The Lottery Effect — Why investors get attracted to beaten down stocks?

That is explained by the frequent news flow and event around the stock which creates an environment where the stock is highly discussed in chat groups, various Warren Buffett quotes and examples are cited.

"For emotionally significant events, the size of the probability simply doesn't matter. What matters is the possibility of winning."

—Daniel Kahneman, the Nobel Prize-winning psychologist

Quantitative investing systems model human behavior. **History doesn't often repeat itself, but human behavior tends to repeat itself especially in times of extreme euphoria or crisis.** Let us look at one such expression of the human tendency to take the risk even when the odds of winning are low. The discovery of this effect, that humans tend to become risk-seeking in the face of "expected" losses and risk-averse when it comes to giving "small but sure" gains, is what got Daniel Kahneman, the Nobel Memorial Prize in Economic Sciences in 2002.

Kerala and Lotteries

Kerala, the state with the most educated populace is mired with contradictions. In FY18, Keralites saved Rs 17,000 crore in lotteries. They also spent close to Rs 12,000 crore on lotteries. In contrast, they spent Rs 8,000 on medicines. An average household in Kerala spends about Rs 15,000 every year in purchasing lotteries.

The odds of winning Rs 50 lakh from a Rs 30 lottery are one in million. But Keralites like those odds. These lotteries are purchased usually by low-income households who are looking for a way to jump multiple orbits overnight. Although it rarely happens, hope keeps them going. The latest winner this year is 24-year-old Anandu Vijayan, who's employed with a temple administration in Kochi, is the lucky winner of this year's mega jackpot worth Rs 12 crore of the Thiruvonam Bumper Lottery of the state government. After the deduction of GST and the lottery agent's commission, Anandu is poised to get Rs 7.56 crore credited to his bank account from the lottery department. And after reading this many see this as their only path to riches and redemption.

The Lottery Effect in the Stock Market

In many ways, lotteries have an option like payoff structures. High odds of a small loss and low odds of a huge payoff. This behavior is also reflected in stocks. In their book ***Quantitative Momentum, Gray and Vogel, cite a paper "A Model of Casino Gambling" by Nick Barberis*** which specifically addresses why people go to casinos and how they behave there. Setting aside

the behavioral utility benefits (for fun) of gambling, the key assumption in the paper is that there is something additional at play: "The inability of human beings to properly weigh their chances of success in low probability events". A similar point to what Kahneman makes above. Here the over optimism of the human race, which is essential to get out of bed every day in the face of drowning pessimism, goes against them.

In another paper ***"Maxing Out: Stocks as Lotteries and the Cross Section of Expected Returns"*** by Bali, Cakici and Whitelaw, the authors examine how this behavior plays out in stock exchanges. Their central hypothesis is that investors irrationally overpay for lottery-like gambles, assume their odds are higher than in reality, and, thus, stocks with lottery-like characteristics will underperform on a risk-adjusted basis.

Why do investors get attracted to these highly volatile stocks in the first place? That is explained by the frequent news flow and event around the stock which creates an environment where the stock is highly discussed in chat groups, various Warren Buffett quotes and examples are cited. Some recent examples of these are stocks in the table below. They have been high beta stocks. And they are often in the news with respect to regulatory issues or other issues. And as their issues continue to play out in the media, retail holding in these stocks has gone up.

This is also due to anchoring bias. Many have seen these stocks earlier at much higher levels. And their system one thought process or heuristic is that these stocks will bounce back to these levels or somewhere close to them. Our experience says stocks that usually decline 70-80 percent (in the absence of a general market crisis like 2008 or 2000), do not bounce back. There are exceptions but the odds are not in their favor.

Low Volatility Investing

There are a number of anomalies in finance and the one that has caught on quite well after AQR put out it paper called Buffet's Alpha and a ten year period where volatility has been relatively low—is the low volatility factor. That doesn't mean it is a recent phenomenon. This has worked even before 2008. Basically the TLDR version of the paper above is that Buffett, circa 1980s started buying these consumer stocks which were low vol in nature as they had predictable earning flows. And he levered his capital 1.7x using float from his insurance and reinsurance businesses. Simple in hindsight, not so much back then. This also is known as Betting-against-Beta.

Betting against Beta or Low volatility is simply a way of buying stocks which rank low on standard deviation or volatility over a lookback period of 6-12 months. Stocks that would rank high on this factor would be stocks where most investors under-react to information being fed to them on a regular basis. This is under-reaction is also cited as on the behavioral reasons why

momentum investing works. And by the momentum we don't mean punting or growth investing—but that is for another post.

Now let us look at the other side of low volatility. The conventional CAPM model tells us that high beta stocks should have high "expected returns". That is the keyword—"expected". But actually they don't. NSE has a set of various strategy indices and they have a High Beta 50 Index and a Low Volatility Index. And as per conventional finance theory over a long period, high beta stocks should have done much better than low volatility and low beta stocks (btw volatility and beta are not the same thing but to keep things simple we are assuming them to be the same). If we look at the performance of the high beta index and low volatility index it shows clearly that low volume has beaten high beta by a mile.

The Kerala state lottery department has grown from a revenue of Rs 20 lakhs in 1967-68 to nearly Rs 9000 crores in 2017-18. On the other hand, equity mutual funds in Kerala have seen a net inflow of approximately Rs 1,500 crore last year according to an internal estimate of Kotak MF. If the Kerala lottery department were a listed company, it would be among the top 50 listed companies by profits.

As it is said: Finance is not the study of money, it is more the study of how people behave with money. If you get caught in the itch to buy a lottery stock, gamble, but a little and invest the rest.