THE STOIC INVESTOR

REALIST | RESILIENT | RATIONAL

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LOSS AVERSION

The news feed of people across the world in the last couple of weeks have been of the contagion spread of the virus outburst. My discussions in the past few weeks with financial advisors, analysts and investors have also circled around the coronavirus outbreak. The typical discussions that we had were: *How much further will the virus spread? How long will it take for the life to come back to normal? How will the stock markets react?*

Of course, nobody has any definite answers to any of it. Stories and narratives *(including some conspiracy theories)* are sparking hopes and fears; and the market volatility is reflecting the same. But there is some faith among investors now, that life will start moving towards normalization soon.

An individual feels more pain for a loss of USD 100 than the happiness one feels for a gain of USD 100

The general opinion currently *(based on a small survey I conducted)* is that markets can fall further in the near term due to fears, but they will recover soon *(within 6 months)* and resume the rally. Presently, there is no fear of a multiyear impact of the virus outbreak on the economy or the markets. Logically, then why are the markets falling so sharply? Shouldn't a long-term investor be buying as this fall is just temporary?

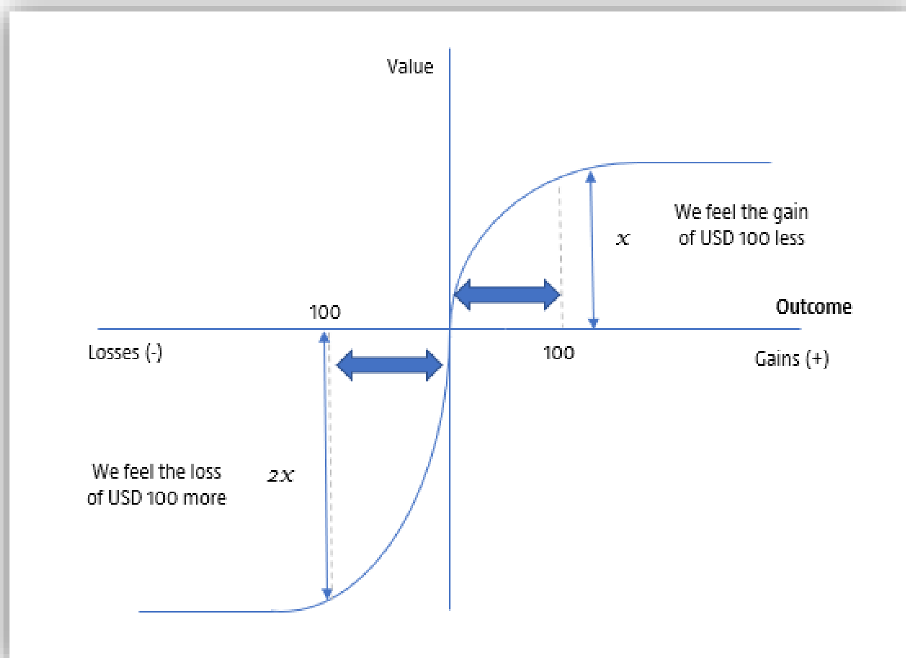
There are numerous studies which show that natural disasters have provided a good entry point for investors to add to their equity investments. So, what stops them? Let explore one important concept in the psychology of decision making: **Loss Aversion.**

THE PROSPECT THEORY

Paul Samuelson, a Nobel Prize winning economist had once asked one of his colleagues whether he would be accepting the following bet: A 50% chance to win USD 200 and a 50% chance to lose USD 100. The colleague turned it down. He said the pain of losing USD 100 would be more than the joy of winning USD 200. He also said he will be willing to take a series of such bets rather taking just one. Was he irrational? No, he was normal.

Daniel Kahneman and Amos Tversky have discussed in their paper ***"Judgement under uncertainty"*** that an individual feels more pain for a loss of USD 100 than the happiness for a gain of USD 100. The figure below is a graphical representation of the value function as described by Kahneman and Tversky, known as the **Prospect Theory** *(notice the steeper loss curve versus the gains curve).* The existing evidence suggests that the ratio of the slopes of losses to gains of the same amount is about 2:1.

When decision makers are loss averse, they will be more willing to take risks if they evaluate their performance infrequently



Investors will hesitate to buy into uncertainty of the short term for a good long term return mainly due to a combination of loss aversion and short evaluation timeline

If we consider this ratio, let us see the expected value of the bet proposed by Samuelson. Since a loss of 100 is the same as the gain of 200, we will use a multiplier of 2 for losses in the expected value formula. Hence,

Expected Value = (0.5 x USD 200) + (0.5 x (- USD 100 x 2)) = 0

Now, if the expected value is 0, then clearly the bet singularly is not attractive. So, what changes with multiple such bets? Let us assume two bets are played one after the other. Using the same multiplier for the losses, the expected value is actually positive in this case:

Expected Value = (0.25 x USD 400) + (0.5 x USD 100) + (0.25 x (- USD 200 x 2)) = USD 50

Richard Thaler explains in his research paper that ***"the role of mental accounting is illustrated by noting that if Samuelson's colleague has this utility function, he would turn down one bet but accept two or more bets as long as he did not have to watch the bet being played out".*** He goes on to conclude that when decision makers are loss averse, they will be more willing to take risks if they evaluate their performance infrequently.

This provides a valuable insight into the problem we started with regarding the impact of coronavirus. Many investors, though they are long term investors, have a short evaluation period (quarterly or even monthly). The more often the investors evaluate their performance and the shorter their time horizon, the less attractive they will find high return - high volatility investments. Investors will hesitate to buy into uncertainty of the short term for a good long-term return, mainly due to a combination of loss aversion and short evaluation timeline. Richard Thaler calls this '**Myopic Loss Aversion**'.

LOSS CHANGES RISK BEHAVIOR TOO

There is another important implication drawn from the chart above. As there is diminishing marginal utility of the gains (the curve keeps flattening), the same is applicable to losses too. The pain that investor feels when the losses increase from Rs. 1000 to 2000 is very different from the pain when losses increase from Rs. 100,000 to Rs. 101,000. The diminishing sensitivity of gains and losses lead to change in the risk behavior of investors. They become risk averse for gains and risk seeking for losses. Thaler illustrates that with a survey on two problems. (figures in the brackets are % of respondents choosing that option)

Problem 1: Assume you are richer by USD 300 than you are today. you are offered a choice between:

A: Assured gain of USD 100 (72%)
B: 50% chance of a gain of USD 200 and a 50% chance of gain of 0 (28%)

Problem 2: Assume you are richer by USD 500 than you are today. you are offered a choice between:

A: Assured loss of USD 100 (36%)
B: 50% chance of a loss of USD 200 and a 50% chance of a loss of 0 (64%)

The diminishing sensitivity of gains and losses lead to change in the risk behavior of investors. They become risk averse for gains and risk seeking for losses

In problem 2, the pain of losing the second USD 100 is less than the pain of losing the first USD 100. So, subjects are ready to take a chance of getting back to no loss situation. This behavior partly explains why investors are quick to book profits but continue to hold loss making investments.

Terrence Odean gave another possible explanation for such a behavior. Investors might choose to hold on to the losers and sell the winners believing that today's losers will be tomorrow's winners. If these assessments are based on thorough evaluations, then this is a right approach. Unfortunately, experiments have shown that many a times the only reason for such a behavior is irrational expectation about short term mean reversal. In one of our previous notes we had mentioned how confirmation bias and cognitive dissonance also feed such behavior (read it here).

To conclude, loss aversion impacts the ability of the investor to take advantage of short-term uncertainty for long term gain. It also affects the portfolio as investors frequently hold loss making investments. Investors can reduce this negative impact by increasing the evaluation timelines. Hence, in the current situation of pandemic, where outcome and timelines are not known, it is worthwhile to stick to the advised asset and portfolio allocation which could be beneficial over long-term. The Coronavirus issue too shall pass. Maybe a couple of years down the line, you look back and feel that it was a good opportunity to add to the equity allocation.

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ABOUT STOIC INVESTOR:

The word "Stoic" is used to describe someone who remains calm under pressure and avoids emotional extremes. For the purpose of this newsletter we refer to the "Stoic investor" as an investor who is realist (avoiding extreme optimism and extreme pessimism), resilient (withstand difficult conditions) and rational (who acts with logic and reason).