

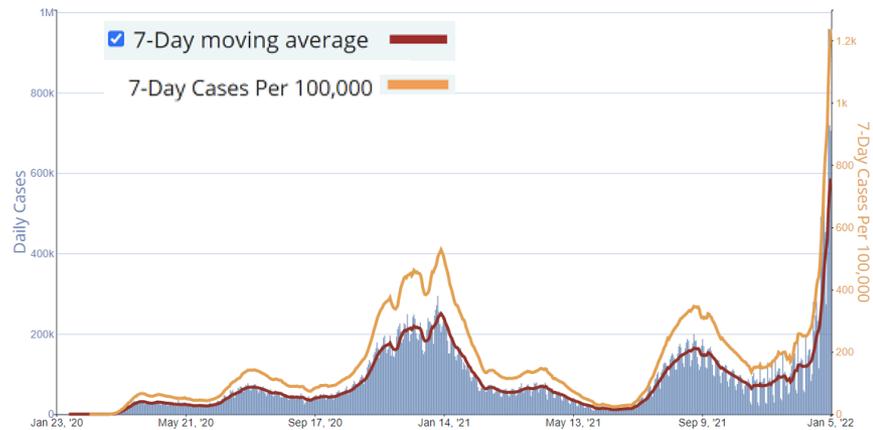
2021 Q4 Commentary

- According to a recent University of Hong Kong Study¹, the new Omicron variant of Covid-19 infects around 70 times faster than Delta and the original Covid-19 virus. Due to its speed and the newness, it is still too early to conclude its morbidity and mortality toll on an absolute number (rather than % basis to the population) and, ultimately, the economic impact on the U.S. and the world. However, we are witnessing real time delays in returning to offices in 2022, the closing of public venues for entertainment and service impacts on airline travel (shortage of staff due to infection).
- Both headline and core inflation (CPI and PCE) have shot up higher in November: 6.8% for CPI, 4.9% for Core CPI and 5.73% for PCE and 4.68% for Core PCE. This is the largest 12-month increase since the period ending June 1982. It does not appear that we have reached peak inflation.
- In his testimony on November 30th to Congress, Fed Chair Jay Powell stated that he would retire the use of the word “transitory” when framing current inflation and further acknowledged that the risk of higher inflation has increased.
- With the robust recovery since Covid first struck, much criticism has been placed on the Fed for maintaining the 2020 emergency policies of buying securities to foster financial stability and liquidity for far too long which is contributing to inflation. In its December meeting, the Fed announced a more rapid reduction in purchasing U.S. Treasury securities at a rate of \$20 billion per month from the November pace of \$70 billion monthly and, at the same time, a reduction of mortgage-backed securities purchasing at a rate of \$10 billion per month from the November pace of \$35 billion monthly. In short, the Fed sped up the winddown of bond buying from the pre-November pace of \$120 billion monthly to \$0 by March 2022. It is important to note that this tapering should not be deemed tightening but simply less accommodative. The total Fed balance sheet is now at almost \$8.8 trillion from a pre-March 2020 crisis level of \$4.2 trillion. The Fed now takes the view that inflation may be more persistent and that could place inflation expectations under pressure, and the risk of higher inflation becoming entrenched has increased. The sooner taper ends, the more flexibility for Quantitative Tightening and for the Fed to hike interest rates to further contain inflation.
- After a substantially sideways market in the third quarter, the U.S. stock market soldiered on making new highs, albeit with greater market volatility. With inflation continuing to move higher and consumers beginning to feel a pinch in their pocketbooks, the odds have substantially increased that rate hikes are coming in 2022.
- The most significant change for 2022 forward is tightening of financial conditions in the U.S. The beginning of similar fiscal and monetary tightening is occurring globally (ex-China) as well. The ECB has begun reducing their Covid emergency bond buying program, while 14 other central banks already raised interest rates since November.
- 2022 is a very different world than 2020-2021. This next post-Covid phase faces uncertainty about scale, speed and timing of Quantitative Tightening and interest rate normalization. 2022 forward reverses the uber accommodation stance and is a reversal of unbridled risk taking. The latest Summary of Economic Projections (SEP) dot plots show three 25bp rate hikes in 2022.

¹ <https://www.med.hku.hk/en/news/press/20211215-omicron-sars-cov-2-infection>

Omicron Variant is Now Dominant

Daily Trends in Number of Cases and 7-Day Cumulative Incidence Rate of COVID-19 Cases in The United States Reported to CDC, per 100,000 population.



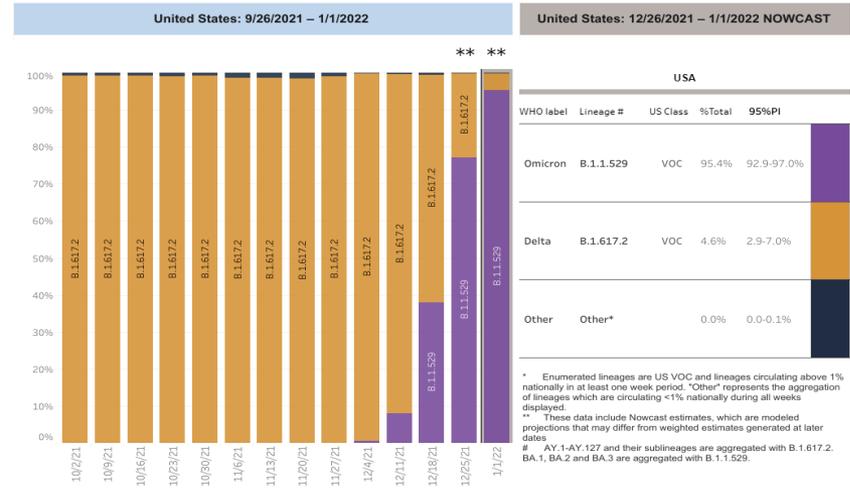
https://covid.cdc.gov/covid-data-tracker/#trends_dailycases_7daycasesper100k

The current (01-02-2022) 7-day moving average of daily new cases (705,264) increased 55.89%, compared to December 31, 2021's 7-day moving average (452,384).

The United States recently surpassed 50 million Covid-19 cases and 800,000 deaths since the start of the pandemic.

<https://www.cdc.gov/coronavirus/2019-ncov/covid-data/covidview/index.html>

Currently, two variants, Omicron and Delta, are classified as Variants of Concern (VOC) in the United States. The CDC's Covid Data Tracker shows that the proportion of the Omicron variant circulating in the U.S. is predicted to increase from last week. Omicron is predicted to be the predominant variant in the U.S. Nowcast projections for the week ending January 1, 2022, predict the national proportion of Omicron to be 95.4% and Delta to be 4.6%. The full health impact of the highly transmittable Omicron variant remains unknown even as it sends daily caseloads in parts of the U.S. soaring to levels higher than last winter's pandemic peak.



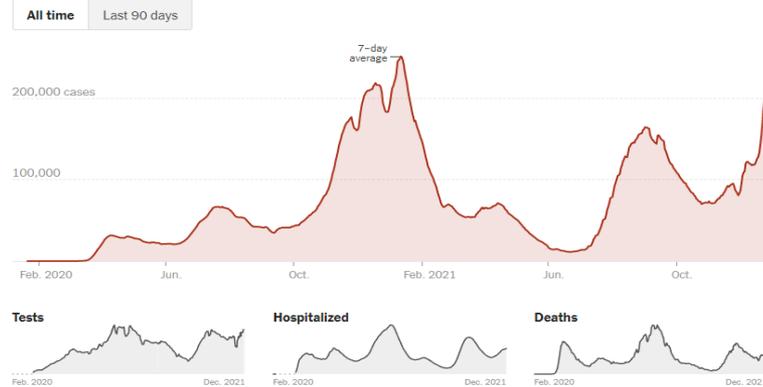
<https://covid.cdc.gov/covid-data-tracker/#variant-proportions>

There are early positive signs out of South Africa, Britain and now the U.S. that Omicron infections more often result in mild illness than previous variants. However, officials are warning that the new variant could swiftly overtax the health care system and bring significant disease to many communities.

There are signs that hospitalization in the U.S. is up, and people are now taking more precautions as the winter is upon us. Airlines are among the first casualties. With thousands of flights cancelled due to Omicron infection, flight crews and operations are now insufficient to operate safely. Broadway is also closed. Regardless of Omicron being less severe with lower mortality than other Covid variants, the speed and the breakthrough cases are of concern to the general public and this, if sustained, will slow the service sector and supply chain recovery. It is hopeful that Omicron will peak soon.

Cases, Hospitalization, Death and the Economy

New reported cases



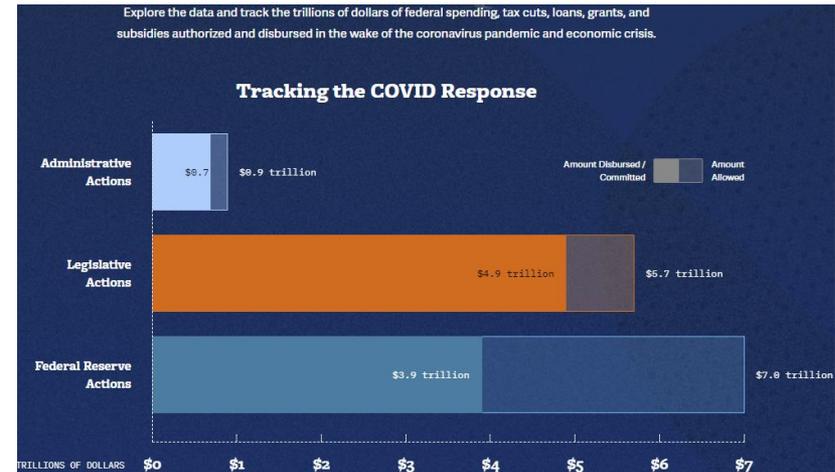
<https://www.nytimes.com/interactive/2021/us/covid-cases.html>

26-Dec-21	Daily Change	14-Day change	Vaccinations	
			AT LEAST ONE DOSE	FULLY VACCINATED
Cases	214499	83%	All ages 73%	62%
Hospitalized	71459	8%	12 and up 83%	71%
Deaths	1328	3%	65 and up 95%	88%

<https://www.nytimes.com/interactive/2020/us/covid-19-vaccine-doses.html>

The Centers for Disease Control and Prevention reported that, in recent weeks, Covid-19 cases and hospitalizations have increased, with many parts of the country experiencing substantial or high levels of community transmission.

The Omicron variant is spreading faster than any variant yet and has already pushed daily coronavirus case counts higher than the peak of the recent Delta wave. By most estimates, the country is in for a significant winter surge. However, preliminary (limited) data suggest that, although Omicron is more infectious, it is far less deadly than the original or the Delta strain.



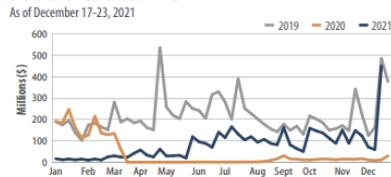
<https://www.covidmoneytracker.org/>

According to a tally by the Committee for a Responsible Federal Budget, over the course of the Biden and Trump administrations, Congress authorized \$5.7 trillion in emergency Covid aid, and roughly \$4.9 trillion, or 86%, of those funds have either been disbursed or committed. There is little money left to rescue restaurants, and most of the efforts to save small businesses have either expired or will soon. Depending on the scale of infection and the duration of Omicron, the impact on the economic recovery could be more enduring, causing the service sector to reverse some of its advancements.

Mark Zandi, chief economist for Moody's Analytics, expects the U.S. economy to take a hit in the near term from a surge that could infect more people than earlier waves but end more quickly. He now forecasts the U.S. economy will grow by 2% in the first quarter of 2022, down from 5%.

High Frequency Economic Data

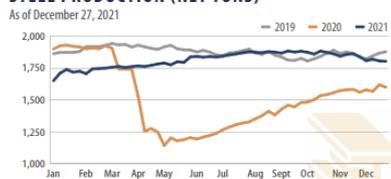
BOX OFFICE RECEIPTS



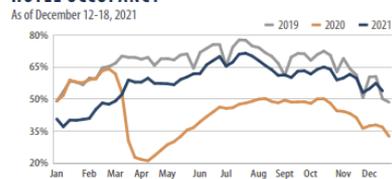
RAIL CAR TRAFFIC (CARS)



STEEL PRODUCTION (NET TONS)



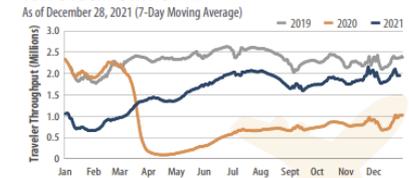
HOTEL OCCUPANCY



OPENTABLE STATE OF THE RESTAURANT INDUSTRY



TSA CHECKPOINT DATA



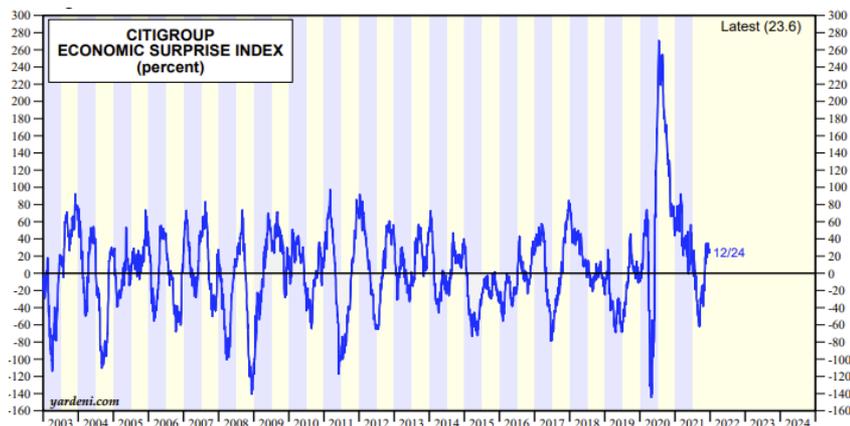
SUPPLY OF MOTOR GASOLINE IN THE U.S. (MBBL/D)



GLOBAL COMMERCIAL FLIGHTS



<https://www.ftportfolios.com/blogs/EconBlog/2020/4/13/coronavirus-high-frequency-data>



Note: Blue shaded areas are first halves of each year.
Source: Citigroup.

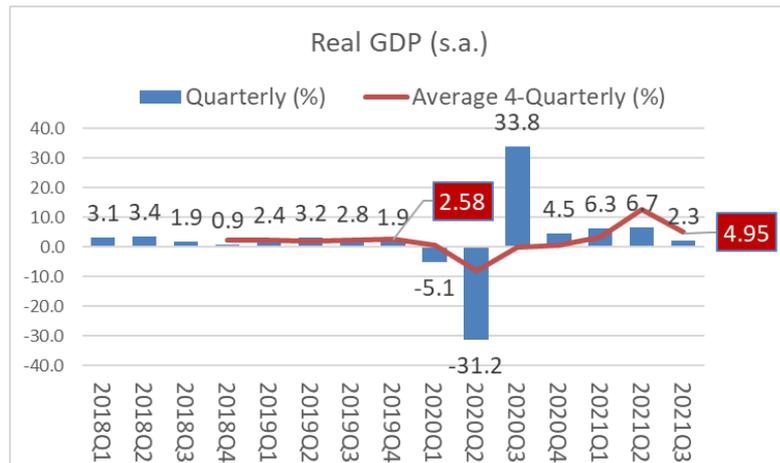
<https://www.yardeni.com/pub/citigroup.pdf>

High frequency data shows that, although certain economic activities have returned to pre-Covid levels, many other industry sectors remain behind.

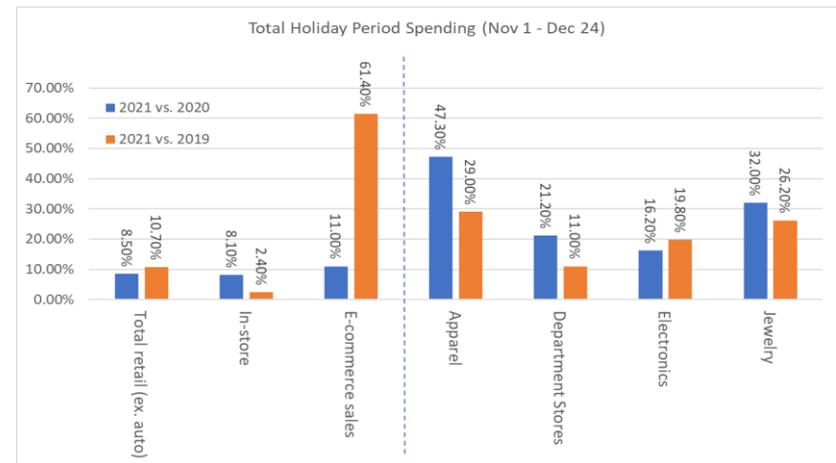
Citi's Economic Surprise Index, which measures the degree to which economic data is either beating or missing expectations, returned to positive territory in the last quarter. This upside surprise continues to be supportive to the stock market which repeatedly set records.

There is insufficient data for impact, both human and economic, from Omicron to offer a confident trend view. Nonetheless, high frequency data is beginning to show reversion of progress in recovery. Even though there is no forced shutdown of the economy, businesses are voluntarily cutting back either due to a lack of business or a lack of available workers. We expect the next month data may look worse as Omicron becomes even more disruptive.

Economic Growth – It is Coming Down

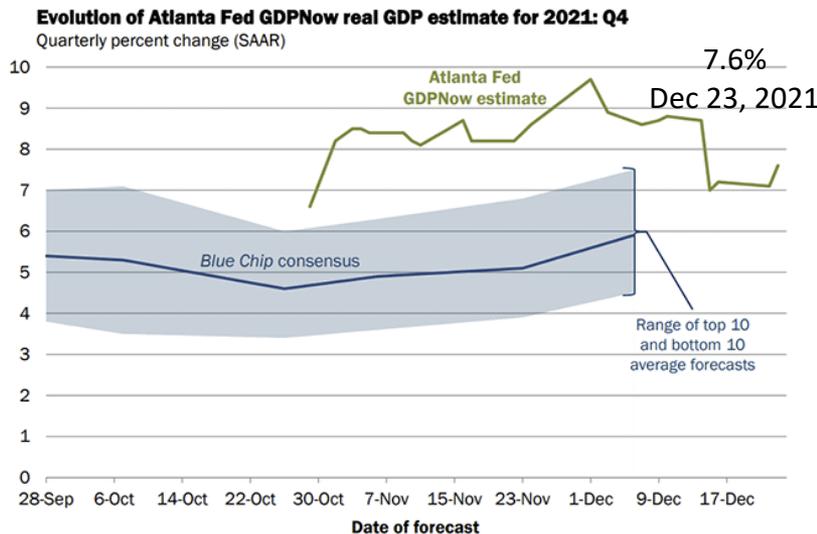


<https://www.bea.gov/news/2021/gross-domestic-product-2nd-quarter-2021-second-estimate-corporate-profits-2nd-quarter>



Source: Mastercard SpendingPulse

<https://investor.mastercard.com/investor-news/investor-news-details/2021/Mastercard-SpendingPulse-U.S.-Retail-Sales-Grew-8.5-This-Holiday-Season/default.aspx>

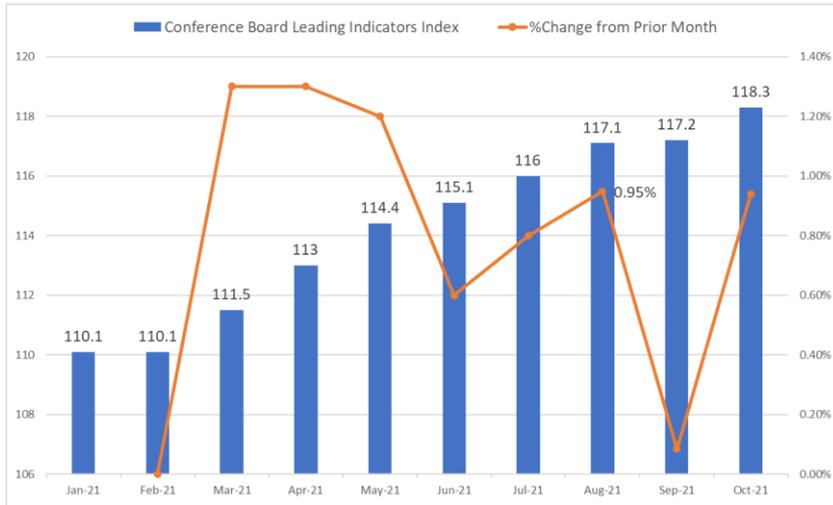


Sources: Blue Chip Economic Indicators and Blue Chip Financial Forecasts
 Note: The top (bottom) 10 average forecast is an average of the highest (lowest) 10 forecasts in the Blue Chip survey.
<https://www.atlantafed.org/cqer/research/gdpnow>

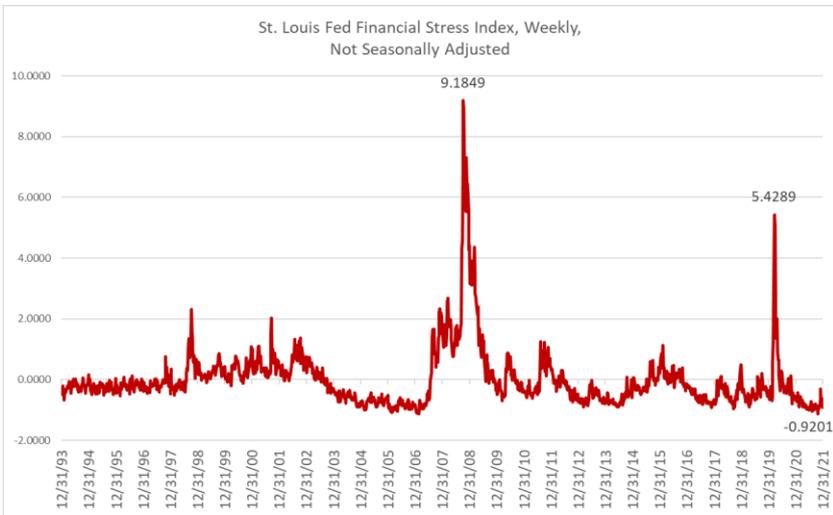
On a trailing 4-quarter basis, the U.S. economy has continued to slow to 4.95% from 12.82% in the prior quarter. On a quarter-by-quarter basis, the third quarter was up 2.3%. The computer forecasting models (nowcasting) from the Atlanta Fed estimate a 7.6% 4th quarter GDP, as compared with an almost 6% consensus estimate by the Blue-Chip economists surveyed. The deceleration in real GDP in the third quarter was led by a slowdown in consumer spending. A resurgence of Covid-19 (Delta) cases resulted in new restrictions and delays in the reopening of establishments in some parts of the country. In Q3, government assistance payments, in the form of forgivable loans to businesses, grants to state and local governments, and social benefits to households, all decreased. These are likely trends that would persist in Q4 and Q1. Q4 real GDP has to come in at or above 4.7% in order for the economy to be at 5% for the year, as projected by the FOMC. Interesting fact: according to MasterCard data, consumers were still shopping and spending their savings and discretionary income on goods this post-Thanksgiving holiday at unexpected levels..



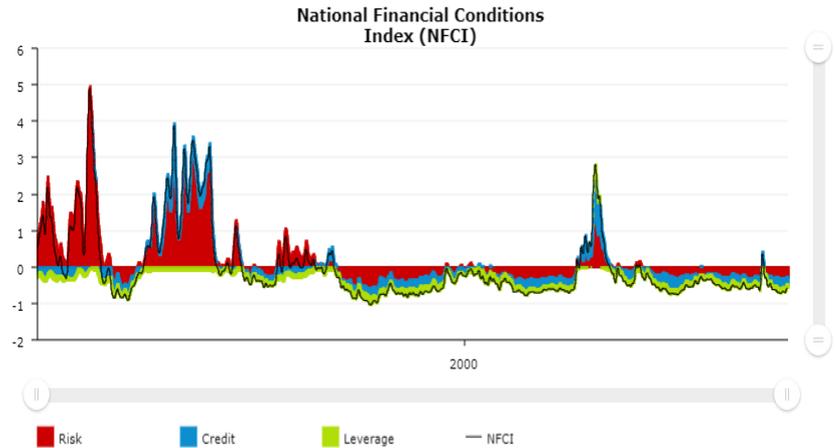
Financial Conditions – Green Light So Far



Source: Conference Board, Moody's



Source: St Louis Fed <https://fred.stlouisfed.org/series/STLFSI2>



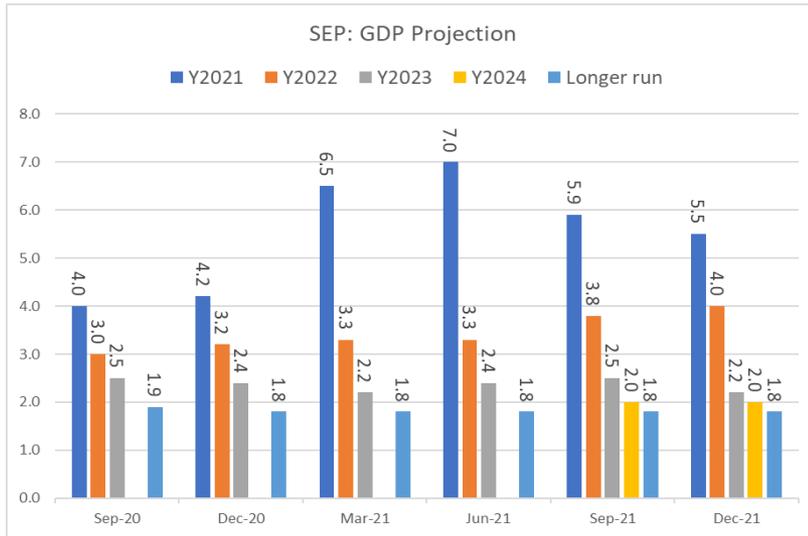
<https://www.chicagofed.org/publications/nfci/index>

The Conference Board Leading Indicators Index intends to forecast future economic activity. The Index rose sharply in October, suggesting the current economic expansion likely continues into 2022. The Conference Board forecasts growth to remain strong in the fourth quarter at around 5.0% (annualized rate) before moderating to a still above average rate of 2.6% in Q1 2022.

The St. Louis Federal Reserve Bank's Financial Stress Index continues to remain supportive. (Negative is accommodative.) This index measures the degree of financial stress in the markets and is constructed from 18-weekly data series.

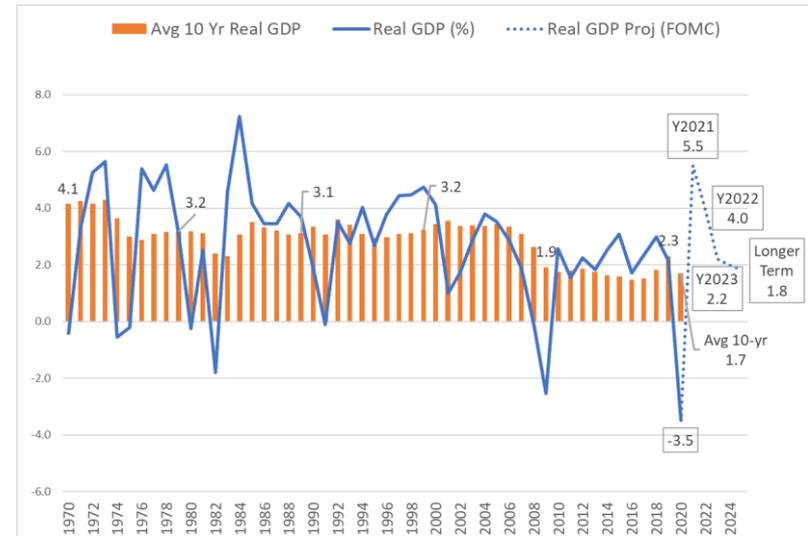
The Chicago Fed's National Financial Conditions Index (NFCI) provides a comprehensive weekly update on U.S. financial conditions in money markets, debt and equity markets and the traditional and "shadow" banking systems. The NFCI is at -0.58 in the week ending December 31. Risk indicators contributed -0.26; credit indicators contributed -0.20; and leverage indicators contributed -0.11 to the index. All these signals indicate a supportive financial condition.

Summary of Economic Projections - GDP



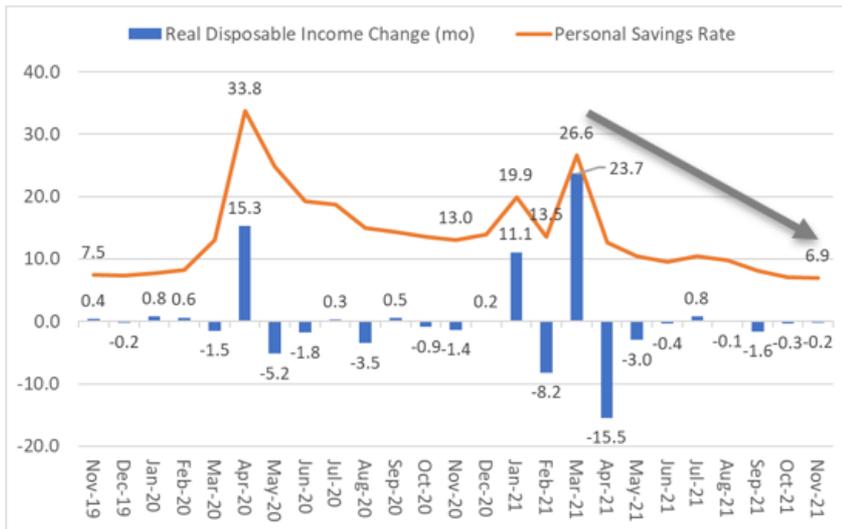
<https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20211215.pdf>

The FOMC's December meeting released its quarterly Summary of Economic Projections (SEP). FOMC participants submit their projections of the most likely outcomes for real gross domestic product (GDP) growth, the unemployment rate, and inflation for each year for the next 4 years and over the longer run. Participant projections are based on information available at the time of the meeting together with their assessment of appropriate monetary policy—including a path for the federal funds rate and its longer-run value—and assumptions about other factors likely to affect economic outcomes. The SEP should NOT be relied upon as the official position of the FOMC.



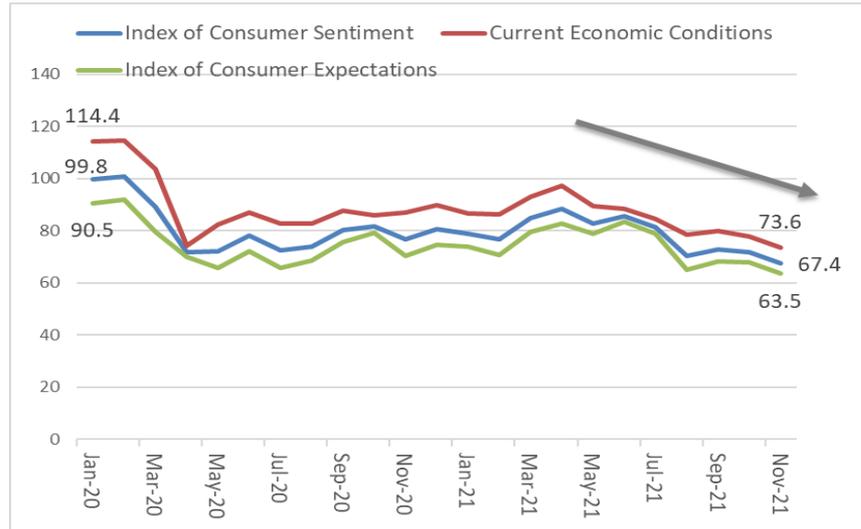
The current SEP shows that the members have revised down their average Y2021 projection for GDP from 5.9% to 5.5% while revising up Y2022 from 3.8% to 4.0%. Based on historical real GDP data, since the 70's, the U.S. has been in a flat to downward growth rate, ending in the last decade at an average of 2.3%. The latest SEP projects the longer run real GDP after 2024 will be at 1.8%. Since the last two decades, two obvious contributors to this gradual slowing economic trend are the U.S.'s aging demographics (both slowing birthrate and growing retirees) and the increasing adoption and integration of technology in our daily lives (a disinflation force of doing more with less) here and globally.

Income, Savings & Consumer Sentiments



<https://data.sca.isr.umich.edu/charts.php>

Personal Disposable Income continues to come down from the March high, and the savings rate is now below pre-Covid levels and is expected to continue its downward trend, with almost all fiscal support having come to an end. The University of Michigan's monthly Index of Consumer Sentiment (ICS) survey shows a continuing drop for all income classes. The ICS includes two components: a "current conditions" component and an "expectations" component, and they are both declining. The Conference Board consumer confidence survey however shows an upward trend in November and December, reversing the prior drop. The Present Situation Index—based on consumers' assessments of current business and labor market conditions—was relatively flat at 144.1, down from 144.4 in November. The Expectations Index—based on consumers' short-term outlook for income, business, and labor market conditions—rose to 96.9 from 90.2. With Omicron now raging, consumer sentiment and confidence will likely be depressed in the next few months.



<https://data.sca.isr.umich.edu/charts.php>

Consumer Confidence Index®



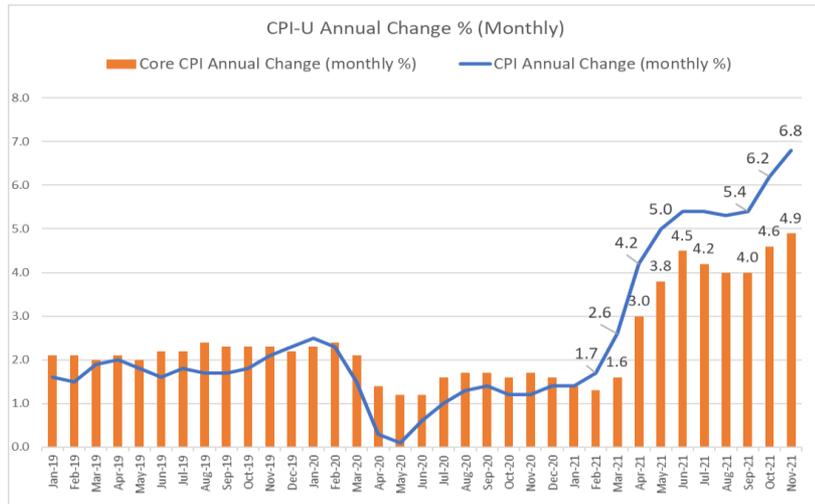
*Shaded areas represent periods of recession.

Sources: The Conference Board; NBER

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<https://www.conference-board.org/topics/consumer-confidence>

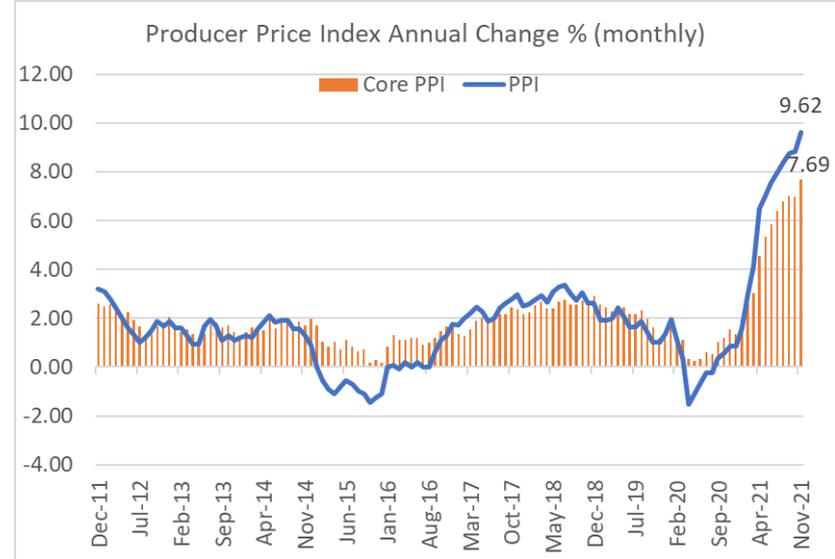
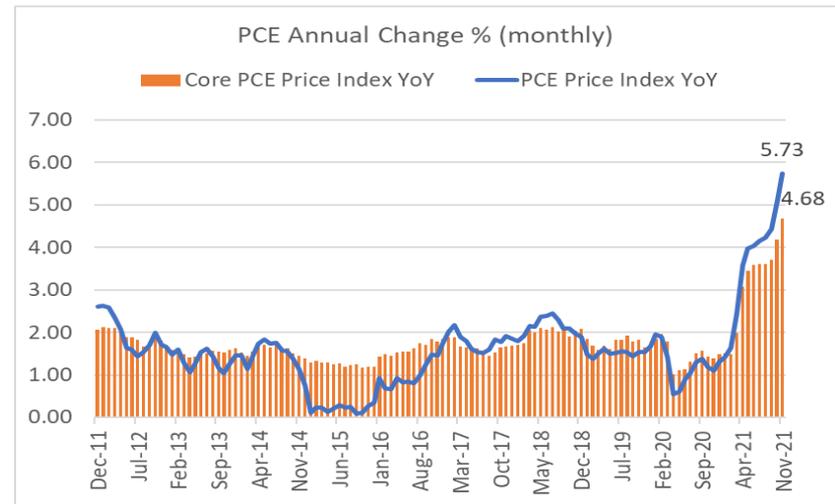
Inflation – CPI, PCE and PPI



<https://www.bls.gov/news.release/cpi.nr0.htm>

The November CPI index rose 6.8% for the trailing 12-months, the largest 12-month increase since the period ending June 1982. The index for all items less food and energy (core CPI) rose 4.9% over the last 12 months, while the energy index rose 33.3%, and the food index increased 6.1%. These changes are the largest 12-month increases in at least 13-years in the respective series.

The November PPI report shows final demand prices moved up 0.6% in each of the 3 prior months. On an unadjusted basis, the final demand index rose 9.6% for the trailing 12-months end, the largest advance since 12-month data were first calculated in November 2010. The index for final demand services rose 0.7% and prices for final demand goods increased 1.2%. The index for final demand less food, energy, and trade services (core PPI) moved up 0.7%, the largest rise since climbing 0.8% in July. For the trailing 12-months, prices for final core demand increased 6.9%, the largest advance since 12-month data were first calculated in August 2014. The PPI & core PPI suggest CPI inflation still has room to go.

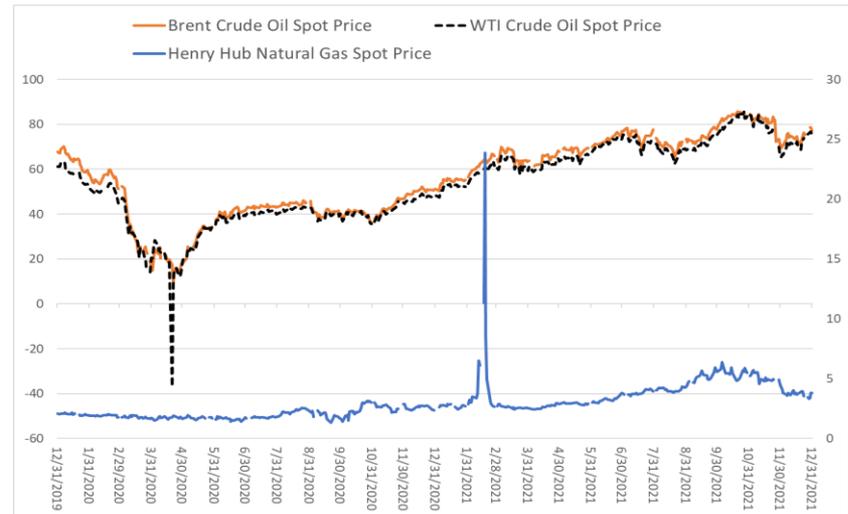


<https://www.bls.gov/bls/news-release/ppi.htm#2021>

Evidence of Supply Chain Bottleneck



<https://tradingeconomics.com/commodity/baltic>



Baltic Dry Index is a shipping and trade index that measures changes in the cost of transporting various raw materials, such as coal and steel. The latest data shows shipping prices have retreated. This is a good sign that this leg of the supply chain bottleneck may be easing.

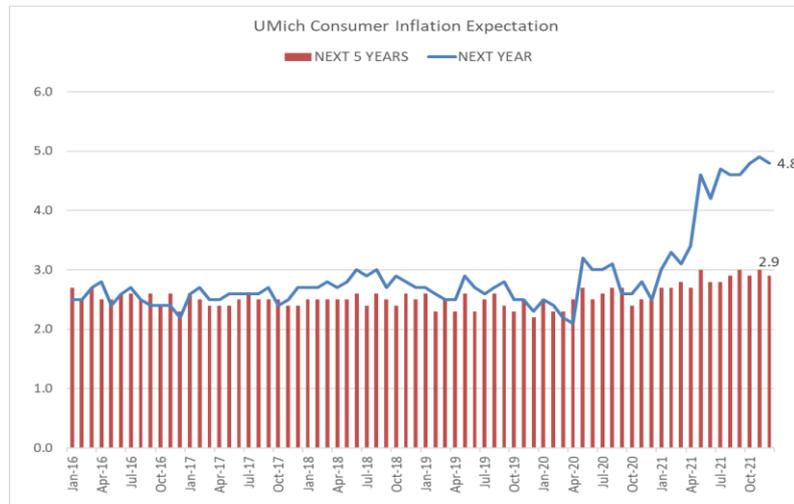
Trucking has been a significant bottleneck in the supply chain since Covid. November's gain in total truck tonnage was the fourth straight, totaling 4.3%, and the tonnage level was the highest since April this year. However, the seasonally adjusted index remains below the pre-Covid high. This continues the slow but steady healing of the transportation portion of the supply chain.

Oil and gas prices have escalated since the low reached during the beginning of Covid and expected to remain at the current to even higher levels due to low investments in production and refining in today's ESG and alternative energy favored world.



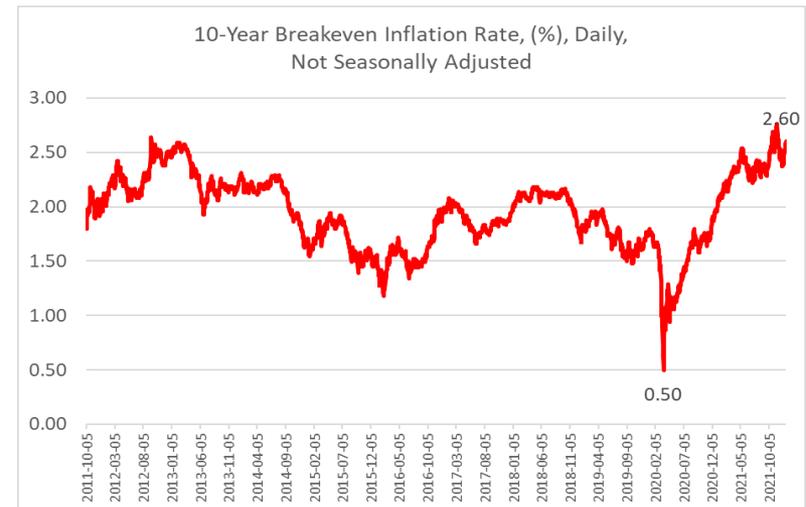
<https://www.trucking.org/news-insights/ata-truck-tonnage-index-increased-13-november>

Inflation Expectation – Survey & Market Based

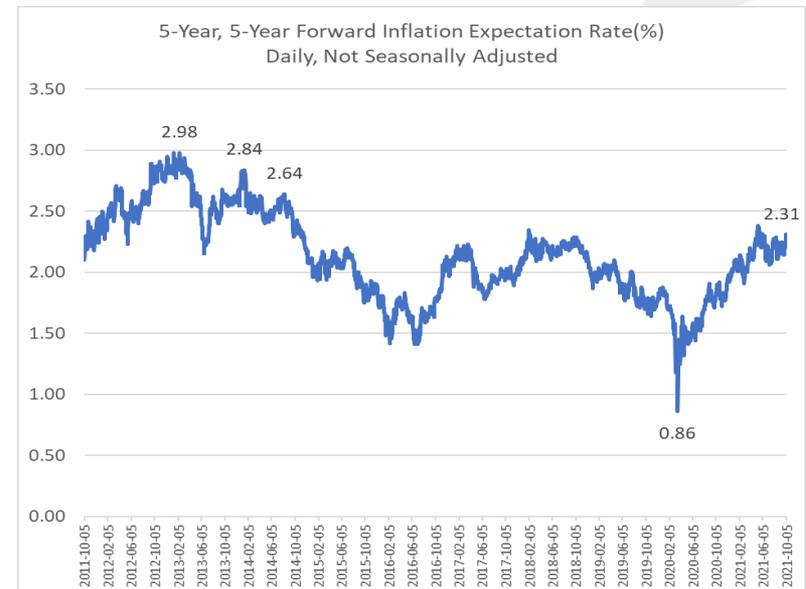


<http://www.sca.isr.umich.edu/tables.html>

Inflation expectation tells us what consumers expect future inflation will be, and when this is not anchored, it will affect consumer behavior. Ultimately, inflation expectation would affect the future inflation rate. The Fed is beginning to be concerned that consumers may be anchoring inflation higher due to the current inflation pressure. Each month, the University of Michigan publishes a survey of consumers' inflation expectations, and it is currently at 2.9% for the next 5 years but 4.8% for the next year. Two market indicators offer the investor or market view of what the future inflation rate is priced in today. The first is the 10-year breakeven rate, and it is at 2.60%, a bit below the 5-year average rate expected in consumer surveys. The other is what investors expect the 5-year forward rate for inflation 5-years from now to be, and it is at 2.31%. Both of these market-based inflation expectations do not indicate a runaway inflation rate and suggest that current inflation remains reasonably anchored...for now.

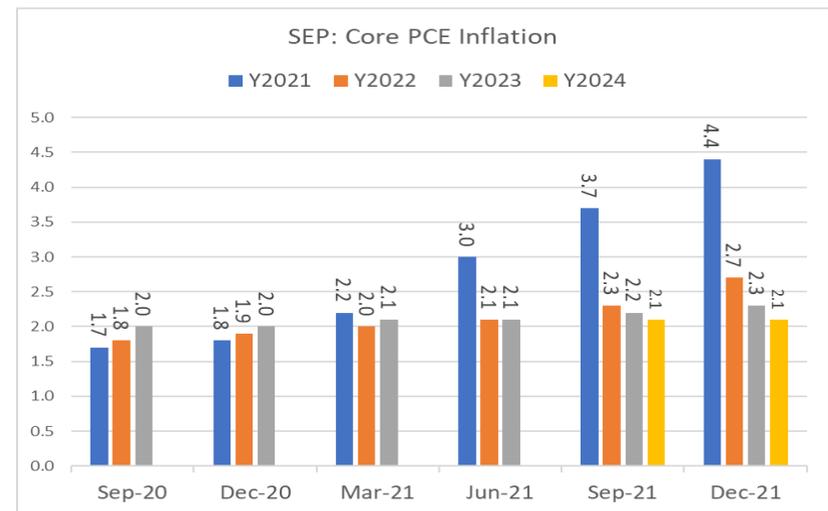
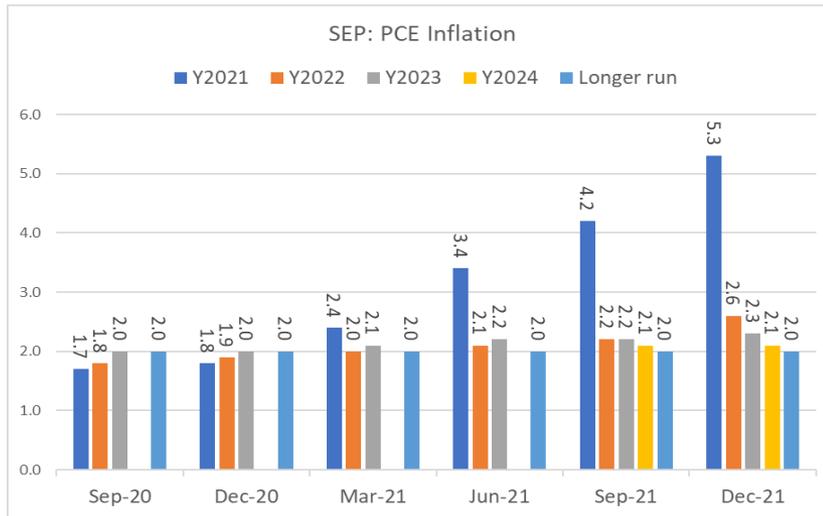


<https://fred.stlouisfed.org/series/T10YIE>



<https://fred.stlouisfed.org/series/T5YIFR>

Summary of Economic Projections – Inflation (Core PCE)



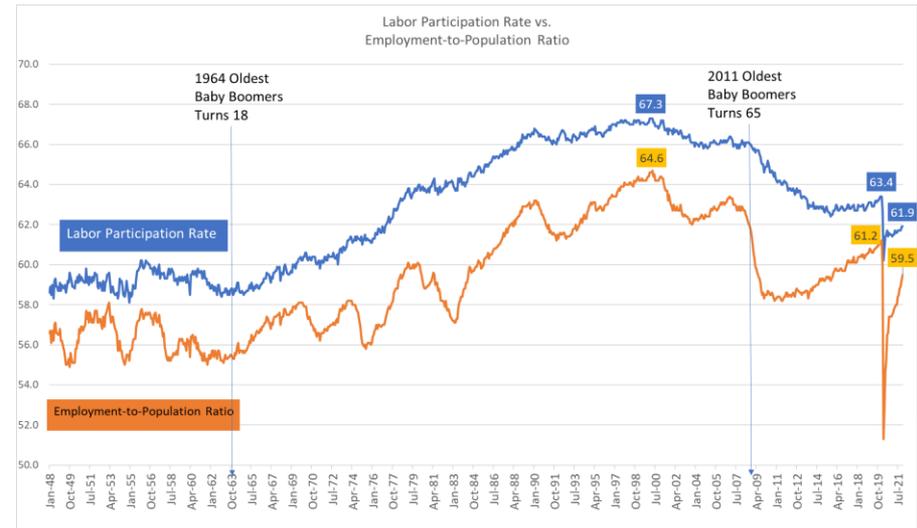
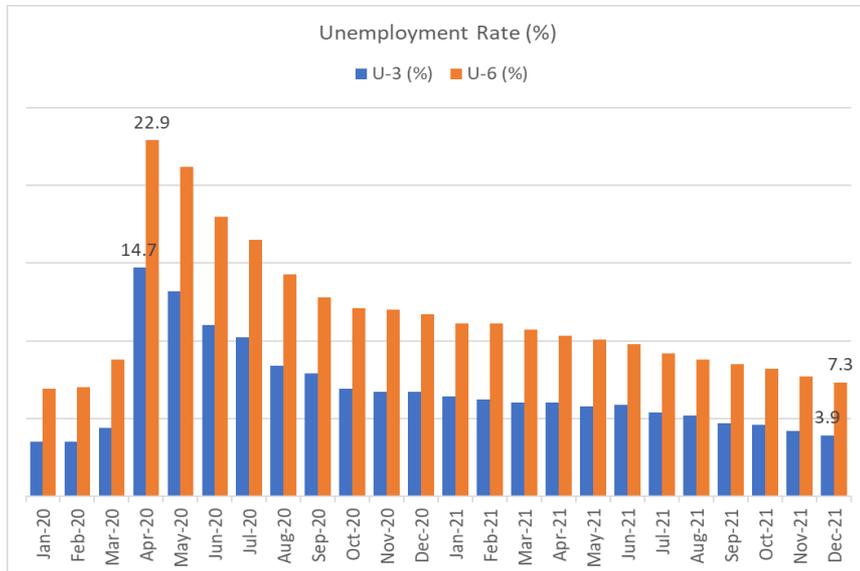
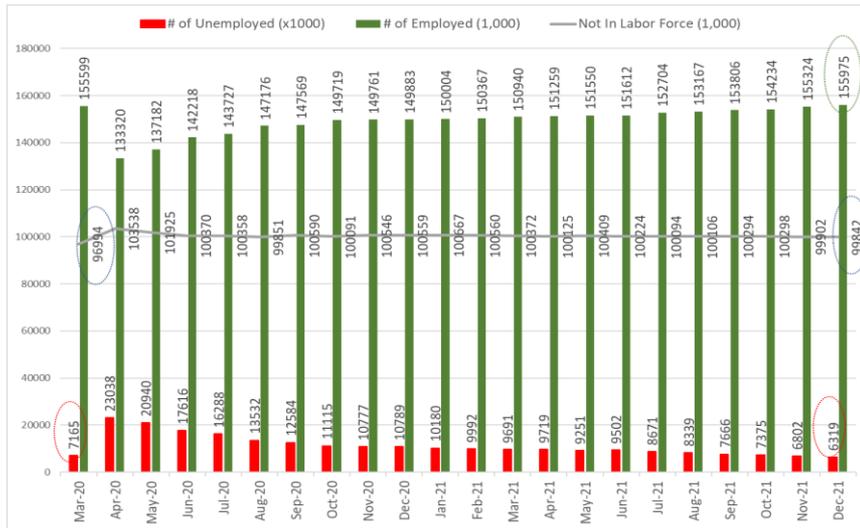
<https://www.federalreserve.gov/monetarypolicy/files/fomcproptabl20211215.pdf>

Since last year, the Federal Reserve has been broadcasting that they will not react to the first sign of inflation. The Fed intends to see a higher inflation regime for a while to (1) have a higher certainty that deflation or disinflation is not a threat to the economy and (2) ensure the average inflation rate is above 2% when the past years of below 2% are taken into consideration. This means that the Federal Reserve will not take monetary action in response to higher inflation, thereby allowing the economy to run hotter for longer.

In the latest SEP, it is clear that the Federal Open Market Committee members see inflation peaking in 2021 and retreating to 2% or slightly over 2% by 2025 and beyond.

In the meantime, the projection for PCE and Core PCE have both substantially been revised upward for 2021 and 2022. Of course, inflation dynamics are fluid, and the exact inflation path may be uncertain. However, directionality is clear. Of late, Chair Powell no longer refers to the post-Covid inflation as transitory. However, the period of rising inflation rate may be longer than most observers anticipate and is Covid-path dependent. We believe that the supply chain of finished and raw materials, although healing, will remain in some form of bottleneck for extended periods. However, the countervailing forces are the end of fiscal transfer and the ultra-accommodative monetary posture. This may somewhat restrict consumer spending and reduce demand for goods and services on the margin.

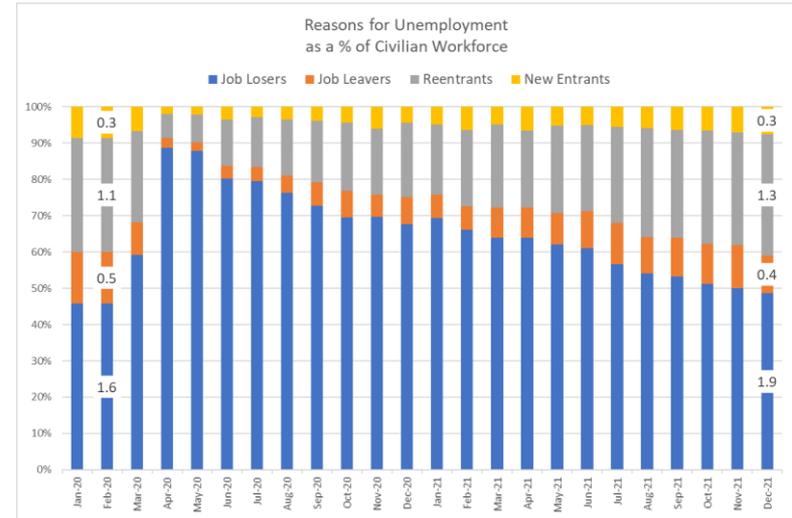
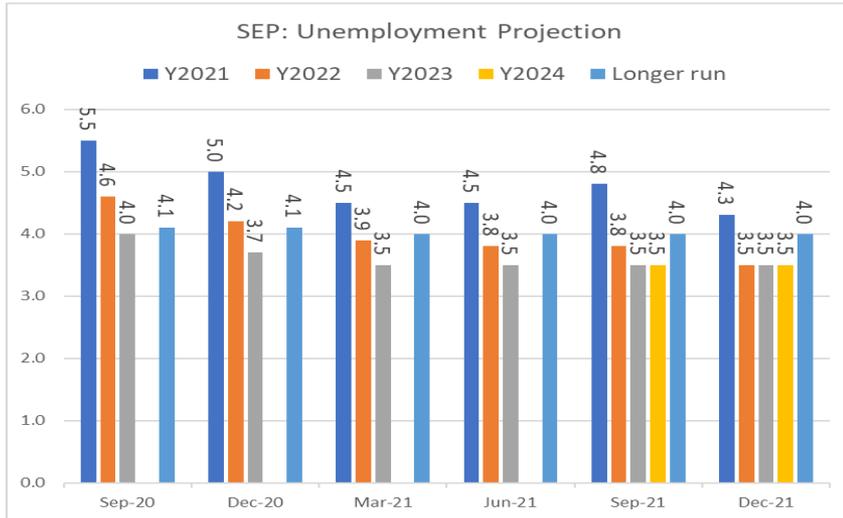
The Labor Economic- Incomplete Healing



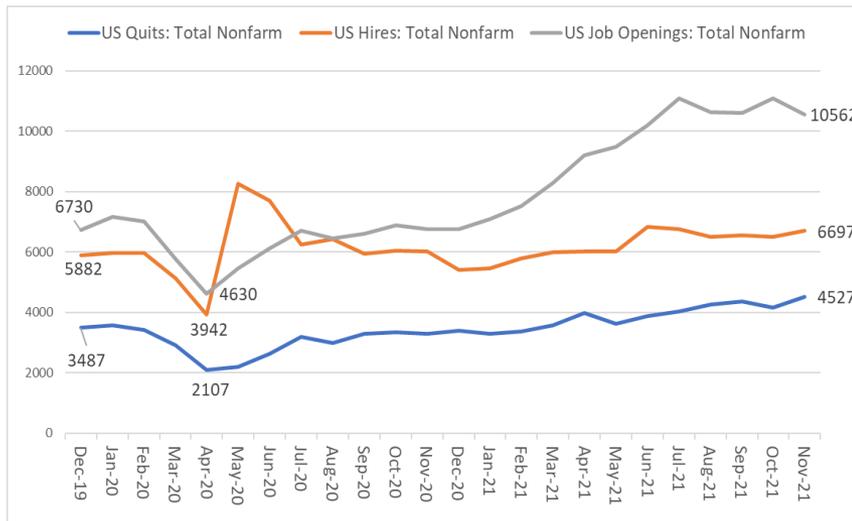
Good signs in the labor economy are the continuing decrease in the number of unemployed. On the other hand, the number of people NOT in the labor force remains below pre-Covid period. Both U3 Unemployment (official unemployment rate) and U6 Unemployment (U3 plus all persons marginally attached to the labor force plus total employed part-time for economic reasons) rates continue to improve. Unemployed are those jobless, actively seeking work, and available to take a job. This eliminates anyone who is jobless and not actively seeking employment. One of the two more encompassing data are the labor force “participation rate” which is the percentage of the working-age population — the civilian non-institutional population age 16 or older — in the labor force. This is now at 61.9%, as compared to 63.4% at the beginning of the pandemic. The second data is the “employment-population ratio” which measures the civilian labor force currently employed against the total working-age population. This is now 59.5% vs. 61.2% at the beginning of the pandemic. From an absolute number standpoint, the labor market recovery remains incomplete with lots of slack. This is especially true for African and Hispanic Americans.



Summary of Economic Projections – Unemployment (U3)

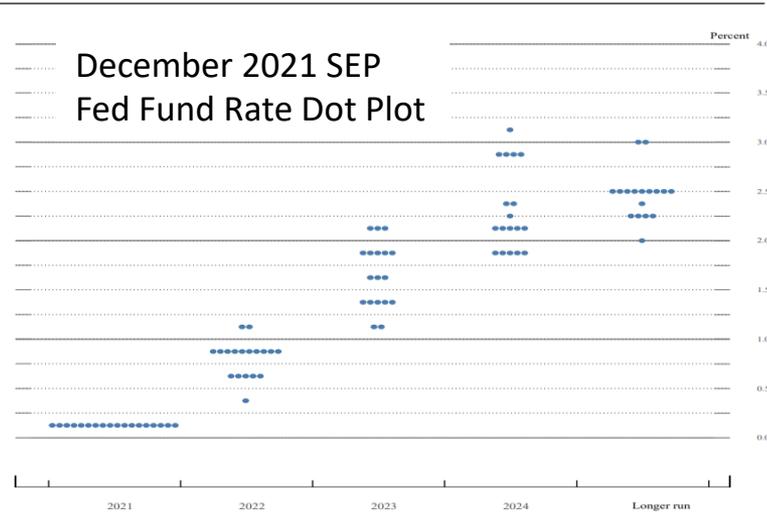


<https://www.federalreserve.gov/monetarypolicy/files/fomcprotabl20211215.pdf>

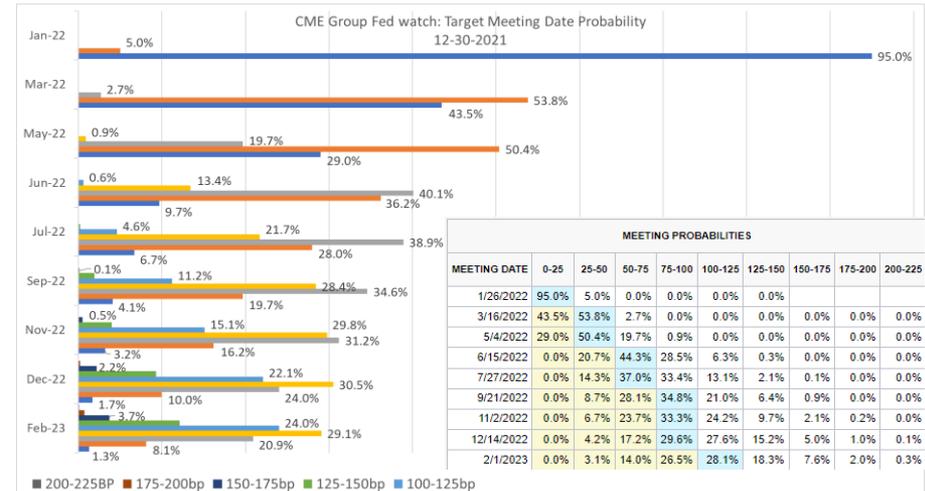
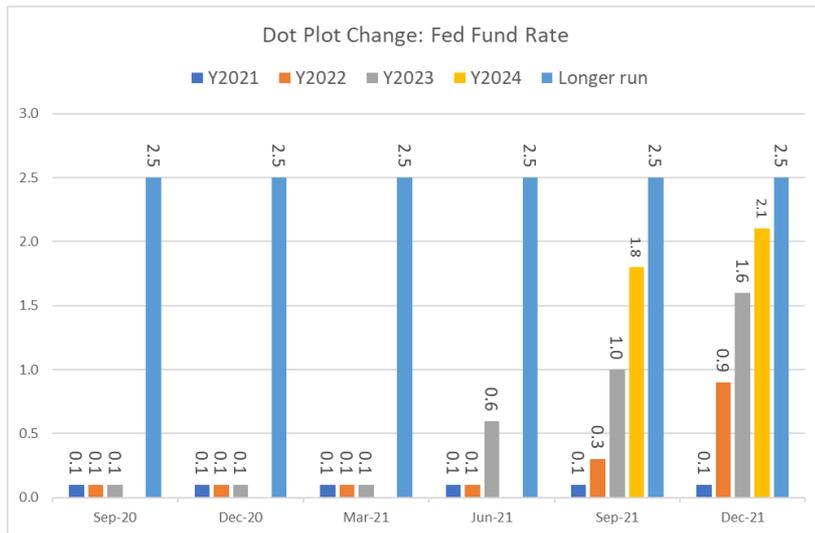


The Federal Reserve expects the U.S. to return to its pre-Covid low of 3.5% unemployment rate by 2022, a speedier rate than September’s SEP projection. The December U3 unemployment is at 3.9%, a continuing improvement, and quickly reaching the 3.5% projection for 2022 in the latest SEP. This is the lowest since the pandemic. Naturally, “Job Losers” continue to come down and are now at the pre-pandemic level. “Job Leavers” have continued to increase and shows workers’ confidence that they can quit and find new positions. In November, the total Job Openings came down a bit from October but remain robust. The picture shows the labor market has substantially returned and, going forward, further improvement will continue to depend on the behavioral disturbances caused by Covid.

Summary of Economic Projections – Fed Fund Rate



<https://www.federalreserve.gov/monetarypolicy/files/fomcprojtabl20211215.pdf>



<https://www.cmegroup.com/trading/interest-rates/countdown-to-fomc.html>

The FOMC members, by average, have again moved up the month when they expect the Committee will raise interest rates. In November's meeting the expectation was 1 rate hike in 2022, and in December, that has moved to 3 rate hikes. For 2023, the expectation now is an additional 3 rate hikes. The Chicago Mercantile Exchange traders¹ place a 53% chance for a March lift off and a 50% chance of a May increase as well. The odds for a June meeting hike have also increased. Historically, the Committee and traders have projected more enthusiasm than the actual rate hike policies. The FOMC understands their dual mandate of full employment and price stability. Right now, price stability is the driver, but if rates hike too quickly and too much, it could dampen economic growth and delay the return to full employment; not to mention, financial stability (stock market) could also be a factor.

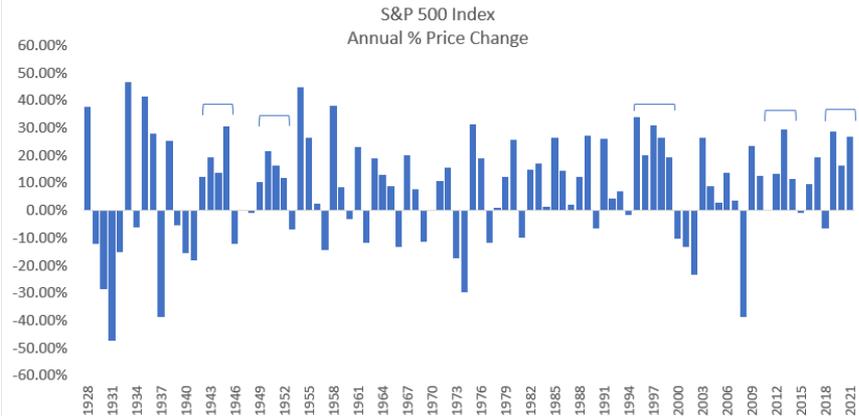
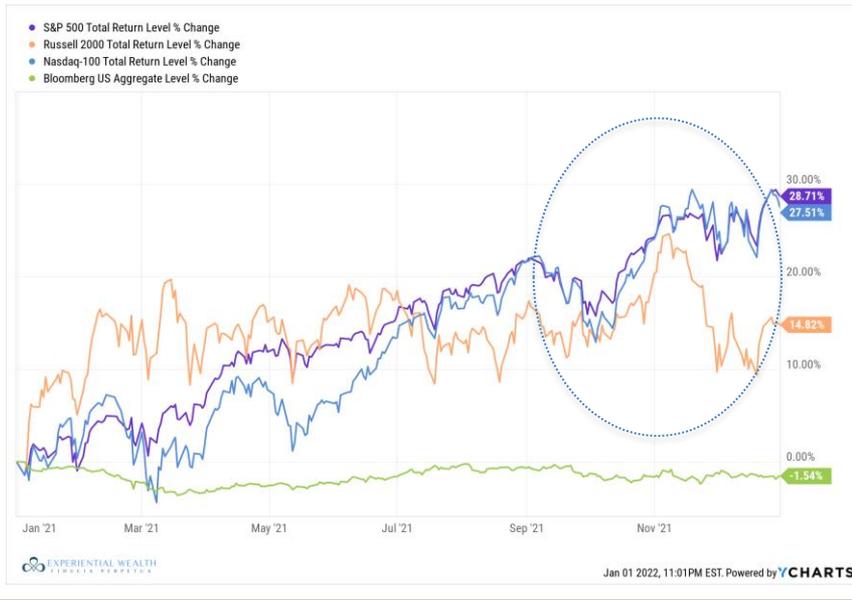
¹ Probabilities of possible Fed Funds target rates are based on Fed Fund futures contract prices assuming that the rate hike is 0.25% (25 basis points) and that the Fed Funds Effective Rate (FFER) will react by a like amount.

Reading the FOMC Tea Leaf

- The Fed's mandates are for full employment and price stability. The unemployment rate was at 14.7% in April 2020 and now is at 3.9% in December 2021. Compared to the pre-Covid 3.5% rate, the full employment mandate is or soon will be "achieved". At the same time, the annualized CPI for December is expected to be at 7% and is likely to move even higher in the first quarter. Now, the Fed's focus is on price stability.
- There are four primary tools the Fed can deploy in reducing policy accommodation to control inflation and inflation expectation: **taper** (i.e. QE - buying less treasury and mortgage securities); **quantitative tightening** (i.e. QT - shrinks the Fed balance sheet); **interest rate** (normalize or hike); and **forward guidance**. Forward guidance is to communicate in advance the principles and plans underlying the policy of any decisions or actions, which enhances the public's understanding and thus the effectiveness of policy.
- According to the December meeting minutes¹, the Committee prefers to maintain flexibility to adjust the details of the approach to normalization in response to economic and financial developments and agrees that changes in the target rate range should be the Committee's primary means for adjusting the monetary policy stance. In the previous normalization episode, the Committee commenced normalization by raising the target range for interest rate and then reduced the asset holdings (QT) in a gradual and predictable manner.
- Note that the current weighted average maturity of the treasury holdings is shorter than at the beginning of the previous normalization episode, and this could lead to the balance sheet potentially shrinking faster than the last time. Almost all Committee members agreed that it would likely be appropriate to initiate QT at some point after the first increase in the target range for the federal funds. Further, many members believe that relying more on QT and less on increases in the policy rate could help limit yield curve flattening during normalization.
- We expect no rate hike during the March meeting but offer forward guidance about QT and rate normalization. We also expect QT first before rate increases, and as such, our base case is for rate hikes to begin in the second half of 2022. Then again, real time inflation rate, economic activities, and financial market stability (among others) will influence the speed and scale of policy action.

¹ <https://www.federalreserve.gov/monetarypolicy/files/fomcminutes20211215.pdf>

U.S. Equity Performance



The S&P 500 saw a 27% price increase (28.71% total return) for 2021 and reached all-time highs 70-times. This is also the third straight year of double-digit gains. The performance is a testament to the uber accommodative fiscal and monetary support over the past two-years as well as the zero-interest rate policy (ZIRP) that pushed the TINA (there is no alternative) scenario for every investor to take on more risks. The multiple expansion driven stock market is behind us as U.S. and global monetary policies are moving into a less accommodative stage. Inflation headwinds and continuing global struggle with Covid are additional challenges that are supportive of a lower growth rate framework.

With heightened uncertainty, expect heightened market volatility.

Index Total Return (USD)	Y2017	Y2018	Y2019	Y2020	Y2021
Bloomberg US Agg Bond	3.54	0.01	8.72	7.51	(1.54)
Bloomberg US Treasury US TIPS	3.01	(1.26)	8.43	10.99	5.96
Bloomberg High Yield Corporate	7.50	(2.08)	14.32	7.11	5.28
S&P 500	21.83	(4.38)	31.49	18.40	28.71
NASDAQ 100	32.99	0.04	39.46	48.88	27.51
Russell 2000	14.65	(11.01)	25.52	19.96	14.82
Russell 3000 Growth	29.59	(2.12)	35.85	38.26	25.85
Russell 3000 Value	13.19	(8.58)	26.26	2.87	25.37
MSCI EAFE Net Return	25.03	(13.79)	22.01	7.82	11.26
MSCI EM Net Return	37.28	(14.58)	18.44	18.31	(2.54)

U.S. and Foreign Equity Total Return in US\$

US Equity Size & Style Total Return	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
S&P 500	-14.85%	27.99%	12.86%	31.37%	12.70%	11.38%	0.69%	11.03
Russell 3000 Growth	-19.60%	25.42%	8.93%	17.21%	11.89%	8.55%	0.58%	10.70
Russell 3000 Value	-27.32%	20.54%	5.42%	12.41%	6.18%	5.16%	-0.93%	7.01
Russell 2000	-30.61%	14.55%	4.93%	12.15%	1.19%	4.29%	-4.36%	2.14

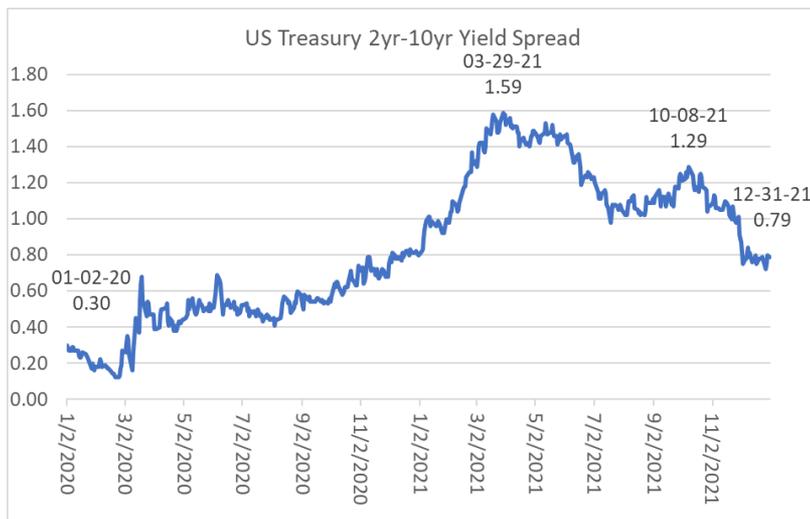
None US Equity Total Return (US\$)	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
MSCI All Country Wrold Index	-10.22%	19.39%	12.57%	34.92%	4.95%	15.09%	9.86%	6.77
MSCI China	-21.26%	19.22%	9.70%	22.01%	4.68%	14.37%	-0.45%	5.72
MSCI Europe Australia Far East	-22.83%	18.87%	8.25%	19.77%	4.21%	7.74%	-0.95%	5.35
MSCI Europe Total Return	-23.57%	18.18%	4.80%	16.05%	3.48%	7.53%	-1.46%	2.74
MSCI Emerging Markets	-24.23%	15.57%	4.58%	15.66%	2.34%	5.17%	-7.97%	-1.24
MSCI Emerging Markets Latin America	-36.34%	15.37%	-1.23%	14.79%	-0.43%	5.12%	-13.21%	-6.06
MSCI Russia Total Return	-45.58%	14.88%	-4.30%	11.21%	-5.27%	2.32%	-18.13%	-8.98

Industry Sector	2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
S&P 1500 Communication Services	-12.73	40.72	13.21	32.58	31.42	9.96	1.79	14.83
S&P 1500 Consumer Discretionary	-12.90	38.42	12.78	23.93	16.32	8.89	1.05	14.69
S&P 1500 Consumer Staples	-13.01	36.83	12.22	17.79	11.94	8.81	0.66	12.81
S&P 1500 Energy	-14.03	32.03	11.52	17.01	10.60	8.35	0.43	12.75
S&P 1500 Financials	-17.04	24.88	10.24	12.46	8.92	8.29	0.18	12.71
S&P 1500 Health Care	-21.75	23.88	6.39	11.75	8.13	6.25	0.15	11.19
S&P 1500 Industrials	-22.66	21.01	5.10	9.31	5.31	5.56	-0.40	10.25
S&P 1500 Materials	-27.27	19.32	4.86	7.93	3.38	3.83	-0.88	7.44
S&P 1500 Real Estate	-27.57	18.80	2.91	6.33	3.37	3.74	-3.15	3.66
S&P 1500 Semiconductors	-32.12	10.63	-1.25	6.14	2.28	3.61	-4.48	3.07
S&P 1500 Utilities	-51.63	9.06	-17.16	6.13	1.85	-0.21	-4.53	-1.81

Fixed Income & Interest Rates – A story of distortion

2020Q1	2020Q2	2020Q3	2020Q4	2021Q1	2021Q2	2021Q3	2021Q4
3.15%	10.18%	4.60%	6.45%	0.85%	3.25%	1.75%	2.36
1.69%	4.24%	4.14%	5.09%	-1.47%	2.74%	0.89%	0.71
-2.68%	3.38%	3.03%	1.62%	-3.37%	1.83%	0.05%	0.01
-12.68%	2.90%	0.62%	0.67%	-5.29%	0.92%	-1.59%	-1.18

Fixed Income Total Return
Bloomberg Barclays Global Aggregate ex-USD
Bloomberg Barclays US Aggregate
Bloomberg Barclays US Corporate High Yield
Bloomberg Barclays US TIPS (Series-L)



With inflation pushing higher and the Fed's acknowledgement of the upside risk to future inflation and initiated policy responses, core bonds (U.S. treasuries and investment grade bonds) are under pressure, as evidenced by the negative 1.18% return for the fourth quarter (the inverse relationship between rates and bond prices). On the other hand, U.S. Treasury Inflation Protection Securities (TIPS) continue to have a good quarter as an explicit response to the rising inflation rate.

Since October, the yield curve continues to flatten as the market anticipates eventual interest rate hikes. At the same time, the 10-year treasury yield remains below the pre-Covid average. This persistent low interest rate at the long-end of the yield curve may be due to the market not being convinced that current inflation will persist and that, on a relative basis, the U.S. long rates, even at this depressed level, are attractive to other comparable sovereign yields for foreign and institutional buyers.

OECD December Interim Economic Projection

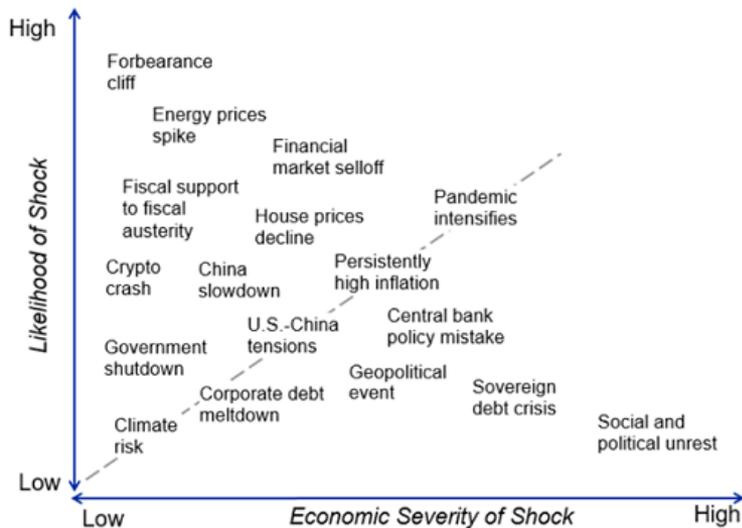
Report Date		May-21	Sep-21	Dec-21		May-21	Sep-21	Dec-21		Dec-21
Calendar Year	Y2020	Y2021	Y2021	Y2021	Sep v Dec	Y2022	Y2022	Y2022	Sep v Dec	Y2023
U.S.	-3.4	6.0	6.0	5.6	↓	3.6	3.9	3.7	↓	2.4
World	-3.4	5.8	5.7	5.6	↓	4.4	4.5	4.5	=	3.2
G-20	-3.1	6.3	6.1	5.9	↓	4.7	4.8	4.7	↓	3.3
Euro Area	-6.5	4.3	5.3	5.2	↓	4.4	4.6	4.3	↓	2.5
China	2.3	8.5	8.5	8.1	↓	5.8	5.8	5.1	↓	5.1

- Striking imbalances have emerged. First, there are marked differences in the recovery across countries, reflecting national health conditions, the policy mix and sector composition. Second, acute labor shortages are appearing in some sectors, even though employment and hours worked have yet to fully recover. Third, a persistent gulf between supply and demand for some goods, together with higher food and energy costs, have led to higher and more enduring price increases than expected.
- These imbalances create uncertainty and more downside than upside risks. Our primary concern is the global polarity in caseloads, hospital capacity and vaccination rates around the world. The harshest scenario is that pockets of low vaccination end up as breeding grounds for deadlier strains of the virus which go on to damage lives and livelihoods. Even in more benign scenarios, ongoing coronavirus outbreaks may continue to restrict mobility in some regions and across borders, with potential long-lasting consequences for labor markets, production capacity and prices.
- Inflation is front and center with a lot of uncertainty about central banks' reactions. The Organization for Economic Cooperation and Development (OECD) suggests that, as the health situation improves, demand stabilizes and people return to work, labor force supply bottlenecks should fade. Inflation is now expected to peak at the turn of 2021-22 before receding gradually to around 3% in the OECD as a whole by 2023.
- The next big concern is the risk that policy makers fail to act on lessons from the crisis. Policy makers implemented unprecedented measures to support their economies at the onset of the crisis, but now that the recovery is underway, they face a tough balancing act.

Climbing a Wall of Worries

According to Mark M. Zandi, chief economist of Moody's Analytics, the following graph shows the likelihood and the corresponding severity of known risks that may derail the U.S. economic recovery.

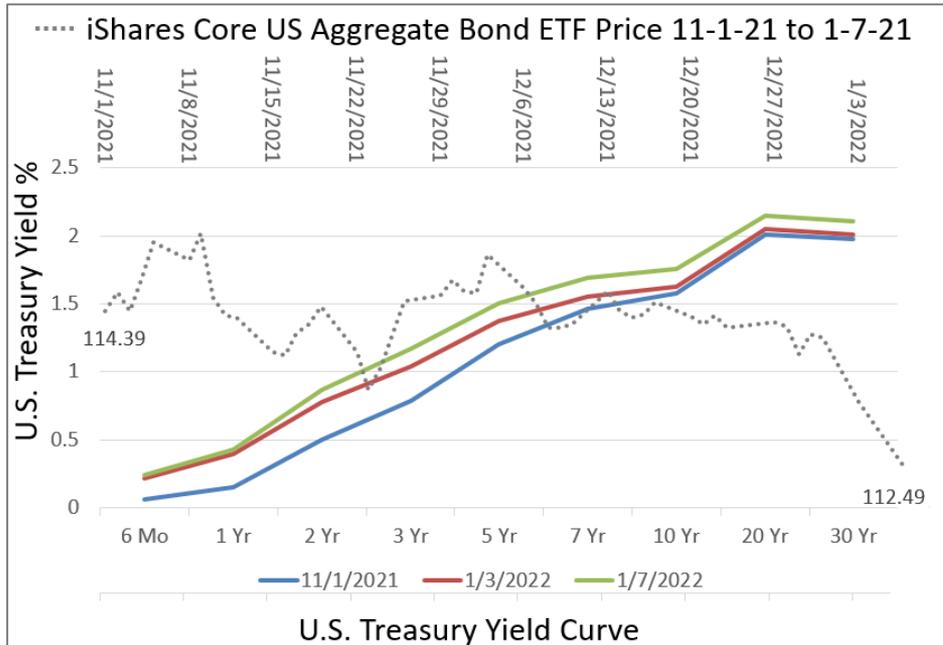
What Could Derail the Recovery?



Source: Moody's Analytics
<https://www.economy.com/economicview/analysis/386935>

The purpose of Moody's risk matrix, "*which summarizes the downside in terms of the probability that the risk will manifest (vertical axis) and the economic loss if it does (horizontal axis). While there are many risks to consider in addition to what has already been highlighted, a mounting and important threat is the generally overvalued asset markets. Stock, bond, real estate, commodity and crypto markets are frothy and bordering on speculative. Asset prices and valuations should be high given the very low interest rates and recovering economy. But markets have gotten ahead of themselves and are vulnerable to significant corrections as global central banks pull back on their monetary policy support and long-term rates rise in coming months. While any correction in financial markets is unlikely to be serious enough to undermine the economic recovery—this is our baseline outlook—this will become increasingly difficult to say if asset prices continue their ascent.*"

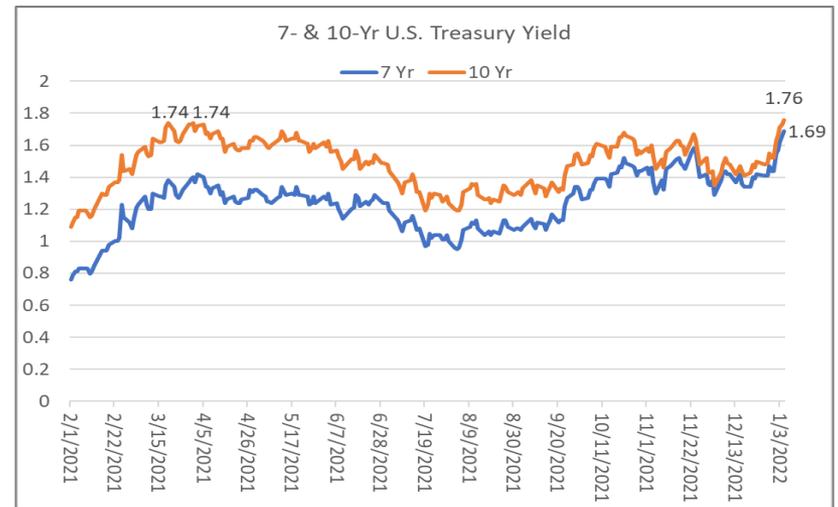
Bonds: Likely More Losses to Come



Since FOMC's November announcement to begin tapering, the yield curve has not only flattened (shorter maturity bond rates risen faster than the longer end) but the bond yields across the curve have also risen.

U.S. Treasury Yield									
Date	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr	20 Yr	30 Yr
11/1/21	0.06	0.15	0.50	0.79	1.20	1.46	1.58	2.01	1.98
1/3/22	0.22	0.40	0.78	1.04	1.37	1.55	1.63	2.05	2.01
1/7/22	0.24	0.43	0.87	1.17	1.50	1.69	1.76	2.15	2.11

The 6-month treasury is priced for a single rate hike and the 2-year is now priced for 3 hikes. The 2-year is a good indicator for where the market expects the rate would be by year-end. As rates rose across the yield curve, bonds lost value. The U.S. Aggregate Bond is the widely used benchmark for core bonds and its drop in price is consistent with the rise in treasury yields.



Non-economic actors such as pension plans (for LDI purposes), insurance carriers, and foreign institutions have historically rushed in to buy the longer treasuries when yield rises. This has placed a lid on how high the long treasury bond yield would go. But, with global central banks looking to tighten and the Fed buying less and possibly shrinking its balance sheet, the long bonds may trade outside their upper range. This uncertainty contributes to more bond price volatility.

Final Words

- Last quarter, we anticipated the birth of a new variant that requires yet to be developed vaccines to protect against. Unfortunately, the new mutated variant, Omicron, has proven to be significantly transmittable with many breakthrough cases for those previously vaccinated. Even though the resulting mortality rate has been low (a great sign), the already overtaxed health system and professionals are increasingly unable to care for the onslaught of patients. Furthermore, the long-term impacts of Covid on the infected remain unknown.
- Omicron is a global threat and has material economic impact. According to the World Health Organization, the Omicron variant has been reported in 89 countries as of December 18 and the number of cases is doubling in 1.5 to 3 days in areas with community spreading. The zero-Covid policy in China continues to challenge China's employment and economy and the global supply chain. To make the challenge worse is a recent study that suggests the ineffectiveness of the Chinese vaccine, Sinovac. Although zero-Covid policy seems draconian, without it and without prevalent access to a robust vaccine, China cannot afford to freely open its economy now. Nonetheless this policy cannot be a sustained solution for China.
- The base case for inflation is to peak in the first 4-months of 2021 and for inflation forces to wane over an extended tail period. The global supply chain is not yet back to normal, and Omicron is slowing the normalization process. The general focus from just-in-time manufacturing to just-in-case and from offshoring to near-shoring have cost considerations. The pivot to resilience from pure efficiency also adds weight to inflation. The longer the pandemic persists, the longer it will take for the global supply chain to normalize. In the meantime, demand for goods remains elevated as the service economy continues to face uncertainties due to waves of Covid infections. The Great Resignation added to labor shortage further hindered the service sector's attempt to return to normal. One concern is that, when Covid variants subside and consumers shift from the goods to service sector, it may further challenge strained service resources which can cause inflation to shift to the service sector in terms of even higher wages, thereby extending the higher inflation regime for a bit longer.
- On the other hand, the end of fiscal stimulus or fiscal transfer and the beginning of a less accommodative monetary policy globally are likely to elicit a gradual tightening of wallets among consumers. This will naturally lower demand and dampen inflation. This could also make U.S. dollar denominated assets more attractive and drive up the U.S. currency against trading partners (those that have not taken countermeasures) and further push down inflation. However, if not timely managed (rate actions too early, too late, or too much), policy mistakes could cause risk aversion, resulting in stocks and other risk assets to tumble, resulting in financial instability.
- It is widely accepted that peak growth for the U.S. during the current cycle has passed. Excess tightening may hasten growth slowdown in the U.S. to below the projected 4% this year.
- The most obvious risk in 2022 is the Fed's normalization process. The uncertainties from inflation, economic growth, and policy response set up a challenging environment for the stock and bond market, not to mention impacts from possible new Covid waves to come.

Thoughts – Informational Only

- In an inflation rising or higher inflation regime, core (investment grade) fixed income (bonds) tends to perform poorly. This is particularly true when we have been in an extremely low interest rate environment (in fact negative real rate) with little interest cushion. Lowering exposure to core bonds (represented by Bloomberg Barclays Aggregate Bond Index) until interest rates have adjusted may make sense.
- Core bonds, on the other hand, have served as portfolio stabilizers of sorts during equity market selloff. This inverse correlation (moving in opposite direction) between stocks and bonds is an important reason to keep core bonds in a well diversified portfolio, even in the zero bound interest environment. However, in a rising interest rate environment, both bonds and highly valued equities can lose value at the same time and the inverse correlation benefit is lost.
- Mimicking some core bond properties is challenging when almost all assets are highly valued and more correlated. Private market real estate investment has demonstrated some of the features in portfolio construction. Rental income from real estate can mimic bond interest income, and appreciation of the underlying real estate can be thought of as bond appreciation (in a rate falling environment). Separately, due to its less liquid nature and it being a different asset class than stock, its correlation is less positive and adds to portfolio diversification. However, private market real estate investments are not a direct substitute for the core bond asset class.
- Even though interest rates are expected to rise, and the yield curve will likely remain flat with the front end (short-term) increasing while the back end (10 year plus) stays anchored, we do not anticipate a yield curve inversion in 2022 (a classic signal for recession.) As such, allocating to public and private credit (i.e., higher risk bonds) would offer a more attractive yield without confronting significant bankruptcy risks. Even in a rising rate environment, the higher yield will offset much asset depreciation.
- Equity investing through broad market proxies (such as index funds/ETFs) has delivered good returns. When fiscal and monetary policies here and globally are supportive, the market (beta) is the rising tide that lifts all boats with little emphasis on individual security selection. It is like a wall of cash buying into all stocks. Going forward, with less accommodating public policies, the tide is ebbing, and the broad market is not being blindly supported. Managers who have strong convictions through fundamental analysis (perhaps aided by AI, machine learning and Big Data) in focused portfolios would likely offer a better chance for above the broader market. A more concentrated portfolio has increased risks as well.
- Although general inflation may come back down to 2.5% in the intermediate term, food and energy inflation may be more enduring. In the case of energy, it is a story of global energy transition from fossil-based to zero-carbon. The allocation of investment has shifted away from fossil-based systems of energy production; yet the handoff to new energy alternatives is inadequate and incomplete. This creates a shortage of supply with robust demand unfulfilled – higher cost persists.
- There is also the mid-term election uncertainty to think about!

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