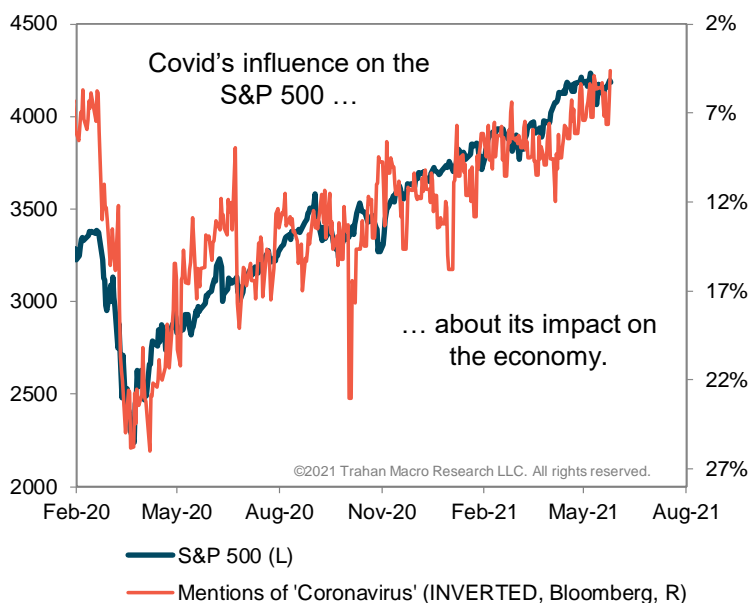


June 3, 2021

Macro Intern Guide 2021: A Few Key Concepts Every Incoming Intern Should Be Aware Of

This has been a strange time to work in our industry. We have had to contend with a situation none of us have ever experienced, not just at home but also at work. Surely, technology (thank you Zoom!) helped make a bad situation better but the inability to have those “water cooler” talks has impacted us in ways we likely won’t understand for years. Now imagine starting a new job in this context or, something that can be even more awkward, an internship! Those fortunate enough to still have an internship in 2020 were faced with some truly unique conditions. This report is for the intern class of 2021 in hopes of making their experience a little better.

Covid News Retreats ≈ S&P 500 Recovers



Covid News Retreats ≈ New Job Postings Up



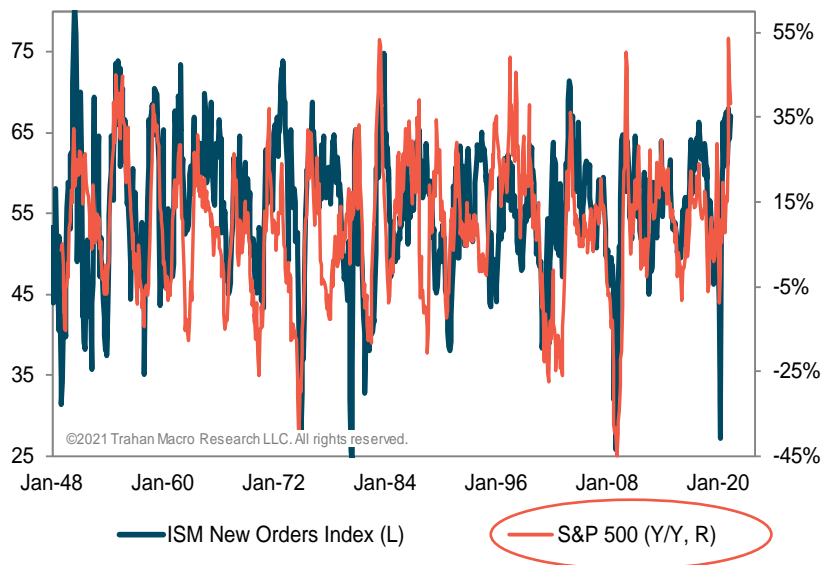
Undeniably, COVID has had an impact on equities in the past year. The chart [above left](#) shows how the news flow associated with COVID has been inversely correlated to the S&P 500. We are not usually all that keen on these types of charts as they are often used in Wall Street research even when causality is questionable. In this case, the relationship is legit because, as the chart [above right](#) shows, COVID’s news flow has directly impacted employment and the economic recovery and stocks are just a reflection of the economy’s trajectory.

If there was granular data on “internships”, we suspect that it too would follow COVID’s news flow quite closely. Data tracked by the website “Indeed.com” shows that internships are down about 15% from 2019 levels. While this seems dire, it is a large improvement on 2020. This report is dedicated to the 2021 class of interns albeit most in our industry would likely find value in it. We consider it a primer on the role of “macro” in financial markets and this is the 13th or 14th year now that we have put something like this together. We hope everyone is able to learn something from it. Don’t hesitate to reach out with questions. Best, Francois

#1. The Importance Of Macro's Influence On Equity Markets

The S&P 500's return has been correlated with the ISM Manufacturing Index (a well-known leading indicator) for a long time (see chart back to 1948). This makes sense since they are both components of the Conference Board's Leading Economic Index (LEI). In fact, the S&P 500 has been in the LEI since it was first created in 1937 and has survived every review of the Index since. We consider this to be undeniable proof of the "MACRO" relationship between the stock market and the economy.

Stocks Are Part Of The LEI Alongside The ISM



Snapshot of Table 2: Timing Of 71 Series At Business Cycle Revivals In The United States

6	Business failures, all commercial liabilities (I)	Oct75-Apr82	13	13	-8	3	-13
7	Bond sales, N.Y. Stock Exch.	Feb94-Nov92	13	11	-8	6	-22
8	Index of industrial stock prices, Dow-Jones	May97-Jun32	9	10	-7	5	-18
9	Stocks of railroad companies	Oct57-Jun32	18	19	-7	8	-32
	Macaulay						

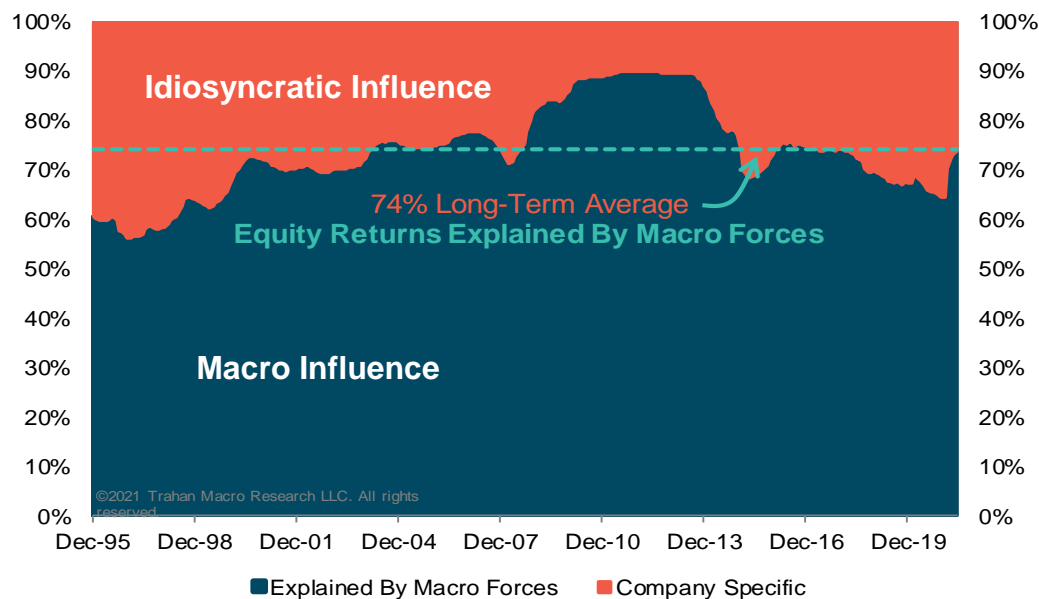
Statistical Indicators of Cyclical Revivals, NBER, 1938

"In many ways the most exciting of the leading indicators is stock prices, perhaps because so many Americans own stocks ... and stock prices were in the original 1937 list as well as in the 1975 list."

Why the Leading Indicators Really Do Lead, Moore, 1983, pp. 334, 346

If an outsider looked at the typical education of someone in our industry, they would likely think that idiosyncratic risk (company-specific influences) is what matters most. We would of course disagree, and the data supports our bias in this regard. Indeed, the chart below breaks down the influence of macro forces vs that of idiosyncratic risk for the typical stock in the S&P 500. These numbers are correct. Across time, macro forces have explained 74% of a stock's price movement on average vs only 26% for idiosyncratic influences. Food for thought for those pondering how to best allocate their "research" time.

Macro's Influence On Stocks Far Greater Than Idiosyncratic Risk



The portion of a stock's price movement explained by macro events in the S&P 500 far outweighs that of idiosyncratic effects for the typical company.

#2. The Data And How It Interacts With Financial Markets (1/2)

There are several key features in every data series. The most critical one, perhaps, is how a series relates to the economy, AND most importantly the stock market. The framework of the Conference Board's indicators is helpful in this regard as it classifies series into Leading, Coincident and Lagging categories. For those focused on financial markets, the left box (LEIs) is going to be the one that matters most. This is where the Conference Board uses market-based series and for the most part, all LEIs are correlated with each other. They are all "leading indicators" of the same thing: GDP.

One Way To Classify Economic Data: Leading, Coincident, And Lagging

Leading Economic Index (LEI)	Coincident Economic Index (CEI)	Lagging Economic Index (LAG)
<ul style="list-style-type: none"> • Initial Claims • Orders Nondef Cap Gds Ex Air • ISM New Orders • Building Permits • S&P 500 • Leading Credit Index • Consumer Expectations • Consumer Goods Orders • Manufacturing Weekly Hours • Interest Rate Spread 	<ul style="list-style-type: none"> • Employee Payrolls • Industrial Production • Personal Income Less Transfer Payments • Manufacturing And Trade Sales <p style="text-align: center;">Economists Typically emphasize these because they are important to GDP math</p>	<ul style="list-style-type: none"> • Duration Of Unemployment • Inventories To Sales • Services Inflation • Labor Costs • Commercial And Industrial Loans • Consumer Credit To Personal Income • Average Prime Rate

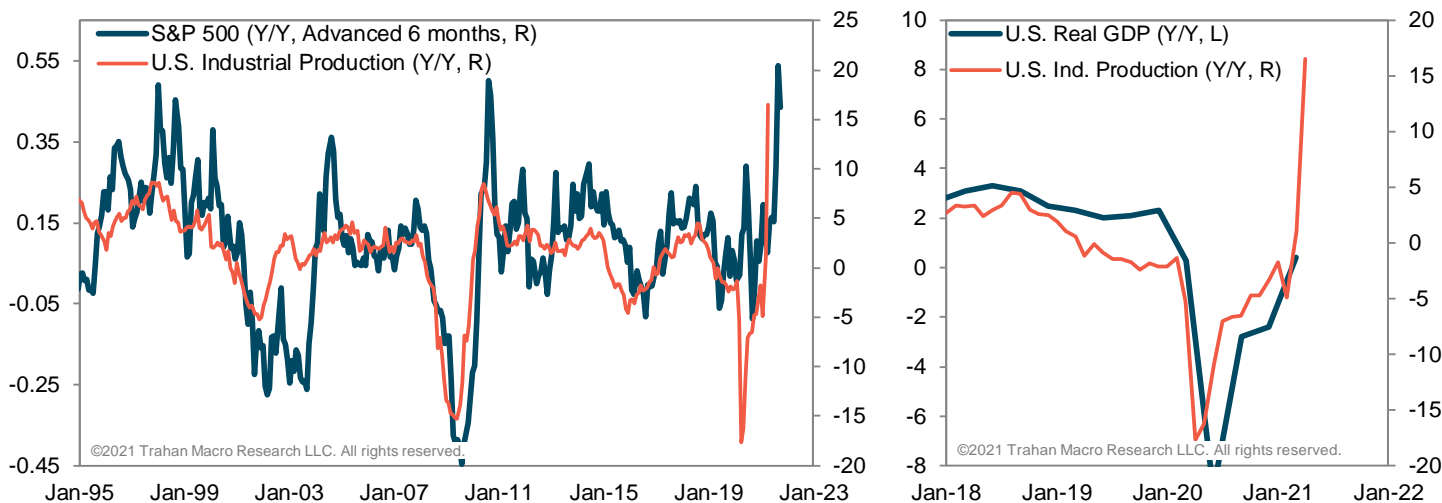
Investors
Often focus on these because they correlate with financial markets

Policy Makers
Use these as some are inputs or influence variables in the Fed's reaction function

Source: The Conference Board

Most LEIs are correlated with each other. The same can be said of Coincident and Lagging indicators as well. This means that any series in the LEI bucket can be used to forecast any series in the CEI bucket and the same applies to CEI vs Lagging indicators as well. The chart below shows how the S&P 500's return leads Industrial Production by about six months. That series, like other Coincident Indicators, is correlated with U.S. GDP growth over time.

Stocks And Other LEIs LEAD CEIs ... And So On

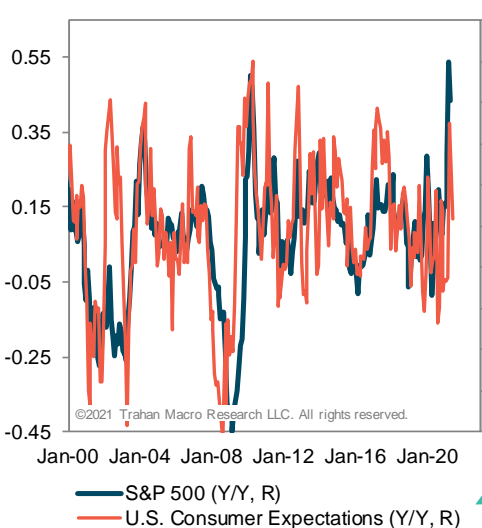


There are other features aside from their "timing" classification that are important to know when looking at data series. Is this hard data (economic) or soft data (survey based)? How timely is the release each month? Is the series subject to significant revisions at year end? All things to consider.

#2. The Data And How It interacts With Financial Markets (2/2)

While CEIs get a lot of “air time” in the media and financial television they are not going to be very helpful at forecasting financial markets. In fact, in a perfect world, PMs/Analysts would only focus on leading indicators since that is what financial markets are. The 10 components of the LEI, including its three financial market series, are all going to be correlated with each other. This makes intuitive sense since LEIs by definition are picked for their anticipatory qualities with regards to GDP. We often illustrate the inter-correlation aspect of LEIs by plotting the S&P 500’s return with the ISM New Orders Index, but the correlation looks just as good with Consumer Expectations (left below) or Baa Spreads (right below).

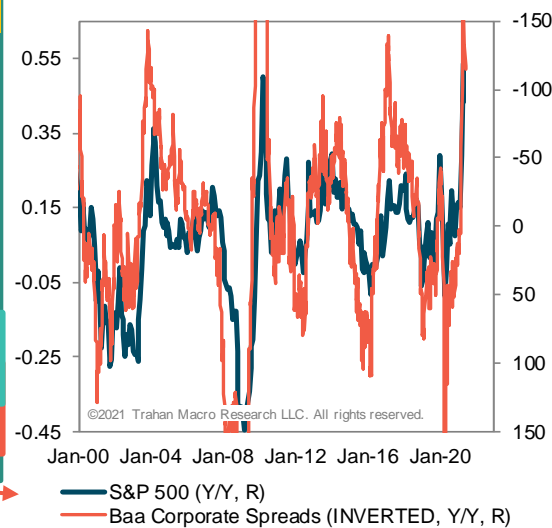
Both LEIs And Correlated



Leading Economic Indicators (LEI TOTL Index)

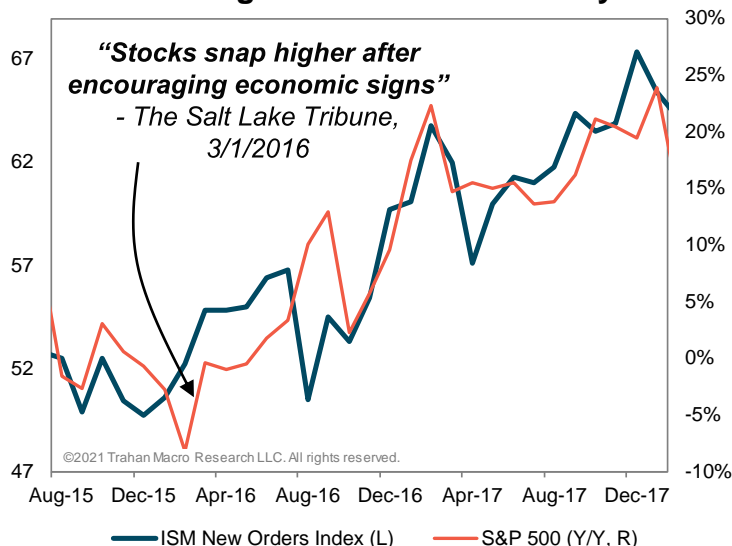
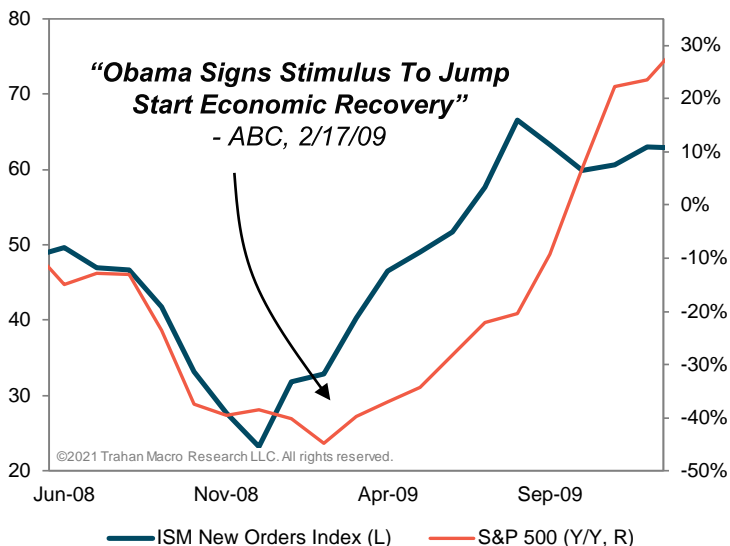
- Turns With The Market
- Initial claims
 - Orders Non-defense Cap Goods Ex Air
 - ISM New Orders
 - Building Permits
 - Interest rate spread
 - Consumer Goods Orders
 - Manufacturing weekly hours
 - Consumer Expectations
 - S&P 500
 - Leading Credit Index (Baa Spreads)

Both LEIs And Correlated



In an ideal world, we would recommend investors focus on a single LEI. Since LEIs are correlated with each other, every single LEI could theoretically work. We have focused on the ISM New Orders Index for over 20 years now as it offers a few advantages over other LEIs. First off, it has been around since 1948 which affords long historical studies when necessary and also dampens the amplitude of revisions at the end of the year. Moreover, it is really timely in that it is released on the first day of the month. As the charts below illustrate, it tends to have inflection points that are more or less simultaneous with that of the S&P 500. The ability to forecast the ISM New Orders, a key focus of our research, is what allows us to have a forward-looking view of the S&P 500 (more on that later).

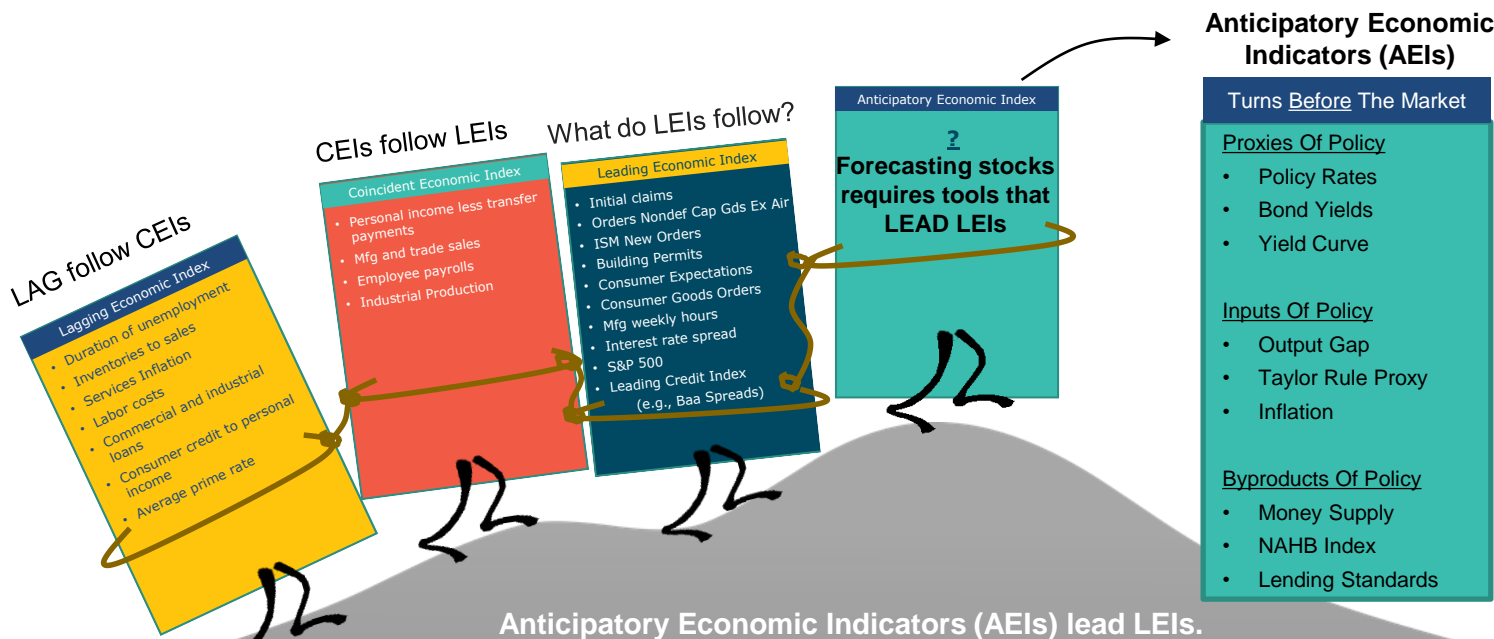
The ISM New Orders Index And The S&P 500 Tend To Change Trend Simultaneously



#3. Understanding Policy Is Essential For Forecasting Stocks (1/2)

The S&P 500 has been in the LEI since its creation in 1937 so there is no denying the macro link with the economy. Stocks anticipate trends in GDP with a lead-time of about six months and have done so, officially speaking, for 80+ years now. So, we've established that stocks are LEIs. How do we forecast LEIs and the S&P 500 then? What leads LEIs anyways? This question may sound complicated at first glance but its answer is actually quite simple. It is monetary policy, or interest rates, that start every major economic trend in the U.S. economy. The Fed's role is tremendous in all things economic.

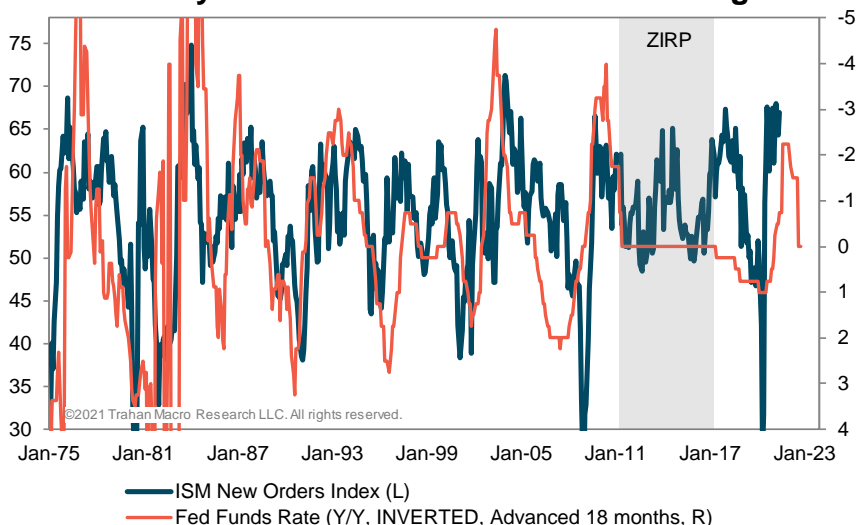
A Macro Forecast Of Equities Starts With Finding Series That Can Anticipate LEIs



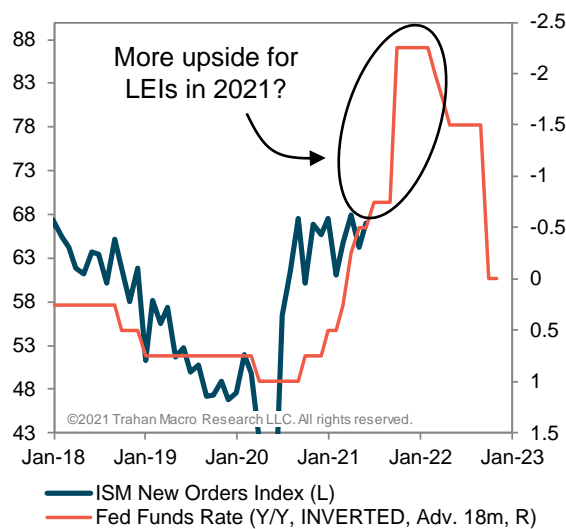
Source: Leading, Coincident And Lagging Indicators taken from the Conference Board's Series

The pre-eminent role of the Fed in forecasting LEIs should NOT be surprising given that rates are a key component of every economist's GDP forecasting model. The chart below illustrates the relationship between the Fed funds rate (FFR) and LEIs. It plots the change in the FFR (inverted since lower rates lead to better growth and vice versa) which is advanced 18 months on the ISM Index. There are better versions of this relationship using market rates but it makes the point on the role of Fed policy.

Fed Policy: An Essential Tool For Forecasting LEIs

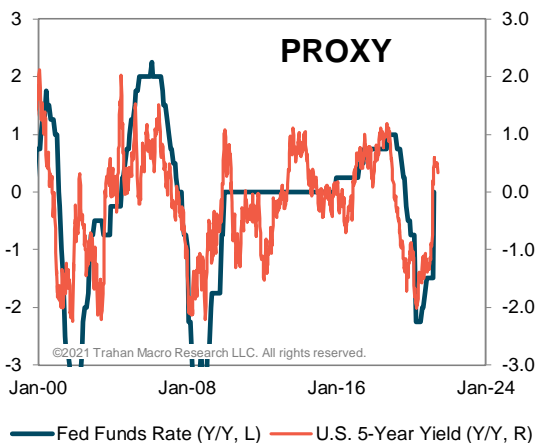


Peak In LEIs At Year End?



#3. Understanding Policy Is Essential For Forecasting Stocks (2/2)

FFR/5-Year Trend Together



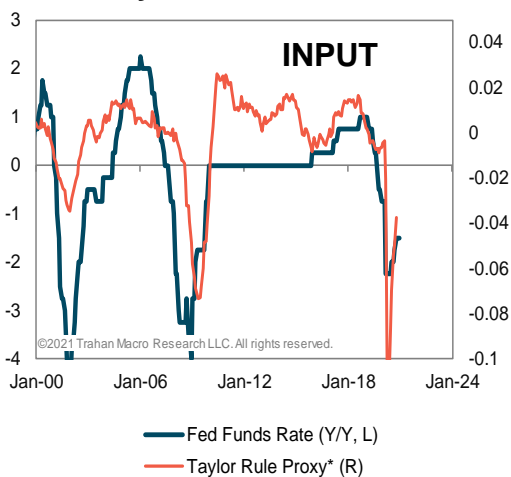
PROXY Of Policy: Treasury Yields

We often use the FFR to illustrate the impact of policy on LEIs. Treasury rates of all maturities are influenced by the FFR and thus correlated with each other. As such, these **Proxies of the FFR** can be used interchangeably as forecasting tools of LEIs. The 5-year yield is particularly effective in this role.

5-Year LEADS LEIs



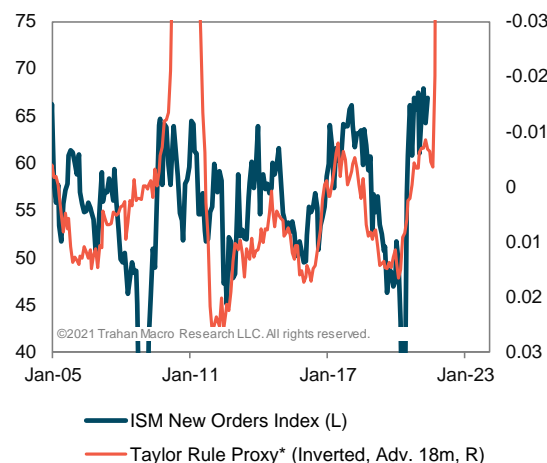
FFR/Taylor Rule Correlated



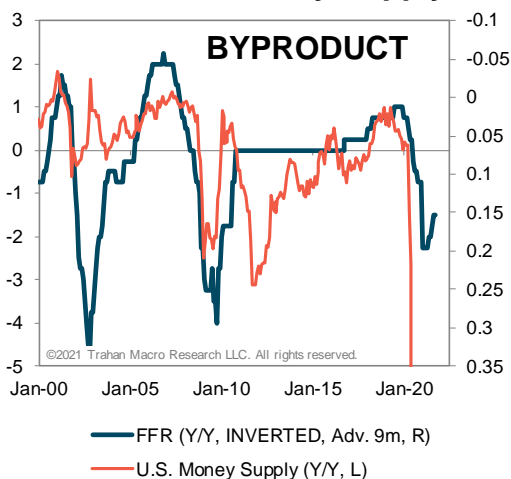
INPUT Of Policy: Taylor Rule

Policy inputs of the FFR like inflation can also be used to forecast. In addition, surrogates of policy like the TR can also prove helpful in this regard since they themselves are correlated with the FFR. Unsurprisingly, the lead times of all of these relationships with LEIs is 18 months, consistent with that of the FFR.

Taylor Rule LEADS LEIs



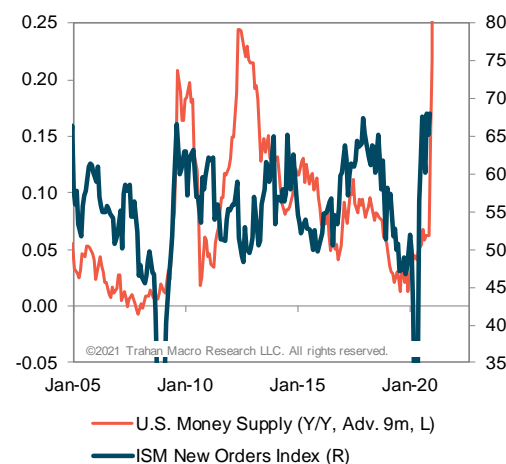
FFR Drives Money Supply



BYPRODUCT Of Policy: Money Supply

Byproducts of the FFR can also make effective tools for forecasting LEIs. Some of these series have direct links to the Fed like Money Supply, while others come from early-cycle industries like housing in which the NAHB has proven helpful in this regard. We use these to confirm signals from proxies/inputs of policy.

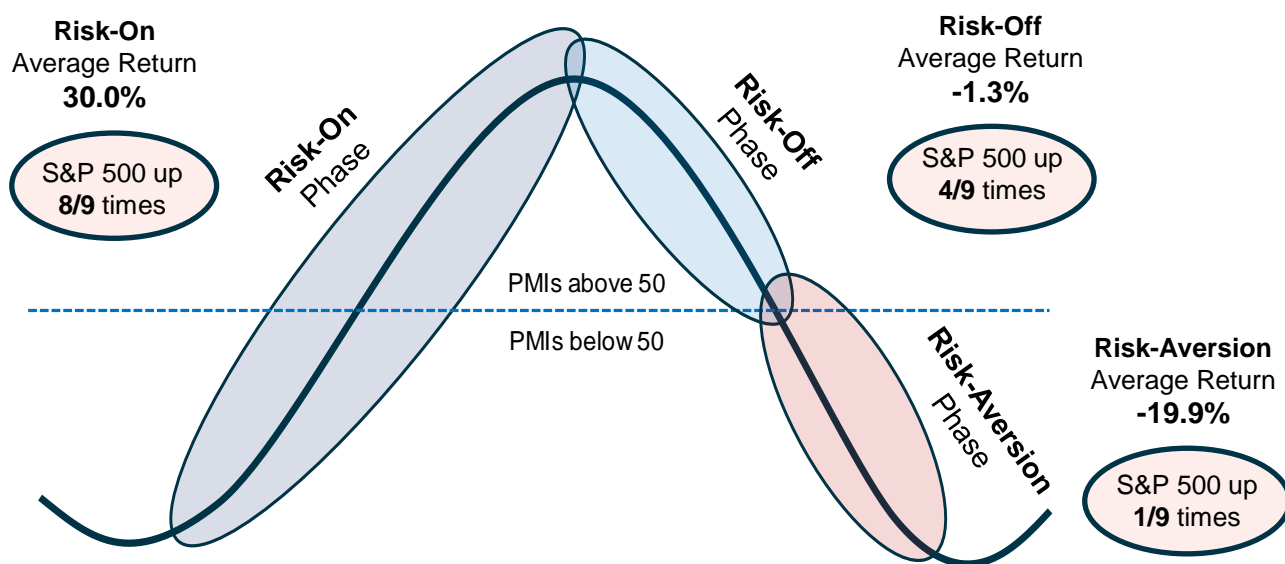
Money Supply LEADS LEIs



#4. Macro's Biggest Influence For Equities Is In Leadership (1/2)

Macro indicators can help us forecast LEIs, which in turn helps us understand which phase of the equity cycle markets are currently in. These distinct phases greatly influence probabilities and average returns for equities, as the diagram below illustrates. For instance, the S&P 500 Index has risen in 8 of the last 9 Risk-On cycles by an average of 30%. Meanwhile, the Index has fallen in 8 of 9 Risk-Aversion episodes. Risk-Off, meanwhile, is almost a coin flip rising in 4 out of 9 instances. Understanding which phase we are in is also helpful for positioning as these have distinct leadership characteristics.

An Illustration Of The Three Distinct Phases Of The Equity Cycle



Peak PMIs: Two months prior to the peak in PMIs until one month after

Being able to identify the backdrop as Risk-On, Risk-Off, or Risk-Aversion can help portfolio managers gravitate toward those stocks likely to be of greater interest to investors (those that have better odds of outperforming). The table below summarizes a typical investor's preferences in each of these three phases of the equity cycle.

An Investment Guide For Risk-On, Risk-Off, And Risk-Aversion Backdrops

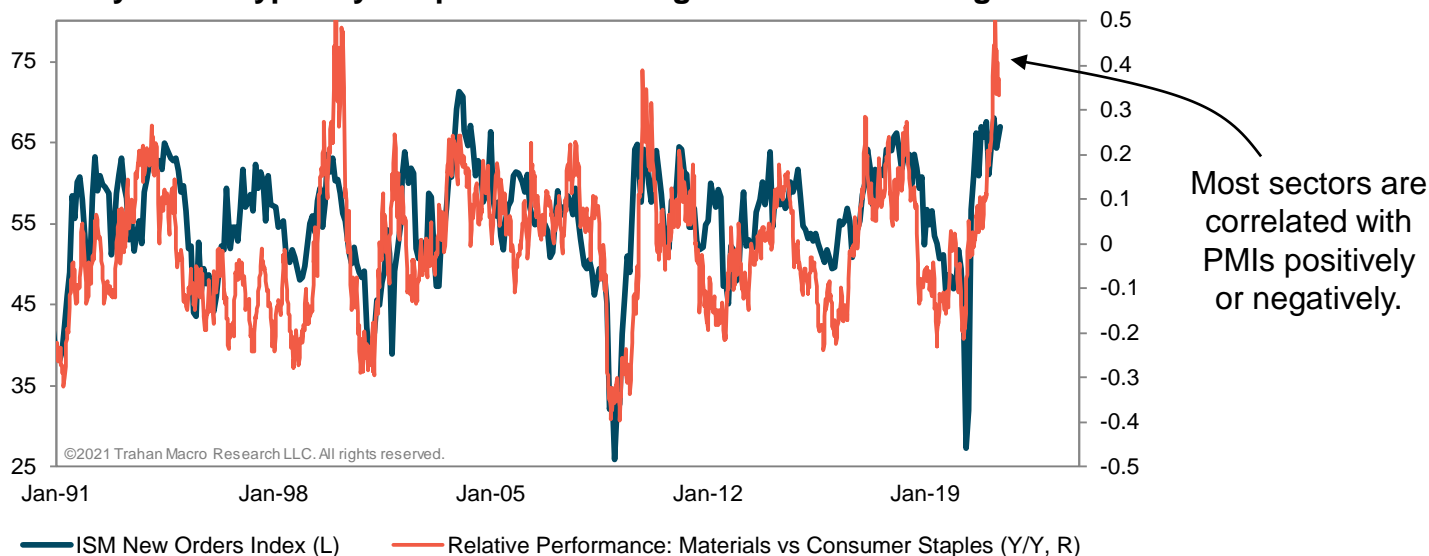
	Risk-On	Risk-Off	Risk-Aversion
Equity Dynamic	P/E Up; EPS Up/Down	P/E Down; EPS Up	P/E Down; EPS Down
Asset Allocation	Equities > Bonds	Mixed	Bonds > Equities
Style	Value > Growth	Growth > Value	Growth > Value
Size	Small > Large	Mixed	Large > Small
Sectors	Cyclicality	Growth	Defensive
Factors	<ul style="list-style-type: none"> High Beta High Volatility Book Yield Sales Yield Earnings Yield 	<ul style="list-style-type: none"> Long-Term Growth Sales Growth Profitability Margins 	<ul style="list-style-type: none"> Low Beta Low Volatility Low Estimates Dispersion Low Leverage

Leadership is mostly consistent across these phases. When risk is rewarded, we usually see Value beat Growth, Small Caps dominate Large, and Cyclicality lead. When risk is shunned, we see the opposite of these relative relationships, with Defensive names typically weathering the storm the best.

#4. Macro's Biggest Influence For Equities Is In Leadership (2/2)

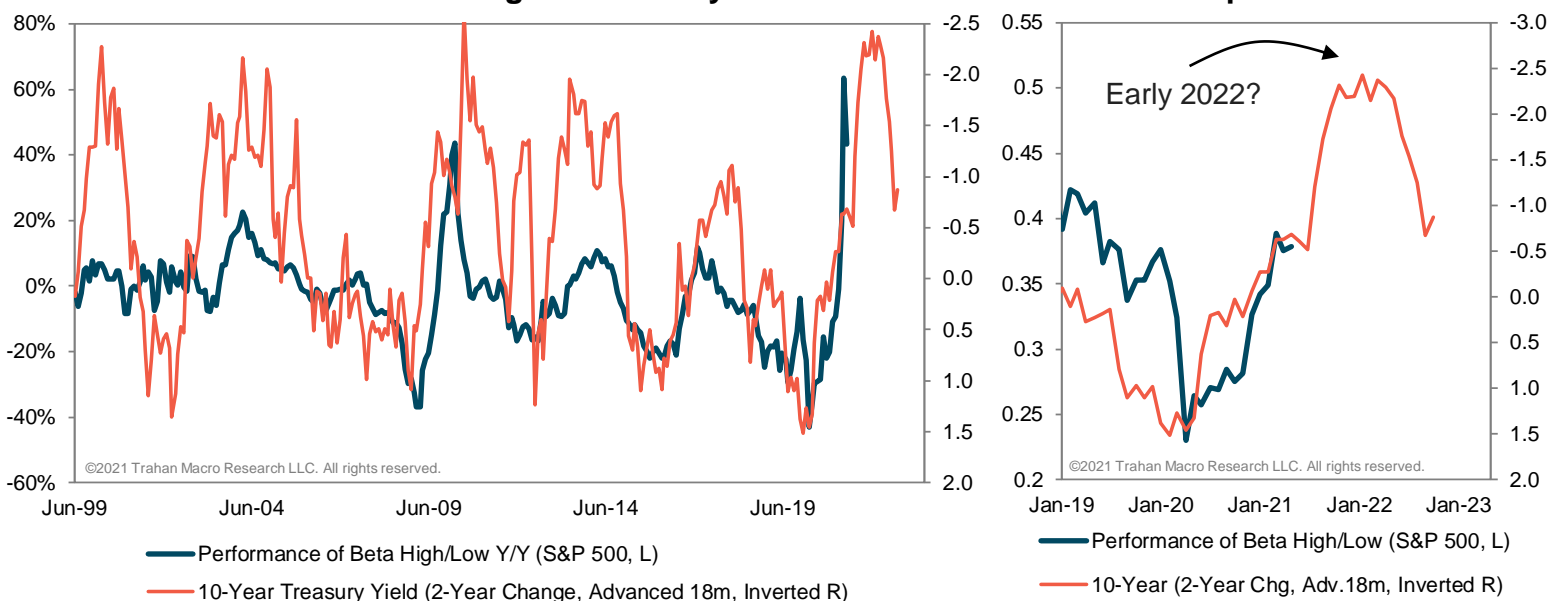
One of the keys inputs we use to identify the current phase of the business cycle is the direction of PMIs. We see this subset of LEIs as superior and a key tool for equity investors. When PMIs are rising strongly (in the Risk-On phase) Cyclical will typically dominate all other segments, Defensives in particular. The chart below is just one example of how a more-cyclical sector (Materials) outperforms a more-defensive sector (Staples) when the ISM is strengthening, and vice versa. Leadership usually ebbs and flows with the business cycle and by the same token PMIs.

Cyclicals Typically Outperform As Long As PMIs Are Rising



As we have covered earlier, Fed policy via interest rates plays a disproportional role in our framework because they are one of the earliest, and most accurate, anticipatory indicators of LEIs and equities by the same token. It takes about two years for changes in rates to work their way through the pipeline to impact current economic activity (i.e., GDP). The lead time that interest rates provide will be a bit shorter for market relationships and LEIs more broadly, about 18 months. The chart below shows that changes in interest rates tend to foreshadow the performance of high-beta stocks by about 18 months.

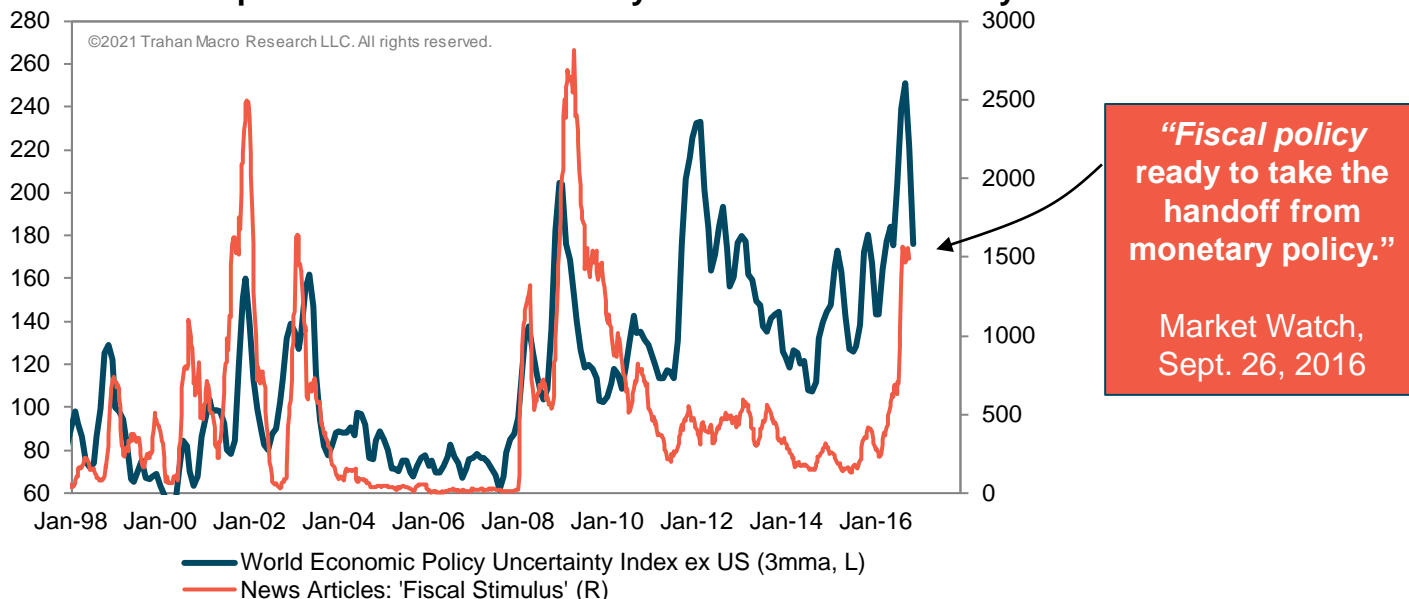
Rates A Good Forecasting Tools For Cyclical Factors Like Beta – More Upside Ahead?



#5. The Role Of Fiscal Policy In The Economy/Equity Market (1/2)

We've talked a lot about how monetary policy (i.e., interest rates) influences economic activity, but another lever that the federal government can use is fiscal policy. Many people equate the term fiscal policy with changes in tax policy, but it can also involve many different types of government spending including infrastructure initiatives, direct payments to individuals, and aid to state and local governments. Fiscal policy tends to capture the most attention in times of uncertainty. The charts below show the positive correlation between global policy uncertainty and mentions of "fiscal stimulus" in the news.

Market Participants Turn To Fiscal Policy In Times Of Uncertainty

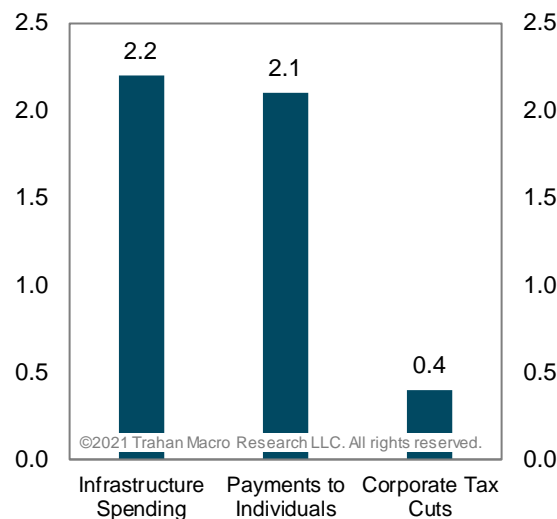


Coming out of the Great Financial Crisis we saw major fiscal spending initiatives in the U.S., some of which are listed below. Various types of spending tend to have different impacts on economic growth – we call the amount of additional economic output generated per dollar of spending the "fiscal multiplier". This multiplier is not easily observable, but the Congressional Budget Office has published estimates for recent initiatives. Infrastructure is ranked the highest in potential "bang for your buck" with direct payments to individuals a close second. Corporate tax cuts, conversely, fall at the bottom of the multiplier list.

Not All Fiscal Stimulus Measures Are Created Equal

Abridged Table Of Fiscal Multipliers, As Estimated By CBO		
Policy	Multiplier (X)	
American Recovery and Reinvestment Act (2015)	Low	High
Infrastructure Spending	0.4	2.2
Payments to Individuals	0.2	2.1
Payments to State & Local Governments	0.4	1.8
Individual Income Tax Cuts	0.1	1.5
Corporate Tax Cuts	0	0.4
Effects Of Policy Options (2010)	Low	High
Aid to the Unemployed	0.7	1.9
Infrastructure Spending	0.5	1.2
Payroll Tax Cuts	0.3	1.3
Aid to States	0.4	1.1
One-Time Social Security Bonus Payment	0.3	0.9
Tax Cuts and Refundable Tax Credits	0.1	0.9

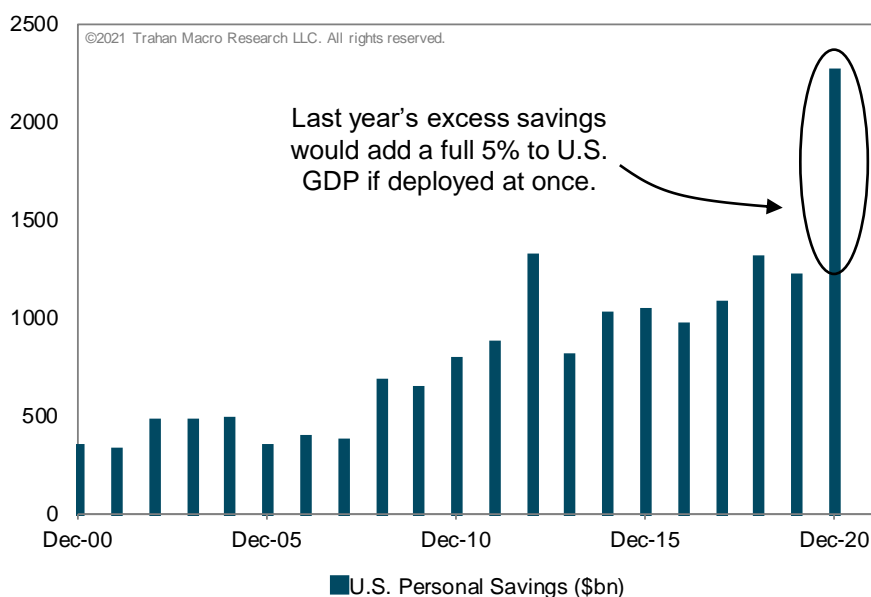
Fiscal Multiplier During American Recovery and Reinvestment Act (2015)



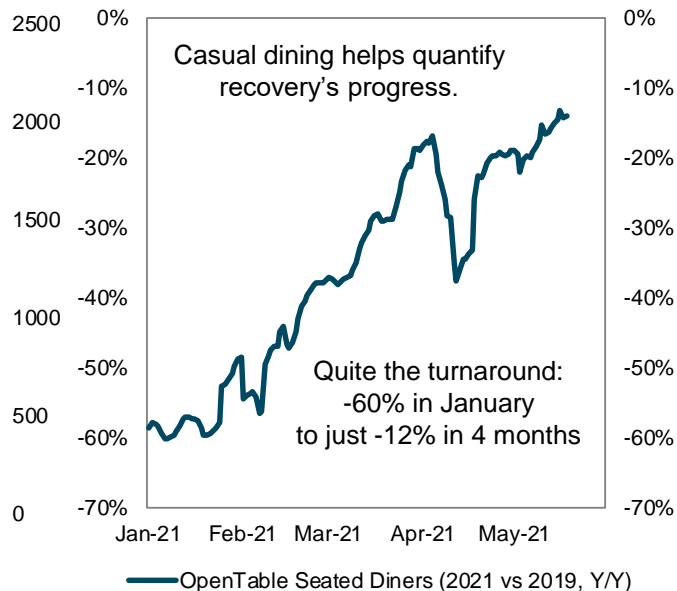
#5. The Role Of Fiscal Policy In The Economy/Equity Market (2/2)

The sharp economic fallout from the pandemic launched new fiscal spending measures, mostly in the form of direct payments to dislocated individuals and businesses. This, in conjunction with many of the still-employed shifting to remote work, led to a sharp uptick in the savings rate as Americans, in aggregate at least, had money coming in with no place to spend it. While this sounds counter-intuitive given the hardships endured by so many, these are real numbers in aggregate. This excess savings could prove to be a significant tailwind as the economy normalizes (excess savings add up to about 5% of GDP).

Pandemic's Excess Savings Set To Sustain Recovery?



Gradual Return To Normalcy

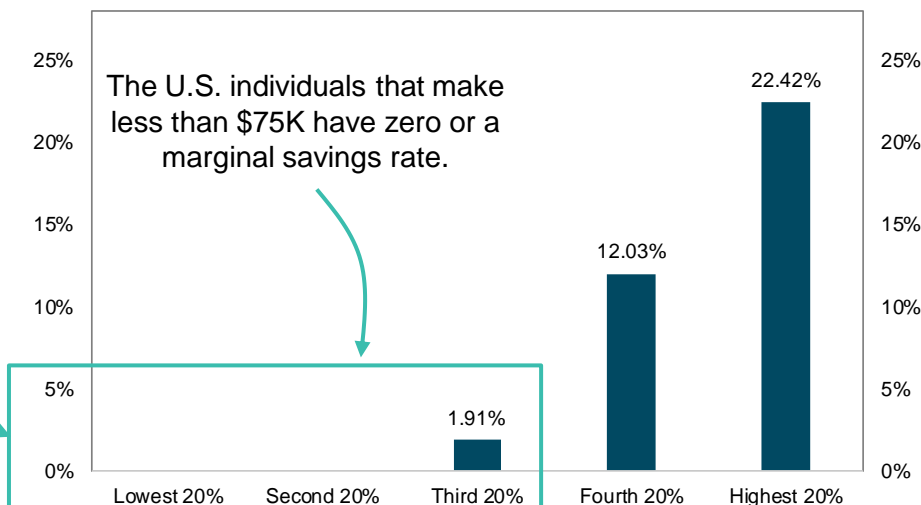


A key criteria for a successful short-term impact from fiscal policy is to direct stimulus toward recipients likely to deploy the funds received. Few think of fiscal stimulus this way. Indeed, different measures have different fiscal multipliers, short and long-term. As we discussed previously, direct payments to individuals have one of the highest fiscal multipliers as folks with lower income levels often live paycheck to paycheck and are unlikely to have any savings at all. Pres. Biden's recent \$1.9 trillion package targeted this low-saving/high-spending demographic, increasing the odds of a short-term lift for the economy.

Income Cutoff Levels For Biden's \$1.9 Trillion Package

	Individuals and their dependents:
Full \$1,400	\$75K or less
Payments gradually decrease	\$75K - \$80K
0 Payment	> \$80K

The Fiscal Plan Is Targeted Toward The "Spenders"

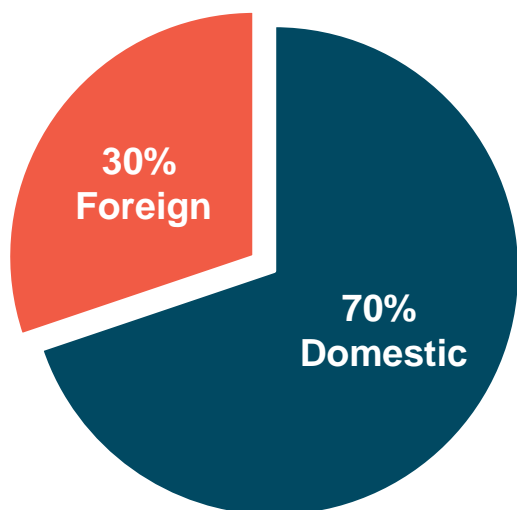


■ Savings Rate By Income (Quintiles), Source: BLS 2015 Survey

#6. U.S. Bond Yields At The Mercy Of Global Indicators (1/2)

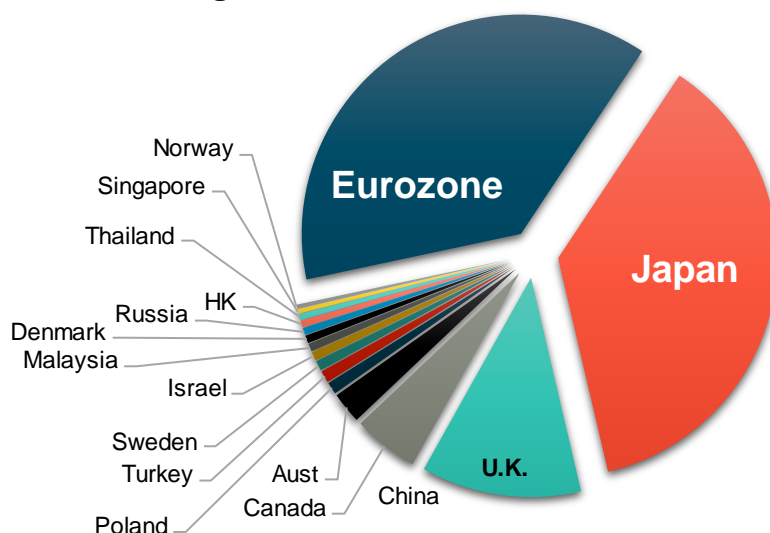
Major global economies have become more and more synchronized over the past several decades. Trade agreements, advancements in technology, and a global supply chain have all contributed to this phenomenon. Today, almost one-third of revenues of S&P 500 companies are derived from outside the U.S. In essence, this suggests that the U.S. economy is somewhat influenced by policy and economic trends in the rest of the world, even if indirectly. Two of the most significant global economies are the Eurozone and Japan, which make up the largest share of non-U.S. government bonds in the world.

A Large Share Of S&P 500 Revenues Are Derived From Outside Of The U.S.



S&P 500 % Of Revenues

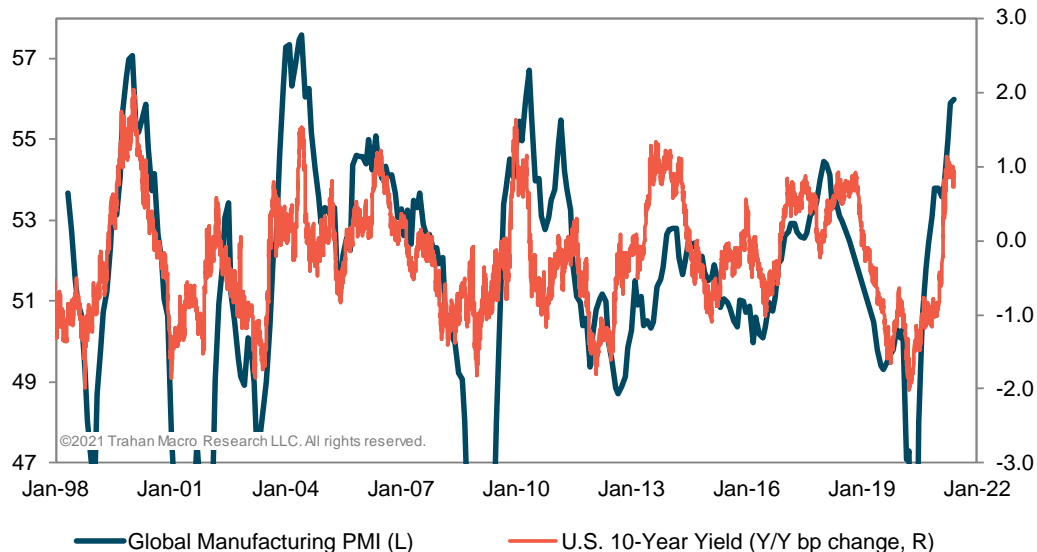
European And Japanese Bonds Make Up The Largest Share Of Non-U.S. Government Bonds



Global Gov't Bond Market Size (ex. US)

Although short rates are mostly U.S.-centric (influenced by Fed policy), the long end of the curve is more sensitive to trends in global prospects. Indeed, the U.S. 10-year Treasury yield correlates better with the Global PMI than it does with U.S. measures, like the ISM or the Markit PMI. The explanation behind this is that bond markets are global and for the most part, the larger investors have to choose between U.S. bonds and those of Japan, the U.K., or the Eurozone. This makes developments in those economies important to U.S. bonds and the Global PMI the key series to follow.

U.S. Long-Term Rates: A Function Of GLOBAL Leading Indicators



#6. U.S. Bond Yields At The Mercy Of Global Indicators (2/2)

Although the U.S. is the highest-weighted constituent in the Global PMI, it accounts for only about 25% of the total index. Two other developed economies – the Eurozone and Japan – together make up another 24% of the Global PMI. The ebbs and flows of these three developed economies are largely influenced by their monetary policy mandates which generally focus on maintaining price stability via targeted changes in interest rates. This means that about half of the Global PMI is influenced by inflation trends in the largest developed markets. China’s economy, meanwhile, is in turn highly influenced by the strength of its largest trading partners, i.e., these large, developed markets.

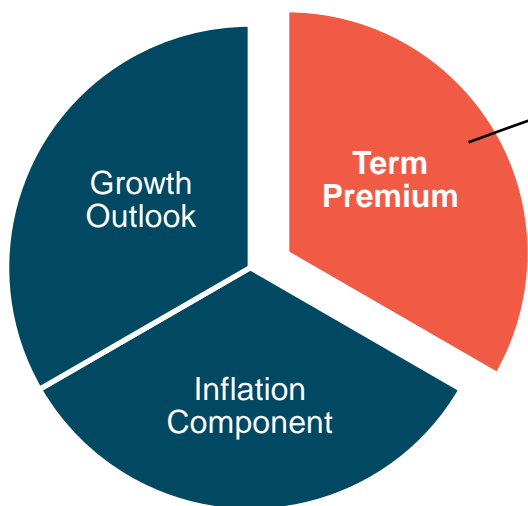
The Global PMI Can Be Broken Down Into Its Largest Components



Region/Country	Weight of Global PMI (%)	Largest Influence
U.S.	25%	Rates, Inflation
Eurozone	16%	Rates, Inflation
Japan	8%	Rates, Inflation
China + EM	33%	Developed Markets
Rest of World	18%	-

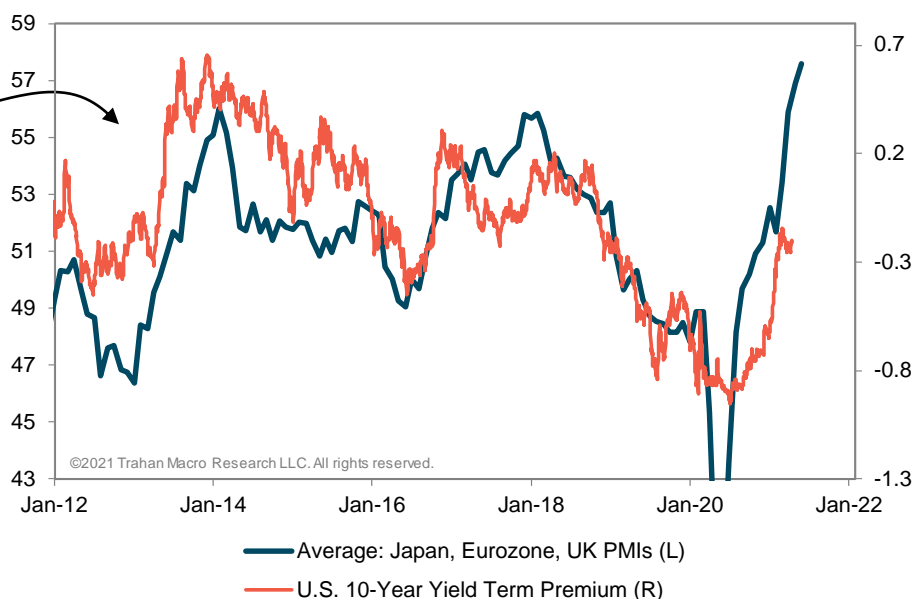
We can break down U.S. bond yields into three components: Growth, Inflation, and the Term Premium. Each of these components is greatly influenced by global economic trends: GDP growth is highly correlated across major economies; inflation trends are influenced by oil prices and global GDP; and the term premium is highly correlated with Global PMIs. In fact, the term premium has explained the bulk of the moves in long U.S. Treasury yields in recent years, with the U.K., Eurozone, and Japan wielding the most influence. Below we show how the sharp recovery in Eurozone and Japanese PMIs recently has coincided with a big move higher in the U.S. term premium of the 10-year Treasury.

Long-Term Yield Drivers



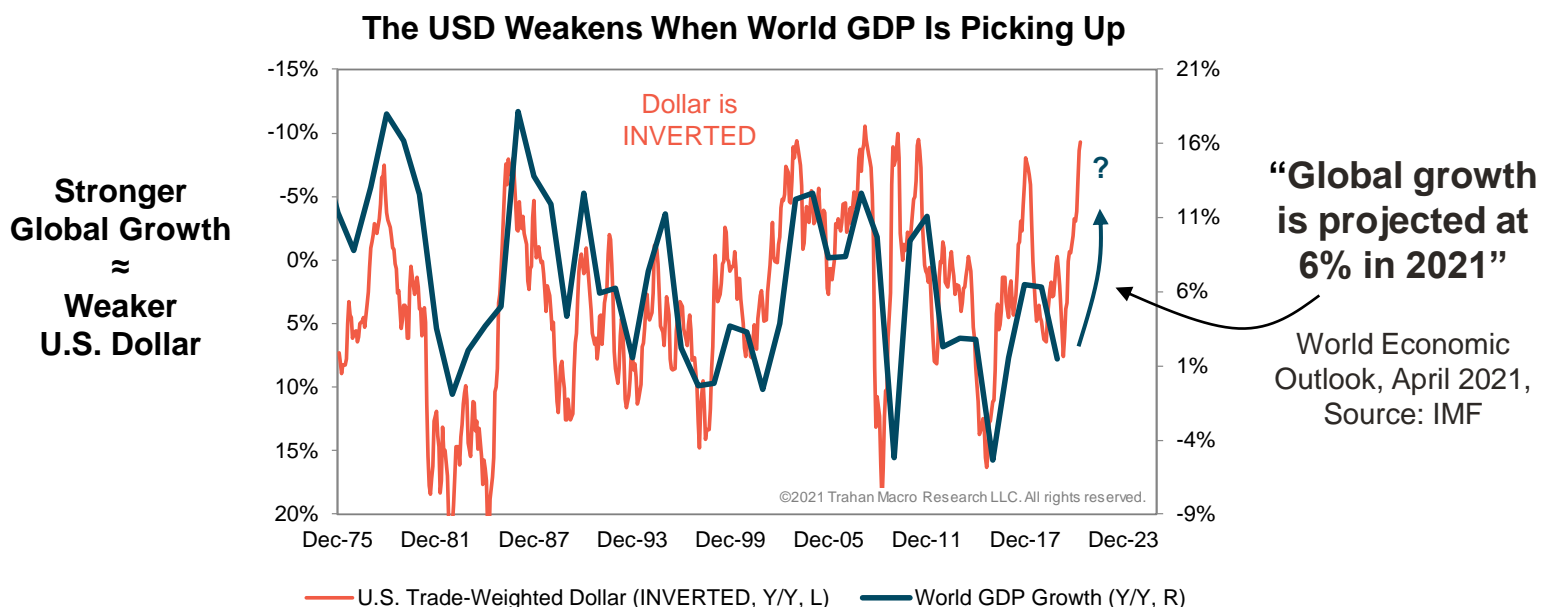
Source: Kim-Wright Model

U.S. Term Premium A Story of Japan, UK, And Europe



#7. Global Economic Growth As The Driver Of The U.S. Dollar

The U.S. dollar has long been regarded as a global currency, and accordingly, the USD is highly influenced by global economic trends. The dollar tends to become a “safe haven” asset in times of uncertainty, meaning that there is a negative correlation between global growth and dollar strength. The converse also holds true – the USD tends to weaken when world GDP picks up as capital flows toward higher-growth economies. Today, the IMF predicts that global growth will register around 6% in 2021, which could prove a headwind for the USD if these historical relationships hold.



Although many people believe that the Fed and U.S. growth trends drive the dollar, the reality is that the dollar is essentially just the reciprocal of global growth trends. The “denominator effect” refers to the notion that USD trends are essentially the inverse of trends in the global economy. The framework below shows how the USD moves in line (positively correlated) with U.S. economic performance, but it moves in opposition to non-U.S. economic performance. When foreign PMIs gain momentum as U.S. PMIs are weakening, this tends to weigh on the USD. The reverse relationship also holds true.

Framework For Currency Trends $\left\{ \frac{\Delta \text{Economic Performance Country X}}{\Delta \text{Economic Performance Country Y}} = \Delta \frac{\text{Currency X}}{\text{Currency Y}} \right\}$

Example:

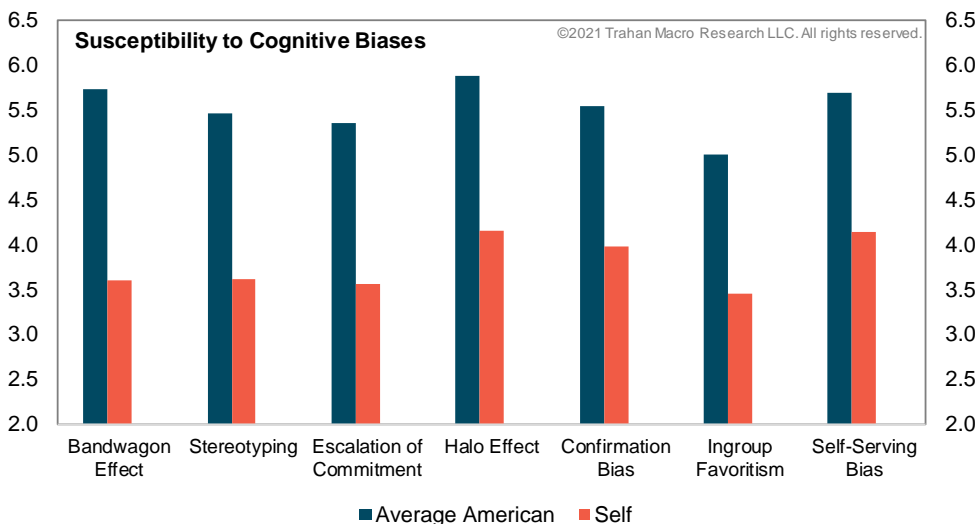
$$\frac{\text{U.S. PMIs Lose Momentum}}{\text{Foreign PMIs Gain Momentum}} = \text{U.S. dollar loses ground against global currencies}$$

The composition of the dollar index makes it extremely sensitive to global-growth trends. Emerging market and trade-sensitive currencies make up the bulk of the weight of the trade-weighted dollar, with the Mexican Peso, Canadian Dollar, and Korean Won weighing in at almost 30% of the dollar index.

#8. Behavioral Investing Is More Than Meets The Eye

Behavioral Finance is the application of psychology to financial markets and investor behavior. Its theories lie in direct opposition to the Efficient Market Hypothesis (EMH), Eugene Fama’s seminal work which posits that investors are rational, and markets accurately reflect all publicly known information. As the EMH is the bedrock of Traditional Finance Theory, behavioral finance can be controversial. The reality is that perception is often influenced by cognitive biases, even when one is fully aware of them. The chart below shows how most people consider themselves to be less susceptible to biases than the average.

Many Consider Themselves To Be Less Susceptible To Biases



Bias Blind Spot
By Type

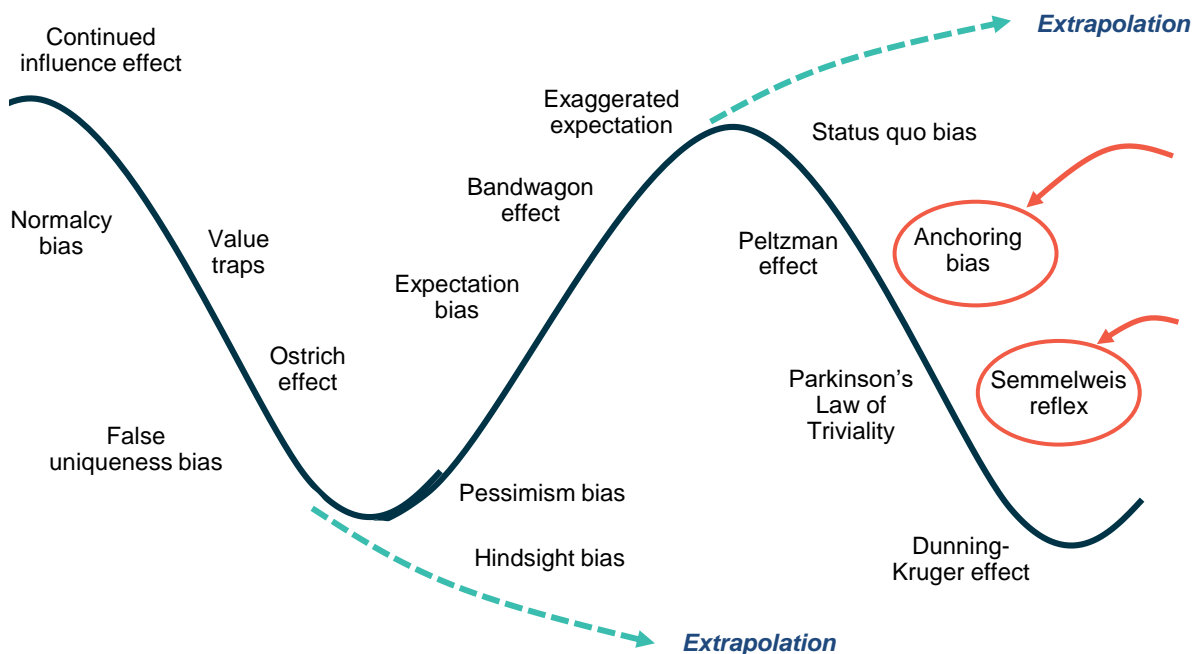
Higher Reading
=
More Susceptible
To Being Biased

People appear to exhibit a **bias blind spot**, as the majority of participants perceive the average American to be more susceptible to bias than themselves.

Source: Irene Scopelliti, Carey K. Morewedge, Erin McCormick, H. Lauren Min, Sophie Lebrecht, Karim S. Kassam (2015) Bias Blind Spot: Structure, Measurement, and Consequences

The influence of psychology on investing tends to become most pronounced near market inflection points. Investors extrapolate the current backdrop, either positive or negative, well into the future and fail to recognize or accept information that may contradict their entrenched views. These biases likely influenced Warren Buffett’s famous advice to be fearful when others are greedy and greedy when others are fearful.

The Influence Of Psychology On Investments Most Pronounced At Inflection Points



Anchoring bias refers to relying too heavily on one piece of information when making decisions.

Semmelweis reflex refers to the rejection of new evidence when it is contradictory of an established norm, belief, or paradigm.