cent of the time doesn't mean a thing, if what is made there doesn't account for the losses sustained in the remaining time. Trying to be right, for example having more winners, is very hard to gain

F1) Expectancy Depicted as Scales



Being profitable in the long run with trading, and all investing for that matter, is about cutting losses and letting profits run. Although it is a hearsay thing of ages, statistical expectancy actually proves the saying mathematically. It is not about being right or wrong but handling both profits and losses well.

Source: www.chartmill.com

control over. In fact, that is what all forms of analysis are promising to help us with. But as any profitable trader knows, there is a lot of illusionary control in that. We hold far more control over the average size of our losses and gains than we do whether we lose or win. Keeping all losses smaller than five per cent, will simply guarantee that our average loss will not get larger than five per cent. There is no analysis needed for that, only the discipline of selling before a mistake becomes a problem. Average gain as well is easy to hold control over. Not selling winners but adding on to them is one simple trick. No rocket science there.

As depicted in Figure 1, we use the metaphor of scales. We should focus on the weights instead of wasting time and money on trying to change the scales in our favour. And most celebrity investors and traders seem to get just that very well. Even Buffett, the deity of the buy and hold religion, states it very clearly for whoever wants to listen. Mark Minervini, interviewed in TRADERS´ 07/2012, talked about the idea of concentrated portfolios consisting of just a few big positions, stating that too many positions would diversify away his edge. According to him, he has a historical reliability of being right about half the time, which in my opinion is still quite high. Given that system dynamics tell us that the path of least resistance to equilibrium is probably found by making the biggest group losing money pay out to the smallest group, it is quite probable that on average any of us will end up having less than 50 per cent hits but more misses.

Dragging in Math

To finally make the point that more return is more likely to coincide with taking consistently small risks, let's have a look at Table 1.

In this spreadsheet you can see different combinations of systems given their percentage of winners against the average percentage loss on their losing trades. The calculated number in the table gives the percentage size of winners needed to have a break-even system. So a given system with 99 per cent losers averaging a 0.25 per cent loss on capital, would need its one per cent winners raking in 28.12 per cent profit on average. Doing such a thing would be much, much harder than having to convince you of it being hard. To give one more example, a system with 15 per cent winners and an average loss of 2.5 per cent would need to have an average winner of 15.43 per cent to merely break-even.

The table doesn't account for costs, but incorporating them would merely change the numbers, not the table's trends. There are two trends here, one of them making the main point of these two articles.

First of all, look at the blue arrow in Table 1, stating the obvious trend that given a certain average loss, average winners would need to be larger as they become fewer to set off against the net loss. So the more winners, the better. No surprise here.

But the red arrow brings us home. For a given number of winners, their average size can decrease with the average size of the losses. So keeping losses small will simply make us reach the break-even point more quickly, letting us enter the green zone of profits. The most important thing to notice here is that this relation isn't a linear one. So halving your losses would more than halve the needed break-even size of your winners. The fewer the winners, the higher the effect. So halving the average loss from five per cent to 2.5 per cent on a one per cent winning system would have a higher effect than on a ten per cent winning system. «

T1) Break-Even Percentages

%winners average loss	1.00%	2.00%	3.00%	4.00%	5.00%	10.00%	15.00%
0.25%	28.12%	13.05%	8.43%	6.19%	4.87%	2.28%	1.43%
0.50%	64.25%	27.84%	17.59%	12.78%	9.99%	4.61%	2.88%
0.75%	110.71%	44.61%	27.56%	19.80%	15.38%	7.01%	4.36%
1.00%	170.47%	63.63%	38.40%	27.28%	21.04%	9.47%	5.86%
1.25%	247.40%	85.22%	50.19%	35.24%	27.00%	11.99%	7.39%
1.50%	346.49%	109.11%	63.02%	43.72%	33.26%	14.57%	8.94%
1.75%	474.22%	137.52%	76.98%	52.76%	39.86%	17.22%	10.52%
2.00%	638.96%	169.11%	92.17%	62.40%	46.79%	19.94%	12.13%
2.25%	851.57%	204.98%	108.72%	72.66%	54.09%	22.73%	13.76%
2.50%	1126.15%	245.76%	126.73%	83.61%	61.78%	25.59%	15.43%

This table shows what corresponding average profit percentage is needed to break-even, given an average loss percentage for the losers and a percentage number of winners. For instance having five per cent winners (implying 95 per cent of losers) of, on average, a two per cent loss asks for an average profit of 46.79 per cent for those five per cent winners to break-even. These numbers don't consider costs (as we don't know the number of trades).

Source: www.chartmill.com