Eye on the Market Outlook 2021

The Hazmat Recovery. In response to the worst pandemic in 50 years and a country at war with itself over lockdowns, individual freedoms and election results, the Fed and Congress airdropped an unprecedented amount of stimulus with vaccine airdrops to follow. That should be enough for markets to rise again in 2021 as pent-up activity is unleashed, and since the bill for stimulus is shifted to future generations. Whether this solves any of the other issues is a different story. Our 2021 Outlook reviews these topics along with deep dives on China, Europe, Emerging Markets, tech antitrust issues, gold and the rapidly shrinking portfolio choices for yield-oriented investors.

J.P.Morgan

MARY CALLAHAN ERDOES
Chief Executive Officer
J.P. Morgan Asset & Wealth Management

2020 was a year unlike any other—unprecedented in history. Let's try not to repeat it.

Amid all the confusion, my partner and Chief Investment Strategist for J.P. Morgan Asset & Wealth Management, Michael Cembalest, helped us to find the signals through the noise.

I remember how crazy it sounded, on our first virus webcast in March, when Michael told us that he thought the world would be 70–80% back to normal by March 2021. Well, he may be spot on. Let's hope for continued progress as the recovery continues. Michael's outlook will help us to think about our own portfolio positioning as we head into this new year.

After the year we just had, I want to especially thank each one of you for the trust and confidence you place in all of us at J.P. Morgan.

Happy New Year,

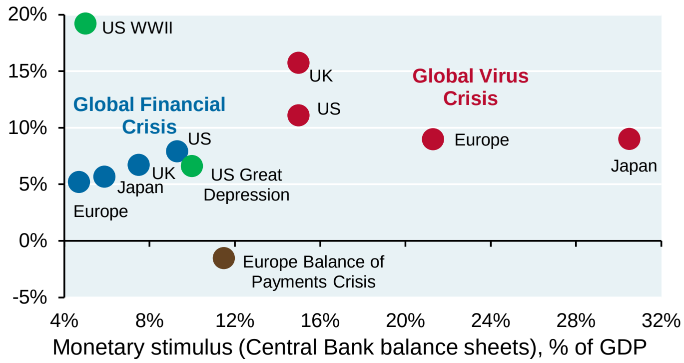
Mary C. Erdoes

2021 Outlook: The Hazmat Recovery **January 11, 2021**

Executive Summary

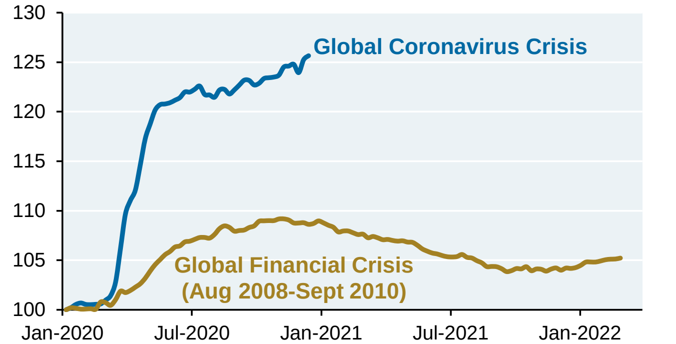
While 2020 is defined by some as the year of COVID and by others as the year of the most hotly disputed US election in decades, for investors it was the year of mega-stimulus. The developed world response to the coronavirus involves monetary and fiscal stimulus that dwarfs anything seen before it, that was delivered much faster, and which influences our investment outlook for 2021 and beyond.

Stimulus response to COVID sets a new bar
Fiscal stimulus, % of GDP



Source: Central bank sources, OMB, St Louis Fed, JPM Global Economic Research, JPMAM. December 2020.

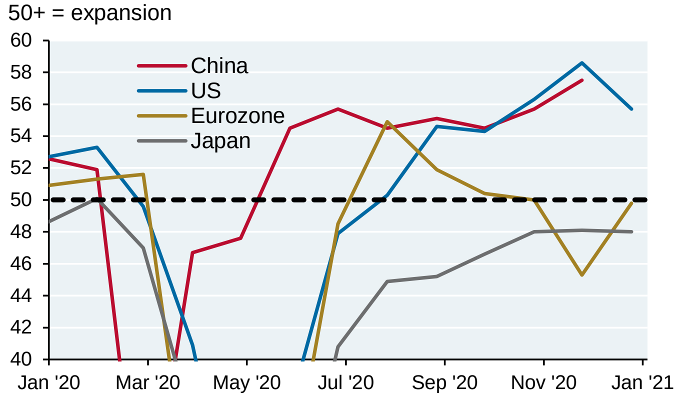
Faster growth in the money supply this time around
M2 money supply + institutional money market fund balances, index



Source: St Louis Fed, J.P. Morgan Asset Management. December 14, 2020.

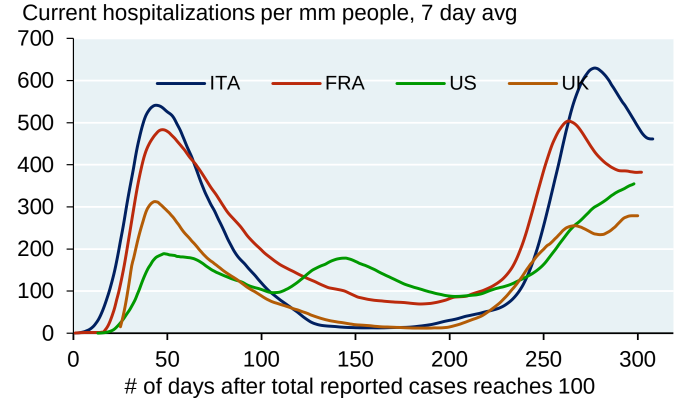
COVID has surged in the developed world, and vaccination of vulnerable populations may not permanently mitigate hospitalization and mortality until April or May[1]. The first chart on the next page shows the US spending stall that hit when the fall COVID wave began. Even so, by late summer of 2021 we expect the global economy to be close to pre-COVID levels of activity given vaccination timelines. China is already booming again, and signals from the copper market point to stronger global growth in 2021.

Regional manufacturing & services business surveys
50+ = expansion



Source: Markit PMI. December 2020. December data is preliminary.

COVID Hospitalizations
Current hospitalizations per mm people, 7 day avg



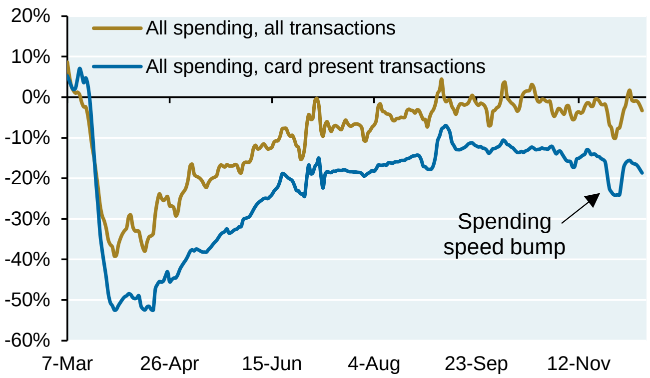
Source: COVID Tracking, ECDC, IMF, JPMAM. December 27, 2020.

[1] **Vaccinations**. The US Advisory Committee on Immunization Practices has prioritized healthcare/nursing home workers and long term care residents in **Phase 1a**. Given projected vaccine production schedules, most US healthcare workers could be immunized by the end of January. **Phase 1b** targets essential workers (teachers, agriculture, police and fire) and people over age 75. **Phase 1c** targets those aged 65-74 and people with high risk medical conditions. **Phases 1a-1c could be completed by June**.

More broadly, developed countries are projected to have vaccine capacity of 1.5x-2.0x their vulnerable populations (people > 60, medical workers and those with severe co-morbidities) by Q2 2021, and 0.5x to 0.7x their total populations by the same date. See Section 3 on our COVID web portal for more information.

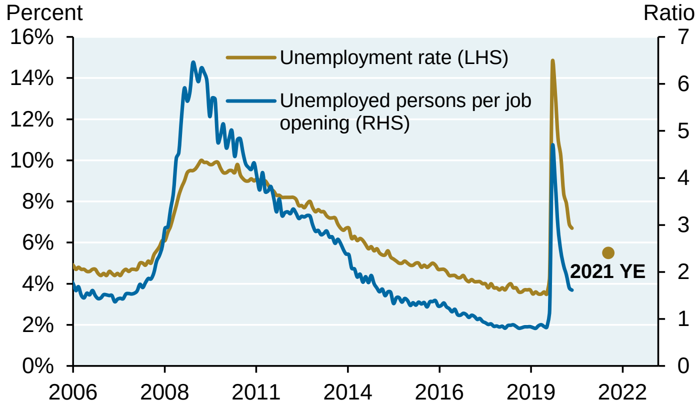
Pandemic shocks are different from traditional recessions. Pandemics and natural disaster cycles are generally faster: see employment, production, consumer spending and capital spending examples below. As the global and US recoveries continue in 2021, we expect US unemployment to end 2021 at around 5%. The third chart highlights the very different impact of pandemic lockdowns on labor markets: **while unemployed individuals surged in 2020, the number of job seekers per job opening did not** (i.e., most expect to get their jobs back).

National credit and debit card spending trends
Spending change 2020 vs 2019, 7 day smoothing



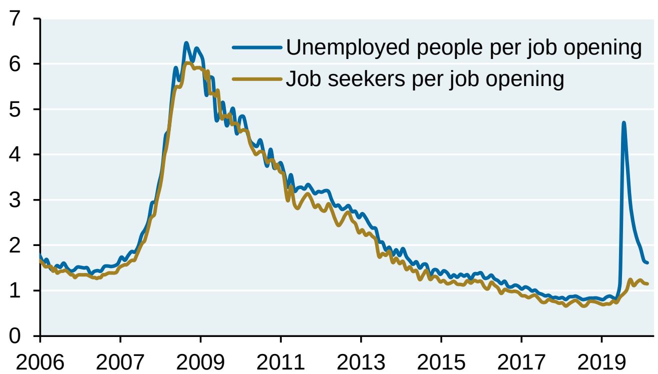
Source: Internal Chase data, JPMAM. December 13, 2020.

Unemployment and job openings
Percent



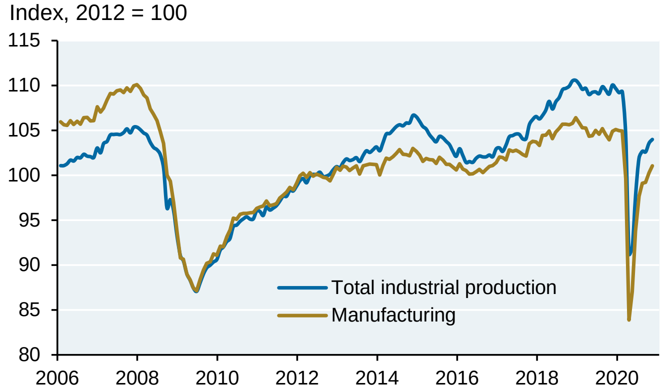
Source: BLS, JPMAM. November 2020.

The key labor market difference, 2009 vs 2020
Ratio



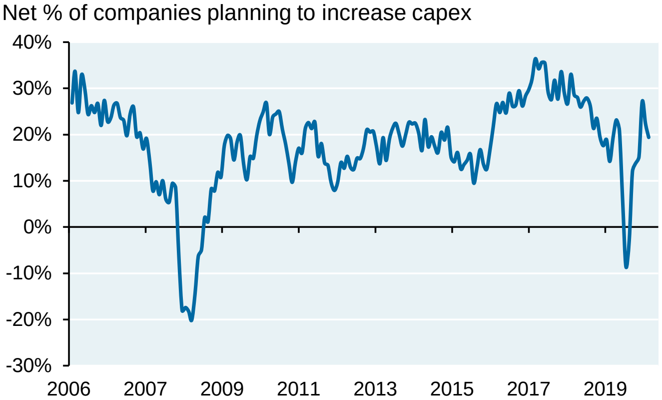
Source: BLS, GS. November 2020.

US industrial production
Index, 2012 = 100



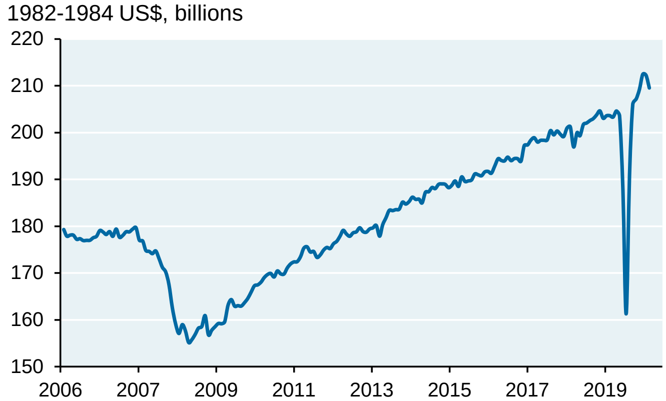
Source: Federal Reserve Board. November 2020.

Capital spending expectations
Net % of companies planning to increase capex



Source: Federal Reserve Bank, JPMAM. November 2020.

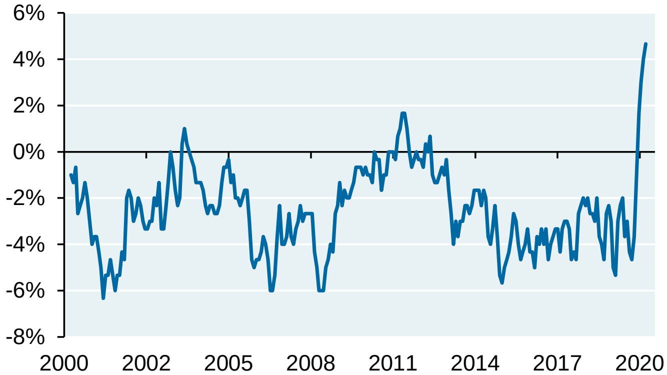
Real retail sales
1982-1984 US$, billions



Source: BLS. November 2020.

Tight inventory conditions should help growth by mid-year given the need for hiring and capital spending to meet demand; elevated supplier delivery delays also confirm this general trend. Note that despite business closures due to COVID, there was a spike in new business applications across a wide range of industries.

Business inventory tightening
% businesses reporting inventories too low - too high, 3-month avg



Source: National Federation of Independent Business. November 2020.

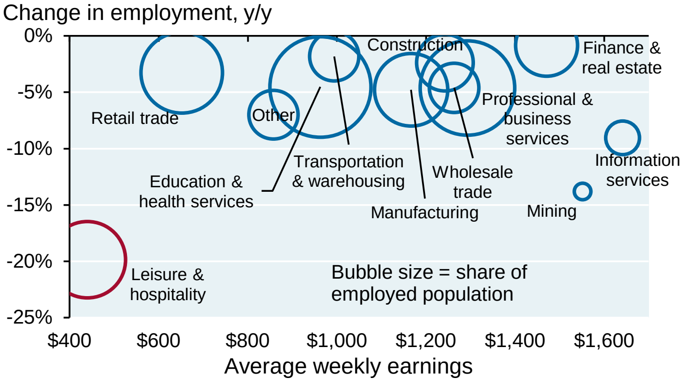
New business applications filed with the IRS in 2020
% of 2019 level, weekly data

Source: US Census Bureau. December 19, 2020.

To be clear, there has been a catastrophic employment decline in COVID-affected sectors. To get a sense for how bad leisure & hospitality job losses are, consider this: the *peak* decline in employment in the last few recessions was 4%-6%; and that's how much employment is still down in the *better-positioned* sectors of the US economy. So, the current 20% decline in leisure & hospitality employment is catastrophic.

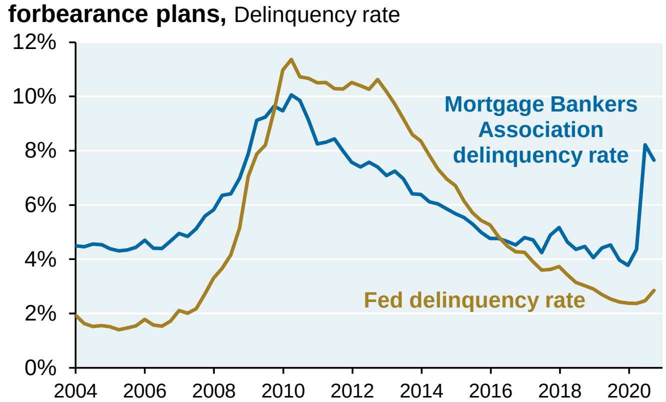
However, fiscal stimulus allowed spending for the lowest income cohorts to recover to pre-COVID levels by June of last year. See the first 2 charts on the next page; you can see the impact of stimulus bills on spending of unemployed families. How are households doing on mortgage payments? The truth lies in between the Fed delinquency measure (assumes that people on forbearance will be current when plans end) and the MBA measure (assumes that people on forbearance are in default). Since unpaid balances will be shifted to balloon payments at the end of the mortgage, I believe the "right" measure is closer to the lower Fed estimate.

Change in private sector employment vs average weekly earnings by industry
Change in employment, y/y



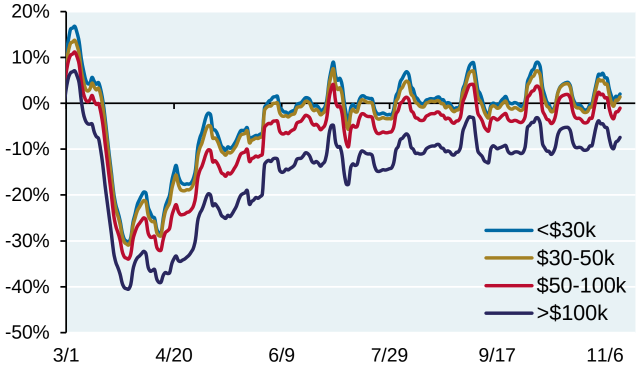
Source: BLS. November 2020.

Mortgage delinquency rates depend on treatment of forbearance plans, Delinquency rate



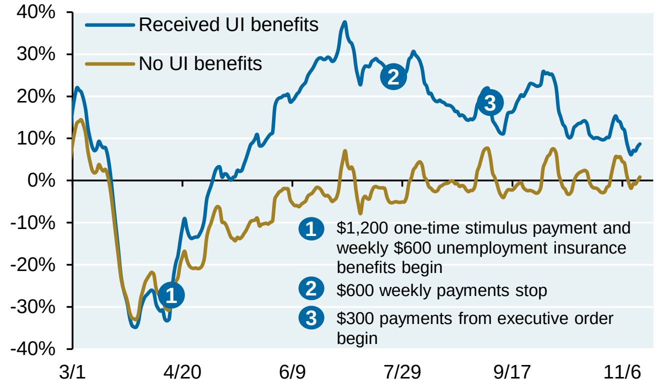
Source: Bloomberg. Q3 2020.

National spending trends by income
% change from January 2020 level, 7-day average



Source: Internal Chase data, JPMAM. November 13, 2020.

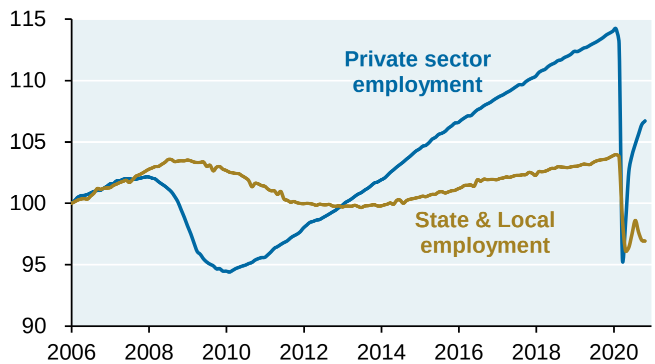
National spending trends based on unemployment benefits, % change from January 2020 level, 7-day average



Source: Internal Chase data, JPMAM. November 14, 2020.

One last comment on employment: US state & local governments suffered large revenue shortfalls due to lockdowns. They are likely to be a drag on growth in the years ahead, as they were a decade ago after the Global Financial Crisis. The state/local fiscal gap (net of CARES Act funding) is ~$170 bn; smaller than the originally projected $250 bn gap, but still significant. Possible spending cuts: municipal employment levels (which are 10-12% of total US employment), and contributions to pension and retiree healthcare plans which are already underfunded. We will take a look on a state by state basis later in 2021.

State & Local employment: drag on future growth
Index, Jan 2006 = 100

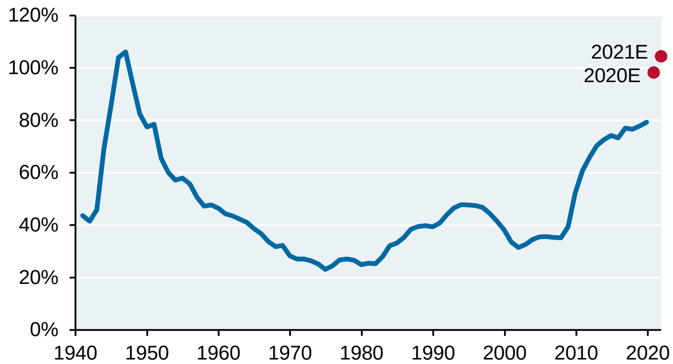


Source: Federal Reserve. November 2020.

The Federal Debt Explosion

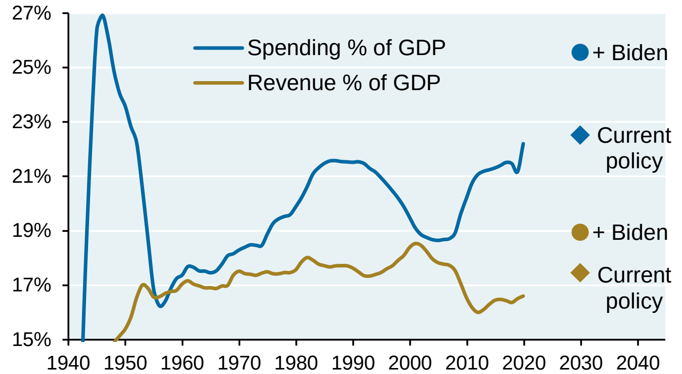
US debt levels are projected to hit WWII peaks by the end of 2021. The projected 2020 US fiscal deficit is 16% of GDP, the largest deficit since 1945. In July 2020, the CBO projected the 2021 deficit at 8.6% (between 1946 and 2019, the deficit was only larger twice). Updated deficit forecasts for 2021 require assumptions on growth, the latest stimulus bill and the interplay between the two; our sense is that the deficit will exceed 10% of GDP in 2021. On top of such deficits, **Biden's tax and spending proposals entail another $3 trillion in taxes and another $8 trillion in spending over the next decade**, which would drive the US federal debt to even higher levels. See the second chart, and p.33 for more on what looks like a permanent increase in the US federal debt. These increases are of course contingent on political developments we discuss on the next page.

Gross federal debt held by the public
% of US GDP



Source: Congressional Budget Office. September 2020.

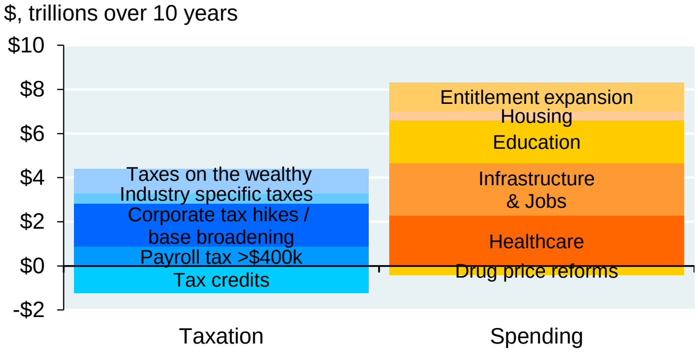
Biden agenda would propel tax revenues and gov't spending to post-war highs, % of GDP, trailing 10 years



Source: OMB, CBO, Cornerstone Macro Research, JPMAM. September 2020.

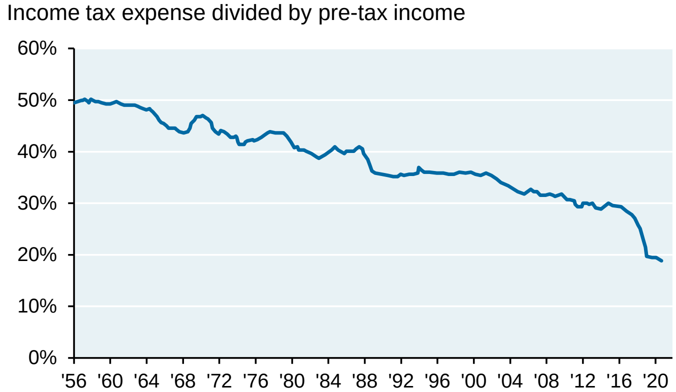
One of the most important components of Biden's plans for investors: changes to corporate taxation. Investors pay close attention to corporate taxation; its decline since the 1980's has been a key driver of expanding S&P 500 profit margins. Biden's agenda doesn't just increase corporate tax *rates*; the plan also includes base broadening and a wide range of industry-specific taxes. **In aggregate, Biden's corporate tax plans would raise $2.2 trillion compared to corporate tax cuts of $740 billion provided by Trump's 2017 bill**. In terms of its impact on profits, Biden's plan could reduce S&P 500 EPS by ~10%, but that's before incorporating any growth benefits from increased government spending (i.e., multiplier effects).

Biden Agenda: $3 trillion in taxes, $8 trillion in spending
$, trillions over 10 years



Source: Cornerstone, Tax Policy Center, Tax Foundation, U. Pennsylvania, JPMAM. October 2020. Tax credits: for homebuyers, renters, caregivers, IRA savers and reshoring manufacturers.

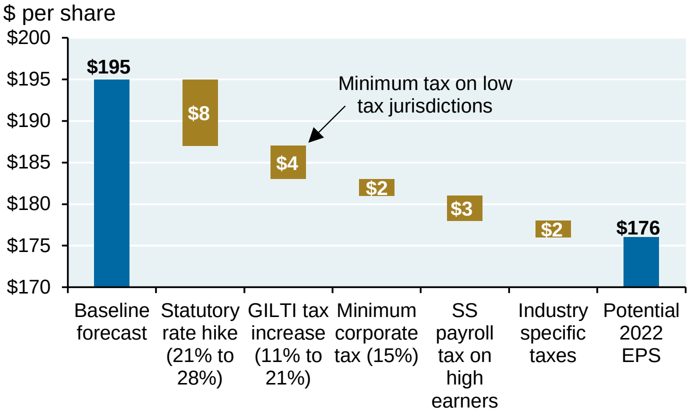
Large cap stocks median effective tax rate
Income tax expense divided by pre-tax income



Source: Empirical Research. October 2020.

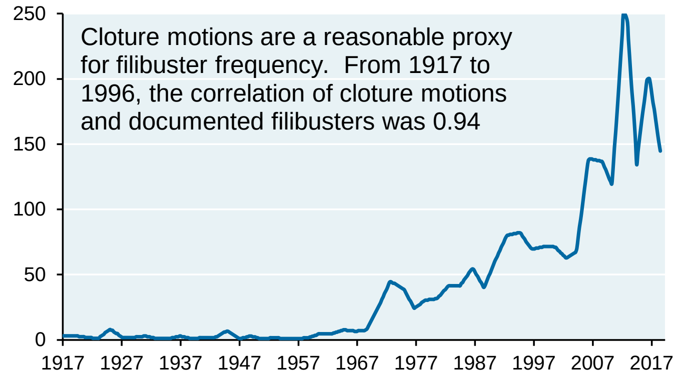
Assuming Ossoff's victory is confirmed, Democrats could enact tax/spending changes with a 51-50 Senate majority using budget reconciliation rules[2] and enact other policy changes by jettisoning the Senate filibuster (which if retained, requires 60 votes in the Senate to pass most legislation). Democrats may find it difficult to (a) use budget reconciliation to pass most of Biden's tax and spending agenda as proposed with very narrow Senate and House majorities, and to (b) jettison the Senate filibuster which has been used frequently in recent years by both parties to block legislation. Filibuster supporters reportedly include Joe Manchin (D-WV), who is ideologically closer to moderate Republicans than he is to progressive Democrats.

Biden tax plan impact on 2022 EPS estimate
$ per share



Source: GS, JPMAM. December 2020.

A proxy for filibuster frequency
Number of cloture motions filed, 65th Congress - 116th Congress



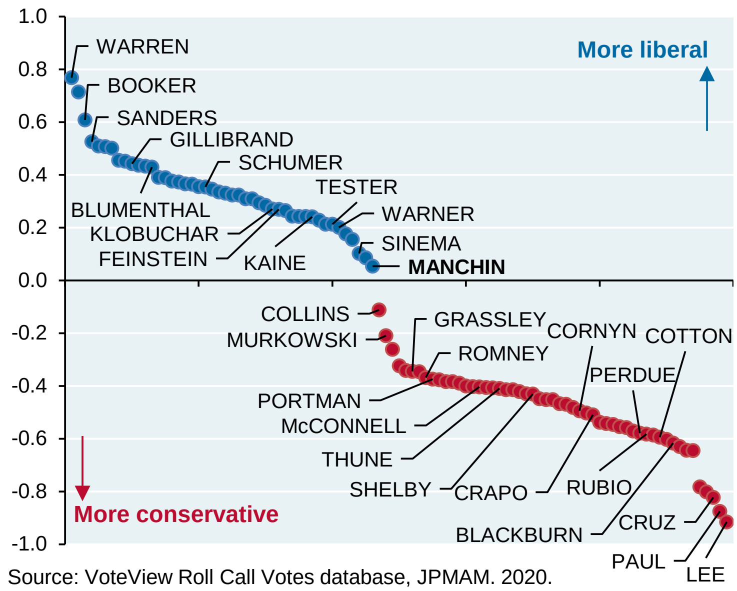
Source: Brookings Institution, Washington Post. 2020.

We do envision a high likelihood of a tax bill but one that raises around a third of Biden's original proposed tax hikes, and one which is less financed via deficits (see table). We discuss antitrust on pages 9 and 25-28, and discuss tariff and trade policy on pages 15-17. We expect a rejuvenated Consumer Finance Protection Bureau once new leadership is confirmed; that Net Neutrality will be reinstated; and that Biden will expand DACA, refocus ICE on violent offenders, increase immigration agency staffing and increase refugee limits.

	Biden & Democrat Senate Control
Taxation	Individual tax hikes (from 37% up to 39.6%) within 10 yr window but no changes to payroll tax; no unification of cap gains/dividend taxes with ordinary income...more likely an increase from 20% to 25-28%; some corp. tax hikes (from 21% to 25%); no TCJA extensions; possible partial SALT deduction restoration
Healthcare	Expand ACA; limited chances for a Public Option, no M4A; drug price controls likely; switching dual-eligibles from Medicare to Medicaid price (reducing govt costs)
Fossil fuels	Limit drilling and methane emissions; rejoin Paris accord; stricter fuel emissions standards; energy tax hikes; unlikely to ban fracking
Green energy	More subsidies for renewable production, transmission, transportation
Infrastruct.	Larger deal ($1 trillion) via budget recon; surface infrastr + schools/housing

Source: Cornerstone Research. January 6, 2021.

2020 Senate polarization scores
Voteview Liberal-Conservative scores, derived from Congr. voting histories



Source: VoteView Roll Call Votes database, JPMAM. 2020.

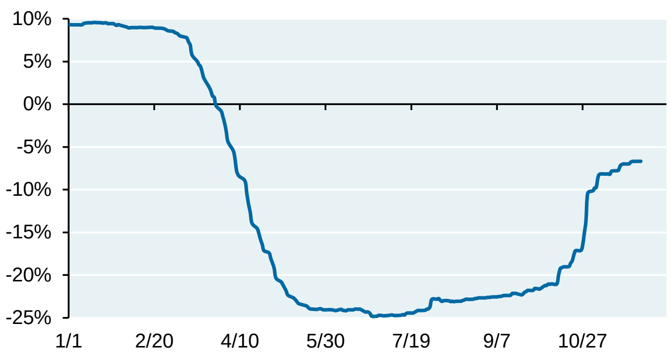
[2] **Budget reconciliation** allows tax and spending changes **if** there is no change to the deficit after a ten year time frame (this clause is why some Trump tax cut provisions sunset within 10 years). Also, no changes are allowed to payroll or social security taxes, which are a big component of the Biden plan ($870 bn out of $3 trillion in new taxes). Finally, tax and spending changes must be "incidental" to regulatory policy and not contingent on them.

Markets: earnings set to rebound, but a lot of good news is already priced in

Earnings resilience. In Q3 2020, S&P 500 earnings handily beat expectations (-8% vs consensus -25%), and the details are important: airlines, other travel-related businesses and energy accounted for essentially the entire S&P 500 earnings contraction in the quarter. Free cash flow for the core of the equity market (excluding financials, REITs and energy) was actually *up* in Q1, Q2 and Q3 of 2020. At the current pace of improvement, S&P 500 EPS should exceed pre-pandemic levels by the end of 2021.

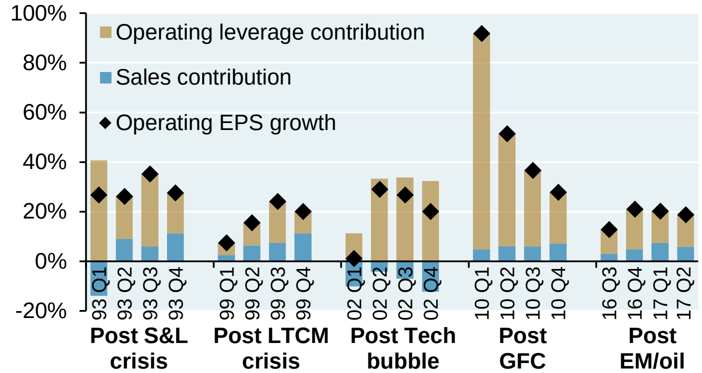
US companies often demonstrate "operating leverage" after recessions, which refers to EPS growth well in excess of low sales growth. This is shown in the second chart, and we expect the same to be true in 2021.

S&P 500 Q3 2020 consensus EPS expectations
y/y % change



Source: Factset. November 30, 2020.

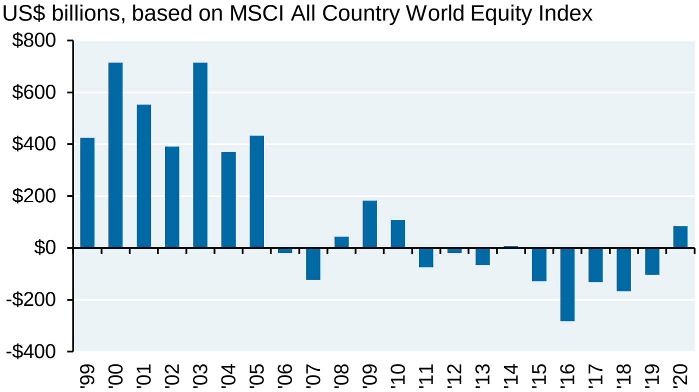
Contribution to S&P 500 profits from operating leverage after recessions and other market declines, y/y % change



Source: Standard and Poor's, JPMAM. 2020.

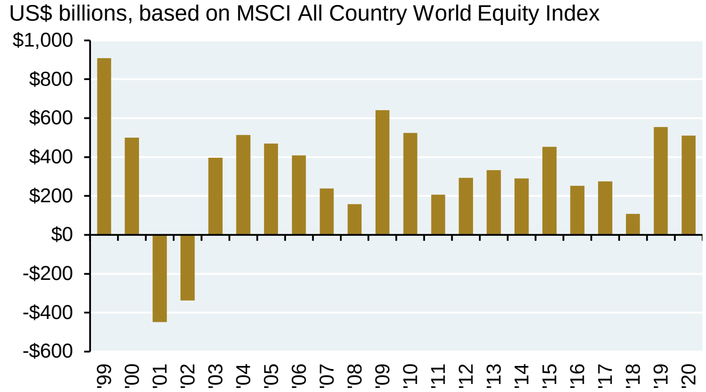
There are also technical factors at work that may explain why recent bear market recoveries have been so rapid. Since 2011, the pace of US buybacks and M&A have exceeded the pace of primary and secondary US equity issuance. As a result, the "stock" of investible public equity has not grown as it normally would, so when institutional investors rebalance, supply constraints accelerate the market's rise. Note that while this is true in the US, an equity shortage is *not* present outside the US where net supply is still growing.

Unprecedented low levels of net US equity supply
US$ billions, based on MSCI All Country World Equity Index



Source: JPM Global Markets Strategy. November 2020.

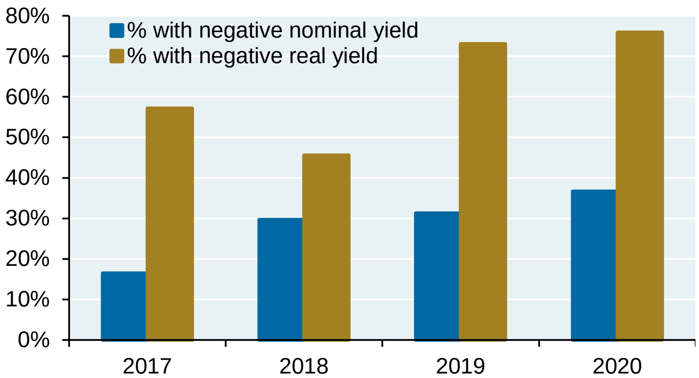
Non-US net equity supply still growing
US$ billions, based on MSCI All Country World Equity Index



Source: JPM Global Markets Strategy. November 2020.

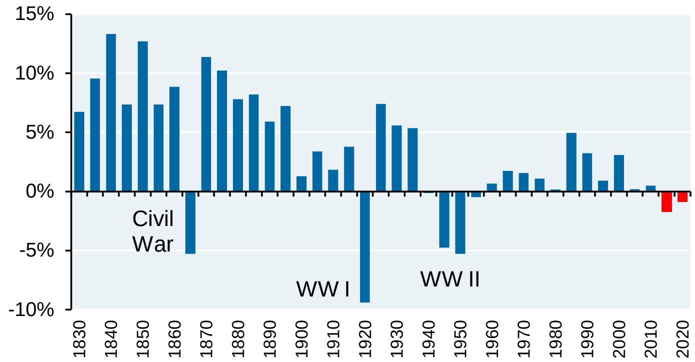
All that said, it's hard to escape the pervasive impact of zero interest rates on the investment landscape. The next chart shows how a third of all developed markets sovereign debt has yields below zero in *nominal* terms, while 75% has negative *real* yields (i.e., rates below the rate of inflation). The second chart indicates just how anomalous this is: the last decade has seen the longest sustained period of negative real policy rates in recorded US history, other than during the Civil War, WWI and WWII.

Developed markets negative yielding government debt
Percent of total debt



Source: J.P. Morgan Global Index Research. November 23, 2020.

Lowest real yields on cash since 1830, other than during wartime, T-bill/Funds rate less inflation, 5-year average



Source: FRB, Robert Shiller, GFD, BLS, JPMAM. November 2020.

The result: high equity valuations. The first table shows valuations compared to their history with 100% indicating maximum expensiveness. Some valuations might look lower if earnings outperform expectations next year, but not by enough to make a large difference. Sentiment and fast money flows are elevated as well, with most readings in the 90th percentile of optimism or higher[3]. If you're looking for bargains, be prepared: as shown in the second table, they're concentrated in energy, airlines, banks and sectors heavily affected by the pandemic.

It's worth noting that 90% of S&P 500 market cap is now based on **intangible assets** (R&D, intellectual property, software, etc), complicating historical comparisons. P/E ratios of asset-heavy companies from 1960-1980 might not be the best comparison for today's less capital-intensive S&P 500 universe. Intangible asset shares were 20% in 1975, 30% in 1985 and 80% by 2005. So, some upward drift in S&P 500 P/E ratios over time makes sense.

Even so, the equity melt-up which took place at the end of 2020 will probably limit market gains to ~10% in 2021. Consensus is bullish, which sets the stage for corrections and profit-taking from time to time.

Equity valuation percentiles (100% = most expensive)

S&P 500 valuation metric	Dec 2019 percentile	Current percentile
US market cap / GDP	99%	100%
Enterprise value / Sales	99%	100%
Enterprise value / EBITDA	93%	100%
Forward P/E	88%	97%
Price / Book	90%	93%
Cash flow yield	85%	93%
Cyclically adjusted P/E	89%	92%
Free cash flow yield	53%	60%
S&P earnings yield - 10Y UST	28%	33%
Median metric	89%	93%

Source: Goldman Sachs Investment Research. EBITDA = earnings before interest, tax, depreciation, and amortization. December 11, 2020.

Industries whose returns haven't fully recovered yet

S&P 500 Industry	2020 decline
Energy equipment & services	-37%
Oil, gas & consumable fuels	-34%
Airlines	-31%
Aerospace & defense	-17%
Banks	-15%
Gas utilities	-15%
Diversified telecom services	-12%
Leisure products	-9%
Multi-utilities	-8%
Real estate investment trusts	-4%

Source: Bloomberg. December 29, 2020.

[3] **Investor optimism, measured since Nov 2016 (100 = most optimistic)**: American Association of Individual Investors (98); Investors Intelligence Advisory Sentiment (95); NAAIM Active Managers Sentiment (99); and a measure of cash holdings of the 20 largest US equity mutual funds (100). **On fast money flows**, our prime brokerage team reports very high levels of exposure by the end of 2020 with most of the rise after October.

Market concentration and antitrust risks

Since 2016, 5 megacap stocks (AAPL, AMZN, MSFT, GOOG and FB) have represented a disproportionate share of market cap and return contribution. They're a lot more profitable than their late 1990s counterparts, and they're not as expensive in relative terms. That said, I don't think we should use 1999 as a benchmark to assess potential peak relative value; the demarcation line for market excess might be much lower than that. We're neutral on these stocks heading into 2021 for reasons explained in the Special Topics section on page 25 which covers antitrust risks at home and digital service taxes abroad.

As an alternative to the big 5 megacap stocks, consider other **secular high-growth stocks without antitrust baggage**. The table shows stocks that have generated strong revenue growth and are expected to keep doing so; which do not spend enormous amounts acquiring customers or indirectly paying contract labor (i.e., positive free cash flow margin); and which fly well below the antitrust radar (low share of industry revenues).

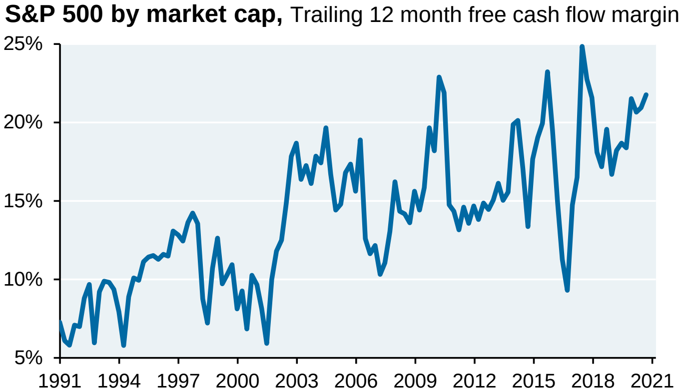
Contribution of top firms to overall US market cap

Source: Bloomberg. December 29, 2020.

S&P 500 megacap outperformance
Performance of market-cap weighted - equal weighted S&P 500, %

Source: Bloomberg. December 29, 2020.

Median free cash flow margin for 10 largest stocks within S&P 500 by market cap, Trailing 12 month free cash flow margin



Source: Factset. Q3 2020.

Top 10 companies in S&P 500 by market cap compared to bottom 100 companies by P/E, Ratio of median forward P/E ratios

Source: Factset. Q3 2020.

Secular growth stocks with strong fundamentals and lower antitrust risks			
Aerospace & Defense	**Communications Equipment**	**Health Care Supplies**	**Semiconductors**
TransDigm Group (TDG)	Arista Networks (ANET)	Align Technology (ALGN)	Xilinx (XLNX)
Application Software	**Data Processing & Outsourced Services**	**Interactive Home Entertainment**	**Soft Drinks**
Adobe (ADBE), Autodesk (ADSK), ANSYS (ANSS), Intuit (INTU), Paycom Software (PAYC)	Mastercard (MA), PayPal Holdings (PYPL), Visa (V)	Take-Two Interactive Software (TTWO)	Monster Beverage Corporation (MNST)
Biotechnology	**Health Care Equipment**	**Internet & Direct Marketing**	**Systems Software**
Vertex Pharmaceuticals (VRTX)	ABIOMED (ABMD), Intuitive Surgical (ISRG)	Etsy (ETSY)	Fortinet (FTNT), ServiceNow (NOW)

Source: Factset, JPMAM. 2020. S&P 500 companies with 2018 & 2019 sales growth > 10%; projected 2022 sales growth > 10%; free cash flow margin > 15%; share of GICS subindustry revenues < 33%

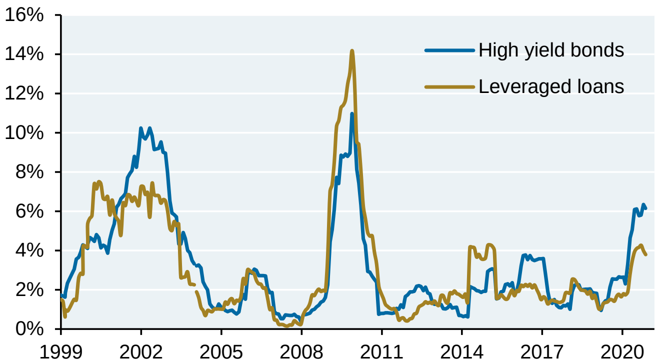
High yield: another beneficiary of financial repression

Monetary and fiscal stimulus provided impactful backstops for large and small companies. While the 2020 recession was twice as deep as in 2009, high yield and leverage loan **default rates** are showing signs of peaking at just half the 2009 level. The same is true for manufacturing and service sector **bankruptcy filings**, which have also already peaked at roughly half of 2009 levels.

The flood of liquidity prompted investors to pile into high yield bonds last year. Pay attention, however; underwriting standards and covenant protections have weakened sharply. In July 2019, we examined deteriorating underwriting standards in the loan market[4], and little has changed since then. While credit spreads have rallied, there are signs that investors have paid a price for overly aggressive underwriting: declining recovery rates on defaulted HY bonds/loans.

I don't have much to say about investment grade corporate bonds. Net of inflation, the yield on the Barclays Investment Grade Corporate Bond Index is now slightly *negative*. Pass.

US high yield bond and leveraged loan default rates
Last twelve month par-weighted default rate

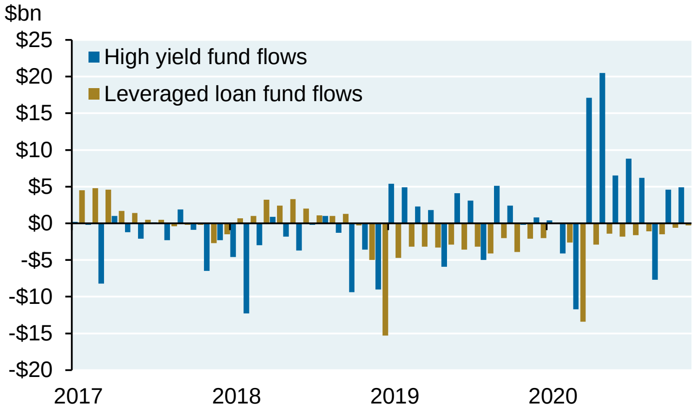


Source: J.P. Morgan Credit Research. November 2020.

US high yield corporate bond spreads
JPDFHYI index spread versus Treasury, basis points

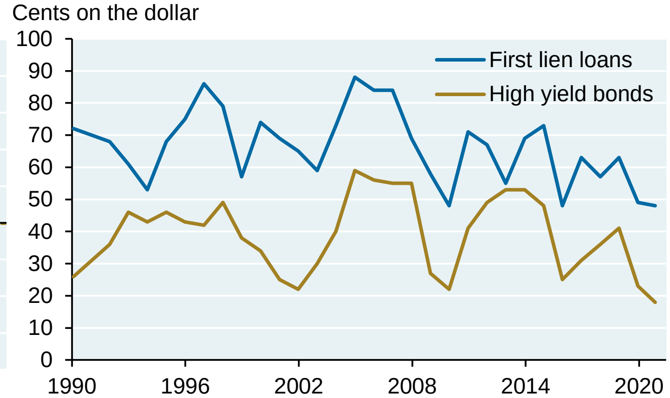
Source: Bloomberg, J.P. Morgan HY Team. December 29, 2020.

US high yield and leveraged loan fund flows
$bn



Source: J.P. Morgan Credit Research. November 2020.

US high yield bond and institutional loan recovery rates
Cents on the dollar



Source: J.P. Morgan Credit Research. November 2020.

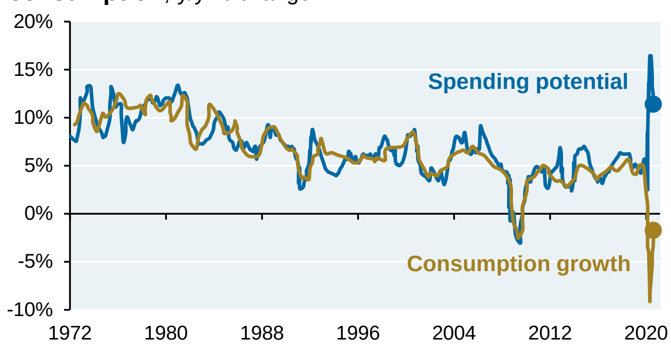
[4] Eye on The Market, "*The food fight over covenant-lite leveraged loans",* July 2019

Wrapping up: our 2021 Outlook and Special Investment Topics

It could take 3-4 months for vaccinations to permanently shift developed world hospitalization and mortality curves down given logistics involved[5]. Furthermore, the US is not only divided politically, but also medically: there's a lot of vaccine resistance, with recent polls showing that 15%-30% of Americans don't plan to get it (of countries surveyed, only the "French Resistance" is higher; see virus web portal Section 3).

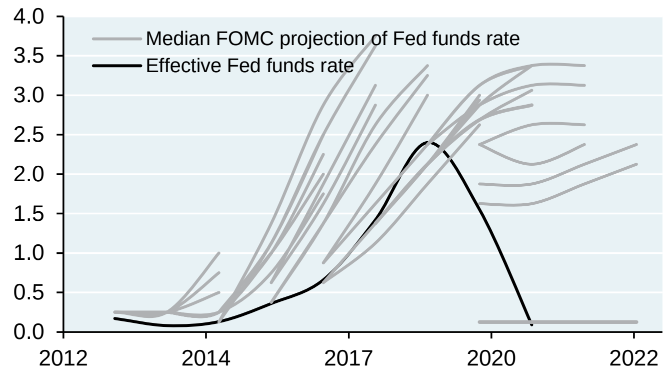
Even so, as vaccine rollouts eventually mitigate COVID risks, pent-up spending potential will be unleashed and we think the Fed will do little to constrain it. The first chart shows estimated spending potential compared to actual consumption; the gap is still large. While wage and salary growth has been weak compared to prior recessions, transfer payments have been much larger. On the Fed, the second chart is **cruel but fair**: for the better part of a decade, the Fed was wrong about where the economy was going as it consistently overestimated inflation risks, the strength of the recovery and the path of future policy rates. **After a decade of forecasting futility, my sense is that the Fed will wait to see a four-alarm fire of inflation before raising rates**. Other central banks will likely take the same approach; output gaps, which measure unused labor and industrial capacity, are large everywhere but China (see bottom 2 charts).

Due to COVID, potential spending exceeds actual consumption, y/y % change



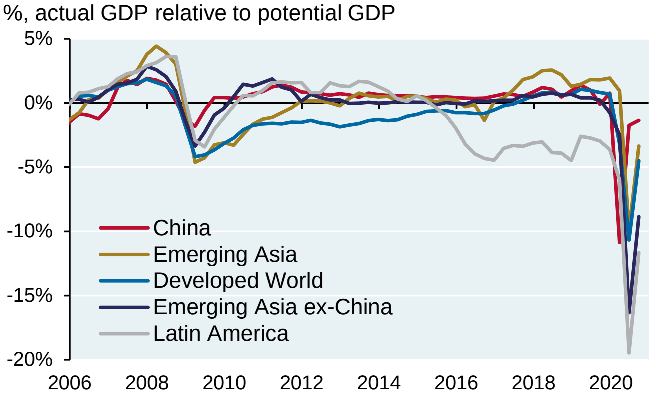
Source: Empirical Research. Q3 2020. Spending potential: 65% of taxable income, 100% of transfer payments, 10% of housing wealth and 1.5% of financial wealth.

Fed projections vs actual Fed funds rate
Fed funds rate, %



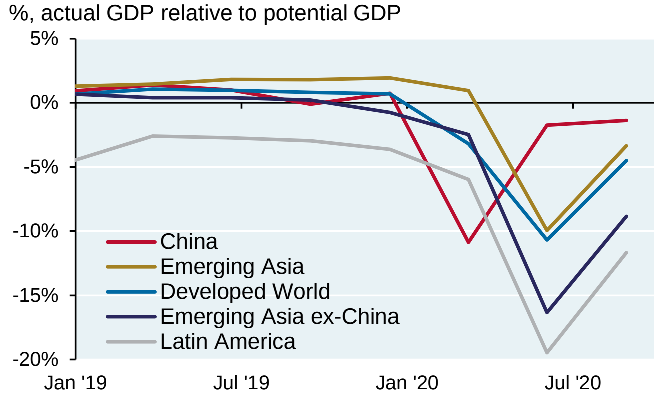
Source: Federal Reserve, JPMAM. December 15, 2020.

Output gaps (spare capacity measure), 2006-present
%, actual GDP relative to potential GDP



Source: J.P. Morgan Economic Research. Q3 2020.

Output gaps (spare capacity measure), 2019-present
%, actual GDP relative to potential GDP



Source: J.P. Morgan Economic Research. Q3 2020.

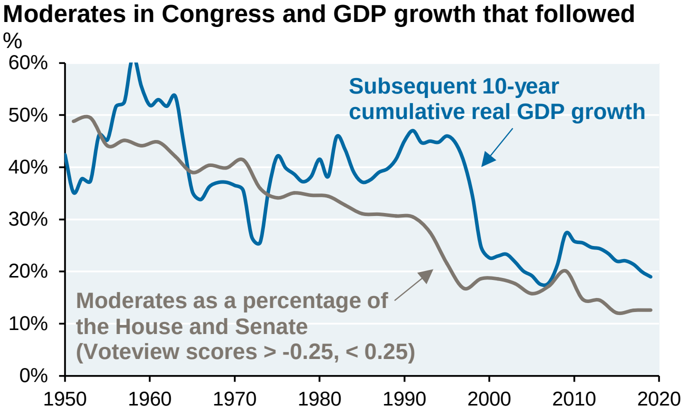
[5] The US is a long way from most estimates of **herd immunity:** CDC data as of October indicate that in 40 states, antibody presence was still less than 10%.

To conclude, we anticipate a year of ~10% US equity market gains in 2021 with bouts of profit-taking along the way, with the caveat that a lot rests on filibuster decisions and tax policy choices. We take a closer look at 10 Special Investment Topics starting on page 14, including deeper dives on China, Europe, Emerging Markets and tech antitrust issues. Here's a quick summary of other market views for 2021:

- Continue to overweight **US and Emerging Market equities** vs underweights to Europe and Japan
- **Look for better entry levels on renewable energy**. We don't anticipate a Green New Deal, but Biden can still disallow LNG export permits, tighten fracking rules on public lands, increase climate risk disclosure and reinstate auto mileage standards. Biden can also try to boost penetration of grid renewables through subsidies and eminent domain decisions on HVDC transmission infrastructure for wind/solar. Remember, US states set their own renewable portfolio standards; they are not set at the national level. We like renewable energy as an investment, but after the recent spike it pays to wait for better entry levels
- For deeper value, own **traditional energy** for reasons outlined in our 2020 Energy paper. Even after a 30% rally in November 2020, the S&P 500 oil & gas sector still trades at half the book value of the market, its lowest level since 1928. We see the loss of capital discipline rather than stranded asset risks as the primary driver of poor energy sector performance. In addition, we consider it unlikely that Biden will resuscitate an Iran deal that could release another 1mm bpd onto the global oil market
- **Infrastructure** stocks may benefit from a bill given bipartisan support (infrastructure ETFs and open-ended commingled vehicles investing in private infrastructure are two ways to express this view)
- Cautious on **large cap pharma**: a bipartisan prescription drug bill is possible, and the Executive Branch can also implement demonstration projects that bring Medicare Part D drug prices down to international levels

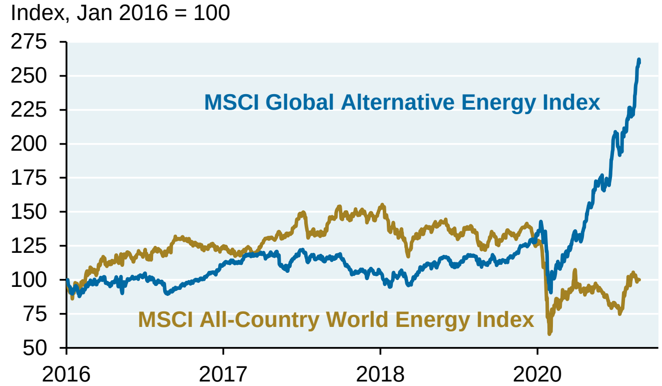
One last thing. Conventional wisdom is that Congressional gridlock is good for equity markets. This has been the pattern, and I suspect it will be true in 2021 as well. But there's a **difference between simple gridlock and what we have now**: as shown on the next page, the US is more intensely partisan than at any time in the last 100 years, and it's armed to the teeth by citizens who increasingly view the other side as immoral individuals with no integrity on politics and elections. Unfortunately, the collapse of Congressional moderates has coincided with a decline in US GDP growth, and that's not a good sign in the long run.

Moderates in Congress and GDP growth that followed



Source: Conference Board; Congressional Budget Office (GDP projections to 2028); Voteview database (Lewis et al., UCLA); JPMAM calculations. 2020.

Global alternative vs traditional energy performance

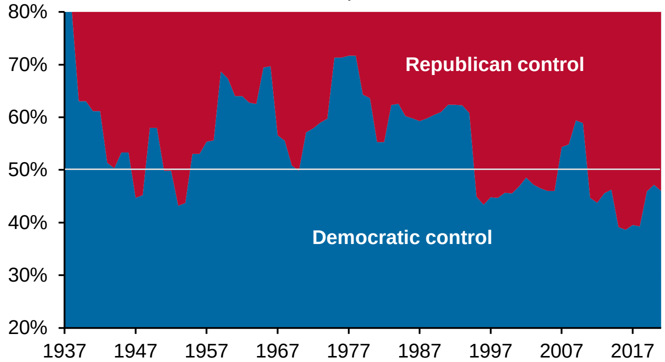


Source: Bloomberg. December 29, 2020.

Executive Summary Appendix: The US, at war with itself

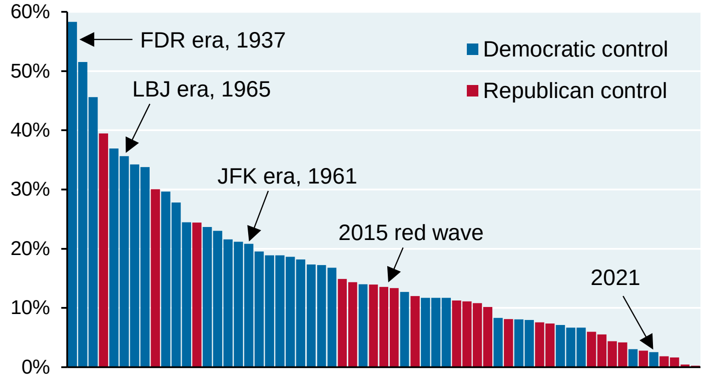
The partisanship balance across Federal and local branches of government is almost exactly split 50/50, and the Democratic advantage in the House is among the smallest since 1901.

Federal/State Partisan Balance Index, 1937-2021, % control of the House, Senate, Governorships, State Senates & State Houses



Source: House.gov, Senate.gov, NCSL, Southeast Missouri State University, Ballotpedia, Klarnerpolitics, JPMAM. 2020.

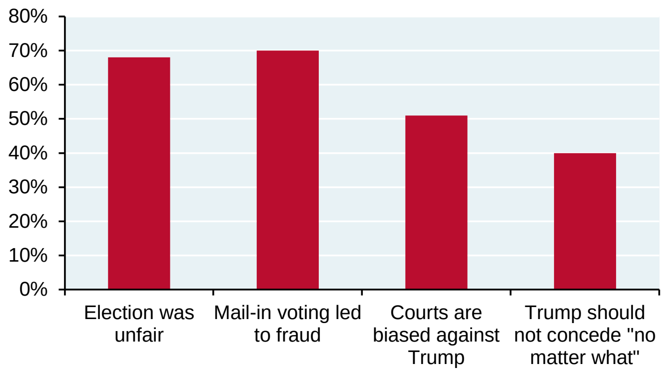
Partisan House leadership by majority party since 1901
%, in descending order of House advantage



Source: House.gov, JPMAM. November 2020.

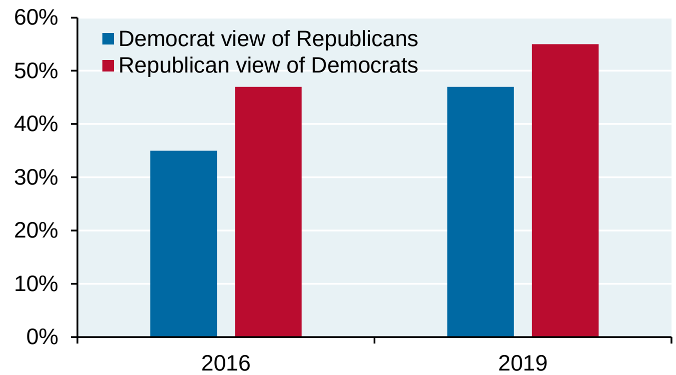
Many GOP voters believe the election was unfair, that mail-in voting led to fraud, that courts are biased and that Trump should not concede. More broadly, an increasing number of people see the opposing party as "immoral"; the feelings of attraction to one's own party are now for the first time outweighed by feelings of antipathy for the opposing party; and as shown in the last chart, the US has armed itself to the teeth.

GOP voter surveys
Percent of GOP respondents



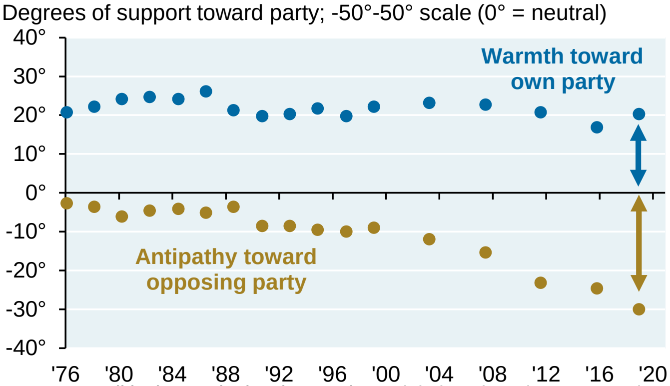
Source: Morning Consult, Politico. December 13, 2020.

Percentage of respondents who believe members of opposing party are immoral



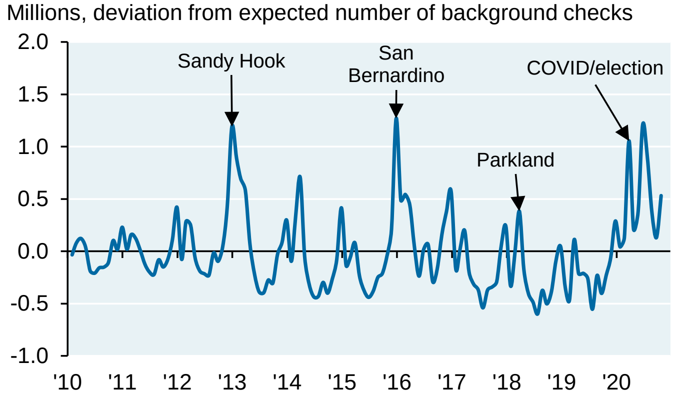
Source: Pew Research Center. 2019.

Survey respondents' feeling toward own vs opposing party
Degrees of support toward party; -50°-50° scale (0° = neutral)



Source: *"Political sectarianism in America"*, Finkel et al., Science Magazine. October 2020.

Monthly firearm sales, proxied by background checks
Millions, deviation from expected number of background checks



Source: FBI National Instant Criminal Background Check System. Oct 2020.

2021 SPECIAL INVESTMENT TOPICS

This year we take a closer look at **China**: at its trade and military conflicts with the US that coincide with its rising weight in global equity and fixed income indexes. We revisit reasons for consistent outperformance of US equities vs Europe and Japan, and the impact of negative policy rates on European banks. For value-oriented investors, we review **Emerging Markets** which we prefer to Europe given EM's valuation trifecta (P/E ratios, currency valuations and balance of payments risks). We examine **antitrust** and tax risks facing US megacap stocks, and for investors struggling with the impact of zero interest rates, we examine hybrid investments as means of boosting returns and the value proposition of gold. We conclude with a discussion on the US Federal debt and the durability of the US dollar's reserve currency status.

Please visit our virus web portal for detailed information on infections, mortality, vaccines, anti-viral medications and other therapeutic interventions, all of which you can access at the hyperlink above.

Special Topics

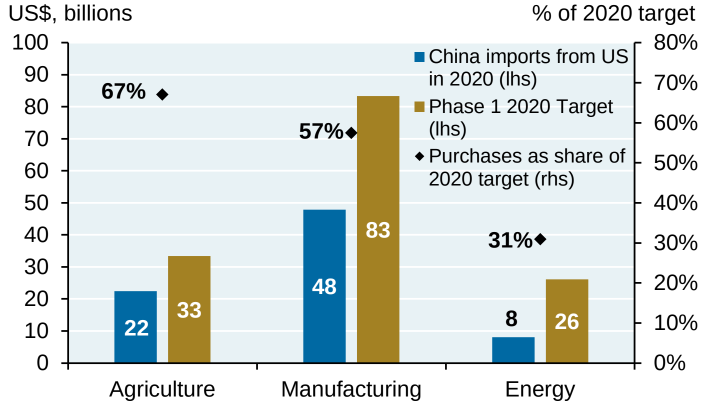
[1] US-China economic conflict: lower intensity, but here to stay

Equity markets began pricing in a substantial reduction in trade war intensity as expectations of a Biden victory rose. However, I think Biden will move slowly here; in 2016, Republicans gained voters in communities suffering most from Chinese import competition[6] and I suspect the same was true in 2020. While Biden might tone down the rhetoric, I'm not sure policies will be. China is only 30%-70% compliant with its Phase I trade deal purchase agreements, and there's bipartisan concern about Chinese mercantilism and human rights issues, including the issue of forced labor and US imports[7]. A positive early sign could be a deal in which tariffs are scrapped in favor of China's willingness to ease access to US services firms (finance, insurance, health, legal and e-commerce).

Relative performance of companies with high exposure to US-China trade war vs S&P 500, Jan 2018 = 100

Source: Barclays Research, Bloomberg, JPMAM. December 16, 2020.

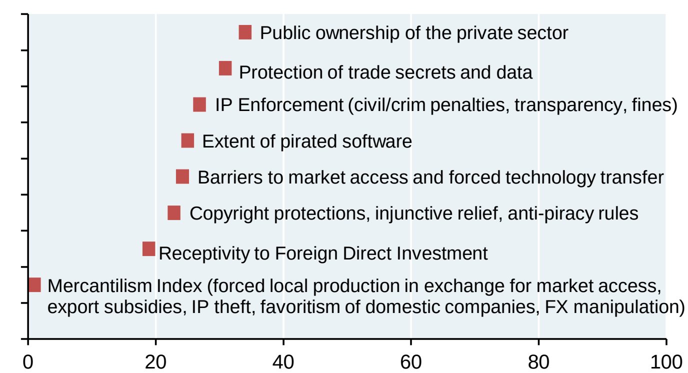
Progress of US-China Phase 1 purchase agreement



Source: US Census, USTR. November 2020.

China: the world's most mercantile country

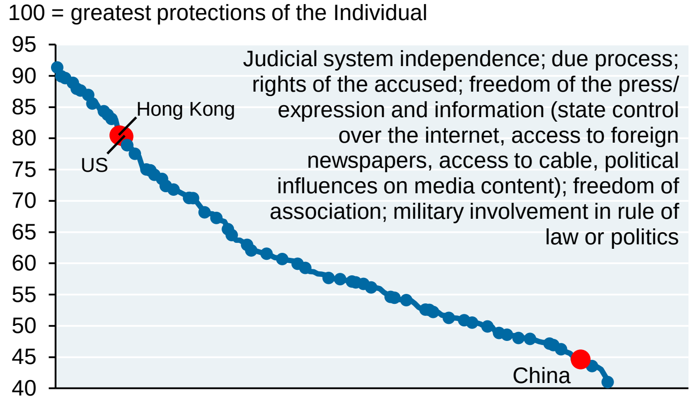
China's score vs the rest of the world, 100 = best, 0 = worst



Sources: OECD, BSA, GIPC, ITIF, Fraser Institute, JPMAM. 2019.

The Rights of the Individual versus the State

100 = greatest protections of the Individual



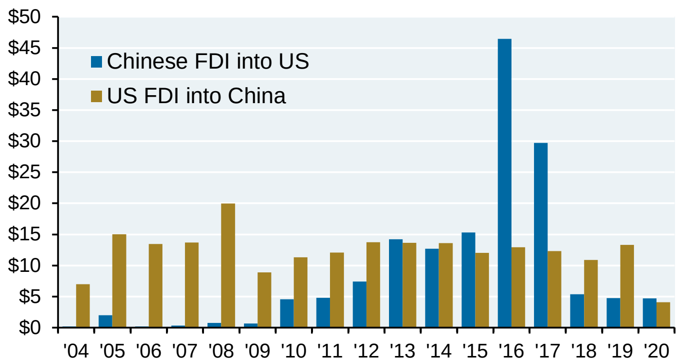
Source: JPMAM, World Economic Forum, CATO, Fraser Institute. 2019.

[6] "*A Note on the Effect of Rising Trade Exposure on the 2016 Presidential Election*", Autor (MIT) et al, March 2017. The authors found that rising import competition had a **large impact on Republican vote share gains**, and that Michigan, Wisconsin and Pennsylvania would have elected Clinton instead if the growth in Chinese import penetration had been 50% lower than its actual growth since 2000 (China's WTO entry).

[7] The **Uyghur Forced Labor Prevention Act** passed the House 406 to 3 and is expected to pass the Senate despite intense lobbying efforts of US companies whose supply chains may be affected. For background reading, see "*Uyghurs for Sale*", Australian Strategic Policy Institute, 3/1/2020, and "*China's Detention Camps for Muslims Turn to Forced Labor*", New York Times, 12/16/2018.

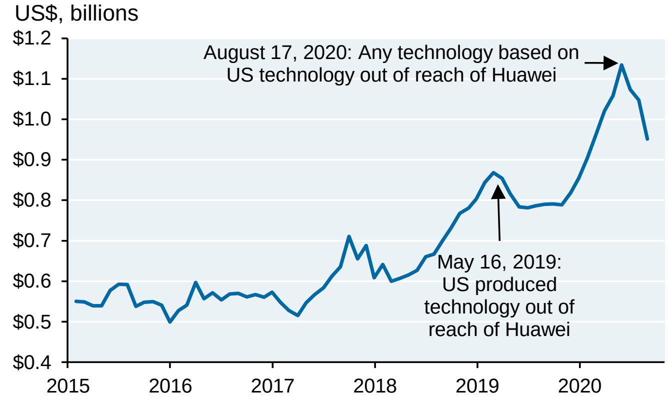
US-China economic conflict: tracking the consequences. The drop in bilateral foreign direct investment may be permanent given broader definitions of national security. US semiconductor exports to China continued to grow in 2020, but declined sharply with revised August export restrictions; it is still unclear how much of this decline is seasonal. As we explained in our 2019 Outlook, US semiconductor companies have 90%-95% global market share in advanced semiconductor chips/equipment needed for artifical intelligence, 4G/5G smartphones, autonomous cars, computer microprocessors and electric vehicles. While China aims to be self sufficient, its reliance on US semiconductor equipment is likely to remain for the foreseeable future. Lastly, many US multinationals do not plan to relocate out of China, perhaps because most of them operate overseas to meet local and regional demand rather than to export back to the US.

Decline in bilateral foreign direct investment may be permanent, US$ billions



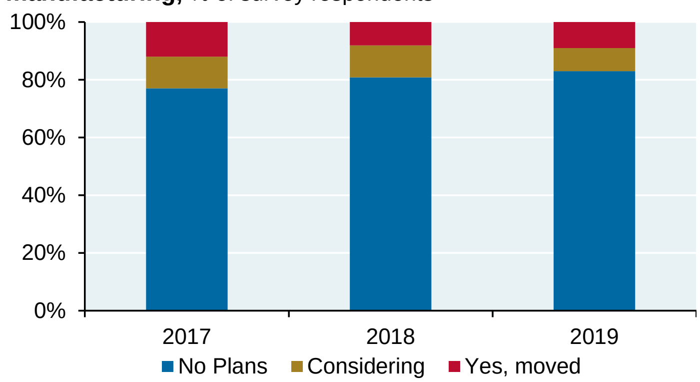
Source: Rhodium Group. 2020 data is through Q2.

US semiconductor exports to China
US$, billions



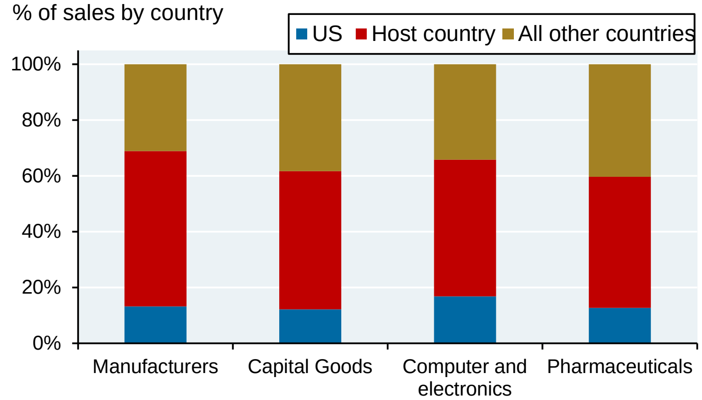
Source: US Census Bureau. October 2020.

US multinationals in China planning to relocate manufacturing, % of survey respondents



Source: AmCham China. March 2020.

US multinationals foreign affiliates' sales by country
% of sales by country



Source: Empirical Research Partners. May 2020.

In November 2020, the Trump administration **barred US investment in 35 Chinese firms due** to their ties to the Chinese military as part of the International Emergency Economic Powers Act. Most were not publicly traded, so this would impact at most 2% of the MSCI China index by market cap. This order is not scheduled to come into effect until mid-January, and might be reversed or softened by Biden or by the courts.

Another part of the divorce agreement: China has written into law that its companies cannot share financials with US regulators without permission from the Chinese gov't. In response, the US Public Company Accounting Oversight Board now considers its access to Chinese firms listed in the US to be blocked. Congress has passed the "Holding Foreign Companies Accountable Act" which will effectively **halt all new Chinese IPOs in the US and put Chinese companies currently listed on a 3-year countdown to delisting**. Currently, there are 365 Chinese companies listed in the US, but when measured by market cap, Alibaba represents 39% of that universe.

I do not believe Biden will spend scarce political capital going to bat for China this year, except in narrow circumstances with clear benefits for US workers. So, while we are optimistic on a global recovery next year, the China trade war stocks which have been rallying may run into headwinds. Furthermore, US companies selling to China may eventually suffer from reduced Chinese demand as China restructures its supply chain dependence on the US; i.e., no one wants to be the next Huawei.

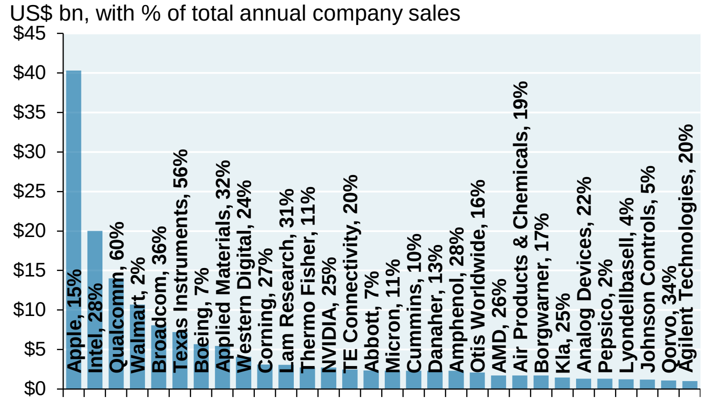
So far, Chinese responses to US sanctions and restrictions have been modest; perhaps China expects to negotiate different outcomes with a Biden administration. To be clear, China has leverage of its own. Over the last decade, US companies made large investments in Chinese subsidiaries. As shown below, the US trade deficit with China disappears once sales of in-country subsidiaries are included. In other words, **US companies are doing almost the same amount of business in China as Chinese companies are doing in the US, but through local subsidiary sales rather than through exports. That's where China has leverage: the ability to make life more difficult for US firms operating in China (i.e., for the companies in the last chart).**

Bottom line: in the absence of a reopening of trade talks, gradual bilateral disengagement is picking up steam and will impact US company earnings in small but measureable ways in the years ahead. US companies with replaceable supply chains and US broker-dealers profiting from Chinese capital raising may be first to feel it; and semiconductor companies may only have a few more uninterrupted years of demand before they're next.

The US does a lot of business in China, but through its in-country subsidiaries rather than via exports, US$, billions

Source: Deutsche Bank. 2019.

Select S&P 500 company sales in China
US$ bn, with % of total annual company sales



Source: Bloomberg. 2019. Includes co's that report sales from China >$1bn.

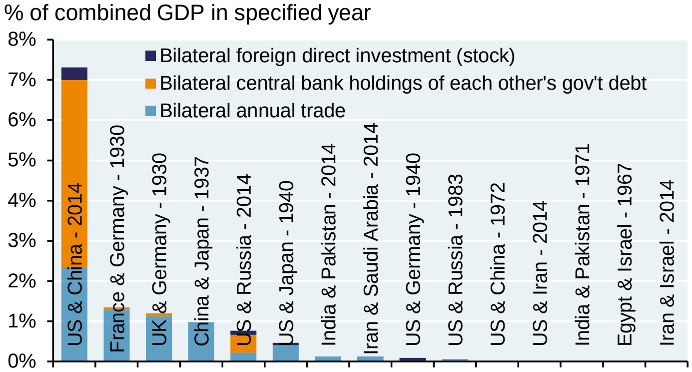
[2] US-China military conflict: the balance of power has changed

Economic linkages between the US & China are much larger than linkages between other adversaries of the 20th century. The first chart shows the details, and is based on an analysis we pulled together in 2018. The US/China bilateral trade and FDI numbers have fallen since then, but are still material; and this chart also does not measure bilateral sales of corporate subsidiaries discussed earlier. As a result, I'm not convinced by "Thucydides Trap" arguments on the inevitability of US-Chinese military conflict.

Is Taiwan a geopolitical flashpoint that investors should worry about? Some believe the answer is yes. Global markets are now more reliant on semiconductors than on oil/gas, and the Taiwan Semiconductor Manufacturing Company has overtaken Intel's market cap[8]. As a result, Taiwan's strategic importance to global supply chains is growing, US-China rhetoric has been deteriorating and in 2019, US arms sales to Taiwan reached their highest dollar figure on record.

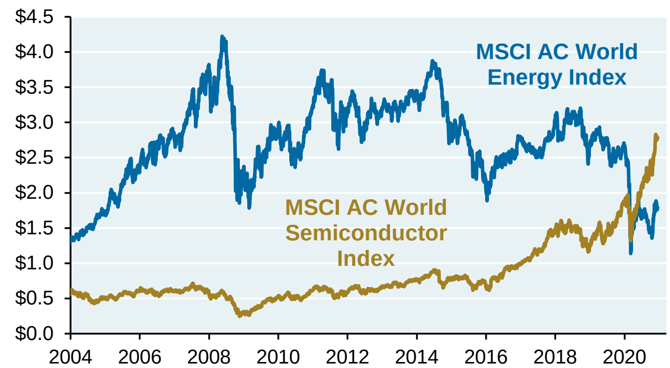
But something else has changed too: the ability of the US to impose its will militarily in the China region. Chinese military spending data is opaque; after normalizing for wage differences and purchasing power, a Heritage Foundation report estimated that China's military spending is ~90% of US levels. As illustrated on the next page using data from the RAND Corporation, Chinese military spending has changed the balance of power in the region, eroding the ability of the US military to enforce its protective umbrella arrangement with Taiwan. Should China ever challenge Taiwan's independent status, recent changes in relative power arguably reduce the likelihood of the US being drawn into a conflict it can no longer reliably win.

China and the US: much deeper economic linkages than actual and potential adversaries of the last 100 years
% of combined GDP in specified year



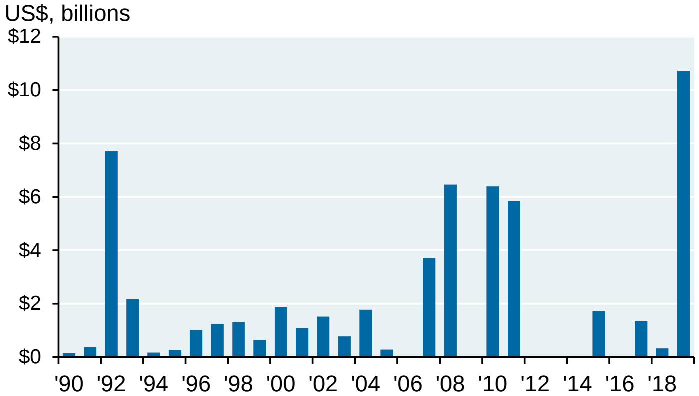
Source: JPMAM. 2016.

Global energy vs semiconductor market capitalizations
US$, trillions



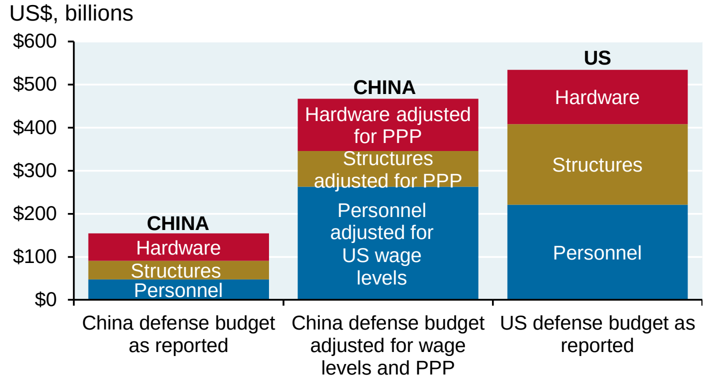
Source: Factset. December 28, 2020.

US arms sales to Taiwan
US$, billions



Source: US-Taiwan Business Council. 2019.

China and US military spending
US$, billions



Source: *"China's Defense Budget in Context"*, Frederico Bartels, Heritage Foundation. March 2020.

[8] "*The New Geostrategic Pressure Point*", Louis Gave, Gavekal Research, November 3, 2020

The changing balance of power. The RAND Corporation published a 430-page analysis on the evolving balance of power between the US and China using historical data, forecasts and conflict models[9]. It's incredibly detailed, but there are a few exhibits that capture the main points. The charts below illustrate the evolving ability of the US to prevail in a conflict involving the defense of Taiwan. In many areas, China's military technology and skill levels are judged to still lag the US, but **the gap is closing and China also enjoys the advantage of proximity in most plausible Asian conflict scenarios**. Since the RAND publication was released, China has made **further military advances**: more naval destroyers, cruisers, aircraft carriers and assault ships; hypersonic and intermediate range ballistic missiles; anti-submarine warfare; and long range bombers.

First chart: the evolution of US air superiority in being able to prevail against Chinese surface to air missile systems. The area above and to the left of each curve represents RAND estimates of how often US forces would prevail as a function of US aircraft missile range and detectability. For example, in 1996, only highly detectable US aircraft with shorter range missiles would lose in battle. By 2017, US aircraft needed to be much less detectable and more weaponized due to improvements in Chinese air defense systems

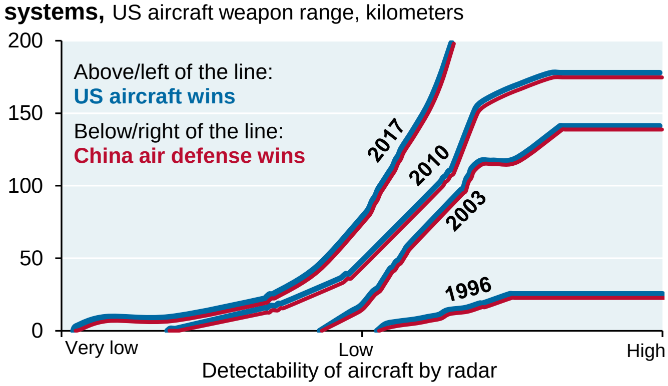
Second chart: estimates of US air force capacity required in the Taiwan region that would be needed to defeat a short-warning Chinese air attack emanating from its bases in Guangzhou and Nanking

Third chart: number of military engagement opportunities each Chinese submarine would have against US aircraft carriers stationed in the region over each 7-day period

Fourth chart: percentage of Chinese ships sunk by US submarines in a 7-day campaign

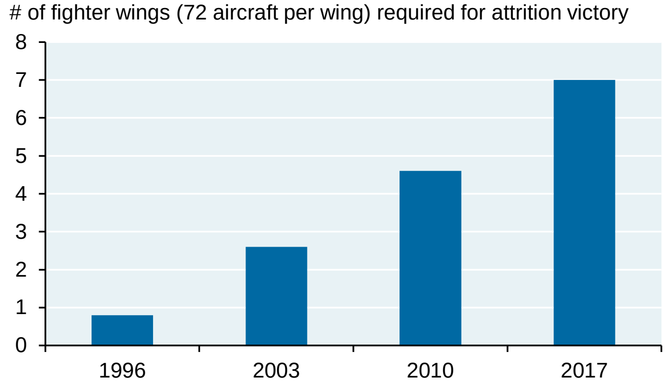
Each chart refers to a military conflict between the US and China with respect to the defense of Taiwan

Modeled estimates of US aircraft vs Chinese air defense systems, US aircraft weapon range, kilometers



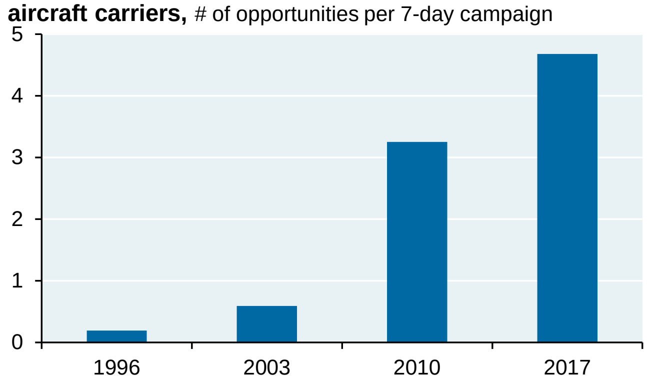
Source: RAND Corporation. 2015.

US air force capacity required to defeat Chinese air attack
# of fighter wings (72 aircraft per wing) required for attrition victory



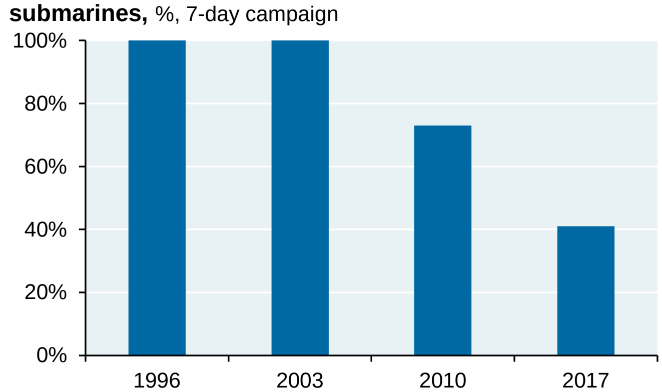
Source: RAND Corporation. 2015.

Chinese submarine engagement opportunities vs US aircraft carriers, # of opportunities per 7-day campaign



Source: RAND Corporation. 2015.

Share of China amphibious ships destroyed by US submarines, %, 7-day campaign



Source: RAND Corporation. 2015.

[9] "*The US China Military Scorecard: Forces, Geography and the Evolving Balance of Power, 1996-2017*", Eric Heginbotham et al, RAND Corporation

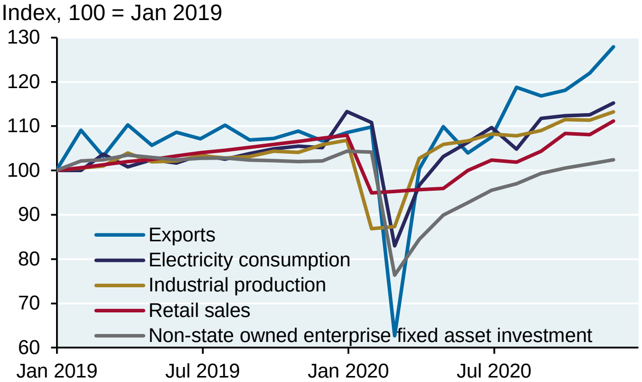
[3] The global investor underweight to China

At the same time that US-China trade and military risks are at their highest level in years, China's economy is booming again and its financial opening is leading to continued increases in China's weight in diversified global index products. We start with equities and then discuss fixed income.

Equities. China is *already* 40% of the MSCI EM Equity Index, and that's before further inclusion of A-shares. If A-shares were fully included at their current market cap, China's weight in the MSCI EM index could rise by 10% or more; the weight of A-shares in the MSCI China Index could grow from 11% to 40%; and A-shares alone could increase from 4% to 16% of the MSCI EM Equity Index. As shown in the third chart, while active managers are roughly market-weight now, this would change as MSCI inclusion rules evolve. The last chart shows how mainland China A-shares have among the lowest foreign ownership rates of major world equity markets.

Recent events: Ant Financial IPO, antitrust and a state owned enterprise default. Gavekal Research (HK) believes that the Ant Financial IPO termination, Chinese antitrust measures announced against Chinese tech firms and an SOE default in the coal sector are actually positive signs of pro-active risk management by Chinese regulators seeking to prevent bubbles and a market collapse[10]. I agree with them, particularly when thinking about US regulatory lapses and their market consequences over the last 20 years.

China economy monitor
Index, 100 = Jan 2019

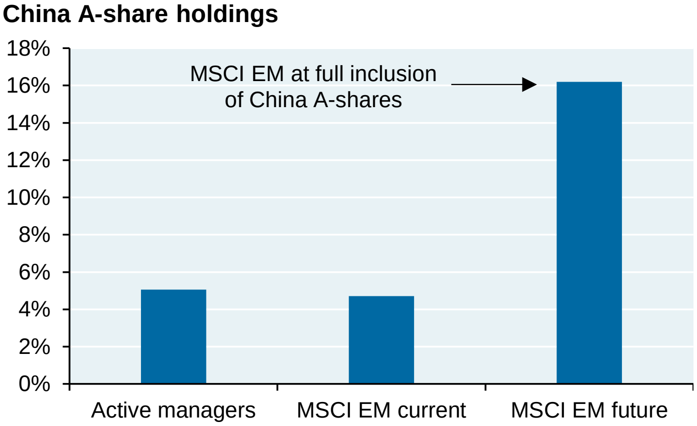


Source: China National Bureau of Statistics, General Administration of Customs, JPMAM. November 2020.

Current and potential MSCI China composition

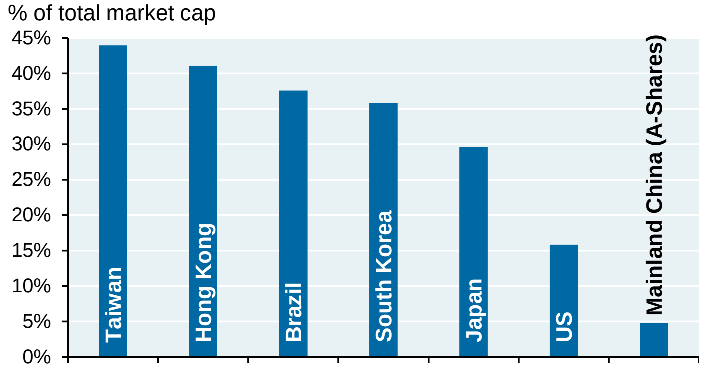
Source: KraneShares. February 2020.

China A-share holdings



Source: MSCI, Morningstar. Q2 2020.

Foreign ownership of domestic stock markets
% of total market cap

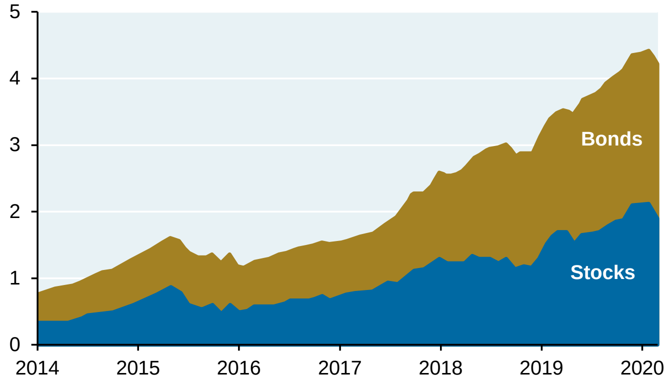


Source: Federal Reserve, National Conference of Stock Exchanges, HKEX, J.P. Morgan Emerging Markets Equity Research. November 2020.

[10] Louis Gave, Gavekal Research, "*Three Strikes And Still In*", November 23, 2020.

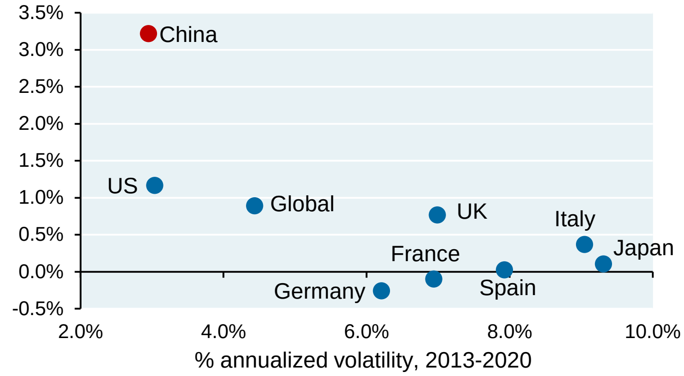
Fixed income. While foreign investors have been buying Chinese government bonds, the 2 trillion RMB added since 2014 only amounts to 2% of China's total domestic fixed income market (3% if we only include sovereign and financial sector issuers). China's current weight in the Barclays Global Aggregate is 3% and will rise to 6% upon full inclusion. Compared to other liquid global bond markets, China compares favorably with respect to current yield and volatility, and also has a lower duration.

Foreign investment in Chinese stocks and bonds
Trillions of RMB



Source: Peterson Institute for International Economics. February 2020.

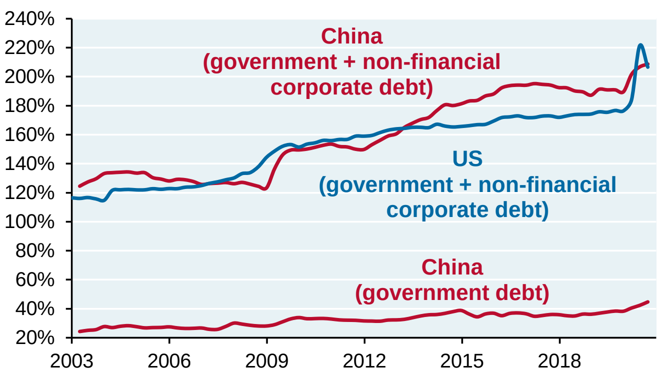
Yield to worst vs volatility of aggregate bond indices
%, yield to worst



Source: Bloomberg. November 18, 2020.

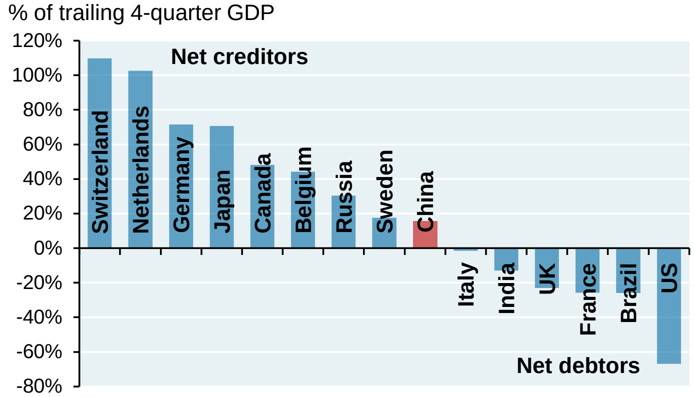
China credit risk. We typically look at gov't plus corporate debt in China since the division between Chinese public and private debt is blurred (debt of state owned enterprises can be considered corporate debt and/or a liability of the gov't). However, even though China's overall debt levels are just as high as the US, Chinese debt is owed mostly internally rather than externally. The last chart shows **Net International Investment Positions**, which measure each country's stock of foreign assets less foreign claims on that country's assets. China is still a net creditor nation, in contrast to the US. Another way to illustrate the same concept: **net external debt to GDP is 95% in the US and just 15% in China**. In other words, while China is an emerging market for equity investors, it is usually considered a developed market for fixed income investors.

General government and non-financial corporate debt
% of GDP



Source: Wind, CNBS, Federal Reserve. Q3 2020.

Net international investment position
% of trailing 4-quarter GDP



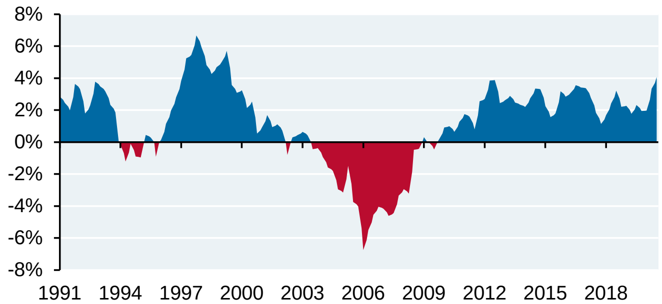
Source: BEA, central banks and government agencies, JPMAM. Q2 2020.

[4] Why does the US equity market keep outperforming Europe and Japan?

When someone tells you they're making a contrarian recommendation to overweight Europe or Japan vs the US, be sure and ask them how many times they made the same recommendation before. Why? **Because they were probably wrong when they did.** As we have illustrated multiple times, a strategy to overweight the US and Emerging Markets vs Europe and Japan has been one of the most consistently successful asset allocation approaches I have ever seen, and it worked *again* in 2020. Since January 2010, US equities generated total returns of 319% vs 124% for Japan, 87% for Europe and 73% for Emerging Markets.

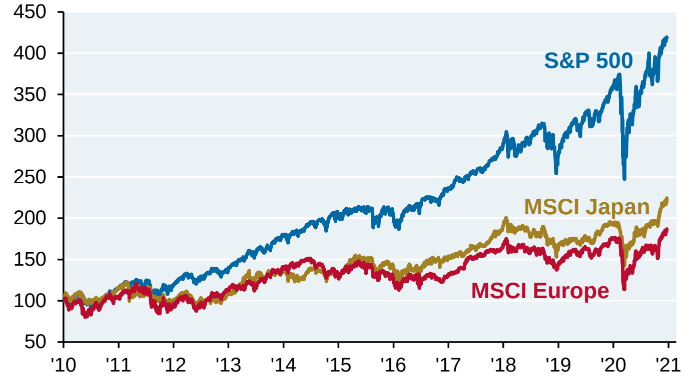
Why has the US consistently outperformed Europe and Japan? The most plausible reasons have more to do with micro than macro[11]. Think about where the largest equity market gains often come from in a low-growth world: the **Tech sector**, rather than sectors with lower and more volatile earnings growth (Basic Materials, Energy, Industrials). In the US, the Tech sector's weight is higher than the other three, while the reverse is true in Europe and Japan (3rd chart). And when we look *within* sectors, US companies generally have higher profitability than their European and Japanese counterparts (table); this is a very telling and important comparison, and **might be the best explanation of all.**

Overweight US, underweight Europe & Japan
3-year rolling out (under) performance vs MSCI All World Index



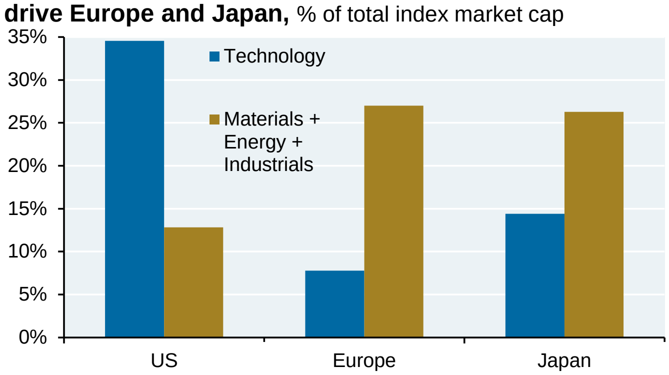
Source: Bloomberg, JPMAM. Q3 2020. All equity portfolio, rebalanced quarterly. 10% OW to US, 8% UW to Europe, 2% UW to Japan. Assumes no currency hedging.

US outperforming Europe and Japan
Total return in US$, Jan 2010 = 100



Source: Bloomberg. December 29, 2020.

High growth tech drives US markets, growth laggards drive Europe and Japan, % of total index market cap



Source: Bloomberg. December 29, 2020. Technology includes: GICS level 1 Information Technology + GICS level 3 Interactive Media & Services.

	Return on Assets: Higher in the US					
Country	**Consumer Staples**	**Consumer Discretionary**	**Technology**	**Healthcare**	**Communication Services**	**Financials**
US	6.9	4.1	9.9	5.8	4.4	0.8
Europe	5.1	0.6	5.4	4.9	1.5	0.2
Japan	2.9	1.7	3.9	3.7	3.4	0.2
	Return on Equity: Higher in the US					
Country	**Consumer Staples**	**Consumer Discretionary**	**Technology**	**Healthcare**	**Communication Services**	**Financials**
US	28.2	25.1	27.6	18.4	12.6	8.5
Europe	18.0	5.5	14.6	17.3	9.0	6.2
Japan	9.2	5.0	9.3	10.2	1.0	5.1

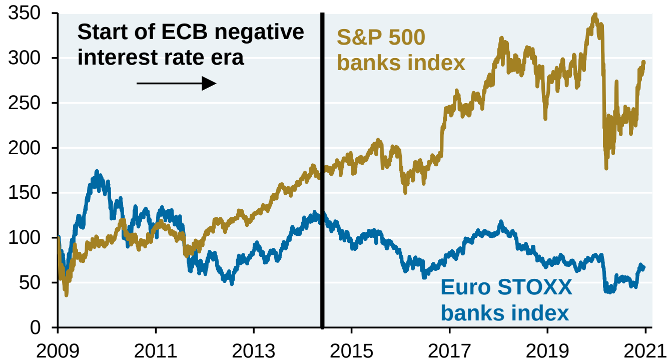
Source: Bloomberg. December 29, 2020.

[11] A macro explanation: since 2014, the **prime income population** (aged 30-49) in the US has been growing faster than in Europe. UN data indicates that this gap is expected to grow even wider from 2020-2025, as the US prime income population expands by 5% while the **European prime income population declines by 3%**.

[5] What are negative policy rates doing for European banks? Nothing good

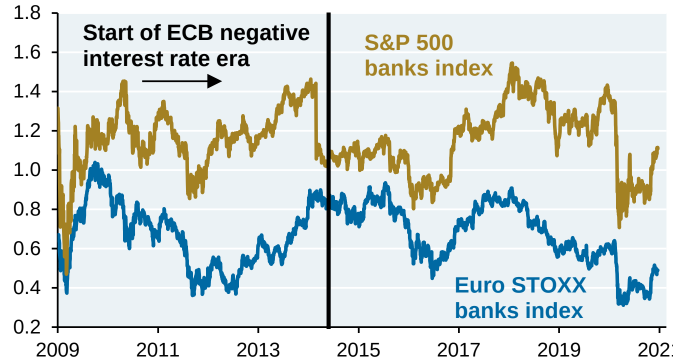
European bank equity returns and valuations have trailed the US since negative policy rates began in 2014. We don't know the counterfactual, and perhaps the ECB would argue that without negative rates, the region would be in even worse shape with rising corporate defaults making life even worse for banks. Whatever the case, negative rates have been a headache for bank investors in Europe, and it doesn't look like they're going away.

US vs Europe: banks total return performance
Total return in US$, Jan 2009 = 100



Source: Bloomberg. December 29, 2020.

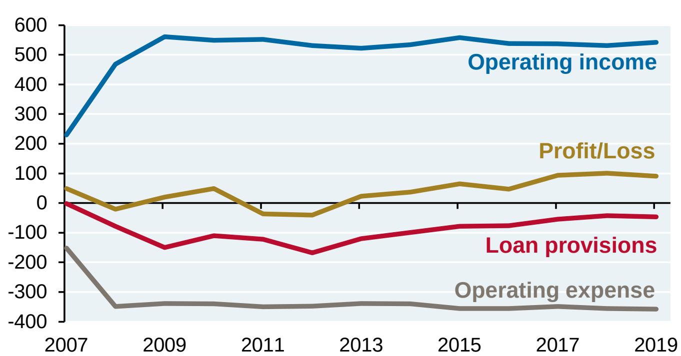
US vs Europe: banks price to book
Ratio



Source: Bloomberg. December 29, 2020.

The rise in European bank profits in the last couple of years is **almost entirely due to reduced loan loss provisions**, rather than resulting from rising operating income or falling operating expenses. In other words, this is **not an organic increase in bank profits**. As long as substantial parts of the European yield curve are negative (see table), I don't really see how this will change much.

Banks profitability driven by falling loan provisions
EUR billions



Source: ECB, Barclays European Research. 2019.

Percentage of J.P. Morgan GBI Broad Index trading with negative yields

Country	Total	1-3 Years	3-5 Years	5-7 Years	7-10 Years	10+ Years
Denmark	100%	100%	100%	100%	100%	100%
Finland	100%	100%	100%	100%	100%	100%
Germany	100%	100%	100%	100%	100%	100%
Netherlands	100%	100%	100%	100%	100%	100%
Austria	83%	100%	100%	100%	100%	54%
Sweden	82%	100%	100%	100%	100%	21%
Ireland	82%	100%	100%	100%	100%	39%
France	81%	100%	100%	100%	100%	45%
Belgium	75%	100%	100%	100%	100%	45%
Portugal	74%	100%	100%	100%	81%	0%
Spain	63%	100%	100%	100%	68%	0%
Japan	51%	100%	100%	100%	80%	0%
Italy	37%	100%	100%	0%	0%	0%
Total	64%	100%	100%	82%	77%	22%

Source: J.P. Morgan Global Index Research, J.P. Morgan Asset Management. November 30, 2020

Whether negative rates are a symptom, a disease or a cure, I hope they never emigrate from Europe to the US. Princeton economist Markus Brunnermeier believes in a "reversal rate": a tipping point beyond which damage to banks from further rate reductions outweigh benefits to the economy, in which case more **easing becomes contractionary rather than stimulative**. In other words, as bank profitability falls, their ability to generate new capital deteriorates, which undermines their ability to make new loans.

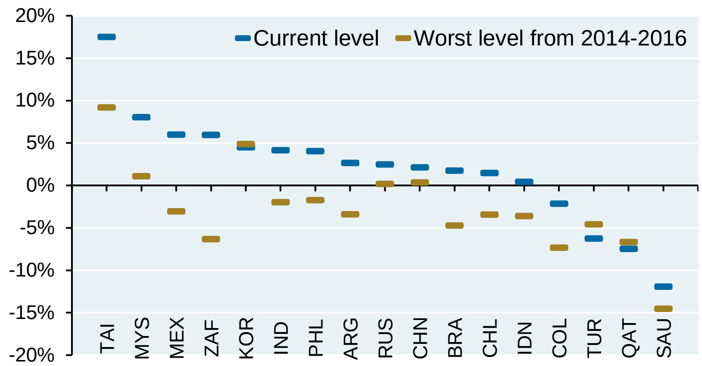
[6] Emerging markets: a trifecta of value

Let's keep this simple: emerging markets offer investors a trifecta of value right now.

- Improved current account deficits (i.e., less risk of balance of payments adjustments)
- Undervalued currencies
- Lower equity valuations than Europe

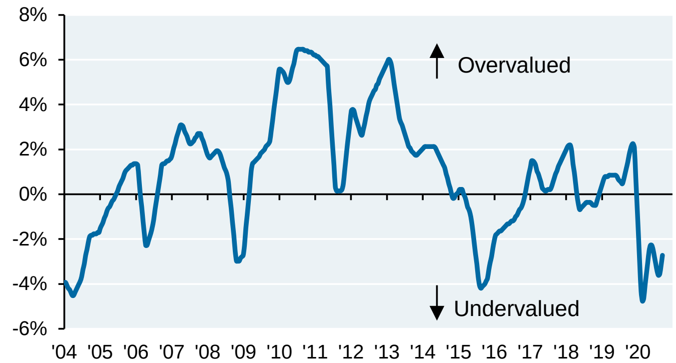
The past few years have been difficult for EM equity investors: China growth slowdown, commodity price collapse, US trade tensions, COVID-19, etc. However, we expect COVID risks to subside, EM recoveries are underway, US real interest rates remain low, China is recovering rapidly and many EM economies are running stimulative policies as well. Despite record *inflows* in November, EM equities are still on track for their largest yearly *outflows* on record in 2020.

Emerging markets current account balances
% of GDP



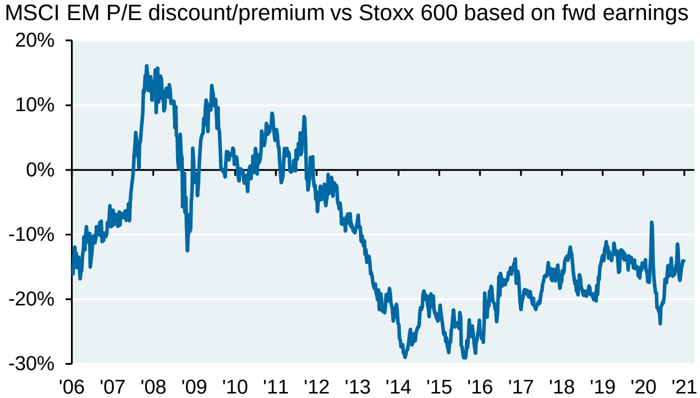
Source: Country central banks. Q2/Q3 2020.

Real trade weighted Emerging Market currency basket
%



Source: Goldman Sachs Economic Research. November 2020.

Emerging Markets: P/E discount vs Europe
MSCI EM P/E discount/premium vs Stoxx 600 based on fwd earnings



Source: Datastream, IBES, J.P. Morgan Asset Management. Dec 25, 2020.

Regional equity returns since 2014
Total return in US$, Dec 2014 = 100

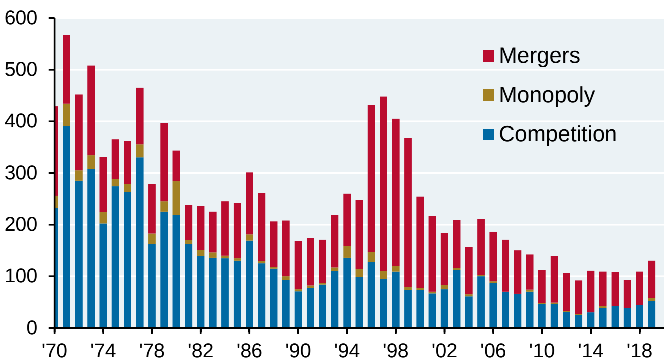
Source: Bloomberg. December 29, 2020.

[7] Antitrust enforcement: coming to a tech company near you

On page 9, we illustrate how critical the Big 5 stocks are with respect to overall US market capitalization and returns. That's why we're paying so much attention to signs of a rebirth in antitrust enforcement, which had fallen to a postwar low by the end of 2017. In addition to the DoJ Google lawsuit, we are also following: State Attorney General filings against Google for reasons that differ from the DoJ case; consumer rights advocate class action lawsuits for data privacy reasons; risks that Section 230 is revoked or amended (Section 230 provides indemnity against comments posted or censored); and the Facebook antitrust lawsuit filed by the FTC which seeks to force FB to unwind its acquisitions of WhatsApp and Instagram.

The October 2020 House Judiciary Report on antitrust (which reflected the majority Democratic view on the committee) laid out a highly energized antitrust agenda, but its future is unclear given very narrow DEM majorities in the House and Senate. Even so, it provides a window into how the antitrust debate has been shifting and what long-term risks are for antitrust targets. **We dig into the details of this report on the next page, and into the details of the DOJ Google lawsuit on the page after that. We conclude with a discussion of digital service taxes applied by other countries to US tech firms**.

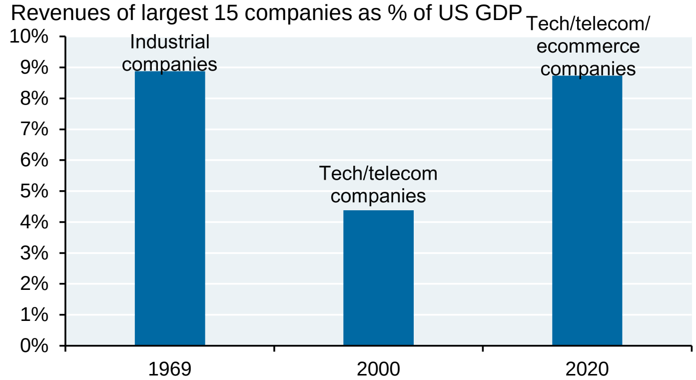
Number of Department of Justice antitrust investigations initiated



Source: United States Department of Justice. 2019.

Industry consolidation is now at prior 1969 peak

Revenues of largest 15 companies as % of US GDP



Source: Bloomberg, BEA, Fortune 500, J.P. Morgan Global Economic Research, JPMAM. 2020.

Market share overview for US markets

Category	Google	Apple	Facebook	Amazon	Subtotal	Microsoft	Total
Phone operating systems	**52%**	**47%**			99%	1%	100%
Video game streaming	21%		3%	**73%**	97%	3%	100%
Internet search incl. images, maps, YouTube	**91%**		1%	2%	95%	2%	97%
Navigation applications	**80%**	10%			90%		90%
eBooks		20%		**70%**	90%		90%
Web browsers	**51%**	**33%**			84%	7%	91%
e-Readers				**84%**	84%		84%
Email	**29%**	**46%**			75%	10%	85%
Internet search	**62%**				62%	**25%**	87%
Digital advertising	**39%**		20%	2%	61%	4%	65%
e-Commerce		6%		**54%**	60%		60%
Social media	1%		**51%**		52%	1%	53%
Digital storage	4%			**47%**	51%	10%	61%
Social media digital photos			**50%**		50%		50%
Mobile video and music	**34%**	8%		7%	49%		49%
Internet video	**29%**		11%	8%	48%	7%	55%

Source: Connecticut Public Interest Law Journal, US DOJ, SparkToro. September 2020.

October 2020 House Judiciary Report on anti-competitive tech behavior

Facebook, Google, Amazon and Apple were cited in a House Judiciary Report released on October 6th for making acquisitions that stifle competition ("killer acquisitions"[12]), using market power to raise prices, misappropriating third-party data, stealing intellectual property and acting as market gatekeepers (i.e., controlling and serving a marketplace at the same time). The report's conclusions discard the "consumer welfare" standard that has guided antitrust enforcement over the past 40 years. Some firm-specific conclusions in the report:

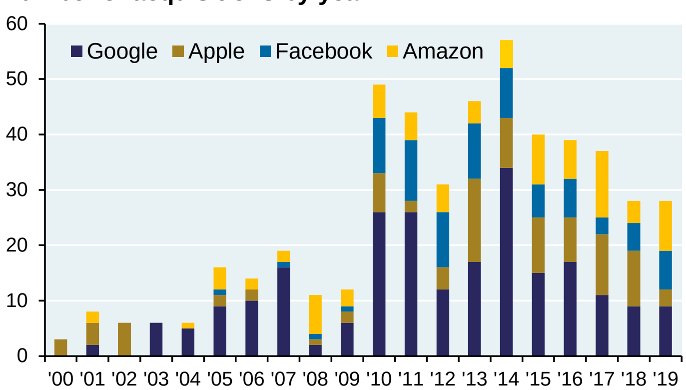
- *Facebook*: social networking monopoly power that results from Facebook using superior market intelligence to identify nascent competitive threats and then acquire, copy, or kill them
- *Google*: online search and search advertising monopoly that is the product of anticompetitive behavior which includes undermining competition, misappropriating third-party data, and establishing their software as the default on most of the world's devices and browsers
- *Amazon*: durable market power in US online retail which results from acquiring competitors and abusing relationships with third party sellers beholden to Amazon, and from using control over the marketplace to find where its third party partners are doing well and copying their products to drive them out of business
- *Apple*: significant and durable market power in mobile operating system market resulting from its control of all software distribution to iOS devices

House Democrats favor a wide range of policies to combat these practices, listed below. The GOP does not agree and only favors a small number of them (highlighted in red). If Democrats jettison the filibuster these proposals would face a lower 51-seat Senate hurdle to pass, but it is not clear that there's unilateral support among Democrats for these policies. In any case, antitrust heat on tech may increase given greater Congressional scrutiny and a rejuvenated Department of Justice.

- *Restoring competition*: Glass-Steagall legislation for the tech sector (break up lines of business), rules to prevent discrimination and self-preferencing, merger prohibition, safe harbor for new publishers, prohibition on abuse of bargaining power and rules on data portability/interoperability

- *Strengthening antitrust law*: Reassert anti-monopoly goals of antitrust law, strengthen Section 2 of the Clayton Act (price discrimination), strengthen Section 7 of the Clayton Act (acquisitions that foster monopolies), restore enforcement Agencies to full strength, increase private enforcement

Number of acquisitions by year



Source: "*A topology of multi-sided digital platforms*", University of Connecticut Law School. June 2020.

[12] The phrase "**Killer Acquisitions**" was coined by Cunningham (LSE) and Ederer (Yale SOM) in a paper published in 2018. They used the pharmaceutical industry to illustrate how incumbent firms sometimes acquire innovative targets solely to discontinue the target's innovation projects and preempt future competition.

United States vs Google key issues[13]:

- The Justice Department case is *not* focused on Google's search engine or advertising revenue dominance, in contrast to the centrality of such issues in European antitrust investigations. Instead, the DoJ case focuses on Google's **exclusivity arrangements with its distributors**. Google pays billions of dollars each year to device manufacturers (Apple, Motorola, LG, Samsung), wireless carriers (AT&T, T-Mobile, Verizon) and browser developers (Mozilla, Opera, UC Web) to secure default status for its search engine. In the case of Apple, the DoJ claims that 15%-20% of Apple's worldwide annual income is derived from Google payments for search engine default status. In some cases, Google prohibits counterparties from dealing with its competitors, and requires placement of Google Apps in prime positions on devices
- A key concept from a speech by Assistant Attorney General Delrahim in 2019: "even if a company achieves monopoly position through legitimate means, it cannot take actions that do not advance plausible business goals but rather are designed to make it harder for competitors to catch up"
- Google has responded to such arguments by comparing its payments to distributors to cereal companies paying supermarkets to stock its goods on the best eye-level shelving. However, cereal consumption does not result in self-reinforcing market dominance. Google employs complex algorithms that learn which results and ads best correspond to user searches, and the more they do this, the better they get at it
- Some DoJ allegations about Google rhyme with antitrust arguments levied against Microsoft 20 years ago, such as restrictions Microsoft placed on equipment manufacturers to ensure installation of Internet Explorer and to suppress alternative operating systems. Currently, some antitrust analysts believe that Google and Apple impose restrictions on device manufacturers and App developers that have nothing to do with technical limitations or consumer security, and are instead designed to preserve market dominance
- There's a complicating factor**: the online world involves duopolies instead of conventional monopolies**. For example, Google/Facebook dominate digital advertising, Microsoft/Amazon dominate the cloud, Amazon/Google dominate shopping searches, and Microsoft/Google dominate productivity applications. As a result, the companies involved can mount vigorous defenses against monopolistic practice charges. Many of these duopolies can be seen in the table on the bottom of page 25
- How any given judge will rule on the case is unknown, but the DoJ case increases the risks for the big 4 tech and social media stocks that account for a growing share of market returns

[13] Sources include the University of Connecticut Law School ("*A topology of multi-sided digital platforms*", June 2020), University of Pennsylvania Carey Law School (*"Antitrust and Platform Monopoly",* September 2020) and Stratechery.com (October 21, 2020)

Additional risks: Digital Service Taxes targeting US tech giants gaining momentum

The US tech sector is facing **digital service taxes** (DST) on revenues paid to them by European advertisers. Tired of waiting for the OECD's "Pillar I" tax proposals to be sorted out, the UK, France, Spain, Italy and Austria have enacted DSTs of their own. The logic is based on a concept called "user-created value": since users of services like Facebook contribute to brand value by providing information to the company which enables it to earn ad revenues, users are undertaking so-called "supply-side functions" that would normally be undertaken by the business itself. Ergo, the jurisdiction in which users reside may tax this value as it is created, using locally generated ad revenues as a proxy. What concerns the EU: Facebook's tax bill for 2017 in France was less than 2% of that charged by low-tax Ireland (FB's European HQ), despite FB having 10 times more French users than Irish ones. DSTs would be paid by a company in addition to whatever income or consumption taxes the company is already paying in Europe.

A 2019 IMF paper described the theoretical underpinning of DSTs as problematic, and the Petersen Institute described DSTs as de facto tariffs discriminating against US firms. European governments have drafted language that avoids conceding that they are **taxing consumption of US services exports,** which are de facto tariffs that may violate existing bilateral tax treaties. The French Finance Minister said that its DST does not "single out US companies", but…

- Given high worldwide revenue thresholds France uses in applying digital advertising taxes and revenues that they apply to, **US tech giants (GOOGL, FB, AMZN, EBAY, UBER, ABNB) are practically the *only* entities subject to them.** Subscription fees and in-app purchases are excluded by France, which could have affected European firms. French officials stated that the DST was explicitly designed so as to avoid slowing down e-commerce innovation and the digitization of France's own businesses
- The French DST is applied **to gross revenues rather than net income,** resulting in double (or triple) taxation which contravenes the architecture of the international tax system in the developed world. Some DST proposals allow for VAT taxes to be deducted, another swipe at US firms that are not subject to them in their own jurisdiction

In 2019, the US countered with a proposal to tax marketing of intangibles (one that would also tax EU firms). The OECD tried to merge US and EU proposals, and then negotiations fell apart with COVID. In early 2020, the Trump administration threatened tariffs on French luxury goods if DSTs were not withdrawn; eventually Trump and Macron agreed to a truce and postponed tariffs and DST collections to the end of 2020 to allow more time for multilateral talks, though with the OECD talks currently stalled France recently demanded payment of 2020 taxes from US digital firms. Other European countries including Belgium, the Czech Republic and Hungary announced plans to impose digital taxes, and a high-level summit on an EU-wide digital tax is currently scheduled for March 2021. **The US is expected to retaliate against French digital taxes by imposing tariffs on French goods; how the US, the EU, the OECD and the WTO will resolve this is unclear.**

The US faces pressure to back down and agree to digital taxation given EU momentum and digital taxes adopted unilaterally by non-European countries including India, Indonesia, Mexico, Turkey, and Pakistan, and the recent announcement that Canada will impose a digital tax starting in 2022. **As countries adopt their own DSTs, the outcomes are important given the low effective tax rate of the US tech sector, its high degree of foreign-sourced revenue, and the potential for greater disruption from trade wars if and when the US retaliates with tariffs**.

The Tech sector: globally exposed and less heavily taxed

Revenue from Dev World ex-US (%total)		Effective corporate tax rate	
Tech	18%	Tech	23%
Industrials	18%	Consumer staples	24%
Consumer staples	15%	Industrials	24%
Banks	15%	Cyclical consumer goods	25%
Total	14%	Resources	31%
Non-cyclical services	13%	Non-cyclical services	31%
Other	13%	Cyclical services	31%
Cyclical services	10%		
Cyclical consumer goods	6%		

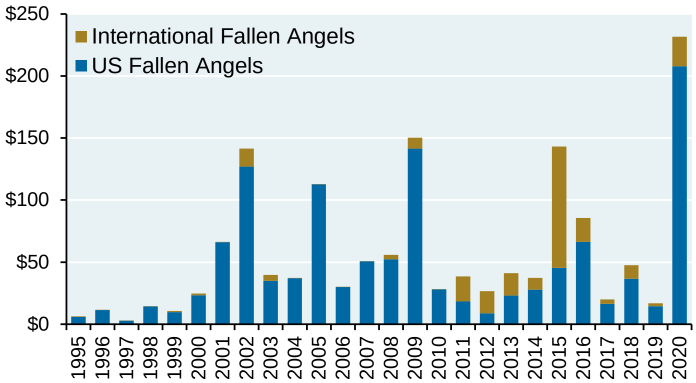
Source: Bridgewater. November 2020.

[8] Fallen angels and hybrid investments in diversified portfolios

Given the likelihood of low policy rates for the rest of our lives, many investors will seek to wring every bit of yield they can from portfolios. JP Morgan's Global Long Term Strategy Team recently published two pieces[14] on the subject: the importance of "fallen angels" in high yield portfolios, and the ability of "hybrid investments" to add portfolio returns as well.

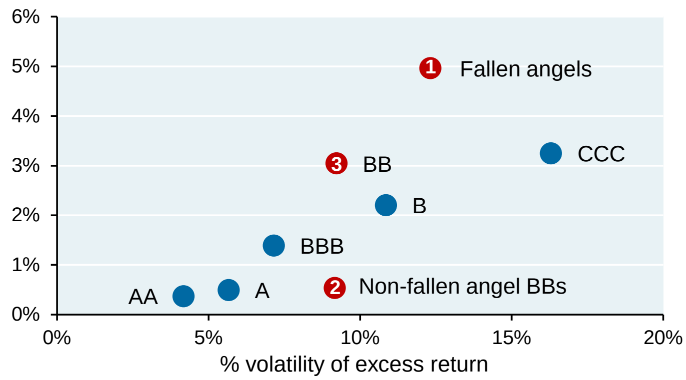
Fallen angels refer to investment grade corporate bonds that are downgraded to high yield. This tends to happen in recessions and also during periods of stress in specific sectors (energy in 2015-2016). While investing in fallen angels might appear to be like catching a falling knife, the last 15 years tell a different story. As shown on the right, fallen angels have been **volatile but have delivered attractive returns over risk-free bonds** (dot 1). In fact, without the contribution of fallen angel bonds, a BB-rated high yield portfolio would barely have generated excess returns at all (dot 2). The combination of the two is what has made BB high yield portfolios worth owning (dot 3), since that's where most fallen angels end up, at least temporarily. In 2020, the weight of fallen angels in the high yield BB rating category increased from 18% to 30%.

Global fallen angel volume
US$, billions



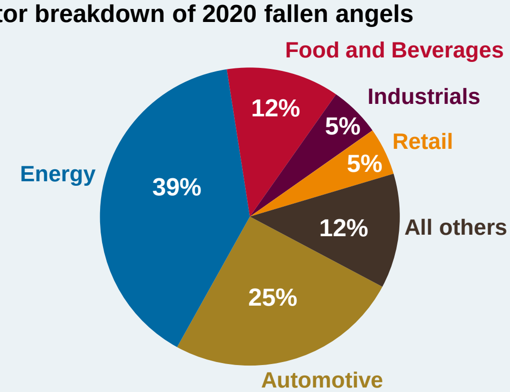
Source: J.P. Morgan Credit Research. 2020 data through November.

Return and volatility of US corporate credit by rating
% excess annualized return over UST, 2/2004-8/2020



Source: J.P. Morgan Global Long-Term Strategy. August 2020.

Sector breakdown of 2020 fallen angels



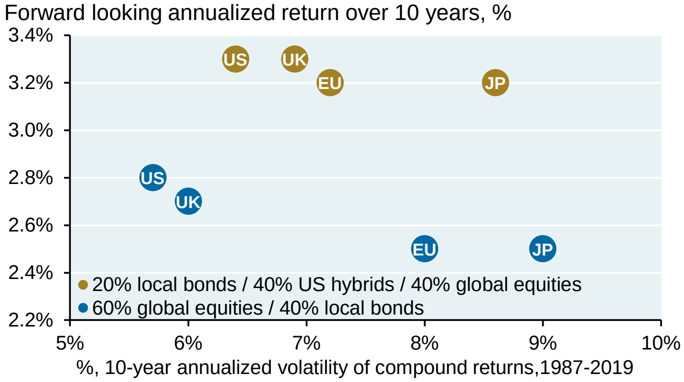
Source: J.P. Morgan Credit Research. November 2020.

[14] *"Fallen Angel and Buybacks: Strategy Update 2020"*, Jan Loeys and Shiny Kundu, J.P. Morgan Long Term Strategy. September 28, 2020; *"The international 60/40 problem and US hybrids"*, Jan Loeys and Shiny Kundu, J.P. Morgan Long Term Strategy. September 29, 2020.

With bond and equity valuations near all-time highs, is there anything investors can do to generate portfolio returns on the margin without taking as much portfolio risk? JP Morgan's Global Long Term Strategy Team also looked at this issue and focused on potential benefits from "hybrid" investments, which can include high yield bonds and loans, collateralized loan obligations (CLOs), commercial mortgage backed securities (CMBS), convertible bonds, equity REITs and mortgage REITs, preferred stock and utility stocks. The common feature: potential to generate equity-like returns with lower long-term end of period risk to your wealth.

Of the hybrid asset classes listed above, the JP Morgan analysis focused on just four: high yield bonds, equity REITs, utility stocks and convertible bonds (mostly due to historical data availability). They consider this subset representative of the broader universe of hybrids given similar return and volatility profiles. We synthesized their analysis in the chart below, which compares forward-looking expectations on 60-40 portfolios and "hybrid" portfolios (40% hybrid, 40% stocks, 20% bonds). **The analysis projects a modest pickup in return in exchange for a modest pickup in risk.**

Traditional 60/40 portfolio vs portfolio with hybrids
Forward looking annualized return over 10 years, %



Source: J.P. Morgan Global Long-Term Strategy. Sept 2020. Volatility data for Europe begins in 1995.

The JP Morgan analysis is meant to inform long term investors, so it computes risk annualized measures over three decades. That's fine, but measuring volatility over a 30 year period can smooth over some very rough patches. In 2009, many hybrid investments experienced levels of volatility that were not that different from equities. The table shows how all 9 classes of hybrids performed during the Great Financial Crisis and during the COVID crisis. As an investor's lens shifts from daily to monthly to quarterly performance, the drawdowns get a bit smaller. **Even so, given their performance during market crises, long term investors need to truly commit to the phrase "long term" to reap the benefits of hybrid investments in diversified portfolios.**

Hybrids	2011-2019 Annualized Return	2008-2009 recession max drawdown			2020 recession max drawdown		
		Daily	Monthly	Quarterly	Daily	Monthly	Quarterly
High yield bonds	6.8%	-35%	-32%	-25%	-21%	-13%	-13%
High yield loans	4.5%	-31%	-28%	-28%	-21%	-14%	-13%
CLOs	3.9%*	N/A	N/A	N/A	-15%	-9%	-8%
CMBS	4.3%	-41%	-33%	-21%	-12%	-5%	-2%
Convertible bonds	9.4%	-44%	-39%	-33%	-27%	-16%	-14%
Equity REITs	11.0%	-68%	-62%	-58%	-42%	-24%	-23%
Mortgage REITs	4.5%	-72%	-67%	-51%	-71%	-61%	-59%
Preferred stock	6.5%	-64%	-54%	-42%	-33%	-16%	-15%
Utility stocks	12.3%	-50%	-41%	-39%	-37%	-20%	-15%
Average	7.0%	-51%	-45%	-37%	-31%	-20%	-18%

Source: Bloomberg. December 17, 2020. *Annualized return for CLOs is from 2012-2019.

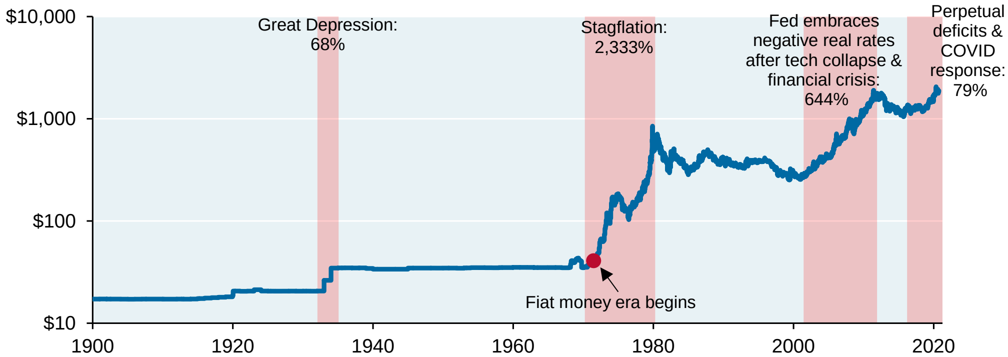
[9] Gold rally: modest so far

Gold is up ~80% from its post-financial crisis low. The next chart shows the latest gold spike and 3 prior ones:

- the 1930s, when Japan, Germany, the UK, the US and France in succession abandoned gold standards to combat deflation
- the 1970s, after Nixon took the US off the gold standard and the Fiat Money system began
- the 2000s, when the Federal Reserve for the first time in its history began using negative real interest rates as a policy tool outside of wartime

In other words, when gold rallies, it has the potential to rally a *lot*.

When gold prices rise, they usually rise by a lot
US$ per Troy Oz, log scale

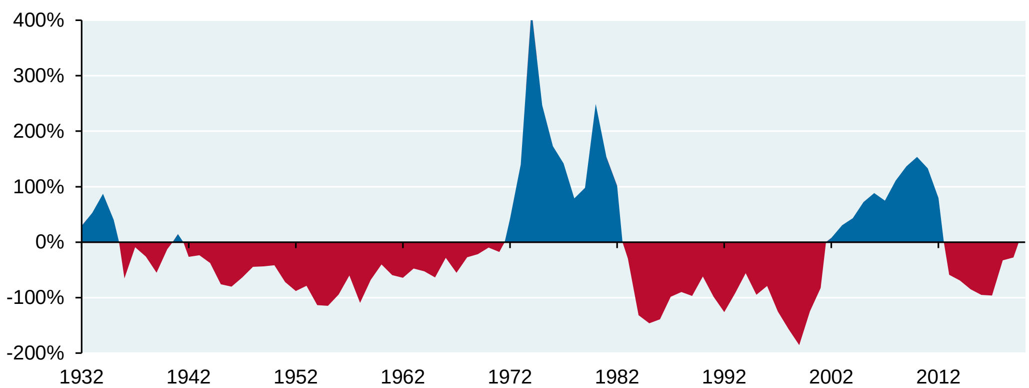


Source: Bloomberg, J.P. Morgan Cross Asset Strategy. December 29, 2020.

The challenge for investors: many years can elapse between gold rallies. The next chart shows the performance of gold vs a diversified portfolio of financial assets since the 1920s. Gold underperformed before WWII, but this is an artifact of fixed gold prices not comparable to today. Gold outperformed during the 1970s, but then gold bugs had to wait 22 years before reaping net portfolio benefits again. Gold outperformed from 2002 to 2012, and then another period of gold underperformance set in which is even now only on the cusp of reversing.

As illustrated in the Executive Summary, COVID stimulus eclipses all prior crises. Furthermore, money supply has surged relative to gold production, something which preceded prior gold rallies. Neither US political party appears interested in deficit reduction, and proponents of Modern Monetary Theory fuel that lack of concern further. Maybe that's why major Central Banks became net buyers of gold again over the last 2 years after being net sellers[15]. So, I sympathize if you believe that gold's outperformance is just the beginning. **But be prepared: the wrong timing on a gold call can take a generation or more to reverse.**

The infrequent outperformance of gold
5 year rolling out (under) performance of gold vs balanced portfolio (65% stocks, 25% bonds, 10% T-Bills)



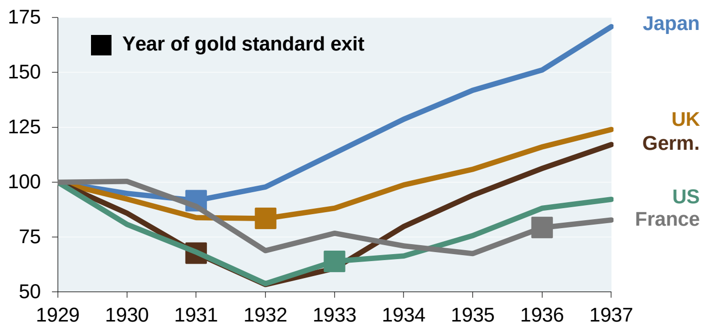
Source: A. Damodaran (NYU), Bloomberg, FRED. December 29, 2020.

[15] In Q3 of 2020, central banks became net sellers as some financially-stretched countries like Turkey raised funds to deal with the COVID pandemic. We expect this to be a temporary lull and for central banks to resume buying gold in 2021.

We conclude this section with 4 gold related charts:

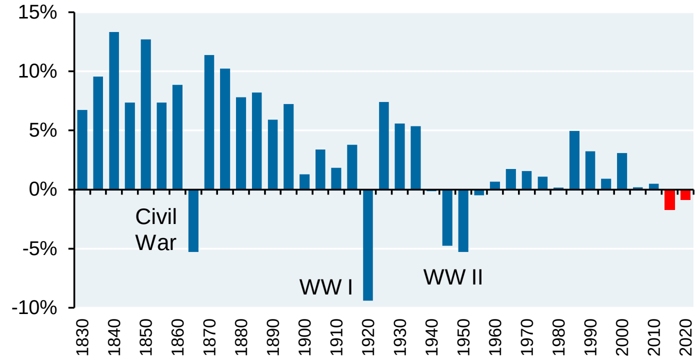
1. Barry Eichengreen at UC Berkeley found that the sooner a country abandoned its gold standard during the Great Depression, the faster it recovered
2. Following the tech collapse and the financial crisis, the Fed adopted a new strategy: negative real interest rates, which had never occurred in the economic history of the US outside of wartime
3. US money supply has surged relative to gold production, which preceded both prior gold rallies
4. Central bank gold holdings as a % of total reserves are at their highest level since 2002

The earlier a country abandoned its gold standard, the faster its economy recovered, Index, 1929 = 100



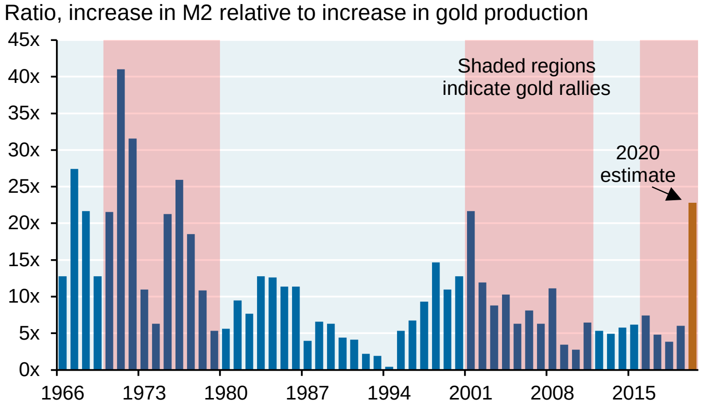
Source: *"The Origins and Nature of the Great Slump Revisited"*, Barry Eichengreen, Economic History Society, 1992.

Lowest real yields on cash since 1830, other than during wartime, T-bill/Funds rate less inflation, 5-year average



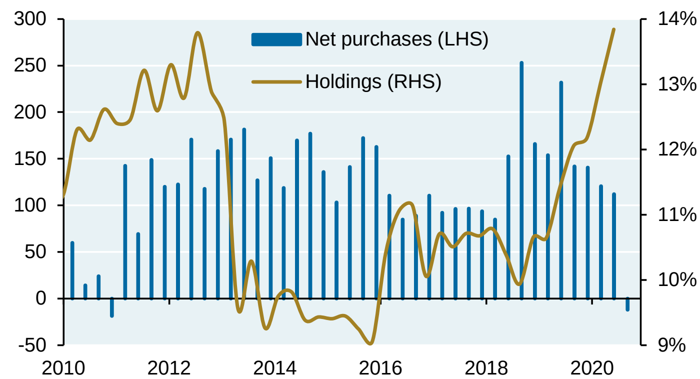
Source: FRB, Robert Shiller, GFD, BLS, JPMAM. November 2020.

Growth in US money supply vs global gold production
Ratio, increase in M2 relative to increase in gold production



Source: Gavekal Research. Sept 2020.

Global central bank gold purchases and holdings
Tonnes % of total reserves



Source: World Gold Council. Q3 2020.

[10] US Federal debt increase is probably permanent

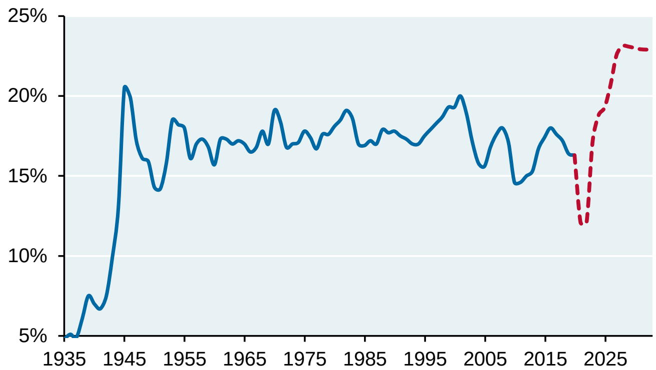
What would it take to get US Federal debt back down to pre-virus levels of 80% by 2030? We worked with the **Committee for a Responsible Federal Budget** to find out. Here are the mutually exclusive answers, which are also illustrated in the charts:

- Enact the largest tax hikes in US history
- Slash spending to the lowest level in 80 years
- Somehow generate a real GDP growth boom last seen in the US 50 years ago
- Spark higher inflation (but not so high that it would increase real interest rates, slow growth or lead policymakers to enact additional spending to compensate for higher prices)

Since most of this is not politically or economically feasible, the US will have to get used to permanently high debt levels. I understand COVID stimulus: by sustaining private sector demand, benefits outweigh costs to the economy, at least for now. But unprecedented experiments can have unprecedented consequences, and down the road, US flexibility to respond to geopolitical, climate and other emergencies will be impaired.

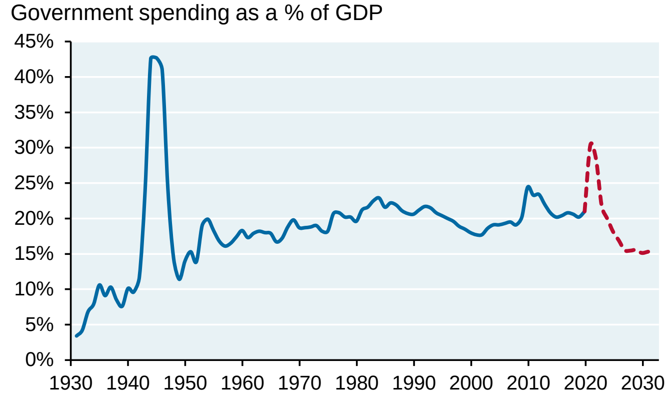
What would be needed to bring US Federal debt back down to pre-virus levels by 2030? Follow the red lines

Raise tax revenues to their highest levels on record
Tax revenue as a % of GDP



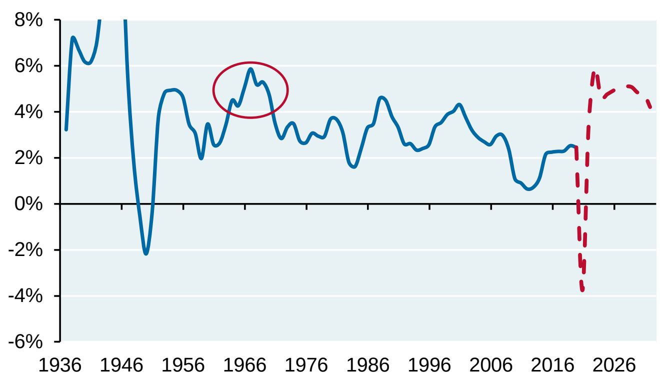
Source: OMB (history), CRFB (projections). 2020.

Cut spending to pre-WWII levels
Government spending as a % of GDP



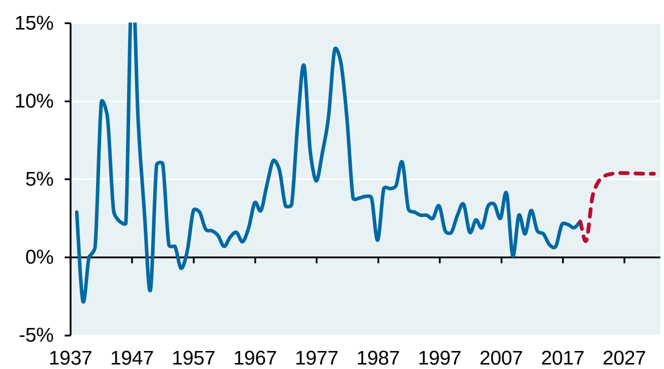
Source: OMB (history), CRFB (projections). 2020.

Reproduce 1960's growth boom
y/y% change in real GDP, 5-year annualized



Source: BEA (history), CRFB (projections), JPMAM. 2020.

Generate higher inflation...but not too high
y/y% change in headline CPI

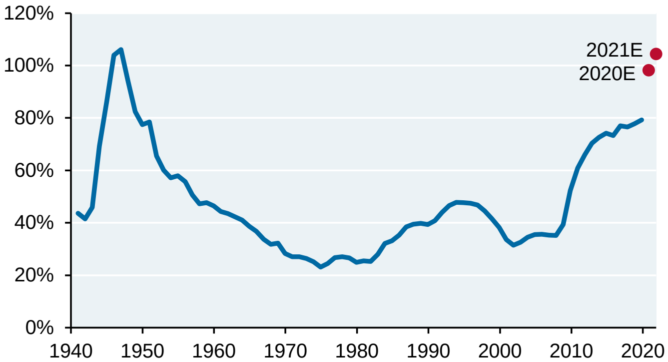


Source: BLS (history), CRFB (projections). 2020.

The last charts this year probably won't impact markets anytime soon, but they do make me thankful that I'm closer to the end of my career than to the beginning. It would not be pleasant to be an investment strategist when/if the consequences of these charts have to be dealt with.

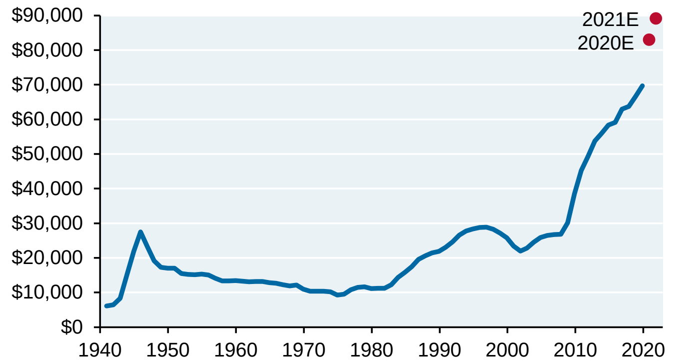
While the typical chart shows Federal debt relative to GDP, the second one shows Federal debt in real terms **per working age person**, since that's the source of tax revenue that will eventually service the debt. This chart picks up the impact of worsening demographics on the debt burden in addition to the surge in the debt itself. If someone wants to argue that this kind of thing led to the end of prior reserve currency nations, I would not stop them.

Gross federal debt held by the public
% of US GDP



Source: Congressional Budget Office. September 2020.

Gross federal debt held by the public
2012 dollars, debt per working-age person

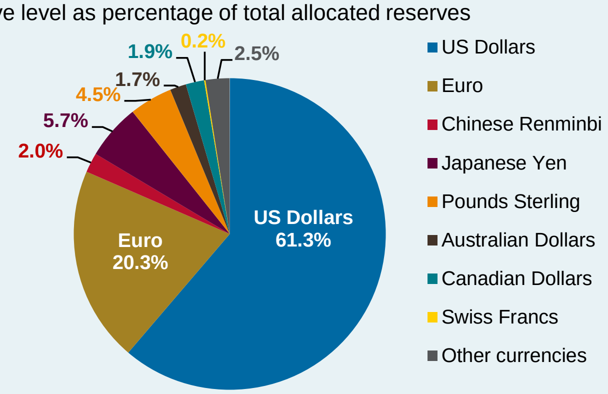


Source: Census, CBO, BEA, CRFB. 2020.

A timeline of reserve currencies or dominant trade currencies (years are approximate):

- Rome: 1st century BC – 4th century AD
- Byzantine empire: 5th century
- Arabian Dinar: 7th to 10th centuries
- Florence: 13th to 15th centuries
- Portugal: 1450 to 1530
- Iberian Union: 1530 to 1640
- Netherlands: 1640 to 1720
- France: 1720 to 1815
- UK: 1815 to 1920
- US: 1920 -

Currency composition of foreign exchange reserves
Reserve level as percentage of total allocated reserves



Source: IMF. Q2 2020.

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Michael Cembalest is the Chairman of Market and Investment Strategy for J.P. Morgan Asset & Wealth Management, a global leader in investment management and private banking with $2.6 trillion of client assets under management worldwide (as of September 30, 2020). He is responsible for leading the strategic market and investment insights across the firm's Institutional, Funds and Private Banking businesses.

Mr. Cembalest is also a member of the J.P. Morgan Asset & Wealth Management Investment Committee and previously served on the Investment Committee for the J.P. Morgan Retirement Plan for the firm's more than 256,000 employees.

Mr. Cembalest was most recently Chief Investment Officer for the firm's Global Private Bank, a role he held for eight years. He was previously head of a fixed income division of Investment Management, with responsibility for high grade, high yield, emerging markets and municipal bonds.

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