THE STOIC INVESTOR

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IF ONLY MARKETS WERE LIKE A CASINO!

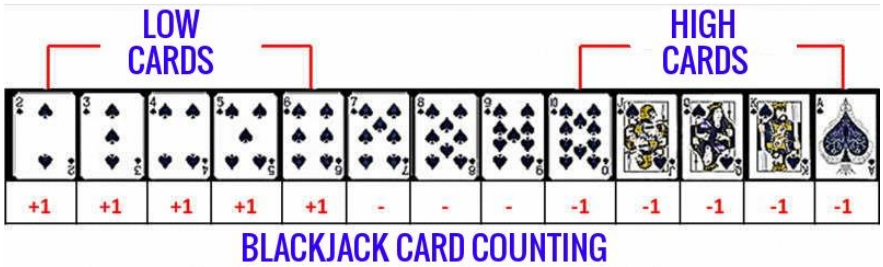
"In this world, nothing can be said to be certain, except death and taxes."

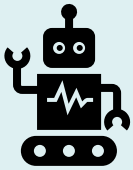
– Benjamin Franklin

It's the 90's and the casino business in Las Vegas is booming. A lot of people are infatuated with gambling. They believe, lady luck is on their side and will bring them good fortune with the spinning of the wheel. The crowd is pouring in to get a piece of the action with a desire to go head-to-head with their fate. Of course, not all are welcome – these casinos have a list of people who are not allowed to step in. The list includes troublemakers and fraudsters. Surprisingly, the list also includes a few students from Massachusetts Institute of Technology (MIT). Why would a casino be worried about a bunch of college students dropping in to try their luck at the tables?

Surprisingly, the list also includes a few students from Massachusetts Institute of Technology (MIT). Why would a casino be worried about a bunch of college students dropping in to try their luck at the tables?

Because these are no ordinary students. They are part of the MIT Blackjack Team, which cracked the card counting strategy and made a few million dollars (exact numbers have not been verified) playing BlackJack. Though the strategy is not illegal, many casinos have banned these players from coming in. Card counting is a simple strategy that involves keeping a running tally of the high cards and the low cards that are being dealt out. This gives the player a good estimate of the cards that are yet to come out of the deck and then decide on the bets accordingly. It's a probability calculation – if you know the total size of the pack, you keep track of what is already dealt out, and you estimate what is left inside and then put a probability on what is going to be dealt next. (Maybe I oversimplified it).





The casino owners obviously had a problem losing money, so they changed the game a little bit. They introduced continuous shuffling machines. The machines hold six decks of cards. After a few hands, cards that have been played are reloaded by the dealer into the shuffler, which randomly integrates them with other cards. This ongoing shuffling — and mixing of discarded cards with the unplayed cards — makes card counting futile. Due to the machine continuously mixing cards, the gambler would have no idea which cards have a high probability of being served next. While the risk was always present in the game, the casinos simply increased the uncertainty!

RISK AND UNCERTAINTY

Though the words "Risk" and "Uncertainty" are used interchangeably many times, they can mean something quite different. Frank Knight established a fair distinction between the two concepts with respect to economics:

- Risk is present when future events occur with measurable probability
- Uncertainty (also known as Knightian Uncertainty) is present when the likelihood of future events is indefinite or incalculable

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Both concepts are dealing with an unknown future but in the case of "Risk", we have some knowledge of the underlying outcome distribution. We have enough information or historical data to determine a probability distribution and measure risk. We can call it "known unknown" or "known risk". Take for example a dice: it has 6 faces and hence when you roll it, you will get one of the 6 outcomes. In a fair dice, you also know that the probability of getting a "3" on a given roll is 1/6 (one-sixth) or 16.67%. Uncertainty, on the other hand, refers to conditions where the outcomes are not known; like an outcome of a War for example. We do not have complete knowledge or information about the outcomes and the underlying probability distributions. This is also referred to as "Unknown unknown" or "unknown risk".

Investing is not like gambling in a casino. The range of outcomes is not certain and there are no 'given' probabilities for them. Investing is

about managing uncertainty. However, economists and academicians in finance have placed Investing on the Risk side of the spectrum.

The neoclassical economists have criticized the Knightian Uncertainty, as it implies that the basic assumptions of formal mathematical equilibrium models (which dominate neo-classical economics), are wrong. Economic assumption of perfect knowledge does not incorporate uncertainty. Robert Lucas, celebrated American Economist, claimed, "in the case of (Knightian) uncertainty, economic reasoning (standard economic models) will be of no value". Financial market models are not very different. Most of the models assume investors have all the information and outcomes are distributed along the normal curve. However, in reality, we see imperfect information and skewness in distribution of outcomes.

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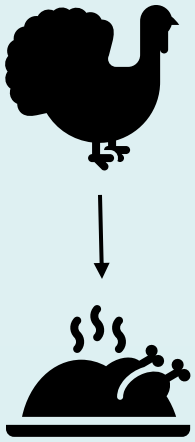
CALCULATING PROBABILITIES

Let's approach the problem from using bottom-up approach. To put the markets on the risk side of the argument rather than uncertain, we need to create known probability distributions. There are three approaches, as defined by Gerd Gigerenzer, to get to a probability distribution:

1. **Frequency:** Probability is all about counting. For instance, counting the number of days it rained divided by the total number of days. This frequency can be used for future prediction assuming the similar pattern will persist. Life insurance companies calculate the probabilities of death and then use the patterns to price their products.
2. **Physical Design:** This is a probability approach that shows the propensity of an object or a system. It is the physical design of the system that displays a certain probability characteristic. The dice example fits here. The fair dice is designed in a way that each face has a probability of 1/6.
3. **Degree of belief:** Under degree of belief approach, subjective probability can be generated based on experience or personal impression. This suggests that probability can be applied to any or every problem. As the new information comes in, this probability can be adjusted.

THE TURKEY ILLUSION



According to Gigerenzer, when you mistake uncertainty for known risks, you suffer the calculable risk illusion or turkey illusion. This is a case presented by Nassim Taleb: imagine you are a Turkey. A man comes and gives you food. The next day, you meet the man again, and again, he feeds you. On the third day, the man comes in. Will he feed you? Using frequency probability, you can calculate that the chances the man will feed you are rising. At the same time, the chances he will kill you are going down. Every successive day that you are fed, the probability of getting fed goes up and probability of getting killed goes down. On the 100th day, however, it is Thanksgiving Day and you are dead meat. It's a black swan event for the turkey! (I know how it sounds but can't help it).

Under uncertainty, investors could use degrees of belief approach or subjective probabilities to aid decision making

Extreme moves and one-time events have significant impact on the investment returns. Investors have to learn to manage uncertainties. And to manage them, they need to understand this distinction between Risk and uncertainty. As mentioned earlier, under uncertainty, one needs to use degrees of belief approach or subjective probabilities to aid decision making. A scenario analysis can be conducted by putting one's own conditions or using random variables (like Monte Carlo simulation) to derive a range of outcomes possible. I had mentioned in the note on Black Swan (read here) that if investors choose to be hedged against all kinds of risks, all the time, it will adversely impact returns. Hence, a choice has to be made in terms of what needs to be factored in. This view needs to be updated from time to time with new information coming in.

Where does all this analysis go? In Valuations. Uncertainty needs to be factored well in the valuation and discounting models. The more the uncertainty, the lower the valuation.

- **Selecting countries:** Think about the discount that Emerging Markets trade to Developed markets; are investors factoring in more policy or regulatory uncertainties?
- **Selecting sectors:** A lot of investors avoid investing in technology companies that experience rapid changes (every few years); isn't uncertainty playing a role there?

Risk Avoidance = Return Avoidance

- **Selecting companies:** When a pharma is working on some novel drug candidate, analysts put subjective probabilities on various scenarios of success to factor in uncertainty

Dealing with risk and uncertainty is a challenge as well as an opportunity. As Howard Marks says, "Risk avoidance usually goes hand in hand with return avoidance". An intelligent investor is the one who understands this and manages risk and uncertainty to uses them as an opportunity to generate good long-term outcomes

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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).