Blackstone

The Ten Surprises of 2021

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The Ten Surprises of 2020

These Surprises were announced on January 6, 2020. The definition of a "surprise" is an event that the average investment professional would assign a one-out-of-three chance of taking place, but which we believe is probable, having a better than 50% chance of happening.

1. The economy disappoints the consensus forecast, but a recession is avoided. Federal Reserve Chair Powell lowers the Fed funds rate to 1%. Without a comprehensive trade deal in hand, President Trump exercises every executive authority he has to stimulate growth and ward off recession. He cuts payroll taxes to put more money in the hands of consumers
2. Inequality and climate change become important election themes, but centrist ideas prevail. The House of Representatives sends articles of impeachment to the Senate, but Donald Trump is not convicted or removed from office. Enough information is revealed in the proceedings to cause some of his supporters, as well as many independents, to throw their support to liberal candidates in 2020 state races. The Democrats take the Senate in November
3. There is no comprehensive Phase Two trade deal that limits China's ability to acquire intellectual property. National interests result in the balkanization of technology. The development of separate standards for 5G and other tech hardware proves to be bad news for the future of world economies. The move toward "decoupling" gains traction in negotiations with China. U.S. economic co-dependence with China erodes. Both China and the U.S. keep their hands off Hong Kong and let the protest settle down by itself
4. The prospect of a self-driving car is pushed further into the future. A series of accidents with experimental vehicles causes a major manufacturer or technology company to issue a statement that it is no longer developing self-driving technology
5. Emboldened by the pain of economic sanctions, Iran takes advantage of America's unwillingness to intervene and steps up acts of hostility against Israel and Saudi Arabia. The Strait of Hormuz is closed and the price of oil (West Texas Intermediate) soars to over $70/barrel

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The Ten Surprises of 2020 (continued)

6. Even though some observers believe valuations are stretched, a surge in investor enthusiasm pushes the Standard & Poor's 500 above 3500 at some point during the year. Earnings increase only 5%, and S&P 500 multiples remain elevated because monetary policy is easy, and investors become more comfortable that intermediate interest rates will rise slowly. Volatility increases and there are several market corrections greater than 5% throughout the year
7. Big tech companies face growing political scrutiny and social blowback. Once the market leaders, certain FAANG stocks underperform and the equal-weighted S&P 500 outperforms. A proposal to break up the largest social media platforms and increase regulation and government oversight gains popularity. This has greater success than prior government efforts against Apple, Microsoft and IBM, because it has widespread support from the American people. A millennial in New York City puts a phone down and makes eye contact with another human and finds it non-threatening and refreshing
8. Having secured a workable Brexit deal, the United Kingdom turns out to be the winner in its divorce from the European Union. The equity market rises and the pound rallies. The U.K. benefits from a long transition period, and growth exceeds 2% as foreign direct investment resumes now that the outlook is clarified. The E.U. economy remains soft, and European markets other than the U.K. underperform the U.S. and Asia
9. The bond bubble starts to leak, but negative rates continue abroad. Even though the U.S. economy is slowing, the 10-year Treasury yield approaches 2.5% and the yield curve steepens. Japan and China pull away from the Treasury auctions. Rather than economic fundamentals or inflation, supply and demand drive yields higher.
10. The problems with Boeing's 737 Max are fixed and deliveries begin. The plane becomes a mainstay around the world, enabling airlines to operate more efficiently and increase profits. The stocks become market leaders

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The Ten Surprises of 2021

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1. Former President Trump starts his own television network and also plans his 2024 campaign. His lead program is *The Chief*, in which he weekly interviews heads of state and CEOs with management styles like his own. His virtual interview with Vladimir Putin draws more viewers than any television program in history.
2. Despite the hostile rhetoric from both sides during the U.S. presidential campaign, President Biden begins to restore a constructive diplomatic and trade relationship with China. China A shares lead emerging markets higher.
3. The success of between five and ten vaccines, together with an improvement in therapeutics, allows the U.S. to return to some form of "normal" by Memorial Day 2021. People are generally required to show proof of vaccination before boarding airplanes and attending theaters, movies, sporting events and other large gatherings. The Summer Olympics, postponed last year, are held in July with spectators allowed to physically attend.
4. The Justice Department softens its case against Google and Facebook, persuaded by the argument that the consumer actually benefits from the services provided by these companies. Certain divestitures are proposed and surveillance restrictions are applied, but the broad effort to break them up loses support, except in Europe.
5. The economy develops momentum on its own because of pent-up demand, and depressed hospitality and airline stocks become strong performers. Fiscal and monetary policy remain historically accommodative. Nominal economic growth for the full year exceeds 6% and the unemployment rate falls to 5%. We begin the longest economic cycle in history, surpassing the cycle that lasted from 2010 to 2020.

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The Ten Surprises of 2021 (continued)

6. The Federal Reserve and the Treasury openly embrace Modern Monetary Theory as their accommodative policies continue. As long as growth exceeds the rate of inflation, deficits don't seem to matter. Because inflation increases modestly, gold rallies and cryptocurrencies gain more respect during the year.

7. Even as energy company executives cut estimates for long-term growth, near-term opportunities are increasing. The return to "normal" increases both industrial activity and mobility, and the price of West Texas Intermediate oil rises to $65/bbl. Rig counts increase and energy high yield bonds rally soundly. Energy stocks are among the best performers in 2021.

8. The equity market broadens out. Stocks beyond health care and technology participate in the rise in prices. "Risk on" is not without risk and the market corrects almost 20% in the first half, but the S&P 500 trades at 4,500 later in the year. Cyclicals lead defensives, small caps beat large caps and the "K" shaped equity market recovery unwinds. Big cap tech is the source of liquidity, and the stocks are laggards for the year.

9. The surge in economic growth causes the 10-year Treasury yield to rise to 2%. The yield curve steepens, but a concomitant increase in inflation keeps real rates near zero. The Fed wants the strength in housing and autos to continue. As a result, it extends the duration of bond purchases in order to prevent higher rates at the long end of the curve from choking off credit to consumers and businesses.

10. The slide in the dollar turns around. The post-vaccine strength of the U.S. economy and financial markets attracts investors disenchanted with the rising debt and slower growth of Europe and Japan. Treasurys maintain a positive yield and the carry trade continues.

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The “Also Rans” of 2021

Every year there are always a few Surprises that do not make the Ten, because we either do not think they are as relevant as those on the basic list, or we are not comfortable with the idea that they are “probable.”

11. Cyber-attacks, mostly from Eastern Europe and the Middle East, begin to have an economic impact. Bank account information is invaded and distorted, patient records are lost at hospitals and credit collection companies can’t keep track of customer purchases. Those tampering prove to be more skillful than those protecting the integrity of the data and the dislocation cost becomes significant.

12. Tesla acquires a major global auto manufacturer in a transaction that involves a combination of cash and stock. Elon Musk is the CEO and pledges to eliminate the internal combustion engine by the end of the decade.

13. Kim Jong-un threatens to explode his latest long-range missile, capable, he says, of reaching Los Angeles. Trump invites him onto TV and explains that Kim will be a better person and the world will be a better place if he works with other countries rather than threatening them. Kim agrees to stop testing long-range missiles. Trump looks into the camera and says, “People say I am the best negotiator.”

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Surprise #1: Former President Trump starts his own television network and also plans his 2024 campaign. His lead program is *The Chief*, in which he weekly interviews heads of state and CEOs with management styles like his own. His virtual interview with Vladimir Putin draws more viewers than any television program in history

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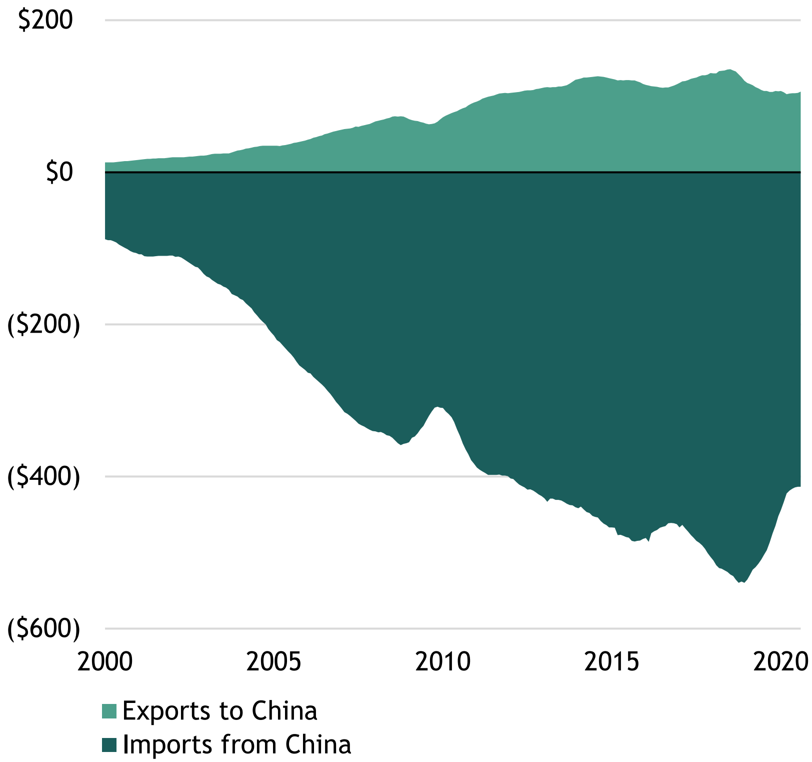
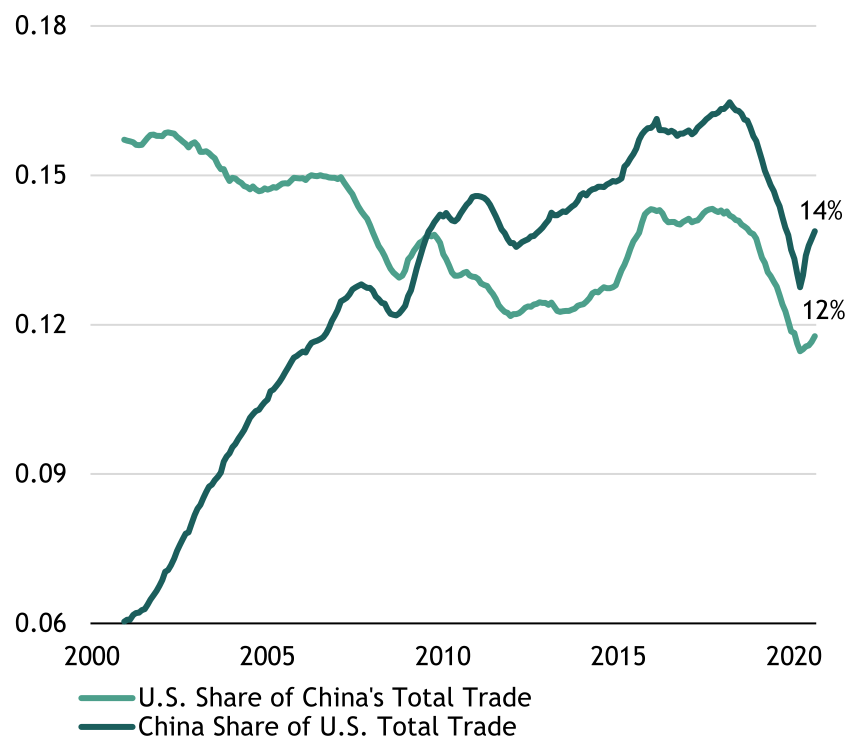
Surprise #2: Despite the hostile rhetoric from both sides during the U.S. presidential campaign, President Biden begins to restore a constructive diplomatic and trade relationship with China. China A shares lead emerging markets higher

U.S. Trade with China

(US$ in billions, rolling 12-month sum)



U.S.-China Trade as Percent of Each Country's Total Trade



Source: Refinitiv and Fathom Consulting, as of August 31, 2020.
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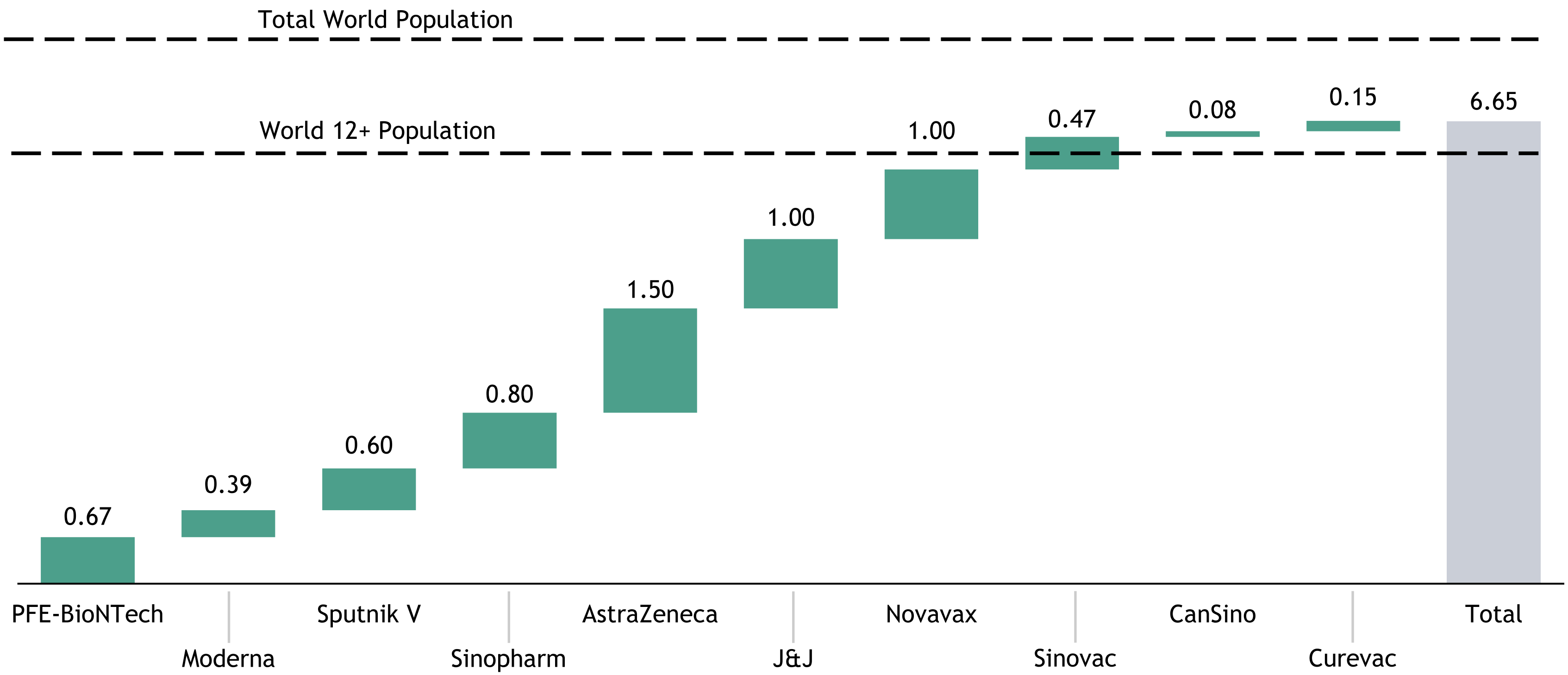
Surprise #3: The success of between five and ten vaccines, together with an improvement in therapeutics, allows the U.S. to return to some form of "normal" by Memorial Day 2021. People are generally required to show proof of vaccination before boarding airplanes and attending theaters, movies, sporting events and other large gatherings. The Summer Olympics, postponed last year, are held in July with spectators allowed to physically attend

Contributions to Cumulative 2021 Year-End Developer Projections

(number of treatments in billions)



Source: Goldman Sachs Global Investment Research, as of December 13, 2020. Note: Treatments are assumed to be 2 doses per capita apart from J&J, which is assumed to be 1 dose per capita.
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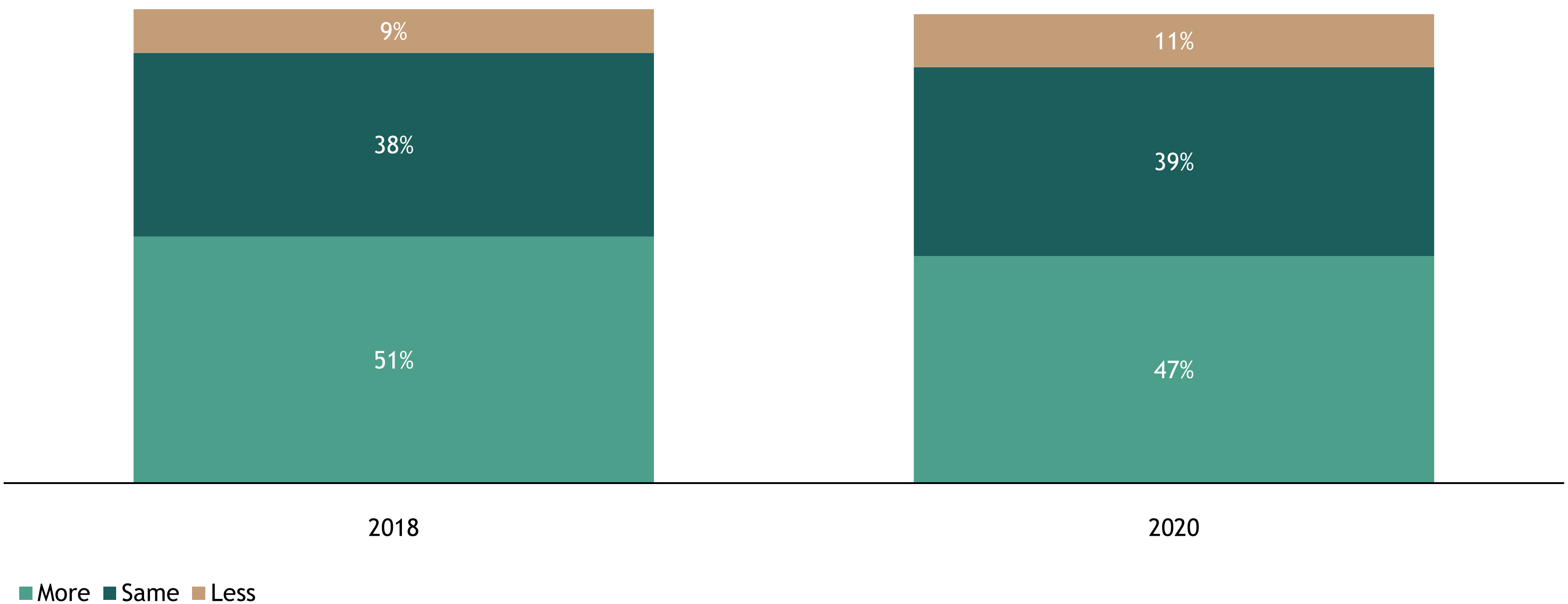
Surprise #4: The Justice Department softens its case against Google and Facebook, persuaded by the argument that the consumer actually benefits from the services provided by these companies. Certain divestitures are proposed, and surveillance restrictions are applied, but the broad effort to break them up loses support, except in Europe

Pew Research Poll on Government Regulation of U.S. Big Tech Companies

(percent of U.S. adults who say that major technology companies should be regulated more, the same, or less than they are currently)



Source: Pew Research Center, as of 10/27/20. Based on surveys of US adults conducted in May and June of 2018 and in June of 2020. Totals do not sum to 100 due to exclusion of “no answer” responses.
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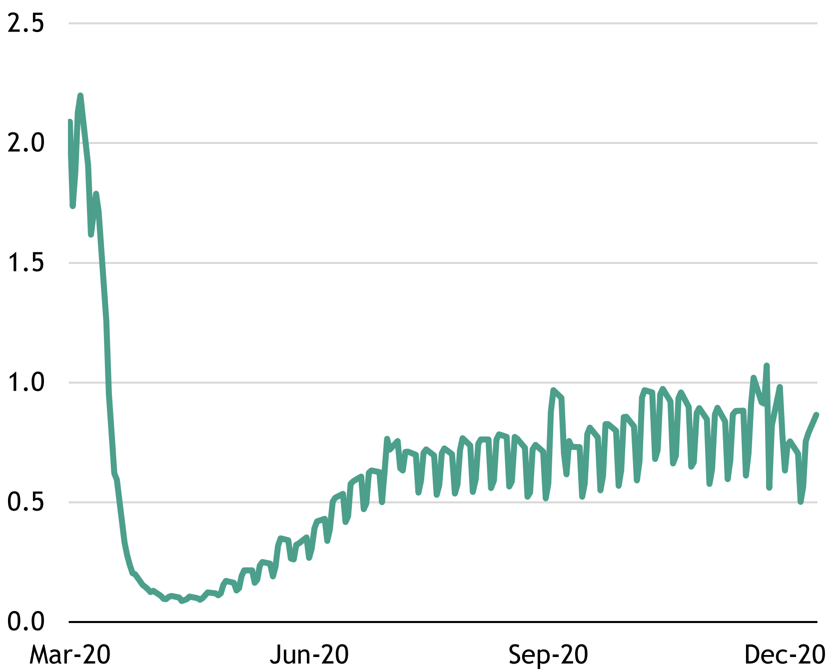
Surprise #5: The economy develops momentum on its own because of pent-up demand, and depressed hospitality and airline stocks become strong performers. Fiscal and monetary policy remain historically accommodative. Nominal economic growth for the full year exceeds 6% and the unemployment rate falls to 5%. We begin the longest economic cycle in history, surpassing the cycle that went from 2010-2020

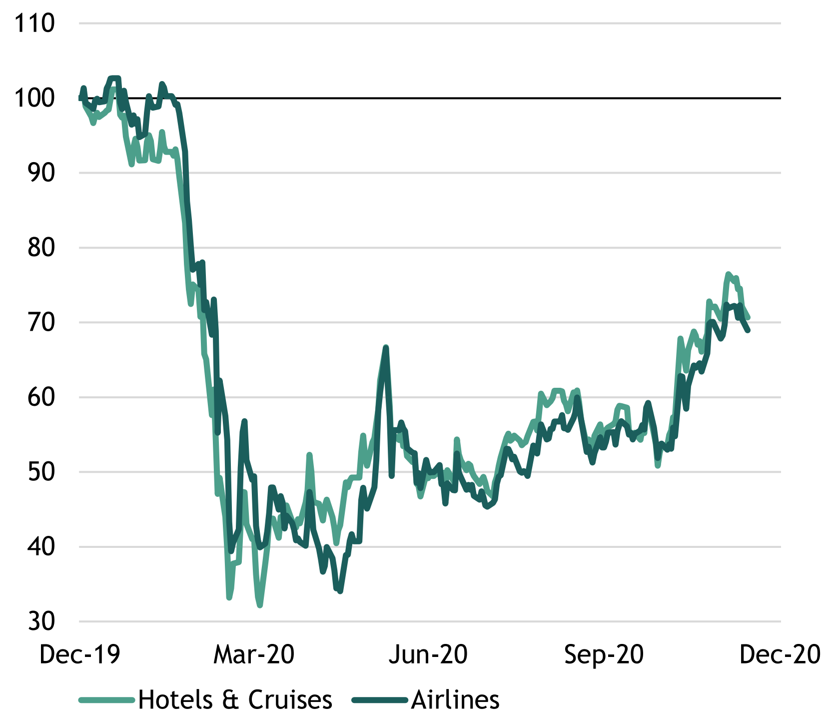
U.S. TSA Checkpoint Numbers

(total daily traveler throughput, in millions)



S&P 500 Sub-Sector Price Performance

(indexed to 100 as of 12/31/19)



Source: Bloomberg and TSA, as of December 14, 2020.
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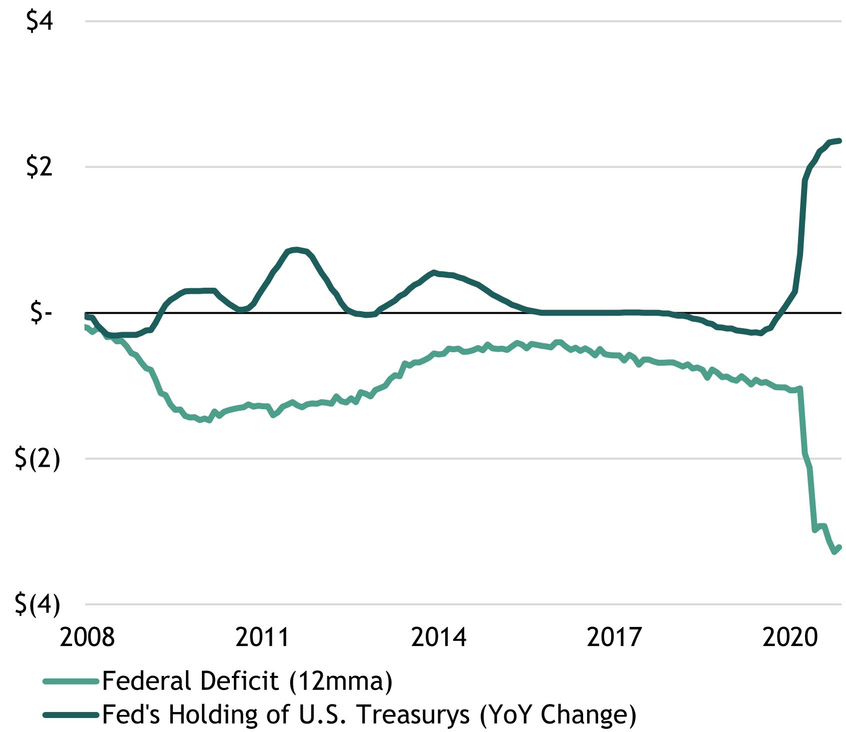
Surprise #6: The Federal Reserve and the Treasury openly embrace Modern Monetary Theory as their accommodative policies continue. As long as growth exceeds the rate of inflation, deficits don't seem to matter. Because inflation increases modestly, gold rallies and cryptocurrencies gain more respect during the year

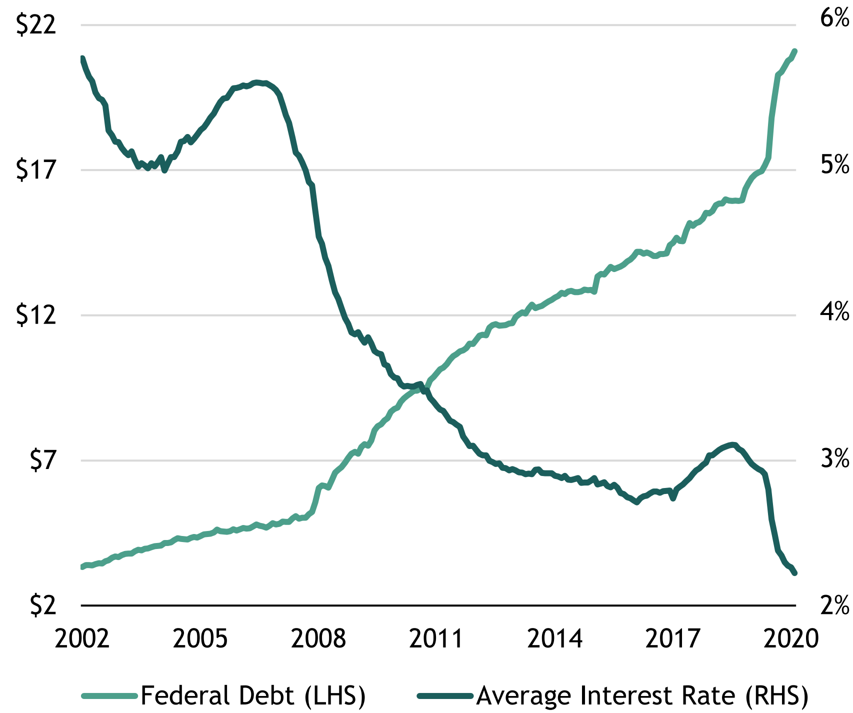
U.S. Federal Deficit and the Fed's Holding of U.S. Treasuries

(US$ in trillions)



Federal Debt Levels vs. Average Interest Rate on the Federal Debt

(US$ in trillions)



Source: Federal Reserve, CBO, Treasury Department and Haver Analytics, as of 11/30/20. Federal debt is total outstanding debt held by the public; average interest rate is based on interest-bearing debt.
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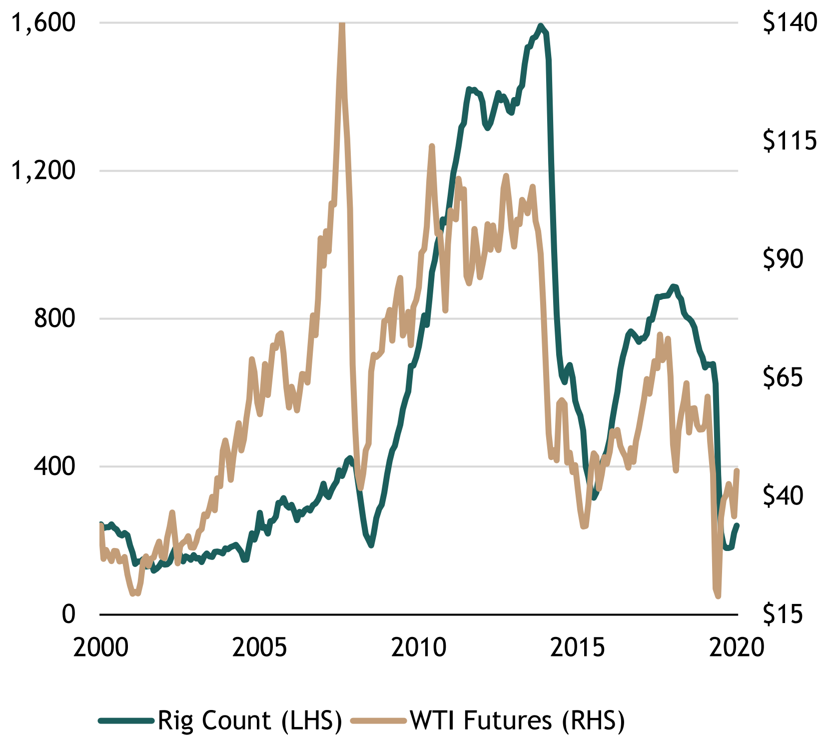
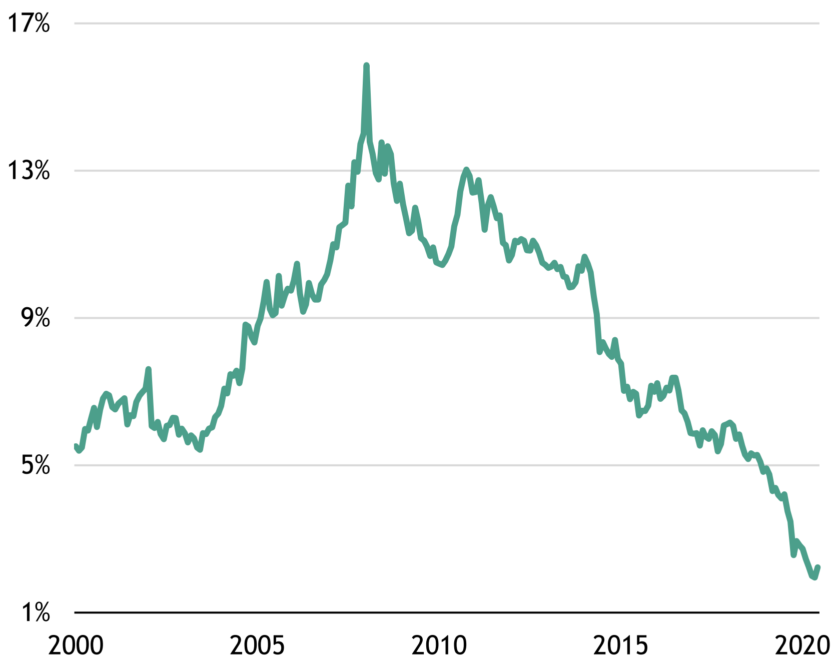
Surprise #7: Even as energy company executives cut estimates for long-term growth, we think near-term opportunities are increasing. The return to "normal" increases both industrial activity and mobility, and the price of West Texas Intermediate oil rises to $65/bbl. Rig counts increase and energy high yield bonds rally soundly. Energy stocks are among the best performers in 2021

U.S. Crude Oil Rig Count and WTI Futures



Energy Sector Share of S&P 500



Source: Bloomberg. Rig count as of November 30, 2020, WTI and S&P 500 data as of November 14, 2020.
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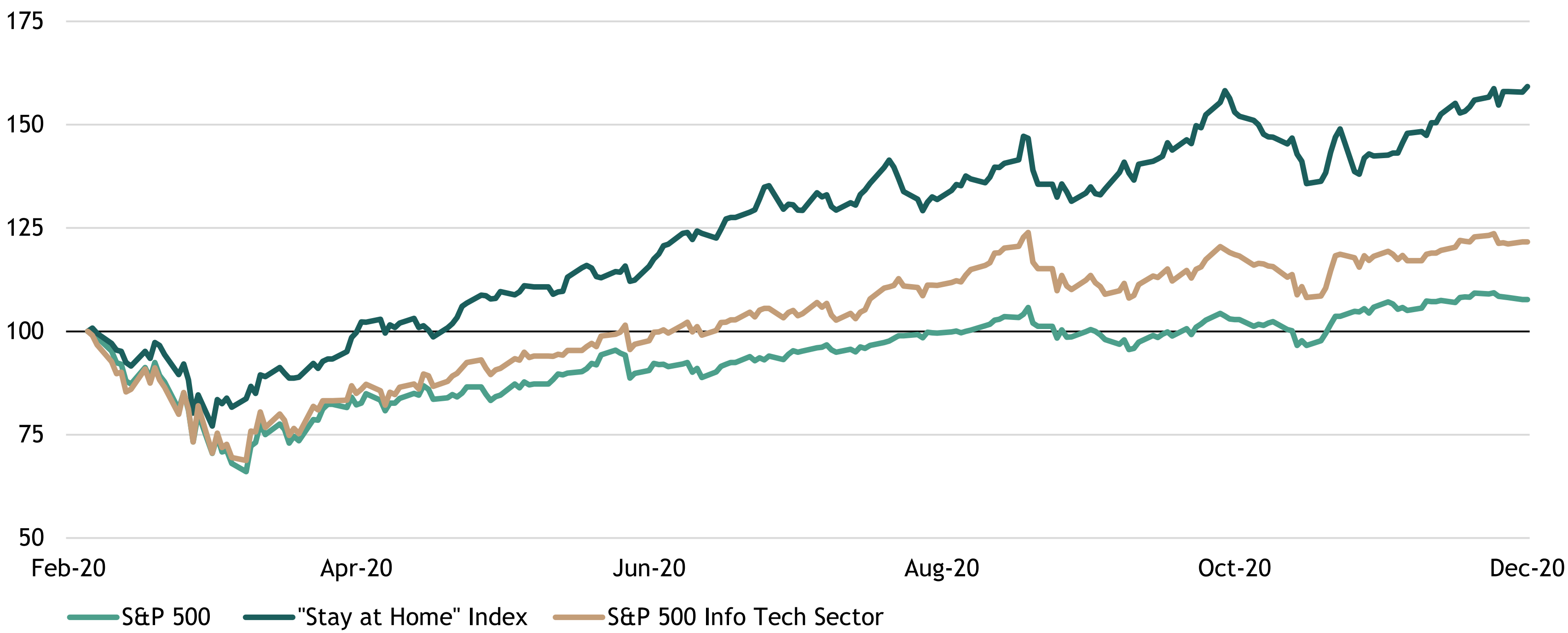
Surprise #8: The equity market broadens out. Stocks beyond health care and technology participate in the rise in prices. “Risk on” is not without risk and the market corrects almost 20% in the first half, but the Standard & Poor’s 500 trades at 4,500 later in the year. Cyclicals lead defensives, small caps beat large caps and the “K” shaped equity market recovery unwinds. Big cap tech is the source of liquidity, and the stocks are laggards for the year

“Stay at Home” Index vs. S&P 500 and S&P 500 Info Tech Sector

(indexed to 100 as of 2/19/20)



Source: Bloomberg, as of December 15, 2020. “Stay at Home Index” represented by the Solactive Stay at Home U.S. Index.
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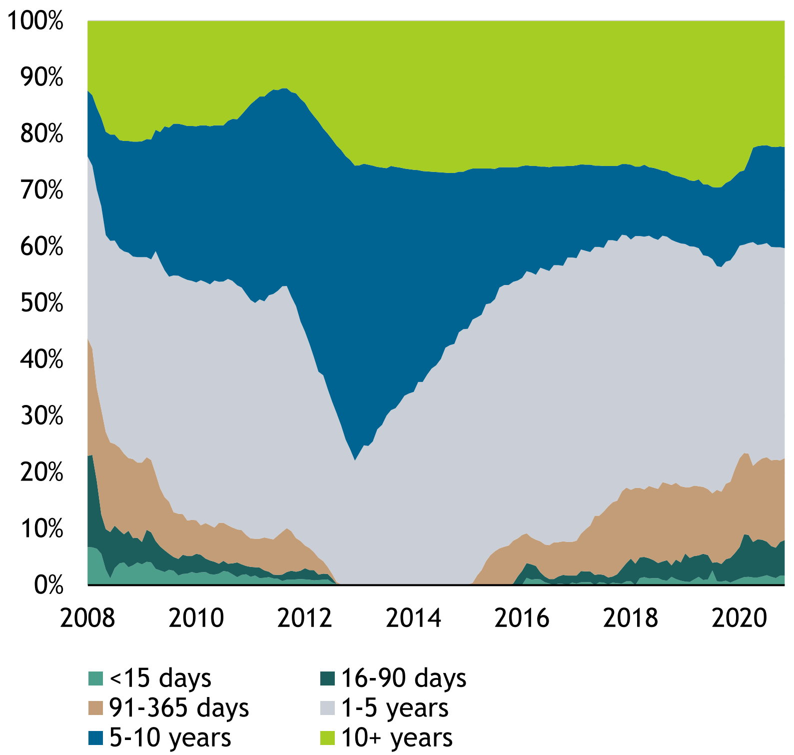
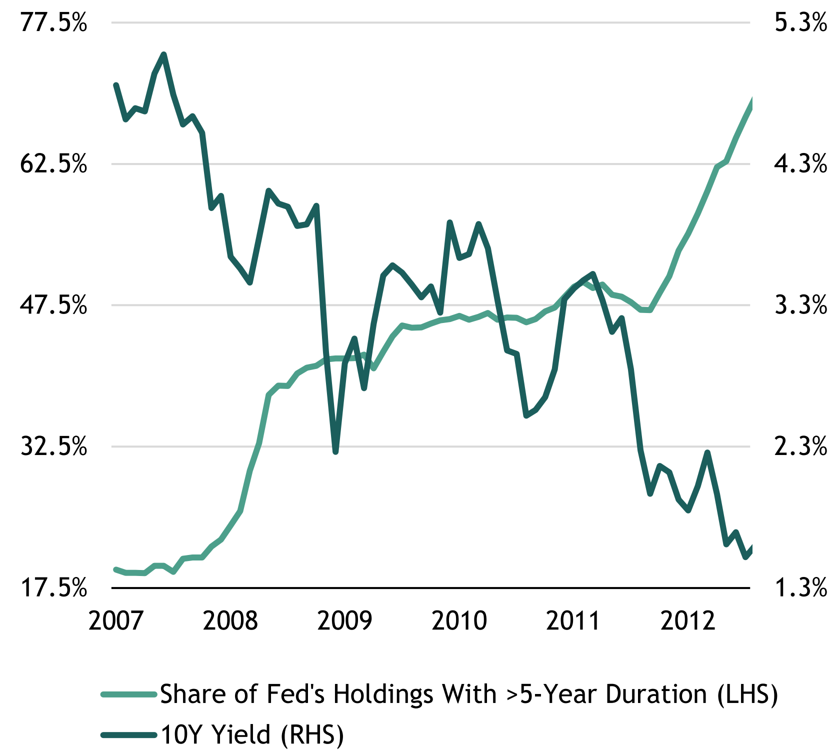
Surprise #9: The surge in economic growth causes the 10-year Treasury yield to rise to 2%. The yield curve steepens, but a concomitant increase in inflation keeps real rates near zero. The Fed wants the strength in housing and autos to continue. As a result, it extends the duration of bond purchases in order to prevent higher rates at the long end of the curve from choking off credit to consumers and businesses

Share of Fed's Treasury Holdings by Duration of Treasury Bills / Bonds



"Operation Twist" Case Study – 2012



Source: Federal Reserve, Bloomberg and Haver Analytics, as of November 30, 2020.
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Surprise #10: The slide in the dollar turns around. The post-vaccine strength of the U.S. economy and financial markets attracts investors disenchanted with Europe and Japan's rising debt and slower growth. Treasurys maintain a positive yield and the carry trade continues

Federal Reserve Trade-Weighted Nominal Broad Dollar Index

(2006=100)

Source: Federal Reserve and Bloomberg, as of December 18, 2020.
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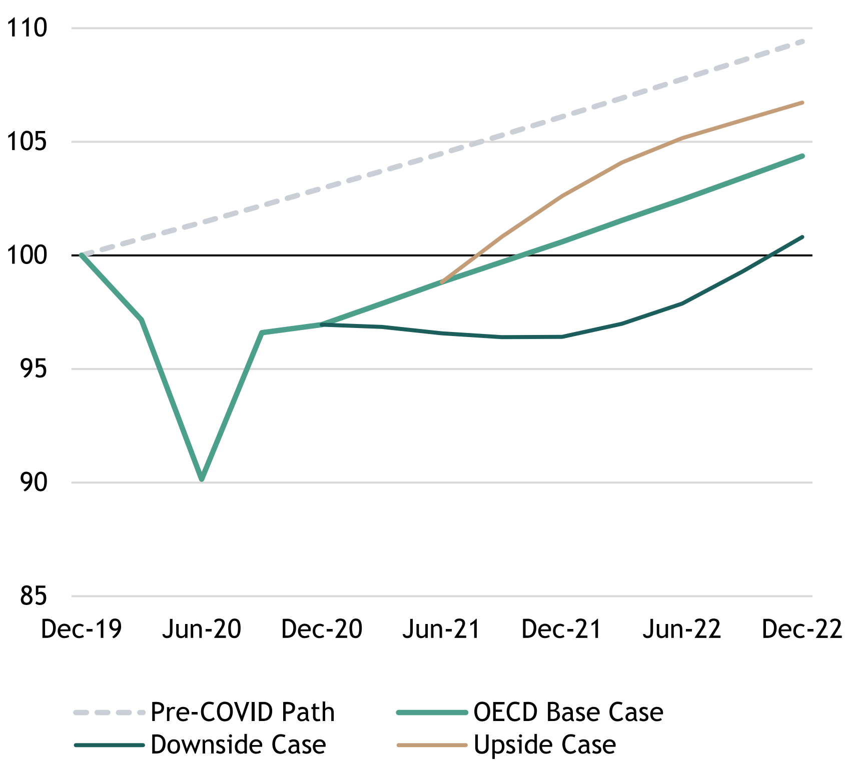
II. Recovery Outlook Brightens

Output gap means world growth is likely to remain permanently below pre-COVID path moving forward

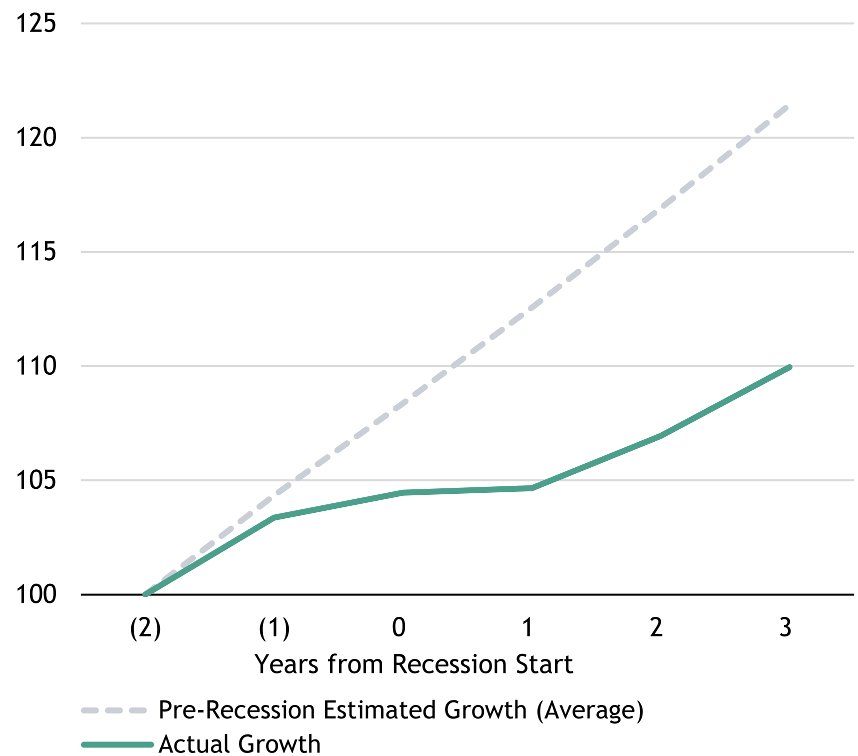
World GDP Growth Paths, Various Cases(1)

(indexed to 100 as of 12/31/19)



World GDP Growth Following Recessions(2)

(indexed to 100 two years prior to each recession respective start)



(1) OECD, as of December 2020.
(2) IMF World Economic Outlook, based on average of the 1991, 2001 and 2008 recessions.

In the U.S., vaccines are expected to be widely available by 3Q21 in the more conservative base case scenario[(1)]

U.S. Vaccine Distribution – Base Case Timeline[(1)]

4Q20 to 1Q21

- First doses of vaccines to be distributed

2Q21

- Vaccines reach most vulnerable population
- Adoption of apps demonstrating immunity or recent test status to facilitate summer travel

3Q21

- Vaccines widely distributed
- Further medical advancements reduce frequency of severe illness

4Q21

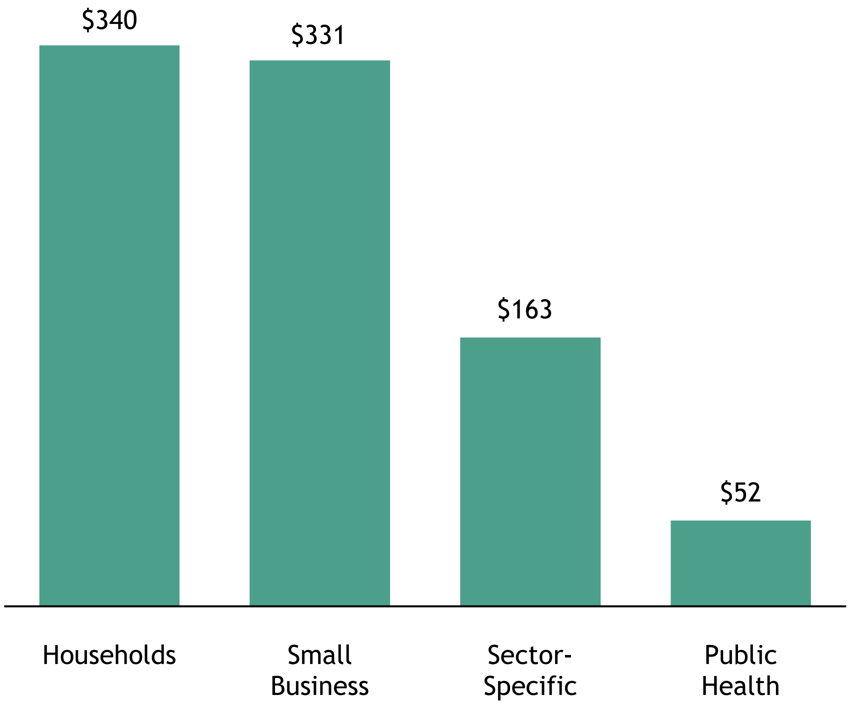
- Approaching herd immunity through vaccination and natural infection

Note: Mr. Zidle and Mr. Wien, in conjunction with Blackstone's Real Estate Asset Management team, spent time with a health and security services firm to discuss when they might expect a return to normalcy. Figure 1 reflects the potential base case scenario for the US based on those discussions. As detailed in the "Disclaimers" section, the above and all subsequent commentary in this presentation reflect the personal views of Joseph Zidle, Managing Director and Byron Wien, Vice Chairman in the Private Wealth Solutions Group, and do not necessarily reflect the view of Blackstone.

$886B stimulus package would provide major support to households ($340B) and small business ($331B)

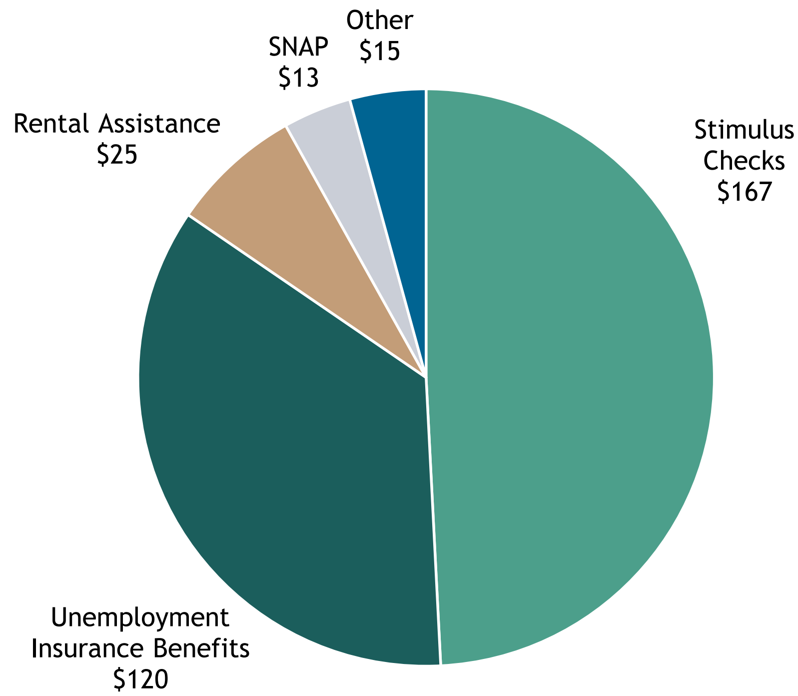
Household Relief: Breakdown

(US$ in billions)



Covid-19 Relief Bill: Major Provisions

(US$ in billions)

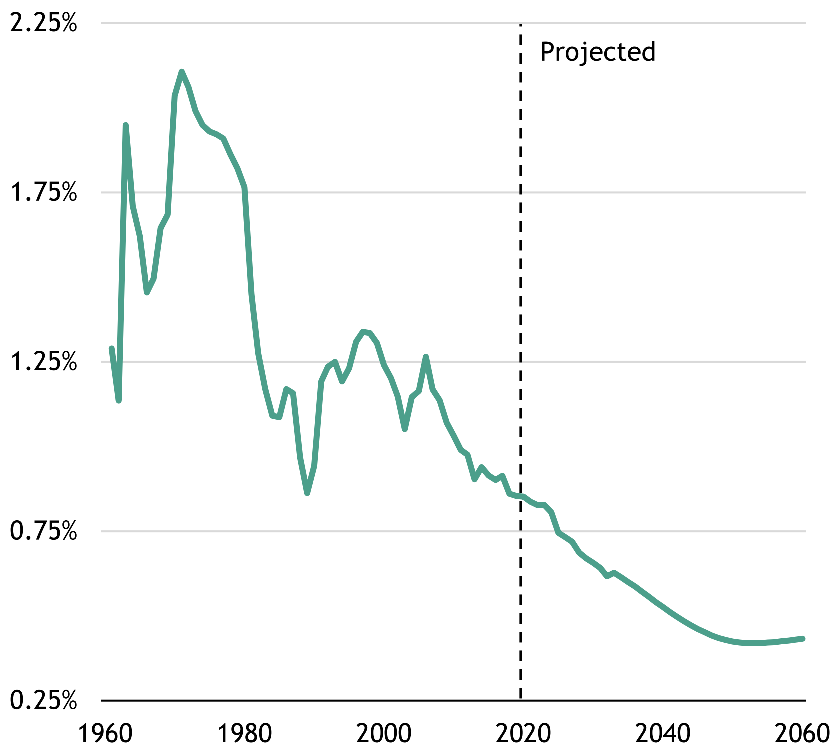


Source: Cornerstone Macro, as of December 21, 2020.

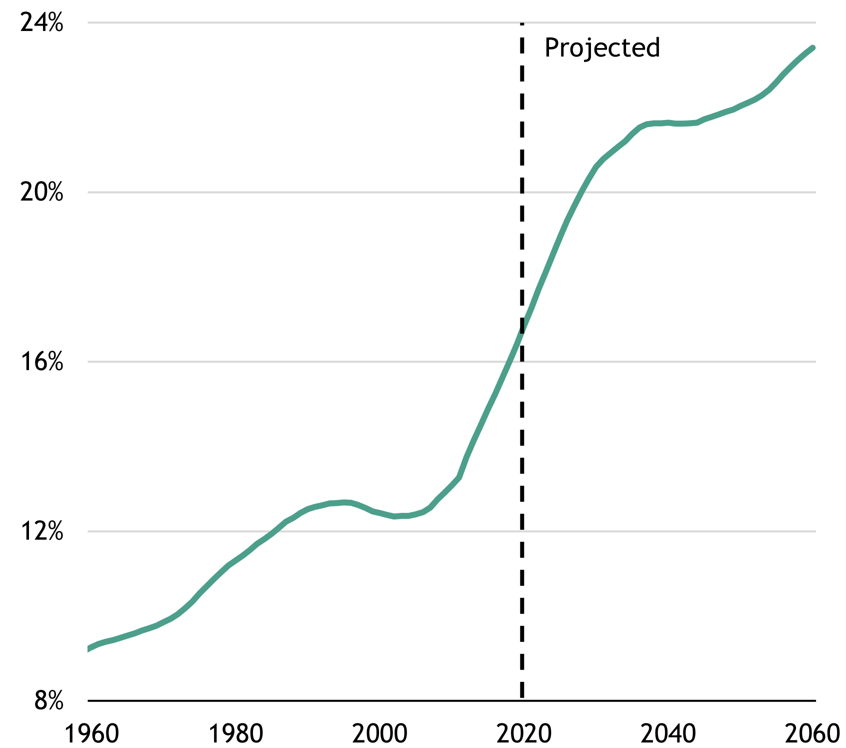
Despite near-term growth bounce, long-term growth expected to be challenged by demographic headwinds

Potential Labor Force Growth in the U.S.

(YoY growth in population aged 16+)



Share of U.S. Population Aged 65+



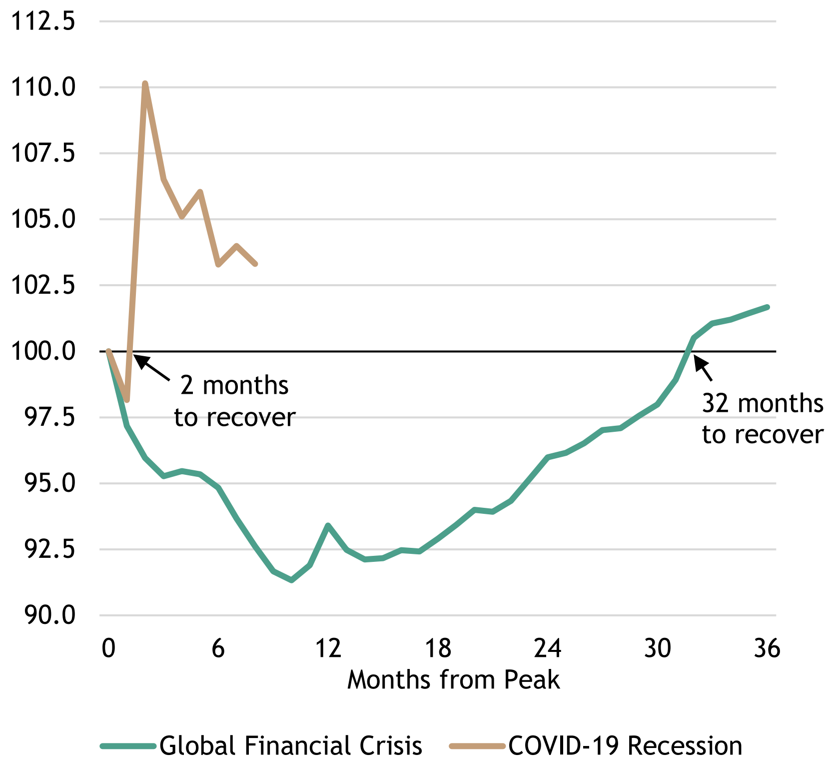
Source: Census Bureau and Haver Analytics, actual data as of 2017 (most recent available).

III. Consumer Strong, but Labor Markets Faltering

Generous government benefits caused rapid bounce in personal income and fueled V-shaped recovery in retail

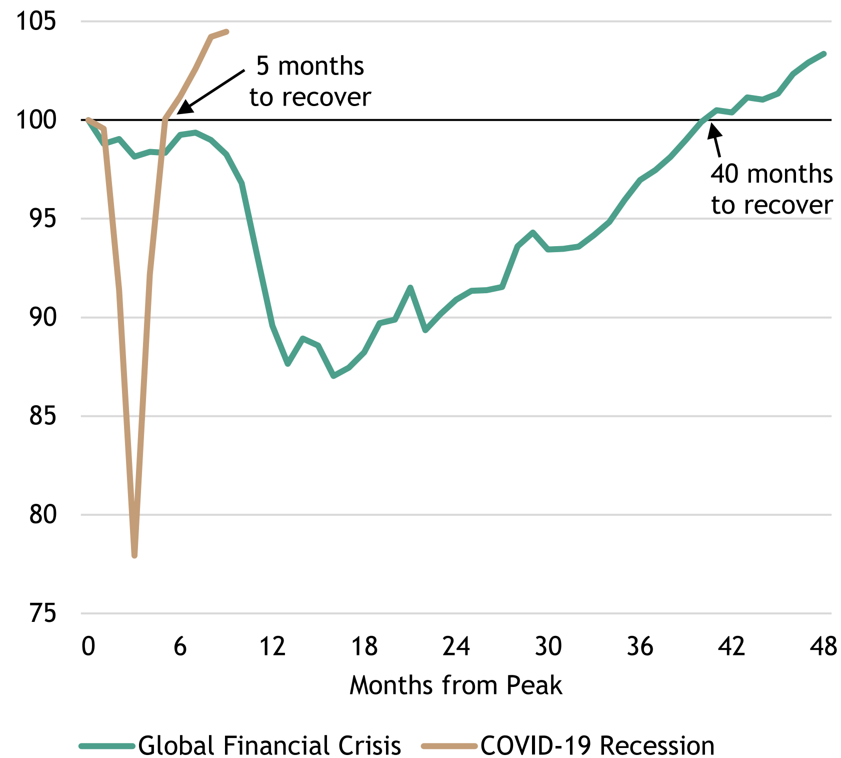
Change in U.S. Personal Income(1)

(SAAR, indexed to 100 at respective peak)



Change in U.S. Retail Sales(2)

(indexed to 100 at respective peak)

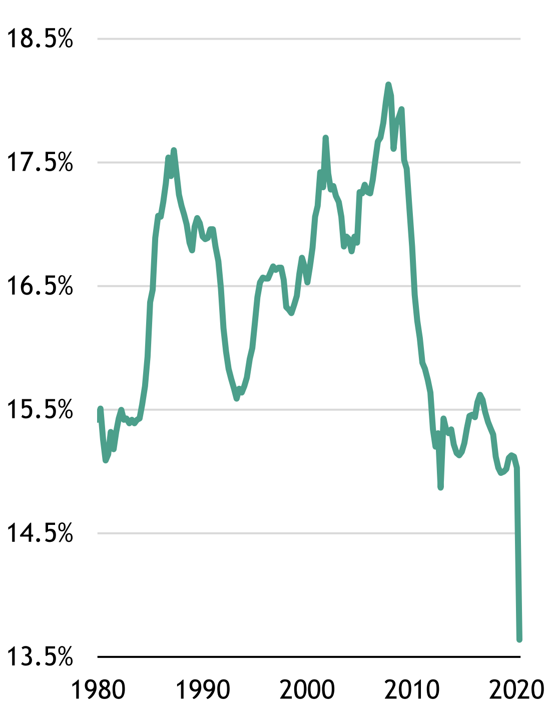


(1) Bureau of Economic Analysis and Haver Analytics. Represents the following periods: GFC (6/1/2008 through 5/31/2011) and COVID-19 Recession (3/1/2020 through 10/31/2020).
(2) Census Bureau and Haver Analytics. Represents the following periods: GFC (6/1/2008 through 11/30/2011) and COVID-19 Recession (1/1/2020 through 10/31/2020).

Household finances remained in historically good shape through 2Q20

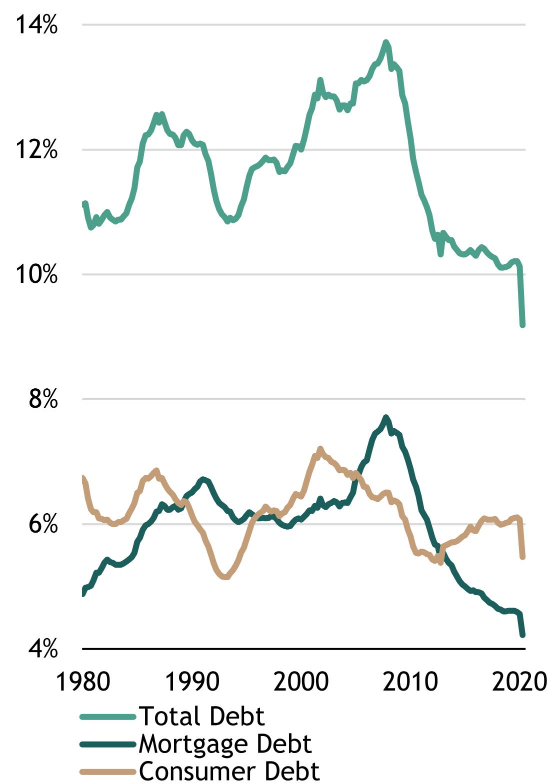
Financial Obligations Ratio[1]

(share of disposable income)



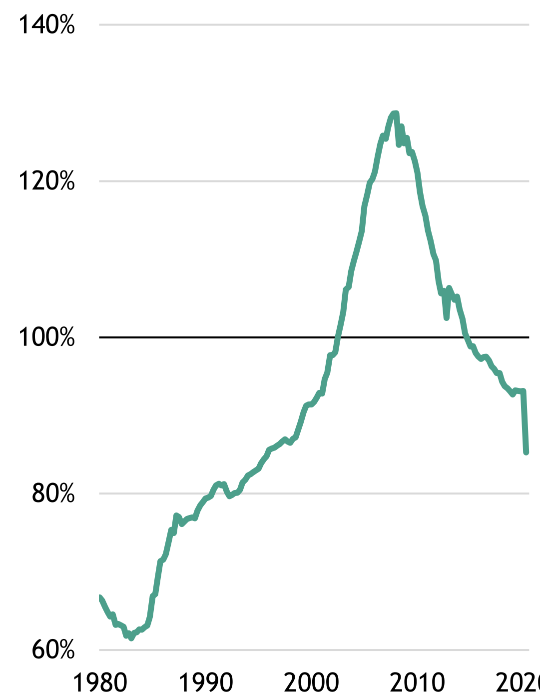
Debt Service Ratios

(share of disposable income)



Debt-to-Income Levels

(share of disposable income)



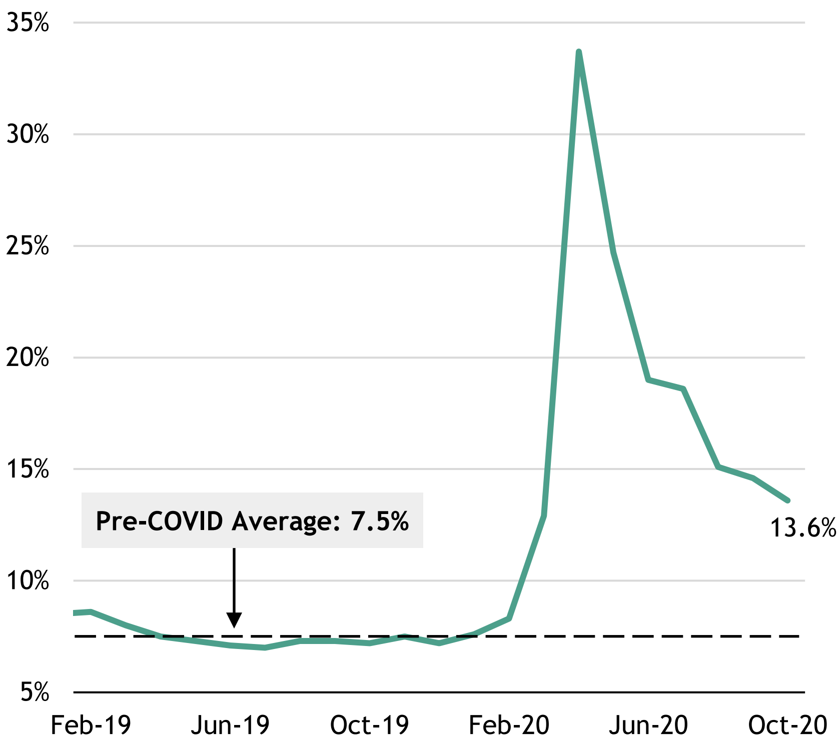
Source: Federal Reserve Board and Haver Analytics, as of June 30, 2020.

(1) Financial obligations ratio is a broader measure than debt service ratio; in addition to required payments on mortgage and consumer debt, it also includes automobile lease payments, rental payments on tenant-occupied property, homeowners' insurance and property tax payments.

Savings rate has declined but remains elevated relative to pre-COVID average

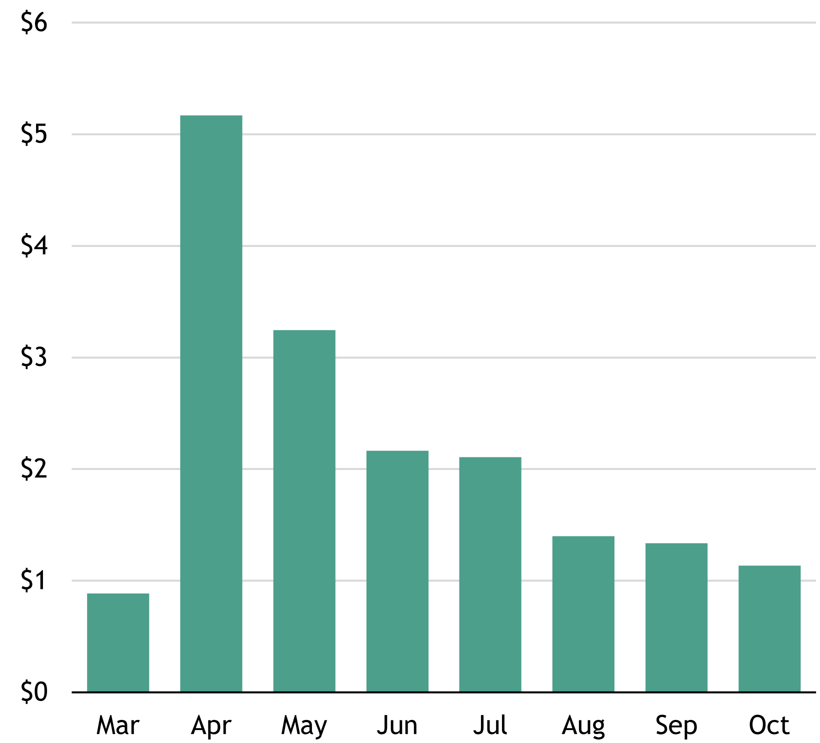
U.S. Personal Savings Rate

(percent of disposable personal income)



2020 Savings Levels vs. Pre-COVID Average

(SAAR, US$ in trillions)

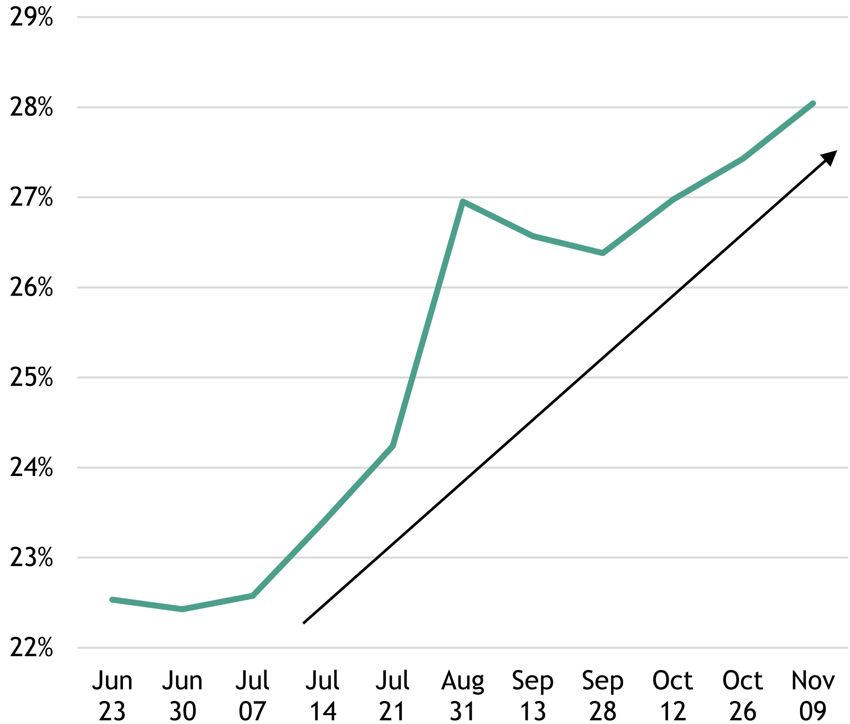


Source: Bureau of Economic Analysis and Haver Analytics, as of October 31, 2020. “Pre-COVID Average” represents the trailing twelve-month average as of February 28, 2020.

People using savings are likely to be low-income, given higher earners have not resumed consumption

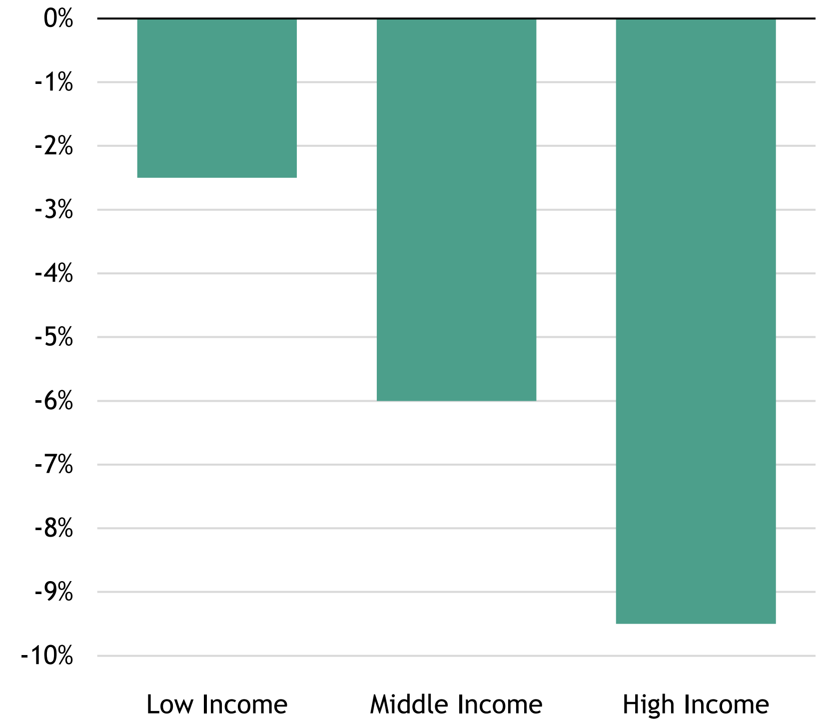
Used Money from Savings or Selling Assets to Meet Spending Needs in Last 7 Days[1]

(percent of survey respondents)



Change in U.S. Consumer Spending by Wage Cohort[2]

(since January 2020)

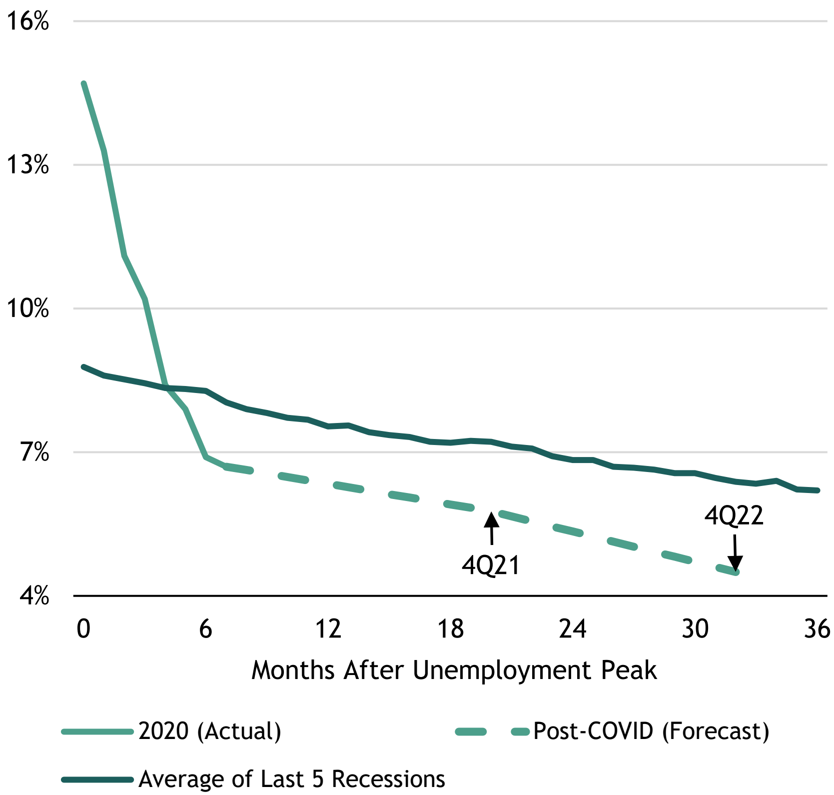


(1) Urban Institute calculations of Census Household Pulse Survey data, as of 12/9/20. Represents average of all respondents. Dates represent responses in the trailing two-week period.
(2) Opportunity Insights and Morgan Stanley, as of 10/31/20. Represents seasonally adjusted credit/debit card spending. Income cohorts represent the top, middle two, and bottom quartiles of ZIP codes by median income. Changes are relative to average of 1/4/20 through 1/31/20 in all merchant category codes (MCC), 7-day moving average.

Labor market recovery has been rapid relative to past recessions, but job gains slowed sharply in November

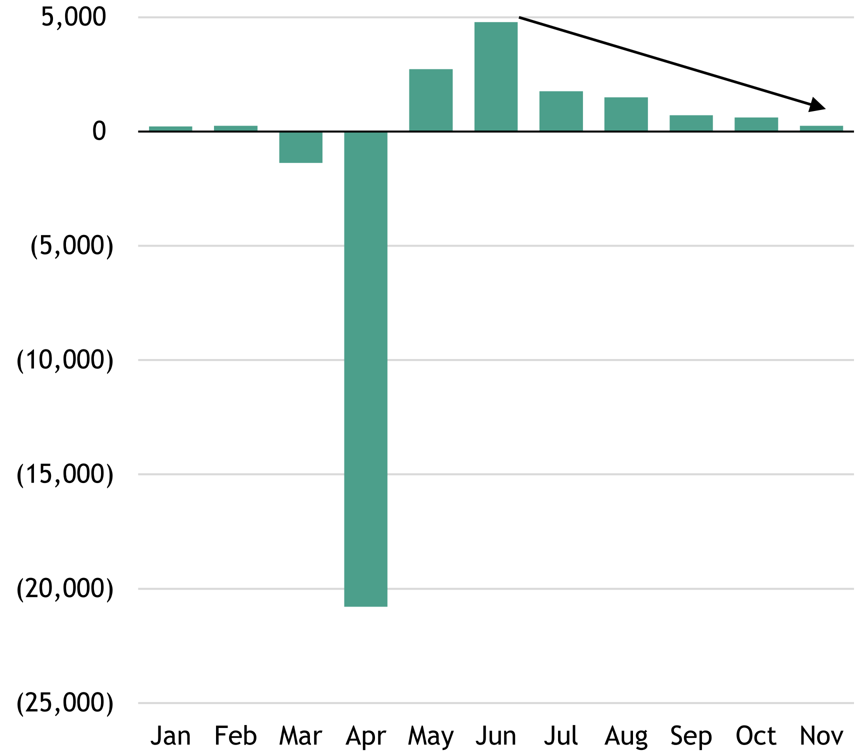
U.S. Unemployment Rate After Recession

(months following respective peaks in unemployment rate)



Change in U.S. Nonfarm Payrolls, 2020 YTD

(in thousands)

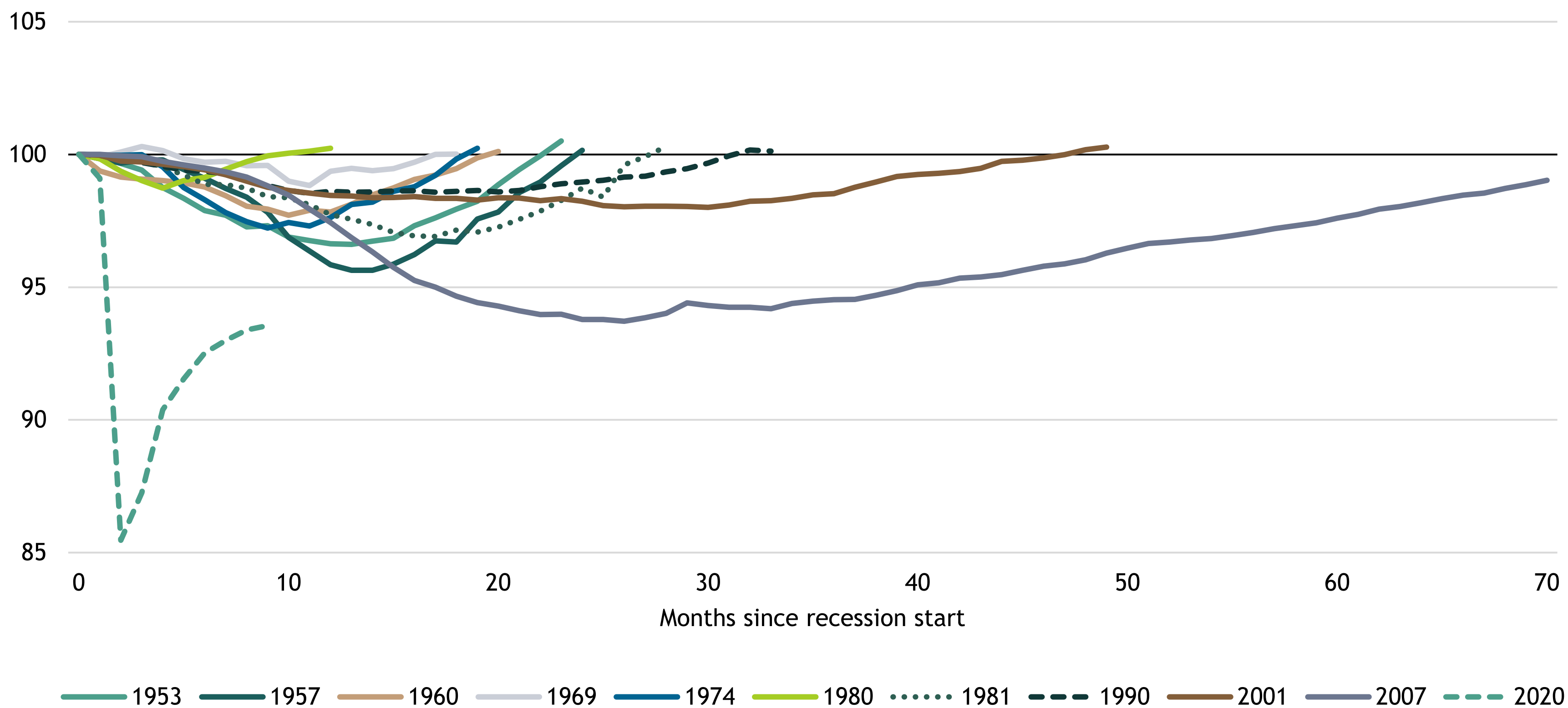


Source: Bureau of Labor Statistics, Bloomberg and Haver Analytics, as of November 30, 2020. Forecasts for 2021 and 2022 represent the average of forecasts from Goldman Sachs, Deutsche Bank and UBS.

U.S. is only halfway back to pre-COVID employment levels

U.S. Employment During and After Recessions

(indexed to 100 at respective recession start)

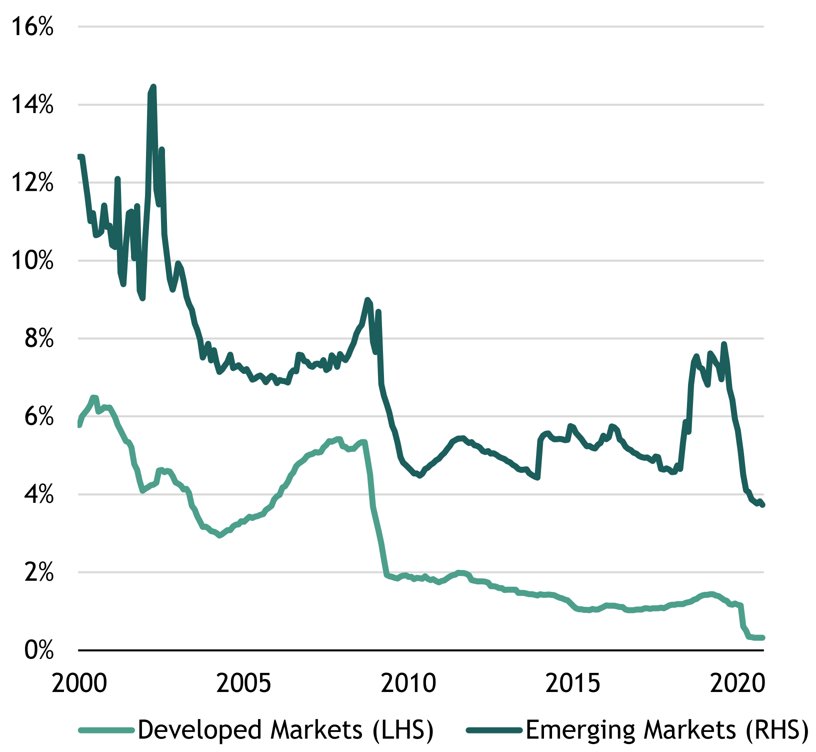


Source: Refinitiv and Fathom Consulting, as of October 31, 2020.

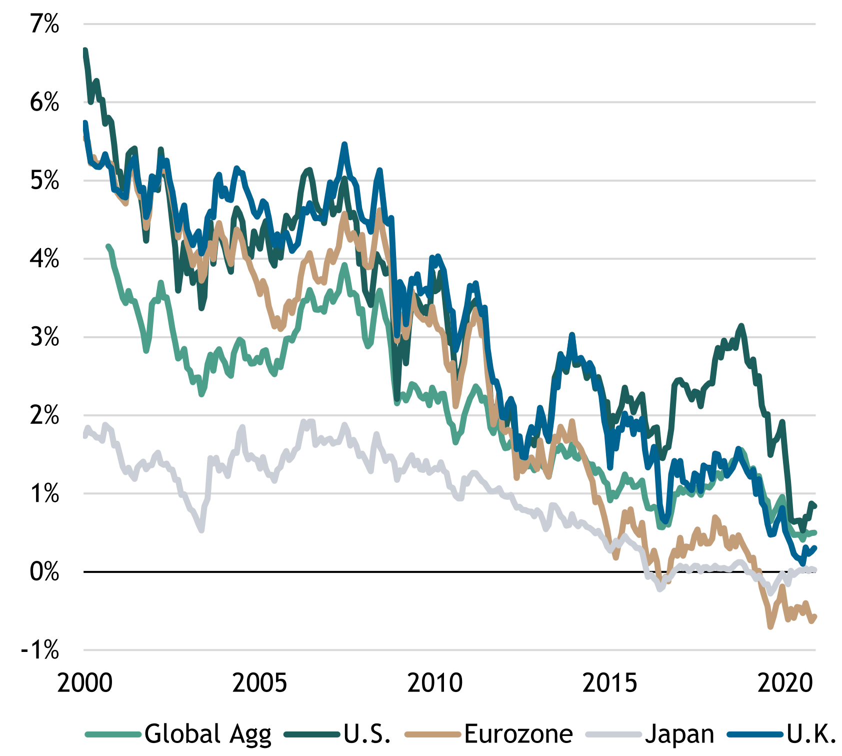
IV. Debt and Interest Rates

Central bank policy rates and sovereign bond yields have continued to reach new lows in 2020

Central Bank Policy Rates(1)



Sovereign Bond Yields(2)

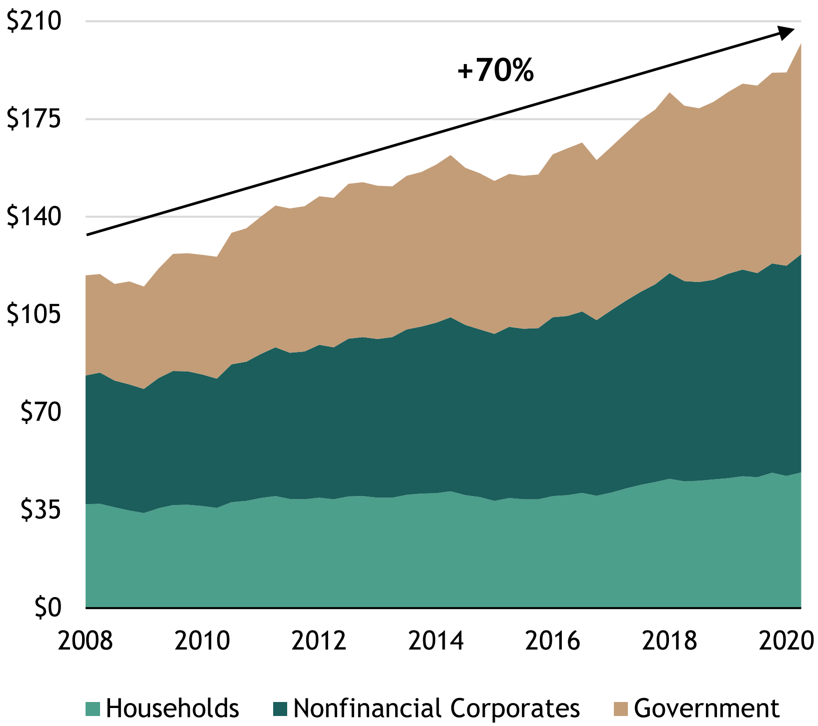


(1) Bank for International Settlements, as of October 31, 2020. Represents monthly arithmetic average of available policy rates for all countries tracked by BIS.
(2) Bloomberg, as of November 30, 2020. Represents the yield to worst for the Bloomberg Barclays Global Agg Treasuries Total Return Index, and the yield on generic 10Y government bonds for the U.S., Eurozone, Japan and United Kingdom.

Through 2Q20, debt levels have increased by 70% since 2008 and are at a record high as share of GDP

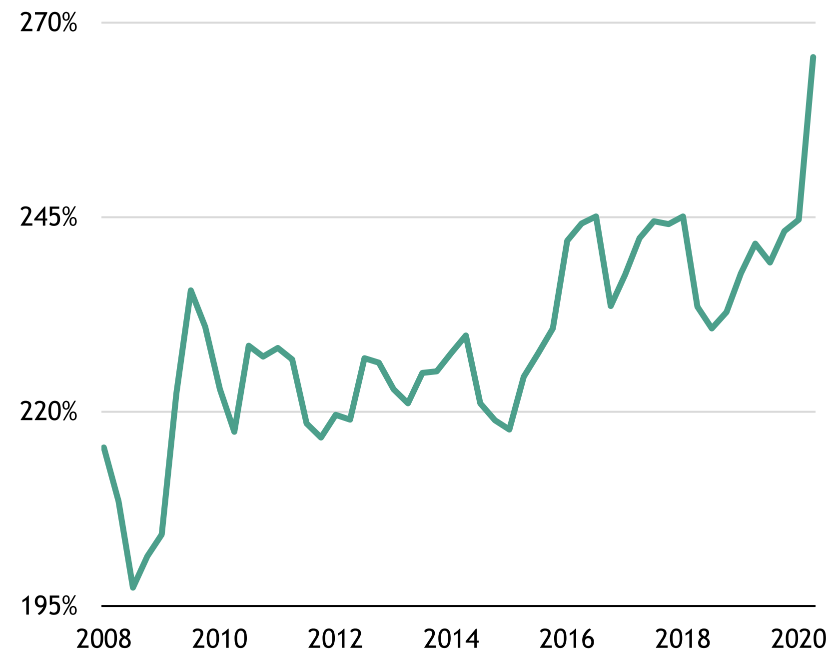
Global Debt to All Sectors (ex-Financial Sector)

(US$ in trillions)



Global Debt to All Sectors (ex-Financial Sector)

(percent of GDP)

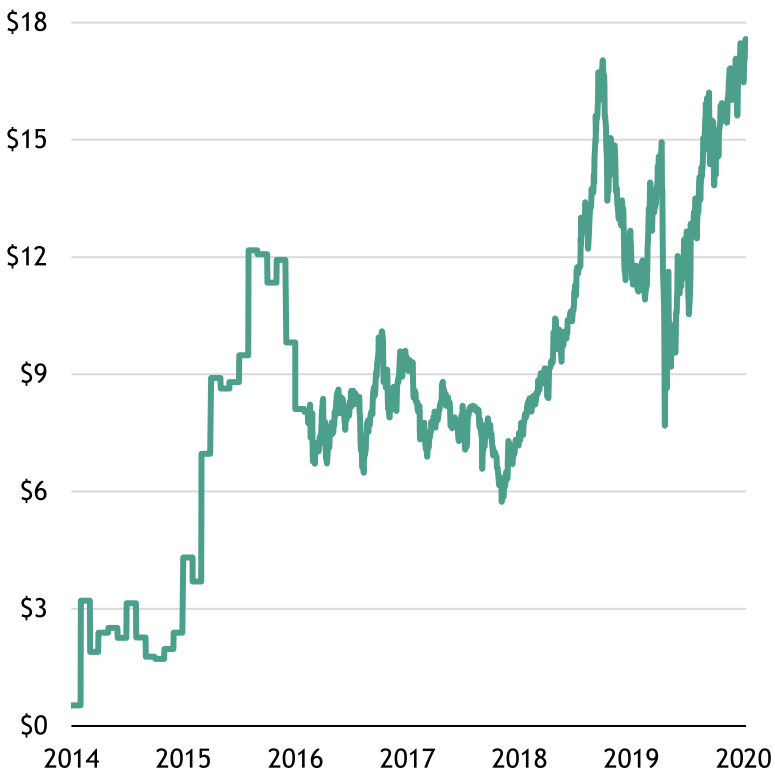


Source: Bank for International Settlements, as of June 30, 2020. Represents market value of credit to private nonfinancial sector and general government from all sectors, for all reporting countries.

Negative-yielding debt reached record $17.5T globally, including over $1.5T in corporate debt

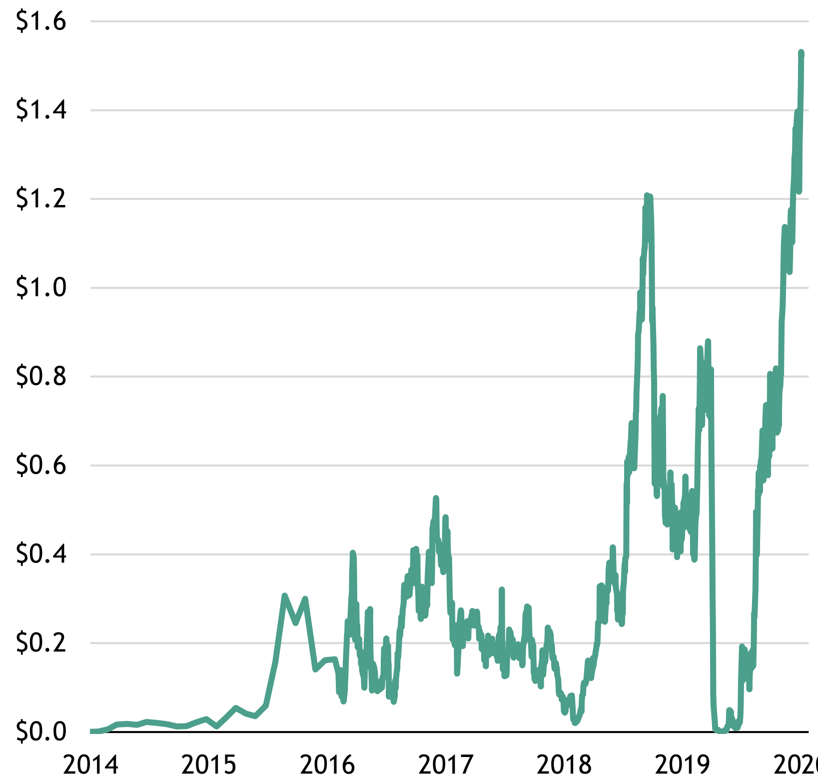
Global Negative-Yielding Debt

(market value, US$ in billions)



Global Negative-Yielding Corporate Debt

(market value, US$ in billions)

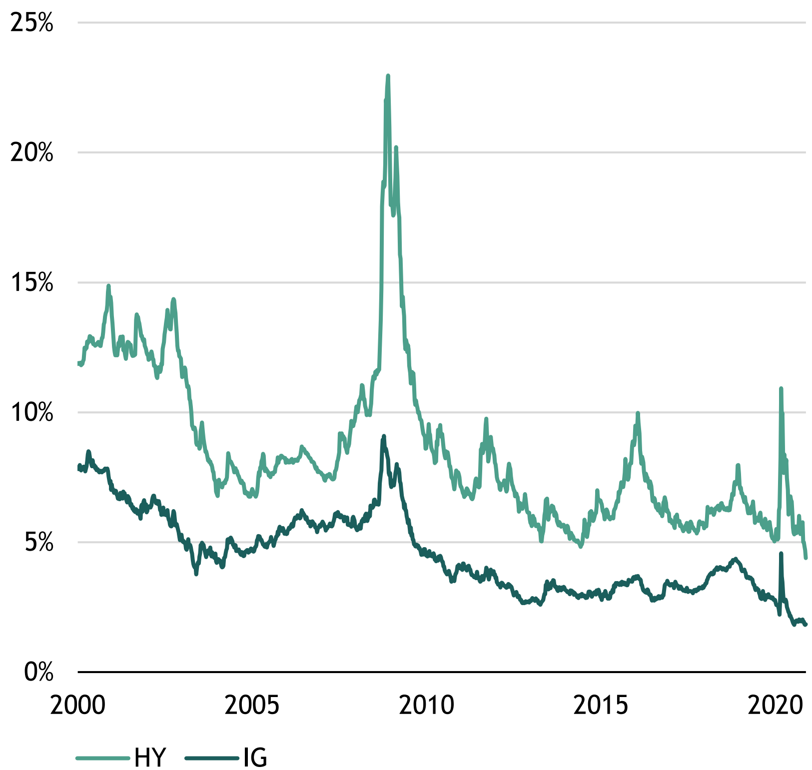


Source: Bloomberg, as of December 9, 2020.

U.S. corporate bond yields have reached all-time lows, leading to record-high issuance in HY and IG debt

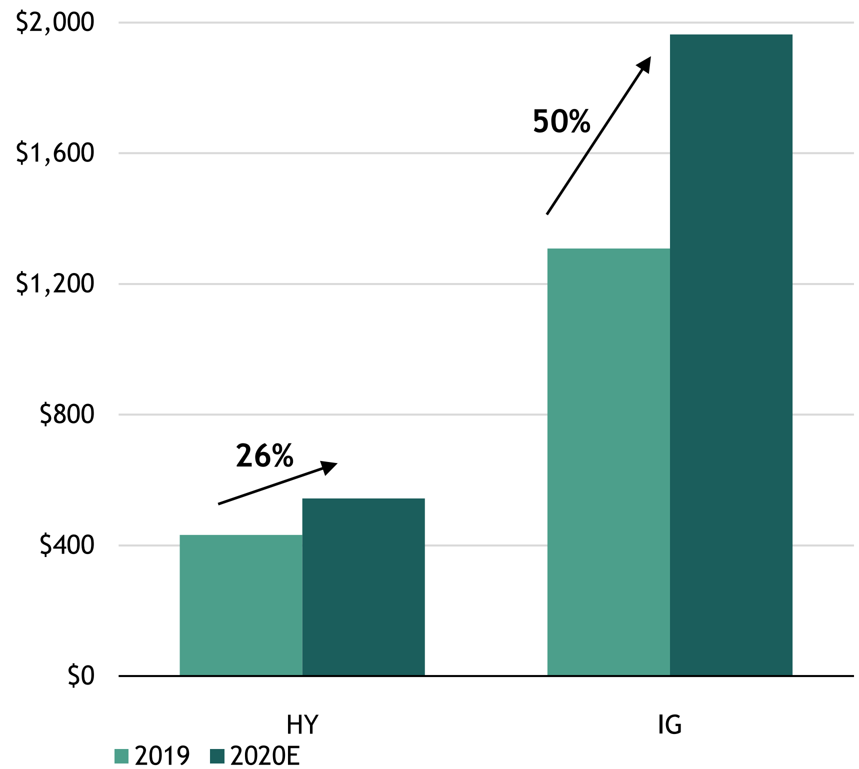
US Corporate Bond Yields

(yield to worst)



U.S. Corporate Bond Issuance

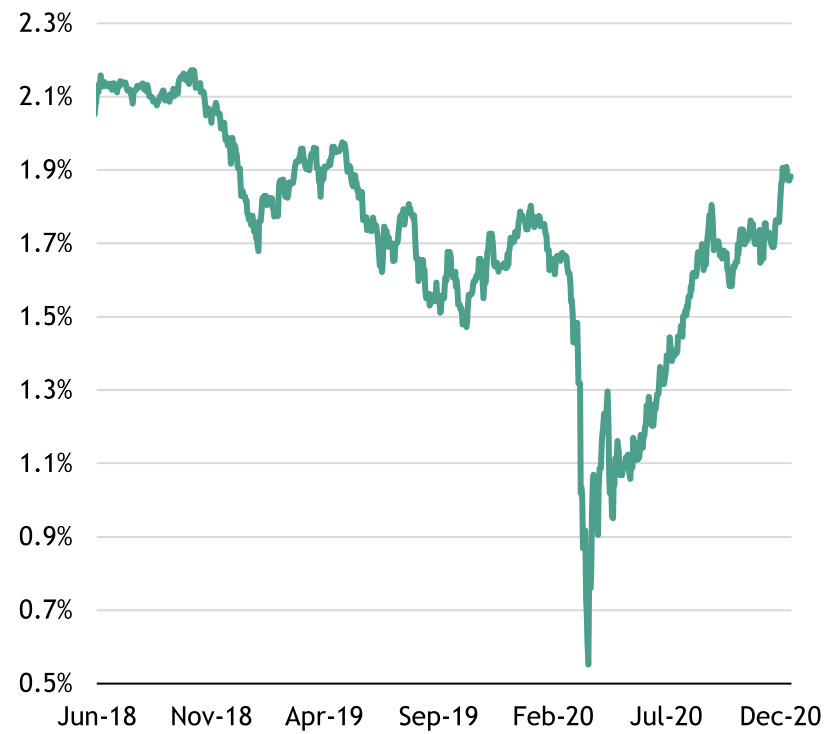
(US$ in billions)



Source: Bloomberg and Moody's. Yield data as of December 4, 2020. Issuance estimates for 2020 as of November 3, 2020.

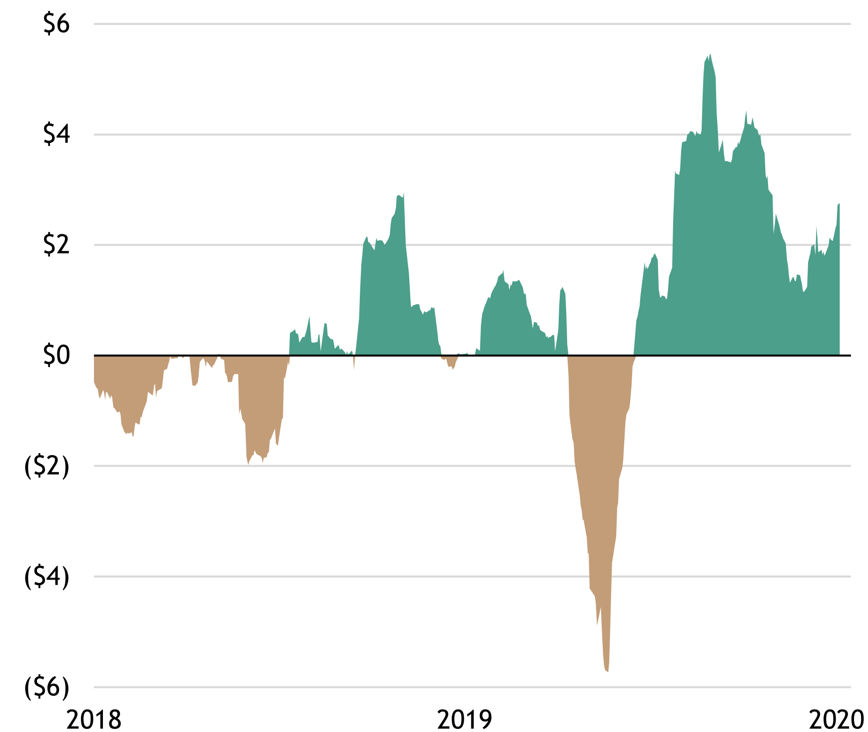
Market inflation expectations at highest levels since mid-2019, investors rotating into TIPs as a result

U.S. 10-Year Breakeven Inflation Rate



Fund Flows to U.S.-Listed ETFs Investing in Inflation-Protected Fixed Income

(US$ in billions, 30-day rolling sum)

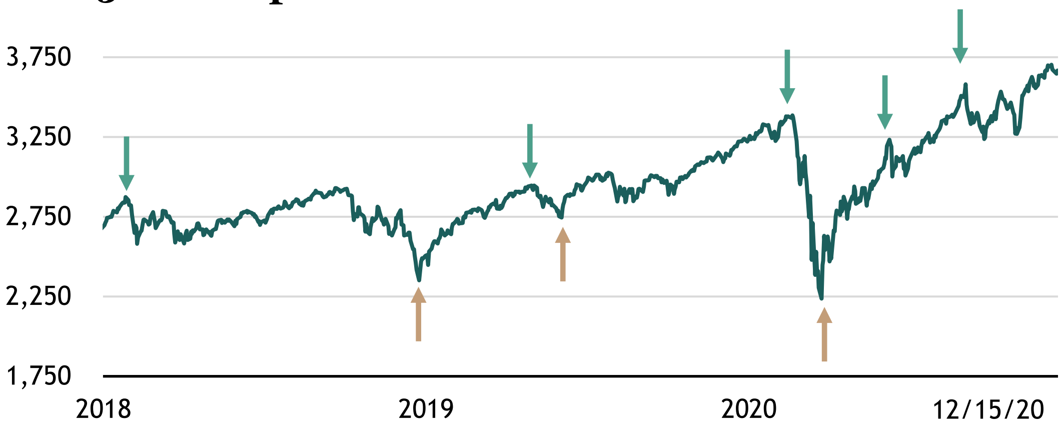


Source: Bloomberg, ICI and Haver Analytics. Breakeven rate as of December 14, 2020, flows as of December 7, 2020.

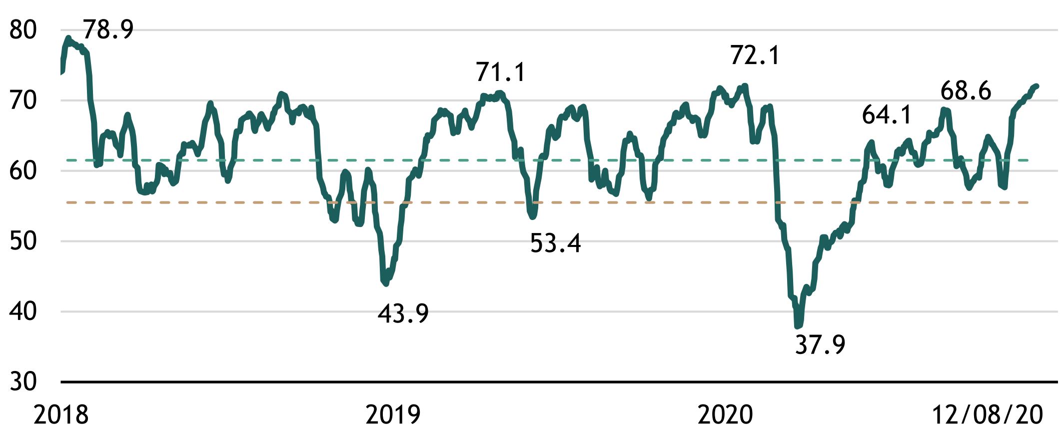
V. Markets Looking Through COVID Resurgence

Market sentiment at optimistic extreme in recent months

S&P 500 Composite Index



NDR Crowd Sentiment Poll



S&P 500 Index Performance
Full History: 12/1/1995–12/08/2020

NDR Crowd Sentiment Poll is:	% Gain / Annum	% of Time
Above 66.0	-2.7	26
57.0 – 66.0 from Above	1.4	18
57.0 – 66.0 from Below	22.3	20
Below 57.0	11.1	36
Buy/Hold = 7.5% Gain/Annum		

Historical average value of Crowd Sentiment Poll at:[1]

- Optimistic extremes (down arrows) = 68.7
- Pessimistic extremes (up arrows) = 46.9
- Average spread between extremes = 21.5

Extremes generated when sentiment reading:[2]

- Rises above 61.5 = Extreme Optimism
- Declines below 55.5 = Extreme Pessimism

Source: Ned Davis Research, S&P 500 data as of December 15, 2020, Crowd Sentiment Poll data as of December 8, 2020.
(1) Arrows represent extremes in optimism and pessimism. They do not represent buy and sell signals and can only be known for certain (and added to the chart) in hindsight.
(2) Sentiment must reverse by 10 percentage points to signal an extreme, in addition to reaching the above extreme levels.

Investors are currently allocated 48% to equities, in the 97th percentile of such allocations since 1990

Portfolio Allocation by Investor Type

(current % of total assets and percentile of allocation level back to 1990)

	Equity		Debt		Cash	
	Current	Percentile	Current	Percentile	Current	Percentile
Households	43%	96%	18%	5%	16%	48%
Foreign Investors	56%	93%	32%	5%	8%	7%
Mutual Funds	56%	86%	23%	41%	19%	20%
Pension Funds	54%	77%	24%	3%	1%	0%
Total(1)	**48%**	**97%**	**22%**	**7%**	**13%**	**19%**

Source: Federal Reserve Board and Goldman Sachs, as of December 3, 2020. 4Q20 estimated allocations for pensions, households and foreign investors are based on changes in asset values only; mutual fund estimates based on changes in asset values and flows.

(1) Loans, -1%; non-corporate equity, -7%; and other miscellaneous assets -9% account for the residual.

Historically low rates distort the traditional relationship between interest rates and equities

S&P 500 Dividend Discount Model[1]

Trailing Twelve-Month EPS	10-Year Treasury Yield												
	0.00%	0.25%	0.50%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.75%	3.00%
$164	4,373	3,749	3,280	2,916	2,624	2,385	2,187	2,018	1,874	1,749	1,640	1,544	1,458
$166	4,427	3,794	3,320	2,951	2,656	2,415	2,213	2,043	1,897	1,771	1,660	1,562	1,476
$168	4,480	3,840	3,360	2,987	2,688	2,444	2,240	2,068	1,920	1,792	1,680	1,581	1,493
$170	4,533	3,886	3,400	3,022	2,720	2,473	2,267	2,092	1,943	1,813	1,700	1,600	1,511
$172	4,587	3,931	3,440	3,058	2,752	2,502	2,293	2,117	1,966	1,835	1,720	1,619	1,529
$174	4,640	3,977	3,480	3,093	2,784	2,531	2,320	2,142	1,989	1,856	1,740	1,638	1,547
$176	4,693	4,023	3,520	3,129	2,816	2,560	2,347	2,166	2,011	1,877	1,760	1,656	1,564
$178	4,747	4,069	3,560	3,164	2,848	2,589	2,373	2,191	2,034	1,899	1,780	1,675	1,582
$180	4,800	4,114	3,600	3,200	2,880	2,618	2,400	2,215	2,057	1,920	1,800	1,694	1,600
$182	4,853	4,160	3,640	3,236	2,912	2,647	2,427	2,240	2,080	1,941	1,820	1,713	1,618
$184	4,907	4,206	3,680	3,271	2,944	2,676	2,453	2,265	2,103	1,963	1,840	1,732	1,636
$186	4,960	4,251	3,720	3,307	2,976	2,705	2,480	2,289	2,126	1,984	1,860	1,751	1,653
$188	5,013	4,297	3,760	3,342	3,008	2,735	2,507	2,314	2,149	2,005	1,880	1,769	1,671
$190	5,067	4,343	3,800	3,378	3,040	2,764	2,533	2,338	2,171	2,027	1,900	1,788	1,689
$192	5,120	4,389	3,840	3,413	3,072	2,793	2,560	2,363	2,194	2,048	1,920	1,807	1,707
$194	5,173	4,434	3,880	3,449	3,104	2,822	2,587	2,388	2,217	2,069	1,940	1,826	1,724

Source: Blackstone Investment Strategy, as of December 31, 2020.

(1) Assumes starting S&P 500 Earnings Per Share of $180, and that EPS start the period increasing/decreasing to level indicated in first column, before increasing/decreasing linearly over 2 years to a 4% nominal growth rate and remaining there in perpetuity. Further assumes dividend payout ratio remains at prior year's level of 40% and equity risk premium is a constant 5.5%.

S&P 500 valuations currently at some of the highest levels in history

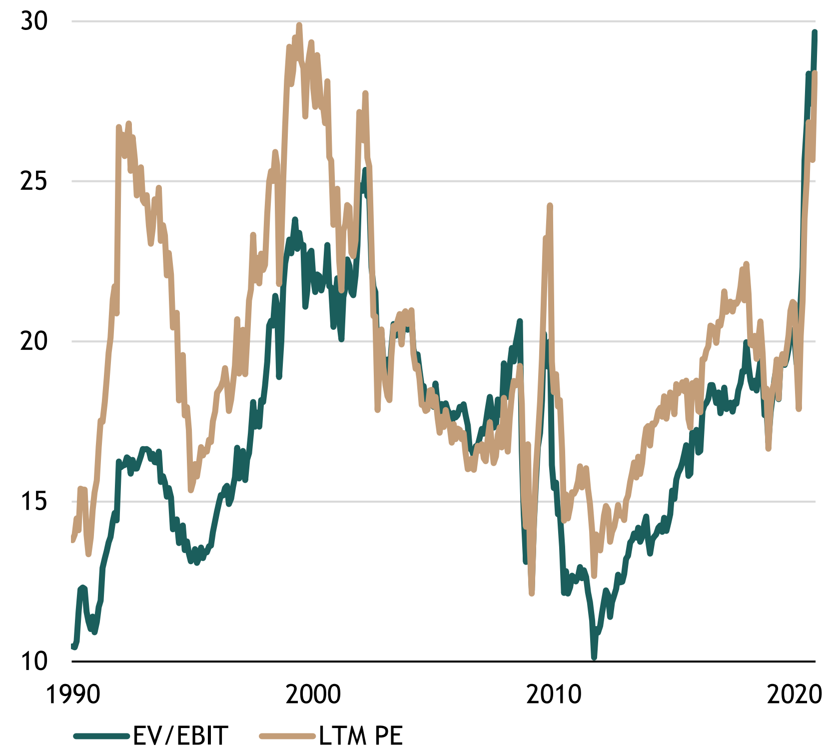
Historical Percentile of S&P 500

Valuation Metrics at Current Levels[1]

Metric	Historical Percentile of Current Reading
LTM PE	97.4
Price to Trend EPS	93.6
NTM PE	94.4
EV/EBIT	100.0
EV/EBITDA	100.0
Median Price to Sales	100.0

Historical Valuation Metrics of S&P 500

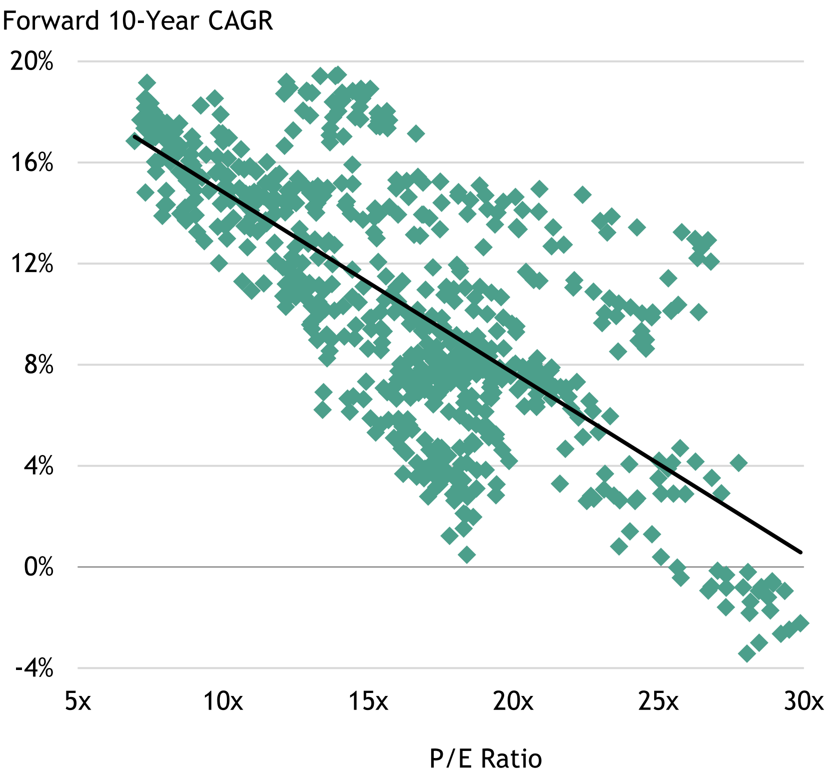
(1990 to 2020)[2]



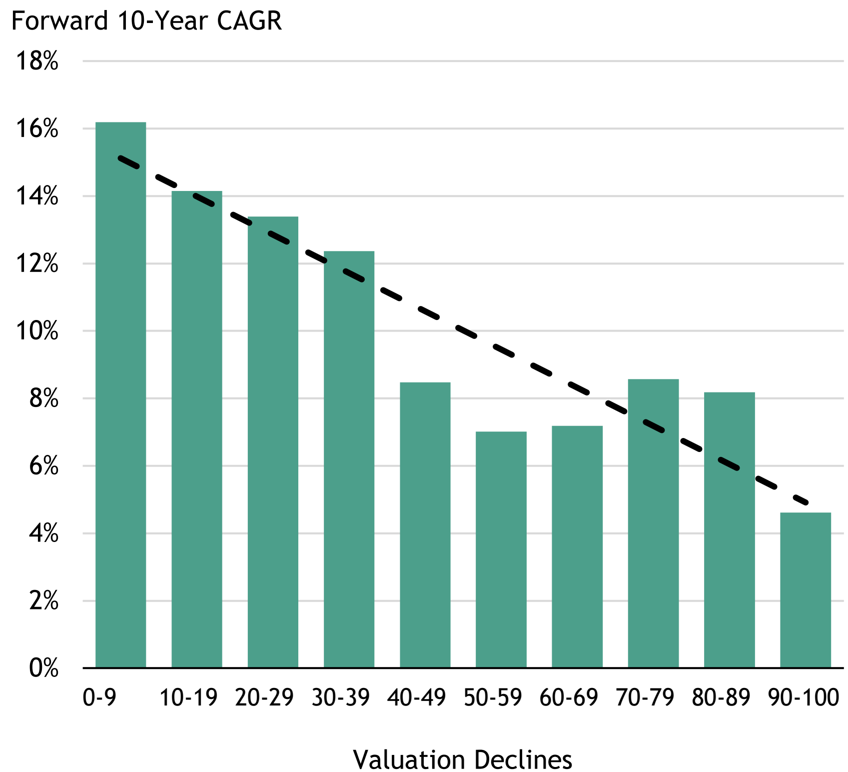
(1) Deutsche Bank, Ned Davis Research and Bloomberg, as of November 30, 2020. The longest time series available are used for each metric. LTM PE and Price to Trend EPS data since 1935. NTM PE data since 1988. EV/EBIT and EV/EBITDA since 1966. Price to Sales since 1964.
(2) Bloomberg, as of November 30, 2020.

S&P 500 currently trades at P/E of 28.4x (top decile); this has historically resulted in lower forward returns

S&P 500 Valuation and Forward 10-Year CAGR



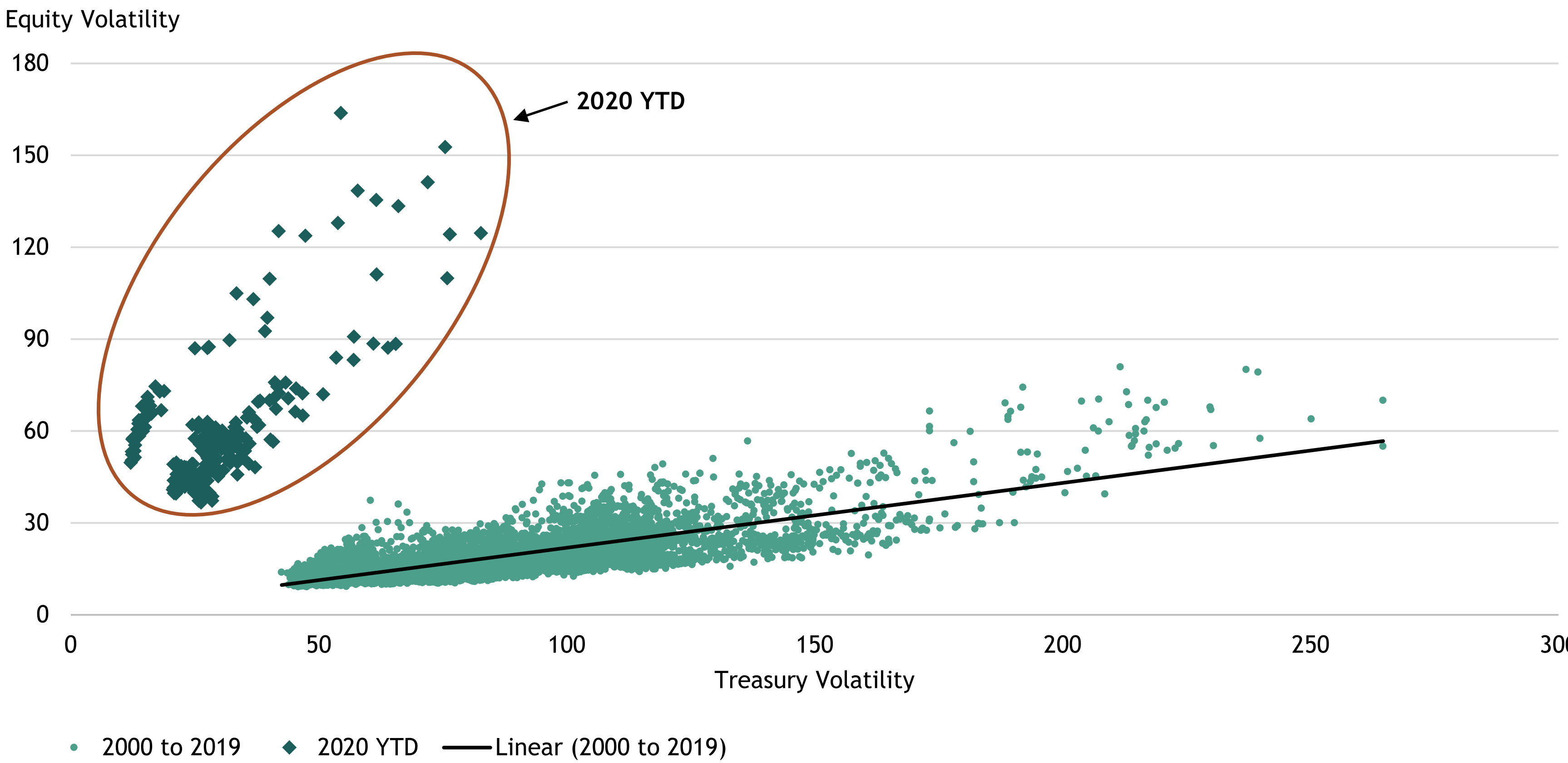
S&P 500 Valuation Forward 10-Year CAGR at Historical Valuation Deciles



Source: Blackstone Investment Strategy calculations of Bloomberg and Standard & Poor's data. Represents total return and trailing 12-month price-to-earnings ratios for the period January 1, 1954 through November 30, 20202.

Treasury volatility historically low and disconnected from equity volatility in 2020 YTD

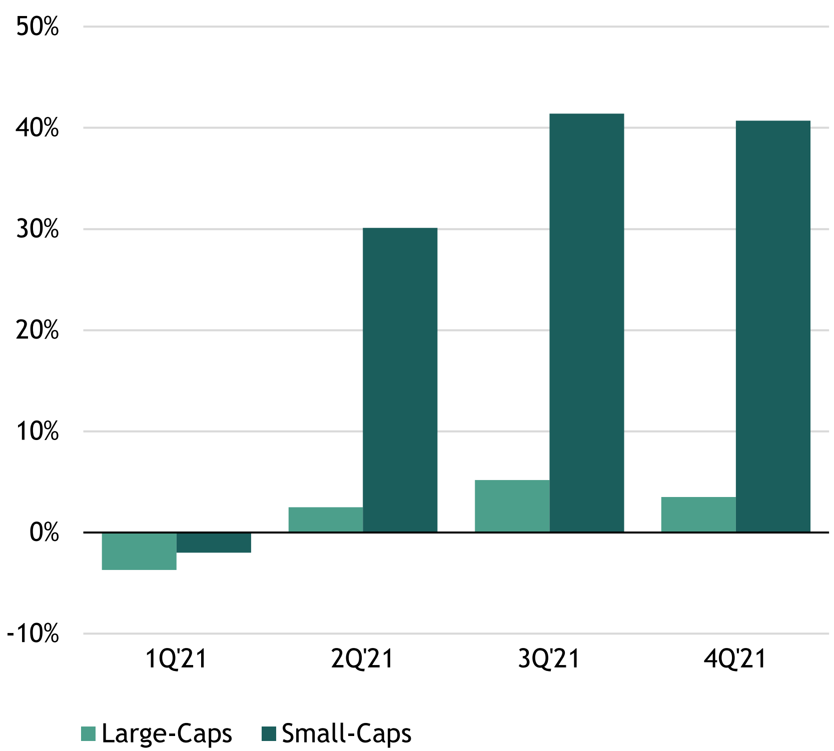
Implied Treasury Volatility vs. Implied Equity Volatility



Source: Bloomberg, as of December 18, 2020. Equity volatility represented by the CBOE Volatility Index ("VIS Index") and Treasury Volatility represented by the ICE BofA MOVE Index.

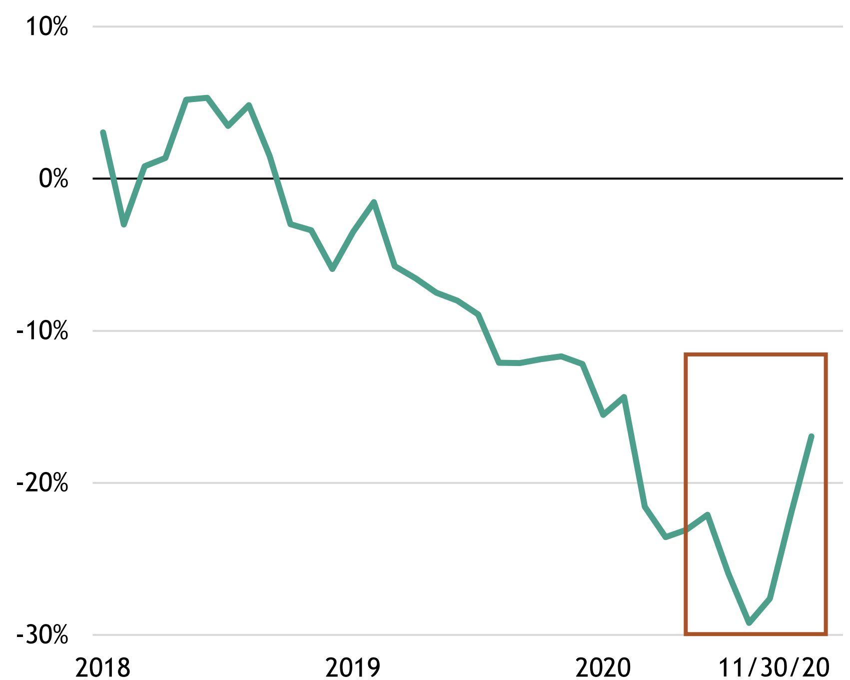
Small caps poised to exceed 2019 levels of EBITDA in 2021, fueling continued rotation towards small caps

Estimated EBITDA Growth: 2021 vs. 2019(1)



Small- vs. Large-Cap Relative Performance

Russell 2000 Less S&P 500 Cumulative Performance Since 2018



(1) Strategas Research Partners, as of November 30, 2020.
(2) Bloomberg, as of November 30, 2020.

"Return-free risk" in U.S. corporate bonds as real yields turn negative for the first time

Corporate Bond Real Yields

(Barclays Corp Agg Bond Index yield to worst less 10Y breakeven, bps)

Source: Bloomberg, as of December 7, 2020.

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