2023
Market Outlook

"Signal vs. Noise"

Abstract:

- Forecasters claiming to offer foresight regarding the stock/bond market direction have underperformed a random walk approach to investing[i]. Worse, the market pundits (professional forecasters and TV celebrities) significantly underperformed individual investor forecasts[ii].
- Investors may significantly increase reliability by *focusing on data* which has proven itself over decades of stresses, which we call "signals," and ignore the advice of those claiming to be visionaries because they called the last event correctly. We call this "noise."
- For those who are busy and who value their time, the additional dividend coming from ignoring the noise is more time available for the parts of life that are most important.
- The "signals" are telling us there is a recession in the near future. The "noise" is telling us there is little to fear, as the markets are at or near all-time highs and are clearly overvalued.
- The world has never experienced a recession with the amount of debt or leverage we have in our economy today. Debt increases leverage on the upside and downside.
- The reward for investing in any overpriced asset class is lower than average future returns, or negative returns.
- The data clearly supports a defensive investment allocation. Value investments, high quality investments and dividend-producers have historically performed better than growth-related investments in overvalued markets[iii].

As we move through 2023, an increasing amount of information is available to each of us. At times it feels as if we are trying to drink from a firehose. Many of us retire each day with a feeling of slight failure because there is so much more content that seems to be interesting - and potentially important – yet time just didn't allow us to get to it. One financial expert recently said "Information overload is a real problem for many individuals, especially when it comes to personal financial matters. The key to success is learning to filter out the noise and focus on the most important, actionable information that will help you achieve your financial goals."

My job as an analyst, and your job as an investor, is to determine the most probable future from the almost unlimited number of outcomes available based on current data. Due to the massive amounts of data available today, our collective job has evolved from gaining access to data - to filtering massive amounts of noise in search of relevant, useful data. We must separate *relevant* data from the almost unlimited amount of *irrelevant* data if we are to make intelligent decisions.

Here is the problem: much of what is considered data, is not data; it's opinion or estimates, or information crafted to get our attention and sell advertising. Most investors fall victim to the fallacy of paying attention to easily available data (availability bias[iv]) rather than the most "relevant" data which is "statistically relevant" yet harder to find or access. Many investors are forming opinions based on the opinions or advice from the media, comprised of young journalists or "talking heads" on TV, playing the part of an analyst. The media have become so effective in the art of selling advertising - they often cross the line to capture our attention, using outrageous language which appears to be factual without historical data to back it up. Few media celebrities have any track record or experience available to demonstrate results making them worthy of offering advice[v] (and believe me if there was evidence of a track record, you can bet your bottom dollar it would be plastered on every interview from beginning to end). In short, most of these journalists and talking heads lack wisdom acquired from real-life experiences and have no track record of success. Their advice is "noise." Unfortunately, because they are on television, the public believes their shouts and gesticulations have value rather than remembering these actors are personalities whose job is to sell advertising.

This brings us back to the title of this Market Outlook. "Signals vs. Noise."

In the world of finance, signals are data, facts, or gestures which convey useful/predictive information or instructions. Noise is largely immediately available static information, and often conflicts with the useful information in a signal.

Said differently, signals offer leading information about the future, while noise tends to offer interesting information often catching our attention, yet with little value about what lies ahead. Worse, noise often distracts us from valuable signals and wastes our time with compelling narratives which include pieces of truth, yet without any predictive ability.

It is our job to ensure each family we serve makes intelligent decisions regarding their wealth. Separating "signals" from "noise" is valuable because it will help you make more intelligent decisions.

"The problem with the world is that the intelligent people are full of doubts, while the uninformed are full of confidence."[vi]

Understanding the difference between a signal and noise is critically important in the world of economics. As we discussed in our last Market Outlook, economics is a social science – meaning it is a science that deals with humanity, economies, and social relationships.

Economic outcomes are probabilistic - not fixed - as in math and physics. In economics two plus two does not always equal 4. Two related events may deliver very different outcomes based on situational variables influencing balances and counterbalances. While "signals" do offer highly relevant and predictive information, "noise" plays the scheming thief endeavoring to confuse decision-makers. Separating the signal from the noise may be one of the most effective uses of your time in life, as it will increase the odds of making intelligent decisions, based on reliable, predictive data[vii].

Separating the Wheat from the Chaff

And while making intelligent decisions is incredibly important, another valuable bonus may come from saving time. Every moment spent including noise into your calculations steals the time which could be spent with family, hobbies and your primary business. (One of the families we serve calls our attention to the value of time quite frequently. Dr. Morrey never fails to remind me that "time is the currency of the realm." He is right.) Time is one of the few irreplaceable aspects of our life, and as such, it should be treated with the greatest amount of respect. With so much data available today, how do you decide which information offers valuable, predictive information?

The good news is that when attempting to understand the economic signals, there are 3 easy questions to answer which will get you 80% of the way to the finish line.

1) Is the U.S. Federal Reserve increasing or decreasing the liquidity in our economy? (Remember "Don't fight the Fed" works both ways.)

2) Is the "Yield Curve" in its normal configuration - or is it inverted?

3) Are the Leading Economic Indicators (LEI) signaling an expanding economy or a declining economy?

Answering these 3 questions will provide every investor with an "evidence-based" signal with the best inference of what lies ahead for our U.S. economy. More importantly, it will save you an incredible amount of time as you can ignore other indicators and spend your time on productive initiatives and family.

Signal #1: "Don't Fight the Fed"

This simple quote has more relevancy than most when it comes to the direction of our economy. The U.S. Federal Reserve (Fed) significantly influences the amount of liquidity in our U.S. economy. When liquidity is increasing, the Fed is trying to stimulate our economy, often by either lowering interest rates and/or by actually injecting dollars into our economy, thus making money more available and relatively less expensive.

Alternatively, when the Fed is decreasing liquidity, it is trying to slow our economy, usually by increasing interest rates and/or by literally withdrawing money from our economy. When liquidity is *decreasing*, the Fed is purposefully trying to slow our economy by making it more difficult and expensive for corporate America to operate.

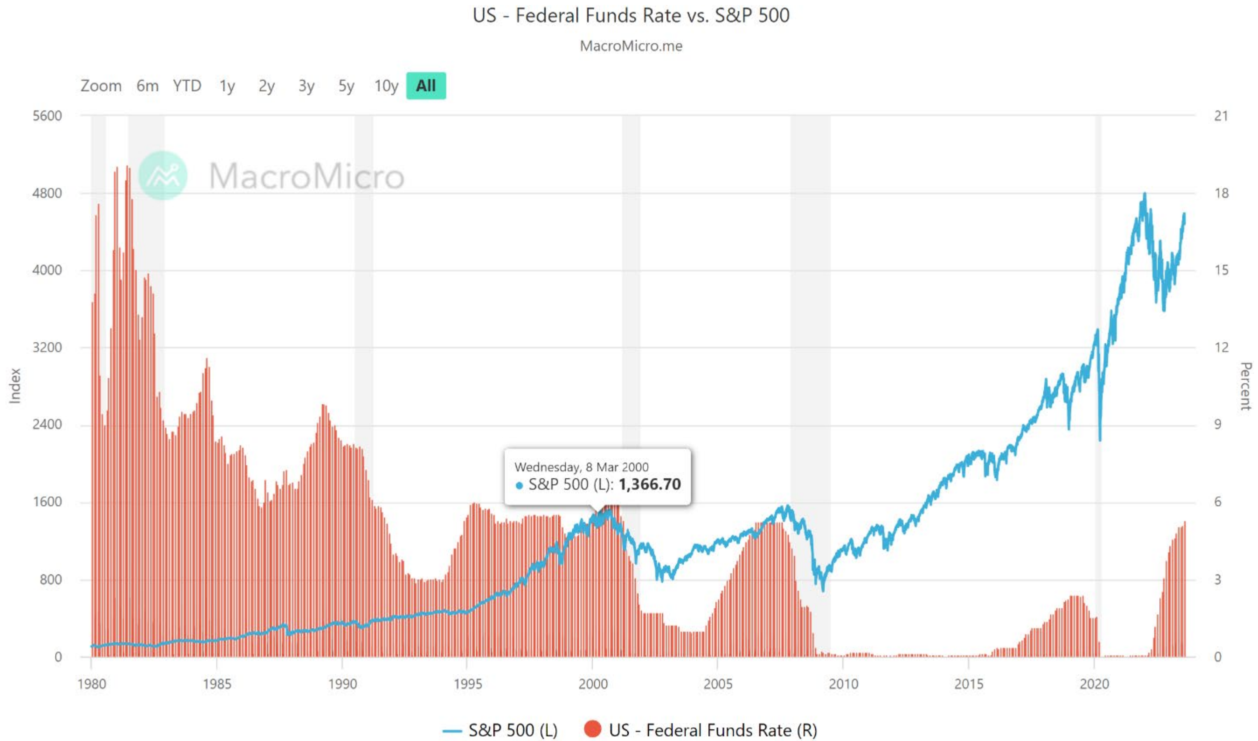
It is that simple, and while no single factor or indicator in economics has a correlation of 100%, this factor is incredibly reliable. *This signal has forecasted every recession since 1945.* Below, you will find a graph documenting the accuracy of this "Signal."

As you can see - since the early 1980's, the U.S. Federal Reserve has been on a consistent trend of lowering the "Fed-Funds" rate, with the intent of increasing economic activity. The chart demonstrates

its success (the costs of borrowing have declined from over 15% to virtually 0%, and liquidity has expanded every year during this period).

The S&P 500 has significantly appreciated as a beneficiary of the Fed's largely consistent interest rate reduction from the early 1980's until 2022. *In 2022 you can see the Fed's impact by the abrupt downturn in the S&P 500 valuation as a result of the Fed's overt interest rate increase to slow the U.S. economy.

*Note to remember: "Don't Fight the Fed" works BOTH ways.



Summary: SIGNAL #1: DON'T FIGHT THE FED: SIGNALING A DECREASE IN ECONOMIC ACTIVITY[viii].

Signal #2: The Yield Curve

The normal yield curve has a positive slope, meaning the vector moving along the "X" (horizontal) axis travels up and to the right. The normal yield curve shows short-term U.S. Treasury "Bills" (maturities of 2 years or less), with lower interest rates, while U.S. Treasury "Notes" (2 – 10 years) and U.S. Treasury "Bonds" (10 years or more) typically offer higher interest rates. Longer-maturity investments typically have higher yields because they have more risk than short-term investments.

When the yield curve becomes inverted, it becomes a valuable signal and a reliable predictor of an economic recession. Reason: Yield curve inversion clearly signals the U.S. Federal Reserve has become "restrictive" and is trying to lower economic activity in the U.S.

An inverted yield curve occurs when the yield on long-term bonds falls below the yield on short-term Treasury Bills. This is often interpreted as a sign that investors are pessimistic about the long-term outlook for the economy.

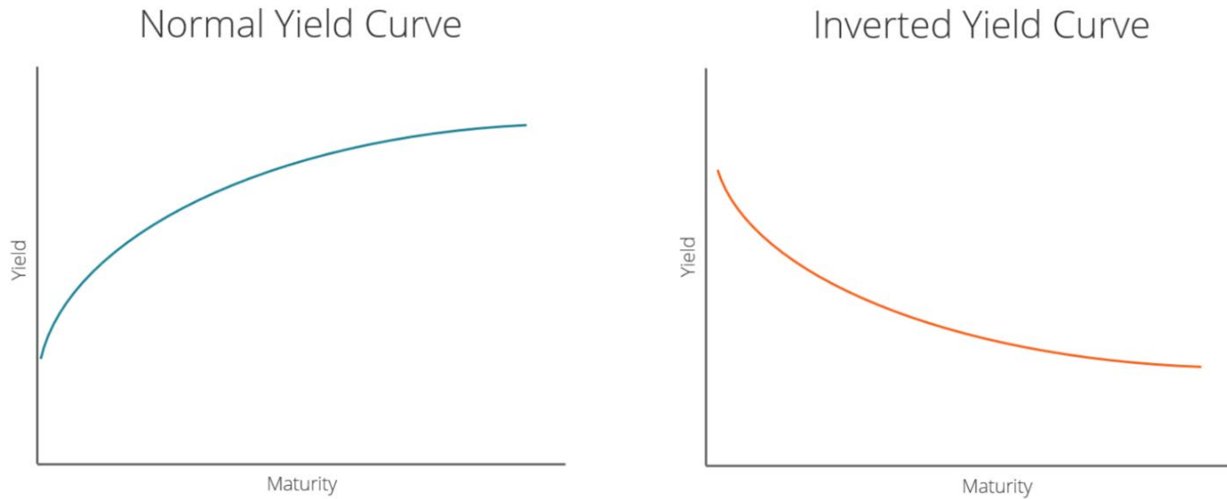
This "inversion" creates a challenge to any economic system. Here's why: Banks typically borrow money with a short-term maturity (so their cost of capital is lower). They lend money for a longer term, which allows banks to charge higher interest rates. Banks profit from the difference between borrowing money at lower rates and lending money at higher rates (all else equal). Most investors have participated in and witnessed evidence of this over the last 12+ years. The interest rates banks paid on your savings accounts were near 0.01%, while the banks were lending the money for 5-10 years to borrowers at 3-5% or more.

When yields invert, borrowing money costs more than lending money earns. Consequently, banks stop lending money, which creates less liquidity in the economy. Less liquidity slows the economy, most often creating a recession.

The correlation between an Inverted Yield-Curve and a recession soon to follow is also incredibly high. In fact, every recession since 1960 has been preceded by an inverted yield curve.

The Chart and Graphs below demonstrate examples of the differences between a "Normal" and an "Inverted" yield curve.

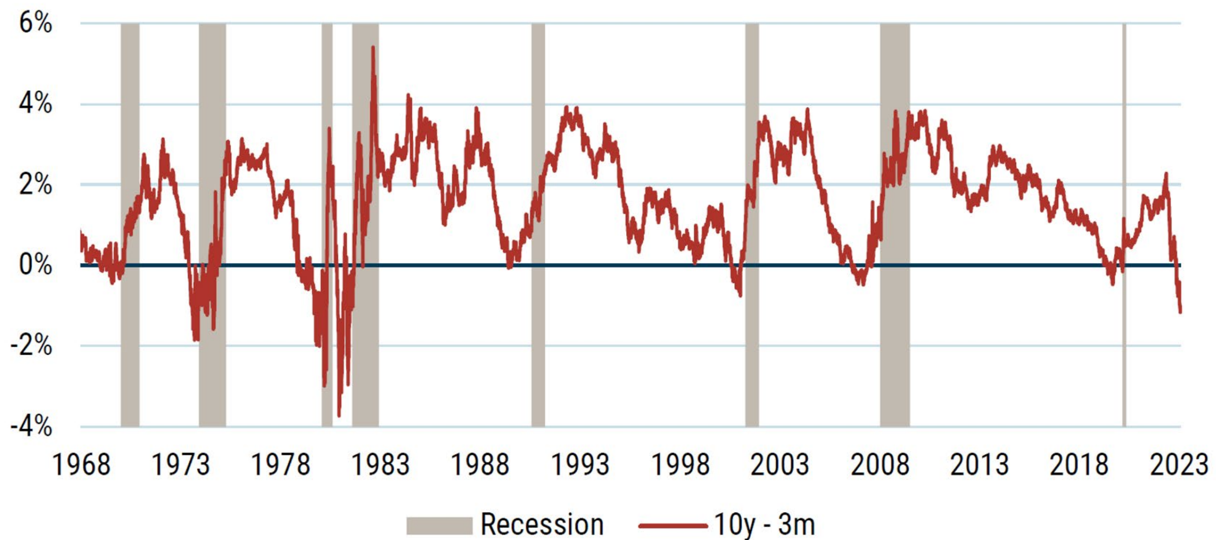
	Normal Yield Curve Interest Rates		***Inverted*** Yield Curve Interest Rates	
One Year	1%		3%	
Two Years	1.5%		2.5%	
Five Years	2%		2%	
Ten Years	2.5%		1.5%	
Thirty Years	3%		1%	



Below, you will find a chart demonstrating the reliability of the "Yield-Curve-Inversion" as a signal preceding a recession. All 8 recessions since 1960 have been preceded by an inverted yield curve. (The vertical, shaded areas represent recessions; the red line represents the difference between the 10-year Treasury Note's interest rate, and the 3-month Treasury Bill's interest rate.)

Said differently, there has been no recession over the last 60 years without an inverted yield curve[ix].

EXHIBIT 2: 10Y - 3M U.S. TREASURY YIELD CURVE AND NBER RECESSIONS



Source: FRED

SIGNAL # 2: – INVERTED YIELD CURVE IS SIGNALING A RECESSION IS COMING IN LESS THAN 12 MONTHS

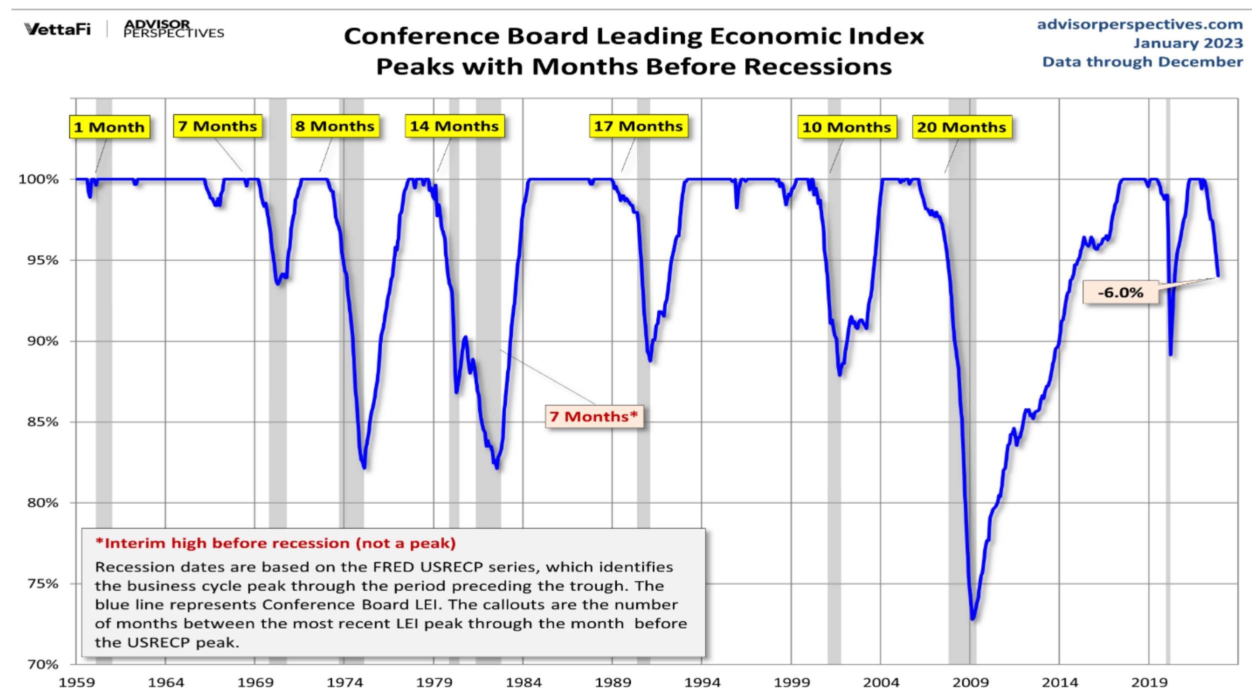
Signal #3: Leading Economic Indicator (LEI) Index

The LEI index is just that. It is an index of financial variables which indicate economic activity to come.

This index is comprised of 10 variables[x], each of which is considered to have reasonable predictive quality. Of course, some indicators are better than others. Correlations differ for each indicator at different times. Some indicators have longer lags than others, and some affect the economy more significantly than others. However, the aggregate signal from these 10 variables is almost flawless.

The summary is that *every recession since 1950 has been preceded by a downturn in the LEI*. This Signal also has an incredibly high correlation when predicting a growing economy and a contracting economy.

***The LEI Index graph below**: The blue line indicates the Leading Economic Indicator Index; the information in the yellow rectangular boxes indicates the time between the LEI turning down, indicating a recessionary signal, and the recession actually taking place.



SIGNAL #3: – LEI IS INDICATING A RECESSION IS COMING (OR OUR U.S. ECONOMY MAY ALREADY BE IN RECESSION)

What's Next?

Below, you will find our "scenario analysis," which is an expression of our perspectives for the current set of "known" uncertainties in a "best-case" (this represents a hopeful outcome), "base-case" (what we believe is the most likely outcome), and "worst-case" (this represents a possible yet incredibly regrettable outcome).

We do not believe any of the 3 views will unfold exactly as delineated below. However, the reason most analysts engage in scenario analysis is that it instigates intelligent discussion by creating a fixed future assumption (in writing) from which you can begin discussions around the many futures possible. Here are our assumptions based on the facts available as of this writing:

Best case: the U.S. enters a recession with a 1% or less reduction in our GDP during late 2023/early 2024. Corporate earnings fall by less than 10%, unemployment remains under 6%. The equity (stock) market declines by 20% from recent highs yet continues to focus on growth initiatives offered by the current administration as it is an election year in 2024. The dissonance between current inflation and the Fed's attempts to crush inflation fades, and the U.S. Federal Reserve allows inflation to remain higher than its current 2% goal. Global tensions continue to increase yet do not boil over. Mercantilism re-awakens, which creates short-term headwinds for financial assets and creates stickier inflation, while providing long-term benefits. Stocks offer little to no gains over the next few years as the current high valuations dissolve, and earnings growth struggles. Some industries may prosper (reshoring beneficiaries, carbon-reducing energy initiatives, etc.), while others struggle (highly valued companies without earnings). US bonds deliver their coupon rates, while non-U.S. bonds deliver slightly higher yields if the U.S. dollar weakens.

Base case: Our U.S. economy enters a textbook recession during late 2023 or early 2024. Corporate earnings fall by 20% or slightly more. The stock market declines by 30-50% from current overvalued levels. Alternatively, we could have rotational, industry-related advances or declines resulting in 3-5 years of little to no overall "market-based" appreciation. Inflation stays in the 3-4% range through 2023, and the U.S. Federal Reserve either continues increasing rates (which will take us to the "worst case" scenario), or the Fed changes its outlook and remains patient preparing to live with 2%+ inflation. The Fed will keep interest rates elevated for longer than the capital markets currently believe, as the base rates of inflation are proving to be stickier than estimated. *While elevated inflation typically calls for a lower valuation framework for financial assets, the U.S. Federal Reserve's maintenance of interest rates above 5% will create negative dislocations in our U.S. economy. The amount of corporate and household debt in our economic system creates leverage for positive and negative forecasts. If Negative events begin taking place, the probability that our U.S. recession is worse than expected increases. The emergence of negative events, when combined with our currently indebted economic framework, could bring us to the "Worst-Case" scenario below. Avoidance of negative events may allow us to avoid the "Worst Case" scenario. Depending on which portions of our economy break, and the severity of the event, the U.S. Federal Reserve will pause its tightening policy and come to the U.S. economy's rescue (again) by lowering interest rates and/or directly injecting liquidity into our economy. Bonds and income-related investment initiatives perform better than investment initiatives relying upon appreciation from current levels with less volatility.

Worst case: At some point during late 2023 or early 2024 the U.S. economy enters a meaningful to severe recession. Corporate earnings fall by more than 30%. Again, corporate, and individual household debt leverages all future outcomes. Speculative behavior is unwound. This punishes the capital markets, and risk assets decline by more than 50%. Overleveraged Companies which are losing money collapse under the weight of higher interest rates, and margin calls for leveraged investors become commonplace. Bankruptcy rates increase from < 3.5% today to 10-15%+. The narrative changes from "buying market dips" to "selling market bounces." This scenario causes any number of "domino effects," including increased crime, and the possibility of geographic uprisings. It also increases the likelihood of a negative geopolitical event which could create a downturn that must be avoided. Bonds appreciate as

investors seek safety and the U.S. Federal Reserve pivots and starts lowering interest rates - and if needed - the Fed could start increasing its balance sheet again by flooding the economy with liquidity.

This downturn will set the scene for attractive investment opportunities for those who have maintained liquidity, protected capital, remained patient, and have created intelligent expectations about the future (which is at best, uncertain). Significant downturns eventually create highly attractive asset prices; however, as said in the last "Market Outlook," the worst case could bring a level of pain only a Navy Seal could endure *before* offering attractive investment opportunities.

"What we learn from history, is that people don't learn from history."[xi]

The last time the U.S. Federal Reserve increased interest rates to 5% or more was June 2006, just as our U.S. economy headed for the most significant recession since the Great Depression in 1929. The yield curve was inverted as it is today, and the LEI was solidly pointing towards an economic downturn.

Greg Davis, the Chief Investment Officer at Vanguard writes "In the 21st century, there has been only a little more than a year in which the federal funds rate - the Federal Reserve's target short-term interest rate - has been above 5%, from the mid-2006 through the onset of the 2008-2009 financial crisis. Not since 1995-2000 has the Federal Funds rate been more than 5% - or even near 5% - for an extended period."

While history reminds us of the pain during both the 2008-2009 recession and the 2000-2003 recession, what concerns us is that during each of those downturns, the amounts of U.S. debt, corporate debt, and individual household debt, were *a small fraction of our current debt loads.* As said earlier, debt most often acts as a lever, distorting both the beneficial and non-beneficial outcomes.

The speculative commonalities of today's market valuation with the 2000-2003 downturn, and the 2008-2009 downturn are eerily significant.

With All Reliable Signals Flashing Red,
Why is the Stock Market Near All-Time Highs?

In the late 1990's the internet arrived. Speculation as to the internet's positive impact on the world was so strong, that any company with a ".com" after their name saw their valuation rise to incredible levels, regardless of whether they were making any money (or had a realistic chance of making any money). Valuation mattered then, as it does today. The penalties for most of those foolish enough to chase overpriced assets, without any earnings[xii] by speculating in the .com-related issues dominating the NASDAQ during 2000, *saw their portfolios decline by more than 75%*.

While clearly, the internet's arrival eventually did change the world, we believe similarly, that AI will have a significant impact on the decades to come. *Yet, valuation still matters*. The 2000-2003 downturn reminds us it took years for the U.S. economy to build the internet's infrastructure and leverage its productivity so our U.S. economy could realize its potential. Similarly, today, **valuation also matters**.

Artificial Intelligence will no doubt increase productivity, and hopefully change the world in a positive direction – yet it will take time for companies to adopt, build requisite infrastructure, and adapt to the efficiencies AI will offer. Yet, valuations are way ahead of themselves, factoring in unrealistic growth rates. Investors have increased speculation to dangerous levels by investing in overvalued companies involved in the noise around AI. They continue to ignore the signal's history offers intelligent investors. This is a set up likely to deliver a painful lesson for those without an understanding of history - again.

What's Next?

Businesses and individuals alike are inundated with an overwhelming amount of information, much of which is contradictory and irrelevant. The challenge lies in separating valuable, predictive signals from the noise of conflicting and potentially disruptive information.

The above information supports the difference between signals and noise. Each of the signals we discussed above is predictive in their own right, singularly. Most of the time, the three signals above offer an outlook which may conflict in one way or another. However, as of this writing, in June 2023, all three of the signals agree, and each is warning of a slowing economy to come.

This is taking place as the U.S. Federal Reserve continues to tighten financial conditions by raising interest rates and withdrawing assets from our economy – both actions are restrictive and are meant to slow the economy.

The repercussions from the recent banking crisis and the U.S. Federal Reserve's activity will slow our economy over the short-term. And when the Fed stops increasing rates, maintaining interest rates at levels greater than 5% continues to provide a *restrictive* economic framework. Our economy will not thrive with rates higher than 5%.

It is our opinion that further Fed monetary tightening is unnecessary. While it is as likely as not that inflation will increase again before finally heading towards long-term levels of below 2%, inflation is likely to cure itself over the next few years, and further restrictive measures will put our U.S. economy into a more severe recession than needed. Most have forgotten that monetary tightening acts with "long and variable lags." We believe "patience is a virtue," and wish the Fed would take a breath and allow the economy to naturally work its way out of this inflationary bout.

Many corporations have debt repayments scheduled in 2025 or later. Many homeowners refinanced their homes with fixed-rate loans at 3% or less. Corporations and homeowners without debt coming due and who were fortunate enough to lock-in lower rates are quite likely to avoid most of the downturn to come.

However, a significant number of corporations - estimated to be over 20% of the Russell 2,000 - have floating-rate loans and were not profitable even with loans at 3-5% before the 2022 rate increases began. Homeowners who were *unlucky* enough to miss swapping their "floating-rate" loans to "fixed-rate" loans will have home mortgage payments double during 2024. The stress on the approximately 400 unprofitable corporations in the Russell 2,000 will increase our unemployment rate, while the *lack* of available spending from individuals whose home loans doubled will continue to lower consumers'

ability to spend. These negative developments, along with other potentially negative developments which are unseen at the moment, will act to slow our economy and lower inflation to manageable levels without the U.S. Federal Reserve's rate increases.

It is also our strong opinion that a 2% inflation rate should not be the target inflation level. Without being rude, several studies have clearly demonstrated that inflation levels of 3%+ often allow the U.S. economy to deliver more effective outcomes for both business and individuals[xiii].

Summary

Today, our U.S. Federal Reserve has taken the role of inflation-fighting to heart. They are determined to slow our economy and quell inflation. After almost 15 years of abnormally low rates, borrowing costs are again well over 5% - from under 1% slightly over a year ago.

However, today we have *more than 10X the amount of national debt*, the investing public continues to funnel their hard-earned dollars into an overvalued stock market, and speculative activity is abundant. The combination of increased leverage, with an overvalued stock market and heightened speculative activity, offers investors *increased risks without any equivalent increase in prospective returns*. In other words, the risks are higher than ever, and the rewards available to investors at current levels are lower or negative.

With the current amount of national debt, corporate debt, and individual debt, along with a negative demographic trend (our country's population is shrinking) and constant technological progress, all of which are "deflationary," the odds of a negative event taking place are increasing.

While we believe inflation will be stickier than the markets believe over the short term, *the overriding long-term trends are pushing the U.S. economy toward deflation, and lower growth*. The U.S. Federal Reserve should stop increasing interest rates and allow their efforts to work their way through an already slowing economy. The "long and variable" lags of the Fed's monetary changes have yet to be realized. As said, "patience is a virtue."

It is possible for the U.S. to avoid a recession. It is also possible the leverage in our system will not create an outsized negative event. However, both outcomes will defy the odds, and those betting against the odds will find their rewards unsatisfactory.

With thousands of self-proclaimed "market pundits" screaming to be heard, it is impossible to know exactly how the future will unfold. Given this level of uncertainty, we believe it is best to follow the advice Pericles offered in the 5th century BC. "The key is not to predict the future, but to prepare for it."

Remember, "signals trump noise."

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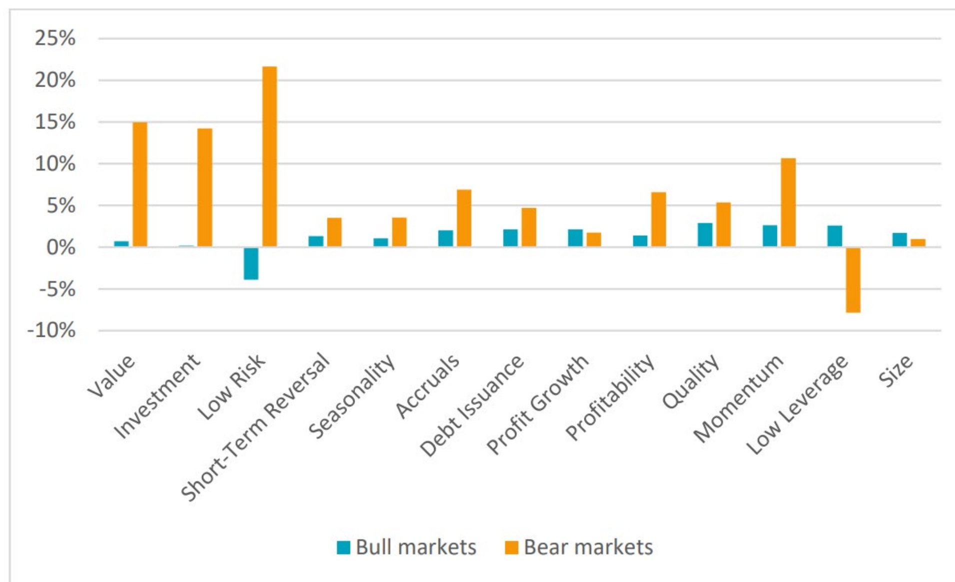
[i] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4390165
[ii] https://voices.uchicago.edu/stefannagel/code-and-data/
[iii] Bull Market Performance (Alpha) – Blue; Bear Market Performance – Orange; 1963-2021

Bull Market Performance (Absolute) – Blue; Bear Market Performance – Orange; 1963-2021



[iv] Availability Bias is the tendency to rely on information that comes to mind quickly or is most available to us, rather than the pertinent information which is most relevant to making an informed decision.

[v] Activity: the next time you see or read an article or television section you believe to be instructive and may use the article's information as a basis for a decision you are attempting to make, take a moment and search the author's credentials. You may be surprised by the lack of credentials the author presents – making it more likely the author is a talented journalist, rather than a valuable source of predictive information.

[vi] Attributed to Charles Bukowski

[vii] Following the noise may seem easier and "relevant" as it often provides eye-catching headlines with absolutely no helpful data (and essentially wasting your valuable time in the process).

[viii] Chart courtesy of Macro-Micro Website (https://en.macromicro.me/collections/9/us-market-relative/91/interest-rate-sp500)

[ix] The inversion of a normal yield curve is among the most reliable indicators or “signals” of a recession to come. It typically leads recession by an average of 15 months. For example if the yield curve inverts in January, and remains inverted for 6 months or more, a recession typically follows by June of the following year.
The variance of this “Inverted” yield curve can 9-18 months depending upon the economic variables in place during the inversion.

[x] Leading Economic Indicators – there are 10 described below:
1) Average weekly initial claims for unemployment insurance: this indicates the number of people who apply for unemployment insurance benefits each week and can indicate changes in employment levels.
2) Average weekly hours worked in manufacturing: this measures the average number of hours worked by employees in the manufacturing sector each week and can indicate changes in business activity.
3) Stock prices: this measures the performance of the stock market and can indicate changes in investment sentiment and economic activity.
4) Building permits for new private housing units: this measures the number of permits issued for new private housing units end indicates changes in construction activity.
5) Manufacturers new orders for consumer goods and materials: this measures the dollar value of new orders placed with manufacturers for consumer goods and materials and can indicate changes in business activity.
6) Index of consumer expectations: this measures consumers expectations for future economic conditions including inflation and employment levels. This is similar to the Michigan consumer sentiment index.
7) Money supply: this measures the amount of money in circulation and can indicate changes in the availability of credit and monetary policy.
8) Interest rate spread: this measures the difference between long term and short term interest rates and can indicate changes in the availability of credit and investor sentiment.
9) Manufacturers new orders for non defense capital goods: this measures the dollar value of new orders placed with manufacturers for non defense capital goods and can indicate changes in the business investment environment.
10) Vendor performance: this measures the speed of delivery of supplies to businesses and can indicate changes in business activity and supply chain disruptions.

[xi] Warren Buffett Quote

[xii] Most companies changing their name to include or add the .com moniker had no current or prospective earnings, and more than a significant number of these companies filed for bankruptcy or were taken over for a fraction of their valuation at early 2000 levels, despite the internet truly becoming one of the most positive developments for the U.S. and global economy since the industrial revolution. *the point is: while the internet created vast amounts of wealth, it took years for the wealth to be created, and during that period economic and competitive positions changed so dramatically, that it was nearly impossible to predict who would win and who would lose. We believe the same is likely to be true as we usher in the age of AI.

xiii "The Optimal Rate of Inflation" by Ben Bernanke (2002); "Inflation Targeting and the Optimal Rate of Inflation" by Michael Woodford (2003); "The Benefits of Inflation" by John Taylor (2009).