Gains and losses - grossly misunderstood

By Joao Frasco, Chief Investment Officer, STANLIB Multi-Manager

If you lost 50% of your money, what return would you subsequently need to get back to your original investment? Your gut instinct would probably be to say 50%, since that is how much you lost. However, with a little consideration you would get to the correct answer of 100%.

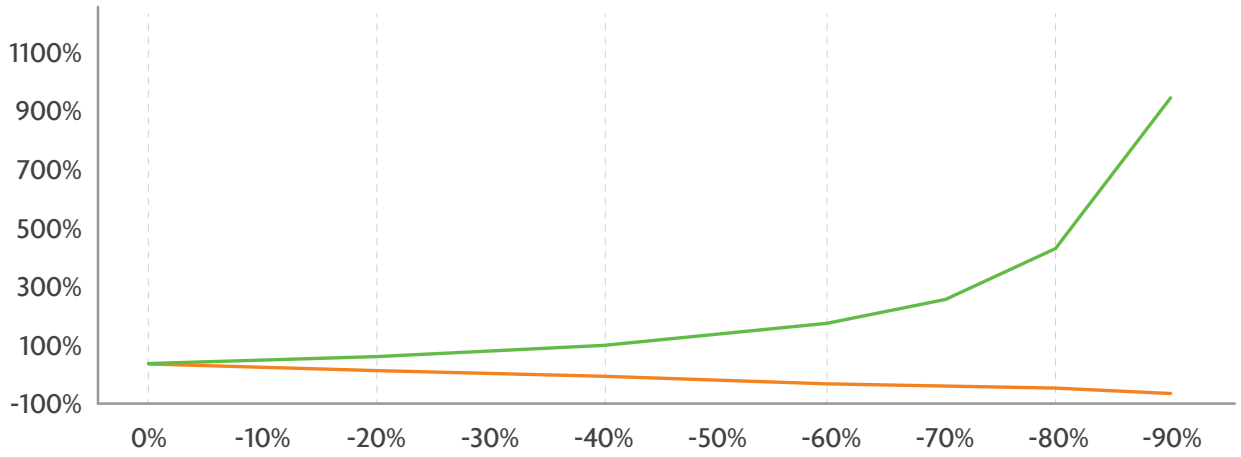
Consider the following simple example. You have R100 and lose 50%, or R50. What return would you need in order to get your remaining R50 back to R100? A 50% return on R50 is R25 and would only get you back to R75. You therefore need a 100% return, or another R50, to get back to your original investment of R100.

If you consider possible losses and the subsequent gains needed to fully recover from those losses, it becomes apparent that the gains required are not just higher, they are exponentially higher. The chart that follows shows this relationship and that at the extreme of a loss of 90%, the subsequent gain would need to be 900% – or 10x money back.

Following from this, it becomes clear that it is increasingly difficult to recover from losses, particularly large ones.

Although the above is mathematically correct, it does not depict the whole story. In fact, it misses the true story. And creating the wrong impression can lead to bad decision making. We will address this by considering the above from three different perspectives for completeness – mathematically, theoretically, and empirically.

Subsequent gains required from given losses



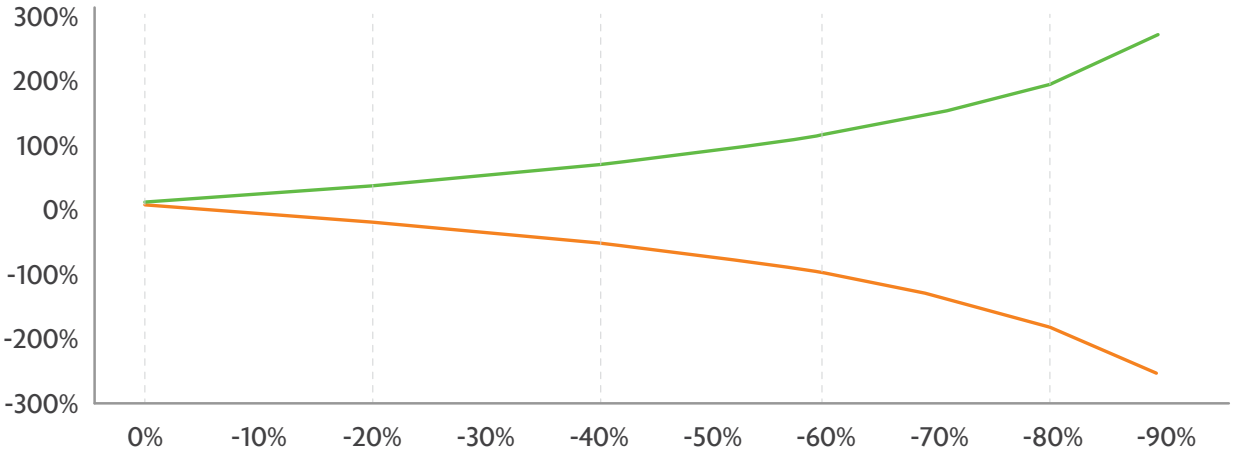
Mathematically speaking

Let us begin by understanding that a return is a rate. When we quote a value such as 12%, it is important to state that it is per annum (p.a.) or per month (p.m.). The inclusion of this time element is what makes it a rate.

If we consider the ***continuous*** rates related to losses and the subsequent gains needed as per the chart above, we arrive at the chart that follows. Note how the chart has become completely symmetrical i.e. the losses and subsequent gains are now equal in absolute terms – it is just the signs that differ. This is not a coincidence, but a mathematical truism. These continuous rates can be thought of as forces.

This is a very important result. The same force of return that leads to a loss of a given amount, is required to get back to the starting point. No more, no less. At this point, you should no longer feel that the gains required to undo losses appear unlikely.

Subsequent gains required from given losses



Theoretically speaking

Imagine a specific piece of information that causes the price of a share to change substantially – by say a drop of 50%. What information is required to bring the share price back to the level it was at before the fall? You may imagine that a lot of good news would need to follow in order to cause it to appreciate 100%; and you may conclude that this is very unlikely. However, a single piece of information is all that is needed – a reversal of the information that caused the fall in the first place.

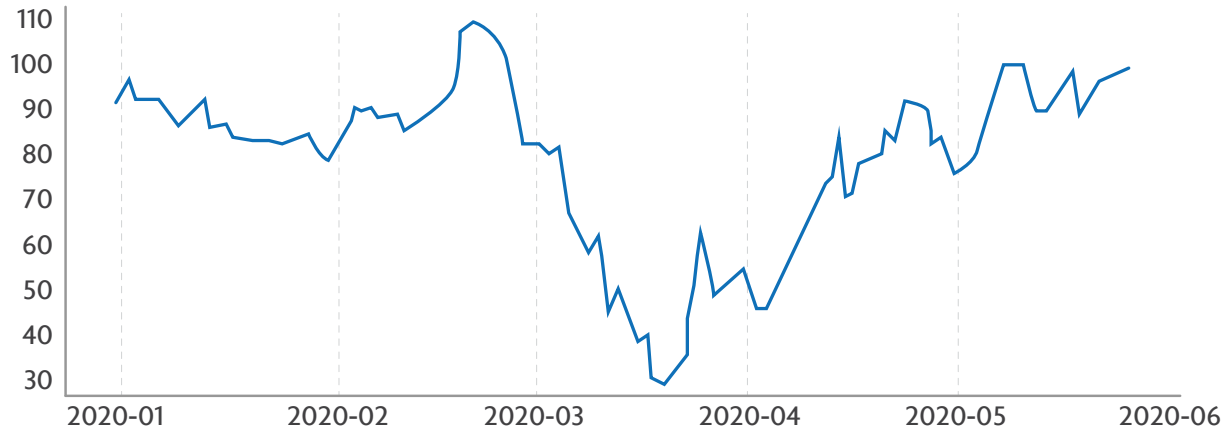
Empirically – what does the data show?

Let us have a look at data from a single share and an index as examples. Carvana - an American car sales company, and the JSE All Share Index.

Carvana sells cars in the US. With the drop in car sales related to the lockdown in the US, the Carvana share price fell 80% over a couple of weeks, from more than $115 per share to approximately $22 per share on an intra-day basis. You can easily calculate that in order to recover from an 80% loss, a 400% gain is required. This may appear impossible, especially over shorter time frames. However, as you will see from the share price chart that follows, the share price for Carvana has all but bounced back from the 80% fall.

The trigger for the bounce back was a reconsideration of the impact on Carvana of the Covid-19 lockdown. Forget about whether this revaluation is right or wrong, since that is not the point of this example. The point is that if you focus on the return profile being down 80% and requiring a subsequent gain of 400%, you may miss the non-mathematical explanation that the situation simply requires a reversal of the impact of Covid-19.

Carvana

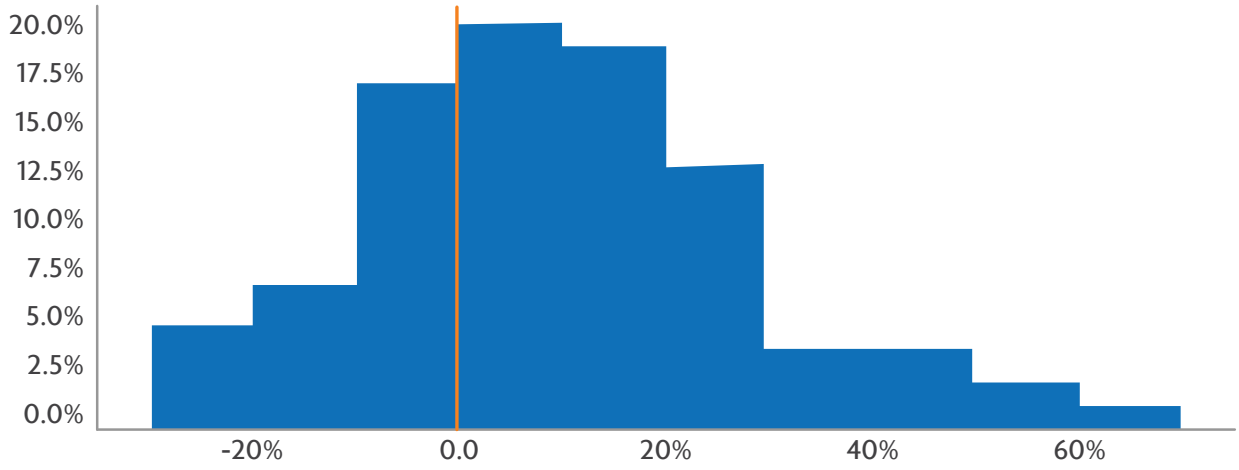


Let us consider the annual returns of the All Share Index over the past 95 years – since 1925.

The chart below provides a histogram – or count – of the number of annual returns that fall into specified return buckets of 10% p.a., ranging from -30% to +60%. That is, the bucket on the far left represents -30% to -20% and the bucket on the right represents 60% to 70% on a per annum basis.

You will note that there is not a return worse than -30% p.a. – although this could, and probably will happen in future. However, we do have a return above 60% p.a. All that would be required to recover from a 25% loss, would be a 33% gain. And there are many returns that equal and exceed this value, in fact 11 to be precise.

Annual returns



In conclusion

Empirically, theoretical losses of 90% that would require subsequent gains of 900%, do not appear to be a real problem. If anything, they seem to misinform and create misunderstanding around how markets work. Our analysis should provide clarity around how markets actually work and why the fear of losses should be understood in the correct context. Not only do markets tend to go up over time, they also combat losses, thus making losses transitory. Remaining invested is still one of the most powerful messages in investing for the long term.