By Bill Spitz, Principal

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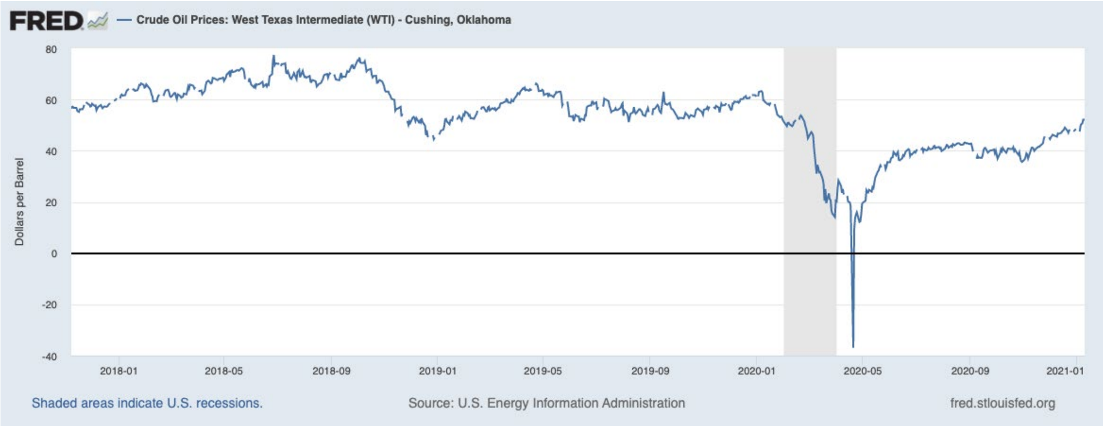
That's Crazy!!!

The price of a barrel of oil traded between $50 and $77 from the beginning of 2018 to early 2020; a broad range but within the bounds of normal behavior for this fairly volatile commodity. Take a look at what happened next!!

"More things can happen than will happen."

—Elroy Dimson, London Business School Professor

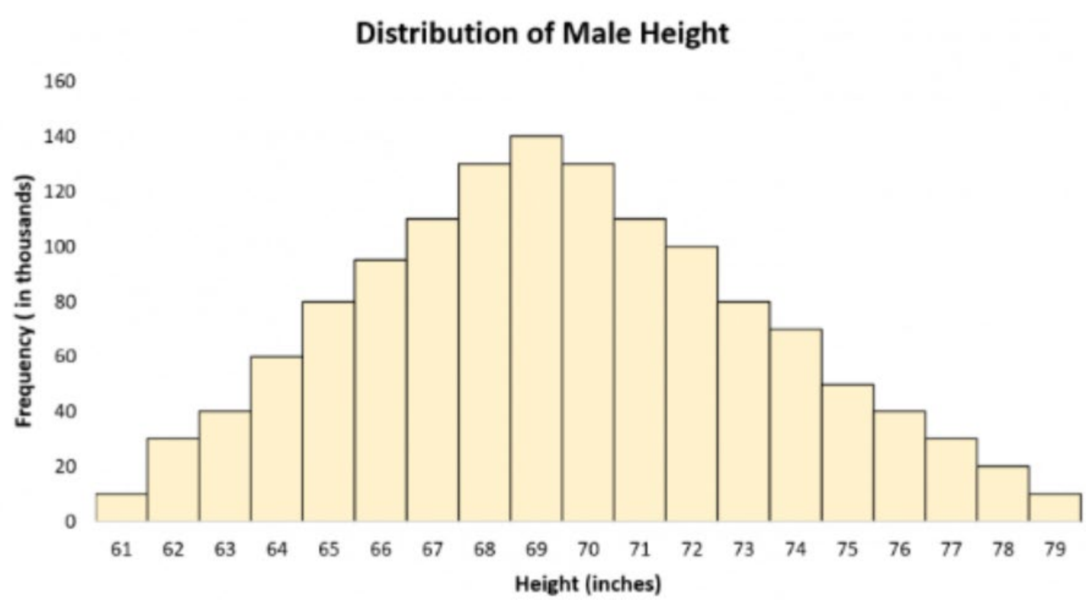


On April 20, 2020, the price of oil plunged to minus $40 per barrel. Yes, that is **minus** $40! How can a price be a negative number? The pandemic brought the economy to a screeching halt dramatically reducing the consumption of energy. Combined with a lack of available storage, this decrease in demand resulted in sellers actually paying buyers to take the stuff off their hands! The price was actually negative for just a single day and it recovered to the mid-teens during the following week. By the end of 2020, oil had risen to $48 and it currently sits at $86 due to renewed demand and the war in Ukraine. So, those investors who had the courage to step up in an incredibly confusing time earned a fantastic if not infinite rate of return.

A negative price was both unprecedented and unimaginable. However, the reality is that crazy things happen all of the time, both generally in life and specifically in the financial world. This paper covers several of the many financial anomalies that I have actually witnessed during my career. I present them mostly as curiosities but there are also lessons to be learned regarding investment strategy. Most important, both sanity and financial wellness make it critical to maintain one's psychological equanimity when one of these events occurs. The best way to maintain balance is to simply accept that crazy things will happen and do everything possible not to panic secure in the knowledge that your portfolio is structured intelligently.

NORMALCY

Since human beings have a difficult time dealing with uncertainty, most of us employ a coping mechanism that assumes that life will percolate along as usual. In fact, many things do follow the well-known bell shaped curve or what is called the normal distribution. As depicted below, the height of adult males represents a perfect example.



Each of the bars represents a one inch range of heights and the vertical axis shows the number of adult males who fall within that range. As you will note, the most common height is plus or minus sixty-nine inches and two thirds of men fall between sixty-six and seventy-two inches. If you shrink the size of the buckets to very small increments, the picture takes on the appearance of the classic bell shaped curve. A few other examples of normally distributed phenomena are birth weight, blood pressure, reading ability, SAT scores, shoe sizes, coin tosses and dice throws.

However, economics and finance are chocked full of examples of things that do not behave "normally." My goal is not to get bogged down in probability and statistics, but to simply chronicle some of these interesting extreme events.

OCTOBER 19, 1987

The October 1987 crash was the worst single-day *decline in U.S. market history.*

I have previously written about the 1987 market crash and it certainly could be classified as old news. However, it was such an extraordinary event that I feel compelled to include it. On that day, the Dow Jones Industrial Average Index fell 508 points or 22.6% wiping out $500 billion in wealth. By way of comparison, the Dow fell 12.82% on Black Monday of 1929 making the October 1987 Crash the worst single-day decline in U.S. market history. Scholars have debated the causes of the 1987 crash for years, but most agree that it was a combination of a bull market that was overdue for a correction, global political tensions that made investors nervous, and most immediately, the impact of computerized trading strategies such as a product called Portfolio Insurance. With respect to the bull market, stocks had returned 20% annually for the previous five calendar years and then tacked on another 31% in the first three quarters of 1987. As a result, the Shiller P/E on the S&P 500 was 17.95 versus a long term average up to that point of 15. Whatever the cause, the crash was what statisticians call a 22 sigma event which means that the probability of a one day decline of this magnitude was roughly **one in one trillion**. But, it happened!! The Dow Jones Average recovered its pre-crash value in six quarters and went on to a bull market that continued with few interruptions until the bursting of the Tech Bubble in 2001 and 2002. But, the impact of that day lingers on in the form of a more activist Federal Reserve and "trading curbs" that allow exchanges to temporarily halt trading in the case of exceptional price declines.

EXTREME PRICE MOVES

The financial media constantly publish stories on "volatile markets," and financial services firms advertise their products and services as the best means of coping with a "volatile world." In reality, both the economy and markets are a good bit more stable than was the case for much of the 20th century, but there are still occasions in which individual assets experience amazing price changes.

A fairly recent example was trading in the meme stock GameStop which is a mature retailer that has generated negative or only modestly positive earnings for many years. As indicated in the following chart, which covers the period 2017 through 2022, its price was essentially flat for a number of years only to explode from roughly $4 to $120 in a matter of days. It then fell to $10 over a three week period only to surge two additional times to roughly $90 before ultimately settling down at its current level of $26.

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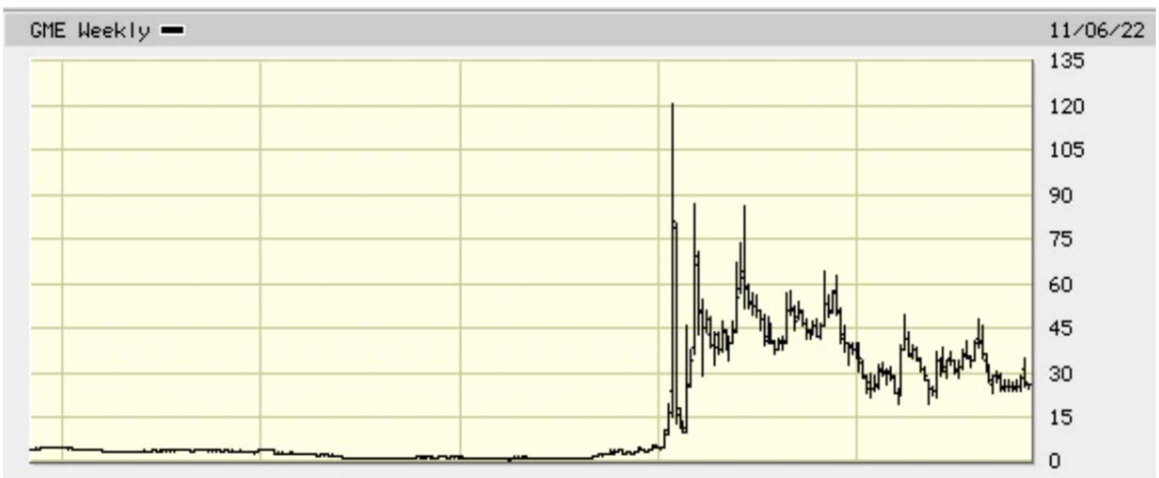


It would be easy to dismiss this as a one-time event that occurred during a period in which a number of those working from home discovered trading and were egged on by websites such as Reddit. However, surprising price moves have occurred in more substantial asset classes. For example, the price of gold rose during the first five trading days of 1980 from $524 to $820 per ounce, an increase of 56%. From a peak of $850 later in January, it then erratically declined to $269 by April of 2001. Gold then began an almost vertical ascent reaching $1776 in September of 2012. Today, it trades at roughly $1766. Remember, this is what many deem the ultimate "safe" asset!

Finally, the tech-laden NASDAQ Index rose 85.3% and 101.9%, respectively, in 1998 and 1999. These two years capped an amazing ten year run that produced annualized returns of 32%. The index then declined 78% from the peak on March 10, 2000 to its nadir in October of 2002 as the tech bubble burst. Companies that had enjoyed successful IPOs failed within months and a number of executives were convicted of fraudulent accounting practices, misleading statements to investors, and so on.

The point of these three examples is that extreme price changes do occur fairly regularly, and in both directions. Inevitably, they grab the headlines which only serves to increase the flow of adrenalin and more often than not results in a rash decision to buy or sell, typically at just the wrong time.

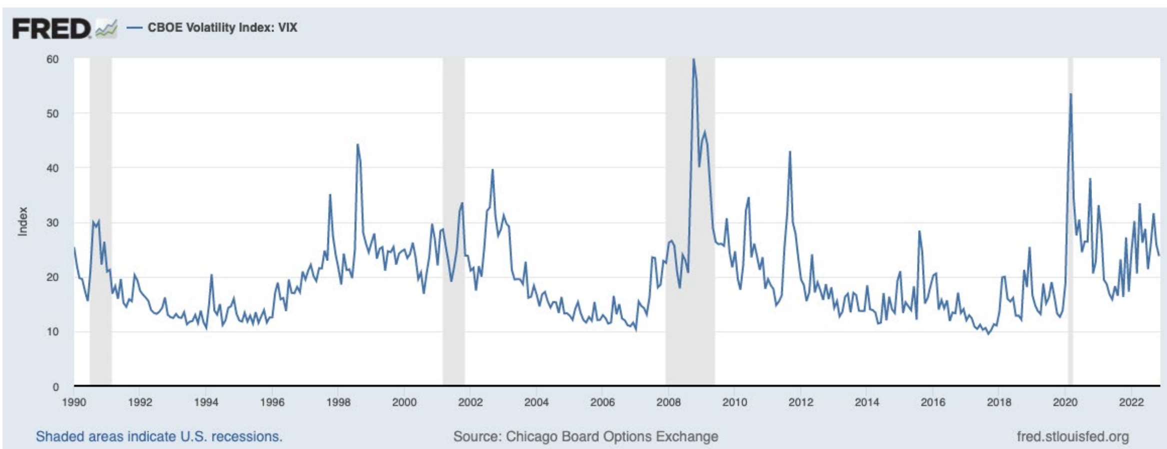
FEAR

We have all heard the claim that markets are driven by fear and greed so it would be nice if there were metrics that would allow us to gauge the extent of these emotions. With respect to fear, there are actually two useful indicators that have demonstrated a surprising level of fear in our markets on several occasions.

First, in order to induce an investor to purchase a low quality or junk bond, it must offer a premium yield over a safe alternative such as a U.S. Treasury Bond. This premium or spread, which fluctuates over time, represents an excellent fear gauge. When investors are nervous, they demand a large premium whereas they are content to accept a modest increment to return when comfortable with the state of the world. Over time, this spread has averaged a little more than 5% which means that an investor typically demands a yield of roughly 9.5% to step down in quality given the average historical Treasury yield of 4.5%. Well, take a look at what happened during the Great Financial Crisis:

Investors were so nervous about the world's prospects in 2008 and 2009 that they demanded a 20% premium or approximately four times the normal level. You should also note that spreads widened during the recession of the early 2000s as well as in the early stages of the pandemic. However, those increases were much more muted than those seen in the Financial Crisis. While not as unlikely as the October 1987 crash, the 2008 spread represented roughly a 10 sigma event which means that it had a probability of occurring of a fraction of a percent with about twenty zeros in front of it.

The other major gauge is the VIX Index which is actually known as the "fear Index." This metric is somewhat technical in that it represents the expected level of stock market volatility that is implied by current option prices. When the index is high, investors expect significant stock market volatility indicating they are jittery and a low number can be an indicator of complacency.



The long-term median VIX level has been roughly 17 indicating that investors were more than three times more fearful than normal in 2008 given the reading of 60. Once again, the odds of this occurring is a number with about ten zeros in front of it. A slightly smaller but still significant surge occurred in the first weeks of the pandemic.

Ben Graham and Warren Buffett wrote of Mr. Market which is an allegory for the emotional behavior of investors who flip from euphoric to moody and irrational. Well, these indicators demonstrate that one of these emotions, fear, can reach levels that are extraordinary and all-consuming.

INTEREST RATES

I began this paper with a description of the one day period in which oil prices were negative and I daresay that you are still struggling to get a grip on the concept of a negative price. Well, here is another one; interest rates in much of the world were negative from 2012 until recently. To place negative rates in perspective, interest is simply the cost of renting money. Can you imagine paying negative rent on an apartment or home? For most of history, economists and financiers assumed that interest rates had a lower bound of zero, but that has been proven wrong as roughly $15 trillion of government bonds traded at negative yields from 2019 to early 2021. In contrast to the other extreme events described above, it is impossible to calculate even a miniscule probability that this scenario could occur; it was simply inconceivable.

Central Banks around the world reduced interest rates to zero or below in order to stimulate their economies and eliminate the possibility of deflation which was deemed a serious risk. While slightly positive, the U.S. maintained short term rates near zero for more than thirteen years in an effort to support economic growth and increase inflation to its target of about 2%. As you know, this strategy did succeed in raising inflation although the FED has been shocked by the fact that it has reached 7.7% over the past twelve months.

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In order to curb this runaway inflation, the FED was forced to raise overnight interest rates from .05% to their current level of 3.83%, and the bond market followed suit pushing the yield on the 10 Year U.S. Treasury from the low of .52% to its current level of 3.81%. The latter represents another extreme event in that a broadly diversified bond index generated a year to date return through the end of October of -15.7% which is unprecedented. This return has been particularly painful for balanced portfolio investors in that the bond component has not represented a safe haven from a weak stock market. Based on historical data, such a return had less than a 4% chance of occurring; but once again, it happened!!

SO WHAT?

These are interesting anecdotes but there are also some important lessons to be learned. First, crazy things do happen so each of us needs to be mentally prepared for them. The world consists of many economies, diverse political systems, and many financial markets. Moreover, most financial markets contain a large number of different investment assets. Therefore, while the probability of an extreme event in any one of them is low, the cumulative odds of a crazy thing happening somewhere are much greater. And, given the interconnected nature of the world, one of these events typically has a spillover effect on the rest of the world. To underline the frequency of headline grabbers, the following is a timeline of some of the extreme events during my career. A handful are of the truly amazing variety whereas others are more run of the mill financial crises.

Nifty-Fifty Growth Stock Crash **1975**

1980 FED Funds interest rate at 22%
Gold Price Explosion

Mexican Debt Crisis **1982**

1987 Stock Market Crash

U.S. Bond Market Crisis **1994**

1997 Asian Financial Crisis

Russian Financial Crisis
Failure of Long Term Capital Management **1998**

2000 Tech Bubble Bursts

Housing Market Crash
Failure of Lehman Brothers **2008**

2009 Greek Financial Crisis
VIX and High Yield Spread Explosion

Negative oil prices **2020**

2021 Meme stocks

Inflation and interest rate surge **2022**

Second, in each of the examples described in detail above, things returned to normal following the insanity although the time required varied considerably. Recalling this fact should temper the angst that naturally occurs during one of these events and also reduces the temptation to “do something,” an urge that typically destroys wealth. To emphasize this point, JP Morgan reports that the average investor earned an annualized return of 8.7% over the past ten years versus an 11.1% return on a simple 60% stock, 40% bond mix. Why the 2.4% performance gap? Because investors typically change their portfolios at just the wrong time. Third, for those who are courageous, one of these events may create an opportunity to earn extraordinary returns. But, doing so requires an unusually steady hand and the mental fortitude to fight the strong emotions that are associated with them. For the rest of us, the key lesson is one that we preach on a regular basis; create a diversified portfolio that is consistent with your time horizon and risk tolerance, adjust it as required by changes in your circumstances, and otherwise let it do its work.

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