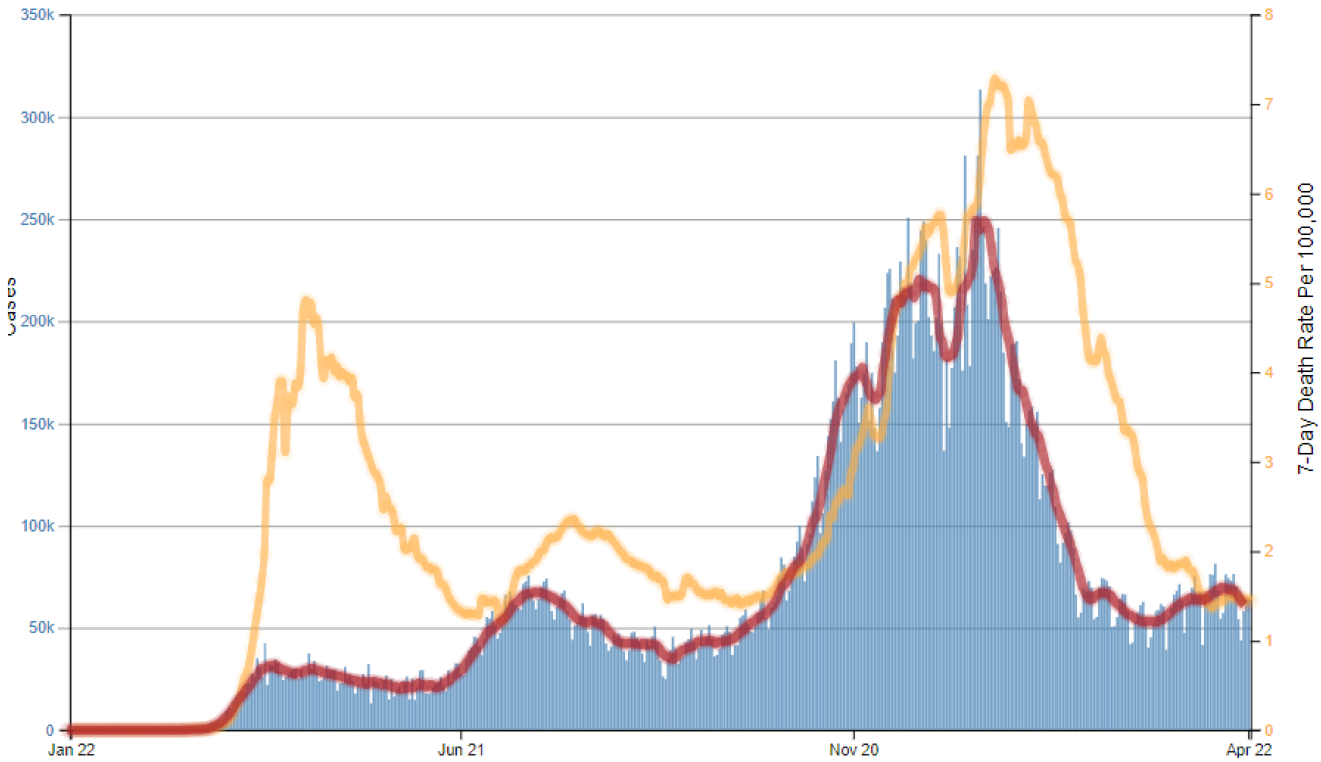
U.S. Chartbook

Economic and Capital Markets Analysis

2020 Year in Review

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



Blue bars show daily cases. The red line is the sum of cases over the last 7 days, divided by 7. Averages are used to reduce reporting differences. The orange line represents deaths in the last 7 days per 100,000, allowing for comparisons between areas with different population sizes.

Source: CDC COVID Data Tracker

Greg Kyle

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A YEAR FOR THE HISTORY BOOKS

The Bad News…

Needless to say, last year was one for the history books. The COVID-19 pandemic dramatically changed our lives in ways we could not foresee. It impacted how we interacted with family and friends, how we shopped, and how we approached social activities like dining out, going to movies, concerts or theatre. It also meant grieving for our loved ones, our friends or our neighbors who did not survive their fight with the coronavirus.

For many of us it meant a tectonic shift in how we worked—gone was the corporate office, in was the home office. For tens of millions of others, it meant being laid off, furloughed, or having hours drastically cut as economic activity came to an abrupt halt.

Last year did make history for being the worst period of job losses in almost 100 years. The ‘real’ unemployment rate (U-6) nearly reached Great Depression levels, skyrocketing to 23% in April. In 1933 during the Great Depression, one in four, or 25% of the labor force was unemployed. Over 20 million people lost their jobs at the height of the downturn in early 2020.

Another popular measure of employment, the employment population ratio, also set a historical record, falling to 51.3% in April. In other words, nearly half of the people who were of working age in April were not employed. At no other time since this metric began in 1948 has the level been so low.

Economic activity also ground to a halt in the first half of 2020, with GDP declining at a record 31.4% annual rate in the second quarter of 2020.

The Good News…

Now that we’ve turned the corner of 2020, economic activity has picked up substantially, and the job situation has greatly improved. Since February, vaccinations have been off to a great start, and as of the date of this report over 140 million people in the U.S. have received at least one dose. Several states have over 60% of their population at least partially vaccinated, and the numbers continue to improve. If this trend continues, life can soon begin to return to normal(ish). This is great news for people anxious to go about their lives again and good news for the economy. With consumer spending accounting for two-thirds of economic activity, a return to normal(ish) activities and spending will provide fuel for economic growth going forward. And let’s not forget, economic growth translates to job growth, which would be welcome news for the tens of millions of people who are currently unemployed or only marginally employed.

The consensus view on the economic front has the economy remaining strong through the rest of this year. The Federal Reserve also recently upped its forecast of GDP growth in 2021 to 6.5% from a forecast of 4.2% in December. That is good news.

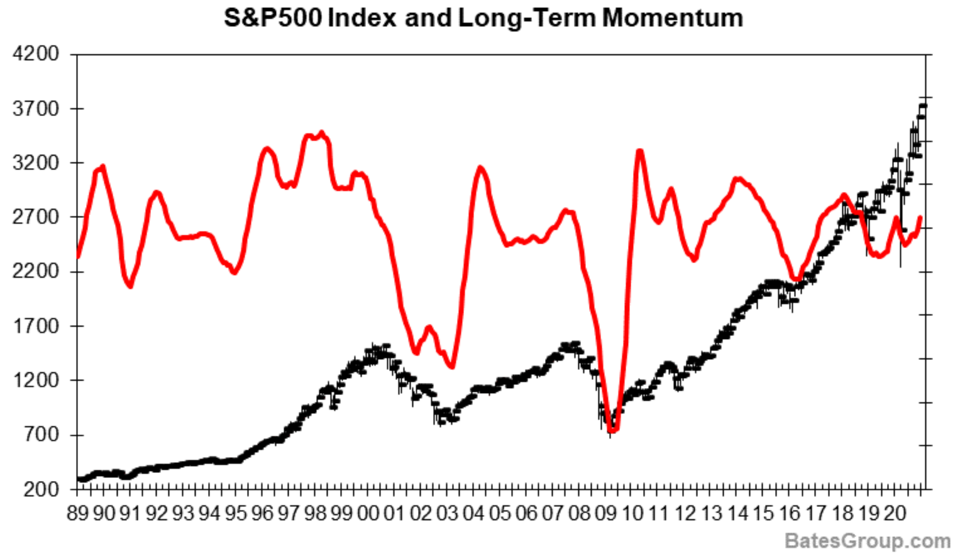
On the jobs front, the Fed also expects the unemployment rate to fall to 4.5% by the end of this year, which would be a very strong finish after one of the worst jobs downturns in history. In comparison to the last downturn, it took six years after the recession ended in 2009 for the unemployment rate to fall below 4.5%.

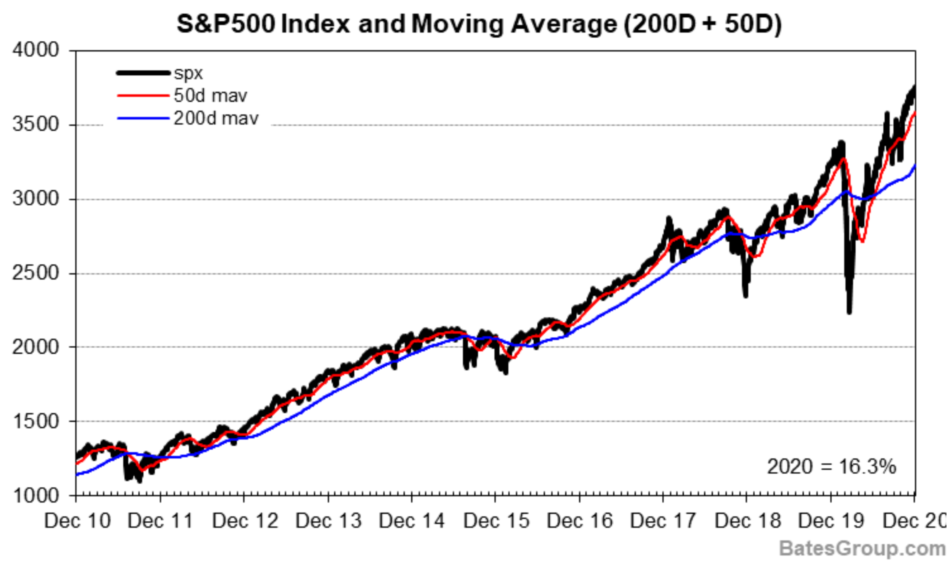
Equity Markets – S&P 500 Market Trends

2020 was one for the record books. With the coronavirus outbreak turning into a global pandemic in early 2020, investors sold off equities with the S&P 500 falling 34% in barely a month.

Beginning February 19, 2020 it took just 16 days for the broader market index to fall into bear market territory, or 20% from its peak. Previously the most rapid decline into a bear market was nearly 100 years ago at the beginning of the Stock Market Crash of 1929.

The rest of 2020 was marked by a series of fits and starts, with the S&P 500 Index eventually finishing the year up 16.3%.





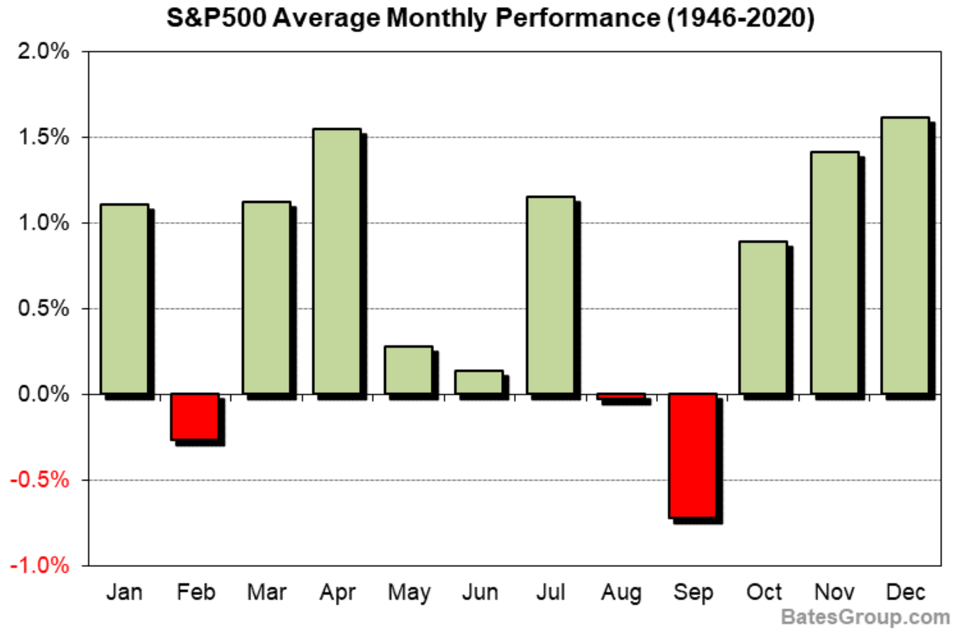
S&P 500 Monthly Performance (% change over previous month)

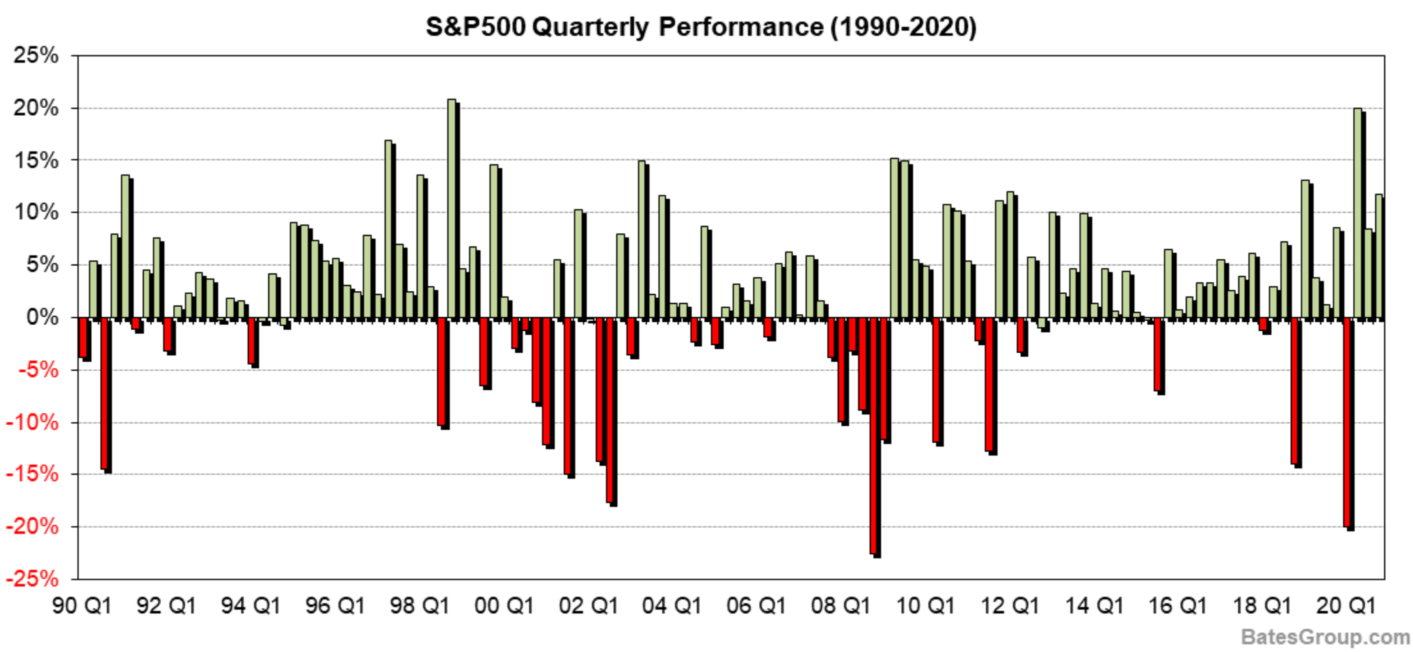
														--- 1946-2020 ---		
Month	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**Avg**	**Min**	**Max**
Jan	1.4%	-6.1%	-8.6%	-3.7%	2.3%	4.4%	5.0%	-3.6%	-3.1%	-5.1%	1.8%	5.6%	7.9%	-0.2%	1.1%	-8.6%	13.2%
Feb	-2.2%	-3.5%	-11.0%	2.9%	3.2%	4.1%	1.1%	4.3%	5.5%	-0.4%	3.7%	-3.9%	3.0%	-8.4%	-0.3%	-11.0%	7.1%
Mar	1.0%	-0.6%	8.5%	5.9%	-0.1%	3.1%	3.6%	0.7%	-1.7%	6.6%	-0.0%	-2.7%	1.8%	-12.5%	1.1%	-12.5%	9.7%
Apr	4.3%	4.8%	9.4%	1.5%	2.8%	-0.7%	1.8%	0.6%	0.9%	0.3%	0.9%	0.3%	3.9%	12.7%	1.5%	-9.0%	12.7%
May	3.3%	1.1%	5.3%	-8.2%	-1.4%	-6.3%	2.1%	2.1%	1.0%	1.5%	1.2%	2.2%	-6.6%	4.5%	0.3%	-8.6%	9.2%
Jun	-1.8%	-8.6%	0.0%	-5.4%	-1.8%	4.0%	-1.5%	1.9%	-2.1%	0.1%	0.5%	0.5%	6.9%	1.8%	0.1%	-8.6%	8.2%
Jul	-2.0%	-1.0%	7.4%	6.9%	-2.1%	1.3%	4.9%	-1.5%	2.0%	3.6%	1.9%	3.6%	1.3%	5.5%	1.2%	-7.9%	8.8%
Aug	0.0%	1.2%	3.4%	-4.7%	-5.7%	2.0%	-3.1%	3.8%	-6.3%	-0.1%	0.1%	3.0%	-1.8%	7.0%	-0.0%	-14.6%	11.6%
Sep	3.6%	-9.1%	3.6%	8.8%	-7.2%	2.4%	3.0%	-1.6%	-2.6%	-0.1%	1.9%	0.4%	1.7%	-3.9%	-0.7%	-14.4%	8.8%
Oct	1.5%	-16.9%	-2.0%	3.7%	10.8%	-2.0%	4.5%	2.3%	8.3%	-1.9%	2.2%	-6.9%	2.0%	-2.8%	0.9%	-21.8%	16.3%
Nov	-4.4%	-7.5%	5.7%	-0.2%	-0.5%	0.3%	2.8%	2.5%	0.1%	3.4%	2.8%	1.8%	3.4%	10.8%	1.4%	-11.4%	10.8%
Dec	-0.9%	0.8%	1.8%	6.5%	0.9%	0.7%	2.4%	-0.4%	-1.8%	1.8%	1.0%	-9.2%	2.9%	3.7%	1.6%	-9.2%	11.2%

On a month-to-month basis, December has historically been the strongest performing month, while September has been the weakest.

The summer months, with the exception of July, have also been historically weak. This has led to the old Wall Street adage, *"Sell in May, go away."*

In terms of quarterly returns, the fourth quarter has been the strongest quarter for the S&P 500 Index, with an average gain of 3.4% (1946-2020 average).

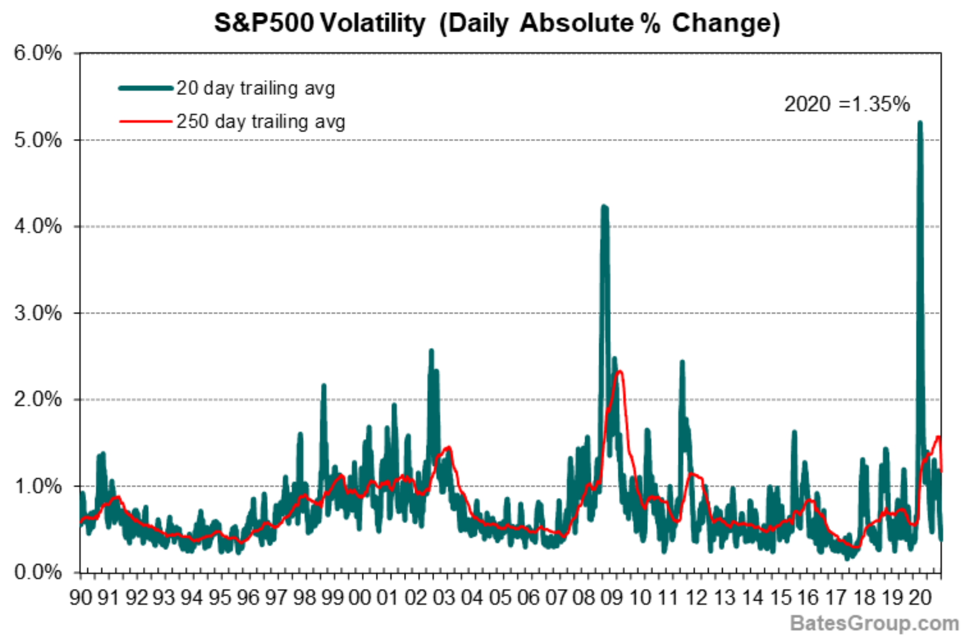




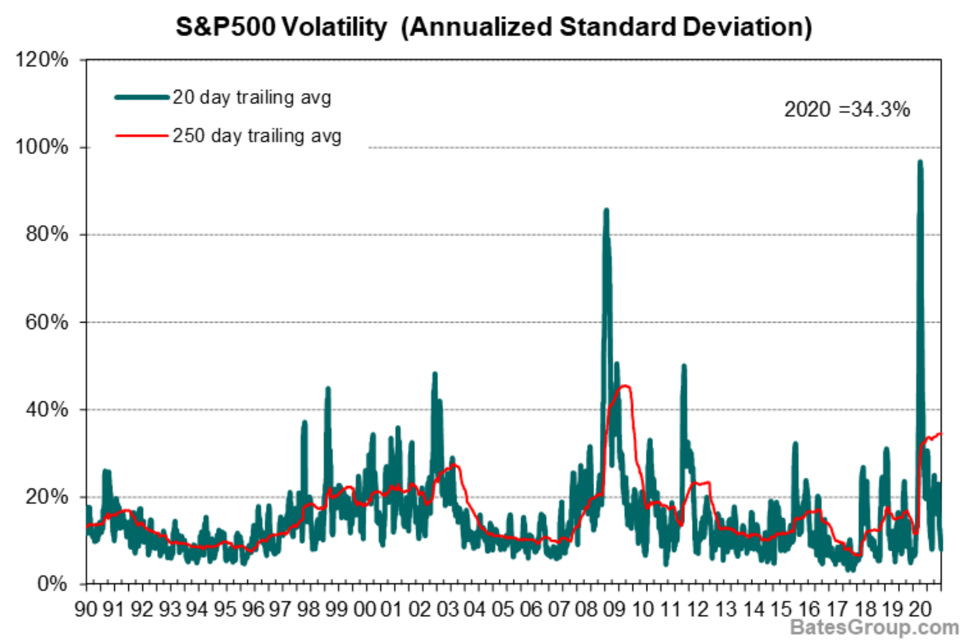
Volatility for the broader market set a record early in 2020 as fears over the economic impact from the pandemic led the S&P 500 index to experience historically high volatility. During the first quarter, daily price swings averaged ±4.95%.

Although volatility did decline, it remained high through most of the year, with average absolute daily price swings of 1.35%.

In comparison, over the past 20 years the average daily absolute price swing has been 0.62%.



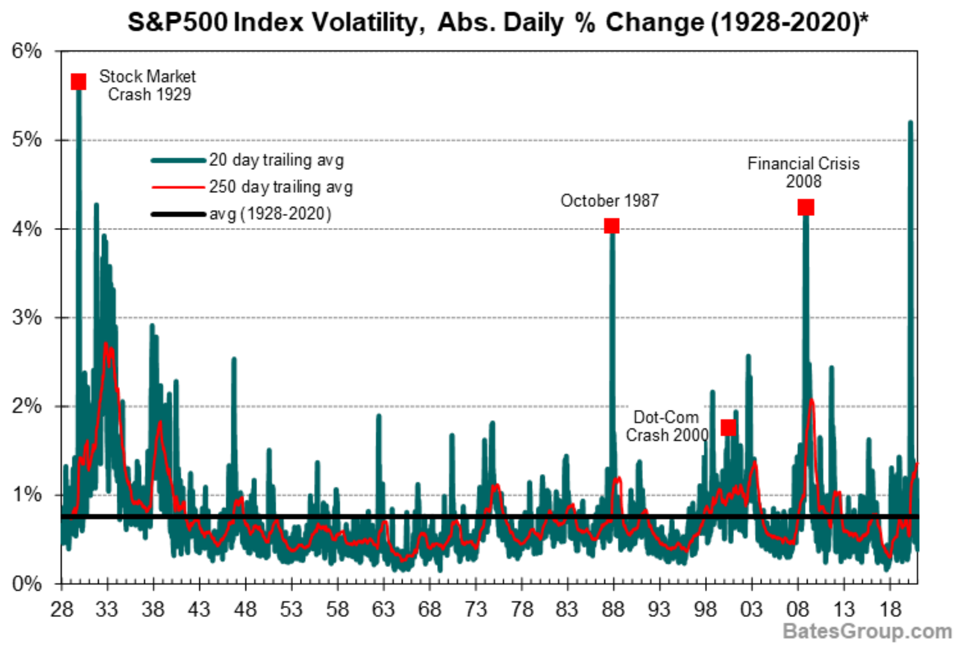
In terms of annualized standard deviation, the volatility in 2020 at 34.3% was almost three times the 15.6% average since 1950. Volatility in the last quarter of the year was 16.3%.



The chart to the right shows volatility for the broader market over the past 98 years.

Not surprisingly, the pandemic had a significant impact on the equity markets, with the markets experiencing some of the highest volatility levels in history, even surpassing the crash of October 1987.

In 2020, the S&P 500 experienced 109 days of 1% or greater daily price moves. This compares to only 37 days in 2019.



A History of Bear Markets (1929-2020)

-------- Date --------		----- Index Value -----		Percent	Duration		Years to	
Start	**End**	**Start**	**End**	**Loss**	**(Months)**	**Recession**	**Recover**	**Comments**
16-Sep-1929	1-Jun-1932	31.86	4.40	-86%	33	Yes	25.0	Crash of 1929
10-Mar-1937	28-Apr-1942	18.67	7.47	-60%	61	Yes	8.9	Austerity measures, WWII
29-May-1946	13-Jun-1949	19.25	13.55	-30%	36	Yes	4.0	Post WWII inventory recession
2-Aug-1956	22-Oct-1957	49.74	38.98	-22%	15	Yes	2.1	Cold War concerns
12-Dec-1961	26-Jun-1962	72.64	52.32	-28%	6	No	1.7	Bay of Pigs, Cold War escalation
9-Feb-1966	7-Oct-1966	94.06	73.20	-22%	8	No	1.2	Vietnam War concerns
29-Nov-1968	26-May-1970	108.37	69.29	-36%	18	Yes	3.3	Vietnam tensions in U.S.
11-Jan-1973	3-Oct-1974	120.24	62.28	-48%	21	Yes	7.5	OPEC oil embargo
28-Nov-1980	12-Aug-1982	140.52	102.42	-27%	21	Yes	1.9	Volker high interest rates (20%)
25-Aug-1987	4-Dec-1987	336.77	223.92	-34%	3	No	1.9	Black Monday crash
16-Jul-1990	11-Oct-1990	368.95	295.46	-20%	3	Yes	0.6	Iraq invades Kuwait (Iraq War)
24-Mar-2000	9-Oct-2002	1527.46	776.76	-49%	31	Yes	7.2	Dot-com crash
9-Oct-2007	9-Mar-2009	1565.15	676.53	-57%	17	Yes	5.5	Financial crisis
20-Sep-2018	24-Dec-2018	2930.75	2351.10	-20%	3	No	0.6	US-China trade war
19-Feb-2020	23-Mar-2020	3386.15	2237.40	-34%	1*	No	--	COVID-19
Average		**--**	**--**	**-38%**	**20**	**Yes**	**5.1**	**--**

** Shaded areas represent bear markets*

S&P 500 Historical Volatility Table*

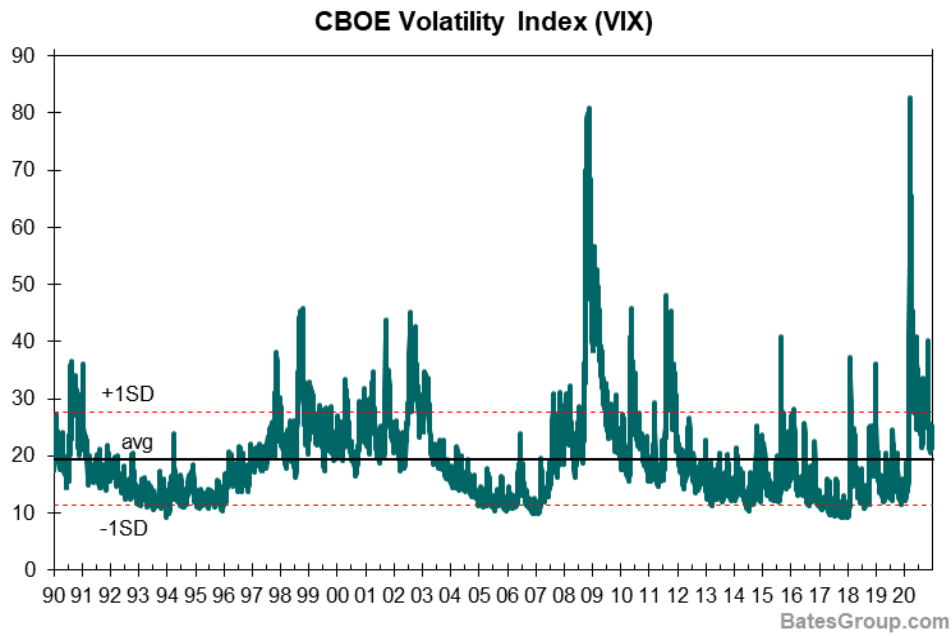
Number of Days with Percentage Moves Greater Than …

	<-1.0%	>1.0%	Total	<-2.0%	>2.0%	Total	<-4.0%	>4.0%	Total	<-5.0%	>5.0%	Total	daily avg abs % ch	annualized stdev
1970	34	31	65	4	7	11	0	1	1	0	1	1	0.69%	15.10%
1971	14	18	32	0	1	1	0	0	0	0	0	0	0.48%	10.17%
1972	6	4	10	0	0	0	0	0	0	0	0	0	0.40%	7.93%
1973	43	35	78	6	9	15	0	0	0	0	0	0	0.78%	15.76%
1974	67	47	114	15	17	32	0	3	3	0	0	0	1.06%	21.73%
1975	35	45	80	3	8	11	0	0	0	0	0	0	0.79%	15.37%
1976	14	25	39	0	0	0	0	0	0	0	0	0	0.57%	11.06%
1977	12	5	17	0	0	0	0	0	0	0	0	0	0.45%	9.04%
1978	24	19	43	1	3	4	0	0	0	0	0	0	0.61%	12.55%
1979	13	17	30	1	2	3	0	0	0	0	0	0	0.51%	10.80%
1980	37	43	80	7	4	11	0	0	0	0	0	0	0.82%	16.40%
1981	30	24	54	4	3	7	0	0	0	0	0	0	0.66%	13.40%
1982	38	44	82	6	11	17	0	1	1	0	0	0	0.85%	18.18%
1983	26	29	55	1	3	4	0	0	0	0	0	0	0.66%	13.27%
1984	16	25	41	0	7	7	0	0	0	0	0	0	0.61%	12.70%
1985	7	21	28	0	1	1	0	0	0	0	0	0	0.50%	10.12%
1986	25	35	60	6	3	9	1	0	1	0	0	0	0.67%	14.64%
1987	42	53	95	20	20	40	4	3	7	3	2	5	1.13%	32.01%
1988	31	37	68	5	11	16	2	0	2	1	0	1	0.74%	17.02%
1989	14	26	40	2	2	4	1	0	1	1	0	1	0.58%	13.01%
1990	42	33	75	8	5	13	0	0	0	0	0	0	0.77%	15.89%
1991	25	34	59	2	7	9	0	0	0	0	0	0	0.67%	14.24%
1992	11	17	28	0	0	0	0	0	0	0	0	0	0.46%	9.64%
1993	7	10	17	1	0	1	0	0	0	0	0	0	0.40%	8.57%
1994	15	12	27	1	1	2	0	0	0	0	0	0	0.46%	9.80%
1995	4	9	13	0	0	0	0	0	0	0	0	0	0.37%	7.78%
1996	17	21	38	3	0	3	0	0	0	0	0	0	0.56%	11.73%
1997	31	50	81	6	9	15	1	1	2	1	1	2	0.85%	18.06%
1998	32	47	79	12	11	23	1	2	3	1	1	2	0.92%	20.21%
1999	40	52	92	9	14	23	0	0	0	0	0	0	0.91%	18.00%
2000	54	48	102	19	18	37	1	1	2	1	0	1	1.06%	22.13%
2001	54	51	105	13	12	25	2	2	4	0	1	1	1.03%	21.47%
2002	72	53	125	29	23	52	1	5	6	0	2	2	1.27%	25.94%
2003	37	45	82	5	10	15	0	0	0	0	0	0	0.83%	17.00%
2004	20	21	41	0	0	0	0	0	0	0	0	0	0.54%	11.05%
2005	17	13	30	0	0	0	0	0	0	0	0	0	0.52%	10.24%
2006	13	16	29	0	2	2	0	0	0	0	0	0	0.47%	10.00%
2007	34	31	65	11	6	17	0	0	0	0	0	0	0.72%	15.92%
2008	75	59	134	41	31	72	15	13	28	11	7	18	1.74%	40.79%
2009	55	62	117	28	27	55	6	5	11	1	2	3	1.24%	27.18%
2010	37	39	76	10	12	22	0	1	1	0	0	0	0.80%	17.98%
2011	48	48	96	21	14	35	4	3	7	1	0	1	1.04%	23.18%
2012	21	29	50	3	3	6	0	0	0	0	0	0	0.59%	12.72%
2013	17	21	38	2	2	4	0	0	0	0	0	0	0.54%	11.02%
2014	19	19	38	4	2	6	0	0	0	0	0	0	0.53%	11.33%
2015	31	41	72	6	4	10	0	0	0	0	0	0	0.72%	15.43%
2016	22	26	48	5	4	9	0	0	0	0	0	0	0.58%	13.04%
2017	4	4	8	0	0	0	0	0	0	0	0	0	0.30%	6.66%
2018	32	32	64	15	5	20	1	1	2	0	0	0	0.74%	16.98%
2019	15	22	37	5	2	7	0	0	0	0	0	0	0.57%	12.42%
2020	45	64	109	25	19	44	9	8	17	5	5	10	1.35%	34.29%
Av28-20	**29**	**31**	**61**	**9**	**8**	**17**	**2**	**2**	**3**	**1**	**1**	**2**	**0.76%**	**18.73%**

** Based on daily closing prices*

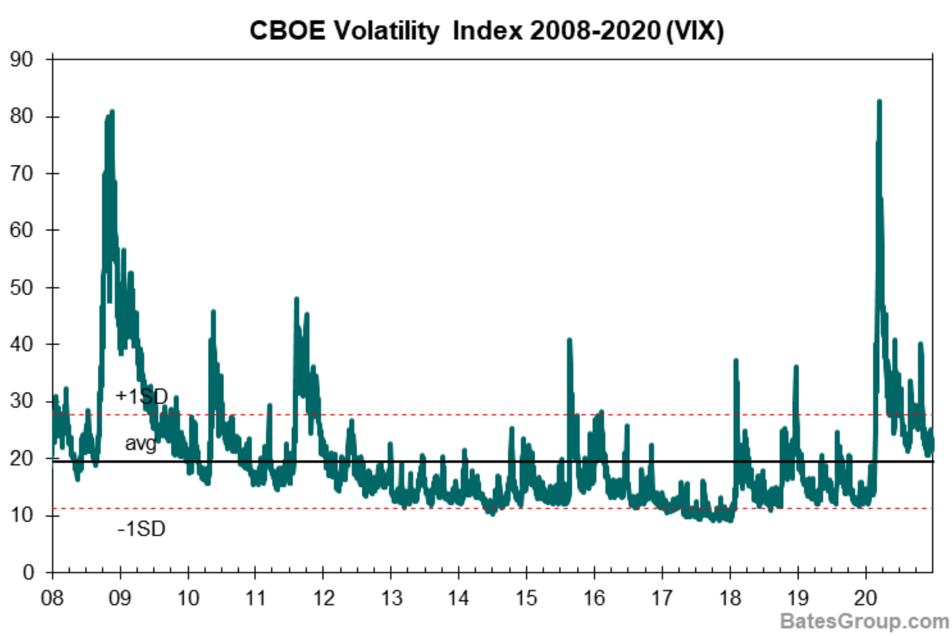
As the S&P 500 Index plunged 12%, and the Dow Jones Industrial Average fell 3,000 points, market volatility, as measured by the CBOE Volatility (VIX) Index, surged to a record high of 82.7 on March 16, 2020. This was the highest level experienced in the history of the VIX index.

The VIX Index is a measure of the *investors' expectation* of future short-term volatility and is composed of S&P 500 call and put options over a wide range of strike prices, with expirations between 23 and 37 days.



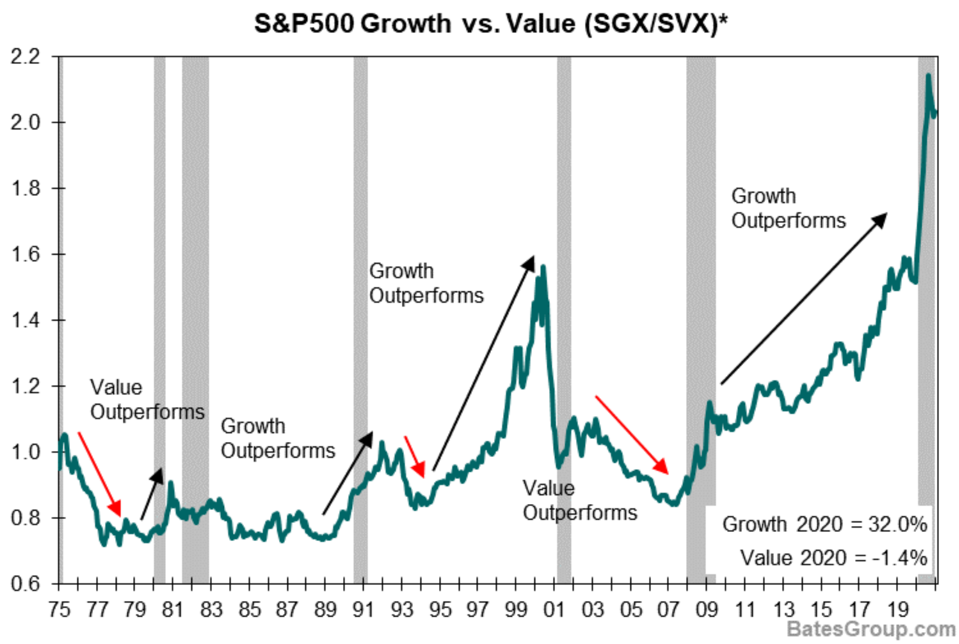
The two days with the greatest single-day increase in the history of the VIX occurred in March 2020.

On March 12, as the S&P Index fell 9.5% over COVID pandemic fears, the VIX Index jumped 21.57 points. Two trading days later on March 16, the VIX surged another 24.86 points as the S&P Composite Index plunged 12%.

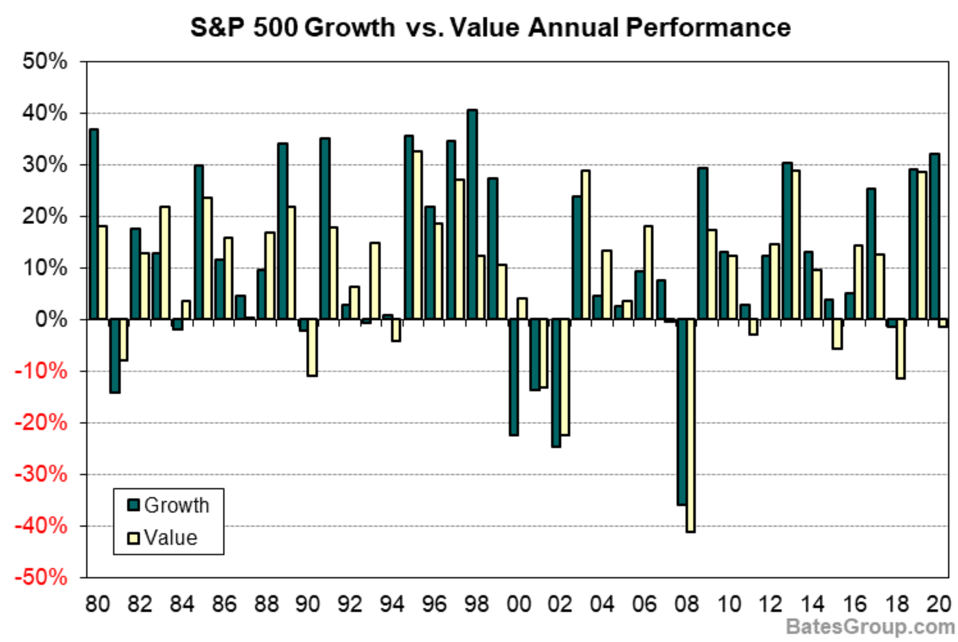


Growth vs. Value

In the trade-off between growth and value, growth stocks significantly outpaced value stocks with the S&P Growth Index up 32.0% for the year. In comparison, the Value Index was down 1.4% in 2020.



The chart to the right provides a more detailed performance comparison between growth and value styles over the past 40 years.



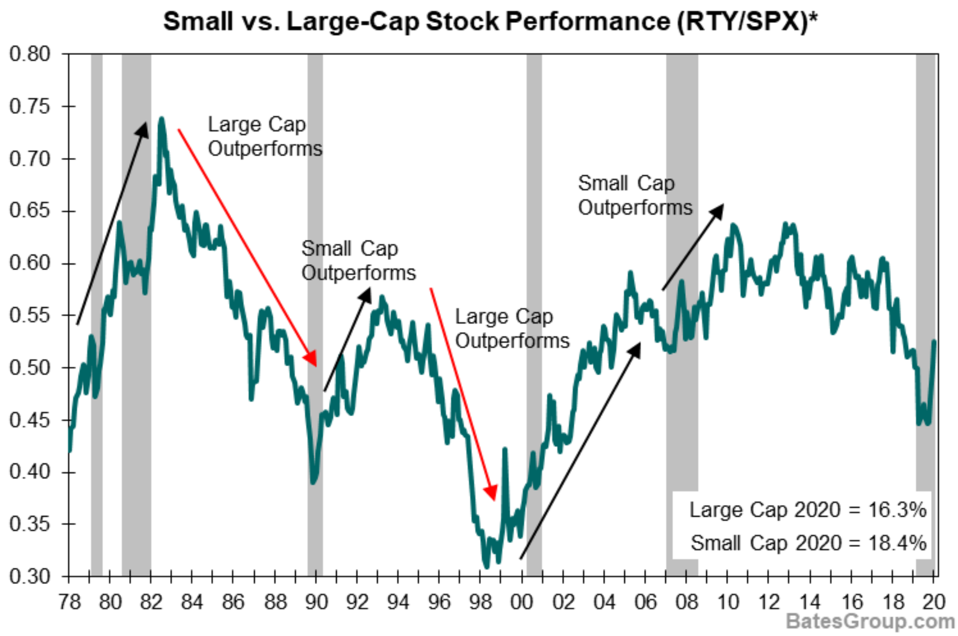
** Shaded areas represent recessions*

BATES RESEARCH

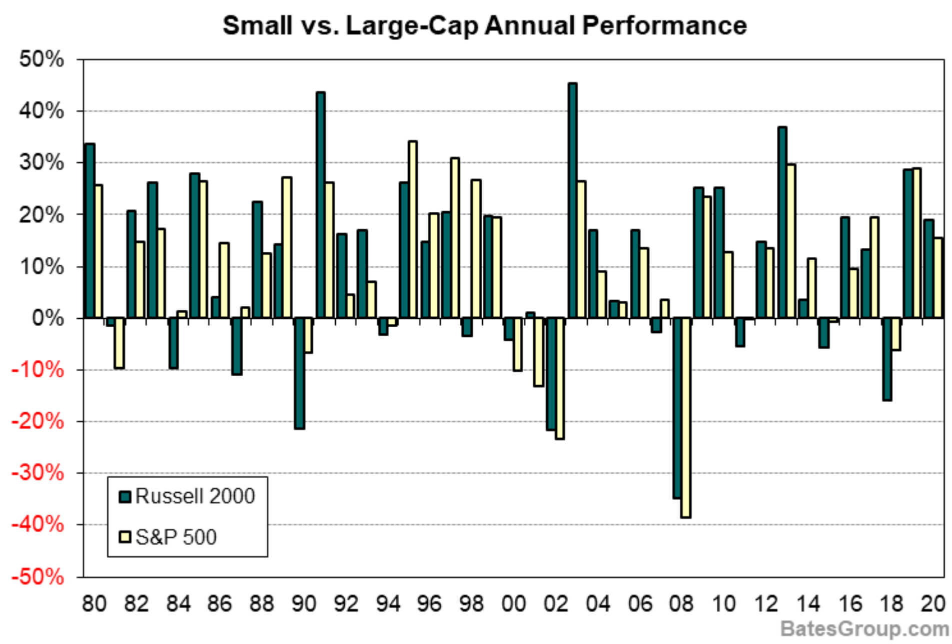
Large vs. Small

Small capitalization stocks, as represented by the Russell 2000 Index, gained 18.4% during the year. Large capitalization stocks, as represented by the S&P 500, lagged slightly, up 16.3% in 2020.

Both indices suffered significant losses in the first part of the year as fears over the impact of the COVID-19 pandemic roiled the markets.



Historically during recessions, neither investment styles tend to provide shelter. This can be seen in the chart to the right in which both indices declined during the 1990, 2000 and 2008 recessions.



** Shaded areas represent recessions*

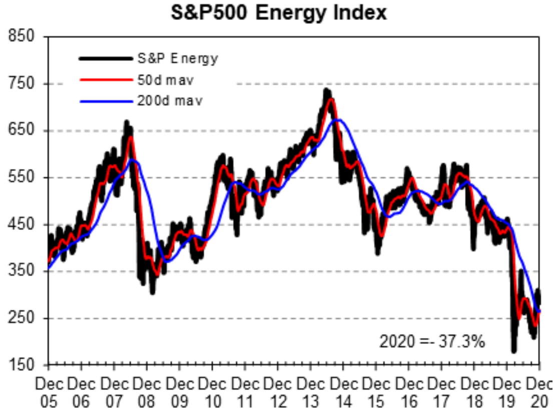
S&P 500 Sector Trends

The breadth of the stock market recovery in 2020 was mixed, with only half of S&P 500 sectors posting double-digit gains.

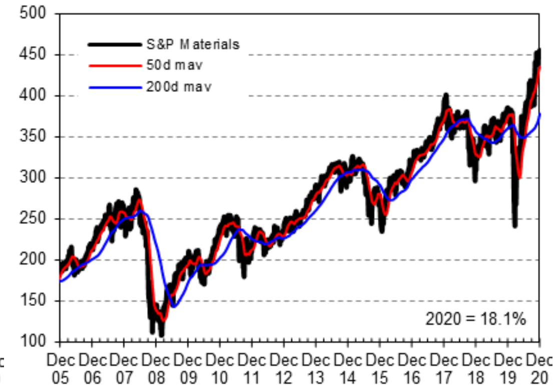
The information technology sector was the strongest performer in 2020 with a gain of 42.2%, followed by consumer discretionary which rose 32.1%.

Energy was the weakest sector of the year, falling 37.3%.

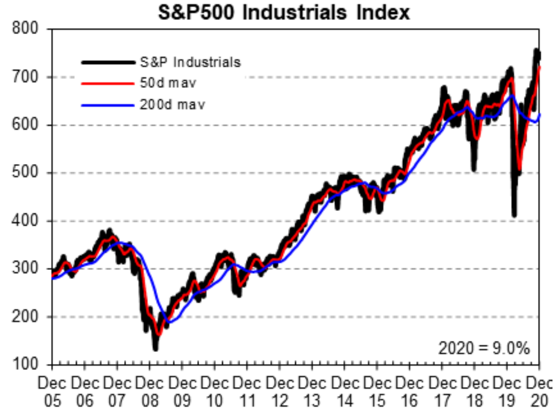
S&P500 Energy Index



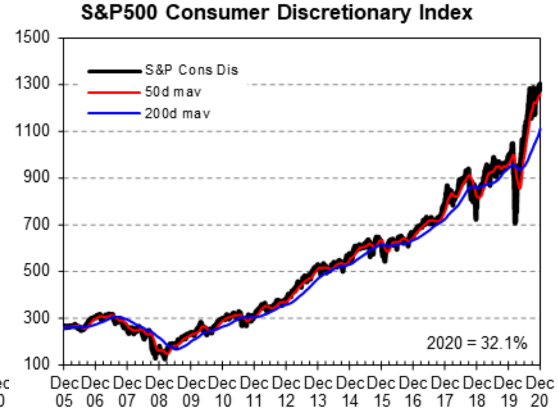
S&P500 Materials Index



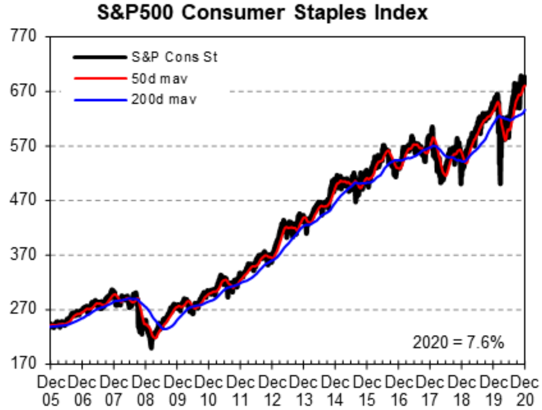
S&P500 Industrials Index



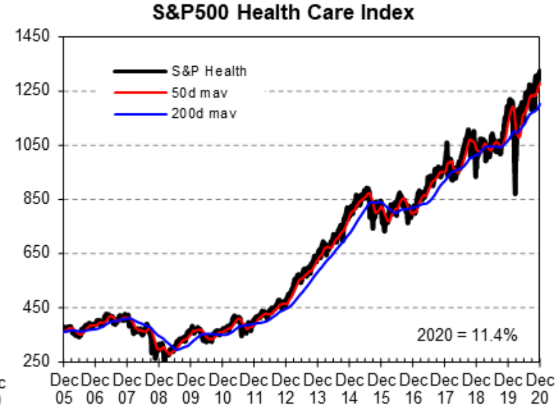
S&P500 Consumer Discretionary Index

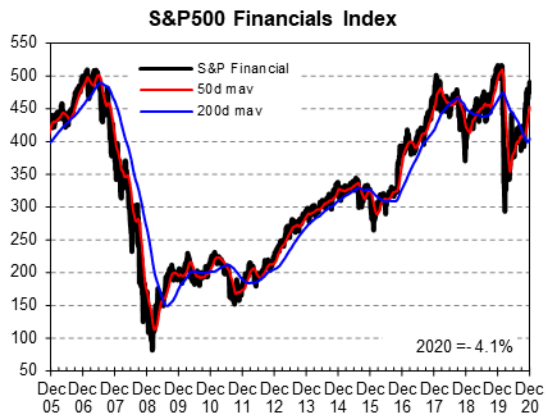


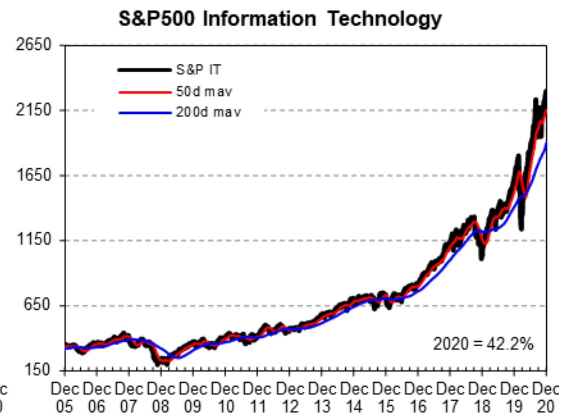
S&P500 Consumer Staples Index

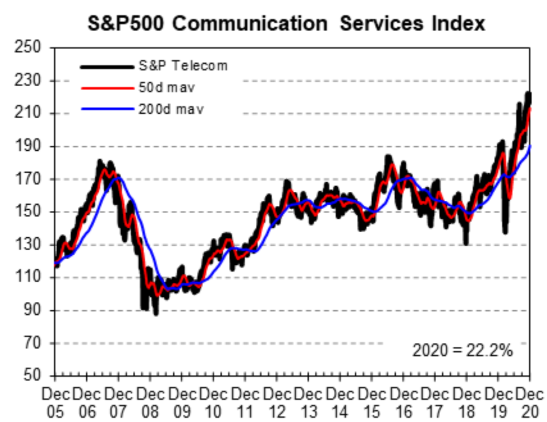


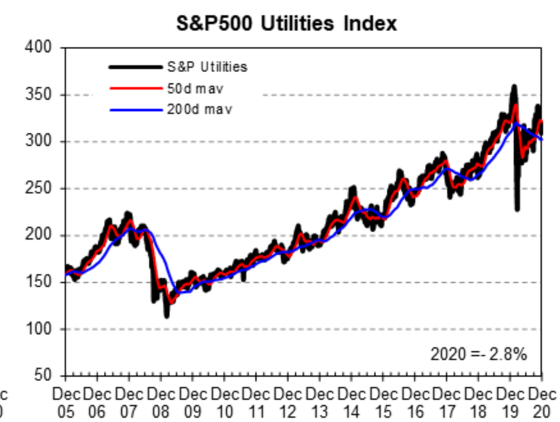
S&P500 Health Care Index




S&P500 Financials Index
S&P Financial
50d mav
200d mav
2020 = -4.1%


S&P500 Information Technology
S&P IT
50d mav
200d mav
2020 = 42.2%

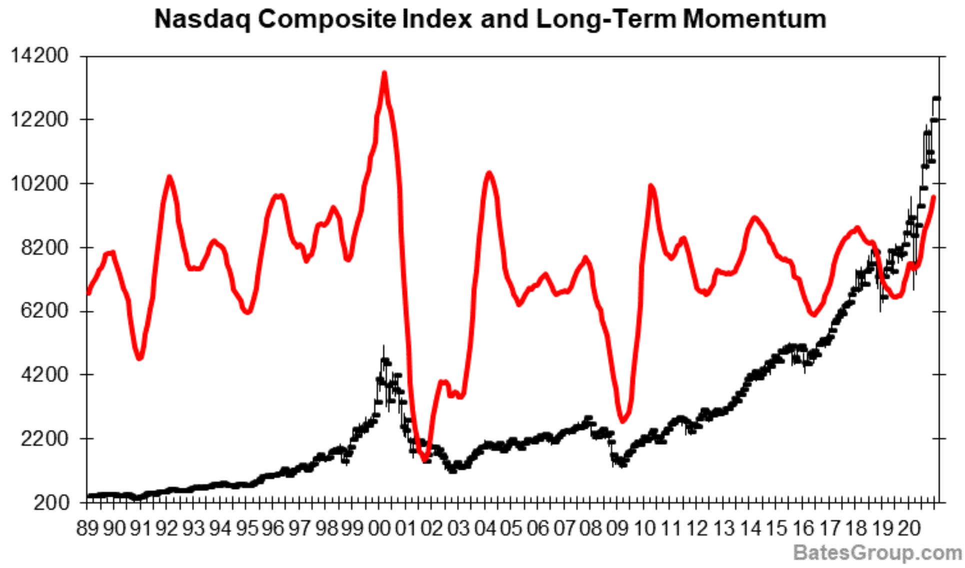

S&P500 Communication Services Index
S&P Telecom
50d mav
200d mav
2020 = 22.2%


S&P500 Utilities Index
S&P Utilities
50d mav
200d mav
2020 = -2.8%

Nasdaq Market Trends

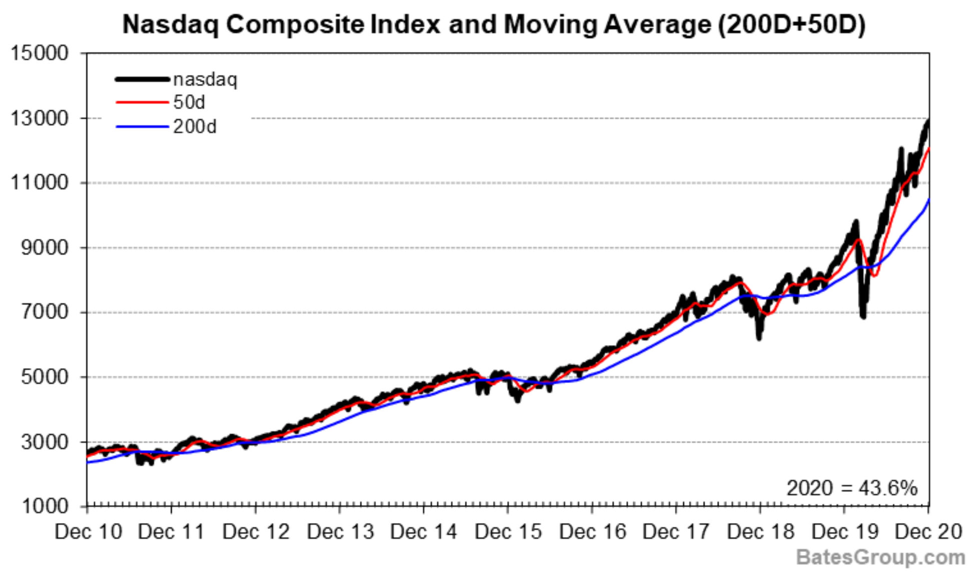
The tech-focused Nasdaq Composite Index finished 2020 up 43.6% as it rebounded from a pandemic-driven market sell-off in the first quarter of the year.

Tech stocks benefited from the shift to a remote workforce as the pandemic closed offices and forced employees to work from home.



In 2020 the Nasdaq Composite Index posted gains in eight of the twelve months of the year.

The tech-focused index finished the year strong with the Nasdaq up 18% in just the last two months.



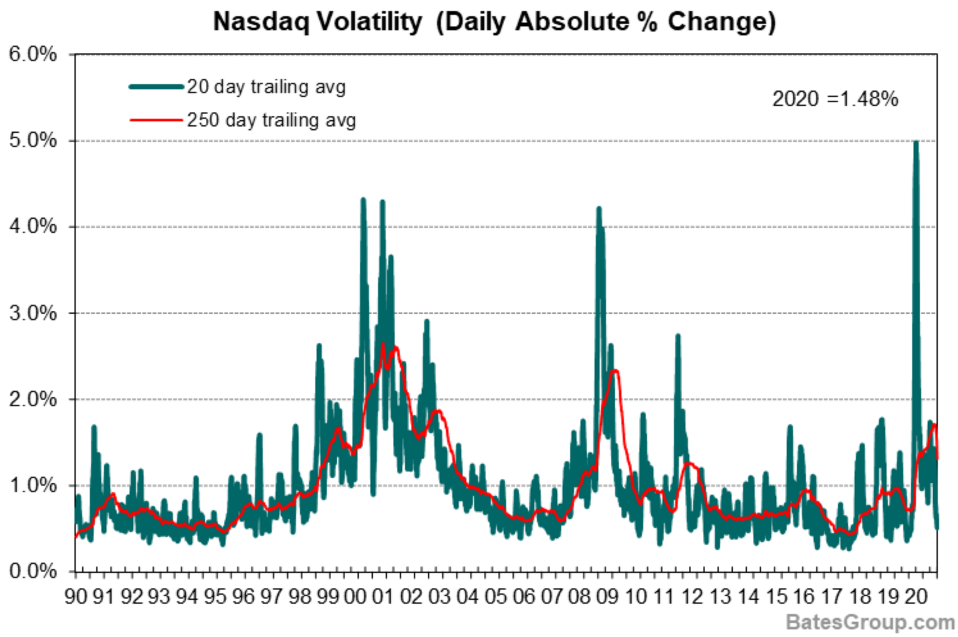
Nasdaq Monthly Performance (% change over previous month)

Month	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	85-20 Avg
Jan	-5.2%	4.6%	2.0%	-9.9%	-6.4%	-5.4%	1.8%	8.0%	4.1%	-1.7%	-2.1%	-7.9%	4.3%	7.4%	9.7%	2.0%	2.6%
Feb	-0.5%	-1.1%	-1.9%	-5.0%	-6.7%	4.2%	3.0%	5.4%	0.6%	5.0%	7.1%	-1.2%	3.8%	-1.9%	3.4%	-6.4%	0.9%
Mar	-2.6%	2.6%	0.2%	0.3%	10.9%	7.1%	-0.0%	4.2%	3.4%	-2.5%	-1.3%	6.8%	1.5%	-2.9%	2.6%	-10.1%	0.7%
Apr	-3.9%	-0.7%	4.3%	5.9%	12.3%	2.6%	3.3%	-1.5%	1.9%	-2.0%	0.8%	-1.9%	2.3%	0.0%	4.7%	15.4%	1.5%
May	7.6%	-6.2%	3.1%	4.6%	3.3%	-8.3%	-1.3%	-7.2%	3.8%	3.1%	2.6%	3.6%	2.5%	5.3%	-7.9%	6.8%	1.5%
Jun	-0.5%	-0.3%	-0.0%	-9.1%	3.4%	-6.5%	-2.2%	3.8%	-1.5%	3.9%	-1.6%	-2.1%	-0.9%	0.9%	7.4%	6.0%	0.9%
Jul	6.2%	-3.7%	-2.2%	1.4%	7.8%	6.9%	-0.6%	0.2%	6.6%	-0.9%	2.8%	6.6%	3.4%	2.2%	2.1%	6.8%	0.9%
Aug	-1.5%	4.4%	2.0%	1.8%	1.5%	-6.2%	-6.4%	4.3%	-1.0%	4.8%	-6.9%	1.0%	1.3%	5.7%	-2.6%	9.6%	0.3%
Sep	-0.0%	3.4%	4.0%	-11.6%	5.6%	12.0%	-6.4%	1.6%	5.1%	-1.9%	-3.3%	1.9%	1.0%	-0.8%	0.5%	-5.2%	-0.5%
Oct	-1.5%	4.8%	5.8%	-17.7%	-3.6%	5.9%	11.1%	-4.5%	3.9%	3.1%	9.4%	-2.3%	3.6%	-9.2%	3.7%	-2.3%	0.8%
Nov	5.3%	2.7%	-6.9%	-10.8%	4.9%	-0.4%	-2.4%	1.1%	3.6%	3.5%	1.1%	2.6%	2.2%	0.3%	4.5%	11.8%	1.9%
Dec	-1.2%	-0.7%	-0.3%	2.7%	5.8%	6.2%	-0.6%	0.3%	2.9%	-1.2%	-2.0%	1.1%	0.4%	-9.5%	3.5%	5.7%	2.0%

BATES RESEARCH

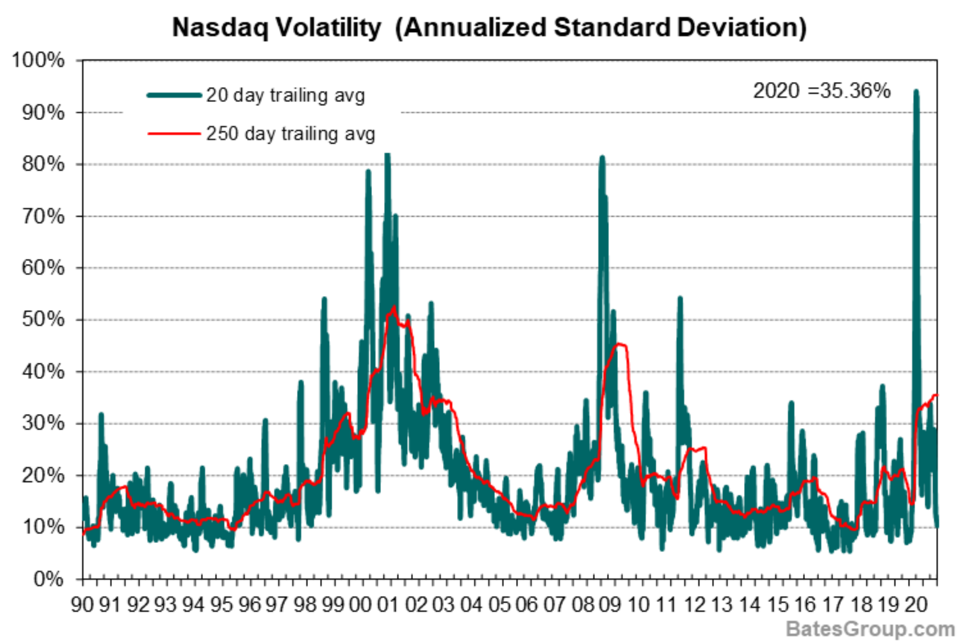
Volatility, as measured by daily price swings, increased substantially with the Nasdaq Composite Index moving up or down 1.48% each day on average in 2020. In comparison, the absolute average daily price change in 2019 was 0.73%.

The long-term average volatility, as measured by absolute daily price swings is ±0.90%.



Volatility as measured by the traditional metric of standard deviation was 35.4% in 2020.

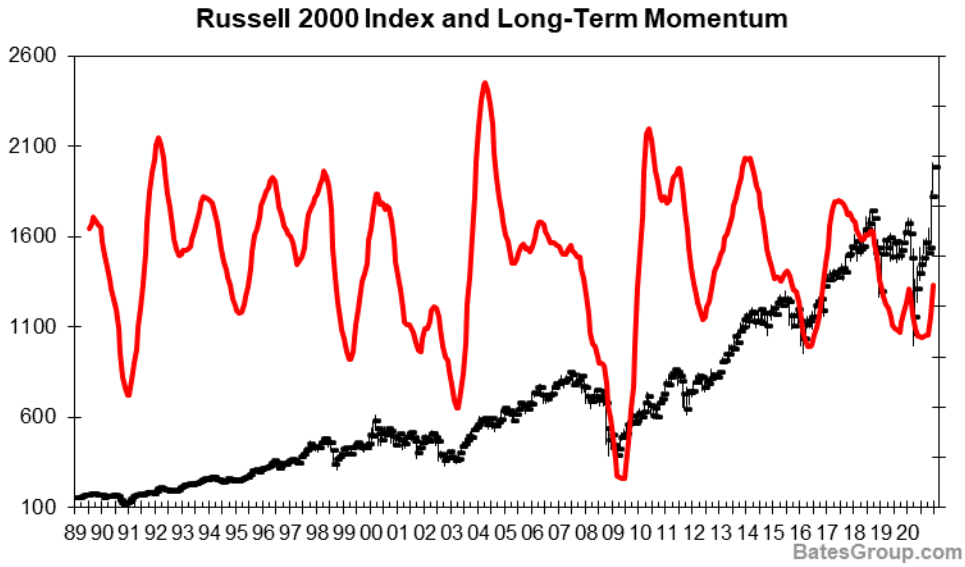
In contrast, the long-term average annual volatility (1985-2020) for the Nasdaq Composite Index has been 22.0%.

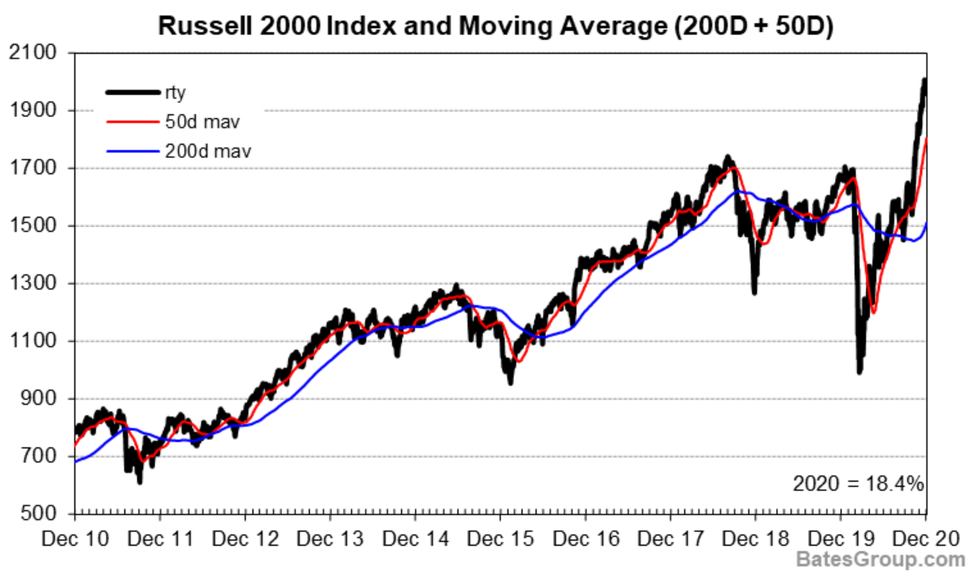


Russell 2000 Market Trends

Small cap stocks as measured by the Russell 2000 Index closed the year up 18.4%.

In the last quarter of 2020, the small cap index gained 31.0%.





Russell 2000 Monthly Performance (% change over previous month)

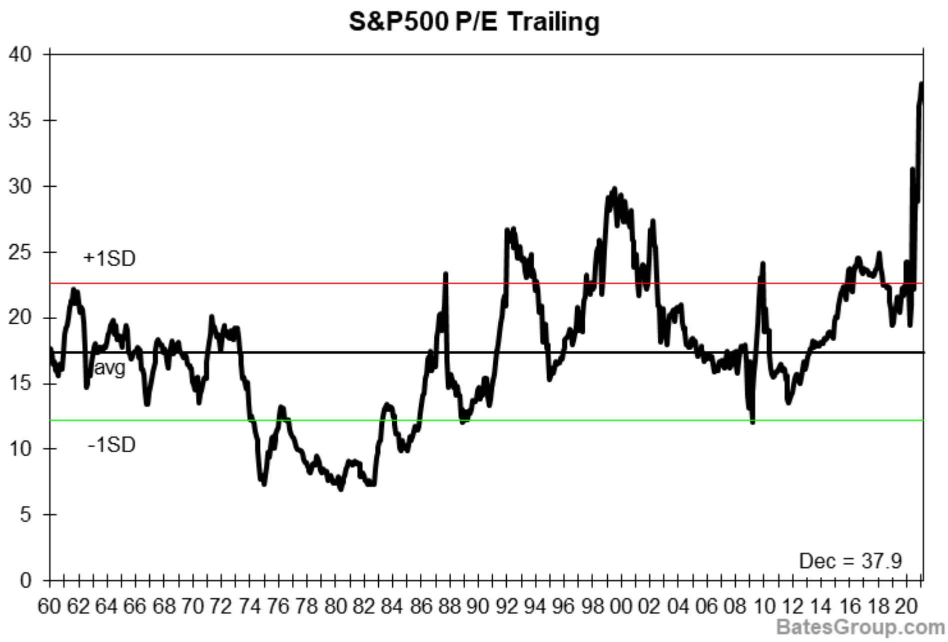
Month	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	86-20 Avg
Jan	-4.2%	8.9%	1.6%	-6.9%	-11.2%	-3.7%	-0.3%	7.0%	6.2%	-2.8%	-3.3%	-8.8%	0.3%	2.6%	16.0%	-3.2%	1.1%
Feb	1.6%	-0.3%	-0.9%	-3.8%	-12.3%	4.4%	5.4%	2.3%	1.0%	4.6%	5.8%	-0.1%	1.8%	-4.0%	5.1%	-8.5%	1.4%
Mar	-3.0%	4.7%	0.9%	0.3%	8.7%	8.0%	2.4%	2.4%	4.4%	-0.8%	1.6%	7.8%	-0.1%	1.1%	-2.3%	-21.9%	1.0%
Apr	-5.8%	-0.1%	1.7%	4.1%	15.3%	5.6%	2.6%	-1.6%	-0.4%	-3.9%	-2.6%	1.5%	1.0%	0.8%	3.3%	13.7%	1.5%
May	6.4%	-5.7%	4.0%	4.5%	2.9%	-7.7%	-2.0%	-6.7%	3.9%	0.7%	2.2%	2.1%	-2.2%	5.9%	-6.6%	6.4%	1.3%
Jun	3.7%	0.5%	-1.6%	-7.8%	1.3%	-7.9%	-2.5%	4.8%	-0.7%	5.2%	0.6%	-0.2%	3.3%	0.6%	5.5%	3.4%	0.6%
Jul	6.3%	-3.3%	-6.9%	3.6%	9.5%	6.8%	-3.7%	-1.4%	6.9%	-6.1%	-1.2%	5.9%	0.7%	1.7%	0.5%	2.7%	-0.3%
Aug	-1.9%	2.9%	2.2%	3.5%	2.8%	-7.5%	-8.8%	3.2%	-3.3%	4.8%	-6.4%	1.6%	-1.4%	4.2%	-5.1%	5.5%	-0.2%
Sep	0.2%	0.7%	1.6%	-8.1%	5.6%	12.3%	-11.4%	3.1%	6.2%	-6.2%	-5.1%	0.9%	6.1%	-2.5%	1.9%	-3.5%	-0.3%
Oct	-3.2%	5.7%	2.8%	-20.9%	-6.9%	4.0%	15.0%	-2.2%	2.5%	6.5%	5.6%	-4.8%	0.8%	-10.9%	2.6%	2.0%	-0.7%
Nov	4.7%	2.5%	-7.3%	-12.0%	3.0%	3.4%	-0.5%	0.4%	3.9%	-0.0%	3.1%	11.0%	2.8%	1.4%	4.0%	18.3%	2.0%
Dec	-0.6%	0.2%	-0.2%	5.6%	7.9%	7.8%	0.5%	3.3%	1.8%	2.7%	-5.2%	2.6%	-0.6%	-15.7%	2.7%	8.5%	2.5%

BATES RESEARCH

Equity Valuation

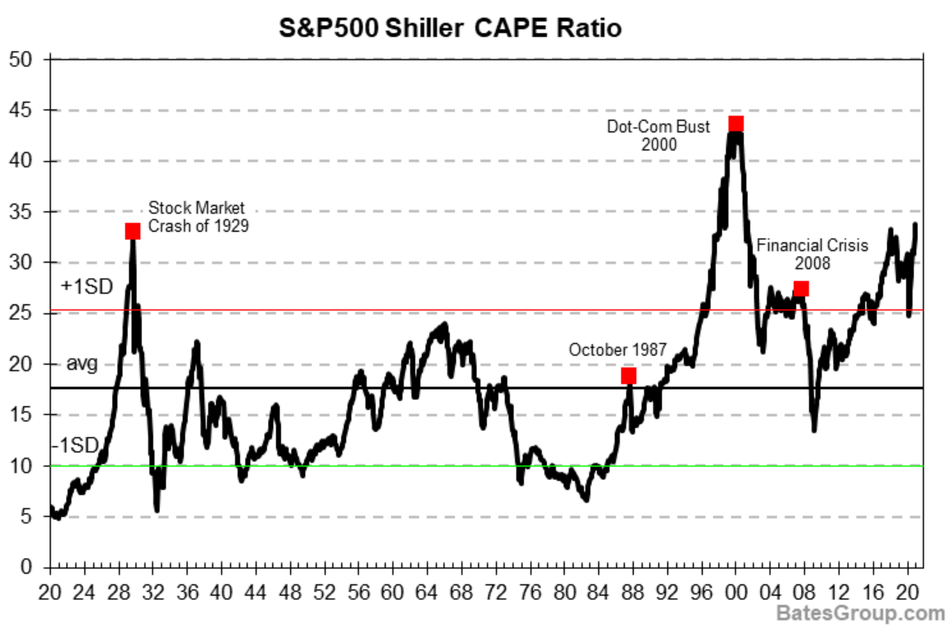
Earnings growth turned negative in 2020 with estimated operating profits for the S&P 500 falling 22% over the prior year.* Nearly a quarter of the earnings (24.4%) came from the Information Technology Sector.

Notwithstanding a significant drop in profits, the S&P 500 Index closed 2020 trading at a record 37.9 times trailing twelve-month earnings. This historically high P/E ratio valuation is more than double the average from 1960-2020.



The CAPE ratio is at historically high levels compared to prior market peaks. Although it is not as high as the top of the market just prior to the Dot-com crash, it does surpass the peak just prior to the Stock Market Crash of 1929.

The CAPE ratio, developed by Nobel Laureate Robert Shiller, is a cyclically adjusted price/earnings ratio. This valuation measure smooths out economic cycles by using 10-year average earnings.

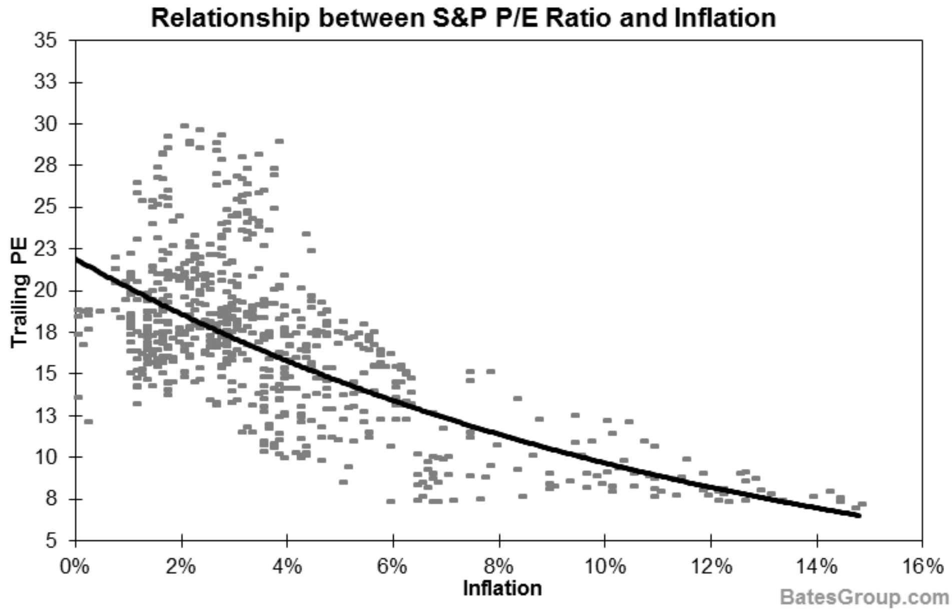


** Standard and Poor's estimate*

Lower inflation rates tend to lead to higher equity market valuations and vice versa.

The chart to the right shows the relationship between P/E ratios (S&P 500) and inflation over the past 60 years.

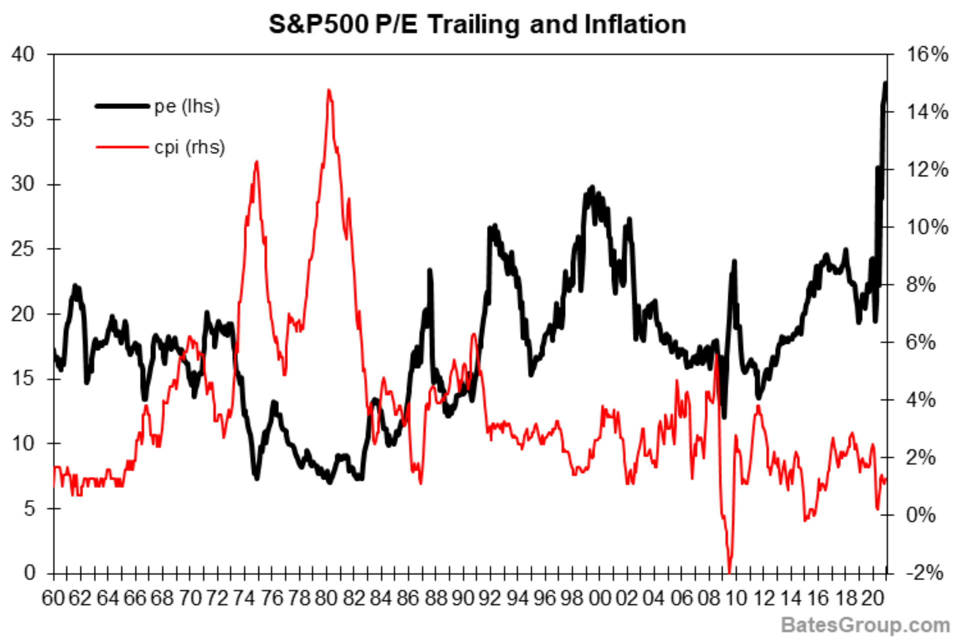
In similar periods when inflation has been below 3.5%, the S&P 500 has traded in a range of 11 to 30 times trailing earnings.



Here is another view showing the relationship between P/E ratios and inflation.

P/Es have tended to be higher in low inflation periods and vice versa.

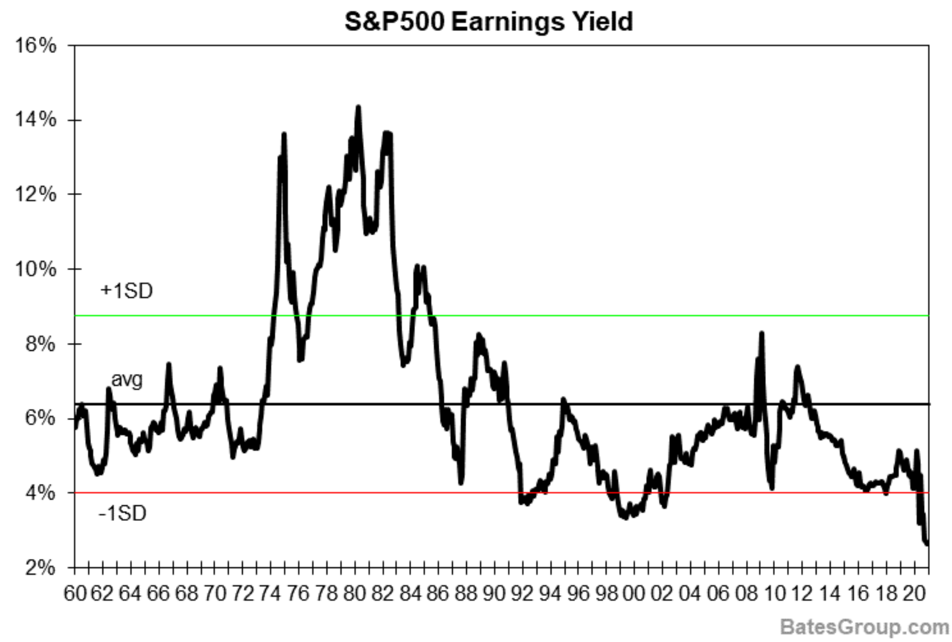
Trailing P/E if inflation is:	<3.5%	3.5-5%	>5%
Low	11.0	9.8	7.0
Avg.	**19.2**	**15.8**	**11.3**
High	30.2	29.3	18.2
-1SD	15.2	12.0	8.0
+1SD	23.3	19.7	14.6



BATES RESEARCH

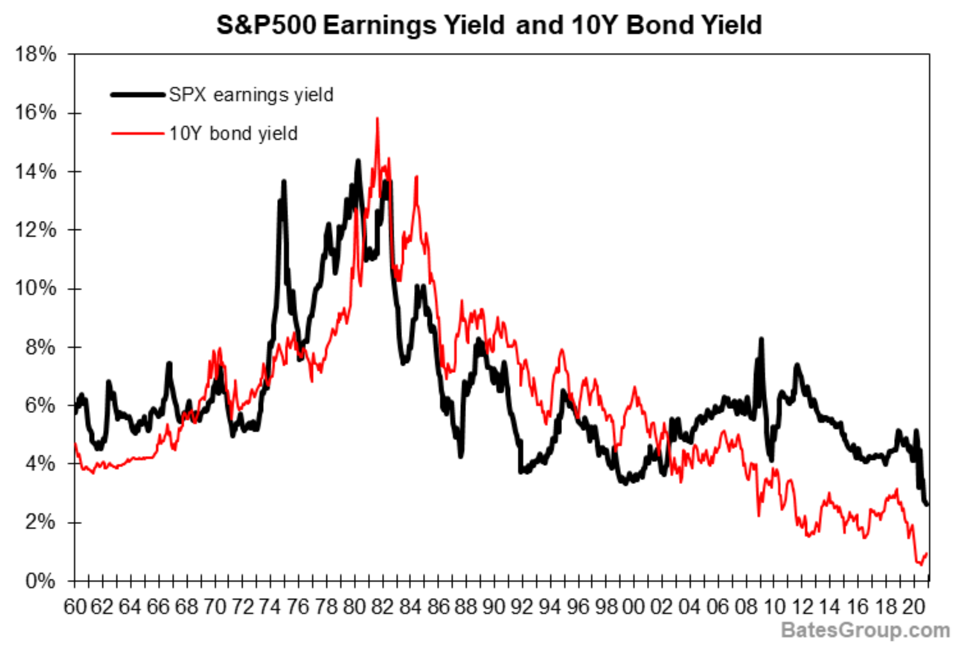
The earnings yield (inverse of the P/E ratio) has remained below the long-term average in 2020 suggesting an overvalued market.

It's worth bearing in mind that the high earnings yield (and low P/Es) of the 1970's and early 1980's was a function of high inflation and double-digit interest rates.



Historically, there has been a high correlation between the level of interest rates and stock market valuations.

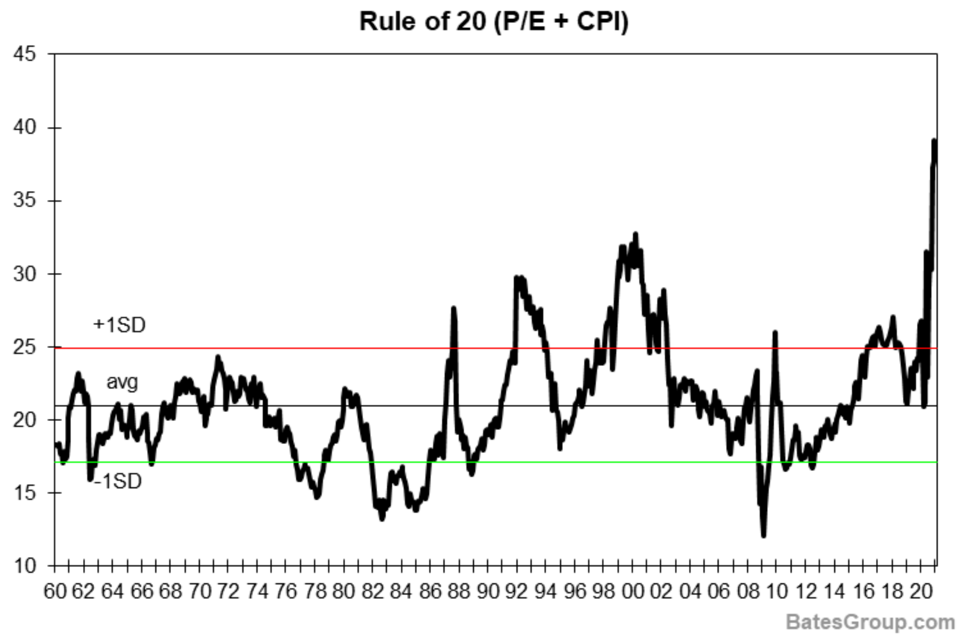
As can be seen by the chart on the right, lower interest rates tend to lead to higher equity market valuations (lower earnings yield) and vice versa.



The Rule of 20 is a popular measure to assess P/E ratios for the broader market, adjusting for inflation.

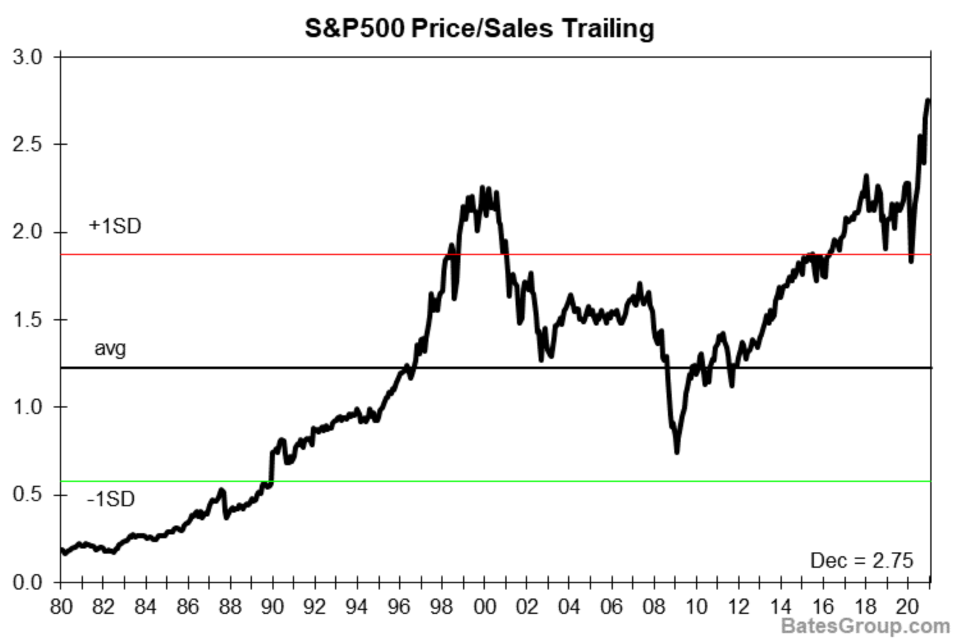
Taking inflation into account, but ignoring the impact of interest rates, the S&P 500 appears to be significantly overvalued.

As of the end of 2020, this valuation measure is more than two standard deviations above the average for the past 60 years.



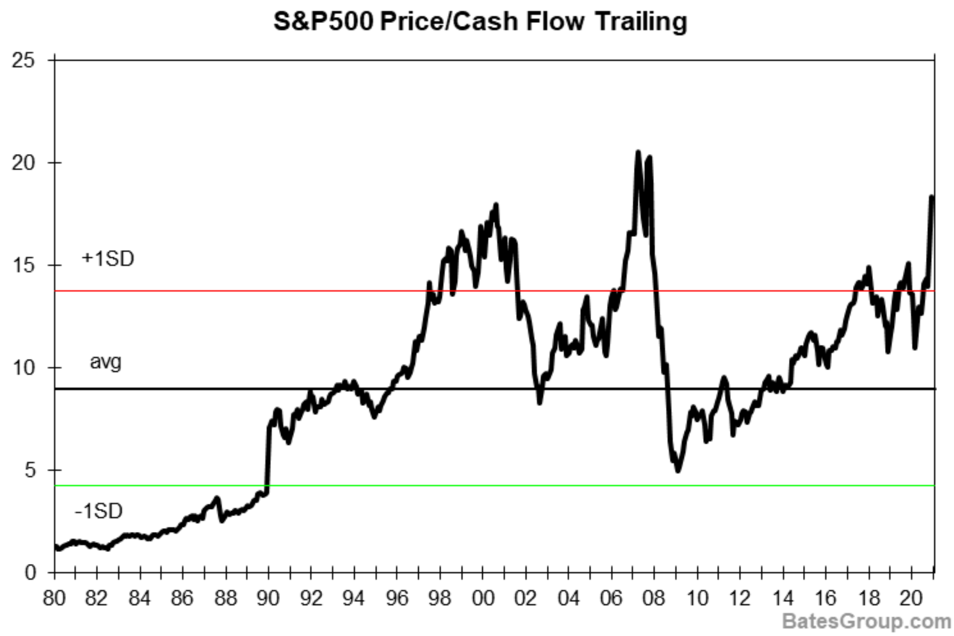
By another measure of equity market valuation, the S&P 500 is trading significantly above long-term average levels.

Currently, investors are paying 2.75 times trailing 12-month sales for the broader market. The historic average has been 1.22x sales.

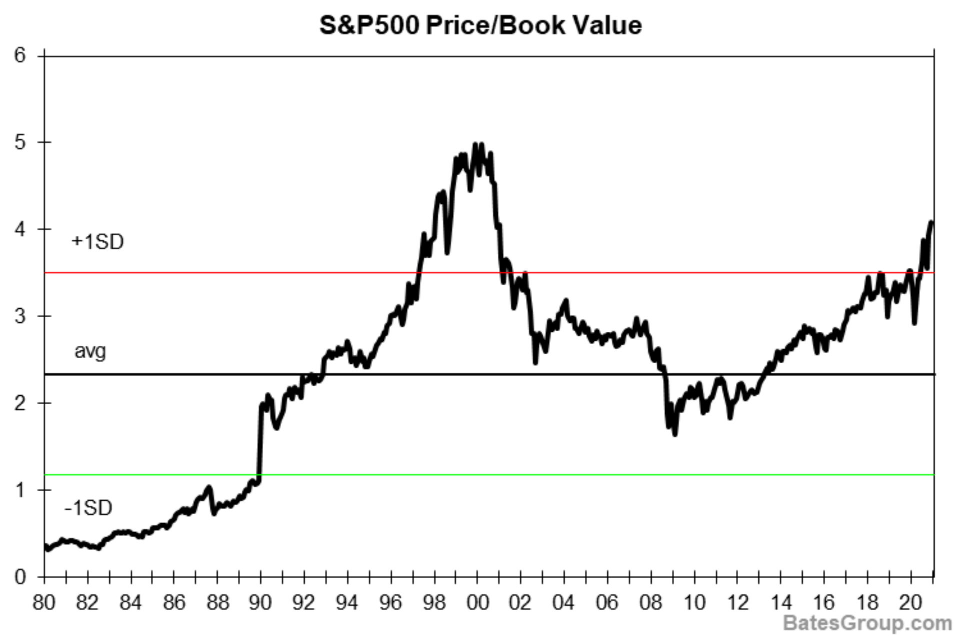


BATES RESEARCH

Valuation for the broader market, if measured by price to cash flow, is also at historically high levels similar to the periods just prior to the Dot-com crash in 2000 and the financial crisis in 2008.



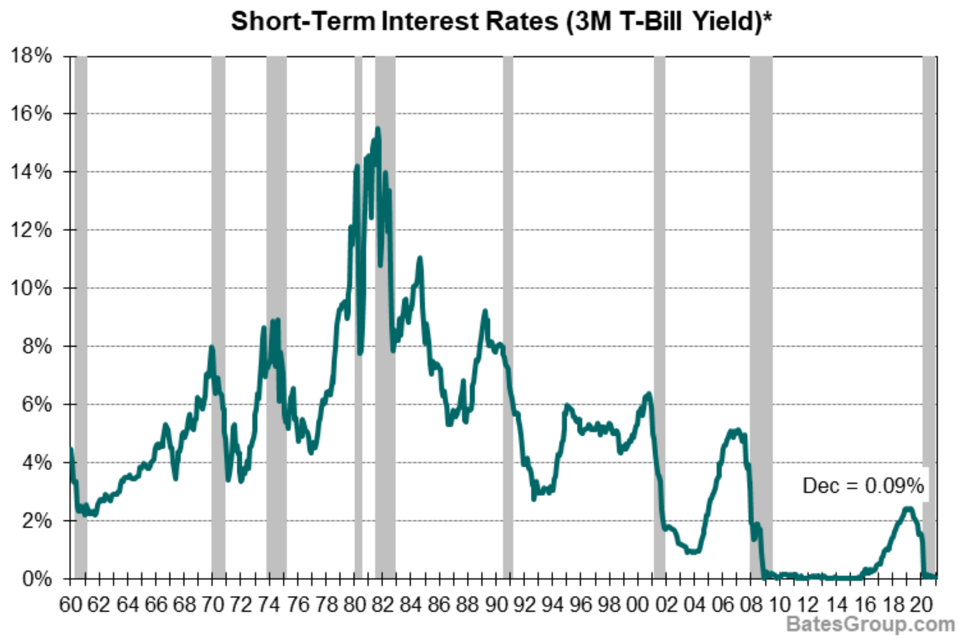
Price-to-book value is another common valuation metric. By this measure, the S&P 500 Index appears moderately overvalued.



Credit Market Trends – Interest Rates

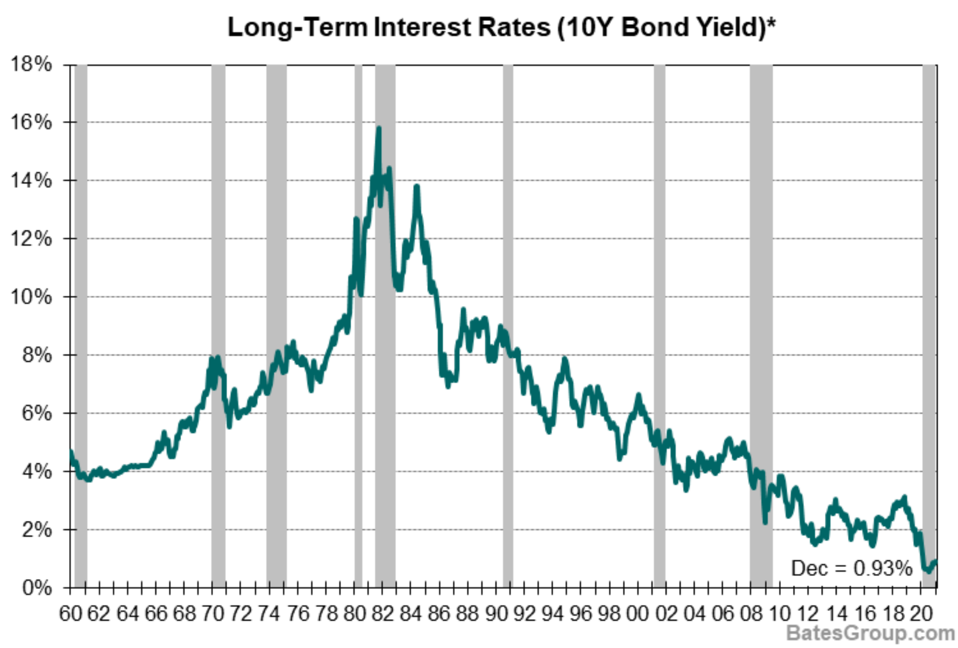
During 2020 the yield on three-month Treasury bills fell from 1.55% at the end of 2019 to just 0.09% at the end of December.

When uncertainty over the economic fallout from the pandemic was at its highest in March of last year, yields on one-month T-bills briefly turned negative. This negative yield reflected investors' flight to safety and willingness to take a small, yet known loss over a potentially larger unknown loss in other investments.



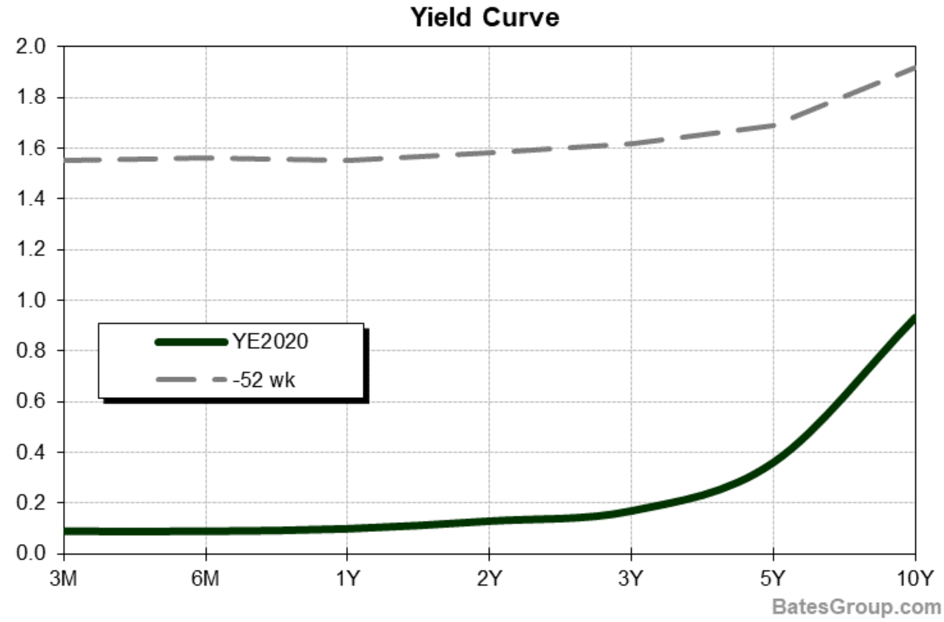
Long-term Treasury yields (10Y) fell in 2020 to finish the fourth quarter at 0.93%. This is down from 1.92% at the end of 2019.

During the year, the Federal Reserved purchased over $2 trillion in longer-term Treasuries, helping to keep rates low.



** Shaded areas represent recessions*
Source: Federal Reserve, Pegasus Research

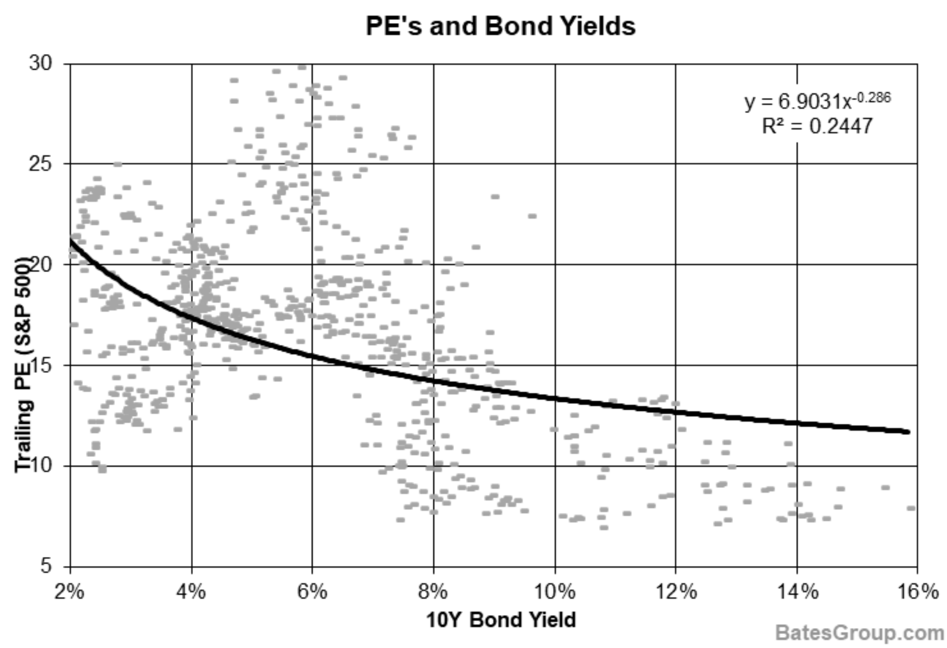
The yield curve steepened in the later part of 2020, indicating investors' belief that the economic outlook had strengthened.



To the right is another view of the relationship between interest rates and equity valuations.

PEs tend to be higher when long-term rates are low and vice versa.

PE if interest rates:	**<6%**	**6-9%**	**>9%**
Low	9.8	7.3	7.0
Avg.	**17.8**	**16.5**	**10.2**
High	30.2	29.8	22.4
-1SD	13.7	11.5	15.3
+1SD	21.9	21.5	20.3

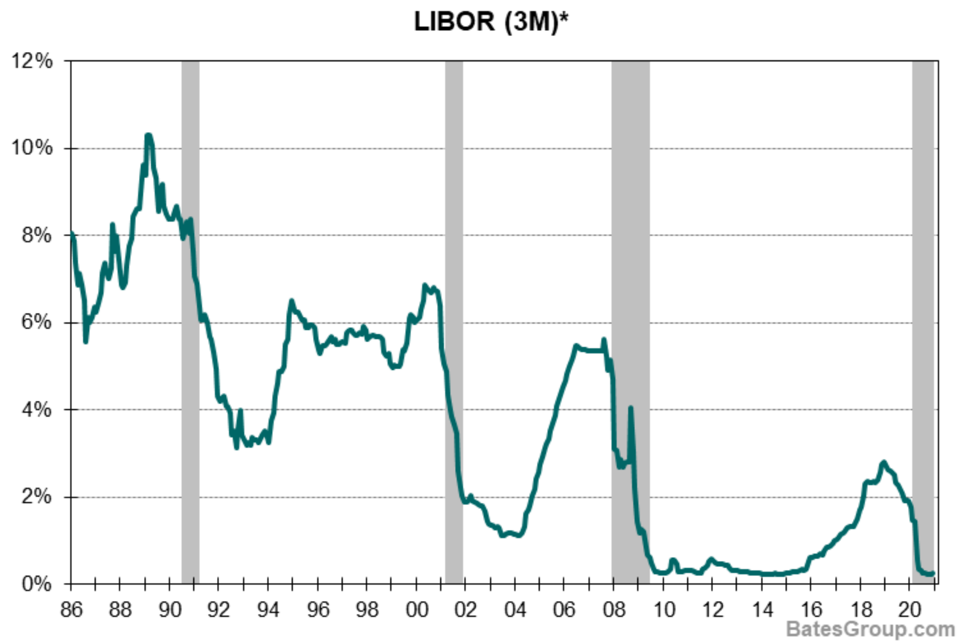


** Shaded areas represent recessions*
Source: Federal Reserve, Pegasus Research

LIBOR & SOFR Rates

Three month forward LIBOR (London Interbank Offering Rate) declined significantly in 2020, with the Eurodollar rate falling to 0.24% at year end 2020 from 1.91% at the end of 2019.

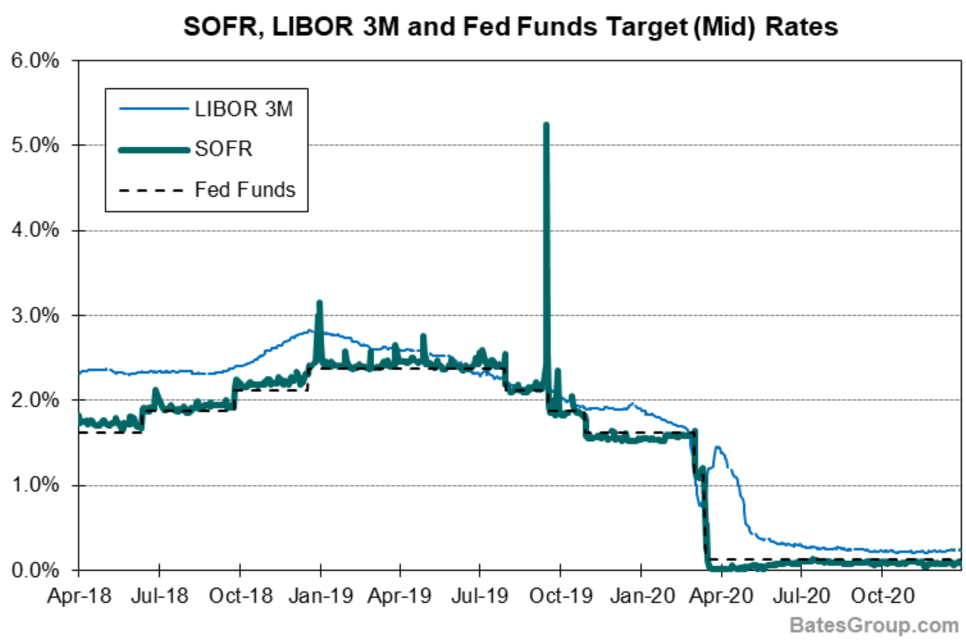
Volume in the underlying rates continue to remain light as world financial markets begin the transition to the end of LIBOR as a short-term reference rate in 2021.



In April 2018, SOFR (Secured Overnight Financing Rate) was introduced in the U.S. as an alternative to dollar-denominated LIBOR rates.

The major distinction between SOFR and LIBOR is that SOFR is based on actual overnight rates (secured by US Treasuries), while LIBOR is based on a survey of what banks would likely charge (unsecured) other banks for overnight lending.

Since launching in early April 2018, SOFR had closely tracked Federal Funds Target rates, with the exception of a spike in September 2019.

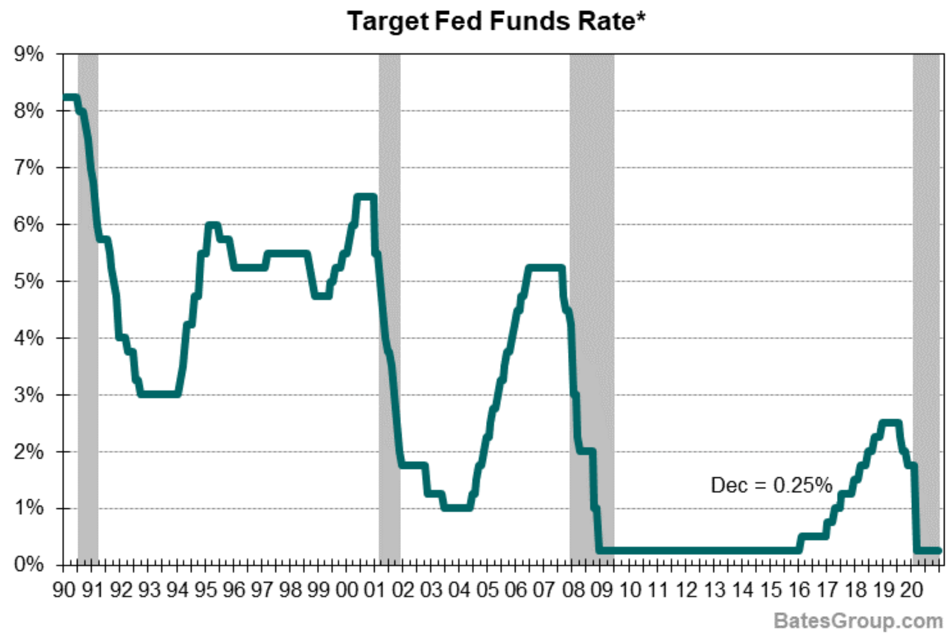


** Shaded areas represent recessions*
Source: Federal Reserve, Pegasus Research

Federal Funds Rate

In response to the anticipated economic fallout due to the COVID-19 pandemic, the Fed slashed rates in March 2020 to a target of 0.00% to 0.25%.

In cutting interest rates to essentially 0%, the Federal Reserve based the decision on how the coronavirus outbreak had severely disrupted economic activity in the U.S.



Changes in the Federal Funds Rate (2003-2020)

	Change (basis points)				Change (basis points)				Change (basis points)		
Date	(+)	(-)	Level (%)	Date	(+)	(-)	Level (%)	Date	(+)	(-)	Level (%)
2020				**2015**				**2005**			
15-Mar		100	0.00-0.25	17-Dec	25	...	0.25-0.50	13-Dec	...	25	4.250
4-Mar		50	1.00-1.25	**2008**				1-Nov	...	25	4.000
2019				16-Dec	...	75-100	0.00-0.25	20-Sep	...	25	3.750
31-Oct	...	25	1.50-1.75	29-Oct	...	50	1.00	9-Aug	25	...	3.500
19-Sep	...	25	1.75-2.00	8-Oct	...	50	1.50	30-Jun	25	...	3.250
1-Aug	...	25	2.00-2.25	30-Apr	...	25	2.00	3-May	25	...	3.000
2018				18-Mar	...	75	2.25	22-Mar	25	...	2.750
20-Dec	25	...	2.25-2.50	30-Jan	...	50	3.00	2-Feb	25	...	2.500
27-Sep	25	...	2.00-2.25	22-Jan	...	75	3.50	**2004**			
14-Jun	25	...	1.75-2.00	**2007**	...			14-Dec	25	...	2.250
22-Mar	25	...	1.50-1.75	11-Dec	...	25	4.250	10-Nov	25	...	2.000
2017				31-Oct	...	25	4.500	21-Sep	25	...	1.750
14-Dec	25	...	1.25-1.50	18-Sep	...	50	4.750	10-Oct	25	...	1.500
15-Jun	25	...	1.00-1.25	**2006**				30-Jun	25	...	1.250
16-Mar	25	...	0.75-1.00	29-Jun	25	...	5.250	**2003**			
2016				10-May	25	...	5.000	25-Jun	...	25	1.00
15-Dec	25	...	0.50-0.75	31-Jan	25	...	4.750				

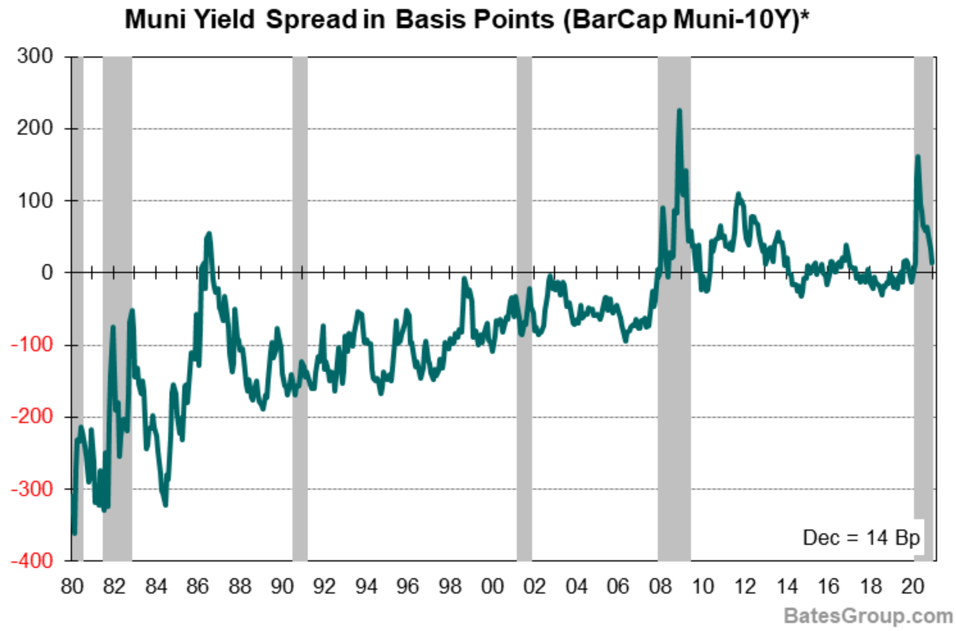
** Shaded areas represent recessions*
Source: Federal Reserve, Pegasus Research

Municipal Bonds

Municipal bond performance was positive in 2020, with the S&P Municipal Bond Index up 4.96%.

Yields fell in 2020 with investment-grade municipal bonds yielding 0.98% at year-end 2020 compared to 1.71% a year earlier.

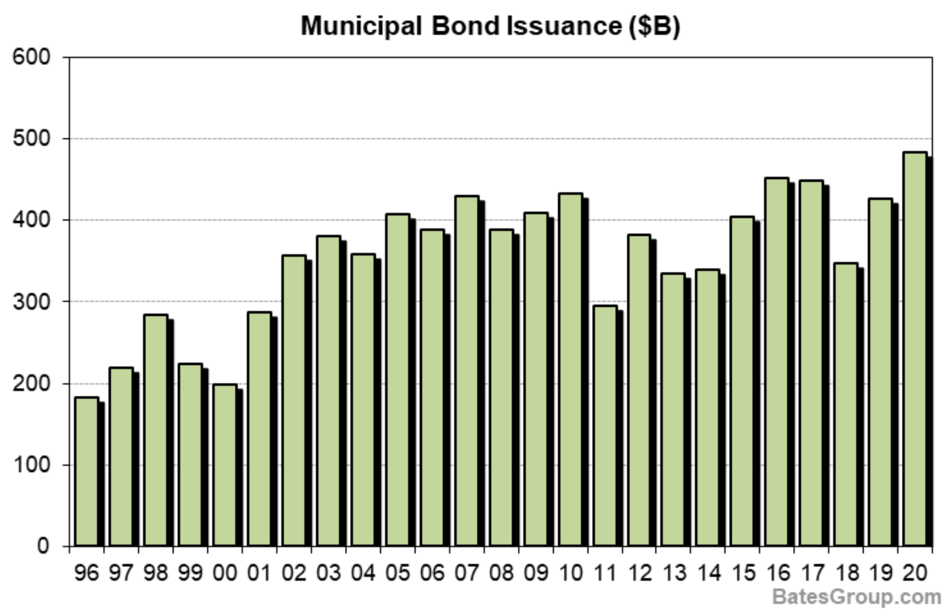
After jumping to 5.89% in March 2020, high-yield municipal bond yields fell to 3.53% at year-end 2020.



Municipal bond issuance increased 13.6% in 2020 to $484.4 billion.

The increase in issuance was the highest on record as issuers took advantage of historically low interest rates.

Revenue bonds accounted for 58.8% of municipal bonds issued in 2020, and refunding accounting for 43.2% of all issuance.



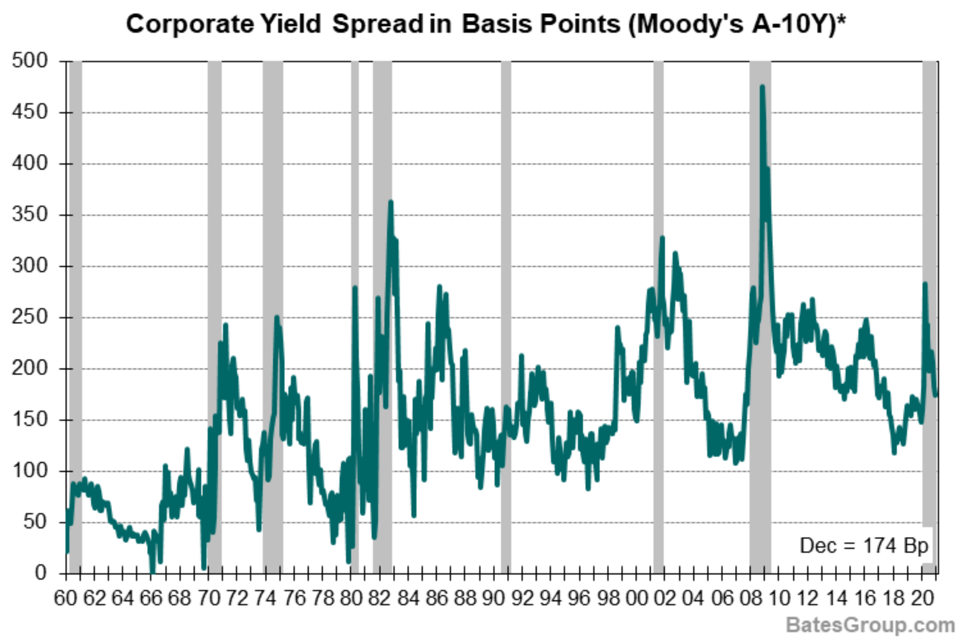
** Shaded areas represent recessions*
Source: Bloomberg, SIFMA, Standard & Poor's, Thomson Reuters, MSRB

BATES RESEARCH

Corporate Bonds

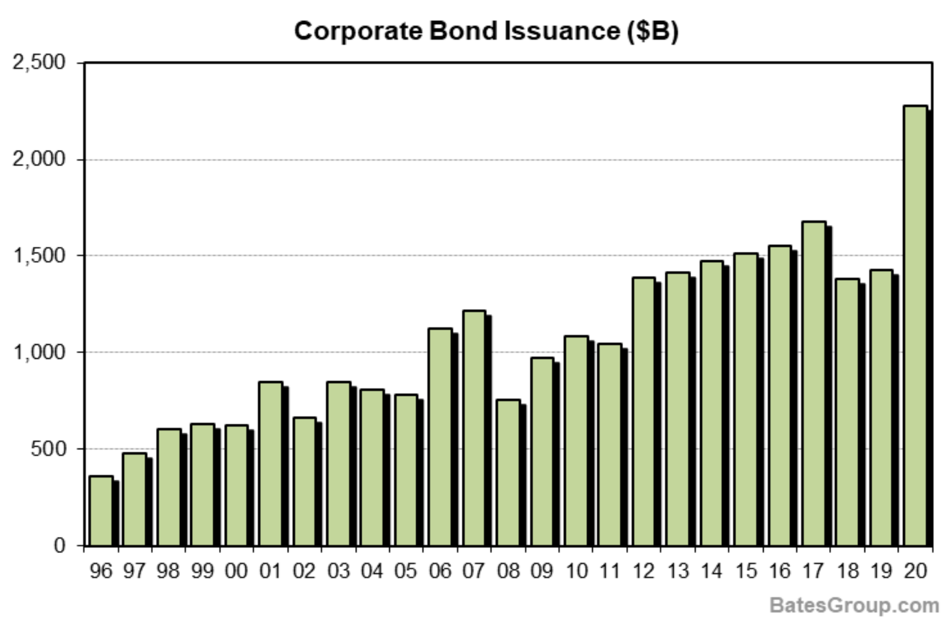
U.S. corporate bond spreads declined during the last seven months of 2020, with the spread on Moody's A-rated Bond Index closing the year at 174 basis points. This compares to a risk spread of 283 basis points in March.

The quality spread between Aaa-rated bonds and Baa-rated bonds also declined during the year, with the spread declining from 170 basis points in April to 90 basis points at the end of December.



U.S. corporate bond issuance totaled $2,279 billion in 2020, up 60% from the prior year.

Investment-grade corporate bond issuance was up 62.1% during the year, while high yield debt issuance climbed 51.0% in 2020.

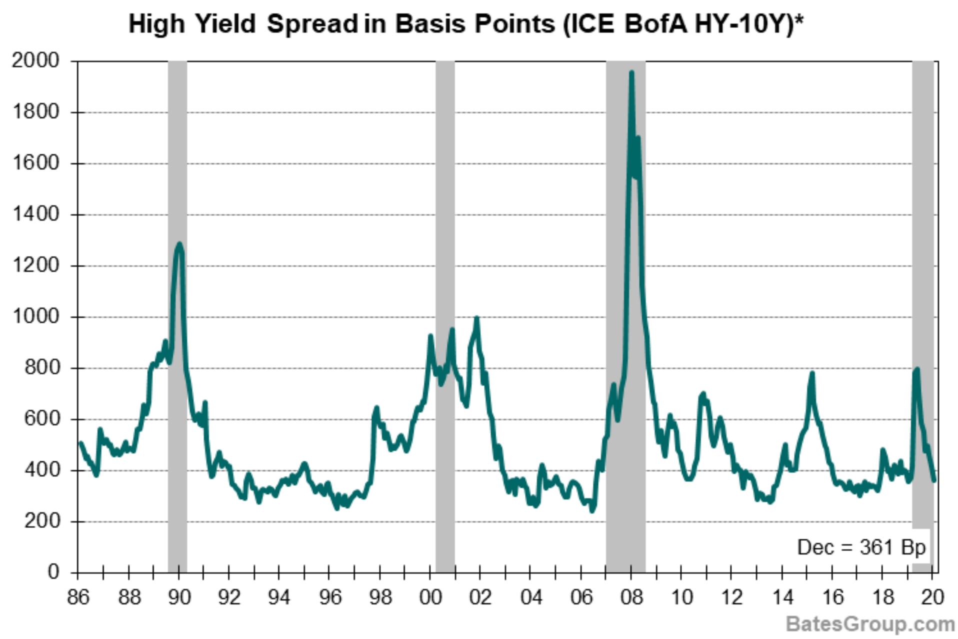


** Shaded areas represent recessions*
Source: Bloomberg, Thomson Reuters, SIFMA

High Yield Securities

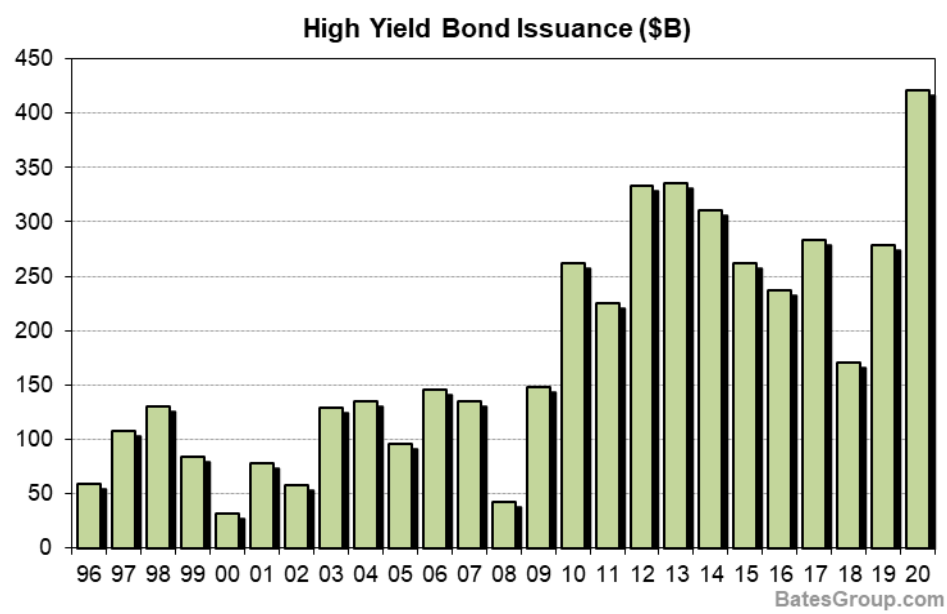
After increasing in March/April 2020 on pandemic economic impact fears, high yield bond spreads declined to 361 basis points by the end of December 2020. This compares to 793 at the end of April 2020.

The 12-month trailing U.S. corporate speculative-grade default rate closed the year at 6.7%, up from 3.2% at the end of 2019.



High yield issuance was up significantly in 2020 compared to the previous year, with $421.2 billion being issued last year compared to $279.0 billion in 2019.

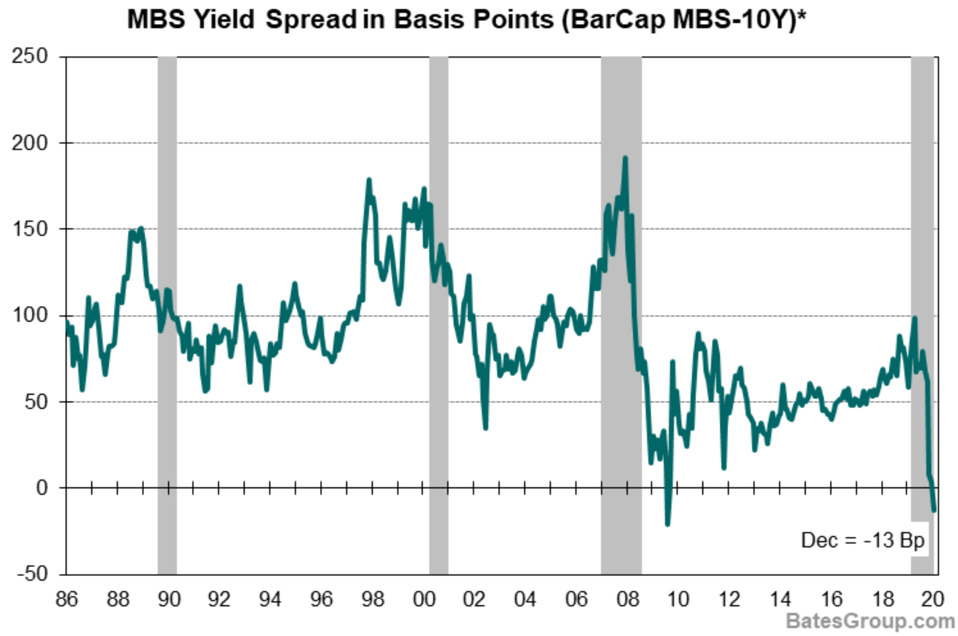
Much of the growth in issuance was driven by companies raising new debt at lower interest rates in order to reduce borrowing costs. According to Standard & Poors, refinancing activity in December accounted for 67% of issuance.



** Shaded areas represent recessions*
Source: Bloomberg, Moody's, SIFMA, Standard & Poors

Mortgage-Backed Securities

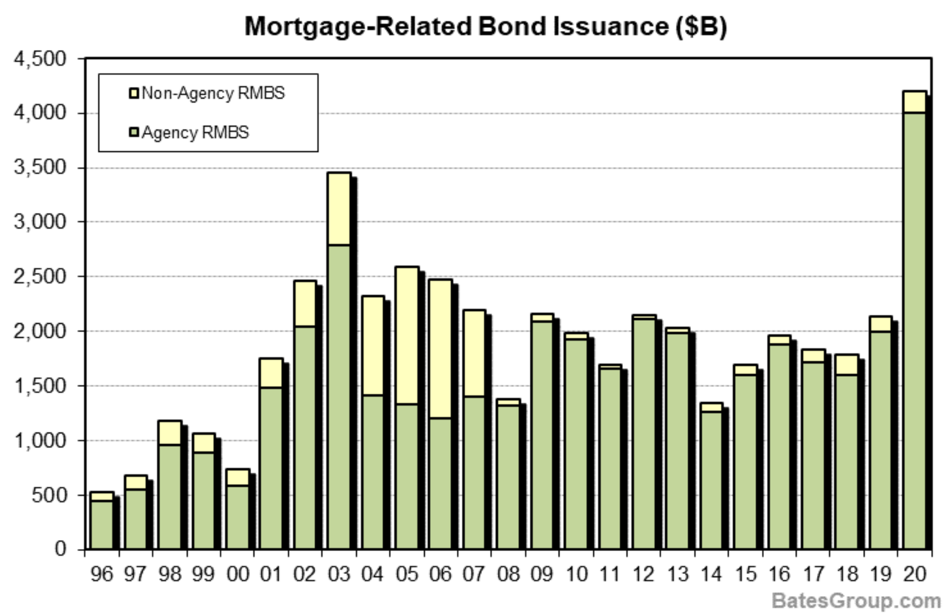
MBS yield spreads declined slightly in 2019, falling to a negative 13 basis points at the end of December compared to 59 basis points a year earlier.



Mortgage-related bond issuance totaled $4,258 billion in 2020, up nearly 90% from the prior year.

For the entire year, agency RMBS issuance was up 100% to $3,996 billion while non-agency RMBS issuance was up 44.5% to $201.8 billion.

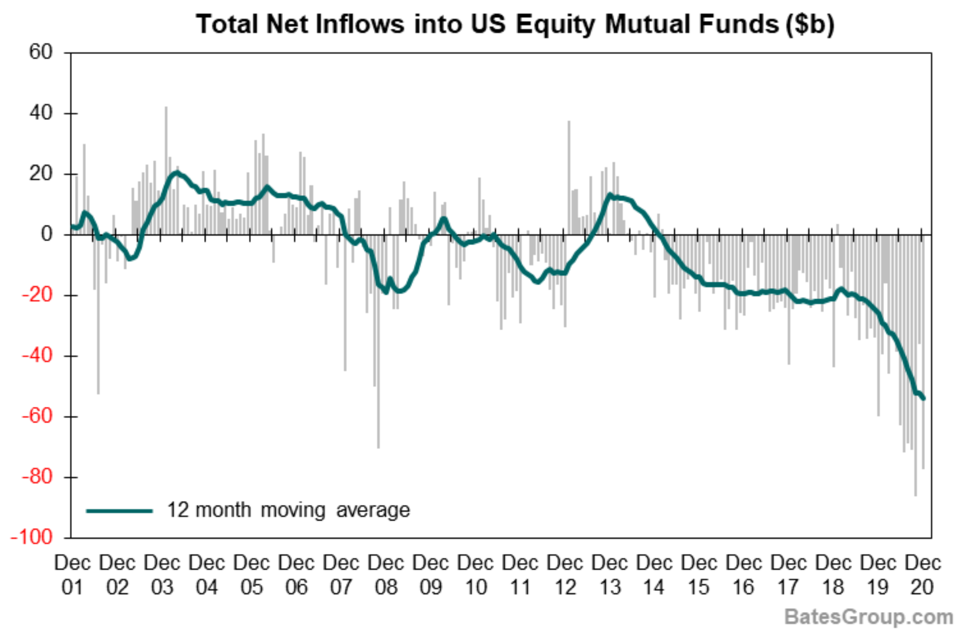
CMBS issuance was down 43.7% in 2020 to $59.2 billion.



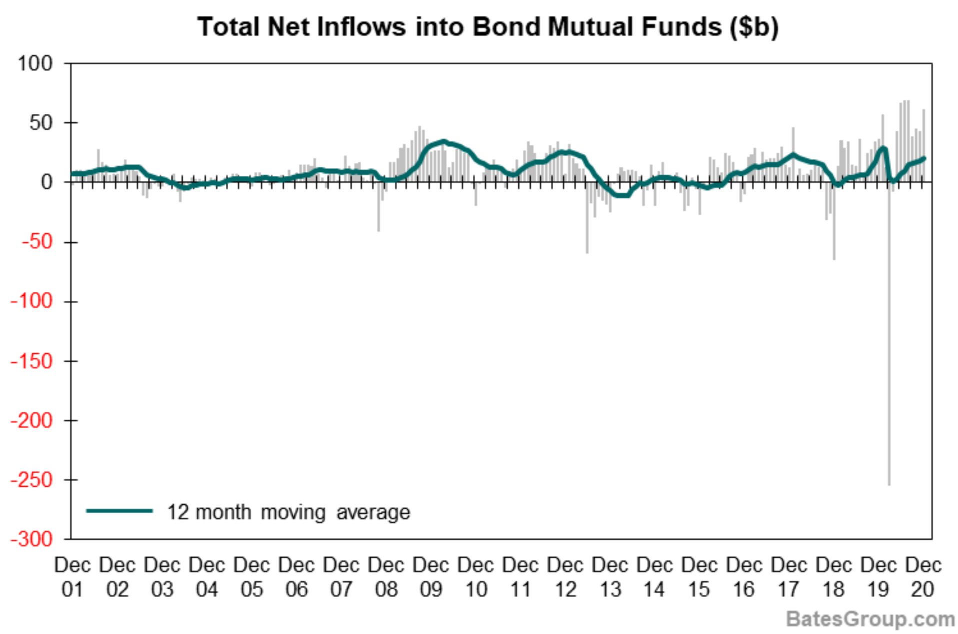
** Shaded areas represent recessions*
Source: Bloomberg, Thomson Reuters, SIFMA

Mutual Fund Flows

In 2020, money continued to flow out of equity mutual funds. Net outflows for the year totaled $646 billion.

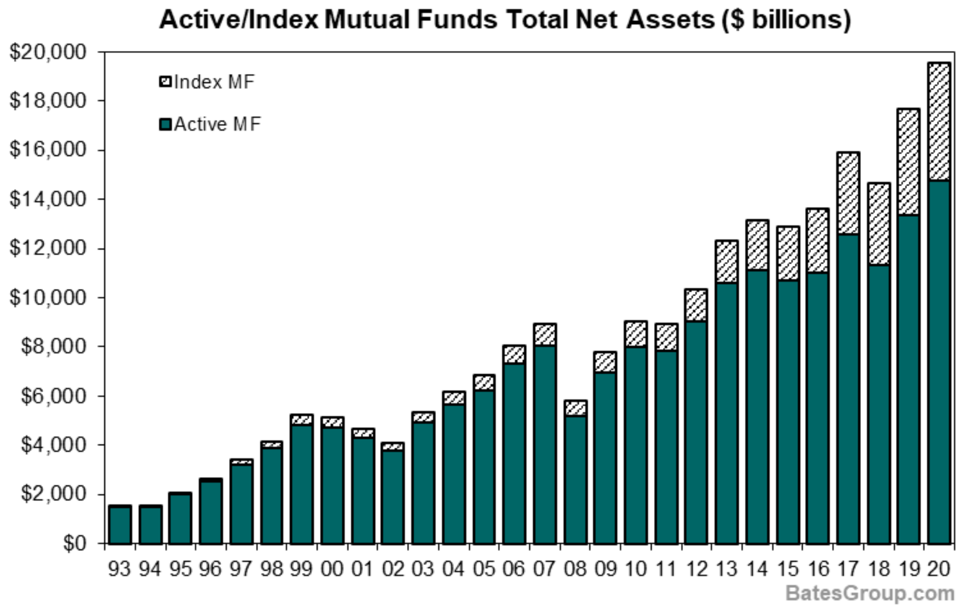


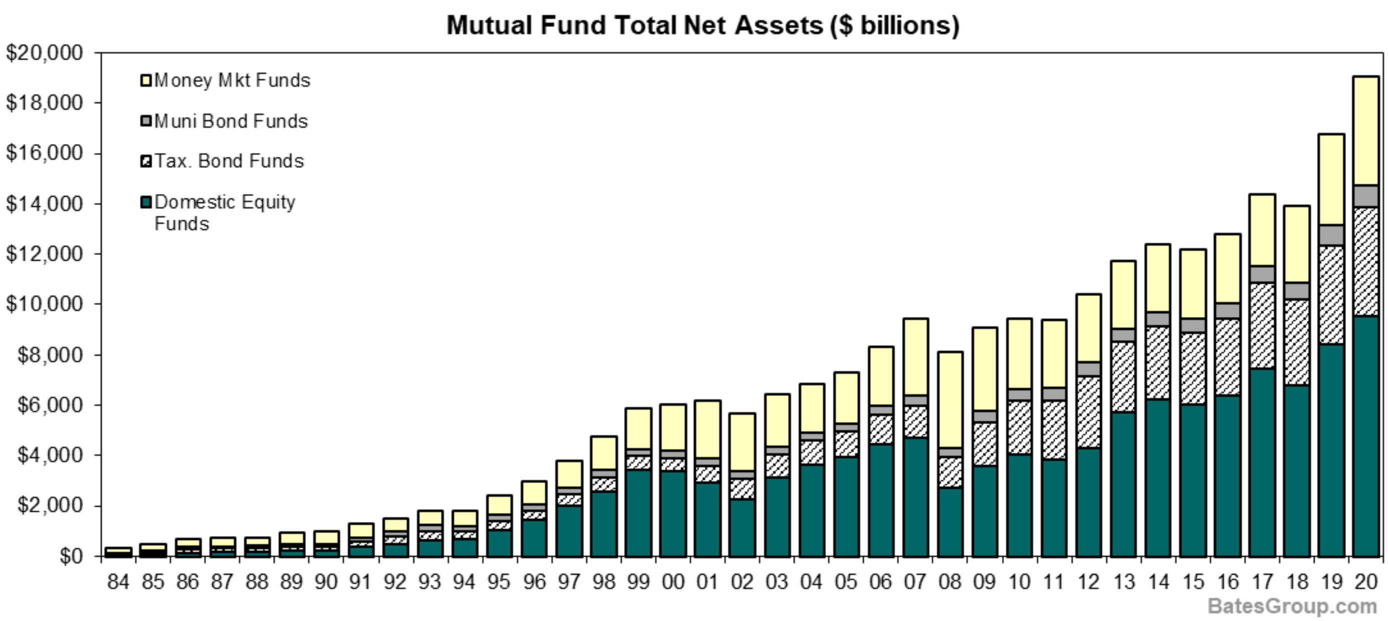
Bond funds received net inflows of $244 billion in 2020 with nearly $150 billion flowing into bond mutual funds just during the last quarter of the year.



Source: Investment Company Institute

In terms of total net assets, actively managed mutual funds accounted for 75% of all mutual funds, compared to just 25% for indexed funds.





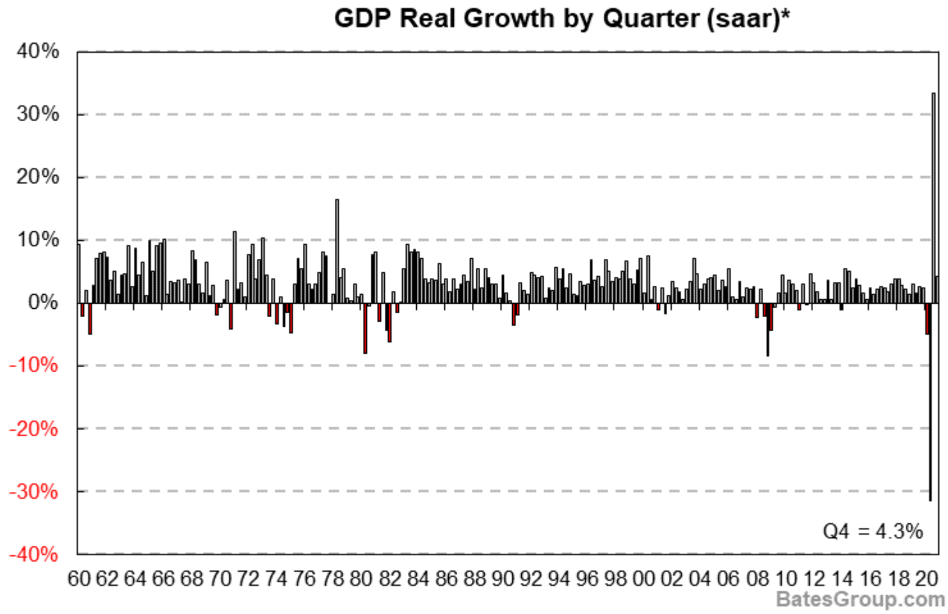
Source: Investment Company Institute

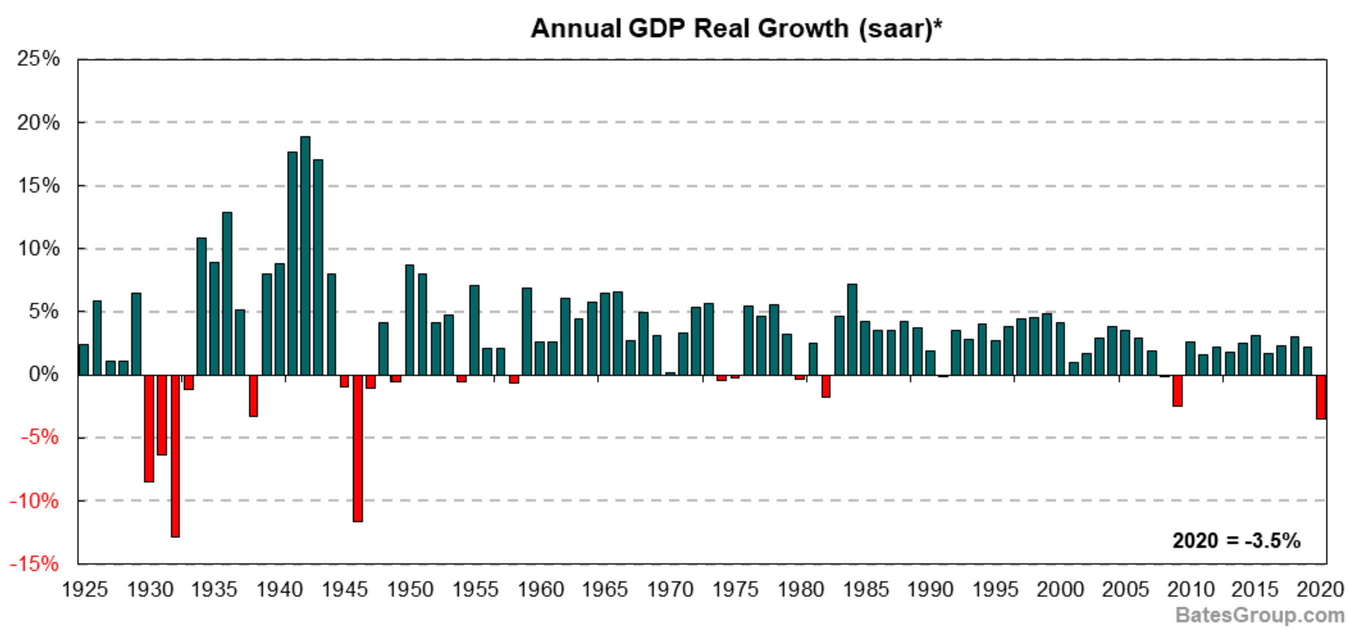
The Economy

As the coronavirus pandemic virtually halted economic activity during the first part of the year, 2020 turned out to be the worst year of economic growth for the U.S. since WW II. For the full year, U.S. GDP fell 3.5%.

Early 2020 was also the steepest drop into a recession since GDP numbers were tabulated. After falling 5% in Q1, GDP plunged over 31% in the second quarter.

Economic activity did bounce back in the second half of the year, rising at a 33% annual rate in Q3, and a 4.3% rate in Q4.

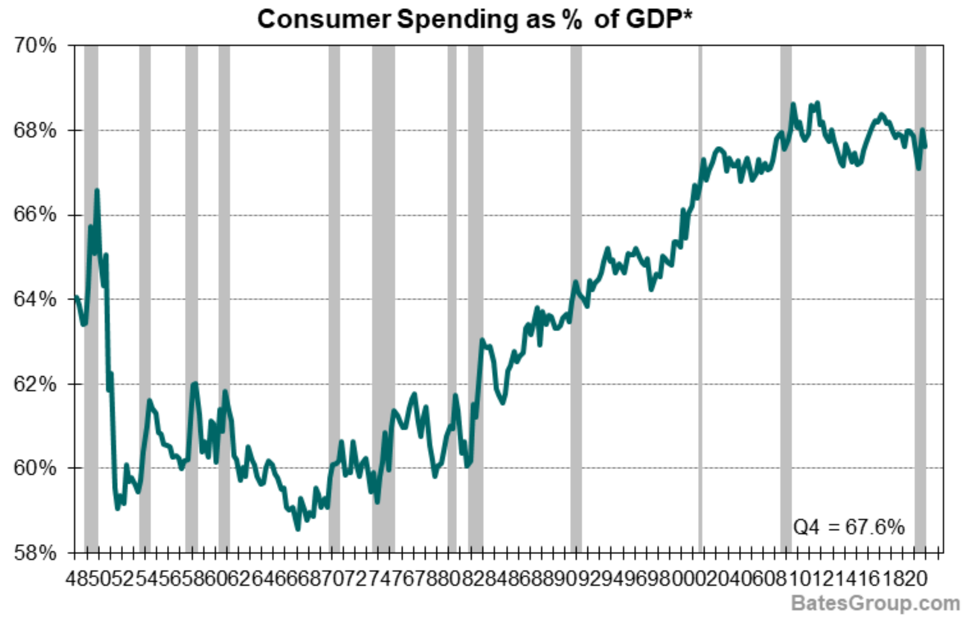




** saar – seasonally adjusted annual rate*
Source: Bureau of Economic Analysis, National Bureau of Economic Research

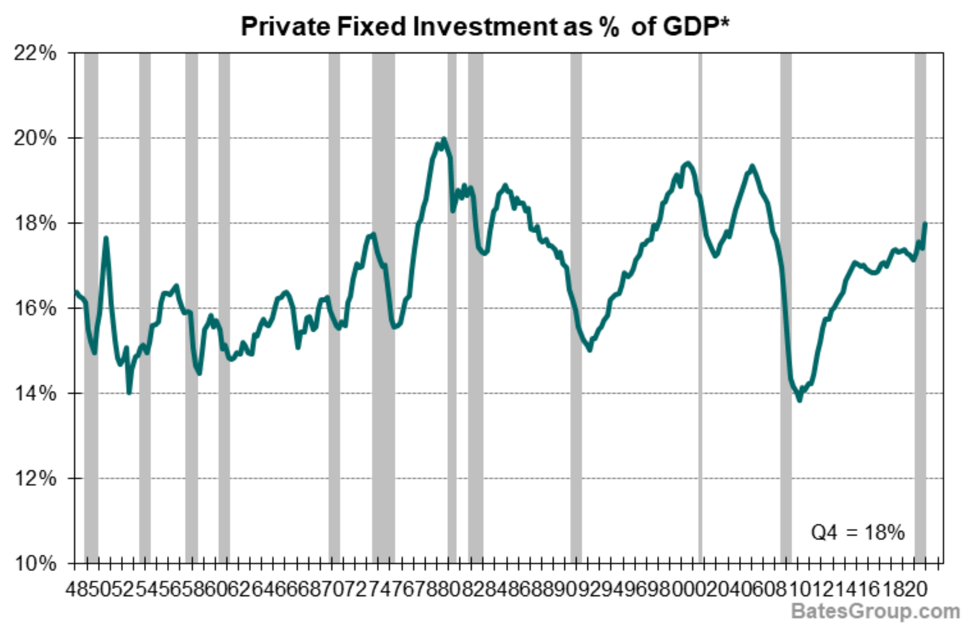
Consumer spending increased at a 2.3% annual rate in the fourth quarter, weaker than what many economists had expected.

Consumer spending is still the largest component of economic growth. As a percentage of GDP, personal consumption expenditures (PCE) remained steady at 67.6%.



With the pandemic changing the world virtually overnight, many factories in the U.S. halted or dramatically slashed production. In Q2, spending on private fixed investments fell at a 46.6% annual rate. For the full year, business spending was down 5.2%.

Because economic activity in 2020 was drastically curtailed across the board, private fixed investment as a percent of GDP remained relatively stable in the first half of the year before expanding in the second half.



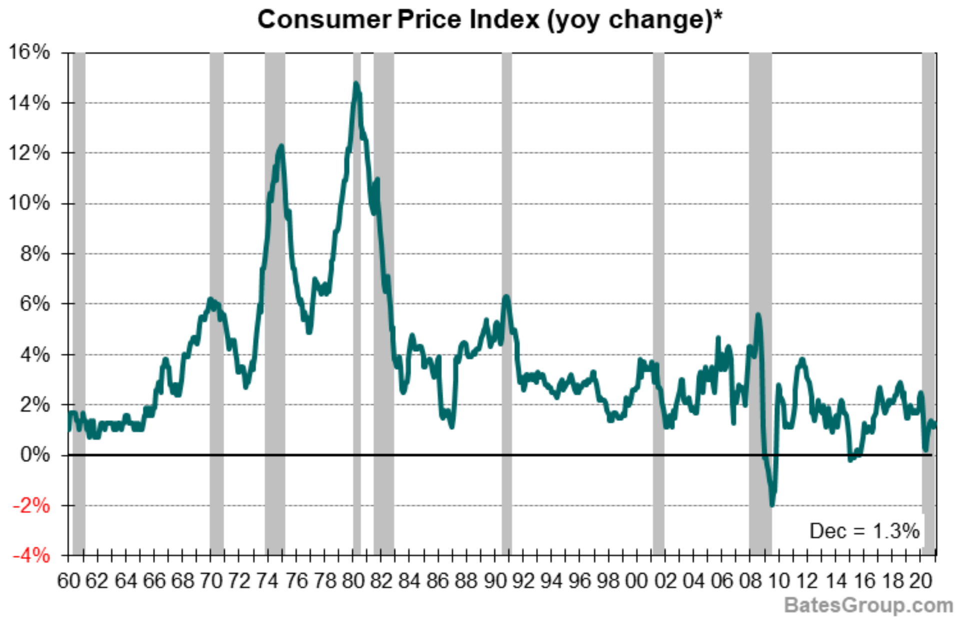
** Shaded areas represent recessions*
Source: Bureau of Economic Analysis

Inflation

Inflation remained tame in 2020 with very weak demand leading to little pricing pressure. For the 12 months ended December, prices rose only 1.3%.

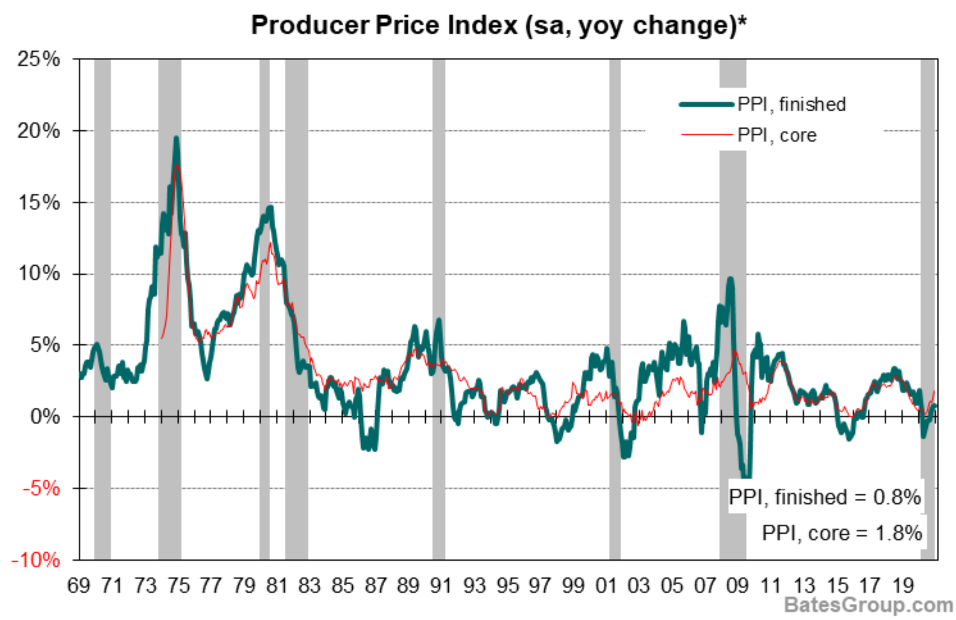
Excluding volatile food and energy prices, core rate inflation rose 0.1% in December, with the 12-month core rate climbing to 1.6%.

For the 12 months ended December 2020, gasoline prices were down 15.2%.



Producer prices for final demand softened in further in 2020, ending the year up only 0.8%.

The 12-month core PPI rate (final demand finished goods less foods and energy) was 1.8% in December.



** Shaded areas represent recessions*
Source: Bureau of Labor Statistics

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Employment

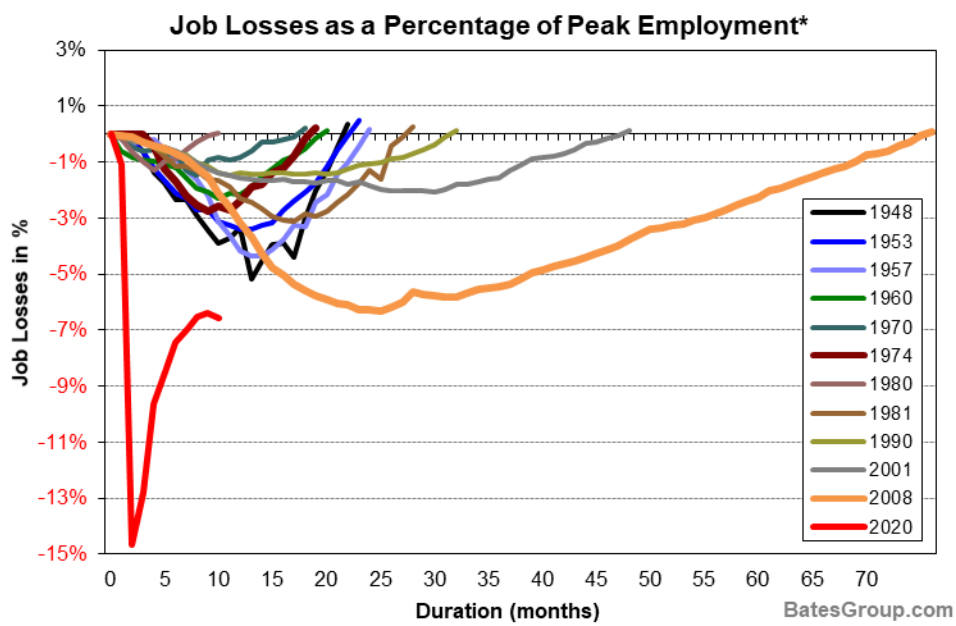
After spiking to 14.7% in April, the top-line unemployment rate declined during the year to finish 2020 at 6.7% in December.

A fuller, or better measure of unemployment is the U-6 number, which measures people who are either unemployed, given up on finding work, or are only marginally employed. In April at the height of the coronavirus pandemic, the 'real' unemployment number was 22.8%. This was the highest unemployment rate that the U.S. has had experienced since the Great Depression.

2020 was also notable for the steepest decline in employment since the Great Depression. In just two months in early 2020, nearly 15% of the workforce lost their jobs.

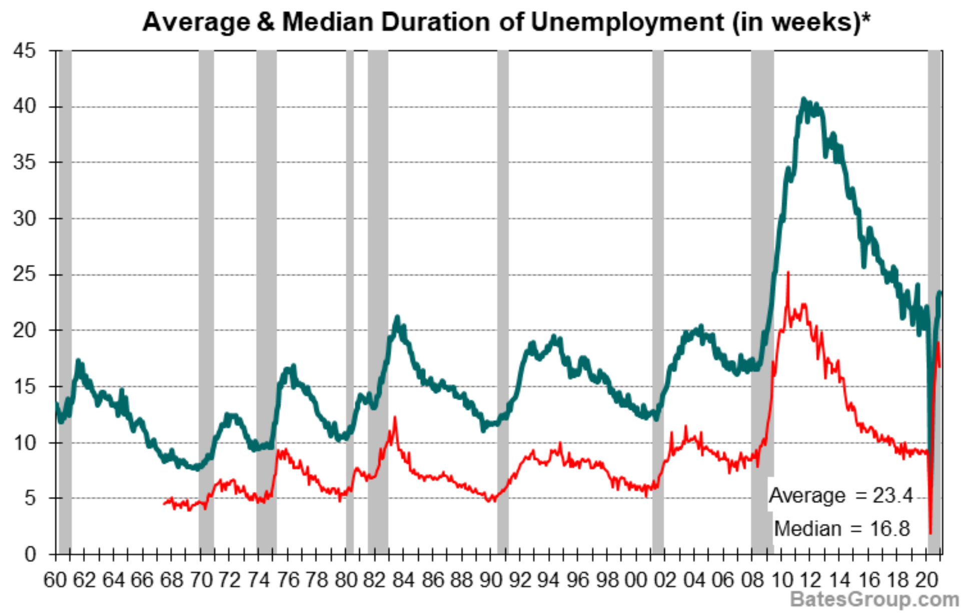
It also marks the worst jobs recession in the post-WW II history.

The employment situation has improved, but job losses are still down and the recovery lags other job recessions.



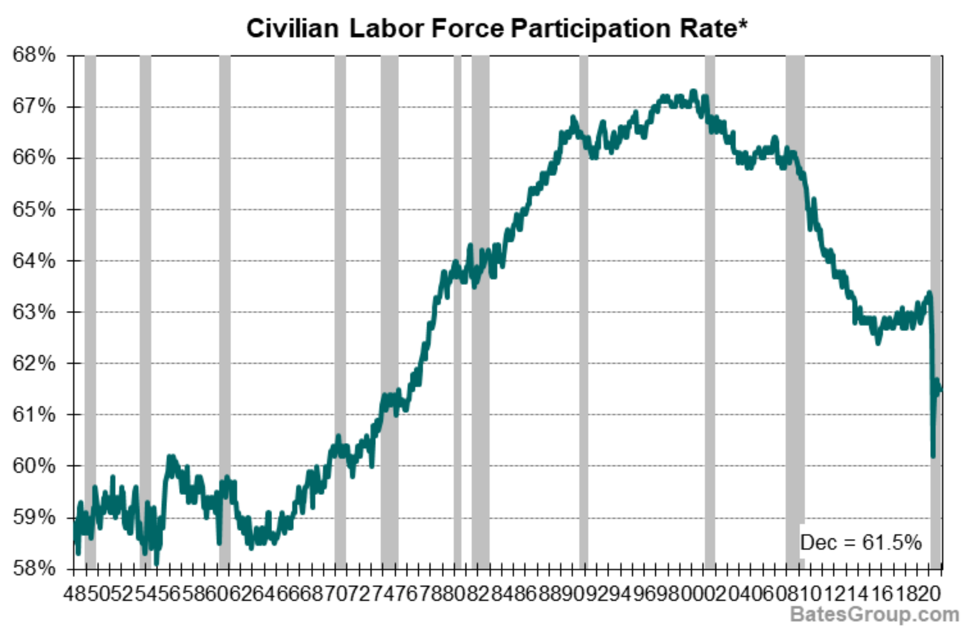
** Shaded areas represent recessions*
Source: Bureau of Labor Statistics

After declining from the peak set in 2010, the average duration of unemployment has increased in 2020 to 23.4 weeks as of December.



The civilian labor force participation rate declined from the 1980-2000 period in large part due to secular changes. Beginning in the 2000s, baby boomers began reaching retirement age and started dropping out of the labor force.

However, other changes also account for the decline. Life cycle or generational changes have recently led to less men participating in the labor force compared to earlier generations.



** Shaded areas represent recessions*
Source: Bureau of Labor Statistics

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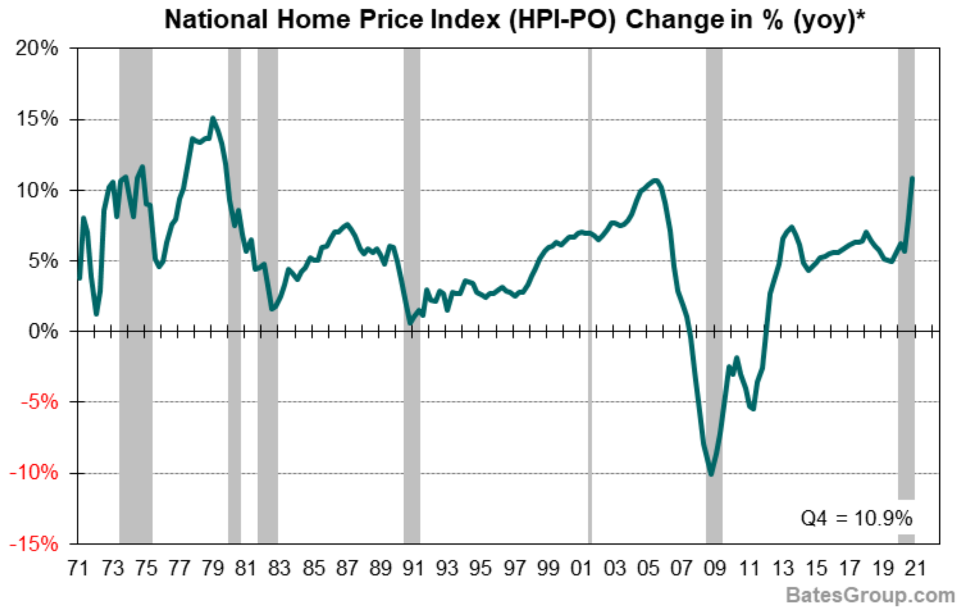
Housing

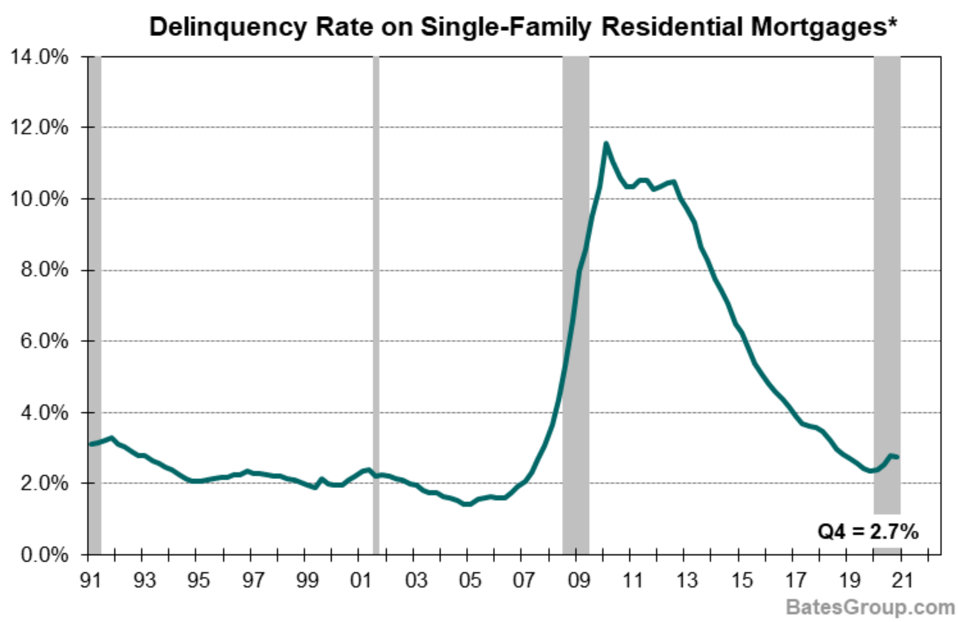
Housing price appreciation (purchases only) was strong in 2020, rising 10.9% year-over-year (yoy) in the fourth quarter of 2020.

Of the nine census divisions, the Mountain region experienced the strongest gains in 2020, up 13.6% yoy. The weakest division was West South Central, where prices rose 8.8% yoy.



According to the Federal Reserve, delinquency rates on single-family residential mortgages trended up during the year, ending Q4 at 2.74% compared to 2.35% at the end of 2019.

In contrast, Fannie Mae's serious delinquency rate for single-family homes was 2.87% in December 2020 compared to 0.66% a year previously.



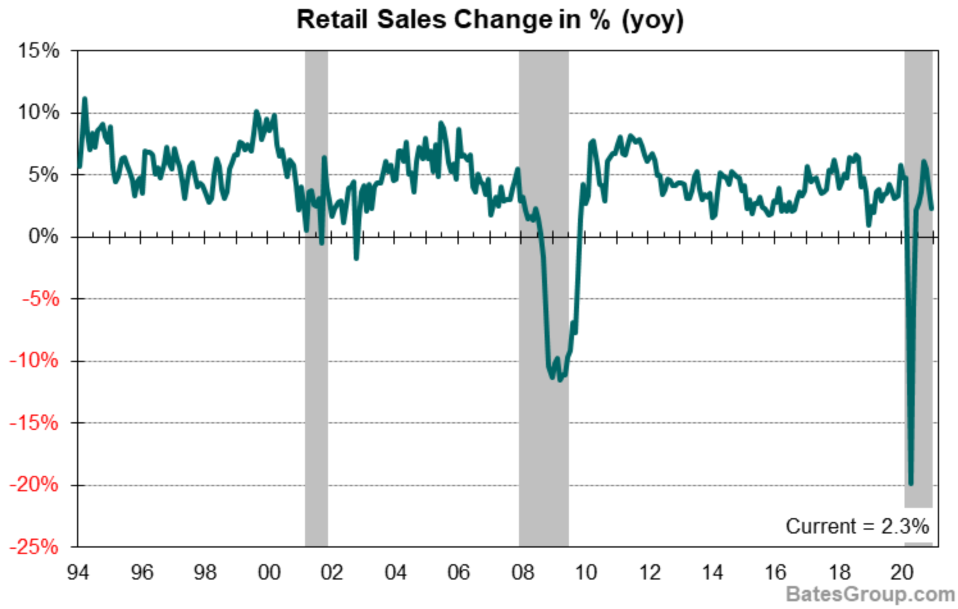
** Shaded areas represent recessions*
Source: FHFA, Federal Reserve, Bloomberg

The Consumer

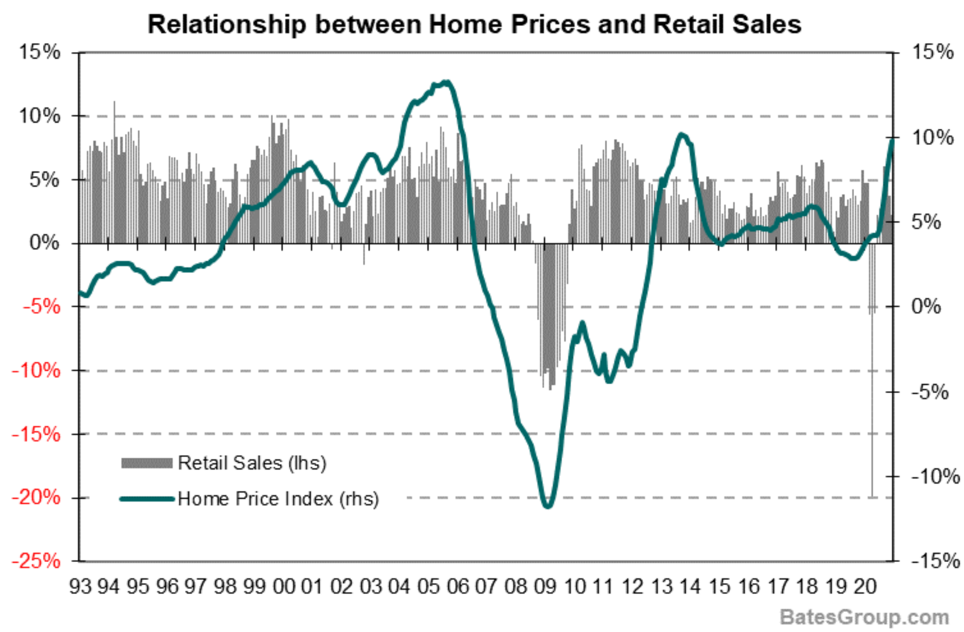
In the last month of 2020, the advance estimate of retail sales fell 0.7% over the previous month, while year-over-year (yoy) retail sales increased an estimated 0.6%.

On a 12-month basis, non-store retail sales (electronic, mail-order, home delivery, etc) was up 22.1% yoy.

Not surprisingly, with many people working from home and with curtailed social gatherings, sales at clothing and clothing accessories stores were very weak last year, down 26.4%.



The chart to the right shows the relationship between home prices and retail sales.



** Shaded areas represent recessions*
Source: U.S. Census Bureau, FHFA

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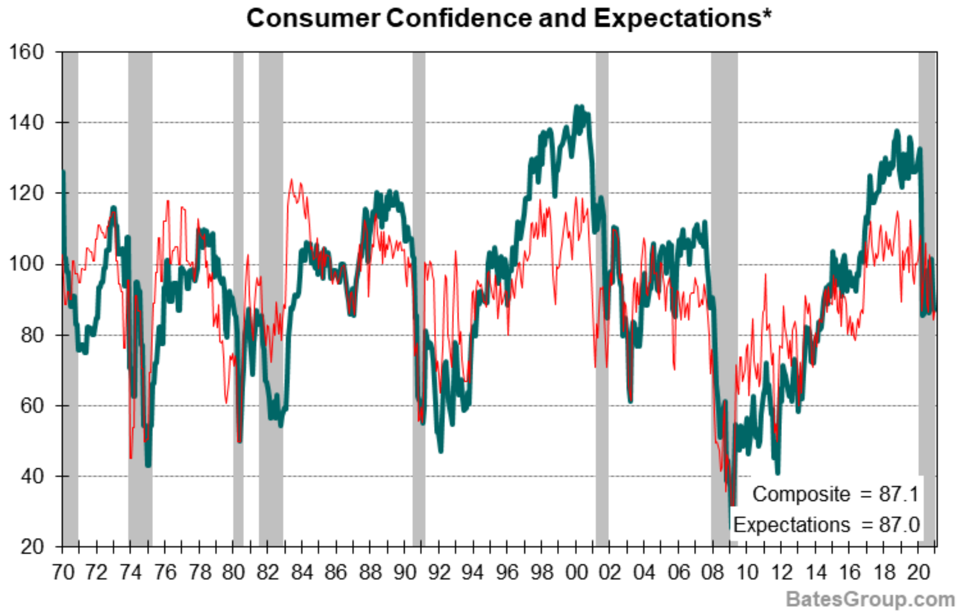
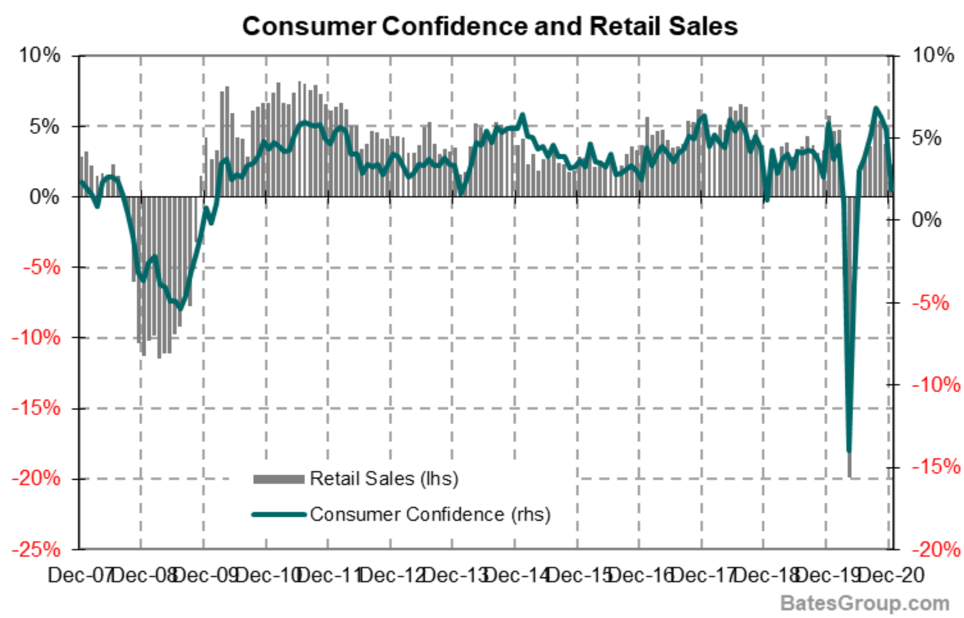
Pandemic fears led to consumer confidence taking a big hit in 2020 with the index falling significantly during the year. It did recover somewhat during the latter part of 2020 but did fall again in December, finishing the year at 87.1. The consumer expectations index was 87.0 in December.

With consumer spending accounting for roughly 70% of economic activity, consumer confidence is a key metric for gauging spending trends.



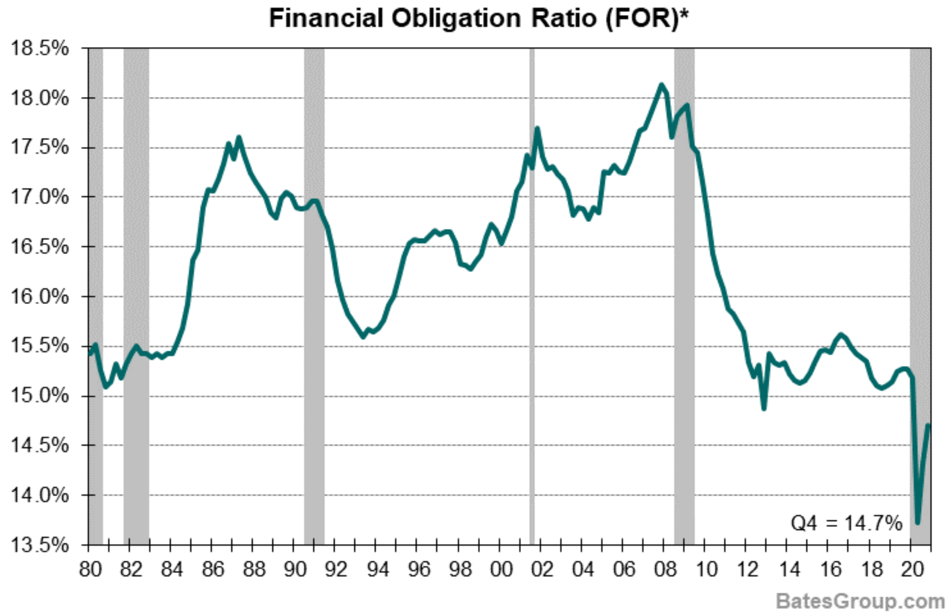
As the chart to the right highlights, consumer confidence tends to be a good barometer of retail spending levels.



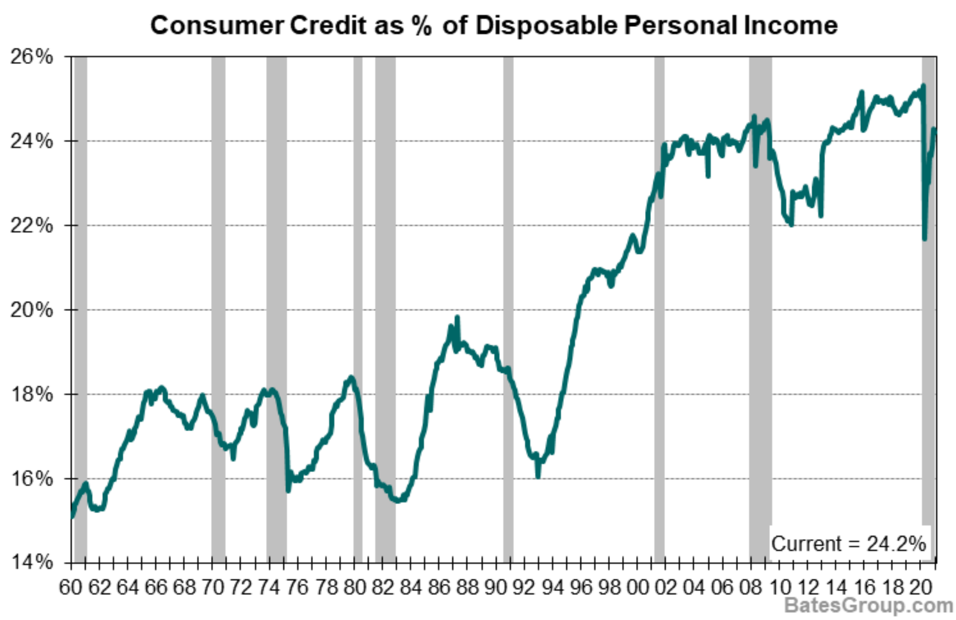
** Shaded areas represent recessions*
Source: The Conference Board, U.S. Census Bureau

The Federal Reserve's Financial Obligation Ratio (FOR) is an estimate of all debt payments plus car lease payments, rent, homeowner's insurance and property tax payments as a percentage of disposable personal income.

During the pandemic the debt level fell to the lowest level since the Federal Reserve began tabulating the data.



After significant household deleveraging during the credit crisis in 2008-2010, consumer credit expanded in the 2013-2019 period. That all changed in early 2020 as pandemic-fueled financial fears drove consumer credit levels sharply lower.



** Shaded areas represent recessions*
Source: Federal Reserve

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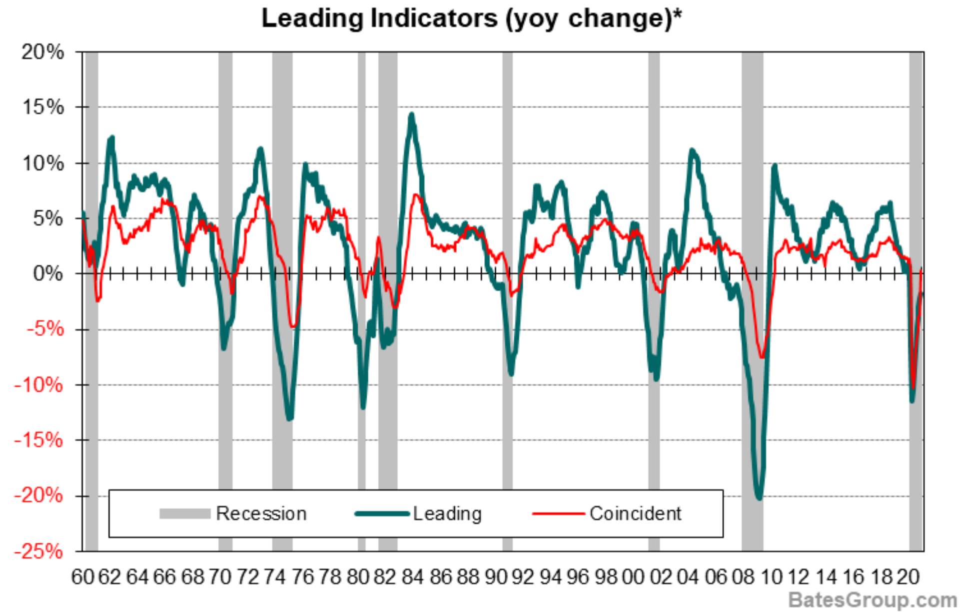
Industry Indicators

In another sign that the U.S. economy is recovering from a challenging 2020, the index of leading indicators improved 0.3% in December to 109.5.

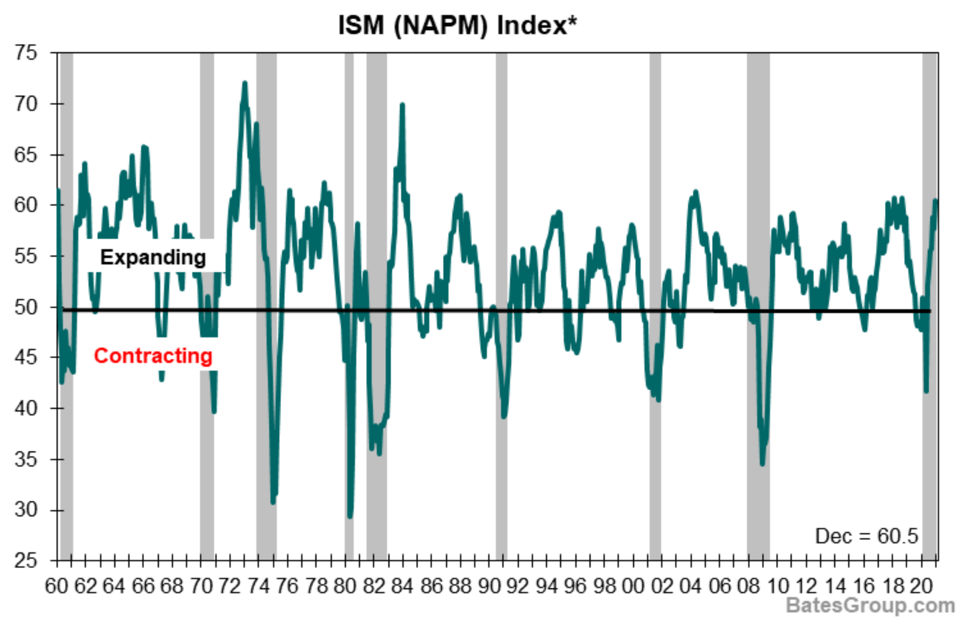
According to the Conference Board, “Improvements in the US LEI were very broad-based among the leading indicators, except for rising initial claims for unemployment insurance and a mixed consumer outlook on business and economic conditions.”



In the last month of the year, manufacturing activity continued to rebound, after a sharp contraction in early 2020.

The Institute for Supply Management Index, a gauge on the health of the manufacturing sector, rose to 60.5 in December. This marked the eighth straight month of expansion in the manufacturing sector.

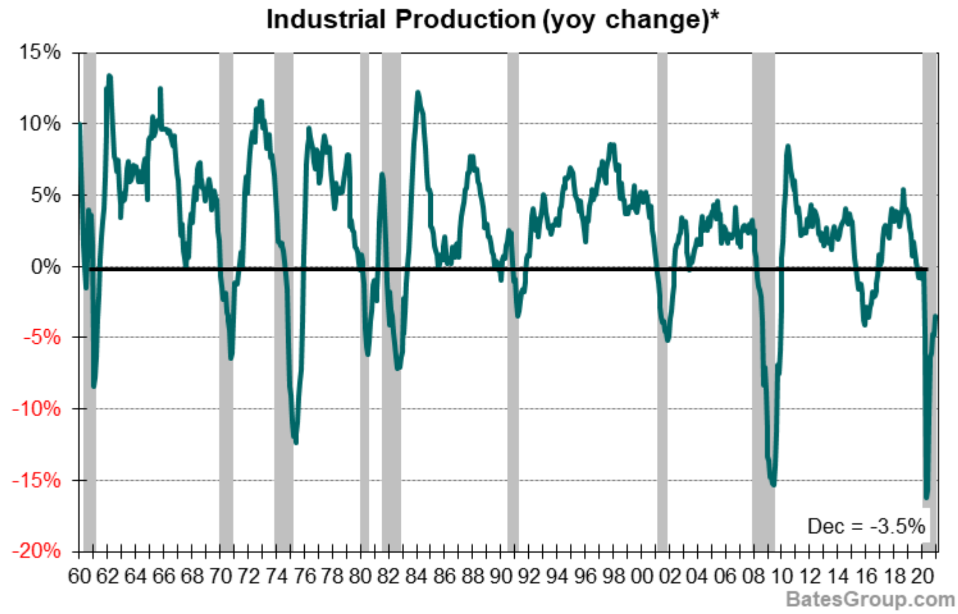
A reading below 50 represents a contraction in manufacturing activity.



** Shaded areas represent recessions*
Source: The Conference Board, Institute for Supply Management

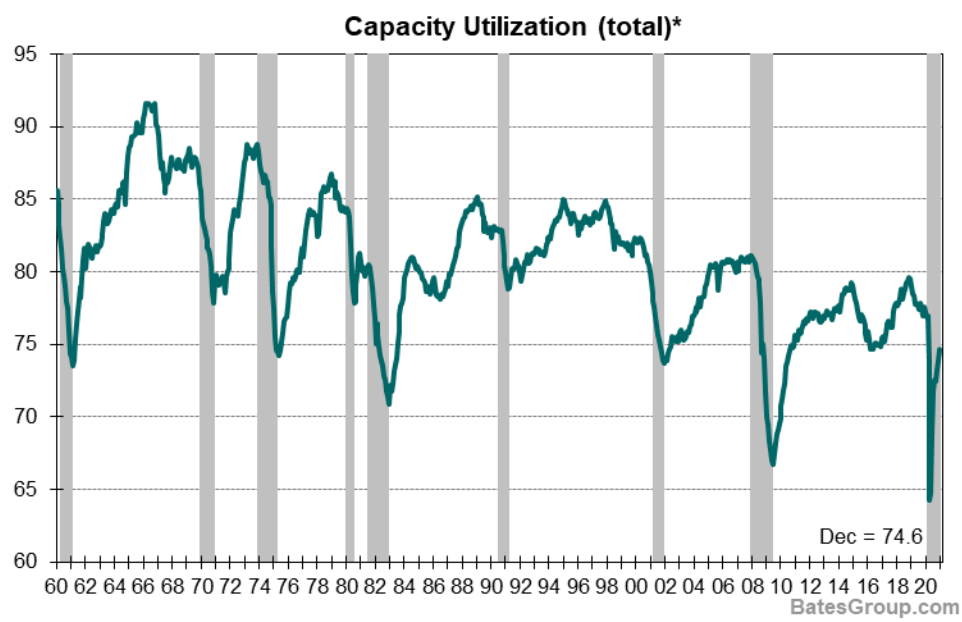
Industrial production continued to rebound in December from its low in April, but still remained below pre-pandemic levels by year-end. In December total industrial production advanced 1.6% over November. However, it was down 3.5% year-over-year.

Manufacturing output was down 2.8% yoy while mining was down 12.3%.



In December, the utilization rate was 74.6% which was below the long-term average of 79.8%.

The mining utilization rate was 80.5% while utilities was 74.5%. Both were below their long-run averages.

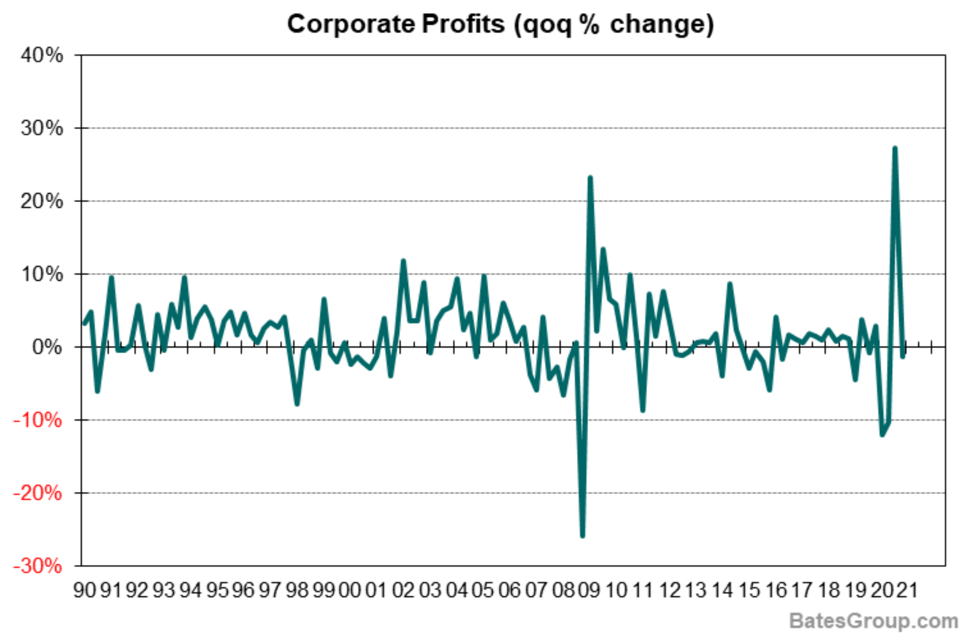


** Shaded areas represent recessions*
Source: Federal Reserve

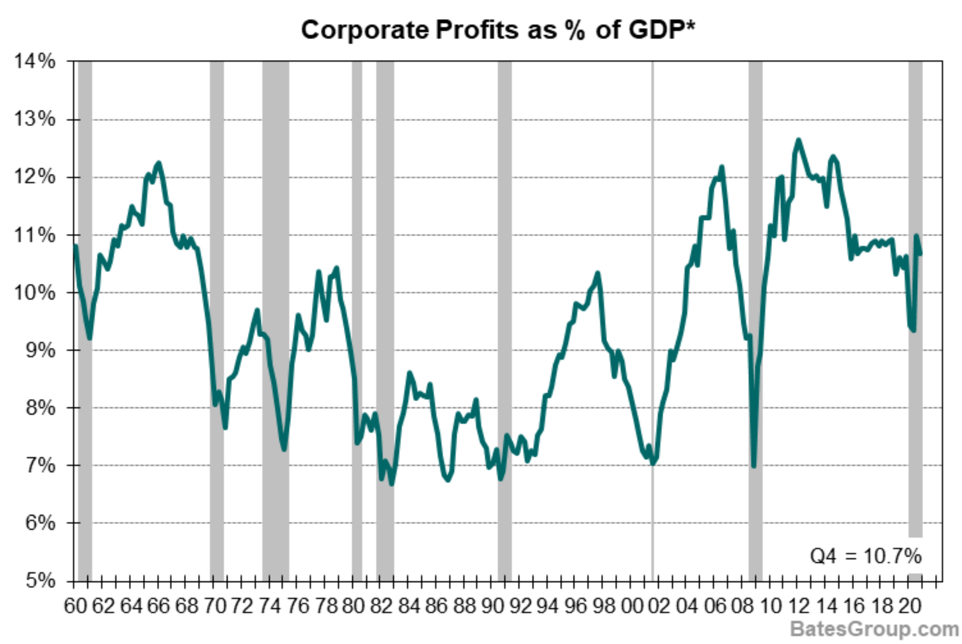
Corporate Profits

Corporate profits declined 1.4% in the fourth quarter of the year to $2,294 billion.

For the year, profits for domestic financial corporations were down $0.5 billion from 2019, while profits for domestic nonfinancial companies fell $55.7 billion in 2020.



Corporate profit margins as measured by the ratio of corporate profits to GDP increased to 10.7% in the fourth quarter of 2020.



** Shaded areas represent recessions*
Source: Bureau of Economic Analysis

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