The Black Swan: The Impact of the Highly Improbable

"In the business world, the rearview mirror is always clearer than the windshield."

– Warren Buffett

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How great would it be if we could predict the future? Perhaps time travel may be a possibility someday, but until then, uncertainties and ambiguities plague the future. This fear of unknown is generally associated with risk. For businesses and individuals alike, risk plays an important role in every decision making process. With rising standard of living, value of possessions, or increasing business value, the need for risk management becomes apparent and essential. Before making any important decisions in life, we tend to take into account general risk factors that may be foreseeable in the near future. When we buy a car, we are generally aware of the risks to ourselves, to a third party as well as the surroundings. Hence, we protect ourselves from any unwanted or unexpected occurrences through auto insurance. However, what about erratic risk factors which are unforeseeable in the near or even in the far-off future, but has a significant consequence as a result?

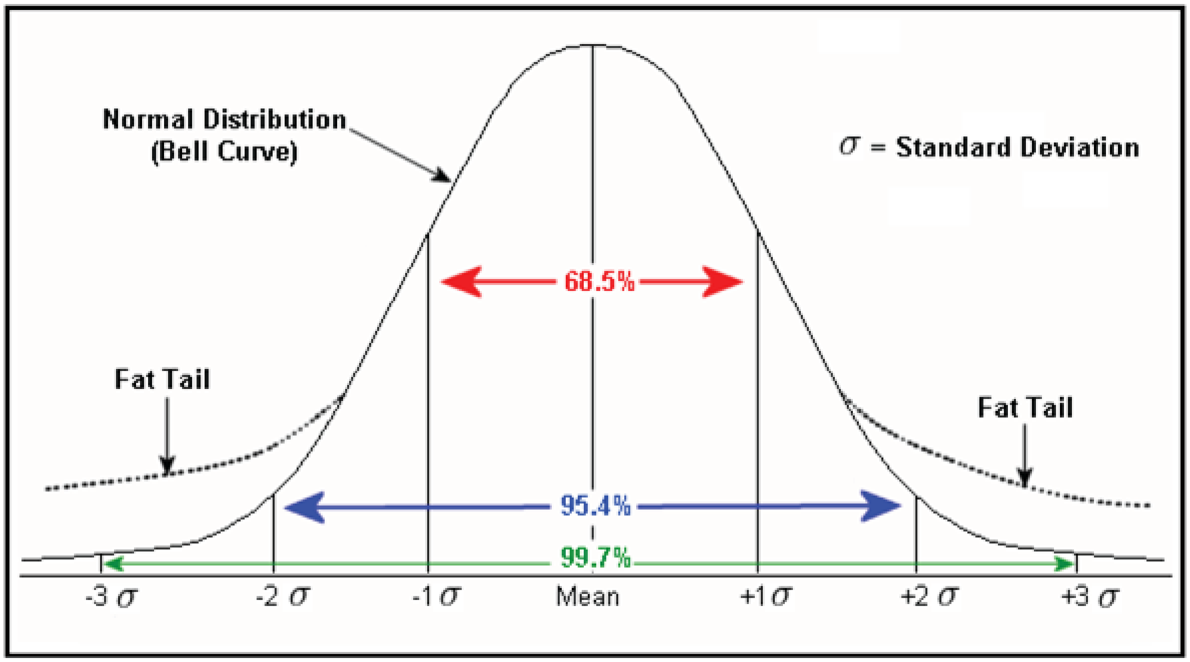
The 'Black Swan' Theory

A theory explains about these unpredictable or unlikely events, popularly termed by Nassim Nicholas Taleb as the 'Black Swan' theory. In the past, it was believed that black swans did not exist, and as a result, it was recurrently used as a popular saying to indicate the idea of impossibility. However, in 1697, a team of Dutch explorers discovered black swans in Western Australia, after which, the meaning of the term was subsequently changed to 'highly improbable' rather than 'impossible'. In finance, the Black Swan event is a metaphor describing events that are hard to predict, and are beyond the realm of normal expectations. The Gorkha Earthquake, Royal Family Assassination, Global Economy Crisis, Terror Attacks, Black Monday, and the Sub-prime Mortgage Crisis of 2007-2008 are a few examples of such events.

Black Swan events are hard to predict, yet have catastrophic ramifications. The financial crash of the U.S. housing market during the 2008 crisis is one of the well-known black swan events that transpired during the past decade. The effect of the crash was catastrophic and global, and only a handful few foresaw the magnitude of the crash. This event led to nationwide recession affecting home valuations, mortgage markets, homebuilders, real estate, retail outlets, foreign banks, and several other sectors. Also in 2008, Zimbabwe had the worst case of hyperinflation in the 21st century when the country's inflation peaked at 79.6 billion percent. An inflation level of that rate is almost impossible to predict and yet, it has unimaginable consequences to a country's economy.

Statistical Relevance

In probability theory, normal distribution does not account for black swan events due to its rarities. Under a normal distribution, about 99.7% of all variations fall within 3 standard deviations of its mean, and therefore there is only 0.3% chance of an extreme event occurring. As the likelihood of any such event taking place is miniscule, many financial practitioners and experts leave it out of the equation. However, when such events do take place, they may cause such huge financial or psychological impact that people reconsider managing risks associated with it. Though statistical models indicate the importance of a normal distribution curve, history often suggests that financial markets do not always follow this theory. Instead, numerous unlikely yet major events indicate the prospect of fat tails in the probability curve. By definition, fat tail is a probability distribution that has the property, along with other heavy-tailed distributions, that it exhibits large skewness or kurtosis. In Nepal, there is a psychological perception among denizens that the likelihood of a major earthquake hitting the country is approx. once every 80 years. On the backdrop of the recent earthquake of 2015, is it safe to say that another major earthquake will not take place before the year 2095? Or, would it be wiser to follow strict building codes and live in earthquake-resistant retrofitted dwellings to manage such risk? How one responds to this question depends on how the particular individual assesses the probability of similar event occurring in the future.



Effects of Black Swans in Nepal

In Nepal's context, there have been a few instances of Black Swan events, which has had a profound impact on the livelihoods of people. The major earthquake of April 25, 2015 followed by trade embargo at Nepal's border was a two-pronged event that rocked the country to its core. Though renowned seismologists from reputed research centers and universities have been warning about an impending earthquake of high magnitude in Nepal for the past 50 years, it was only in 2015 that it actually took place. These kinds of events cannot be forecasted explicitly using sophisticated tools. The devastating earthquake took more than 8,000 lives, injured more than 21,000 people and destroyed property and physical infrastructure worth billions. As the country was grappling through supply shortages, the trade embargo faced by Nepal added salt to the injury which eventually pushed the inflation rate to double digits. Nepal's GDP contracted to 0.77%, which is considered to be one of the slowest growth rate experienced by the country over the past 15 years.

The impact of the earthquake was immediately seen on Nepse – Nepal's only stock market. Though Nepse did not observe any trading activity for about a month, it witnessed a steep dive right after the markets resumed and closed at 837.83 points on May 27, 2015. Investors compared this drop to a bottomless pit as they saw no end to how far the share market could fall. However, observing panic among investors, several government entities initiated confidence boosting measures to help stabilize the financial markets. Investors took those cues positively which resulted in buying pressure along with sharp bounce in the local bourse. During the period between mid-April 2015 and mid-April 2016, the average daily turnover in the secondary market surged from NPR 300-400 million to NPR 600-700 million. This resulted in the total market capitalization of Nepse to rise from NPR 968.92 billion to NPR 1,496.56 billion during the same timeframe. Though the above two events were quite catastrophic in magnitude and significantly affected Nepal's economy, the regulator's requiring companies to increase their paid-up capital, excess liquidity in the markets, expectations of high dividends/bonus shares and dematerialization of shares proved to be major catalysts that provided a much needed boost to the secondary market.

Is it all Doom & Gloom?

No matter how unlikely, there is always a possibility of the occurrence of Black Swan events that can have a tremendous impact and alter the market abruptly. Though statistical models do not provide an answer to why such events happen, they tend to offer a range of possibilities as to how often these might occur, no matter how rare the event is. So, what does this mean for general investors? Do investors completely stop investing in the chance that there may be another catastrophic event in the future? As the popular saying goes –"Be prepared for the worst and hope for the best." Black Swans are definitely beyond human control; however, this does not mean that risks associated with it cannot be managed. One of the best ways to tackle such risk is through proper diversification among multiple asset classes and locations that act as counterweights when responding to different financial and economic circumstances. A simple way would be to diversify investments across industries, borders, as well as various types of investments. Alternative plans, regular monitoring, rebalancing of portfolio are some of the strategies used by professionals to shelter themselves from the unknown. With these in place, investors can at least be prepared for any unlikely yet possible events.