A Good Bet

by Craig D. Hafer, President

WINTER / 2019

If there is one element that has permeated human existence, it would surely be risk. For as long as humans have been on this earth, risk has been our constant companion. From the benign to the life-threatening, most of our daily actions involve risk. Therefore, it may be surprising to realize that before the Renaissance period (14th to 17th centuries), there was no way to measure risk.

That is not to say that before the Renaissance people were not aware of risk. It is safe to assume that even early man knew that risk existed and took precautions. However, *calculating* risk was another matter. While ancient Greeks played games of chance, they lacked a proper tool to calculate the probability of any one outcome. The reason for this was that the mathematics of the era utilized combinations of letters to represent numbers. The use of letters continued through the Roman Empire and lasted in Europe for over a thousand years, into the Renaissance period.

As Europeans were part of the Roman Empire, they also used Roman numerals. It was not until around the year 1,200, when Europeans began to explore the East, that they learned the numbering system that we use today, called the Arabic or Hindu-Arabic system. Instead of letters, the Arabic system uses numerals, including zero, which greatly simplifies mathematical calculations.

By all accounts, the first application of the Arabic numbering system to the measurement of risk was by Westerners trying to determine the odds of winning various games of chance. The odds of winning dice games were of particular interest! If one knows the odds of rolling snake eyes versus other configurations, it is then easy to determine that certain bets are riskier than others. Casinos exploit human behavior to lure people into

-continued

A slot machine's software is carefully designed and tested to achieve a certain **payback percentage** (ratio of the money paid out to players to the total amount deposited in a machine.) With a 90% payback percentage, for example, the casino keeps about 10% of all money put into a machine and pays out the other 90%.

Source: www.howstuffworks.com

2650 Westview Drive, Wyomissing, PA 19610
www.walsky.com | P: 610-670-6918 | F: 610-670-6937

thinking that although the odds may seem high, the potential reward is worth it. One method they use is having slot machines ring loudly every time someone wins, no matter how small the prize. (In reality, the casino has already calculated the odds of a customer winning versus losing in order to determine their estimated profit margin.)

For investors, the story of risk illuminates several key points. First, at any given time, the tool that we choose to use may not enable us to solve the problem at hand. Roman times produced some of the greatest minds in history, yet they could not calculate risk, due to their own numerical system. Another key point is how much the laws of probability are incorrectly applied in the area of finance and in particular, to stocks.

The problem with trying to calculate stocks' risks by using the same tools one would use for games of chance has to do with independent and dependent variables. Gamblers often fall prey to what is called the "gamblers fallacy," the belief that if an event has not occurred recently, then it must be overdue. In reality, each spin of a roulette wheel is an independent event, meaning that the odds of winning or losing are the same as any other spin, before or after.

Dependent events, or conditional probability events, can be more complicated. A dependent event is one whose outcome is altered by a previous event or events. The farther into the future one projects, the more likely the outcome will be dependent on other events, and have many possible outcomes. For example, stock prices are dependent on many variables that not only change often, but have different weightings of importance, determined by various factors.

Adding to the difficulty of calculating equity risk is the fact that there are many types of risk (political, legal, financial, competitive, economic, etc.) Each one of these can have a significant impact on a company, especially in the short term. Further hampering the ability to do these computations is the realization that many events that impact a company's stock price (such as earnings) are dependent on previous events (such as production and sales), while others are independent and therefore impossible to predict, such as September 11th, or a major wildfire. This is why market timing is a fool's errand. As Nassim Taleb wrote in *The Black Swan*, it is not the events that have occurred in the past that we can't foresee; it is those that have yet to come to fruition. It is the event that has not yet occurred, or is so remote that few would accept it as a possible outcome. It is these "black swan" events that can be the most disruptive to the stock market and, frankly, to our own lives.

As we wrote in our Spring 2018 letter, the idea of risk and return being correlated when it comes to stock selection is not always accurate. One can increase the risk in their investment portfolio and still achieve a lower return. Many investors may be (inadvertently) doing this under the guise of today's definition of "diversification," by investing in commodities, real estate and international securities in their portfolios.

Adding to many investors' misunderstanding of risk is the illusion that risk can be "tamed." This notion has been advanced for over three decades by portfolio managers on Wall Street who have created complex mathematical models in an effort to calculate precise measurements of risk. At the foundation of these sophisticated (and sometimes confusing) models are often probability distributions whose history dates back to the Renaissance, and whose limitations persist today. Most of all, these probability diagrams are limited by the number of observations . . . observations that will invariably either miss an event completely, or underestimate the impact of an event that seems remote. For example, no analyst in the 1970's predicted that IBM's biggest threat in the future would be Microsoft!

This is not to say that an investor can't reduce their risk by creating a portfolio with a mix of stocks, bonds and cash equivalents. They can. This was proven in the Nobel Prize-winning work of Harry Markowitz. However, at the core of Markowitz's work was the use of fundamental analysis that looked at a company's balance sheet, earnings, dividends and historical performance. This analysis was utilized to help predict an expected return, and while it cannot eliminate the risk of investing, it has been proven to be the best tool when trying to determine which companies are a good bet.