2020 Outlook – August Assessment

By: Bill Longbrake

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I. Economic Recovery Has Begun – It Will Proceed in Fits and Starts With Much More Pain to be Endured Along the Way

No change in the headline this month – same as in June and July. The resurgence in U.S. Covid-19 cases and pauses and rollbacks in reopening put an exclamation mark to the economic recovery proceeding in “fits and starts”! The failure of Congress to enact Phase 4 fiscal stimulus legislation to extend essential economic support that expired in June and July has added to the uncertainty. Much more pain is ahead for many.

When you were a kid you might have played the game “Captain May I.” I recall one of the fun parts of the game was to tell players to take two steps forward and one step back. With a resurgence in Covid-19 cases in much of the U.S. since mid-June, it now appears that while economic activity was improving rapidly – two steps forward, it is now stalling – one step back. This may be a pattern that repeats during the remainder of 2020 or until an effective vaccine is distributed to a large portion of the U.S. population.

At the April nadir of the lockdown in the U.S. 66% of small businesses were open. As reopening proceeded that percentage rose to 86% on June 24th, but by July 10th the percentage had fallen back to 80%. In that same two weeks job openings shifted from 5.4% above the January level to 14.4% below.

In last month’s letter, I opined that it would be foolhardy to expect the economy to bounce back to full employment quickly. After all, the economic downturn caused by the COVID-19 pandemic impacted the entire global economy. Everywhere unemployment soared and output growth fell within a matter of three months more than in any other recession since the Great Depression of the 1930s. The economic hole is horrific and it will take a long time and copious amounts of fiscal and monetary policy stimulus to dig out of it.

And, although recovery appears to be underway, COVID-19 has not been tamed; vaccines are under development, but it will be several months before effective vaccines are distributed to a large share of the population. In the meantime the pandemic rages on in many countries.

*The information contained in this newsletter does not constitute financial advice. This newsletter is intended for educational and informational purposes only. Bill Longbrake is an Executive in Residence at the Robert H. Smith School of Business, University of Maryland.*
Unfortunately, that is exactly what is happening in the U.S., although in mid-August new cases were beginning to diminish. But this rollercoaster is not happening everywhere, notably not in China and most Asian and European countries. The difference in outcomes is not circumstantial. It is due to detailed health safety management procedures that have been vigorously enforced. For example, Germany mandates that everyone wear face masks in public places and levies heavy fines for noncompliance. Emerging research confirms that mandatory face mask policies are highly effective in reducing the spread of Covid-19 cases.

The resurgence of Covid-19 cases in the U.S. should not have been a surprise. Reopening occurred prematurely in many locales without adequate health safety procedures including restrictions on large gatherings, testing, face masks and contact tracing. While the Center for Disease Control issued reopening guidelines, interpretation, application and enforcement of the guidelines was left to local political officials. Predictably, the response was uncoordinated and chaotic.

History tells us and knowledgeable analysts opine that recovery will proceed slowly and that years will pass before the U.S. and global economies return to full employment. In the case of the U.S. the resurgence in Covid-19 cases has prompted reopening pauses or rollbacks in many locales. However, it is unlikely that economic recovery will be derailed, but it could stall for a while and without question will take much longer than was the belief just a couple of months ago.

The Congressional Budget Office (CBO), which is a nonpartisan agency of Congress, updated its 10-year economic projections on July 2nd. These projections tell a story of a slow climb back to full employment. The unemployment rate was 3.5% in February. CBO does not expect the unemployment rate to break below 5% until 2027 – that’s more than 6 years from the present! CBO also projects that the Fed won’t raise interest rates until 2026.

Unfortunately, the U.S. is experiencing a secondary wave of Covid-19 cases. This wave is beginning to fade and hopefully it will be the last one of consequence. But there is no assurance of such an outcome.

What we know is that Covid-19 is lethal and highly contagious. We know that social distancing and health safety protocols are effective in reducing the spread of new infections. But we also know the economic consequences of social distancing for livelihoods and life in general are extraordinarily painful.

Uncertainty will continue until effective vaccines are developed and drug therapy, which is in its infancy, becomes more robust. Development of effective treatments are already in the testing phase, but approval is few months off yet. Even with approval it will take many more months to produce and distribute vaccines in
sufficient quantities to assure that herd immunity is achieved. Until then the population remains extremely vulnerable to Covid-19. This creates uncertainty and uncertainty leads to cautious behaviors that will impede rapid economic recovery.

In the face of uncertainty about the course of the COVID-19 pandemic and given that its initial impact has already “ripped the fabric of the economy” and set in motion enormous consequences that will be hard to repair quickly, it is incumbent on policymakers to do as much as possible to mitigate the damage and provide support to individuals, businesses and other organizations and to continue doing so until the virus is tamed and until economic recovery is solidly underway.

Congress met for two weeks in late July and early August before recessing for the Democrat and Republican presidential conventions. Income support for households and businesses diminished substantially at the end of July. It was expected that Congress would pass Phase 4 fiscal stimulus legislation to extend income support. This did not happen. Congress will meet again in early September and fiscal stimulus legislation will be considered and might pass. But it is a presidential election year and the political stakes are high. Democrats want to help struggling households and businesses but not in ways that enhance Donald Trump’s reelection chances. Republicans also want to aid households and businesses but in ways that promote Donald Trump’s reelection. A deterioration in timely indicators of economic activity might be sufficient to force compromise and passage of legislation. Right now each party is holding its negotiating position, hoping that the other party will bear the onus of public anger.

If Congress does not extend support through new legislation the developing but still very fragile recovery could stall or even be derailed. This risk is not lost on either Republicans or Democrats. But it is a presidential election year and the stakes are high.
II. **2020 Outlook – Significant Risks:** The paragraphs that follow in black ink were drafted at the beginning of 2020 before the global coronavirus pandemic changed everything and will not be edited for subsequent developments. Needless to say, since the impacts of the pandemic on social interactions and economic activity are unprecedented, the world is in a totally different state than seemed to be the case at the beginning of 2020. At the beginning of the year, the possibility of recession was speculative. Although considerable imbalances had built up and the fragility of the economy was growing, it seemed that policy would probably continue to be successful for a while longer in preventing recession. But the coronavirus pandemic shock changed everything and recession is no longer speculative, it is reality. But there is still considerable uncertainty about how events will unfold. So far, forecasters have consistently underestimated the consequences of the unfolding recession. My hunch is that it will be worse than currently expected.

However, **updates** will be appended each quarter and will be identified as follows:  
**Q1** – *blue bold italicized print; Q2** – *blue bold italicized underlined print; Q3** – *red bold italicized print; Q4** – *red bold italicized underlined print.*

Specific outcome projections in the “**2020 Outlook**” were set at the beginning of 2020 and were tied to an overall assumption that growth would slow gradually from 2019’s above potential pace but that no recession would occur. However, if recession does begin before the end of 2020, actual outcomes by the end of 2020 will differ considerably, and negatively, from the projections.

At the beginning of 2020, in the case of the U.S., the unemployment rate was significantly below the natural rate and this gap is expected to stay well below the natural rate during the course of 2020 and will contribute to upside pressures on wages and inflation. However, increasing labor scarcity will result in slower employment growth and that will have knock on impacts resulting in slower spending, investment and GDP growth. Fiscal stimulus at both the national and state and local levels will not have material positive or negative impacts on growth in 2020. However, monetary policy is likely to continue to foster easy financial conditions, which will keep interest rates low, and which in turn will impart upside pressure on stock prices and benefit household wealth creation.

We are in the mature phase of the business cycle. Best to enjoy the good times now because we know from history that strong economic momentum, when the economy
is operating above full capacity, usually eventually leads to recession and correction of the imbalances that build up during an extended period of strong growth.

Recession risks remain elevated but the timing of onset of recession is uncertain. In the best case, growth will slow to a sustainable level and economic imbalances will moderate without recession. Such a benign “soft landing,” based on history, is not a high probability outcome in the long run. However, favorable sentiment and easy monetary policy could extend the current expansion beyond 2020, even though the economy is operating above full capacity.

Views about timing of a recession and its severity differ. A recession could commence as soon as sometime during 2020, although the probability is less than 30%. As time passes it is likely, although not assured, that the probability of recession will increase. Political developments, policy errors, or sharp declines in consumer, business, and investor sentiment could accelerate the timing of recession and its severity.

Looking beyond 2020, trends are evolving and risks are developing which will weigh, perhaps heavily, on future U.S. and global growth. They also will have implications for geopolitical relationships. Among the more salient trends are:

Although the outlook for 2020 is one of moderate growth near or slightly above full potential, it is important to monitor several risks. These risks have been present for quite some time during the current economic expansion. They vary in terms of their significance and potential severity. There is no one specific risk that stands out as was the case in the run up to the 2001 recession (speculative excesses in the stock market, particularly in dotcom companies) and the 2008-09 Great Recession (housing bubble). But it does not follow that the absence of an obvious significant risk means that recession is unlikely. A collapse in confidence which leads to recession can be spawned by an event that focuses attention on multiple weaknesses.

With those thoughts in mind, let’s look at some of the more prominent risks.

- **The U.S. economy is operating above full capacity.** Based upon Congressional Budget Office (CBO) estimates of potential real GDP, the U.S. economy entered 2020, assuming realization of consensus estimates of Q4 GDP, operating about 0.85% [CBO revised its economic assumptions and projections in January and this and revisions in 2019 Q4 GDP reduced this number to 0.64%, the July CBO revisions in economic assumptions raised the estimate up to 0.92%] above capacity on a four-quarter moving average basis. This positive output gap should expand a little during 2020
because real GDP growth should marginally exceed potential growth. By the end of 2020 the positive output gap is expected to be in a range of 0.8% to 1.1% [revised to 0.6% to 0.9%].

In previous cycles the economy has rarely operated above full capacity for very long, generally about 2 years, before recession occurred. An exception was the late 1990s – the era of the dotcom boom and "irrational exuberance" according to Alan Greenspan, when the economy was above full capacity for 19 quarters (4+ years). 2019 completes 7 above capacity quarters and if 2020 avoids recession, that number would increase to 11. While today’s economy seems tame compared to the speculative fever that gripped the late 1990s which helped extend that era’s expansion, low interest rates and accommodative monetary policy could lead to a similar outcome.

*Economic expansions don’t die of old age, they usually die when the economy operates above capacity and overheats and policy puts on the brakes. However, this time is clearly different. The expansion has been ended by the coronavirus shock.*

As 2020 began, the probability of recession in the next 12 months was considerably less than 50% – various models pegged the probability of recession between 20% and 30%.

Imbalances have been building as the economy matured and began to overheat. Eventually, imbalances lead to recession. However, favorable sentiment and accommodative policy, in particular monetary policy, can extend the life of an expansion, even when the economy is operating above full capacity, for a considerable period. Prior to the coronavirus shock such an outcome seemed the more probable one during 2020. Recessions typically occur unexpectedly. But they happen when fragility has built up to a high level and an event (coronavirus shock) or events (oil price war) occur which disrupt complacency and set in motion risk avoiding behaviors. Policymakers may be able to stop a loss of confidence from cascading into recession during 2020, as they did twice during 2019 – in January and again in late summer. That was my bet for 2020, a bad bet as it turns out. But policymakers can make mistakes or respond too slowly. And, as fragility builds, at some point policy measures may no longer be sufficient to keep the expansion going. So, while I did not expect recession in 2020, my counsel was to be prepared nonetheless for that possibility. *While my call on recession in 2020 was wrong, my advice to prepare for one was on the mark.*
**2020 Q1:** Although the U.S. economy was operating above potential at the beginning of Q1, growth was gradually slowing to long-term trend potential. This was evident in slowing employment growth and total hours worked. Unlike previous times when the economy operated above full potential, inflation has remained subdued and wage increases have been moderate. The absence of a serious escalation in inflation appears related to well-anchored inflation expectations and structural changes in the economy. Prior to the onset of the coronavirus easy monetary policy and financial conditions were helping drive an extension of the economic expansion.

Although this expansion is the longest on record and the economy is operating above full capacity, prior to the coronavirus shock there was little evidence of overheating. Thus, this risk appeared to be moderate and by itself was unlikely to trigger recession.

However, extraordinary measures to implement social distancing to contain the spread of the coronavirus pandemic will cause a sharp decline in economic activity over the next several months. Recession in Q2 and Q3 is now likely, although its severity is uncertain and will depend upon whether slowing economic activity triggers other risks described below and whether policy responses are sufficient to prevent an escalating downward spiral.

The pandemic began in China in January. China took forceful and timely actions to implement social distancing and was able to contain the spread of the virus. Unfortunately, the rest of the world fell into a false sense of complacency, assuming that the virus would not spread beyond China’s borders. Thus, other countries did not take actions on a timely basis that might have contained the pandemic. Now, the rest of the world is experiencing rapid spread of the virus and is responding, as China did, by restricting travel and public gatherings.

China’s draconian measures appear to have been successful in containing the spread of the virus. New Covid-19 cases are now diminishing. However, the economic consequences have been severe. China is slowly returning to normal, but it will take several months.
Global economic activity was already going to be hit by China’s economic slowdown. China’s economic recovery will now be slowed by the negative impacts of social distancing on economic activity in other countries.

2020 Q2: This risk has been realized with the onset of a severe Covid-19 U.S. and global recessions. It is no longer a matter of whether but one of how long it will last and how much damage will occur. The U.S. negative output gap is expected to reach 6% to 8% during 2020.

Going forward this risk has changed from the consequences that flow from an economy that is too hot to those that emerge from an economy that is too cold. For example, inflationary pressures have transformed into deflationary pressures. Overheated economies typically lose momentum on their own accord because the excesses they spawn are unsustainable.

Recessionary economies do not automatically self correct. They can drift into a negative feedback loop in which lost jobs and lost income lead to reduced spending which in turn leads to more lost jobs and more lost income – the downward spiral can continue potentially without limit.

Economists and policymakers learned long ago the importance of moving quickly to support income and spending to stop the downward spiral and contain contagion. In this regard policy responses so far have been the right ones and have slowed the damage.

But, it is important to understand that a recession as enormous and global as this one has attributes analogous to the pandemic that triggered it. In the case of the pandemic, since there is no cure or vaccine to stop it, social distancing and lockdowns are required to slow its spread. But if these measures are abandoned too soon without adequate safeguards (testing, contact tracings, masks and social distancing protocols) in place, the contagion can come roaring back. This health risk is very real at this moment as pressure to reopen the economy builds.

The analogy for recessions is that if income and spending support is insufficient or diminished too soon, the recession can gain new life and
the downward spiral can spin on. We are now approaching two important fiscal cliffs. First, the Payment Protection Program (PPP) provided funds to cover business interruption expenses only through the end of June. Given the depth of the recession and the likelihood that under the best of circumstances it will take a long time for spending and employment to recover, failure to continue the PPP support for businesses will result in a plethora of bankruptcies in a few months time as organizations exhaust cash reserves.

Second, enhanced unemployment benefits expire at the end of July. While there is ample evidence that these payments were overly generous and that created disincentives to work, not to renew them in some form altogether will feed the recession and ensure a deeper downturn and slower recovery.

Recessions feed on the excesses that built up during the economic boom. When excesses build in number and magnitude as they did during the now ended longest ever economic expansion, they contribute to worsening the recession and imparting momentum to the downward spiral.

This is not a happy story. The risks are enormous. The need for aggressive policy intervention is absolutely necessary to avert a much worse outcome. Unlike a pandemic, there is no magic vaccine that can come to the rescue and stop the contagion.

2020 Q3: As a consequence of the Covid-19 recession, the positive output gap at the beginning of 2020 has vanished and the negative output gap which is now building is not likely to bottom out until 2021 Q1 in the vicinity of -7%. That is a deep hole and most expect it will take many years to fill that hole. GS is an outlier. Its view is extremely optimistic and it expects a relatively swift return to full capacity both in terms of employment and output. It expects an extremely vigorous economic recovery over a relatively short time and downplays the scarring impacts on economic recovery of business bankruptcies.
• **Excessive corporate debt.** Since 2009 corporate debt has surged from $2.5 trillion to $8.5 trillion, and much of that is BBB rated, which is one notch away from noninvestment (junk) status. A great deal of this newly issued debt has stock prices, but does little to enhance the long-term earnings power in fundamental business terms.

When the economy is humming along, confidence is high, and interest rates are low, borrowing is easy and credit spreads decline. These conditions have prevailed for several years. Over time reliance on debt to leverage returns has escalated. Use of debt is not in and of itself a problem, as long as cash flows are sufficient to service interest and principal payments. But, as debt leverage builds, a greater proportion of cash flows must be diverted to servicing the debt. Problems follow, if and when the economy falters and cash flows slow. Those entities which have devoted most of their cash flows to debt service will be squeezed and defaults will occur. When this begins to occur, it quickly escalates because the cost of credit and credit spreads spiral upwards and often access to credit is denied altogether. The impact is dire especially for those entities which are highly dependent on short-term debt.

In the current cycle there are two aspects of debt leveraging that bear close watching. The first is use of debt by corporations and especially the development of the leveraged loan mark. The second is credit standards, which have a habit historically of weakening during good times as competing financial institutions chase loans.

Goldman Sachs (GS) published an analysis of corporate debt on May 4, 2019, in which it concluded that even though corporate debt as a share of GDP is at an all-time high, it is below previous peaks as a share of corporate cash flows and corporate assets, which it argues are more salient measures of risk. Other developments also lessen the risk posed by the high level of corporate debt. These include lower interest rates, more stable cash flows, a shift toward longer maturities, and reduced dependence of capital expenditures on external financing. GS concluded that if the economy enters recession, “…defaults would rise, spreads would widen, and capital spending would decline substantially.” But risks posed by corporate debt are no greater than those which preceded previous recessions. This last sentence provides cold comfort. Recessions over the past 30 years have been triggered by excesses in financial markets and the last one, justifiably named the Great Financial Crisis certainly was not a tame affair.

Levels of debt to GDP have grown precipitously in most countries and most economic sectors over the past 20 years. Total debt to GDP was 271% in
developed countries at the end of 2018 compared to less than 210% in 1999. Total debt to GDP in emerging markets was 177% at the end of 2018 compared to less than 120% at the end of 2001. However, thanks to very low interest rates, debt service ratios have declined. So, there is a lot more debt, but the cost to service it has declined. This pressures policy makers to keep interest rates very low. But evidence is accumulating that artificially low interest rates are incubating significant and negative consequences. Cheap money is fostering asset price inflation – the rich get richer and the wealth inequality gap expands and along with it the social and political gaps between the have’s and have not’s grow. Cheap money is going into buying existing assets financed by debt rather than into productive investment with the consequence that productivity is depressed and inefficient companies are not weeded out. The forces of “creative destruction” have been hamstrung. Evidence is accumulating that much of the cut in corporate income taxes went into financial engineering that benefits stock prices rather than into investment in plant, equipment and software.

The nonfinancial corporate debt fragility index, calculated by S&P Global Economics, has risen to one standard deviation above its long-term level which is indicative of increased vulnerability to debt defaults.

Adair Turner presciently observed: “The fundamental problem is that modern financial systems left to themselves inevitably create debt in excessive quantities, in particular debt that does not fund new capital investment but rather the purchase of already existing assets, above all real estate. It is that debt creation which drives booms and financial busts.” The Federal Reserve’s easy monetary policy is an unintended accomplice in facilitating excessive debt leverage by keeping interest rates very low and limiting volatility.

**2020 Q1: While this risk appeared to be gestating slowly, the CV recession and oil price collapse have pushed this risk to center stage.** Debt defaults can occur very quickly in highly leveraged companies when cash flows decline. This is exactly the scenario that is likely to unfold in coming days as revenues fall.

**Shale oil drilling companies are at the top of the heap in terms of insolvency risk.** They are highly leveraged and need oil prices to be above $50 per barrel to service their debt. Oil prices have fallen below $30 and prospects for higher prices will have to wait until economic recovery is underway, which is not likely until summer or early fall.
Companies in the travel, hospitality and leisure industries are experiencing catastrophic declines in revenues. Even companies in these industries which are not highly leveraged will be at risk of defaulting on their debt. There will be incentive to conserve cash by cutting other kinds of expenditures. Laying off employees to reduce labor expenses will be at the top of the list. Unfortunately, while this is logical as a measure of self-preservation, taking such actions will amplify the recessionary downturn.

As was the case in during the Great Recession, it seems likely that Congress will provide loans and grants to cash-strapped companies. The airline industry has already asked Congress to provide $50 billion in loans. But the loans and grants will come with strings attached.

During the Great Recession, excessive mortgage indebtedness led to a huge volume of foreclosures. While housing is no longer in the eye of the storm, many small business owners will have trouble staying open for business for very long as revenues fall. Again, Congress is considering ways to aid small business and the people they employ. To be effective in arresting downward momentum, effective programs need to be enacted and implemented quickly. But legislation has yet to be passed and the infrastructure to implement programs will take time to construct. It is estimated that it could take as long as two to three months to get cash into the hands of those whose survival is at risk.

Financial institutions will be encouraged to engage in credit forbearance and to extend credit to help businesses and individual pay bills. Such programs are already being activated, but financial institutions are not charitable organizations and will be selective in administering credit assistance programs.

Inevitably when recession strikes risk-taking takes a siesta. What that means is that financial institutions will be reluctant to extend additional credit, especially to high-risk companies and individuals, without some kind of risk guarantees. Congress is considering providing up to $300 billion in cash to individuals and probably will extend credit guarantee programs. Already, using its emergency powers, the Trump Administration has waived interest payments on student debt.

2020 Q2: Excessive corporate debt was not a problem as long as economic activity was robust. However, this risk has now been triggered by the lockdown of many business activities. Because debt
leverage had risen to high levels during the now-ended long economic expansion, the consequences of reduced and negative cash flows for many enterprises is likely to amplify the economic downturn.

When revenues plummet, highly leveraged companies are first in line for bankruptcy. GS has been tracking bankruptcy filings and at least through March there was no indication of an upsurge. This will probably change in coming months.

Indeed, in early May three legacy department store chains filed for bankruptcy – Neiman Marcus, J Crew, and JCPenney. More filings are likely in months to come.

Short-term measures to offset negative cash flows, which are the driver of bankruptcies, include the Paycheck Protection Program (PPP) and Fed credit facilities backstopped by Treasury Department equity to absorb losses. Also, financial institutions are engaging in forbearance and loan modifications to defer payments that deplete cash flow. All of these initiatives will reduce and delay a wave of bankruptcies. However, these measures will lose effectiveness with the passage of time if economic activity is slow to return to normal. Deferring payments and socializing losses can reduce bankruptcy potential, but they cannot eliminate it.

Small and medium-sized enterprises, particularly non-essential services, appear to be particularly vulnerable to cash flow shortfalls.

Surveys and credit rating downgrades indicate that bankruptcies and business closures will rise, perhaps surge, in coming months. Ongoing negative cash flows deplete reserves and force bankruptcy. PPP, by supporting cash flows, has enabled many organizations to avoid bankruptcy. But that help is expiring and if it is not extended more bankruptcies will occur.

The Survey of Credit Managers revealed a 3% increase in the number of customers filing for bankruptcy to the highest level since 2009 but below the peak level during the Great Recession. The dollar amount of receivables, indicating customer past due payments, rose 16.3% to a level higher than the worst level during the Great Recession. The Bloomberg Bankruptcy Dashboard is expected to rise to the highest level since the Great Recession in May. Google searches for “bankruptcy” rose in May. Responses to a survey of small and medium-
sized businesses indicated that 31% expect a 50% chance of bankruptcy in the next 6 months.

PPP is delaying the onset of a flood of bankruptcies. But if the economy does not improve rapidly after PPP payments end on June 30th and PPP is not extended, bankruptcies are likely to soar later on in the summer and fall. For many, it is not a matter of too much debt, but rather it is about insufficient cash flows to service fixed costs.

2020 Q3: Low interest rates and Federal Reserve 13(3) credit facilities prevented excessive corporate debt leverage from becoming a systemic problem in the current recession. Some over-leveraged companies will default and declare bankruptcy, such as Brooks Brothers. But many other overleveraged companies will survive because access to additional credit is freely available at a low cost. The upshot from a macroeconomic perspective is that corporate debt leverage is likely to continue to increase. The messy cleansing process of weeding out inefficient firms during a recession is being limited by Federal Reserve policy. To an extent this is a good development because deleveraging can easily spin out of control and infect and hobble even strong companies. But, the other side of the coin is that short-circuiting the deleveraging process can result in the survival of inefficient and uncompetitive businesses. Also, the government programs in place favor larger companies over smaller ones and this can facilitate the trend toward greater industry concentration that was already underway before the recession hit. The potential consequences of current policies are the exercise of greater monopoly pricing power and slower potential growth in the future. But we won’t know for several years until we can look back at what happened to determine whether policies that clearly have had short-term positive benefits will have significant long-term negative consequences.

* Leveraged loans and collateralized debt obligations (CLOs). As long as interest rates and volatility remain low, CLOs will be attractive higher yielding investments with perceived low risk. But, if markets seize up as they did briefly in December 2018, liquidity in CLOs could evaporate overnight. As more and more CLOs are created, potential contagion consequences for other market sectors in the event of a flight to quality will continue to escalate. Carmen Rinehart observed: “New issuance activity has shifted to the CLO market, where the amounts of these debt contracts outstanding have soared, hitting new peaks on almost a daily basis. These collateralized loan
obligations share many similarities with the now notorious mortgage-backed securities of the pre-subprime-crisis era.

2020 Q1: This was a longer-term risk which has become an immediate risk as the CV recession gathers momentum. Growth in this asset class was powered by investor appetite for yield and belief that risks were limited by low interest rates, a stable economy and an accommodative Fed. Credit spreads after rising in late 2018 returned to levels in 2019 which were insufficient to compensate for historical default and loss rates. This risk was lessened since October 2018 by $43 billion in outflows. This trend reversed in January with a very modest $688 million increase in net flows. It remains to be seen whether the unfolding recession leads to a cascade of defaults. What is clear is that there is no longer any investor appetite for these kinds of credits. In coming days it will be important to watch what happens to this asset class. Defaults could easily amplify recessionary momentum.

2020 Q2: This longer-term risk has become an immediate risk. It was waiting to be triggered by recession and the coronavirus pandemic has been the catalyst. Downgrades of leveraged loans, which underlie CLOs, increased significantly in March and April with the average share of CCC+ or below rated loans increasing to 8.5% compared to a standard "deal" size of 7.5%.

Distressed debt restructuring has already begun and will be a favored asset class for investors. Enormous losses and bankruptcies are coming, particularly in the energy sector. It remains to be seen how badly hurt private equity investments, which stretched leveraged loans to the extreme, will be hurt. Japan’s Soft Bank is struggling and its investors will suffer massive losses.

The Fed’s credit facilities will not be of much help since for the most part they are limited to investment grade credits and fallen angels which had an investment grade rating as of March 22, 2020. Most leveraged loans were in the high-yield category, a euphemism for junk credit ratings.

2020 Q3: There will be casualties, particularly in the energy sector. But the unwinding process has been orderly and has not led to contagion effects thanks to the Federal Reserve and Treasury success in
stabilizing financial markets. Abundant liquidity and extremely low interest rates have given leveraged lending new life. Going forward, policy has reduced, but not eliminated, the riskiness of this lending structure. It remains to be seen whether this has an impact on leveraged lending structures as economic activity recovers. The risk going forward is that in preventing a washout in leveraged lending Federal Reserve monetary policy will encourage increased risk taking through leveraged lending as the economy recovers and create the potential for a much more severe financial shakeout at the culmination of next cycle, which may not occur for a decade or longer.

- **Deteriorating loan credit standards.** This risk will surface when unemployment begins to rise. Notably, the recession in manufacturing during 2019 did not infect the rest of the economy.

**2020 Q1:** Credit deteriorated in the mortgage market in 2017 and 2018, but improved considerably during 2019 as interest rates fell. It is the nature of the mortgage market for originators to reach for volume by easing credit standards when higher interest rates reduce demand.

Credit issues are surfacing in other sectors. Delinquency rates on auto loans, particularly subprime loans, are rising. Prior to the onset of the CV recession, this was not a serious problem because unemployment remained low and wage gains were strong. All of this has changed, literally overnight. Defaults are now likely to explode. Growth in consumer debt began to slow at the end of 2019. Thanks to low interest rates, higher stock prices and home prices drove consumer net worth up substantially. It should be noted, however, that these favorable trends were confined to the upper income quintile. And these trends are no longer favorable.

The finances of low-income households are much more fragile. Non-prime auto loan delinquencies were already rising in the face of strong employment and wage gains. Any increase in unemployment will quickly lead to a sharp escalation in consumer loan delinquencies. Those most likely to suffer loss of income in coming weeks are those employed in food services, travel, hospitality and leisure industries. Jobs in these industries are generally low-wage and employees in these industries generally live from pay check to pay check.
As recession unfolds this risk has moved from low to high. It could easily reinforce a downturn that Covid-19 triggered.

2020 Q2: Delinquencies for auto loans, particularly sub-prime loans, are soaring and large losses appear to be inevitable. Losses are also likely to be high on unsecured consumer credit. However, losses on mortgages are likely to be small for a couple of reasons. First, the CARES Act mandates payment forbearance on mortgages insured by Fannie Mae, Freddie Mac and Ginnie Mae. Second, housing values seem likely to be stable or fall only moderately, rather than imploding as occurred following the housing bubble burst in 2006.

As always happens during a recession, willingness of lenders to take risks will plummet and lending institutions will tighten credit standards. This will make access to credit more difficult for many enterprises and will amplify downward pressures on economic activity and contribute to a slow recovery.

Credit standards are likely to be tightened for activities which could be materially changed in the aftermath of the Covid-19 pandemic. For example, large department stores, which were already under pressure from the growth in online shopping, could be headed for the scrap heap of history – Neiman Marcus, J Crew and JCPenney have filed for bankruptcy. Commercial office buildings may experience a collapse in demand for space as new ways of conducting business in a digital environment evolve. Travel may suffer permanent reduction, which would imperil the viability of airlines, hotels, resorts, and convention centers.

Because Congress provided substantial cash support through stimulus checks, PPP and enhanced unemployment benefits, consumers and businesses have had sufficient cash to make loan payments and cover other kinds of fixed expenses, such as rental payments. This has kept loan delinquencies quite low. But, if these sources of support expire and are not extended, delinquencies and defaults will follow in short order. We know from history that when lenders suffer large loan losses they migrate into survival behavior, tighten underwriting standards and limit the extension of new loans.
2020 Q3: With the resurgence in Covid-19 cases and reopening rollbacks, insolvency risks and prospective loan default risks are rising. Bank loan loss provisions will figure prominently in Q2 earning reports and substantial additional loss provisions are likely to be recorded in Q3 and Q4. It is inevitable that lending standards will continue to be tightened and this will affect business, residential and consumer loans. The Q2 Federal Reserve’s Senior Loan Officer survey confirmed substantial tightening of credit underwriting standards and adoption of more restrictive lending terms. Tighter credit availability, notwithstanding the provision of abundant liquidity by the Federal Reserve, will slow economic recovery and will especially hobble small businesses which have been more adversely affected because of social distancing in this recession than in previous recessions.

* Trade war – severity of this risk will depend upon whether the U.S.-China Phase One agreement holds and whether the U.S. decides to impose tariffs on automobiles and auto parts or other imported goods from Europe and other countries.

Escalation of this risk seems unlikely to occur in an election year.

2020 Q1: Tariffs inflicted a great deal of damage to U.S. and global growth in 2019. Part of the damage was driven directly by tariff-induced reductions in trade. But part was also driven by policy uncertainty.

The U.S. and China signed a Phase 1 trade agreement on January 15th, which will de-escalate the trade war but will not fully reverse previously implemented measures. The U.S. agreed to defer implementation of new tariffs, perhaps permanently, and to reduce tariffs implemented on September 1st from 15% to 7.5%. Tariffs implemented earlier in 2019 on $370 billion of Chinese exports to the U.S., however, remain in place.

Markets cheered this partial de-escalation. But, the global power rivalry between the U.S. and China will continue to evolve in ways that are likely to have negative consequences for global growth. The U.S. and Chinese economies had become intertwined. A consequence of the trade war, which will not go away, is that the two economies are decoupling. This is already spurring a plethora of consequences for countries, some favorable, some unfavorable, but on balance overall the consequences are negative.
Europe has also been a target of U.S. trade policy. The U.S. strategy has been to use the threat of tariffs on cars and automobile parts to induce Europe, in particular, to ease restrictions on the import of U.S. agricultural products. Europe has not budged, and this denies President Trump a face-saving way to abandon tariffs. However, stirring the pot in an election year poses risks to President Trump. Thus, a likely outcome in the near term is that the U.S. will come up with an excuse to delay, not abandon, imposition of tariffs on autos and auto parts.

Several European countries are planning to tax American internet companies. If these plans come to fruition, it is probably that the U.S. would respond in kind. France suspended its plans for a digital tax and the U.S. responded by postponing retaliatory tariffs on French goods. Other European countries haven’t announced intentions, although the U.K. intends to implement a digital tax in April. For the moment this potential escalation in the trade war has receded into the background, but doesn’t appear to have gone away,

This risk is likely to be on hold during 2020 – not getting worse, but not improving much either.

While the trade war may be on hold for the foreseeable future, global recession will decimate trade and this will contribute for a time to recessionary momentum.

2020 Q2: With the global economy in recession, the trade war has moved to the backburner. There have been no new developments but tariffs imposed in 2019 remain in place. Global trade is plummeting in response to collapse in global demand and disruption of global supply chains. The new risk is whether the global Covid-19 recession will permanently damage global supply chains. The argument that it will revolves around the notion that dependence on other countries during times of crisis is an unacceptable risk. The response could well be that companies and countries repatriate supply chains in the aftermath of the Covid-19 recession. Such a development would reduce the risk of disruptions of supply chains in times of crisis but at a cost of higher production costs. Afterall, the economic argument for free trade globally is premised on minimization of the costs of production by allocating production activities to locations that have the lowest costs. While global supply chains optimize the costs of production, it does so with the risk that developments beyond the immediate control of businesses
can have dire consequences. We are now experiencing such an outcome as Covid-19 has led to economic lockdowns that have disrupted global supply chains.

In the aftermath of the Covid-19 recession, two developments are likely. First, companies will be more inclined to build in supply chain redundancies with the objective of minimizing potential disruption of production. Second, supply chains will be restructured to increase the potential to control outcomes in the event of crisis – this means onshoring rather than offshoring will become a priority. Both developments are inflationary in nature. Trade growth could well continue to decline after recovery from the Covid-19 recession is underway. In the longer run, it seems probable that a deemphasis of globalization will have other kinds of impacts on international relations. This is particularly true for U.S.-China relations – reduced economic interdependence between the two countries will amplify the great power international rivalry that has been developing in recent years.

2020 Q3: Two disputes between the U.S. and the EU may lead to tit-for-tat tariffs in coming months. One involves an ongoing dispute over subsidies to aircraft makers. The other involves imposing digital services taxes on U.S. technology companies. The Trump Administration has vowed to impose tariffs on countries that impose such a tax. European countries are in the forefront of considering such taxes.

Monetary policy – it used to be that the importance of monetary policy was in supplying enough funds to the market to support demand for goods and services but not too much which would lead to excess demand and inflation. Because the primary tool of monetary policy historically was to raise or lower the federal funds rate, the impact of interest rates on demand and therefore on inflation was imprecise and usually worked with long delays. This tended to result in an easy or tight monetary policy being in place for too long with procyclical consequences.

There have been two significant changes in the past 40 years which have changed the role and impact of monetary policy. The first, begun by the Volcker Fed in 1979 and achieved over the next couple of decades was to anchor inflation expectations at a low level. Eventually the FOMC explicitly set a 2.0% target for inflation. As inflation expectations became anchored behaviors of businesses and labor changed resulting in lessened sensitivity of
inflation to swings in the supply-demand balance. As we have come to realize, this imparted a downward bias to measured inflation, with the result that inflation rarely exceeds 2% and averages considerably less than 2%.

Second, the structure of the U.S. and other developed economies has changed dramatically, lessening considerably the importance of the manufacturing sector and inventory cycles which used to trigger recessions. As manufacturing has waned in importance, financial services have more than taken its place in driving economic activity. The failure of most to anticipate the onset of the Great Recession in 2008 and its severity stemmed from not understanding the importance of financial conditions in driving sentiment and financial and economic activity. Modern recessions now stem from easy financial conditions and excessive use of financial leverage. When financial conditions tighten, markets riot and the risk of recession soars. As the linkage between financial conditions, financial market stability, and economic activity has sunk in, monetary policy has been redirected toward assuring financial market stability. We witnessed twice in 2019 the aggressive easing of monetary policy to stabilize financial markets at times when the economy was operating well above full capacity. In the wake of significant monetary easing, markets are having a field day driving stocks to successive new highs on nearly a daily basis. And, due to inflation anchoring, inflation measures haven’t budged.

However, while the redirection of monetary policy to stabilizing financial markets and maintaining reasonably easy financial conditions has been successful in extending the life of the current economic cycle, and might continue to do so for quite some time, current monetary policy is creating risks which could be extraordinarily consequential in time. For example, quantitative easing provides abundant liquidity to financial markets. That liquidity is not going into new investment or pumping up demand for goods and services. Almost all of it is going into inflating the prices of financial assets. This brings with it at least three problems which are growing in magnitude over time.

First, the rich get richer as their wealth inflates; the poor, who have little to no financial assets, are left out. This is exacerbating income/wealth inequality and will fuel social and political unrest and instability.

Second, even small reductions in liquidity lead to tighter financial conditions and an almost immediate decline in prices of financial assets. The market riots and the Federal Reserve is forced to pour more liquidity into the system
to restore stability. But each time this happens interest rates rachet down. Zero interest rates are a very real possibility in due course and could happen very quickly if recession occurs.

Third, low interest rates, tight credit spreads and easy access to credit is preventing purging of underperforming companies. Letting zombie companies live on depresses productivity improvements and that in turn, holds down the potential rate of economic growth.

In the meantime, the FOMC continues to focus on its inflation mandate and how to achieve its 2% target. Its review is scheduled to be completed by the middle of 2020 and most believe it will adopt an average inflation target, which means that inflation would need to be above 2% enough and long enough during good times to offset low inflation during and after recessions. In today’s world of low interest rates and anchored inflation expectations, this may turn out to be a relatively meaningless exercise.

**2020 Q1: FOMC monetary policy review could result in a revised inflation target in an attempt to assure that inflation averages 2% over the entire cycle – this would result in keeping rates low until inflation rises above 2%. This academic debate at the FOMC never made much sense to me since inflation has been consistently below the Fed’s 2% target and demographic and economic forces are all tilted in the direction of lower inflation. Now that recession is underway, there will be tremendous downward pressure on inflation. This debate is likely to be shelved now that the Fed and FOMC are focused intensively on the lender of last resort role.**

The market loves low interest rates and abundant liquidity. Until CV rudely crushed complacency, the stock market continued its upward climb with the expectation that the Fed would keep interest rates low and maintain easy financial conditions. Risk was considered minimal and under control and the market priced for perfection. Complacency is now gone. As Warren Buffet observed, you don’t know who is swimming naked until the tide goes out. The tide has now gone out and the day of reckoning has arrived to suffer from mispriced risks.

As coronavirus fears built in late January and early February, federal funds futures priced in an additional reduction in the federal funds rate bringing the total to 2 by early 2021. Long-term rates fell and the yield curve flattened. However, stock prices rose to new highs. These market developments reflected an expectation that the virus would slow global
growth modestly but would have a limited to negligible impact on corporate profits. The market’s expectation was that the Fed would keep rates low for longer, and it would respond quickly with lower rates if economic activity weakened more than a very little. Complacency was dashed the last week of February as markets suddenly realized that CV was indeed a catastrophic disease and that it was no longer confined to China. Within days it became clear that initiatives to contain the spread of CV would shut down a large volume to economic activity.

While this risk had a long fuse, the unexpected CV shock ignited the fuse.

2020 Q2: The potential for deflation and reducing unemployment have suddenly replaced inflation as monetary policy objectives. At the moment, the Fed is appropriately focusing on its lender of last resort responsibilities and it appears to have handled this well so far. The Fed now needs to turn its attention to crafting monetary policy to facilitate recovery.

Chairman Jay Powell’s recent remarks calling for greater fiscal policy stimulus suggest that he believes there is a limit to how much monetary policy can do by itself to revive the economy.

It remains to be seen whether the Fed can convince businesses and markets that monetary policy will facilitate meaningful recovery in economic activity. Monetary policy tools are not particularly effective in stimulating investment and lending unless enterprises are convinced that better times are ahead and risks of taking on additional credit are reasonable and limited. The default outcome is a “wait and see” sentiment, which would assure a slow and potentially painful recovery. The challenge to monetary policymakers is to overcome the default response. It’s a tall order, unfortunately, with a low probability of success. That appears to be the message that Chairman Powell is sending.

While attention is focused on the here and now by limiting the extent of economic damage and crafting policy that facilitates recovery, the potential longer run consequences of current monetary policy initiatives are troublesome. First, depressing interest rates across the maturity spectrum amplifies wealth inequality. One of the reasons that the stock
market is performing better than expected has to do with the expectation that long-term interest rates will remain near zero for a very long time. Assuming that earnings eventually recover, lower interest rates will underpin higher valuations.

With low interest rates and aggressive balance sheet expansion, the Fed is nearing a situation that already exists in Japan and was formally adopted in the U.K. recently of funding nearly all additional government deficits. Exploding government debt and a skyrocketing Fed balance sheet are gamechangers in the long run. However, there is no consensus about the nature of the economic problems that will evolve. Some fear that excessive printing of money will unleash future inflation. But, that would only occur if demand exceeds supply. Nearly all of the Fed’s balance sheet growth is going into excess reserves and not into lending. Because recovery is likely to be lethargic, this does not seem likely to change; thus, inflation most likely will not occur. In fact, the opposite risk of deflation may turn out to be the greater risk. There is reason to expect, based on history, that large budget deficits will depress potential growth by diverting resources from the private to the public sector and by interfering with creative destruction by protecting inefficient enterprises.

The longer run potential consequences of current monetary policy in conjunction with easy fiscal policy are far from trivial and may be massively negative. Unfortunately, the course we are on, once we begin to understand the consequences, is one that will not easily be fixed or reversed.

2020 Q3: U.S. monetary policy in Q3 will transition from a focus on stabilizing financial markets to a focus on supporting economic recovery. Interest rates are unlikely to rise for a very long time – CBO is not projecting the federal funds rate to be increased from its current level of near 0.0% until 2026.

Because the FOMC has signaled that negative interest rates are not under consideration, monetary policy tools to support economic recovery are limited to forward guidance and large-scale asset purchases. The FOMC is expected to conclude its strategic review at its September meeting. The likely outcome will be adoption of outcome-based forward guidance that promises not to raise interest rates until
unemployment has fallen substantially and inflation has risen convincingly to 2%. Guidance is expected to take the form of an FOMC policy guidance for inflation to average 2% over the economic cycle. Current guidance is to target 2% inflation, but that has led in practice to tightening monetary policy before inflation reaches 2% with the consequence that inflation has averaged 1.70% over the last 22 years, considerably less than 2%. What the word “average” conveys is that the FOMC would wait longer into the recovery period and let the employment gap and output gap decline much closer to full capacity before tightening monetary policy. Because inflationary expectations are now solidly anchored, the risk of waiting to tighten monetary policy and in so doing unleashing an uncontrollable surge in inflation is viewed as limited.

Financial markets are very enthusiastic about this prospective monetary policy adjustment because they rightly interpret the policy to mean that interest rates will be kept low for a long time and this will provide significant support for increases in asset prices.

The structural changes in the economy in a post-Covid-19 world and demographic trends will make it very difficult to get inflation even close to 2%. Such an outcome would result in the federal funds rate remaining at the zero lower bound for a very long time and probably longer than CBO’s projection of the first increase in 2026. Thus, QE remains as the only really effective policy tool. It will be used to maintain financial market stability by helping absorb the Treasury’s ongoing need to finance very large budget deficits.

* **Tight financial conditions** – we have come to understand that financial conditions are driven primarily by monetary policy. But regulatory policy matters also. The Dodd-Frank Act’s capital and liquidity requirements played a role in last years financial markets episodes of instability. Regulatory policy has also complicated the management of the repurchase market which contributed substantially to market problems in September. Financial conditions can also tighten in response to unexpected market shocks, such as a spike in oil prices or a significant decline in prospects for earnings, which challenge prevailing benign views. Tighter financial conditions, once triggered, can escalate rapidly unless policy responds quickly and sufficiently to disrupt the escalation process.
2020 Q1: Financial conditions eased considerably over the past year as monetary policy reversed course. As 2020 began conditions were easier than the long-term average and the trend was one of gradual continued improvement.

As Covid-19 engendered extreme market turmoil and negative consequences for economic activity became apparent, financial conditions tightened rapidly. The Fed is in full lender of last resort mode. It remains to be seen whether the plethora of actions taken in the last few days will stabilize financial conditions or whether contagion will spread.

2020 Q2: It appears that the swift response of fiscal and monetary policies has been successful in easing financial conditions. Four months into the recession, although financial conditions remain elevated they are easing and financial markets are stabilizing in the U.S. and globally. Policymakers were slow to respond during the Great Financial Crisis of 2008-09 and too little too late exacerbated that downturn and slowed recovery. That mistake has not been repeated.

However, risk remains and would be triggered if successive waves of Covid-19 infections occur and delay and slow the reopening of global economies. A second wave of infections has already taken hold in Japan, which appeared to have contained the virus. Unfortunately, the second wave is proving to be worse than the first wave. The implications are that rapid reopening of economic activity without having robust testing and contact tracing capability brings with it high risk of an escalation in new cases. And when a new wave occurs, economic activity will suffer, if containment strategies are re-imposed.

During May and June in the U.S. several states loosened social distancing policies and began reopening their economies, even though new Covid-19 cases remained at a high level. It will be a couple of months before the consequences are clear, but health experts fear that premature reopening will foster a new surge in Covid-19 infections.

Knock-on negative impacts on various economic sectors could spawn renewed tightening of financial conditions. The energy sector is a prime candidate. Demand has collapsed and along with it prices have cratered because of the inability to reduce supply quickly enough. This will force
production shutdowns through bankruptcies and will disrupt energy credit markets with the potential for spillovers to other sectors.

Thus, the substantial improvement in financial conditions so far could prove to be temporary with the possibility of tighter conditions should secondary waves of contagion occur and/or credit defaults escalate and disrupt the functioning of financial markets. We will know in time whether the credit facilities the Fed has put into place will be adequate to handle ongoing stress in financial and credit markets.

2020 Q3: The Covid-19 recession and emerging recovery is unique in the absence of consequential tightening of financial conditions. That is because of the early and aggressive easing of monetary policy and particularly because of the creation of a plethora of credit facilities to provide a market for many types of debt instrument. These facilities prevented forced sales of debt securities at fire sale prices and short-circuited potential contagion. In that regard, policy actions must be judged to be highly successful in preventing a potential financial markets meltdown with knock-on negative consequences for real economic activity such as occurred during the Great Recession and its aftermath.

But one wonders whether there are hidden costs in the success of this policy. By keeping interest rates very low and providing a liquid market for securities of “fallen angels” (downgraded to junk status after March 23rd), inefficient firms, which would have failed otherwise, have a better chance of survival. The credit facilities tend to favor large organizations, which may have an unintended consequence in the longer run of promoting industry consolidation and sapping competitive dynamism. It is well-documented that small organizations tend to be more innovative and productive. If these consequences materialize, it will show up many years down the road in slower improvements in productivity and a reduction in potential real GDP growth. This should not be a surprising outcome were it to occur.

It is a general axiom that there is a tradeoff between measures designed to reduce risk and promote stability and innovation and greater productivity stemming from unrestricted risk taking. Of course, too much instability can potentially spiral out of control as it nearly did during the Great Financial Crisis. Thus, the optimal goal of policy is to
strike a balance between encouraging risk taking and limiting potential perverse consequences. Clearly the balance has shifted in the direction of less risk taking and greater stability. The question is one of whether this shift is within the range of optimality. If it is not, then the economy will be worse off in time. We will not really know the answer, however, for many years.

- Turmoil in U.S. financial markets – trading in financial instruments has increasingly migrated to indexed products otherwise referred to as ETFs (exchange traded funds) in response to the significant shift in investor preference for passive investing. The market share of ETFs continues to increase. Index trading creates its own momentum. As the price of a favored company, such as Apple, rises, the index must buy more of it and this amplifies the rise in the price, thus creating a feedback loop that drives the price ever higher and independent of the company’s fundamentals and earnings power. In a way this is a legalized Ponzi scheme which can continue as long as investors believe the favored company's future performance will be strong. But what if something occurs that destroys that confidence?

The risk posed by ETFs could be severe if a substantial decline in stock markets leads to substantial selling of ETFs and a flight to cash. The underlying liquidity of many ETFs has not been tested under extremely adverse market conditions. Many of these products lack liquidity, thus attempts to liquidate them in a crisis could have adverse contagion effects on other segments of financial markets and deepen the severity of a market downturn. And, because the Dodd-Frank Act limited the Fed’s ability to act as lender of last resort by providing liquidity to specific market segments, the Fed’s ability to derail a financial panic limits or precludes some of the actions it took to arrest the downward spiral unleashed by the Great Financial Crisis. Whether ETFs turn out to be a significant problem will not be known until a full-scale crisis erupts in financial markets.

Apple exemplifies the market fragilities that have evolved out of investors’ love affair with passive investing. In 2019 Apple’s sales revenues and profits declined slightly from 2018 levels. However, Apple’s share price rose 84% in 2019, but its market capitalization rose only 72% because it financed significant share repurchases with debt. This kind of financial engineering is pervasive and has been a major driver of the historic bull market. But financial engineering does not create future earnings power, as in the case of Apple. It
simply spreads existing earnings over fewer shares and loads up balance sheets with increasing amounts of debt, albeit at historically low interest rates.

Whether lower interest rates can sustain high stock prices also remains to be seen. The risk is that recession decimates earnings and this more than offsets the benefits of more abundant liquidity and easier monetary policy. If long-term interest rates follow the European precedent of collapsing to zero or even going negative, such an outcome should provide support for higher stock prices. Given these various possibilities, it is little wonder that seasoned professional investors are increasingly nervous.

2020 Q1: Until the last week of February prices in U.S. stock markets continued to climb ever higher, spurred by low interest rates and the expectation that the FOMC would maintain an easy monetary policy and would come to the rescue in the event of any trouble.

Well big trouble struck the last week of February in the form of the CV pandemic and it quickly became apparent that this shock was beyond the capacity of the FOMC to handle through monetary policy alone.

The initial and traditional monetary policy response of cutting interest rates was totally inadequate and turmoil escalated rapidly. In three weeks the Fed has rolled out virtually its full arsenal of lender of last resort tools. To be fully effective in re-establishing financial market stability, fiscal policy needs to address quickly and in a very substantial way loss of income and credit challenges caused by social distancing policies. While details are yet to be worked out, Congress and the Trump Administration have largely put politics aside and are working diligently to design an appropriately targeted fiscal response. But, remember that it took five months from the climatic event of Lehman’s failure in October 2008 to the market bottom in March 2009. We are barely one month into the current deep financial markets crisis.

2020 Q2: Tight financial conditions and stress in financial and credit markets are highly correlated. Thus, the commentary in the preceding section applies to the functioning of financial markets and does not need repeating.

So far swift and massive policy responses have been successful in stabilizing financial markets. When a crisis erupts, liquidity becomes
paramount. The Fed has done a good job providing liquidity in the first order by buying massive amounts of Treasury and mortgage backed securities and in the second order by establishing numerous credit facilities to provide liquidity for loans and a variety of different types of financial instruments, such as mutual funds and municipal bonds. At the moment these actions appear to be sufficient, but the real test is ahead as the damage unleashed by the recession comes to the surface.

The Federal Reserve released its latest financial stability report on May 15, 2020. The report warns that “... strains on household and business balance sheets from the economic and financial shocks since March will likely create fragilities that last for some time.” Although most U.S. financial institutions have ample capital and liquidity buffers, some financial institutions “may experience strains as a result.” The report highlights four risks:

- Asset prices remain “vulnerable to significant price declines should the pandemic take an unexpected course, the economic fallout prove more adverse, or financial system strains reemerge.” The $20 trillion commercial real estate market is of particular concern.

- High corporate leverage and lost business revenues have “weakened the ability of businesses to repay” their obligations. In addition, high unemployment over a sustained time could lead to “material losses to lenders” on household debt.

- The potential for losses at financial institutions could inhibit their ability and willingness to extend credit, thus impairing the economic recovery.

- Although policy has been successful in stabilizing financial markets, funding risks could re-emerge and, if that occurs, there is “potential for stresses to interact with preexisting vulnerabilities stemming from financial system or fiscal weaknesses in Europe, China, and emerging market economies.”

In other words, the Fed is cautioning that it is premature to declare victory. Initial policy interventions could exhaust their benefits before a self-sustaining recovery gets underway and/or successive waves of Covid-19 infections could disrupt the much hoped for return to normal.
Many individuals and organizations have resources to withstand a limited period of stress, but if stress extends for a longer time, many will exhaust those reserves.

As a reminder that financial markets remain fragile, global equity markets experienced a truly ugly day on June 11th. The S&P 500 index lost nearly 6% that day after having recovered all losses for the year on June 8th. Confidence in policymakers and ample liquidity is a necessary but a sufficient condition for market stability. To be sufficient, investors also need to have confidence that the economic is certain to get better and earnings will improve.

2020 Q3: Markets continue to stabilize and financial conditions in most market sectors have normalized to their pre-Covid-19 levels. Going forward, policy will continue to foster stability in financial markets. Potential pockets of trouble, such as collateralized debt obligations and junk bonds, have been contained from infecting other sectors of financial markets by the Fed’s credit facilities which enable the Fed to buy corporate securities and ETFs. It appears that maintaining stability in financial markets has become a proactive policy objective. This is a change from the historical lender of last resort role of the Fed coming to the rescue only after market stability deteriorated.

* Consumer, business, and investor sentiment – potential for significant decline. Sentiment is grounded in fundamental facts, but emotion and mob psychology propel sentiment as well. Swings from greed to fear and back to greed can be enormous and occur quickly while underlying facts usually change only gradually.

For the past three years sentiment has been at cyclically high levels, nearly on a sustained basis. A couple of times in the past year, investors panicked, but sentiment quickly recovered through reassuring words and actions from the Federal Reserve.

2020 Q1: Robert J. Shiller in a recent New York Times op ed commentary fretted about how “Gut Feelings” are driving the markets. He observed that the Cyclically Adjusted Price Earnings ratio reached 33 in January 2018 and is currently 31 in January 2020 and has been higher only twice in history – 1929 before the onset of the Great Depression and 1999 prior to the 50% decline in the market.

One sentiment measure is out of step with others. That is a measure of CEO expectations. The Business Roundtable’s recent CEO survey of
hiring plans indicated that 60% intend to hold the line on hiring over the next six months up from 43% a year ago. In another survey CEOs worldwide ranked recession as their biggest worry for the second year in a row and American CEOs moved recession worry to their number one concern from third place a year ago. CEO confidence in the Conference Board’s survey was 42.9 in 2019 Q4 (50 is the breakpoint between optimism and pessimism). Danielle DiMartino Booth, who writes commentary daily on economic developments created an measure she titled the “Outlook Gap,” which subtracts consumer expectations for the economy in six months from CEO expectations for the economy in six months. This measure hit its widest negative spread in 2019 Q3 in its 43-year history. Although the Outlook Gap narrowed in Q4, it is still consistent with past end of cycle levels. The significance of CEO sentiment is that it is they who decide whether to hire or fire and consumers only realize the trend in such decisions with a lag.

In an annual survey of CEOs released in January, PwC found that 53% expect global growth to slow in 2020 compared to 29% in the previous year’s survey.

This risk is significant potentially in the short run if CEOs get more skittish and hold back on hiring and investing, which could set in motion outcomes and reactions that slow economic growth more than expected. The CV shock has triggered the recession that CEOs have been worrying about. As in all recessions, self-preservation and conservatism dominate decision making. It is somewhat helpful that CV is still viewed as a short-run phenomenon as that might lessen risk-mitigating decisions which unintentionally amplify an economic downturn. It is too soon yet to know whether this will occur. It seems that the more likely outcome is the traditional in which investment activity collapses and hiring turns into firing. We shall see.

Although indicators of consumer sentiment were near cyclical peaks through February, they are likely to plummet in March. Social distancing has already curtailed spending on travel, dining and entertainment, but a slump in confidence usually leads to postponement of discretionary expenditures, such as automobiles. Thus, no matter what the Fed does or what legislation Congress enacts, in the short run consumer spending is likely to fall a lot and this will have knock-on negative consequences for business profitability and solvency and will lead to
employee layoffs. The downward spiral will continue until the government can get cash into the pockets of households and until the fear of CV passes and social distancing restrictions are relaxed.

2020 Q2: At the beginning of Q2 sentiment flipped from extreme optimism to extreme pessimism. The impact of this risk going forward will be one of whether extreme pessimism will interfere with and slow economic recovery. Unfortunately, history tells us that that is likely to be what happens. Recovery will be facilitated if consumers, businesses and investors expect things to get better. Lack of clarity about how to reopen the economy and protect lives is a significant problem and this will impede improvement in sentiment about future prospects. Secondary waves of infections, should they occur, will increase uncertainty and inhibit improvements in sentiment.

It remains to be seen whether the Fed can convince businesses and markets that monetary policy will facilitate meaningful recovery in economic activity. Monetary policy tools are not particularly effective in stimulating investment and lending unless enterprises are convinced that better times are ahead and risks of taking on additional credit are reasonable and limited. The default outcome is a “wait and see” sentiment, which would assure a slow and potentially painful recovery. The challenge to monetary policymakers is to overcome the default response. It’s a tall order, unfortunately, with a low probability of success.

To date, rapid and expansive use of fiscal policy has cushioned financial shocks for many and kept sentiment from imploding. But many of the fiscal initiatives are limited in duration. Stimulus checks have already been distributed. PPP benefits end on June 30th, and supplemental unemployment benefits expire on July 31st. Congress could extend any of these programs and there is pressure on Congress to do so. However, at the moment re-opening optimism and a May employment report that wasn’t even close to being as bad as expected are muting a sense of urgency. Presidential election politics have spawned partisan bickering over what should be in another fiscal stimulus package. We should hope that re-opening optimism is soundly grounded. If it is not and new waves of infection occur or the recovery is lethargic and intermittent, much of the good that the initial round of fiscal stimulus accomplished will be lost. Then there will be urgency in
providing more fiscal stimulus, but that may fall into the proverbial category of too little, too late.

2020 Q3: The resurgence in Covid-19 cases in the U.S. reminded us again of the importance sentiment has in impacting economic activity. Pauses and rollbacks in reopening economic activity are having a direct impact in slowing recovery. But the decline in consumer confidence that is accompanying the resurgence in Covid-19 cases is having an additional indirect negative impact on economic activity.

GS in commentary published on July 10th created a statistical model to study the relationship between a surge in the spread of the coronavirus and consumer spending. They found that (1) an increase in the level of new cases is associated with reduced consumer spending; (2) “people seem to respond as much to national virus trends as to the local virus situation;” and (3) an elevated level of new cases can depress consumer spending for several weeks. With respect to the third finding, risks are two-sided; the outcome can be better or worse than the baseline.

Renewed uncertainty is reinforcing conservative behaviors on the part of households to delay discretionary purchases and is prompting them to put extra cash into savings. This will slow recovery in consumer spending and will delay increases in employment. On June 24th job openings had risen 5.4% above the pre-Covid-19 level but by July 10th job openings were 14.4% below the pre-Covid-19 level. This abrupt turnaround in 2 weeks is indicative of the power of shifting sentiment to change outcomes quickly and dramatically.

Another test of sentiment and its impact on economic activity is in the making. At the end of July enhanced unemployment benefits expired. Congress was expected to pass Phase 4 fiscal stimulus legislation to extend these benefits (Democrat proposal) or extend them at a reduced level (Republican proposal). However, Congress recessed for the Democrat and Republican presidential conventions in early August without acting. Furthermore, the political impasse could continue in September. This creates uncertainty for the millions who depended upon the extra unemployment benefit payments to maintain consumption. Sentiment could decline as a result and lead to more cautious spending which could extend to other consumers not directly impacted by the congressional impasse.
A *New York Times* survey sounds a worrisome note about eroding sentiment. Of those out of work, 59% in August did not expect to return to their old job compared to 50% who gave that response in July. “The growing pessimism comes as hiring and other measures of economic activity have lost momentum.” Only 24% of Americans currently feel they are better off than a year ago. This percentage has been declining steadily and shows no sign of finding a bottom.

- **Escalating political uncertainty.** Sparring between President Trump and Congress has not had any apparent impact on economic activity. Neither has impeachment proceedings. However, President Trump’s mercurial approach to trade policy appears to have had a chilling impact on business investment in 2019. Business decision makers don’t like uncertainty and are inclined to wait to make decisions to hire and invest when the impacts of policy are uncertain. Political risk has also diminished in the U.K. and Italy. But there are hot spots around the world that could develop in ways that have significant impacts: Chile, Hong Kong, Germany, France, Italy, Lebanon, Libya, Venezuela, Argentina, U.K., to name some of the more prominent ones.

**2020 Q1:** The risk of political uncertainty in the U.S. has diminished in the short run but could build during this presidential election year. Markets are especially wary of the possibility that Sen. Bernie Sanders might become the Democratic presidential nominee. However, this risk appears to be fading as Joe Biden steadily builds a commanding lead in the delegate count.

While all seemed quiet in Italy until CV struck with a vengeance, parliamentary elections, bank solvency and economic turmoil could rekindle a troublesome confrontation with the EU. Italy is not benefiting from EU membership, indeed the opposite is the case. Increasingly, more and more voters are realizing this and the CV recession may ultimately tip the political scales.

Political uncertainty is growing in Germany. The centrist government coalition of the Christian Democratic Union/Christian Social Union and the Social Democratic Party is fragile and its leadership is weak. Chancellor Merkel’s chosen successor, Annegret Kramp-Karrenbauer, recently resigned from the leadership of the Christian Democratic Union Party. Germany’s heavily export dependent economy based upon
manufacturing is foundering. The absence of strong political leadership is not helping matters. The next election must occur in 2021 or sooner if the governing coalition falls apart. Germans are loathe to resort to deficit spending so it seems likely that Germany’s economy will continue to perform poorly, given the new shock of the coronavirus. However, the CV economic shock may force Germany to discard its distaste for deficit budgets – recent commentary suggests that might happen.

Although significant political risks don’t appear to be imminent, one should not discount the possibility of unexpected surprises. In the short run this risk appears to be small but is likely to growth once the CV crisis and recession passes.

2020 Q2: Circumstances have forced U.S. political parties to craft legislative compromises. The Democrats buried their intermural fight and coalesced around the candidacy of Joe Biden for president. So, it would seem that political uncertainty in the U.S. has diminished. Nonetheless, political polarization seems to be as great as ever and the divide may grow and be reinforced by the Covid-19 pandemic and its impact on social interactions. Certainly, the political agenda will be transformed once the immediate crisis has passed. There probably will be agreement that neglected matters, such as health care, will need a complete overhaul, but it is difficult to visualize a consensus on the details of response. The extreme partisanship of recent years isn’t likely to go away and, if anything, could get a lot worse as the gulf between the haves and have nots grows greater.

The post-coronavirus pandemic increase in political uncertainty is likely to extend to other countries. For example, the continued existence of the flawed European Union could easily reach the flash point.

In a crisis, people often come together to help each other. There is ample evidence that that phenomenon is at work in the present crisis. Leadership can reinforce this natural tendency. Sadly, leadership that is more interested in maintaining power at any cost can pursue an agenda that disrupts the spirit of coming together. This is an emerging risk to political stability in a time of crisis as partisanship is injected into public policy initiatives that ideally should be collaborative. The risk is accentuated by a president who thinks only of himself and whose
modus operandi has been to play the blame game. Unfortunately, such leadership creates and magnifies divisiveness. It reinforces the passion and sway of those with extreme views and hollows out the broad middle. This kind of development is not one that leads to healthy functioning democratic governments in the long run. In the aftermath of the current crisis, political uncertainty and instability is likely to escalate.

History tells us that in the aftermath of traumatic and devastating economic downturns, political uncertainty escalates. The established order is perceived to have failed and an angry populace turns on the elite who are believed responsible for the debacle. Once the foundations of the old order are challenged other long-held but unresolved grievances bubble up. Such is the case today with the seemingly spontaneous anti-racism movement that has emerged across the U.S. in the aftermath of the police murder of George Floyd. George Floyd was not the first African American to be killed at the hands of police, but the graphic video catalyzed an explosion of emotion that had long been simmering.

Just as an overextended economy loaded with unhealthy excesses needed an event to trigger collapse, so, too, did a society replete with unaddressed inequities and injustices need a spark to ignite a firestorm of protest against the established order. The spark came sooner than I expected but I am not the least surprised at the social upheaval that has been unleashed. It is a toxic mix – economic devastation and societal anger. Let there be no doubt that forces are now openly at work that will result in enormous and significant changes in our economic, social and political systems.

2020 Q3: The upsurge in Covid-19 cases and pauses and rollbacks in reopening economic activity are adding to political turmoil. The odds are increasing that Biden will be elected president in November. What is less clear is what will happen with the partisan mix in Congress. Democrats conceivably could end up controlling the presidency and both houses of Congress. An all-Democrat federal government would have significant legislative implications in 2021.

Conspiracy theories argue that President Trump will not acknowledge defeat and will stir up his political base by claiming the election was
stolen through fraudulent voting. This could prove particularly incendiary if the outcome in the Electoral College is close. Even a clearcut victory by Biden could lead to even greater political polarization prompted by a vocal and sizeable minority that has been imbued with Trumpism. Simply defeating Trump may not reduce the political divisiveness and rancor that has increasing affected American politics over the past 25 years.

* Growing Income and Wealth Inequality. For decades the ratio of household net worth to disposable income fluctuate in a narrow range of 4.5 to 5.5. Since the mid-1990s there have been two bubbles in financial assets – the stock market and dotcom boom of the late 1990s and the housing bubble that climaxed in 2008. In both instances the ratio dropped back into the historical range after the bubble popped. Now we are very clearly in a third bubble, which has yet to pop. It is evident in the chart that each successive bubble has climbed to a new high. This explosion in wealth is concentrated in a very small percentage of the population.

Low interest rates and asset price inflation are contributing to widening wealth inequality. In addition, since 2000 gains in corporate profits which drive stock prices have risen at a much faster rate than increases in wages and GDP. Asset holders, who also happen to be in the high-income segment of the population, have been receiving an increasing portion of national income,
CBO released a study in December 2019 which projects changes in the distribution of income from 2016 to 2021. The study concluded that “income vnbefore transfers and taxes is projected to be less evenly distributed in 2021 than it was in 2016.” Although means tested transfers and federal taxes reduce income inequality, the reduction is projected to be smaller in 2021 than it was in 2016.

2020 Q1: Risks posed by growing income and wealth inequality are mostly long-term in nature. There is probably some negative impact on consumer spending since higher income households have a lower propensity to consume. In other words, if income were more evenly distributed the conjecture is that consumer spending and real GDP growth would be higher.

The greater risks involve stoking the fires of populism and giving traction to well-intentioned policies, such as wealth taxation, but which could turn out to be ill-advised in terms of long-term economic growth. This is not to dismiss the importance of finding ways to reduce wealth and income inequality which maximize aggregate social welfare.

Peter Orszag, an Obama Administration official and currently head of financial advisory services at Lazard, recently opined that governments used to control markets tightly, so it mattered less what companies did because government constrained the consequences. This state of affairs has been replaced with the paradigm that capitalist markets perform best with hands-off governments and shareholder-focused companies. “The dominant paradigm of the past several decades has plausibly produced a dramatic rise in inequality and polarization, and that polarization in turn has made the government unable to function effectively.”

This is a risk with a long fuse and is unlikely to trigger any significant consequences in the short run. However, a recession is underway and depending upon its severity and impacts of those with limited or no wealth and those with low incomes, this risk could escalate more quickly. This is all the more worrisome because interest rates are likely to remain very low and once the recession passes will continue to support higher asset prices.
2020 Q2: As was the case during and following the Great Recession, income and wealth inequality is being exacerbated by policy responses to the Covid-19 recession.

The monetary policy tools of quantitative easing and low interest rates benefit those who have wealth by increasing asset values. Credit facilities do a better job of helping larger established businesses than small and medium-sized enterprises.

Government income support programs, such as unemployment insurance, have coverage shortcomings which disproportionately impact lower income individuals. A recent Federal Reserve survey conducted in April found that 40% of households earning less than $40,000 annually were unemployed. That compares very negatively with the overall unemployment rate of 14.7% in April. A corroborating statistic came from the Bureau of Labor Statistics April employment situation report. The growth rate in wages for workers jumped enormously. But, this was bad news, not good news. The reason for the jump was that more low-wage earners became unemployed or dropped out of the labor force than higher income workers.

The Paycheck Protection Program has been difficult for very small businesses to access because procedures favor enterprises with established banking relationships.

Even though the CARES Act attempts to help gig workers, the steady increase in the substitution of contract workers for employees to avoid responsibility for providing health and retirement benefits that has been occurring makes it more difficult to provide assistance in times of duress such as now. The consequence will be a widening of income inequality.

Evidence is mounting that the economic situation for women and minorities who already were collectively at a disadvantage, has worsened considerably since the onset of the Covid-19 recession. And, it is much worse for undocumented people.

The gulf between the haves and have nots and between the elite and ordinary folk is growing. This is an unhealthy development which
threatens social and political stability in the future, and, perhaps now, in the present.

The paradox of the moment is that the monetary policy that helps rescue the economy from a recessionary downward spiral amplifies societal income and wealth inequality.

2020 Q3: Policy currently benefits the wealthy at the expense of the rest of the U.S. population. A Democratic sweep in the November elections will result in legislative initiatives to reduce wealth and income inequality. The elite of both Republicans and Democrats are tied to the existing leadership establishment, which argues that significant policy change of the sort advocated by Sen. Bernie Sanders and his followers is unlikely, at least in the short run. Tax rates are likely to rise on corporations and the wealthy, but it is questionable whether this would have much impact on financial inequality. Investment in education, job training and other initiatives to raise the skills of low-income people are likely and could have modest impact over time. The elephant in the room is the Fed’s monetary policy which makes it easy to finance cheaply large deficits that fund such initiatives. But the Fed’s low-interest rate policy is a substantial driver of financial inequality.

Significant reduction in financial inequality will require much more radical policy change than is likely to happen in a Biden Administration. If and when such radical policy actions occur, strong economic growth could be a casualty. But what is the benefit of strong economic growth if it is accompanied by ever-increasing financial inequality? This is a debate that is developing and is likely increasingly to dominate political activity.

• Rise of populism and nationalism. Growing income and wealth inequality and stagnant economic growth have fueled political movements that espouse populist policies and have contributed to the ascendance of nationalism. Both are long-term risks, which are evolving slowly.

Nationalism is evident in policies to discourage immigration and to primacy to the interests of the home country in forging policy – thus Donald Trump’s America First and Make America Great Again. Populism focuses on the masses and emphasizes their victimhood at the expense of the moneyed interests and the political elite. Politicians on both the right and the left
opportunistically have been exploiting the anxieties of the masses. This has led to political fragmentation in many countries, although in most centrists still cling to power. Improved economic conditions appear to have slowed, but not reversed, the political appeal of populist and nationalist political movements and politicians.

2020 Q1: President Trump’s version of populism continues to resonate with a large segment of the American population. Populism on the left has also gained traction through the candidacies for president of Bernie Sanders and Elizabeth Warren. If recession occurs, and that is no longer an “if,” and if it is severe, populist and nationalist movements could gain momentum in the aftermath. Whether that occurs in due course will depend on how badly working class people are hurt. Policies in place for the past view years have favored wealthier people at the expense of the working class. The details of the fiscal response to economic consequences of CV could cut either way – exacerbate the gulf or, alternatively, more effectively address challenges faced by the working class.

The CV recession will eventually pass but low interest rates and abundant liquidity will probably continue to prevail. Such an outcome would continue to contribute to growing income and wealth inequality. Populism and nationalism as political forces are probably here to stay and will continue to impact political developments.

Up until now this risk has been contained by relatively favorable economic conditions, but that could change in coming months depending upon the severity of the CV global recession and the nature and impacts of policy decisions.

2020 Q2: As occurred following the Great Recession, nationalism and populism are likely to be significant factors in shaping politics in a post-Covid-19 world. The divide between rich and poor is likely to become even greater and with this development will come increased anger about the system being rigged for the benefit of the rich elite. The hollowing out of the political center and the strengthening of populist political movements on both the left and the right are likely. All things attached to globalization, such as free trade, open immigration, and off-shoring, will probably become subject to even greater attack.

In the U.S. support for Pax Americana, which has dominated international relations since 1945, is likely to diminish unless there is a
meaningful decrease in wealth and income inequality. The implications and potential consequences of a possible retreat of America from its position of global leadership are worth pondering.

Populism on the right has largely been discredited by Trump’s misrule and self-serving use of government power. The country is drifting left and populism on the left has a strong and growing voice.

2020 Q3: The November election in the U.S. will influence, perhaps to a considerable extent, whether left-leaning populism becomes a major force in the U.S. Right-leaning populism is here to stay regardless of whether Trump is re-elected. The Covid-19 recession and extended recovery will fuel populism on both the left and the right. Thus, political turmoil is likely to continue, perhaps escalate, as two different populist movements vie to impose their policy agendas on the nation. The loser in this evolving battle is the political center.

Brexit and the European Union – Prime Minister Boris Johnson’s landslide victory in December U.K. parliamentary elections cemented the U.K.’s exit from the EU on January 31st. However, nothing will change immediately and final terms of exit are yet to be negotiated. There are two sets of risks going forward. The lesser set is what will happen to the U.K. economy and the greater one is what spillover effects might occur in the EU.

2020 Q1: The U.K. officially left the European Union at the end of January but it will continue to be subject to EU rules and regulations for the rest of 2020. During 2020 the U.K. will need to negotiate a trade deal with the EU and probably also with the U.S., neither of which promise to be easy to accomplish.

The Bank of England left the policy interest rate unchanged at 0.75% at its January meeting, citing signs of global stabilization (prior to indications of the severity of the coronavirus pandemic), reduced domestic uncertainty, and a post-election bounce in business sentiment. However, the post Brexit economic outlook remains dismal.

Prime Minister Boris Johnson’s landslide parliamentary victory in December came at the hands of substantial numbers of working people who deserted the Labour Party. Thus, it is not at all surprising that Johnson is structuring government policy to finance big infrastructure projects in “forgotten” regions. While such a policy shift will be popular with the Conservative Party’s new electoral base, it is likely to
exacerbate the U.K.’s external account deficit and drive down the value of the pound.

For the time being, this risk appears to be of less consequence as the importance of the U.K. economy globally wanes.

On a brighter note, the U.K.’s response to CV is focused where it needs to be on providing credit and assistance to those most directly impacted by CV, both in terms of health care and mitigating economic consequences. After years of political turmoil, it appears that Prime Minister Johnson is using his parliamentary majority effectively to deal with a plethora of challenges.

2020 Q2: The U.K.’s economy like every other European country has been hit extremely hard by measures taken to limit the number of Covid-19 cases. Prime Minister Johnson contracted the virus and was hospitalized for several days. While the clock is ticking on Brexit negotiations, everyone is preoccupied with dealing with the economic crisis spawned by the coronavirus pandemic. If there is progress occurring on Brexit negotiations it is not being reported publicly.

For an issue that seemed so consequential a few months ago, it seems rather irrelevant in the current environment. It seems inconsequential at a time when far more serious matters are at stake. A hard-Brexit is increasing likely to occur at the end of the transition period on December 31st. Under the terms of the exit agreement the U.K. has until June 30th to request an extension of the transition period. There is no indication that such a request will be forthcoming. So, come what may, exit will probably occur at the end of the year whether or not the U.K. and E.U. have negotiated terms of separation. Such an outcome will not benefit either party and the economic damage is expected to be greater for the U.K.

2020 Q3: The June 30th deadline passed without anything happening, so exit will be final on December 31st with or without negotiated terms of separation. Negotiations between the UK and EU are underway about the final Brexit terms, but to date there has been no indication of significant progress. The practical deadline to conclude negotiations is in October to allow time for the 27 EU member states ratification process.

The EU prefers a wide-ranging agreement in a single comprehensive treaty, while the UK prefers a free trade agreement and separate
agreements on other matters, especially the role of the European Court of Justice, which the UK does not wish to have any authority over UK laws.

There are two possible outcomes: (1) a skinny deal in which there are some agreements but still an increase in non-tariff trade barriers, or (2) “no-deal,” known as hard Brexit, in which case the UK reverts to trading with the EU under WTO rules. Up until June 30th there was an opportunity to extend the “transition period” beyond December 31st, but this deadline passed without action, so December 31st is now a hard and unchangeable deadline. Either outcome will result in increasing trade barriers and both will create long-term economic costs. B of A estimates that a skinny deal would reduce UK GDP in the long run by 4-7% and no deal would reduce GDP by 5-10%. No deal would be more disruptive and costly in the short run.

The U.K.’s did not handle the Covid-19 pandemic very well and is emerging from lockdown more slowly than most other European countries. 2020 declines in real GDP are dismal and exceed -10%. Fiscal and monetary policy support continues to be aggressive. But increasingly it looks like the U.K.’s long-standing strength in financial services will continue to erode and along with it, the U.K.’s economic growth will probably continue to be dismal in the aftermath of the Covid-19 recession. Once recovery is well underway Scottish nationalism may resurface and threaten the integrity of the U.K. political union.

* Slowing growth – Italy, France and Germany – in 2019 Italy barely avoided recession, Germany eked out meager growth, and France did surprisingly well. In the longer term the existential fate of the EU is in the hands of these three countries and their economic performance and political stability will determine whether the EU survives.

Germany’s manufacturing sector is in deep recession and if employment weakens the rest of the economy could be pulled into recession. So far employment has held up well; in fact, Germany’s unemployment rate is extremely low and stable. However, as 2020 commenced, Germany’s industrial slump showed no signs of turning around. New factory orders fell 1.3% in November.

Germany could avoid the risk of recession through aggressive fiscal policy, although politicians appear reluctant. Unlike many other countries, Germany’s public debt to GDP ratio is relatively low, so there is plenty of room for deficit
spending. A concern, however, is that German banks are weakly capitalized and stuffed with loans that could quickly sour if recession grips the EU. This vulnerability is a consequence of Germany’s policy of depending on exports for growth which has involved running an enormous trade surplus for several years. German banks have financed the purchase of German exports by other countries. Recession could impair the ability of borrowers to service those loans.

Italy headed off a potential political crisis by forming a new coalition government in 2019. However, the glue that holds the new government together is antipathy toward the League and its leader Matteo Salvini and fear that the League might do well if a new election were held. Polls continue to indicate that the League will poll well when the next election is held.

Italy's economy did not grow in 2019 and prospects for 2020 are not much better. Banks are loaded with nonperforming credits. A budgetary dispute with the EC several months ago was papered over, but not resolved. As long as Italy is straitjacketed by the euro, prospects for economic growth are dismal. Italy needs to devalue its currency to become more competitive, but as long as its currency is the euro this is impossible. Economic stagnation will continue and this will feed social and political unrest.

French President Macron pursued an aggressive agenda during 2019 which benefited economic growth but also fueled social protests. Protests have been ongoing and currently are aimed at Macron’s proposals for pension system reform.

It is too soon to determine whether Brexit will have any impact on the EU. In the short run, the spectacle of political discord in Britain appears to have stanched EU separatist movements in EU member countries.

In the long run the inability of the EU to forge a fiscal union will continue to result in economic imbalances between member countries which cannot be resolved through monetary policy alone. This will continue to weigh heavily on economic growth and stagnation is likely to nurture political fragmentation. The long-run viability of the EU remains in question, although the commitment to preserve it at all costs is powerful.

The ECB has been successful for several years in holding the financial system together. But it pretty much has run out of things it can do to spur
growth. ECB president Christine Lagarde is expected to encourage member governments to make greater use of fiscal policy. To date aggressive use of fiscal policy has been resisted by Germany but this could change during 2020.

2020 Q1: At the beginning of 2020 improvement in global growth was expected that would have benefitted Germany’s manufacturing sector. However, that hope has been greatly diminished by China’s economic difficulties and Germany’s outsized dependence on exporting manufactured goods to China. In addition, Germany’s economy is not well-structured to do well as global economies mature. For example, as China’s economy evolves from a heavy infrastructure investment focus to a consumer-based economy typical of developed economies, there will be less need for German manufactured goods. Germany is at a pivot point where it needs to restructure its economy as it did successfully once before nearly two decades ago. This will not be an easy task and is likely to be made more difficult by developing political fragmentation and aversion to deficit spending.

ECB’s monetary policy has been ineffective in preventing substantial deceleration in EU economic growth, although it appears to have prevented deflation. The ECB will be conducting a policy review during 2020 and may change its inflation target and make it symmetric around 2% rather than the current “below, but close to 2%” policy. There is speculation that forward guidance may receive more weight in future policy decisions and negative rates less weight. The ECB’s policy review is expected to include consideration of climate change, inequality, and technological change.

At its January policy meeting the ECB expressed growing confidence that the European economy was stabilizing with inflation firming and downside risks diminishing, but that was before the extent of China’s economic slowdown was apparent and CV contagion spun out of control in European countries. Inflation expectations have collapsed and the ECB has little left in its monetary policy tool kit to combat the potentially severe recession that has engulfed Europe.

The Five Star Movement, which is one of the current Italian government’s two coalition partners, is expected to fare poorly in an upcoming regional election. This could strengthen Matteo Salvini, and
his Lega Party. Salvini has been a critic of Brussels and the European Commission. To date during Q1, the market has ignored this potential political threat, probably because when Lega was part of the governing coalition in 2019, Salvini’s bark was worse than his bite.

In the short run, declining European growth will probably not have dramatically negative political impacts because everyone will focus on dealing with problems at hand. But in the longer run, the flaws in the EU’s governance structure, which have impeded the kind of quick and decisive response to CV engineered by China, could finally trigger the long-expected existential crisis. Moreover, it is beginning to look like the U.K., which exited the EU on January 31st, is implementing timely and potentially highly effective policies to combat the CV pandemic and its economic consequences. If that turns out to be the case, it will not be lost on many European voters.

Europe is headed into what increasingly looks like an extremely severe recession. It got a late start on containment initiatives which allowed CV to spin out of control. Italy’s economy, which was already on the verge of recession, is likely to implode. Europe lacks the ability to enact coordinated fiscal intervention, it is saddled by cumbersome regulations and policies enforced by the European Commission, and the ECB has limited capacity to respond forcefully. The outlook for Europe in 2020 is grim.

2020 Q2: The problem in the EU is no longer one of slowing growth; it is one of freefall in economic activity. Revised 2020 real GDP growth forecasts for EU member countries range from -6% to -9%. The absence of a fiscal union in the EU has become a major obstacle in designing effective responses where they are most needed. Predictably, the countries with the weakest economies need the most help but have the most limited capacity to respond effectively. Italy and Spain are in the forefront.

For the collective good of all member countries and in the interests of avoiding an existential crisis, what should be done is to transfer fiscal assistance from stronger countries, such as Germany and the Netherlands, to weaker countries, such as Italy and Spain. However, the German constitution prohibits such transfers and moreover, from a political standpoint, the German electorate is strongly opposed to
bailing out member countries which it believes have mismanaged their economies. As a consequence, the EU has stitched together an assistance program based on the European Stability Mechanism. But as was the case with Greece a few years ago, use of the ESM carries with it unpalatable conditions. Forcing the ESM solution on Italy will strengthen the political standing in Italy of the anti-EU League Party and its leader, Matteo Salvini. The market has sensed the long-term risks in this inadequate solution by increasing the spreads on Italian debt to a 250 basis points premium over German bunds. This is occurring despite an enormous increase in ECB bond buying which is heavily tilted toward buying Italian debt.

Another video summit of EU leadership occurred on April 23rd. President Macron of France is on record as stating this summit is a “moment of truth” for Europe. Either leaders will agree to issue mutual bonds in the amounts needed by each country but guaranteed by all, or face the prospect of the unraveling of the European project. Issuance of mutual bonds continues to be unlikely, but the time is probably not yet at hand for the final vetting of the EU’s existential crisis. For the past several years the can has always been kicked down the road and the ECB has been relied upon to shore up individual country debt. This time is likely to be no different, but this is no longer a matter of helping a small member country. It is a much bigger deal and time is running out to save the European project.

There were two developments in the EU in May – one was unhelpful and the other is quite promising.

Germany’s Constitutional Court ruled on May 5th that the ECB’s QE program is beyond the ECB’s competency and gave the ECB 3 months to adopt a new policy directive that its regular QE program is “proportionate.” Failure to comply would compel Germany’s Bundesbank to cease participating in the regular QE program. “Proportionate” means balancing the ECB’s monetary mandate with the side-effects of QE on economic policy ... specifically the easing of fiscal constraints and fiscal discipline. Informed opinion believes that the ECB can make the case that its regular QE program is “proportionate” by preparing detailed and lengthy analysis that makes the case that its primary mandate of price stability remains firmly in place, even as it demonstrates that the evidence would support a finding of
proportionality on a standard that puts more weight on a possible tradeoff with economic policy.

Markets did not react much to Germany’s Constitutional Court ruling which indicates that markets believes the ECB can construct the necessary analysis to satisfy the court and continue the regular QE program. This is important because the ECB’s massive bond buying, particularly bonds of troubled countries such as Italy, has enabled those countries to continue issuing new debt at relatively low interest rates. This has enabled distressed EU member countries engage in a degree of fiscal stimulus but responses have fallen far short of what is needed.

On May 18th German Chancellor Merkel and French President Macron proposed a €500 billion Eurozone Recovery Fund, subsequently increased to €750 billion. The Fund would be financed through Eurobonds issued by the EU and guaranteed by EU revenues. This would bypass direct country guarantee of coronabonds by individual EU members, often referred to as mutualization of debt. Strong objections to an EU member guaranteeing the debts of another EU member has blocked all attempts to date to raise funds to be used where they are most needed. In Germany, it would require a constitutional amendment and that is politically infeasible.

Implementation of the Eurozone Recovery Fund will require increasing the EU’s tax revenues from 1.2% to 2.0% of EU gross national income, or an extra €180 billion in revenues. The proposal, if approved by all EU members, a very big if, would enable the EU to amplify considerably its financial assistance programs to member countries beyond existing budget passthroughs. This would be accomplished through borrowing at very low interest rates and would be supported by direct taxes levied by the EU. The important point is that the revenues to service the bonds would come from direct taxing authority rather than from member contributions to the EU budget. While the proposal circumvents the troublesome issue of directly assessing one country to assist others, the need to increase the EU’s taxing authority considerably will challenge national sovereignty and is likely to prove difficult to achieve. However, it is more feasible than other alternatives and may be what is required to avoid an EU existential crisis driven by economic decline caused by the monetary straightjacket of the euro.
Despite the promising aspects of the Eurozone Recovery Fund proposal, EU fiscal risk sharing is unlikely to be adopted and implemented quickly enough to deal effectively with the economic consequences of the Covid-19 recession or to allay concerns about debt solvency of weak members, such as Italy. For the time being the ECB’s pandemic QE program is keeping a lid on sovereign debt interest rates, but this is a stopgap measure which does not assure individual member country debt sustainability in the long run.

2020 Q3: It is becoming clear that Germany’s long-standing opposition to mutualization of European debt is giving way to an emerging understanding that the absence of some form of a fiscal union could force Italy to exit the euro and that development could prove catastrophic for Germany’s increasingly fragile export-driven economy. Thus, Germany’s endorsement of the Eurozone Recovery Fund, which would in effect be a form of a fiscal union, is a substantive policy shift. However, the proposal will need to be adopted without substantive modification for the euro and the EU to survive in the longer run.

As the fate of timing would have it, Germany is president of the European Council for the next six months. The presidency sets the policy agenda for the EU. This will enable Germany to push EU members to adopt the proposed Eurozone Recovery Fund, which under the EU treaty requires unanimous consent of all members. The first step occurred on July 21st when the 27 EU member governments approved a substantial stimulus package which included the Eurozone Recovery Fund. The second step is for legislatures of member countries to ratify the budget which will take a few months.

In the meantime, the ECB’s recent monetary policy initiatives are a thinly disguised means of keeping yields on Italian government debt at a low level to enable Italy to finance its response to the severe negative impacts of the Covid-19 pandemic on economic activity in Italy. In late June the ECB lent €1.31 trillion to eurozone banks at a negative rate of 1%. This will result in a net increase of €550 billion in bank funding after repayment of existing loans. While the stated purpose is to encourage banks to increase lending for capital investments in economically productive activities and assist struggling business enterprises, the reality is that a large share of the money will go into purchasing Italian government debt and reducing the interest-rate spread between Italian and German bonds. The policy benefits bank profitability and Italy, it but does next to nothing to help struggling businesses in Europe.
respond to the economic consequences of Covid-19. This ECB initiative amounts to an around about means of monetizing Italian government debt.

The market’s response to the EU’s successful handling of the Covid-19 pandemic, the authorization of the Eurozone Recovery Fund, and ECB’s huge monetary stimulus program has been almost euphoric. These developments are being viewed as solving many of the EU’s most intractable problems holding back strong economic growth. The euro has appreciated in value and EU stocks are performing handsomely.

But Charles Gave of Gavekal Research is skeptical. He believes that partial burden sharing does not substantively change the EU’s fundamental flaw, which is the common currency – the euro. Since the establishment of the euro Italy has been at an economic disadvantage because the euro was priced too high in lira terms. If Italy had retained the lira it could have devalued it relative to the euro to remain competitive, but by accepting the euro, Italy no longer adjust the value of the currency to remain competitive. Fiscal transfers, particularly in the form of grants, will help somewhat, but transfers don’t address competitive imbalances. For a fiscal union to work requires the free flow of people and organizations across borders. In principle, this is supposed to happen in the EU, but language and cultural differences impede population mobility and local country control over work rules are impediments. The implication is that Italy will remain uncompetitive and its economy will stagnate. Financial crisis will be averted and along with it the existential threat to the EU, but Italy will be dependent upon fiscal handouts and cheap government debt for a very long time to come.

- **Slowing growth – China, emerging markets** – growth continues to slow gradually in China as its economy matures and it transitions from an emphasis on infrastructure and investment to consumption. In this regard, China is diminishing as an engine of global growth. It is unlikely it will engage in aggressive stimulus in the future in the same way it did in the past which more than once helped revive global growth. The risk is that growth might slow too quickly and threaten social and political stability.

There are forces at work which will continue to drive down China’s growth rate and diminish the impact of its economy on the global economy.
First, the big power rivalry between China and the U.S. has now taken center stage. An economic consequence is the decoupling of the two economies and this will have negative consequences for Chinese and global growth. In addition, the emerging big-power rivalry will extend to foreign policy with consequences not yet clearly visible.

Second, the Chinese leadership understands the importance and essentiality of transforming its economy to maintain the dominance of the Communist Party and assure social and political stability. The leadership also understands the risks inherent in the longer run of unbridled credit expansion as a lever to drive economic growth. It is for that reason that even as growth slowed in China during 2019, China has stayed the course on its policy of reducing risk in the financial sector and has resisted unleashing a large-scale stimulus program as it has done in the past when growth slowed. Policy will be used sparingly to maintain economic stability but not to increase growth. As Gavekal Dragonomics recently put it, “China is by no means headed for crisis, but equally will not be a catalyst for a global growth rebound.”

2020 Q1: Reserve requirements were liberalized at the beginning of the year and this will benefit credit creation. Chinese policymakers are staying the course by balancing initiatives to contain speculative credit growth with modest stimulative actions.

The Phase 1 trade deal with the U.S., according to many analysts, is more likely to benefit China in the long run than the U.S. The U.S. abandoned imposing tariffs on additional Chinese exports which were originally planned for October and December and will cut tariffs imposed in September on $112 billion of Chinese goods on February 14th from 15% to 7.5%, but this benefit has already been offset by the recent appreciation in the value of the renminbi. China’s commitment to double its imports of U.S. goods will be challenging to meet, but should not interfere with China’s economic growth.

Since mid-January, economic activity has been clobbered by the outbreak of the CV pandemic. China moved quickly to restrict travel and isolate hot spots, such as Wuhan and Hubei province, through strict social distancing policies. It is now apparent that this policy was successful in stopping the spread of CV as the number of new cases is now dwindling rapidly. However, the economic cost has been enormous. YoY growth in Q1 is likely to be negative and full-year 2020
growth could be cut by half or more from 6% to 3%. Economic recovery is underway but will be slow going because of falling demand for exports as other countries pursue social distancing policies similar to those that have been successful in China. When the post-mortems are conducted it appears that China’s swift and decisive action averted the possibility of a much worse outcome compared to the experiences of some other countries which were less well prepared and didn’t have the governmental structure to act quickly.

China’s leadership also structured policy responses to deal directly with individuals and businesses most affected rather than resorting to more indirect and massive stimulus programs as they did in 2008 and 2015. For the most part macro policies (developmental goals) have only been tweaked, as the leadership rightly foresaw that CV, while devastating in the short run, would pass and the long-term policy course could continue to be pursued without major surgery.

2020 Q2: As expected, China’s first quarter results were dismal with YoY real GDP coming in at -1.8%. This is significant because China had been consistently reporting 6% or greater growth for quarter after quarter. That’s the bad news. The good news is that China has made significant headway in restarting its economy without experiencing a resurgence in coronavirus cases.

A likely outcome of the Covid-19 pandemic is a reversal in the long-standing trend toward greater globalization as countries strive to gain greater control over their economies by reshoring supply chains. China has benefited enormously from globalization and it follows that it stands to lose a lot as globalization is reversed.

Such an outcome would mean considerably slower economic growth for China but it may have reached the point at which its economy and institutions have matured sufficiently to refocus primarily on consumer-driven domestic growth. Unlike what it did during past global economic crises, China has refrained from engaging in a massive infrastructure stimulus program. It is staying the policy course set prior to the Covid-19 pandemic by selectively increasing policy support, such as assisting small and medium-sized enterprises, and loosening monetary policy a little. Domestic financial stability remains a primary goal and weighs against a massive fiscal stimulus program financed by debt.
There is risk that China, could experience a second wave of coronavirus infections. That has not occurred, but if it did, it would put pressure on policymakers to be more proactive. So far, it appears that China has in place effective procedures to limit a second wave outbreak. If China is able to avoid a second wave in the next few weeks, its policies and procedures would become a model for reopening economies in other parts of the world.

The fate of emerging market countries is less sanguine. Reversal of globalization and increased on-shoring of supply chains will hurt countries which relied heavily on exporting commodities for growth. Also, even though many will still be attractive from the standpoint of low-cost labor, a move away from globalization by countries comes with the understanding that costs of production will often be higher domestically. In addition, in response to the perceived increase in risks, investors have been repatriating funds placed in emerging market countries during the initial stages of the global recession. If the need for global supply chains diminishes following the recession, increased investment in emerging market countries will be less attractive. All of this suggests that emerging market countries will grow more slowly in coming years.

2020 Q3: The Covid-19 pandemic continues to be well under control in China and China’s economy continues to recover from the lockdown that occurred in February. Production has fully recovered but recovery in services and consumption is lagging. Government policy is directed selectively at supporting businesses still struggling in the aftermath of the February lockdown. However, monetary policy is shifting back from a focus on supporting the recovery in economic activity to one of managing financial risk, which means controlling the amounts and types of credit. Chinese exports have held up much better than expected due to order strength for electronics and medical supplies. While global decoupling of supply chains is in the works, it will be a long time before the results of these efforts show up in Chinese economic activity and export data. This remains an unfavorable trend for China’s economic growth but it has a long fuse.

China’s technology companies, such as Huawei, depend on American chips, semiconductors and other technology components. The U.S.
government has determined that providing technology to Chinese firms is a national security risk and has implemented regulations to prevent sale of U.S. technology to Chinese companies. This is a significant short-run problem for China but there is little it can do in response to U.S. actions. In the longer-run China will develop its own capabilities but this will take time.

Under President Xi’s leadership it is China’s goal to become a superpower on a par with the U.S. and wield global influence that is attendant to being a superpower. Naturally, the U.S. is not interested in this happening and is now pursuing policies intended to thwart China’s rise. By and large the actions the Trump Administration has taken have bi-partisan support, so the potential election of Joseph Biden to be America’s next president is unlikely to change U.S. strategy with respect to China.

There are other significant aspects of the emerging cold war between the U.S. and China that bear watching. One very important one is the dominant role of the U.S. dollar in global trade. China has embarked on a course intended to eventually make the renminbi a viable alternative to the dollar. To the extent that China is ultimately successful in accomplishing this objective, it will weigh negatively on the value of the dollar and diminish the U.S.’s sway in international financial markets and also reduce its influence in international affairs.

Make no mistake! The cold war between the U.S. and China has begun and the stakes are high. Unlike the last cold war that involved the U.S. and the Soviet Union, China’s government has been far more effective in economic management than the Soviet Union ever was. It has a much larger population and it has a strong governance structure. There are weaknesses that China will need to overcome, however, not the least of which is its ongoing support of relatively inefficient state-owned enterprises. Nonetheless, it would be foolhardy to assume that China will fail in its goal to become a superpower.
**Climate Change.** The effects of climate change are becoming increasingly visible and economic impacts are becoming increasingly more severe as exemplified by the Australia’s firestorm.

In a survey of research, GS summarized empirical evidence that documents severe damage of climate change to economic welfare. While the most serious consequences are yet to come, growing evidence points to “very large” welfare losses.

“Economic principles suggest that market-based instruments like a carbon tax can efficiently deal with the negative externalities from carbon emissions. While simple in theory, most countries including the U.S. have not implemented such policies. This likely reflects the global nature of the externality, which encourages free-riding, the highly uncertain welfare costs, and the challenges in choosing how much weight to place on future generations in cost-benefit analysis.”

GS concludes that in the short run there will be winners and losers but “policies aimed at curbing emissions could trigger significant shifts and have the potential to raise welfare of current and especially future generations.”

**2020 Q1:** Severe hurricanes and fires are raising attention and public support for strong climate intervention policies is building. But the political calculus is not yet in place to result in meaningful impacts. Fragmented global political governance will render coordinated policy development and enforcement very difficult. Potential losers, who generally wield a considerable amount of political and economic power, will resist change, as has been evident in the policies of the Trump K

A few key opinion leaders are beginning to address climate change issues publicly. Larry Fink, CEO of BlackRock, which manages nearly $7 trillion in financial assets for its clients, laid out in his annual letter to CEOs what BlackRock intends to do: 1) exit investments that have a “high sustainability-related risk,” 2) press corporate CEOs and boards to adopt explicit environmental goals and to adhere to the mandates of the Paris climate accord, and 3) introduce more funds for investors/clients that avoid stocks related to fossil fuels.

Climate change is a long-term risk which will steadily grow in terms of its potential negative impacts.
2020 Q2: The 50th anniversary of Earth Day occurred on April 22nd. It was overshadowed by real time events connected with Covid-19 and the global recession.

If my intuition is on the mark, forces have been unleashed in 2020 that will disrupt forever the established order. In the chaos of disruption, all that has been accepted and protected by the elite will be subject to challenge and redesign. That includes America’s form of capitalism and how our economy, society and political system should be structured to serve the well being of our population. Income and wealth inequality, racism, human rights, justice, health care, education and care for the environment – all will be part of the debate about how we reform policies and governance to achieve better outcomes for all and not just serve the interests of a small group of privileged elites.

2020 Q3: As we suffer through yet another viciously hot summer and experience weather disasters linked to global warming, we are reminded that global climate change has consequences.

- Oil Prices. Before the full extent of the global economic consequences of the coronavirus pandemic became apparent, Saudi Arabia and Russia had a falling out over limiting oil production quotas. In retaliation, Saudi Arabia increased oil production and oil prices dropped sharply in response. The price war, as it was referred to, persisted until it became clear that the coronavirus pandemic had crushed demand and there was little choice left but to curtail supply. Since the price war was never in the economic interests of Russia or Saudi Arabia, there was speculation about the underlying motives. Was it Saudi Arabia trying to crush Iran’s economy, but if so why would Russia cooperate? Or was it an unspoken agreement to destroy the U.S. oil shale complex by enduring an extended period of low prices with the expectation of regaining price control once supply had been reduced?

2020 Q2: What started out as a price war between Russia and Saudi Arabia was rendered meaningless by the collapse in oil demand as nearly all global economies locked down their economies in an attempt to control the Covid-19 pandemic. In early April with a bit of a prod from President Trump, OPEC agreed to curtail production by 9.7 million barrels per day by May 1st. However, it was already clear at the time that demand had fallen much more than the proposed production cuts. Oil prices drifted lower in response.
On April 20th, as the April WTI oil futures contract was maturing, prices on the contract went negative. At one point holders of the May options contract were willing to pay $38 per barrel not to be forced to take delivery of oil. This made news headlines expressing consternation that oil prices had gone negative. However, the May futures contract did not go negative and hovered near the recent spot price of $20 per barrel.

The problem is that the world is flooded with oil for which there is no demand and storage space is rapidly disappearing. There is no immediate prospect for an increase in oil demand, although there is hope that economies will begin to reopen in a month or two. That means that forced production cuts will be inevitable. The question then is one of how that will occur and what will be the consequences. One thing is certain, the overleveraged shale oil sector in the U.S. will experience substantial bankruptcies. As the carnage unfolds one is reminded that in the early days of the Great Financial Crisis the subprime mortgage problem was believed to be a limited and containable problem. But, as it turned out, subprime mortgages were only the tip of the iceberg. Contagion with catastrophic consequences eventually spread to other financial market sectors. The implosion of oil shale credit is only beginning. We shall see shortly whether the problem is contained or whether the problems of this asset class are symptomatic of problems elsewhere.

Oil prices stabilized in May and moved up in June from $20 per barrel to a still very low level averaging $35 per barrel for West Texas Intermediate (WTI). Demand will rise as global economic reopening progresses and prices should firm further as that occurs. However, many expect demand to be lower for an extended time because of sustained reductions in auto and air travel.

2020 Q3: Production cuts and gradually reopening of the global economy have helped oil prices rise since they bottomed in April, but the recent price level is still well below the average price that prevailed during 2019. In early July, Saudi Arabia demanded that OPEC members slash production or risk another market share battle, which would drive down oil prices substantially. OPEC member states met on July 15th. Saudi Arabia has 4.5 million barrels per day of spare capacity including 1.2 million barrels in “voluntary” production cuts that it threatened to bring back online by the end of July. The meeting date came and went without significant policy changes and Saudi Arabia has yet to follow through on its threats. Since then oil prices have changed very little.
Oil demand dropped from about 100 million barrels per day to 83-85 million in April. Since then demand has crawled higher, but demand is still well short of 100 million barrels per day. In the short run the price of oil is very inelastic which means that small changes in supply or demand can result in large changes in prices. Pretty clearly, additional OPEC production cuts would push up prices. There is debate about the ability of shale oil producers in the U.S. to increase production in the short run because capital to finance drilling of new wells has dried up, but that could change quickly if prices move higher. U.S. shale oil production has dropped from 9.1 million barrels per day to 7.5 million.

All in all, it looks like the balance of risks will keep oil prices relatively low but the potential for price volatility is ever present.
III. 2020 Outlook – Recession The paragraphs that follow in black ink were drafted at the beginning of 2020 and will not be edited for subsequent developments.

However, updates will be appended each quarter and will be identified as follows: Q1 – blue bold italicized print; Q2 – blue bold italicized underlined print; Q3 – red bold italicized print; Q4 – red bold italicized underlined print.

Historically, the slope of the yield curve has been one of the most reliable predictors of recession probability. In traditional recession probability models, including those of B of A and the New York Federal Reserve Bank, yield curve slope is the primary predictive variable.

Many now argue that current monetary policy, which relies on forward guidance and central bank balance sheet purchases in addition to interest-rate management, has interfered with the usefulness of the yield curve slope as a reliable predictor of recession probability.

During 2019 GS forged a new recession probability model which retains a measure of yield curve slope, but its measure of yield curve slope focuses on the 0 to 6 quarter segment of the curve, which GS argues is not affected by term premia and other long-term measures whose signaling power has been diminished. In addition, GS has replaced the unemployment rate in its model with a measure of core PCE inflation. Other variables include the private sector financial balance, credit spreads, and the current growth pace as measured by GS’s proprietary CAI (current activity index). Back testing of the model indicates that CAI is a strong predictor of recession probability for periods of six months or less. CAI was weak in late 2018 but January’s preliminary measure rose to 1.8% which is about the same as GS’s measure of potential GDP growth. If CAI were to move below 1%, recession probability in the next six months would rise. GS’s model indicates that the probability of recession in the next 12 months is slightly less than 20%.

Strong predictive variables in GS’s model which have somewhat greater lead times of 12 to 24 months include the 0 to 6 quarter yield spread and elevated core PCE inflation.

What we know from past experience is that forecasting the timing of a recession’s onset is notoriously difficult. The fact is that we are usually well into recession before the consensus acknowledges it. What we do know from history is that when risks are unusually high the economy is especially vulnerable to unexpected shocks. Consumer, business and investor sentiment can plunge quickly and propel the economy into a downward spiral. Trying to forecast the pivotal shock and perhaps
more importantly, its timing, is a crap shoot. The best policy is to be prepared for disaster while hoping for benign outcomes.

Turmoil in financial markets leads to tighter financial conditions and can adversely impact economic activity with a lag. Gyrations in stock prices have a significant impact on business and consumer confidence. This was evident in December 2018 and January 2019 data releases and again in late summer 2019. However, since the stock market recovered quickly following the August recession scare, as it did at the beginning of the year, it is now clear that the damage to confidence and real economic activity was short lived. Markets are currently betting that easy monetary policy will continue to support confidence and the economic expansion will roll on.

During 2019 Q4, easy money and new highs in stock prices buried concerns about imminent recession risk that were pervasive in August. But all that has really changed is monetary policy and investor sentiment. Economic fundamentals have changed only a little – there have been modest improvements in measures of the labor market and business and consumer sentiment. Global growth is still weak, but as 2020 commences evidence is emerging that the global manufacturing recession may be bottoming. Forecasts of global economic activity generally project somewhat stronger growth in 2020 than in 2019.

Easy money has bought time and extended the life of the current cycle. But other trends continue to evolve which will pose risks to continued economic expansion. Foremost among these is China. China is no longer the engine of global growth that it once was. It is still a significant global force but its maturing economy and gradual transformation from a mercantilist-export driven economy to a consumer economy, with the inexorable slowing of the growth rate that this entails, will not be as strong a driver of global growth in coming years.

2020 Q1:

The guessing game about recession probabilities is over. Covid-19 and policies to contain it assure recession in Q2 and Q3.

The guessing game now switches to estimates of the probable severity of the unfolding recession.

Forecasters are scrambling to update their GDP 2020 growth estimates. Pre-Covid-19 recession estimates for U.S. real GDP growth ranged from 1.7% to 2.2%. Revised estimates range from -1.2% (B of A) to -1.8% (GS). Estimates will continue to evolve as the scope of social distancing initiatives to contain the spread of Covid-19 become clearer and their impact on economic activity is discerned. In addition, the fiscal policy responses, depending upon their
size and timeliness, will have a significant impact on growth in 2020. Furthermore, if containment of Covid-19 is as successful as it was in China, recovery could begin as soon as May. However, models indicate that even with draconian social distancing, Covid-19 is not likely to peak until July, which means that substantive recovery would not begin until September or October.

There is one important difference between the unfolding Covid-19 recession and the scenarios presented below. The scenarios describe recessions which started slowly, then built momentum and lasted for 18 months. The Covid-19 recession is not starting slowly. The consequences are already visible and will build quickly. If we are lucky, the recession will be over by summer or fall at the latest. If we are unlucky, Covid-19 will trigger other risks, which are described in Section II, and that would increase the severity of the recession and extend its length.

2020 Q2:

Since we are in a recession, I have discarded the “BASE” and “STRONG GROWTH” scenarios and replaced them with two recession scenarios – “V-Recession” and “U-Recession.” The “V-Recession” scenario assumes a sudden stop in the U.S. economy beginning in March 2020 followed by a gradual recovery beginning in May/June 2020. The key assumption is that social distancing policies are relaxed and then largely eliminated by the fall of 2020 and there are no further significant outbreaks of Covid-19 after that. The recovery pathway is compared with GS and B of A forecasts, both of which assume a similar recovery timeline from the Covid-19 recession.

In the alternative “U-Recession” scenario, recovery also begins in May/June 2020 but progresses more slowly either because reductions in unemployment are slowed by subsequent waves of Covid-19 infections and accompanying social distancing or negative secondary impacts on economic activity stemming from the initial lockdown of the economy in the spring of 2020. As will be seen in the charts below, the difference between these two scenarios becomes quite substantial as time passes, which underlies the importance of getting the economy back on a healthy functional basis as quickly as possible while simultaneously mitigating the possibility of new waves of contagion.

In the June 2020 Longbrake Letter, the “V-Recession” and “U-Recession” scenarios are updated to reflect the earlier and stronger recovery in employment data, preliminary guidance from the Congressional Budget Office, and updated forecasts from GS and B of A. While many hope that recovery will
Proceed rapidly and strongly, the emerging consensus, including Federal Reserve Board of Governors Chairman Jay Powell, believes that a slower and prolonged recovery is more likely.

2020 Q3:

Opening up the economy in May and June resulted in greater than expected recovery in employment and stoked optimism that the recovery from the COVID-19 recession would occur more quickly and be stronger.

However, as the third quarter began, new COVID-19 cases accelerated and over half of U.S. states either reversed reopening or placed it on hold. Research indicates that mandated wearing of facemasks is quite effective in slowing the spread of COVID-19. This means that comprehensive lockdowns of the sort that occurred in March and April are unlikely to be necessary to control the spread of the pandemic. Thus, recovery in economic activity is not likely to reverse, but will probably occur somewhat more slowly than expected in May and June.

In the July Longbrake Letter, V-Recession scenario employment assumptions are benchmarked to the updated July CBO economic projections and the pace of recovery in employment is stretched out a bit to reflect the slowdown in reopening.

In late July the Bureau of Economic Research updated National Income Accounts and Personal Income data from 2015 to the present. The revisions were minor. GDP growth increased a bit in 2017 and 2018 but decreased in 2019. Inflation was a few basis points higher going into 2020.

By mid-August, the surge in Covid-19 cases began to abate, but most states kept reopening on hold. As a consequence, economic recovery has slowed a bit but continues. News on development of a Covid-19 vaccine is encouraging and comprehensive inoculation in the U.S. seems likely by the end of Q2 2021. Most analysts continue to expect recovery to continue at a slow rate with one notable exception. GS believes that recovery will accelerate dramatically in 2021 as immunization becomes widespread. Its optimism is a definite outlier and appears in some respects to be based on flawed assumptions of recovery in employment.

The original BASE and STRONG GROWTH scenarios and most beginning of the year forecasts reflected the following. At the beginning of 2019, in the case of the U.S., unemployment was significantly below the natural rate. This gap was expected to widen during 2019 and add to wage and inflation pressures. However, increasing
labor scarcity was expected to result in slower employment growth and that would have knock-on impacts resulting in slower spending, investment and GDP growth. In addition, the benefits of fiscal stimulus were expected to wain during 2020 and turn negative by the end of the year.

These beginning of the year assumptions were overtaken by Covid-19 pandemic outbreak and governmental actions to contain Covid-19 contagion. The V-Recession and U-Recession scenarios replaced the overtaken by events BASE and STRONG GROWTH scenarios. Both started with a sudden and dramatic increase in unemployment in March and April which triggered a deep recession.

Using my econometric model (the methodological construction of my econometric model was described in the April 2018 Longbrake Letter), I can simulate what the recession and recovery might look like both in the short run, but also impacts that evolve over the long run in response to recession consequences and monetary and fiscal policy responses.

Input variables for the recession scenarios include monthly changes in payroll employment, oil prices, stock prices, and financial conditions, and quarterly changes in house prices, business investment, and government investment. Other economic variables, such as GDP growth and inflation, are derived from the simulations.

GS, B of A and CBO revised forecasts are included for comparative purposes in the scenario analysis. In July, CBO updated its 10-year projections for key economic measures to reflect the impact of the COVID-19 recession and its view of the shape of recovery. Employment assumptions in the V-Recession scenario are benchmarked to CBO’s base-line projections. This reduced projected payroll employment by a very small amount of 150,000 by the end of 2030, an immaterial downward adjustment of less than 0.1%. However, CBO’s projection or real GDP in 2030 declined by 1.1% and its projection of nominal GDP declined 3.9%, reflecting somewhat slower GDP growth and lower expected inflation over the 10-year projection period.

GS’s view of recovery is extraordinarily optimistic with the negative GDP gap disappearing by 2022, while B of A’s and CBO’s forecasts and the V-Recession scenario project a sluggish and extended recovery.

1. Economic Scenarios

In the simulations I show the results of two scenarios over the timeframe from 2019 through 2030. Occasionally for some of the economic variables, for comparative purposes, I show forecasts or projections from Bank of America/Merrill Lynch (B of
A), Goldman Sachs (GS), the Congressional Budget Office (CBO), the Federal Open Market Committee (FOMC) and, in the case of the federal funds rate, the market’s forecast.

Charts show the following:

- **V-Recession** (blue line and diamonds in charts)
- **U-Recession** (green line and circles in charts)
- **Goldman Sachs** (gold line and circles in charts)
- **Bank of America/Merrill Lynch** (purple line and circles in charts)
- **Congressional Budget Office** (dotted brown line and +′s in charts)

2. **Real GDP Growth**

**Chart 1** and **Table 1** show real GDP growth projections for my two recession scenarios, B of A, GS and CBO. Note that in the short run the amplitude (recession trough and recovery peak) of real GDP growth in my **V-Recession** and **U-Recession** scenarios is similar to the B of A and CBO scenarios. GS is much more optimistic about a rapid and strong recovery. B of A’s forecast for 2020 is in line with the consensus, but its forecast for 2021 is below consensus in its “Base” case because it assumes that Covid-19 vaccine is not widely available until 2021 Q3. B of A’s “High” (optimistic) case assumes that vaccine is available in early 2021 – growth in this case is similar to the **V-Recession** scenario projection for 2021. B of A’s “Low” (pessimistic) case assumes Congress does not pass any additional stimulus and vaccines are not widely available until 2021 Q3.

After recovery, which began in May 2020, there is a modest secondary slowdown in real GDP growth in 2023 in my **V-Recession** and **U-Recession** scenarios which does not show up in the B of A and GS scenarios. This secondary slowdown is caused by three assumptions which are not present in the B of A and GS scenarios. First, I assume that after employment recovers in 2021 employment growth slows in 2022 and 2023 in response to demographic changes (baby boom retirements and lower immigration) that constrain growth in the eligible labor force. Second, productivity is depressed in 2022 and 2023 because of the large employment gap and this reduces real GDP growth. Third and importantly, I assume that federal budget deficits drop substantially after 2021 and this imparts a significant negative impulse to real GDP growth. The decline in productivity and the fiscal impulse in 2022 and 2023 and their negative impacts on real GDP growth do not appear to be captured fully in the B of A and GS forecasts.

In the long run, all scenarios follow a very similar pattern of stable or gradually decelerating growth. Growth deceleration reflects two phenomena. First, growth in
the labor force is gradually slowing over time due to slowing population growth and changing labor force dynamics, most notably the aging and retirement of baby boomers, but also declining immigration. Second, productivity growth is slower than the long-term historical average, which largely explains the lower long-term growth rates in Bill's scenarios.

Table 1
Real GDP Growth Forecasts
(year-over-year average)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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</tr>
<tr>
<td>GS</td>
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<td>-4.63</td>
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<td>1.75*</td>
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Bill's Scenarios

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<td>1.96</td>
<td>1.38</td>
<td>1.50</td>
<td>1.68</td>
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</tbody>
</table>

* B of A's long-term average rate of growth – 2023 and 2024 likely to be higher
* GS's long-term average rate of growth

Chart 2 and Table 2 index the level of real GDP to 100 in the fourth quarter of 2019 and show how the level evolves over time in the different scenarios. By 2029, CBO expects the U.S. economy to grow 17.0%. The historical pattern is that output lost
during a recession is never fully recovered in the subsequent recovery. CBO estimates that the cumulative loss in real GDP between 2020 and 2030 will be $30.0 trillion.

In my V-Recession scenario, real GDP grows 16.7%. The outcome is worse in the U-Recession scenario as output grows 15.8%. B of A’s forecast estimates a 11.7% increase in output by 2029, but B of A has not provided updated long-term projections for GDP growth beyond 2021 – GDP growth is likely to be greater than 1.7% annually in 2022 and possibly also in 2023 as economic recovery from the Covid-19 recession unfolds.

GS provides GDP forecasts only through 2023, but by that year GDP is already much higher than projected by CBO. GS’s bullish GDP forecast is apparent in Chart 2. Its outlook flows from its optimistic assumption of strong employment growth which far exceeds CBO’s analysis of likely labor force growth. It would be a nice outcome, but GS has not presented a compelling rationale for its employment growth assumption.

Forecasters are struggling with the abrupt and huge swings in measures of economic activity which have degraded the reliability of forecasts. The effect of the Covid-19 shock is moderating as time passes. Models and forecasts will be updated as additional data become available. Forecasts should improve as time passes and some of the hard to believe projections, such as GS’s cumulative real GDP growth, will either be validated by incoming data or be revised downward.

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
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<tr>
<td>CBO</td>
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<td>93.9</td>
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<td>100.6</td>
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<td>105.1</td>
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<td><strong>Bill’s Scenarios</strong></td>
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<tr>
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<td>110.6</td>
<td>112.1</td>
<td>113.8</td>
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3. Potential Real GDP Growth

B of A pegs long-run potential real GDP growth at 1.7%, GS = 1.75%, and CBO = 1.8%. Other estimates of potential growth vary between 1.7% and 2.1%, including the FOMC’s projections. I derive potential real GDP growth through 12-quarter moving averages of labor force growth and expected productivity increases. However, productivity has a distinct cyclical element. It rises initially as a recession commences because employers reduce workers more quickly than output. But then it falls during the late stages of recession and early stages of recovery because investment is depressed. As the recovery matures, investment recovers, and productivity improves. This phenomenon can be seen in the V-Recession and U-Recession scenarios in 2023-2026 in Chart 3 and Table 3.

In the longer run (2028-30), potential growth is projected to be in a range of 1.8% (V-Recession) to 1.7% (U-Recession), which is within the consensus range of 1.7% to 2.1%. However, the balance of risks is in the direction of lower long-term potential real GDP growth. Weak private and government investment growth would depress productivity and potential GDP growth. Also, there appears to be a negative relationship between the size of the federal public-debt-to-nominal-GDP ratio and potential real GDP growth. The unfolding explosion in this ratio could contribute to considerably weaker potential growth in coming years. Ongoing diversion of resources to government spending which lifts the accumulated deficit could have a
depressing effect on private sector dynamism. **CBO** believes a higher public-debt-to-GDP ratio is linked to slower GDP growth. Such an outcome, coupled with monetary and fiscal policies that favor high-income and wealthy individuals, could increase the potential in the long run for social and political dysfunction and this might contribute to weaker potential real GDP growth.

Recessions, based upon historical experience, result in a permanent reduction in the level of potential real GDP. Comparing the January and July 2020 **CBO** real potential GDP projections, this loss is equal to approximately 1% over 10 years. As will be seen in the charts below, this phenomenon has negative consequences for the public-debt-to-GDP ratio.

---

**Table 3**

Real GDP Potential Growth  
(year-over-year average)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
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<th>2026</th>
<th>2027</th>
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<tr>
<td>B of A</td>
<td>1.85</td>
<td>1.58</td>
<td>1.52</td>
<td>1.70*</td>
<td>1.70*</td>
<td>1.70*</td>
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<td>1.70*</td>
<td>1.70*</td>
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<tr>
<td>GS</td>
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<td>1.60</td>
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<td>1.75*</td>
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<td>1.75*</td>
<td>1.75*</td>
<td>1.75*</td>
<td>1.75*</td>
</tr>
<tr>
<td>CBO</td>
<td>1.85</td>
<td>1.74</td>
<td>1.44</td>
<td>1.70</td>
<td>1.80</td>
<td>1.84</td>
<td>1.84</td>
<td>1.84</td>
<td>1.78</td>
<td>1.80</td>
<td>1.82</td>
</tr>
</tbody>
</table>

* **B of A**’s long-term potential rate of growth
* **GS**’s long-term potential rate of growth
**CBO’s** estimate of potential real GDP growth in its July updated projections is depressed substantially during the recovery from the COVID-19 recession from 2021-24, but then is stronger by an average of 8 basis points from 2025-30 (1.80% vs. 1.72%).

4. **Real GDP Output Gap**

**Chart 4** and **Table 4** are derived by taking the difference between potential real GDP and forecast actual real GDP. 2019 Q4 real GDP was 102 basis points above potential (the positive real GDP output gap was 64 basis points in **CBO’s** January economic projections and increased to 92 basis points in **CBO’s** July updated economic projections and further to 102 basis points with **BEA’s** July revisions to National Income Accounts data). Recession put a quick end to this as economic slack exploded in Q1 2021 to -7.35\% (**V-Recession**) to -7.45\% (**U-Recession**). As the economy recovers, the negative output gap narrows slowly, reaching full potential by 2026 and remaining near that level thereafter.

**CHART 4 – Real GDP Output Gap**

\[CHART\]

**CBO’s** estimates of GDP growth during the recovery from the Covid-19 recession indicate that the negative output gap closes at about the same pace as in the **V-Recession** scenario until 2024, but closes more slowly thereafter and stabilizes at -0.5\% from 2028 to 2030.
Table 4
Real GDP Output Gap (end of year)

<table>
<thead>
<tr>
<th></th>
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<th>2020</th>
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<th>2022</th>
<th>2023</th>
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<th>2027</th>
<th>2028</th>
<th>2029</th>
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</thead>
<tbody>
<tr>
<td>B of A</td>
<td>1.01</td>
<td>-6.22</td>
<td>-4.83</td>
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<tr>
<td>GS</td>
<td>1.01</td>
<td>-5.32</td>
<td>-0.71</td>
<td>0.90</td>
<td>1.26</td>
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<td>CBO</td>
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Bill’s Scenarios

<table>
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<td>V-Recession</td>
<td>1.01</td>
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5. Productivity

Projections of productivity in the scenarios depicted in Chart 5 and Table 5 are determined by assumptions about business and government investment, employment growth rates and the employment gap. (An alternative specification includes the log of the ratio of federal public debt to nominal GDP, which results in much lower estimates of future productivity, and therefore lower estimates of real GDP growth, as the size of the federal public debt ratio grows over time.)

Based upon historical patterns, productivity growth goes through four phases over the economic cycle. First, productivity generally is stable or falls a bit during the recession because employers reduce workers less quickly than output falls. Second, productivity rises during the early stage of recovery because output recovers faster than employment increases. Third, as the recovery progresses, productivity declines because investment is depressed. Finally, as the recovery matures and the employment gap tightens, investment recovers, and productivity rises. This progression is generally evident in the V-Recession scenario in Chart 5 and Table 5, although the abrupt and substantial decline in hour worked during 2020 Q2 resulted in a significant increase in productivity, which differs from the historical pattern.

This four-phase cyclical pattern may not follow exactly the historical pattern during and following the current recession. Because of the abrupt implementation of social distancing and the accompanying lockdown of economic activity, both output and employment fell precipitously immediately – the net result was a surge in productivity in 2020 Q2.

As shown in Chart 5 and Table 5, productivity is forecast to rise a little during 2020 in the V-Recession scenario. (Data for B of A have not been refreshed and, therefore, are not meaningful.) The forecast sharp rise in productivity in 2021 is consistent with phase 2, with output recovering more rapidly than employment. The
return to weak productivity growth in 2022 and 2023 is consistent with phase three and is driven by very weak investment growth. After 2023 productivity gradually rises and approaches CBO's forecast. CBO's productivity trend generally follows the same pattern as that in the V-Recession scenario, however, productivity growth from 2025-30 averages 1.85% in CBO's projections but a slightly lower 1.67% in the V-Recession scenario.

In the alternative scenario, which includes the impact of a rising public debt to GDP ratio, productivity declines progressively over time as resources are diverted from the private sector to the public sector – this is reflective of a private sector which is more productive than the government sector.

<table>
<thead>
<tr>
<th>Year</th>
<th>B of A</th>
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<th>CBO</th>
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<th>U-Recession</th>
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</table>

* GS’s long-term average rate of productivity growth
6. Payroll Employment Growth

Because of the implementation of social distancing policies on a nationwide basis, payroll employment plummeted substantially and quickly in March and April 2020. Employment rebounded in May and June as lockdowns ended and reopening commenced. The improvement in employment continued in June but at a slower rate as an escalation in Covid-19 cases led to pauses and reversals in reopening. By August 42% of the jobs lost in March and April had been recovered. Views differ about how the remaining lost jobs will be recovered. The upsurge in Covid-19 cases in June and July demonstrated the importance of social distancing and the wearing of masks in containing the contagion rate. Reopening likely will proceed on a more measured basis and most locales will require people to wear masks in public and business spaces. Ultimately, how quickly jobs will be recovered will depend on the development and distribution of effective vaccines. Increasingly, it appears that this will occur by the end of 2021 Q2 and possibly a bit sooner. In the meantime, the scarring effects of the pandemic on many organizations is mounting. As economic damage continues to accumulate, it will extend the length of time to achieve full recovery. Nonetheless, there is a considerable range of opinion about the shape of the recovery in employment. CBO's forecast reflects the consensus. GS's forecast is one of the most optimistic.

Following the surprise increase in employment in May both B of A and GS revised their employment forecasts to reflect further gradual gains over the remainder of 2020. Both have tweaked their forecasts further since then in response to June and July employment data. I made similar adjustments in my V-Recession and U-Recession scenarios in May, made further adjustments in July to benchmark employment assumptions to CBO's updated economic projections, and fine-tuned employment projections in response to the July employment data. These updates are shown in Chart 6 and Table 6.

The U-Recession scenario incorporates the possibility of subsequent infection waves, but also the possibility of slower recovery because of secondary negative impacts on economic activity, such as bankruptcies or pessimism that leads to delays in investment and rehiring.

Demographic changes will slow the rate of employment growth in coming years. Lower fertility, slowing immigration, and aging Baby Boomers will all contribute to the slowing growth trend. The annual growth rate in employment is expected by CBO to slow to about 0.5 percent over the next 10 years.
Table 6
Payroll Growth Forecasts
(annual rate)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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<tbody>
<tr>
<td>B of A</td>
<td>1.42</td>
<td>-6.26</td>
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<td>GS</td>
<td>1.42</td>
<td>-4.48</td>
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<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CBO</td>
<td>1.42</td>
<td>-8.77</td>
<td>4.24</td>
<td>1.47</td>
<td>1.27</td>
<td>1.29</td>
<td>1.18</td>
<td>1.07</td>
<td>1.03</td>
<td>0.76</td>
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**Bill's Scenarios**

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
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<th>2021</th>
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</thead>
<tbody>
<tr>
<td>V-Recession</td>
<td>1.42</td>
<td>-6.77</td>
<td>3.07</td>
<td>1.49</td>
<td>1.01</td>
<td>1.00</td>
<td>0.90</td>
<td>0.89</td>
<td>1.03</td>
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<td>1.57</td>
<td>0.97</td>
<td>0.96</td>
<td>0.84</td>
<td>0.83</td>
<td>0.98</td>
<td>0.67</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Notice that **GS**’s employment growth assumptions in 2020 and 2021 are considerably more optimistic than **CBO**’s and those in the **V-recession** scenario. Payroll employment in January 2020, the last month of the recent expansion, was 152.2 million. In the **V-Recession** scenario that level is not reached again until August 2025 and not until October 2025 in **CBO**’s updated payroll employment projection. In contrast, **GS** expects payroll employment to recover more than 3 years sooner by February 2022. By the end of 2023, the last year **GS** has provided a payroll employment forecast, the number of employed workers rises to 156.6 million, a number that is not reached in **CBO**’s projections until 2028 Q4, five years later. We can hope **GS**’s optimism prevails, but what seems more likely is that **GS**’s employment forecasting methodology is flawed. If that is the case, then other **GS**
forecasts, including the unemployment rate, real GDP growth and real consumer spending growth are also too optimistic.

In a similar vein, B of A’s employment assumptions are more optimistic, but to a much lesser extent, and are within a reasonable range through 2021, about 900,000 higher than CBO’s projection.

7. Unemployment Rate

Chart 7 and Table 7 translate payroll growth in Chart 6 and Table 6 to estimates of the U-3 unemployment rate. Unemployment peaked in April at 14.7% and declined to 11.1% at the end of 2020 Q2.

All unemployment rate forecasts fall as recovery proceeds, but a large negative employment gap remains for several years. That is even the case for optimistic GS which expects the unemployment gap will still be about 1% by the end of 2023. The unemployment gap is still about 2% at the end of 2023 in CBO’s projections and the V-Recession scenario.
Table 7
Unemployment Rate (end of year)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
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<tbody>
<tr>
<td>B of A</td>
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<td>9.10</td>
<td>8.00</td>
<td></td>
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<tr>
<td>GS</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CBO</td>
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<td>10.51</td>
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<td>5.85</td>
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<td>CBO-NAIRU</td>
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<td>4.34</td>
<td>4.31</td>
<td>4.29</td>
<td>4.27</td>
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<td>4.23</td>
<td>4.21</td>
<td>4.18</td>
<td>4.15</td>
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<td>Bill-NAIRU</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
<td>4.10</td>
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<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
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<tbody>
<tr>
<td>V-Recession</td>
<td>3.53</td>
<td>9.45</td>
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<td>6.24</td>
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<td>5.42</td>
<td>4.92</td>
<td>4.60</td>
<td>4.45</td>
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<tr>
<td>U-Recession</td>
<td>3.53</td>
<td>9.62</td>
<td>7.60</td>
<td>6.72</td>
<td>6.47</td>
<td>6.26</td>
<td>6.06</td>
<td>5.79</td>
<td>5.33</td>
<td>5.07</td>
<td>4.95</td>
</tr>
</tbody>
</table>

8. Core PCE Inflation

In consensus forecasts (GS, B of A, and CBO), core PCE inflation in Chart 8 and Table 8 initially follows a predictable pathway in response to recession. As demand collapses there is downward pressure on inflation. Then when recovery is well underway inflation recovers to pre-recession levels, somewhere between 2023 and 2024.

However, inflation does not recover in the V-Recession and U-Recession scenarios. Indeed, inflation weakens over time and flirts with deflation. My model is responding to the unprecedented precipitous and substantial drop in employment and the associated collapse in demand for goods and services. It is more likely, however, that inflation will be sticky and will not decline as rapidly as indicated in the V-Recession scenario. Generous income support through PPP, stimulus checks and supplemental unemployment benefits should help moderate the decline in demand. Even though the core inflation pathways in the V-Recession and U-Recession scenarios probably overstate the prospective decline in core inflation, they suggest that risks could be tilted in the direction of lower inflation.

After 2023 core PCE inflation in the V-Recession and U-Recession scenarios falls to near zero and remains near that level through 2030. Other forecasters uncritically assume that inflation in the long run will be at the FOMC’s 2.0% target. The main driver of low inflation in the long run is anemic employment growth. While this might seem nonsensical, one need only look at what has happened in Japan and is in the process of happening in Europe to see the downward pressure placed on inflation by stagnate or negative population growth. The central banks in both Japan and Europe are probably fighting a
losing battle in their attempted policy actions to raise inflation. Demographic trends are not as challenging in the U.S., but nonetheless, the FOMC is unlikely to be successful in its quest to raise inflation to 2%. Excess global supply and ongoing innovation are additional factors that will contribute to downward pressures on inflation over time.

It should be noted, however, that there is a plausible alternative scenario. Rather than disinflation or deflation, escalating inflation could result from the explosion in government deficit spending and the surge in the federal-debt-to-GDP ratio. This scenario is the classic one of too much money chasing too few goods and services. In other words, demand outstrips supply and results in upward pressure on prices. If this scenario develops, it would trigger an increase in inflation expectations which would amplify upside inflation pressures.

Table 8
Core CPE Inflation Forecasts
(annual rate)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<th>2026</th>
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<th>2028</th>
<th>2029</th>
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</thead>
<tbody>
<tr>
<td>B of A</td>
<td>1.62</td>
<td>1.18</td>
<td>1.36</td>
<td>2.00</td>
<td>2.00</td>
<td>2.00</td>
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<tr>
<td>CBO</td>
<td>1.62</td>
<td>0.25</td>
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<td>1.65</td>
<td>1.77</td>
<td>1.91</td>
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Bill’s Scenarios

<table>
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<th>2022</th>
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<tr>
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<td>1.62</td>
<td>1.08</td>
<td>0.59</td>
<td>0.79</td>
<td>0.56</td>
<td>0.18</td>
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<td>-0.50</td>
<td>-0.02</td>
<td>0.09</td>
<td>-0.46</td>
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<tr>
<td>U-Recession</td>
<td>1.62</td>
<td>1.07</td>
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<td>0.63</td>
<td>0.12</td>
<td>-0.50</td>
<td>-0.50</td>
<td>-0.20</td>
<td>-0.11</td>
<td>-0.50</td>
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</table>
9. Consumer Spending – Nominal and Real

Chart 9A and Table 9A show projections for growth in nominal consumer spending for the GS, B of A, CBO, V-Recession and U-Recession scenarios and Chart 9B and Table 9B show projections of real consumer spending growth.

Table 9A
Nominal Consumer Spending Growth Rate Forecasts
(annual rate)

<table>
<thead>
<tr>
<th>Year</th>
<th>B of A</th>
<th>GS</th>
<th>CBO</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>-4.66</td>
<td>-3.81</td>
<td>-4.75</td>
</tr>
<tr>
<td>2021</td>
<td>4.11</td>
<td>8.56</td>
<td>3.96</td>
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<td>2022</td>
<td>4.18</td>
<td>5.56</td>
<td>4.35</td>
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<td>2023</td>
<td>3.74</td>
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<td>2029</td>
<td>3.74</td>
<td>2.29</td>
<td>1.69</td>
</tr>
</tbody>
</table>

Because inflation projections are much lower in the V-Recession and U-Recession scenarios than projections of other forecasters, growth rates in nominal consumer spending exhibit a similar below-consensus pattern in Chart 9A and Table 9A. In the long run, nominal consumer spending growth averages in the vicinity of 4% in B of A’s and CBO’s forecasts, but only 2% in the V-Recession and U-Recession scenarios. The difference is due entirely to a long run inflation forecast of 0% versus
2%. The difference disappears in Chart 9B and Table 9B which show real (inflation-adjusted) consumer spending growth.

Notice in Chart 9B and Table 9B that growth in real consumer spending slows over the longer run in all forecasts to approximately 2%. This results directly from the assumption that consumer spending growth, in the aggregate, depends on employment growth, which is projected to slow down to the underlying natural rate of growth in the labor force, and growth in wages, which is expected to be contained by inflation which does not exceed 2%.

### Table 9B
Real Consumer Spending Growth Rate Forecasts (annual rate)

<table>
<thead>
<tr>
<th>Year</th>
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<th>GS</th>
<th>CBO</th>
<th>Bill's Scenarios</th>
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<td>4.79</td>
<td>3.37</td>
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</table>
10. Interest Rates – Federal Funds Rate

As can be seen in Chart 10 and Table 10, the federal funds rate is zero in 2020 in all scenarios, reflecting the recent rate cuts by the FOMC.

![Chart 10 - Federal Funds Rate](image)

**Table 10**
Federal Funds Rate (average for the year)

<table>
<thead>
<tr>
<th></th>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
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<td>.04</td>
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</table>

Most forecasts expect the federal funds rate to remain at the zero bound through 2023. CBO’s updated July 2020 projections don’t include an increase in the federal funds rate until 2026. In my V-Recession and U-Recession scenarios the federal funds rate remains at the zero bound through 2030. My model’s projection of low rates over the longer run stems from slowing employment growth and falling inflation, a result which had been deeply outside of the consensus view but may become the consensus view in the aftermath of the Covid-19 recession.
11. Interest Rates – Ten-Year Treasury Note Yield

Currently, the 10-year Treasury yield is approximately 0.7%. In Chart 11 and Table 11, the 10-year yield remains below 2% in all scenarios and near zero after 2022 in the V-Recession and U-Recession scenarios. CBO, in its July 2020 update, projected the 10-year yield not to exceed 2% until 2026 and rise only to 3% by 2029.

In the August 2019 Outlook Assessment, I described the rationale that could result in long-term interest rates falling to near zero in coming years. The question now that we are experiencing a recession, which has flattened the Treasury yield curve to near zero across most maturities, is whether that rationale remains valid.
Prior to the impact of Covid-19, many thought that bond prices were in a bubble, which implied that yields were abnormally low based on market misperceptions rather than fundamentals. With respect to bubbles, George Soros opined: “Every bubble has two components: an underlying trend that prevails in reality and a misconception relating to that trend. When a positive feedback develops between the trend and misconception, a boom-bust process is set in motion. The process is liable to be tested by negative feedback along the way, and if it is strong enough to survive these tests, both the trend and the misconception will be reinforced. Eventually, market expectations become so far removed from reality that people are forced to realize that a misconception is involved.” This commentary explains exactly what happened during the housing bubble a decade ago and we know how that ended. In this case bond bubble adherents argue that the misperception is that inflation is dead.

Because recession crushes aggregate demand, prices will fall, so low rates are entirely consistent with fundamentals at this time. The question is whether inflation will stay low once recovery gathers momentum. My inflation model projects that not only will inflation remain low, it will be near zero in the long run. In addition, monetary policy will continue to focus on buying Treasury securities in large volumes and this will put a lid on rate increases.

But, could unprecedented deficit spending and bond buying by the Fed unleash a burst of inflation once the economy recovers? This is a question that will be hotly debated in coming months. My view, as articulated in the August 2019 Outlook Assessment, is that inflation is headed down and rates will remain low. For a variety of reasons, we are headed in the direction Japan has experienced over the past 2 decades – huge government fiscal deficits substantially funded through bond purchases by the Bank of Japan, no meaningful inflation and zero interest rates. My econometric model’s projections are consistent with this view.
12. Federal Budget Deficit

Charts 12 and 13 and Tables 12 and 13, which depict the annual federal budget deficit as a percentage of nominal GDP (Chart 12 and Table 12) and the ratio of the cumulative federal budget deficit to nominal GDP (Chart 13 and Table 13), are alarming. This was true before the onset of the Covid-19 recession and is even truer now as we calibrate the likely impacts of fiscal responses to the recession on the annual federal budget deficit and the accumulated federal debt-to-GDP ratio over time.

Normally, I compare various forecasters’ federal budget deficit projections with those of CBO. That comparison is only possible for 2020 and 2021 because CBO has not yet published updated estimates for the federal budget deficit for 2022 – 2030.

In its January 2020 projections, which were made before the Covid-19 recession, CBO expected the annual budget deficit to range between 4.3% and 5.1% annually for the next 10 fiscal years. The cumulative deficit according to CBO was projected to rise from 78.0% in 2019 to 96.4% in 2030.

CBO has restated its deficit projections for fiscal 2020 and 2021 and has updated nominal GDP assumptions for 2020 – 2030. These revisions raised the expected deficit in 2020 to 18.3% and 9.7% in 2021 (Chart 12 and Table 12) and raised the federal-debt-to-nominal-GDP ratio to 101.6% in 2020 and 104.5% in 2021 (Chart 13 and Table 13). This still understates the upside risk for two reasons. First, a weak and extended recovery seems likely and this would increase annual deficits beyond fiscal 2021. Second, many of the Trump personal income tax cuts, which are scheduled for repeal after 2025, will likely be extended. In CBO’s more likely alternate scenario, published in January, the cumulative public-debt-to-GDP ratio rose about 6 additional percentage points by 2029 compared to its baseline projection.

What is alarming about Charts and Tables 12 and 13 is what happens to annual budget deficits and the cumulative deficit under the V-Recession and U-Recession scenarios. In the case of the V-Recession, the annual deficit jumps immediately to 19.8% in fiscal 2020. B of A thinks it will be higher at 21.3%. The spike in the deficit is a victim of a $4 trillion deficit in fiscal 2020, and this could increase if Congress passes Phase 4 stimulus legislation. The huge fiscal 2020 deficit results from additional federal spending and lost revenues and a huge decline in nominal GDP. By comparison, the peak budget deficit during the Great Recession was 9.8% in fiscal year 2009.
But what is even worse is that when recovery occurs the annual budget deficit will not return to the 4.5% to 5.0% level projected by CBO but to a much higher level of 6% to 7%. This is a direct result of both a higher numerator and a lower denominator.

As for the cumulative budget deficit shown in Chart 13 and Table 13, it simply explodes and rises to 145% of nominal GDP in fiscal 2030 in the V-Recession scenario. This is a level that rivals Italy’s current troublesome public-debt-to-GDP ratio. Although the U.S., as the world’s reserve currency, probably can handle this large a debt-to-GDP ratio without financial disaster ensuing, nonetheless, with an aging population and mushrooming entitlements, it signals significant trouble ahead.

Table 12
Annual Federal Budget Deficit
(end of fiscal year)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tbody>
<tr>
<td>B of A</td>
<td>-4.57</td>
<td>-21.3</td>
<td>-11.7</td>
<td>-7.03</td>
<td>-6.55</td>
<td>-4.66</td>
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<td>-5.11</td>
<td>-4.96</td>
<td>-4.70</td>
<td>-5.32</td>
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<tr>
<td>GS</td>
<td>-4.57</td>
<td>-20.4</td>
<td>-12.0</td>
<td>-9.70</td>
<td>-4.96</td>
<td>-4.74</td>
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<td>-5.11</td>
<td>-4.96</td>
<td>-4.70</td>
<td>-5.32</td>
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<tr>
<td>CBO*</td>
<td>-4.57</td>
<td>-18.3</td>
<td>-9.70</td>
<td>-4.96</td>
<td>-4.74</td>
<td>-4.66</td>
<td>-5.11</td>
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<td>-4.70</td>
<td>-5.32</td>
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<table>
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<th></th>
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<tr>
<td>V-Recession</td>
<td>-4.57</td>
<td>-19.8</td>
<td>-11.0</td>
<td>-8.00</td>
<td>-6.88</td>
<td>-6.68</td>
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<td>-6.38</td>
<td>-6.67</td>
<td>-6.92</td>
<td>-7.17</td>
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* GDP updated, but budget deficits not updated for 2022-30
Table 13
Ratio of Federal Public Debt to Nominal GDP
(end of fiscal year)

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
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<th>2026</th>
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<tbody>
<tr>
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<td>78.01</td>
<td>104.1</td>
<td>110.1</td>
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<td>GS</td>
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<td>101.7</td>
<td>105.5</td>
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</tr>
<tr>
<td>CBO*</td>
<td>78.01</td>
<td>101.4</td>
<td>104.2</td>
<td>105.2</td>
<td>105.9</td>
<td>106.4</td>
<td>107.2</td>
<td>107.8</td>
<td>108.1</td>
<td>109.2</td>
<td>110.2</td>
</tr>
</tbody>
</table>

*Updated for 2020 and 2021; GDP updated for 2022-30 but accumulated deficit not updated

And, were that not bad enough, the alternate **U-Recession** scenario is really ugly. Deficits are even bigger because nominal GDP growth is depressed to an even greater extent by the absence of inflation and weak aggregate demand. The accumulated deficit soars to 153% in fiscal 2030.
Observations about the 2020 U.S. and global economic outlook and risks to the outlook are listed below. As events unfold during 2020, this will enable the reader to track my analytical prowess. Observations which are on track are denoted by “+”; observations not on track are denoted by “-“; indeterminate observations are denoted by “?” and general observations are denoted by “√”.

Forecasting accuracy, which is always difficult, becomes much more so when the economy is strong and above the long-term sustainable trend level, and when significant economic imbalances have accumulated, which is the situation in which the U.S. economy finds itself at the beginning of 2020. The difficulty in forecasting involves pinpointing the turning point. Almost no one does this well. Recession forecasting models are relatively crude and reliable forecast lead times have been very short. What we know from experience is that recessions occur when the economy becomes overheated and the Fed is tightening. While the economy is operating above full potential, monetary policy is easy and seems likely to remain so. This should keep recession risk during 2020 at a moderate level. In addition, the timing of recession onset depends upon human psychology. And, when investor, business and consumer psychology is highly positive, as it is as 2020 commences, it tends to feed upon itself and sustain momentum, often for longer than seems possible.

While 2020 looks set to be a good year with growth near or slightly above full potential, outcomes by the end of the year could turn out to be significantly different and worse than outcomes expected at the beginning of the year, if some of the risks which have been building disrupt financial markets and cause fear and anxiety, which the Fed is unable to reverse by additional easing of monetary policy.

Alas, the warning penned in the previous paragraph has come to pass. Measures taken to limit the spread of the coronavirus have disrupted normal economic activity on a broad basis, crushed confidence and tanked financial markets. The U.S., European and other economies will be in recession during at least Q2. Forecasts made at the beginning of the year have become totally irrelevant, which means that there will be a lot of red ink for the remainder of the year in this assessment of the 2020 outlook.
1. **U.S. – 2020 – Month-by-Month Review:** (The paragraphs that follow provide a summarized snapshot of the economy’s performance month-by-month)

   **January** began with the surprise assassination of an Iranian major general by the U.S. and raised fears of a shooting war between the U.S. and Iran. However, after Iran responded with a token attack on U.S. military bases in Iraq, tensions quickly subsided. The stock market continued climbing, with several daily all-time highs in the S&P 500 average. Oil prices briefly rose with the war scare but by mid-January were lower than at the end of December. The December employment report was weaker than expected but employment continued to grow above the long-term potential rate. Generally, data reports softened a bit at the end of 2019, but with the exception of C-suite business executives, sentiment remains at cyclical highs and prospects for growth at or slightly above potential during 2020 seem bright. January concluded with escalating concerns about the potential impacts of coronavirus on the Chinese economy and global growth.

   **February’s** major development was the outbreak of the coronavirus pandemic in China, which is likely to slow global and U.S. growth modestly, but temporarily. Market volatility increased initially in response to uncertainties about the potential severity of the pandemic but market participants appear to have concluded that the impacts on economic activity will be limited and transitory. Except for China, economic data released in January and early February were not impacted by the coronavirus. In fact, in the U.S. the data reflected increasing consumer confidence, strong employment gains, new highs in stock prices and improvement in manufacturing, which had been in recession during 2019 in the U.S. and other developed economies. Housing activity strengthened in response to lower interest rates, but business investment spending weakened further from 2019’s dismal pace.

   **Significant February Data Revisions.** The Bureau of Labor Statistics (BLS) benchmarked employment data which reduced payroll employment growth and decreased population growth, which boosted the labor participation rate. The Congressional Budget Office (CBO) released its revised 10-year economic and federal budget deficit projections and extended the forecast period to 2030. CBO’s revisions raised GDP growth in 2020 and 2021 but reduced modestly projections of productivity, inflation, wage growth, and potential and actual GDP growth from 2022 to 2030. In some cases, both sets of data revisions impacted 2020 forecasts for certain measures. Where pertinent, impacts on forecasts are noted.
March was a month of panic in financial markets as fears exploded that the coronavirus global pandemic and oil price collapse would result in a potentially devastating global recession. The FOMC initially responded with a rare mid-meeting 50 basis points cut in the federal funds rate, which did nothing to assuage market anxiety. On March 12th, the New York Fed implemented extensive liquidity measures to respond to market funding pressures, including one- and three-month term repos and a continuation of $60 billion in monthly purchases of Treasury securities for the Fed’s portfolio but with purchases broadened to all maturities rather than being limited to Treasury bills. On March 15th the FOMC to cut rates to zero and expanded its program of large asset purchases (otherwise known as QE-quantitative easing) for its balance sheet. Governments around the world mandated social distancing by limiting travel, closing schools and many retail establishments, and limiting the size of public gatherings, which curtailed sporting events and artistic performances. While these policies will reduce virus cases and deaths, hopefully substantially, they will slow economic activity substantially and place enormous financial burdens on individuals whose employment and compensation are interrupted and also on many businesses, especially those in the travel, retailing and entertainment industries. As the month progressed it became increasingly apparent that the disruptions to normal life activities would be severe and would persist for several months, which means that the financial consequences will cumulate and pose solvency challenges for many individuals and businesses.

April – Lockdown of most of the U.S. economy and many other global economies was in place during April. Unemployment soared and is likely to top 15% when data is reported for April in early May. In Puget Sound in Washington State where I am sheltering in place, it is estimated that 40% of area jobs will result in layoffs or wage cuts due to social distancing implemented to contain the Covid-19 pandemic. Congress and the Fed have implemented a plethora of programs to stabilize financial markets and help individuals and businesses adversely impacted by the shutdown to weather the storm. Although volatility still gripped financial markets, financial conditions eased during the month and the stock market experienced a bear market relief rally. As the month progressed discussions began to emerge about when and how to restart the economy. Coronavirus testing and contact tracing is essential to successful reopening without triggering new waves of infections. Unfortunately, because supplies are not yet sufficient and implementation of procedures will take time, reopening the economy is likely to occur slowly. Several countries which loosening social distancing have experienced second contagion waves. Increasingly, unfolding information indicates that recovery will take time and it might take two or more years to return to full employment.
May – Expected bad economic news began to be reported in May and it was ugly. Unemployment soared to over 23 million, 14.7% of the labor force, but the collapse in employment was even worse because 8 million dropped out of the labor force and were not counted as unemployed and another 5 million were forced to work part-time taking the an alternative measure up to 22.1%. By mid-May some states began to loosen social distancing requirements but there is worry that reopening may be premature and lead to a secondary surge in Covid-19 infections, as has happened in Japan. The stock market recovered much of the losses and the S&P average was down only 9.5% YTD in mid-May, but much of the recovery in stock prices has come from technology companies such as Amazon and Microsoft.

June – For better or worse, and we'll know better in a couple of months, the U.S. economy began to reopen. And, with modest reopening steps, market optimism blossomed like spring flowers. Some of the May data reports bounced back partially from April's awful levels. Unemployment fell to 13.3%, which is still a really bad number. And, retail sales gained 17.7% from April to May, although May’s sales were still 8.3% below January’s level. The S&P 500 stock index closed on June 8th with a small gain for the year, only to lose nearly 6% the next day. It is interesting to me to watch the optimistic reaction to numbers with a plus sign in the midst of the worst economic downturn since the Great Depression of the 1930s. While April may well mark the bottom of the recession, history and level-headed analysts, including members of the FOMC, see a long and painful recovery ahead, probably several years in duration.

July – CBO revised its economic projections for the next 10 years to reflect the impact of the Covid-19 recession and its view of the recovery trajectory. Recovery is very slow. Real GDP does not match the 2019 Q4 peak until 2021 Q4. The U-3 unemployment rate, which was 3.5% in February 2020 before spiking to 14.7% in April is still a lofty 7.6% in 2021 Q4 and doesn’t break below 5% until 2027 Q1. The federal funds rate remains at the zero lower bound until 2026 Q1. This grim assessment may prove optimistic. Hopes for rapid recovery which accompanied reopening of economic activity in many communities in May have been dashed by a resurgence in the Covid-19 pandemic. Many states have hit the pause button on reopening and an increasing number are in rollback mode including California most recently. No one wants to go back to a broad-based lockdown that decimated economic activity in April. But, it is now apparent that the pandemic has not been tamed and that means that reopening economic activity will proceed in fits and starts with occasional setbacks. Recent developments have had a chilling effect on consumer sentiment across the board regardless of local social distancing policies. Thus, recovery in consumer
spending is likely to be slow and the damage to many establishments will continue to accumulate and will amplify the fatality rate. Curiously, the stock market continues its winning ways, although most of the positive momentum is coming from a handful of mostly technology stocks.

**August** – BEA revised national income accounts data, which include GDP, personal income and inflation statistics, from 2015 to 2020. Generally, the revisions were minor with small increases in 2017 and 2018 and small downward adjustments in 2019. This reinforced the deceleration trend in the economy that began in 2018 Q4. The big stories in August included the resurgence in Covid-19 cases and pauses and rollbacks in reopening and the failure of Congress to enact Phase 4 fiscal stimulus legislation. Both developments will slow the pace of recovery. However, much of the data reported in August covering June and July reflected ongoing recovery from the April lockdown of the economy. Financial conditions continued to ease and stock prices rose to new highs for the year. Optimism is increasing that effective vaccines will be available in early 2021 and will be widely distributed by the middle of the year. As is the case with much learning, people and businesses are learning how to cope with the coronavirus and continue their lives. Thus, it is unlikely that there will be another downturn in economic activity. Uncertainty has shifted to a question of how rapidly recovery will proceed. The consensus believes that full recovery will take several years, but a handful of optimists, including **GS**, believe that recovery will be substantially complete in a couple of years.

- **Going forward it is all about how severely economic activity is depressed by policies to contain the spread of Covid-19; increasingly, emerging data reports indicate that the initial rebound from the April nadir have been stronger and quicker than expected; however, the recent resurgence in the pandemic is evidence that reopening proceeded too quickly without adequate health safety measures in place**

- **Strategies that have proven effective in containing the Covid-19 pandemic include testing, mandatory wearing of masks, contact tracing, social distancing and limits on out of area travel; China and most European nations have been successful in deploying these measures; the U.S. and many other countries were not as disciplined and therefore were not as effective in containing the pandemic, belatedly the U.S. is embracing more robust health management measures**

- **Updated economic forecasts appear to capture reasonably well short-run consequences of social distancing policies, forecasts have**
been adjusted continually, first adjusted upwards to reflect the faster than expected reopening, but then adjusted downwards in response to the second wave of Covid-19 cases and pauses and rollbacks in reopening; all forecasters agree that the worst has passed but there is considerable differences going forward about how quickly full recovery will unfold

- After turbulence in financial markets accompanied the initial global spread of the Covid-19 pandemic in February and March, global financial markets recovered quickly and stabilized in response to swift action by the Fed and other central banks to provide liquidity and credit facilities; unlike other past recessionary episodes, financial conditions have remained relatively easy which along with very low interest rates has supported prices of financial assets

- While timely and substantial monetary and fiscal policy intervention prevented the potential unraveling of financial markets and economic activity, this victory came not without cost; one cost is the worsening of wealth inequality and greater income inequality may develop during recovery as high-paying skilled jobs recover faster than low-paying service jobs; another cost is a potential blow to productivity and potential growth in the longer run by limiting failures of zombie companies and a policy mix that is more effective for large established companies than for small businesses (as one commentator put it: “…the Federal Reserve and Treasury’s cozy relationship with Wall Street that’s glaringly one-sided against Main Street.”

- China’s economy which came close to a standstill in January and February due to draconian containment measures on the population in response to Covid-19, began to recover in March and by May Chinese industrial activity was showing modest YoY growth, but recovery in consumer spending was still underway as of July data reports; unlike the U.S. China’s health safety policies have been effective and economic activity has normalized; however, economic growth will have difficulty returning to pre-pandemic rates due to the global Covid-19 recession and declining international trade

- Japan, which appeared to have contained the spread of coronavirus successfully in March, eased restrictions but by mid-April a secondary surge in infections led to the declaration of a national emergency, which was lifted in early June only to be followed by a third surge in cases; Sweden also reopened its economy early and experienced a second wave of infections; these developments point
out the likely difficulty of attempting to return to normal economic activity too quickly without effective health safety protocols

- Although the unemployment rate was at a 50-year low in February, data had been emerging prior to the Covid-19 lockdown that growth in employment and hours worked was slowing; the response to the Covid-19 pandemic has changed everything – the unemployment rate jumped in March and soared to 14.7% in April, 13.3% in May, 11.1% in June and 10.2% in July; BLS acknowledges that these numbers understate the actual level of unemployment because furloughed workers are not counted as unemployed, which explains in part the discrepancy the unemployment and unemployment insurance continuing claims statistics

- Hourly wage increases reported by BLS jumped in April and May, but the increase occurred for troublesome reasons, a greater proportion of low-wage workers lost jobs and this compositional impact pushed up reported wage growth; as GS’s leading wage measure indicates, wage growth is likely to slow later in the year

- The Federal Reserve conducted a supplemental survey of consumer finances in April and found that the unemployment rate for households earning less than $40,000 annually had risen to 40%; this worsening in economic inequality is troubling; moreover, data indicate that the pandemic has had a much more severe impact on minorities and people in low-wage service jobs

- While consumer sentiment remained very favorable through February, aggregate income and spending growth were gradually slowing; consumer sentiment measures plunged in March, April and May, stabilized at a low level in June and then began to fade in July as Covid-19 cases shot up; sentiment measures are correlated positively with consumer spending and consumer spending is the primary driver of economic activity; the renewed decline in consumer confidence, should it deepen, will cause recovery to slow down; sentiment stabilized in early August but the failure Congress to enact Phase 4 fiscal stimulus may lead to further decline

- Productivity, a volatile and unreliable metric in the short run, gained 1.7% in 2019, the best showing in several years; however, weak investment growth in 2019 and an expected decline in 2020 will probably result in much lower productivity in 2020; this would put downward pressure on potential real GDP growth; investment is likely to remain depressed beyond 2020; productivity surged in Q2 as hours worked dropped more than output – this is likely a
temporary phenomenon caused by the abruptness of the economic
lockdown in April

✓ Easy monetary policy ended 2019’s yield curve inversion, but longer-
term interest rates remained artificially depressed which is
contributing to lackluster investment and productivity growth and
which, in turn, has exacerbated wealth inequality; prior to the Covid-
19 pandemic, long-term interest rates fell in early 2020 and the yield
curve flattened; when markets began to sense the potential
consequences of Covid-19 in late February, interest rates fell
precipitously; by mid-March the FOMC cut short-term interests to
near zero and most long-term interest rates were below 1 percent;
the market expects the yield curve to remain near the zero lower
bound for at least the next two years and CBO does not expect an
increase in the federal funds rate to occur until 2026

✓ 2019 ended with manufacturing still in recession; survey data
indicated a reversal in momentum in January, but fallout from the
Covid-19 pandemic quickly buried this green shoot; Evercore ISI’s
trucking survey, a good indicator of the strength of manufacturing,
has contracted since the onset of the Covid-19 recession although
the rate of contraction moderated considerably in June and rose in
August as businesses began to replenish depleted inventories; other
measures of manufacturing have rebounded but the level of activity
remains well below pre-Covid-19 levels

✓ Business profitability momentum weakened in 2019 and combined
with policy uncertainty contributed to slower growth in business
investment; the expected improvement in business profitability
during 2020 has been dashed by the collapse in consumer spending
and earnings forecasts have been slashed

✓ Many small businesses may never reopen in spite of the Payment
Protection Program; particularly adversely impacted are restaurants,
hotels, cruise lines, sporting events, airline business and leisure
travel, movie theaters and casinos; the Wall Street Journal reported
that 41% of the Yelp-listed businesses closed between March 1st and
June 15th would never reopen – more recent data don’t paint such a
dire picture; the fragile revenue models of public and private
colleges and universities are under extreme stress and may result
in a significant number of closures and mergers in the next few years

✓ At the height of the global pandemic in April, global growth fell 17%;
by early August this decline had been cut 7.5% and recovery should
continue during the remainder of 2020; the speed of global recovery
has been aided by effective pandemic containment in Europe, China and many Asian countries; unfortunately recovery is being held back by less effective containment in the U.S., Latin American, Africa and the U.K.

- **2020 real GDP Y/Y** growth projections range from 1.7% to 2.2%, slightly above the long-term potential growth rate of 1.7% to 2.0%. The FOMC’s central tendency Q4/Q4 projections range from 2.0% to 2.2% - (Q4/Q4 projections are highly dependent upon potential anomalies in Q4 data; therefore, Y/Y estimates, which average all four quarters, usually are more stable estimates.) Risks are balanced: 2020 began with easy financial conditions, a high level of consumer optimism, strong labor and housing markets, and diminishing negative trade impacts, all of which favor high GDP estimates; however, financial markets are priced for perfection and any disappointment could quickly cause falling consumer, investor, and business sentiment and cascade into slower consumer spending and employment growth, which could push GDP growth to the bottom end of the forecast range, or worse; the probability of recession in 2020 is less than 30%.

- **2019 full year: = 2.16% - revised by BEA in July 2020 (originally 2.33%)**
- **2020 Q1 “Final Estimate” = -5.0%; Q2 “Advance Estimate” = -32.9%**
- **B of A 2020 original real GDP forecast = 1.7% revised = -5.6% (-6.2% Q4/Q4) (adjusted downward for severe CV impact); GDP growth in B of A’s alternative optimistic scenario is -5.6% in 2020 but recovery is stronger in 2021: GDP growth = 4.5% compared to 2.8% in B of A’s base case**
- **GS original = 2.2%. revised = -4.6% (-4.0% Q4/Q4) (adjusted downward for severe CV impact, but recent updates have reduced the severity of the decline and accelerated the recovery)**
- **CBO 2020 revised real GDP forecast = -5.8%**
- **Bill’s original BASE scenario = 1.76%, Bill’s V-Recession scenario (faster recovery) = -5.37%; Bill’s U-Recession scenario (slower recovery) = -5.41%; Bill’s GDP projections do not pick up the full impact of fiscal spending offsets**
  - **GS 2020 Q1 “Final Estimate” = -6.5% (but initially reported = -5.0%), will worsen from initial “Final Estimate” because of delay in reporting of more accurate source data which will feed into subsequent revisions in 2021 and 2022**
  - **GS 2020 Q2 GDP “Preliminary Estimate” = -34.6%; Q3 estimate = 26.5%**
B of A 2020 Q2 “Preliminary Estimate” = -32.9%; Q3 estimate = 15.0%

### Composition of 2020 and 2019 Quarterly GDP Growth

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<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Personal Consumption</td>
<td>-25.05%</td>
<td>-4.75%</td>
<td>1.07%</td>
<td>1.83%</td>
<td>2.47%</td>
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<tr>
<td>Private Investment Non-res.</td>
<td>-3.62%</td>
<td>-.91%</td>
<td>.04%</td>
<td>.25%</td>
<td>.01%</td>
<td></td>
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<tr>
<td>Residential</td>
<td>-1.76%</td>
<td>.68%</td>
<td>.22%</td>
<td>.17%</td>
<td>-.08%</td>
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</tr>
<tr>
<td>Inventories</td>
<td>-3.98%</td>
<td>-1.34%</td>
<td>-.82%</td>
<td>-.09%</td>
<td>-.97%</td>
<td></td>
<td></td>
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<tr>
<td>Net Exports</td>
<td>.68%</td>
<td>1.13%</td>
<td>1.52%</td>
<td>.04%</td>
<td>-.79%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government</td>
<td>.82%</td>
<td>.22%</td>
<td>.42%</td>
<td>.37%</td>
<td>.86%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>-32.91%</td>
<td>-4.97%</td>
<td>2.37%</td>
<td>2.57%</td>
<td>1.50%</td>
<td></td>
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</tr>
<tr>
<td>Final Sales</td>
<td>-28.93%</td>
<td>-3.63%</td>
<td>3.19%</td>
<td>2.66%</td>
<td>2.47%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>-29.75%</td>
<td>-3.85%</td>
<td>2.77%</td>
<td>2.29%</td>
<td>1.61%</td>
<td></td>
<td></td>
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<tr>
<td>Private Domestic</td>
<td>-30.43%</td>
<td>-4.98%</td>
<td>1.25%</td>
<td>2.25%</td>
<td>2.40%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Data in the table below was updated by BEA in July 2020 back to 2015; this raised GDP in 2017 and 2018, but reduced it in 2019; overall, the level of GDP did not change materially.

- Momentum in total GDP growth and Private Domestic GDP (omits inventories, net exports and government investment) peaked in 2018 Q3 and slowed progressively over the last 7 quarters; momentum will plunge for both measures in coming quarters as the Covid-19 recession and recovery unfold.

- Final Sales (omits inventories) and Private GDP (omits inventories and net exports), which had slowed for four consecutive quarters turned up modestly in 2019 Q4, but both declined in 2020 Q1 and Q2; note that changes in the growth rate in both of these measures are more moderate when the wide swings in the inventory cycle are removed.
Year-Over-Year Growth Rates for Components of Real GDP

<table>
<thead>
<tr>
<th>GDP Component</th>
<th>Second Quarter 2020</th>
<th>First Quarter 2020</th>
<th>Fourth Quarter 2019</th>
<th>Third Quarter 2019</th>
<th>Second Quarter 2019</th>
<th>First Quarter 2019</th>
<th>Fourth Quarter 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Consumption</strong></td>
<td>69.69%</td>
<td>-1.44%</td>
<td>1.88%</td>
<td>2.41%</td>
<td>2.39%</td>
<td>2.52%</td>
<td>2.64%</td>
</tr>
<tr>
<td><strong>Private Investment</strong></td>
<td>17.65%</td>
<td>-1.53%</td>
<td>1.42%</td>
<td>2.89%</td>
<td>4.13%</td>
<td>5.30%</td>
<td>6.43%</td>
</tr>
<tr>
<td><strong>Business</strong></td>
<td>14.27%</td>
<td>.43%</td>
<td>.79%</td>
<td>-1.72%</td>
<td>-3.07%</td>
<td>-2.82%</td>
<td>-1.72%</td>
</tr>
<tr>
<td><strong>Residential</strong></td>
<td>3.16%</td>
<td>-210%</td>
<td>-95.8%</td>
<td>-9.26%</td>
<td>95.8%</td>
<td>160.5%</td>
<td>107.4%</td>
</tr>
<tr>
<td><strong>Inventories</strong></td>
<td>.11%</td>
<td>-9.04%</td>
<td>-.95%</td>
<td>4.55%</td>
<td>9.52%</td>
<td>12.17%</td>
<td>8.38%</td>
</tr>
<tr>
<td><strong>Net Exports</strong></td>
<td>-4.83%</td>
<td>-210%</td>
<td>-95.8%</td>
<td>-9.26%</td>
<td>95.8%</td>
<td>160.5%</td>
<td>107.4%</td>
</tr>
<tr>
<td><strong>Exports</strong></td>
<td>-18.00%</td>
<td>-7.10%</td>
<td>-.86%</td>
<td>1.08%</td>
<td>2.33%</td>
<td>3.37%</td>
<td>3.55%</td>
</tr>
<tr>
<td><strong>Imports</strong></td>
<td>13.17%</td>
<td>-6.40%</td>
<td>-.83%</td>
<td>-.12%</td>
<td>-.08%</td>
<td>.48%</td>
<td>1.96%</td>
</tr>
<tr>
<td><strong>Government</strong></td>
<td>17.39%</td>
<td>2.49%</td>
<td>2.53%</td>
<td>2.29%</td>
<td>1.91%</td>
<td>1.98%</td>
<td>1.87%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.00%</td>
<td>-1.22%</td>
<td>1.67%</td>
<td>2.16%</td>
<td>2.19%</td>
<td>2.45%</td>
<td>2.79%</td>
</tr>
<tr>
<td><strong>Final Sales</strong></td>
<td>99.90%</td>
<td>-.33%</td>
<td>2.02%</td>
<td>2.19%</td>
<td>2.01%</td>
<td>2.19%</td>
<td>2.61%</td>
</tr>
<tr>
<td><strong>Private</strong></td>
<td>82.51%</td>
<td>-.92%</td>
<td>1.91%</td>
<td>2.17%</td>
<td>2.03%</td>
<td>2.23%</td>
<td>2.76%</td>
</tr>
<tr>
<td><strong>Private Domestic</strong></td>
<td>87.34%</td>
<td>-1.38%</td>
<td>1.76%</td>
<td>2.30%</td>
<td>2.42%</td>
<td>2.74%</td>
<td>3.05%</td>
</tr>
</tbody>
</table>

- Growth in Private Domestic GDP, which measures U.S. private sector economic activity, was at the lower end of its long-run potential of 1.7% to 2.0% in 2020 Q1, but fell substantially below potential in Q2 and, even though recovery began in Q3, YoY growth will continue to fall, probably bottoming in 2021 Q1.
- GS’s U.S. Current Activity Indicator (CAI), which is a proxy for real GDP growth, was 1.1% in December 2019, well below GS’s long-term.
potential GDP growth level of 1.7%, and was depressed by weak survey data; survey data strengthened appreciably in January and February and this boosted CAI to a level consistent with GS’s pre-Covid-19 forecast impact of the pandemic; April CAI plunged to -26.3% and was still a dismal -9.2% in May; June CAI improved to 3.8% reflecting reopening, but escalation of new COVID-19 cases in June reversed this improving trend in July and early August.

<table>
<thead>
<tr>
<th>Month</th>
<th>CAI</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>December</td>
<td>1.1%</td>
<td>Expected to improve considerably in 2020</td>
</tr>
<tr>
<td>January</td>
<td>1.9%</td>
<td>Housing strong; manufacturing weak</td>
</tr>
<tr>
<td>February</td>
<td>2.3%</td>
<td>Covid-19 impact will occur in March</td>
</tr>
<tr>
<td>March</td>
<td>-7.3%</td>
<td></td>
</tr>
<tr>
<td>April</td>
<td>-26.3%</td>
<td>Lockdown</td>
</tr>
<tr>
<td>May</td>
<td>-9.2%</td>
<td>Employment better than expected</td>
</tr>
<tr>
<td>June</td>
<td>3.8%</td>
<td></td>
</tr>
<tr>
<td>July</td>
<td>1.8%</td>
<td>Pauses and partial rollbacks</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td></td>
</tr>
<tr>
<td>September</td>
<td></td>
<td></td>
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<tr>
<td>October</td>
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<tr>
<td>November</td>
<td></td>
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</tr>
<tr>
<td>December</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

✓ Chicago Fed National Activity monthly Index (CFNAI): (positive values indicate above trend growth and vice versa for negative values) and Leading Economic Indicators (LEI)

<table>
<thead>
<tr>
<th></th>
<th>CFNAI</th>
<th>3-Month Average</th>
<th>LEI Index</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2019</td>
<td>.32</td>
<td>-.15</td>
<td>111.6</td>
<td>+0.1%</td>
</tr>
<tr>
<td>December 2019</td>
<td>-.24</td>
<td>-.12</td>
<td>111.3</td>
<td>-0.3%</td>
</tr>
<tr>
<td>January</td>
<td>-.10</td>
<td>-.01</td>
<td>112.0</td>
<td>+0.4%</td>
</tr>
<tr>
<td>February</td>
<td>.03</td>
<td>-.10</td>
<td>111.8</td>
<td>-0.2%</td>
</tr>
<tr>
<td>March</td>
<td>-4.50</td>
<td>-1.52</td>
<td>103.4</td>
<td>-7.5%</td>
</tr>
<tr>
<td>April</td>
<td>-18.09</td>
<td>-7.52</td>
<td>96.9</td>
<td>-6.3%</td>
</tr>
<tr>
<td>May</td>
<td>3.50</td>
<td>-6.36</td>
<td>100.0</td>
<td>+3.2%</td>
</tr>
<tr>
<td>June</td>
<td>4.11</td>
<td>-3.49</td>
<td>102.0</td>
<td>+2.0%</td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
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<tr>
<td>August</td>
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<td>December</td>
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</table>
Real GDP Growth Forecasts
(year-over-year average)

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</tr>
</thead>
<tbody>
<tr>
<td>B of A</td>
<td>-5.55</td>
<td>2.95</td>
<td>2.31</td>
<td>1.70</td>
<td>1.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GS</td>
<td>-4.63</td>
<td>6.38</td>
<td>3.34</td>
<td>2.17</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>IHS Markit</td>
<td>-7.30</td>
<td>5.10</td>
<td>4.60</td>
<td>3.90</td>
<td>3.30</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Economy.com</td>
<td>-5.70</td>
<td>1.50</td>
<td>6.70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Chip Average</td>
<td>-5.20</td>
<td>3.80</td>
<td>1.90</td>
<td>1.90</td>
<td>2.00</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>CBO</td>
<td>-5.79</td>
<td>3.96</td>
<td>2.91</td>
<td>2.13</td>
<td>2.26</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOMC High*</td>
<td>-5.50</td>
<td>6.00</td>
<td>4.50</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>FOMC Low*</td>
<td>-7.60</td>
<td>4.50</td>
<td>3.00</td>
<td></td>
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</tbody>
</table>

Bill’s Scenarios

<table>
<thead>
<tr>
<th>V-Recession</th>
<th>U-Recession</th>
</tr>
</thead>
<tbody>
<tr>
<td>-5.37</td>
<td>-5.41</td>
</tr>
<tr>
<td>4.70</td>
<td>4.44</td>
</tr>
<tr>
<td>3.00</td>
<td>3.17</td>
</tr>
<tr>
<td>2.11</td>
<td>1.93</td>
</tr>
<tr>
<td>2.30</td>
<td>2.22</td>
</tr>
</tbody>
</table>

*Q4 to Q4 – sensitive to specific Q4 values and may diverge from year-over-year trend.

- **Real GDP output gap** was positive (overheated) throughout 2019 and will remain positive during 2020 and perhaps move a bit lower, ending the year in a range of 0.6% to 0.9%. (CBO revised its estimates of potential real GDP growth in January 2020 and again in July 2020, which increased the 2019
year-end output gap by a net 0.10% and BEA annual 5-year revisions released in July 2020 increased the 2019 gap by another .10%.

- 2019 year-end output gap = 1.02%, indicating the economy was operating above its potential
- Original year-end 2020 output gap in Bill’s BASE scenario = 0.62%
- V-recession scenario = -6.22%, U-recession scenario = -6.26%

**Potential structural rate of real GDP growth** will be close to the actual rate of growth during 2020 in a range of 1.8% to 2.0%. Long-term potential real GDP growth will should range between 1.7% and 2.0%.

- CBO original 2020 potential growth = 2.11%; revised = 1.74%
- Bill’s 2020 original estimate of potential growth was 1.89%; revised = 1.80% (2028-30 average)
- Long-term potential GDP growth: CBO = 1.80% (2028-30 average, the same as the August 2019 projections, but an increase of 5 basis points from the January data revision); B of A = 1.70%; GS = 1.75%; FOMC = 1.70% to 2.00%; Bill’s BASE scenario original = 1.81%; revised: V-recession = 1.80%; U-recession = 1.72%

**Productivity (nonfarm)** will be weaker in 2020 in a range of 1.1% to 1.5% (4-quarter moving average) compared to an expected 1.7% gain in 2019, reflecting full-employment downward pressures; it will continue to fall well short of the historical 2.1% average.

- B of A 2020 original forecast = 1.16%; revised = 1.38% (not updated for 2020 Q2 actual productivity)
- CBO original 2020 forecast = 1.55%; revised = 2.41%
- Bill’s 2020 original forecast = 1.18%; revised = 2.25%, boosted by Covid-19 induced surge in 2020 Q2 productivity; historically YoY output falls more quickly than working hours at the beginning of a recession and productivity declines; then as recovery from recession occurs, output rises more quickly than hours worked and productivity should surge – the historical decline in productivity did not occur due to the abrupt decrease in working hours in 2020 Q2, but strong productivity growth is still likely in 2021, as can be seen in the difference between the YoY (4th quarter to 4th quarter) measure of productivity and the 4-quarter moving average measure
- GS’s long-term forecast = 1.7%
Productivity is expected by CBO to be relatively strong over the next decade; however, the risk is that productivity growth will disappoint on the down side due to the depressing effects of low interest rates on business investment spending; weak government investment spending could also contribute to downside risks; higher public debt-to-nominal GDP ratios are correlated with lower long-term productivity, thus the expected large increases in the federal budget deficit because of the Covid-19 recession could depress productivity growth in the long run; lower than forecast productivity will depress the potential rate of real GDP growth.

In February, Bill revised his productivity forecasting equation to include the impact of the employment gap; this change improved the historical fit of productivity estimates with actual data; a shrinking employment gap lifts future projections of productivity.
CBO assumes that productivity growth will improve slowly as the output gap closes, Bill’s projection in the V-Recession scenario are consistent with CBO’s

- **Payroll and household employment** growth should slow during 2020 because employment is well above its long-term natural level and should converge closer to the natural rate of growth in the labor force which is about 80,000 to 100,000 new entrants monthly; however, given the strength in expected economic activity during 2020, payroll and household employment growth should average between 90,000 and 150,000 per month; the wide forecast range reflects differences of opinion about whether the unemployment will continue to fall to historic lows or whether the unemployment rate will stabilize in 2020

- **The Covid-19 induced lock down of the economy has distorted employment statistics beginning with the March employment report**
  - Payroll and household employment dropped sharply initially; the labor force also fell substantially as an increasing number of workers reported they were not seeking work and, thus, are no longer in the labor force
  - Initial and continuing unemployment claims initially soared to unprecedented levels, but as reopening of the economy commenced, initial claims declined, but remained substantially above the pre-Covid-19 level; continuing claims increase with a lag but have begun to decline, but remain substantially above the pre-Covid-19 level
  - The U-3 unemployment rate rose well above 10% initially, but was held down by workers on furloughs and temporary layoffs who reported they were not looking for work; as the economy reopened the U-3 unemployment rate fell in May - July but was still above 10%
  - For the same reasons, the participation rate dropped substantially initially, but began to recover as the economy reopened
  - The U-6 unemployment rate, which includes involuntary part-time workers, rose much more than the U-3 rate, but after peaking in April has declined faster than the U-3 rate

- **BLS benchmarking reduced average monthly payroll employment during 2019 by 472,000 with the impact declining as the year progressed; this was less than the 491,000 expected downward adjustment**
✓ Payroll employment grew 177,750 monthly during 2019
✓ GS monthly payroll original 2020 forecast = 156,000, revised = -568,000 (partially revised for coronavirus); B of A original = 130,000, revised = -793,000; CBO’s original = 100,000, revised = -1,111,333; Bill’s original = 92,000 to 97,000, revised – V-shaped recession = -857,583, U-shaped recession = -890,917

<table>
<thead>
<tr>
<th>Month</th>
<th>Payroll Employment</th>
<th>Payroll Growth Rate (moving ave.)</th>
<th>Household Employment</th>
<th>Household Growth Rate (moving ave.)</th>
<th>Hours Worked Growth Rate (moving ave.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 average</td>
<td>177,750</td>
<td>1.40%</td>
<td>164,833</td>
<td>1.27%</td>
<td>1.15%</td>
</tr>
<tr>
<td>January 2020</td>
<td>214,000</td>
<td>1.41%</td>
<td>-89,000</td>
<td>1.27%</td>
<td>1.06%</td>
</tr>
<tr>
<td>February</td>
<td>230,000</td>
<td>1.45%</td>
<td>45,000</td>
<td>1.27%</td>
<td>1.18%</td>
</tr>
<tr>
<td>March</td>
<td>-1,352,000</td>
<td>1.15%</td>
<td>-2,986,000</td>
<td>0.64%</td>
<td>0.63%</td>
</tr>
<tr>
<td>April</td>
<td>-20,787,000</td>
<td>-3.79%</td>
<td>-22,370,000</td>
<td>-4.76%</td>
<td>-4.89%</td>
</tr>
<tr>
<td>May</td>
<td>2,725,000</td>
<td>-8.18%</td>
<td>3,839,000</td>
<td>-9.33%</td>
<td>-9.41%</td>
</tr>
<tr>
<td>June</td>
<td>4,791,000</td>
<td>-11.22%</td>
<td>4,940,000</td>
<td>-12.29%</td>
<td>-12.06%</td>
</tr>
<tr>
<td>July</td>
<td>1,763,000</td>
<td>-9.26%</td>
<td>1,350,000</td>
<td>-10.26%</td>
<td>-9.34%</td>
</tr>
<tr>
<td>August</td>
<td></td>
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<td>September</td>
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<td>November</td>
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<tr>
<td>December</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Average YTD</td>
<td>-1,773,714</td>
<td></td>
<td>-2,181,571</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average Fcst</td>
<td>91,667</td>
<td>.79%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revised Fcst</td>
<td>-857,583</td>
<td>-6.97%</td>
<td>-1,028,194</td>
<td>-7.96%</td>
<td></td>
</tr>
</tbody>
</table>

✓ Average YTD monthly payroll employment growth through July = -1,773,714
✓ BLS’s 2020 benchmarking reduced the December 2019 noninstitutional population by 811,000, the labor force by 527,000, household employment by 507,000 and unemployment by 17,000; these adjustments had negligible impacts on the unemployment and participation rates
Household employment grew 199,909 monthly (adjusted for 2019 benchmarking) during 2019; revised down to 164,833 (not adjusted for 2019 benchmarking)

Average YTD monthly household employment growth = -2,181,571
Average YTD monthly payroll employment growth = -1,773,714 (unfortunately negative monthly payroll growth will catch up to household employment growth in August and following months)
Payroll employment growth was stronger than expected in January and February due to record warm winter weather for December, January and February (warmest consecutive 3-month winter period since NOAA began keeping records in 1895; however, employment plunged -1,352,000 in March and -20,787,000 in April; employment recovered 2,725,000 in May, 4,791,000 in June and 1,763,000 in July as the impact of the Payment Protection Program kicked in and many localities began to relax social distancing restrictions and reopen their economies
E-commerce is taking a toll on retail and food service employment, the largest two employment categories, as shopping malls continue to close: Macy’s announced it will close 125 of its 680 stores in 2020; large traditional department store chains (Neiman Marcus, JCPenney, and J Crew) have filed for bankruptcy
Conference Board’s difference between jobs plentiful and jobs hard to get: rose in January to the 2nd highest level in the now-ended recent expansion cycle; this will be the high water mark for a very long time as the Covid-19 recession takes its toll on employment; this measure plunged in April to -15.7; recovered to -12.7 in May; -2.8 in June; and 1.3 in July

Evercore ISI employee placement (average of temporary and permanent) index will fall as employment growth declines (a value above 50 indicates expansion); index weakened slightly in January – March and contracted in April – August

Both temporary and permanent placement weakened significantly since the beginning of 2020, and, led by permanent placement, contracted in April – August due to Covid-19, although the extent of contraction has lessened since bottoming in May

<table>
<thead>
<tr>
<th>Month</th>
<th>Conf. Bd. - Jobs Plentiful-Jobs Hard to Get</th>
<th>EvercoreISI Emp. Permanent and Temporary Placement</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>33.5</td>
<td>67.0</td>
</tr>
<tr>
<td>January</td>
<td>37.4</td>
<td>65.2</td>
</tr>
<tr>
<td>February</td>
<td>32.6</td>
<td>65.3</td>
</tr>
<tr>
<td>March</td>
<td>29.5</td>
<td>60.4</td>
</tr>
<tr>
<td>April</td>
<td>-15.7</td>
<td>44.3</td>
</tr>
<tr>
<td>May</td>
<td>-12.7</td>
<td>42.5</td>
</tr>
<tr>
<td>June</td>
<td>-2.8</td>
<td>43.7</td>
</tr>
<tr>
<td>July</td>
<td>1.3</td>
<td>45.5</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td>46.0P</td>
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<td>September</td>
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<tr>
<td>December</td>
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</table>

Job openings rate is likely to fall as employment growth slows

Job openings declined in December (this report lags by two months) to the lowest level since December 2017; December 2019 job openings of 6.5 million were 13% lower than the 7.5 million job openings in December 2018; job openings rebounded to 7.0 million in February, but swooned to 6.0 million in March and 5.0 million in April, as the Covid-19 recession gathered momentum, then rose modestly to 5.4 million in May as many communities began to reopen, and rose further to 5.9 million in June
Job openings fell 13.3% YoY in December in the e-commerce impacted food services industry (2nd largest employment category)

- **Hiring rate** is likely to fall as employment growth slows
  - Hiring rate edged up from 3.8% in November to 3.9% in December, January and February (unfortunately this is old news); the hiring rate fell to 3.4% in March and 3.1% in April, expanded to 5.4% in May as the economy began to reopen, but dropped back to 4.9% in June as an increase in Covid-19 cases led to pauses and rollbacks in reopening

- **Quit rate** is a leading indicator of wage growth; it is likely to fall as employment growth slows, which should result in wage growth acceleration slowing or stabilizing; the quit rate (2.3%) in January and February was unchanged from December, but declined to 1.8% in March, 1.4% in April, 1.6% in May and 1.9% in June; the increase in the quits rate since April is indicative of a strengthening labor market

- **Layoff rate** (1.2%) in January and February improved slightly from December; but surged to 7.5% in March, then eased to 5.9% in April, probably because the PPP led to some rehiring; the April layoff rate was especially high for leisure and hospitality (20.2%) and other services (17.7%); the layoff rate decreased to 1.4% in May and June

- **Employment participation** should be stable during 2020 in a range of 63.00% to 63.35%, as the longer-term declining trend in participation due to demographically-embedded retirements of baby boomers is offset by increased participation due to a continued strong labor market. (2020 BLS benchmarking had a negligible impact on the participation rate.)
  - The participation rate was above the top end of the forecast range in both January and February, but fell below the forecast range in March – July because of the Covid-19 recession; the rebound in May and June reflects the favorable impact of the Payment Protection Program and relaxation of social distancing restrictions in many areas; the participation rate did not improve in July but the percentage was consistent with CBO’s forecast
<table>
<thead>
<tr>
<th>Month</th>
<th>Participation Rate</th>
<th>Employment to Population Ratio</th>
<th>Unemployment Rate – U3</th>
<th>Unemployment Rate – U6</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 average</td>
<td>63.09%</td>
<td>60.78%</td>
<td>3.66%</td>
<td>7.16%</td>
</tr>
<tr>
<td>December 2019</td>
<td>63.25%</td>
<td>61.04%</td>
<td>3.50%</td>
<td>6.71%</td>
</tr>
<tr>
<td>January 2020</td>
<td>63.43%</td>
<td>61.16%</td>
<td>3.58%</td>
<td>6.85%</td>
</tr>
<tr>
<td>February</td>
<td>63.38%</td>
<td>61.15%</td>
<td>3.52%</td>
<td>6.89%</td>
</tr>
<tr>
<td>March</td>
<td>62.72%</td>
<td>59.97%</td>
<td>4.38%</td>
<td>8.66%</td>
</tr>
<tr>
<td>April</td>
<td>60.21%</td>
<td>51.33%</td>
<td>14.75%</td>
<td>22.05%</td>
</tr>
<tr>
<td>May</td>
<td>60.85%</td>
<td>52.78%</td>
<td>13.26%</td>
<td>20.41%</td>
</tr>
<tr>
<td>June</td>
<td>61.46%</td>
<td>54.64%</td>
<td>11.10%</td>
<td>17.25%</td>
</tr>
<tr>
<td>July</td>
<td>61.40%</td>
<td>55.13%</td>
<td>10.22%</td>
<td>16.05%</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td></td>
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<tr>
<td>September</td>
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<td>October</td>
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<tr>
<td>November</td>
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</tr>
<tr>
<td>December</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average YTD</td>
<td>61.92%</td>
<td>56.59%</td>
<td>8.68%</td>
<td>14.02%</td>
</tr>
</tbody>
</table>

**Labor-Force-Participation and Eligible-Employment-to-Population Ratios (U-3 Measure)**

- **Unemployment rate (U3)** should be relatively stable in 2020 in a range between 3.2% and 3.6%. *(The BLS 2020 benchmarking had a negligible impact on the unemployment rate.)*
GS original 2020 year-end forecast = 3.2%; revised = 9.0% due to impact of Covid-19 (peaked at 14.7% in April)
B of A original 2020 year-end forecast = 3.6%; revised = 9.1% due to Covid-19 (peaked at 14.7% in April)
Bill’s original 2020 year-end forecast = 3.3%; revised = 9.4% (peaked at 14.7% in April)
IHS Markit original 2020 forecast = 3.5%; revised = 18.2% (not updated)
Economy.com original 2020 forecast = 3.5%; revised = 9.0%
Blue Chip average original 2020 forecast = 3.6%; revised = 10.3%

* The 4-week moving average of unemployment claims should rise moderately during 2020
  - The 4-week moving average of unemployment claims hit a multi-decade low of 206,000 in late-April 2019; they remained near that level until coronavirus social distancing led to an explosion of claims

<table>
<thead>
<tr>
<th>Date</th>
<th>Initial Claims</th>
<th>Initial Claims 4-week average</th>
<th>Continuing Claims</th>
</tr>
</thead>
<tbody>
<tr>
<td>March 21</td>
<td>3,307,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>March 28</td>
<td>6,867,000</td>
<td></td>
<td>7,455,000</td>
</tr>
<tr>
<td>April 4</td>
<td>6,615,000</td>
<td>4,267,750</td>
<td>11,976,000</td>
</tr>
<tr>
<td>April 11</td>
<td>5,237,000</td>
<td>5,506,500</td>
<td>15,976,000</td>
</tr>
<tr>
<td>April 18</td>
<td>4,442,000</td>
<td>5,790,250</td>
<td>17,992,000</td>
</tr>
<tr>
<td>April 25</td>
<td>3,867,000</td>
<td>5,040,250</td>
<td>22,647,000</td>
</tr>
<tr>
<td>May 2</td>
<td>3,176,000</td>
<td>4,180,500</td>
<td>22,833,000</td>
</tr>
<tr>
<td>May 9</td>
<td>2,687,000</td>
<td>3,543,000</td>
<td>25,073,000</td>
</tr>
<tr>
<td>May 16</td>
<td>2,446,000</td>
<td>3,044,000</td>
<td>20,838,000</td>
</tr>
<tr>
<td>May 23</td>
<td>2,123,000</td>
<td>2,608,000</td>
<td>21,268,000</td>
</tr>
<tr>
<td>May 30</td>
<td>1,897,000</td>
<td>2,288,000</td>
<td>20,606,000</td>
</tr>
<tr>
<td>June 5</td>
<td>1,566,000</td>
<td>2,008,000</td>
<td>20,289,000</td>
</tr>
<tr>
<td>June 12</td>
<td>1,540,000</td>
<td>1,781,500</td>
<td>19,231,000</td>
</tr>
<tr>
<td>June 19</td>
<td>1,482,000</td>
<td>1,621,250</td>
<td>18,760,000</td>
</tr>
<tr>
<td>June 26</td>
<td>1,408,000</td>
<td>1,499,000</td>
<td>17,760,000</td>
</tr>
<tr>
<td>July 3</td>
<td>1,310,000</td>
<td>1,435,000</td>
<td>17,304,000</td>
</tr>
<tr>
<td>July 10</td>
<td>1,308,000</td>
<td>1,377,000</td>
<td>16,151,000</td>
</tr>
<tr>
<td>July 17</td>
<td>1,422,000</td>
<td>1,362,000</td>
<td>16,951,000</td>
</tr>
<tr>
<td>July 24</td>
<td>1,435,000</td>
<td>1,368,750</td>
<td>16,090,000</td>
</tr>
<tr>
<td>July 31</td>
<td>1,191,000</td>
<td>1,339,000</td>
<td>15,486,000</td>
</tr>
<tr>
<td>August 7</td>
<td>963,000</td>
<td>1,252,750</td>
<td></td>
</tr>
</tbody>
</table>
- The 4-week average of initial claims will decline in coming weeks but will remain elevated; however, initial claims briefly ticked up in mid-July as employers ran out of PPP funds and many states paused or rolled back reopening, but then resumed declining in the last week of July and first week of August
- Continuing claims are reported with a one-week lag; it will be important to monitor continuing claims as an indicator of when the labor market is stabilizing; the downward trend in continuing claims reversed in the week ending July 17th, but resumed the following week

**U-3 and U-6 Unemployment Rates**

![Graph showing U-3 and U-6 Unemployment Rates](image)

Source: Bureau of Labor Statistics
Both GS and B of A expected the unemployment rate to rise moderately in 2020, but to less than 4.0%; Covid-19 trashed this optimism; now GS, B of A and other forecasters believe the unemployment rate peaked in April.
✓ GS’s unemployment rate projections are more optimistic than those of others
✓ CBO reduced its estimate of NAIRU slightly (non-accelerating inflation rate of unemployment) when it updated its economic projections in January and again in July, but its estimates of NAIRU remain somewhat higher than the estimates of others including the FOMC
✓ The U-3 unemployment rate improved unexpectedly from 14.7% in April to 13.3% in May; after release of the May employment report BLS acknowledged “misclassification” issues depressed the reported U-3 rate; workers who were not employed but planned on being called back at some point were classified as “employed but absent from work” but should have been classified as “unemployed on temporary layoff;” correcting for this misclassification would increase the April U-3 unemployment rate to 19.5%, the May rate to 16.4% and the June rate to 12.4%; the misclassification does not change the fact that employment improved in May, June and July
✓ The U-3 unemployment rate fell further to 11.1% in June and 10.2% in July and is likely to continue falling gradually as economic recovery proceeds

- **Hourly wage rate** growth, reported by BLS for all employees and nonsupervisory and production workers, should edge up slightly during 2020 to a range of 3.4% to 3.8%; Evercore ISI employee pricing power should remain strong but moderate slightly (index above 50).

✓ BLS bench marking lifted growth in hourly wages in 2019 for all employees from 3.16% to 3.31% and for production and nonsupervisory workers from 3.40% to 3.55%; both measures peaked in late summer/early fall 2019 and were edging down before the Covid-19 recession hit; with the onset of the Covid-19 recession wage growth should slow in coming months; however, growth in BLS measures accelerated in April due to compositional changes in the indices as more low-paid workers became unemployed than high-paid workers, this compositional change reversed partially in May - July
✓ Bill’s original 2020 year-end forecast wage growth rate for production and nonsupervisory workers = 3.7%; revised = 3.5%;
Due to differences in methodologies, the Atlanta Fed Wage Tracker will generally be higher than other wage growth measures and the Employment Cost Index (ECI) will be lower; both measures are not affected by compositional changes in the labor force as is the case for BLS wage measures

EVRISI composite wage index for temporary and permanent workers

<table>
<thead>
<tr>
<th>Month</th>
<th>All Workers*</th>
<th>Production and Non-Supervisory*</th>
<th>Employment Cost Index – Wages and Salaries</th>
<th>GS Wage Tracker</th>
<th>Atlanta Fed Wage Tracker</th>
<th>Evercore ISI Employee Pricing Power**</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>3.31%</td>
<td>3.55%</td>
<td>2.91%</td>
<td>3.3%</td>
<td>3.7%</td>
<td>74.5</td>
</tr>
<tr>
<td>January 2020</td>
<td>3.30%</td>
<td>3.54%</td>
<td>3.19%</td>
<td>3.4%</td>
<td>3.7%</td>
<td>74.7</td>
</tr>
<tr>
<td>February</td>
<td>3.26%</td>
<td>3.53%</td>
<td>3.19%</td>
<td>3.4%</td>
<td>3.7%</td>
<td>74.4</td>
</tr>
<tr>
<td>March</td>
<td>3.25%</td>
<td>3.52%</td>
<td>3.19%</td>
<td>3.4%</td>
<td>3.7%</td>
<td>71.5</td>
</tr>
<tr>
<td>April</td>
<td>3.64%</td>
<td>3.88%</td>
<td>2.87%</td>
<td>5.8%</td>
<td>3.6%</td>
<td>59.5</td>
</tr>
<tr>
<td>May</td>
<td>3.92%</td>
<td>4.14%</td>
<td>2.87%</td>
<td>5.8%</td>
<td>3.7%</td>
<td>61.1</td>
</tr>
<tr>
<td>June</td>
<td>4.04%</td>
<td>4.30%</td>
<td>2.87%</td>
<td>5.8%</td>
<td>3.6%</td>
<td>62.0</td>
</tr>
<tr>
<td>July</td>
<td>4.15%</td>
<td>4.38%</td>
<td></td>
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<td></td>
<td>62.6</td>
</tr>
<tr>
<td>August</td>
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<td></td>
<td>62.7P</td>
</tr>
<tr>
<td>September</td>
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<td>October</td>
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<tr>
<td>December</td>
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</tr>
</tbody>
</table>

*Hourly
**Average of permanent and temporary workers; >50 increasing pricing power

Stayed at a very high level during January, February, but declined in March and especially in April as unemployment ramped up; this measure improved slightly in May – August

GS’s wage tracker (a composite of 5 published measures) for 2020 is 3.25% to 3.50%; 2019 Q3 = 3.2%; 2019 Q4 = 3.3%; 2020 Q1 = 3.4%; Q2 = 5.8% (a false signal – skewed higher by labor market compositional changes; wage survey leading indicator indicates that wage growth should fall to less than 1% in coming months)

Prior to Covid-19 recession, GS believed that in the near-term strong wage growth would boost consumer spending; that forecast has been revised to project a significant short-term decline in consumer spending
The Covid-19 recession caused a significant temporary increase in wage growth due to a larger proportion of lower-paid workers dropping out of the labor force; this will be temporary and much
higher unemployment on a sustained basis will lead to a decline in wage growth in coming months
- GS’s wage survey leading indicator plunged to less than 1% in June and near 0% in July
✓ From a longer-term perspective, wage growth was peaking before the Covid-19 recession and will slow substantially in the next few quarters, perhaps to near zero; the forecast low wage growth after 2025 in Bill’s V and U recession scenarios is driven primarily by much lower inflation and to a lesser extent by an increase in the unemployment rate
✓ GS estimates that the long-run stable rate of wage growth is 3.2%, which is derived from adding 2.0% inflation rate to sustained economy-wide 1.2% productivity rate (economy-wide productivity of 1.2% is commensurate with 1.7% nonfarm labor productivity); however, if productivity and inflation move to sustained lower levels after the Covid-19 recession ends, sustained wage growth will be less than 3.2%; my model indicates that annual wage growth in the long run will be in a range of 1.5% to 2.0%
• **Nominal consumer disposable income** growth, measured on a 12-month moving average basis, should decelerate slightly during 2020 because of slowing employment growth and limited acceleration in rising wage rates; growth should be in a range of 4.0% to 4.5%.

<table>
<thead>
<tr>
<th>Month</th>
<th>Nominal Income Growth Rate</th>
<th>Nominal Spending Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>3.69%</td>
<td>4.05%</td>
</tr>
<tr>
<td>January 2020</td>
<td>3.57%</td>
<td>4.10%</td>
</tr>
<tr>
<td>February</td>
<td>3.50%</td>
<td>4.14%</td>
</tr>
<tr>
<td>March</td>
<td>3.29%</td>
<td>3.49%</td>
</tr>
<tr>
<td>April</td>
<td>4.36%</td>
<td>1.77%</td>
</tr>
<tr>
<td>May</td>
<td>4.97%</td>
<td>0.62%</td>
</tr>
<tr>
<td>June</td>
<td>5.43%</td>
<td>-0.16%</td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
</tr>
<tr>
<td>August</td>
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<tr>
<td>September</td>
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<tr>
<td>October</td>
<td></td>
<td></td>
</tr>
<tr>
<td>November</td>
<td></td>
<td></td>
</tr>
<tr>
<td>December</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2020 Forecast</td>
<td>3.56%</td>
<td>-4.33%</td>
</tr>
</tbody>
</table>

- BEA revised personal income data for the past 5 years in July 2020, which reduced nominal income growth by 0.65% in December 2019
- Growth in nominal disposable income usually falls during recessions but has instead risen because of substantial fiscal stimulus through stimulus checks, PPP loans/grants, and enhanced unemployment benefits; however, most of the stimulus expired at the end of July and if Congress does not extend benefits, growth in nominal disposable income will decelerate during the remainder of 2020

• **Nominal consumer spending** growth on a 12-month moving average basis should be relatively stable during 2019 as the lagged benefits of higher prices for stocks and homes and slightly higher wage rates offset slower employment growth; growth should be in a range of 4.0% to 4.5%.
- Growth in nominal consumer spending will be negative in 2020 because of the Covid-19 recession: V-recession scenario = -4.7%; U-recession scenario = -4.8%
In the long run, most forecasters expect that growth in real consumer spending will slow to approximately 2.0% annually as population and employment growth slow.
Real Personal Consumption Growth Rate Forecasts

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>2.71</td>
<td>2.72</td>
<td>2.86</td>
<td>2.52</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>B of A</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-5.88</td>
<td>2.59</td>
<td>2.20</td>
<td>1.71</td>
<td>1.71</td>
</tr>
<tr>
<td>GS</td>
<td></td>
<td></td>
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<td></td>
<td>-4.86</td>
<td>7.08</td>
<td>3.90</td>
<td>2.89</td>
<td></td>
</tr>
<tr>
<td>IHS Markit</td>
<td></td>
<td></td>
<td></td>
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<td>-8.30</td>
<td>5.10</td>
<td>5.00</td>
<td>4.10</td>
<td>3.70</td>
</tr>
<tr>
<td>Economy.com</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-3.90</td>
<td>1.60</td>
<td>4.60</td>
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</tr>
<tr>
<td>Blue Chip</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-6.30</td>
<td>4.50</td>
<td>2.00</td>
<td>2.10</td>
<td>2.10</td>
</tr>
<tr>
<td>Bill's Scenarios</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>V-recession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-4.75</td>
<td>5.04</td>
<td>3.23</td>
<td>2.39</td>
<td>2.14</td>
</tr>
<tr>
<td>U-recession</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-4.79</td>
<td>4.79</td>
<td>3.37</td>
<td>2.22</td>
<td>1.98</td>
</tr>
</tbody>
</table>

✓ Thanks to the stimulus provided by the Tax Cuts and Jobs Act, real personal consumption was strong in 2017 and 2018; growth decelerated in 2019 prior to the onset of the Covid-19 recession

- Auto sales should decline during 2020
  ✓ January and February auto sales were little changed from the 2019 average; March and April sales plummeted in response to Covid-19 social distancing restrictions and recovered only modestly in May and June
  ✓ Auto production was an annual rate of 3.7 million in Q2 and is forecast to rise to 10.8 million in Q3
  - Job losses and accompanying declines in credit worthiness have contributed to decreases in auto sales; sales began to recover following the April low, but remain below the 2019 sales level
  - Evercore ISI’s auto dealers diffusion index declined from 55.5 (expansion) in December 2019 to 23.0 (severe contraction) on April 17, 2020, but this metric improved to 44.9 (still contracting) on August 14, 2020
• **Retail sales** growth should be stable or slightly slower during 2020
  
  ✓ Retail sales grew 4.0% in 2019 (quarterly average YoY), after peaking at 5.9% in July 2018
  
  ✓ **Outdated data observation:** Prior to the Covid-19 recession, E-commerce sales were expected to increase 16.4% in 2020 compared to an increase of approximately 3.3% in overall retail sales ex autos
  
  Although retail sales growth was weak in December and February, the YoY growth rate increased because of skewed comparisons with a year earlier when stock market gyrations impacted retail sales in December 2018 and January 2019

<table>
<thead>
<tr>
<th>Auto Sales (Month)</th>
<th>Millions of units</th>
<th>Growth Rate (YoY quarterly average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019 average</td>
<td>16.95</td>
<td>-3.56%</td>
</tr>
<tr>
<td>January</td>
<td>16.87</td>
<td>-1.74%</td>
</tr>
<tr>
<td>February</td>
<td>16.77</td>
<td>-0.70%</td>
</tr>
<tr>
<td>March</td>
<td>11.42</td>
<td>-11.09%</td>
</tr>
<tr>
<td>April</td>
<td>8.74</td>
<td>-26.87%</td>
</tr>
<tr>
<td>May</td>
<td>12.20</td>
<td>-36.81%</td>
</tr>
<tr>
<td>June</td>
<td>13.07</td>
<td>-33.46%</td>
</tr>
<tr>
<td>July</td>
<td>14.52</td>
<td>-22.73%</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td></td>
</tr>
<tr>
<td>September</td>
<td></td>
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<tr>
<td>October</td>
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<tr>
<td>November</td>
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<tr>
<td>December</td>
<td></td>
<td></td>
</tr>
<tr>
<td>YTD 2020</td>
<td>13.37</td>
<td>-21.15%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retail Sales</th>
<th>Monthly Change</th>
<th>YoY (qtr. average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>.1%</td>
<td>4.0%</td>
</tr>
<tr>
<td>January 2020</td>
<td>.8%</td>
<td>4.6%</td>
</tr>
<tr>
<td>February</td>
<td>-.4%</td>
<td>5.0%</td>
</tr>
<tr>
<td>March</td>
<td>-8.2%</td>
<td>Initial Covid-19 impact 1.2%</td>
</tr>
<tr>
<td>April</td>
<td>-14.7%</td>
<td>Severe Covid-19 impact -7.1%</td>
</tr>
<tr>
<td>May</td>
<td>18.3%</td>
<td>-10.3%</td>
</tr>
<tr>
<td>June</td>
<td>8.4%</td>
<td>Pent-up demand -7.7%</td>
</tr>
<tr>
<td>July</td>
<td>1.2%</td>
<td>-0.2%</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td></td>
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<tr>
<td>September</td>
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<tr>
<td>October</td>
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<tr>
<td>November</td>
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<tr>
<td>December</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
- Social distancing had a significant negative impact on retail sales in March; April data were terrible; sales rebounded in May but the 12-month moving average continued to decline; sales continued to rebound in June and July and the growth rate in the 12-month moving average improved but was still negative.

✓ E-commerce share of retail sales ex autos was 12.4% in January 2020 compared to 11.0% in January 2019.

- EvercoreISI’s retailers diffusion index declined from 51.3 (expansion) in December 2019 to 24.1 (severe contraction) on April 10, 2020, but improved to 46.6 (still contracting) on July 2, 2020 as CARES Act financial assistance payments provided support to household spending and social distancing restrictions were relaxed in many communities, but sagged to 32.4 on August 7, 2020 as new Covid-19 cases escalated and some states paused reopening and other states rolled back reopening; contraction in this measure lessens to 43.9 in the week ending August 14, 2020; however, the failure of Congress to pass Phase 4 fiscal stimulus legislation and the end of enhanced unemployment benefits could depress retail sales in coming weeks.

- **Consumer confidence** in 2020 should decline from historically high levels in 2019.

✓ Consumer confidence measures plummeted in March and April in response to the Covid-19 induced economic lockdown, stabilized in May and edged up in June as the economy began to recover in response to reopening; measures have mostly been stable to weaker in July and August as many states implemented pauses and rollbacks to reopening; failure of Congress to pass Phase 4 fiscal stimulus legislation could depress consumer confidence in the next month.

+ Bloomberg consumer confidence is measured weekly and rose significantly in January, then eased in February, began to decline in March, plummeted in April and May, and edged up in June and July, but stalled in August.

✓ April’s decline in the University of Michigan’s consumer sentiment index was the largest single month decline on record; this measure began to recover in May and June, but declined in July.

✓ The Conference Board’s measure of consumer confidence has followed a similar pattern over the course of 2020 and also declined in July; the preliminary reading in August indicated no substantive change in confidence from July.
University of Michigan spokesperson, Richard Curtin, observed with the release of the April survey: “Consumers need to be prepared for a longer and deeper recession rather than the now discredited message that pent-up demand will spark a quick, robust, and sustained economic recovery.”

<table>
<thead>
<tr>
<th>Month</th>
<th>Conference Board</th>
<th>University of Michigan</th>
<th>Evercore ISI</th>
<th>Bloomberg</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>128.2</td>
<td>99.3</td>
<td>52.7</td>
<td>63.9</td>
</tr>
<tr>
<td>January 2020</td>
<td>130.4</td>
<td>99.8</td>
<td>52.6</td>
<td>67.3</td>
</tr>
<tr>
<td>February</td>
<td>130.7</td>
<td>101.0</td>
<td>52.1</td>
<td>63.0</td>
</tr>
<tr>
<td>March</td>
<td>118.8</td>
<td>89.1</td>
<td>44.5</td>
<td>56.3</td>
</tr>
<tr>
<td>April</td>
<td>85.7</td>
<td>71.8</td>
<td>35.0</td>
<td>39.5</td>
</tr>
<tr>
<td>May</td>
<td>85.9</td>
<td>72.3</td>
<td>37.8</td>
<td>35.5</td>
</tr>
<tr>
<td>June</td>
<td>98.1</td>
<td>78.1</td>
<td>41.9</td>
<td>43.3</td>
</tr>
<tr>
<td>July</td>
<td>92.6</td>
<td>72.5</td>
<td>42.3</td>
<td>44.3</td>
</tr>
<tr>
<td>August</td>
<td>72.8P</td>
<td>45.2P</td>
<td>43.7P</td>
<td></td>
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<tr>
<td>September</td>
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<tr>
<td>December</td>
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</tbody>
</table>

- **Consumer credit growth** should slow during 2020.
  - Consumer credit growth edged down a little during 2019; growth rose early in the year and then slowed toward the end of the year
  - Federal Reserve Senior Loan Officer Opinion Survey 2019 Q4: demand for consumer loans was stable; a few banks tightened credit limits on credit card loans and raised minimum credit scores and a few also tightened credit standards on auto loans
  - Growth in revolving credit slowed sharply in March – June, while growth in nonrevolving credit was stable in March, it decreased in April - June; Phase 3 fiscal stimulus greatly reduced the need for consumers to borrow and this showed up immediately for credit card debt; growth in revolving and nonrevolving consumer credit will continue to decline in response to the collapse in consumer spending, but reopening of economic activity and reduced unemployment should reduce the rate of decline and failure by Congress to pass Phase 4 fiscal stimulus legislation could cause debt to rise, although this is doubtful because of the substantial rise in consumer savings
<table>
<thead>
<tr>
<th>Month</th>
<th>Total</th>
<th>Revolving</th>
<th>Non-revolving</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2018</td>
<td>4.94%</td>
<td>4.02%</td>
<td>5.27%</td>
</tr>
<tr>
<td>December 2019</td>
<td>4.54%</td>
<td>3.26%</td>
<td>5.00%</td>
</tr>
<tr>
<td>January 2020</td>
<td>4.43%</td>
<td>3.15%</td>
<td>4.89%</td>
</tr>
<tr>
<td>February</td>
<td>4.47%</td>
<td>3.48%</td>
<td>4.82%</td>
</tr>
<tr>
<td>March</td>
<td>4.19%</td>
<td>2.76%</td>
<td>4.71%</td>
</tr>
<tr>
<td>April</td>
<td>3.29%</td>
<td>0.16%</td>
<td>4.41%</td>
</tr>
<tr>
<td>May</td>
<td>2.13%</td>
<td>-3.41%</td>
<td>4.10%</td>
</tr>
<tr>
<td>June</td>
<td>1.18%</td>
<td>-6.44%</td>
<td>3.90%</td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>August</td>
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<td>September</td>
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<tr>
<td>December</td>
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</tbody>
</table>

- Federal Reserve Senior Loan Officer Opinion Survey 2020 Q2: underwriting standards for approving credit card loans tightened substantially; underwriting standards for auto loans were also tightened by some banks; demand for all categories of consumer loans weakened
- Federal Reserve Senior Loan Officer Opinion Survey 2020 Q1: underwriting standards tightened for credit card, auto, and other consumer loans; demand for all categories of consumer loans weakened
  ✓ 2019 Q4 auto loan delinquency rate rose to 4.94% and seriously delinquent rate rose to 2.36% similar to the levels that prevailed just prior to the onset of the Great Recession; approximately 20% of new auto loans originated in 2019 Q4 were non-prime with FICO scores of less than 620; auto loan delinquency rates increased in April

- Household personal saving rate should be relatively stable during 2020 as growth rates in disposable income and consumer spending converge; the saving rate should be in a range of 7.5% to 8.0%.
  ✓ BEA 5-year data revisions released in July 2020 reduced the saving rate in 2019 by .40%
  ✓ A GS analysis suggests that a saving rate of about 7.5% to 8.0% is about 3 percentage points above its “equilibrium” level; about 0.5% of this difference is due to increasing wealth inequality and the high propensity to save of high income households; tighter credit standards, which reduce the incentive for middle and low-income
households to take on additional debt, may account for much of the remaining differential; GS expects, which is speculative and arguable, that the saving rate will decline in coming years and support increased spending and faster economic growth.

In the V-Recession scenario, the recent equilibrium saving rate was 7.5%; however, the saving rate is likely to remain well above that level for precautionary and other reasons, perhaps for years to come.

In the early stages of a recession the saving rate usually doesn’t change much or edges down a little in support of maintaining consumer spending but then rises during recovery because reacceleration in consumer spending tends to lag growth in consumer disposable income.

<table>
<thead>
<tr>
<th>Year</th>
<th>Disposable Income</th>
<th>Consumer Spending</th>
<th>Saving Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>3.56%</td>
<td>-4.33%</td>
<td>11.07%</td>
</tr>
<tr>
<td>2021</td>
<td>1.26%</td>
<td>6.64%</td>
<td>9.57%</td>
</tr>
<tr>
<td>2022</td>
<td>4.01%</td>
<td>4.24%</td>
<td>10.12%</td>
</tr>
</tbody>
</table>
However, the significant rise in the saving rate recently did not follow the historical pattern; the abrupt implementation of social distancing on a national scale led to immediate and substantial reductions in consumer spending in advance of negative impacts on income. Fiscal policy measures to replace lost income through the PPP program, stimulus checks and supplemental unemployment insurance payments propped up income during Q2 and led to a sharp increase in the saving rate to 33.5% in April, 24.2% in May and 19.0% in June, lifting the 12-month moving average saving rate to 12.78%.

- **Stock prices**, as measured by the S&P 500 average, should be between 10% higher or 5% lower; on the upside, reflecting higher earnings per share, benefiting in part from stock buybacks, and multiple expansion driven by low interest rates and investor optimism; on the downside, reflection slower revenue growth and rising labor costs; as 2020 began, stock prices already appeared to be priced for perfection, which makes them particularly vulnerable to a reversal of investor sentiment.

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>-0.2%</td>
<td>-8.6%</td>
<td>-20.0%</td>
<td>-9.9%</td>
<td>-5.8%</td>
<td>-4.0%</td>
<td>1.2%</td>
<td>4.9%</td>
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</tbody>
</table>

- S&P 500 stock prices were up 3.1% in early January before the initial Covid-19 scare wiped out all gains for the month; in early February price action was strong with six daily all-time highs until the last week of the month when concern began to emerge that the coronavirus was morphing into a global pandemic, which would decimate global growth; this led to huge declines in prices; extreme price volatility continued in March and April; prices recovered partially in April as massive monetary and fiscal policy stimulus was implemented, and moved higher in May as volatility steadily declined, by early June stock prices were momentarily unchanged since the beginning of the year, and by the end of July stock prices were higher than at the beginning of the year; prices were up 4.9% YTD on August 18, 2020 and registered its all-time high on that day.

- **Earnings** – analysts expect S&P 500 earnings per share to increase 8.8% from $162.97 (4-quarter average) in 2019 to $177.26 in 2020.
  - Analysts updated forecast declined to $124.79 (-23.4%) on August 6th; further downward revisions are possible as the extent of the impacts of the Covid-19 recession become apparent.
Covid-19 recession EvercoreISI forecast: 2020 earnings annualized fall to $118; Q2 = $96; Q4 = $123; 2021 = $156

- NFIB company earnings expectations improved from a net -8% in December to -3% in January, -4% in February and -6% in March; however, this reduction in pessimism reversed dramatically in April as expected earnings dropped to -20% and declined further to -26% in May, and even further in June to -35%, then improved a tiny bit in July to -32%

- Business activity will expand moderately with both the ISM PMI manufacturing and service indices averaging slightly above 50; 2019’s slump in manufacturing will end.

- ISM and IHS Markit both publish purchasing managers indices for manufacturing and services; the ISM surveys focus on larger companies which tend to have significant international operations; the IHS Markit surveys include a greater number of companies and tend to reflect domestic activity better.

- These indices are diffusion measures with values ranging from 0 to 100; a value greater than 50 signals expansion; conversely a value less than 50 indicates contraction; each month’s measure is relative to the previous month’s, which means that the indices measure momentum, not level – June and July 2020 measures are well above 50 which means that activity is expanding, but the level of activity is still substantial below the pre-Covid-19 recession level for both manufacturing and services.

- ISM PMI manufacturing index: rebounded into expansion territory in January; weakened in February (new orders and employment contracted); transitioned to contraction in March, but not as much as expected (production, new orders and employment weakened further into contraction territory); contracted sharply in April, but less than expected (declines in production, new orders and employment); and edged up in May, and soared into expansion territory in June and July (new orders, production and even employment improved substantially; prices paid increased, indicating that the recent deflation has reversed)

- Unlike the ISM PMI manufacturing index, the IHS Markit PMI index did not contract in December; expansion slowed slightly in January and February; contracted slightly in March due to the impact of Covid-19; contracted steeply in April; and improved slightly in May and moved into modest expansion territory in June and July.
<table>
<thead>
<tr>
<th>Month</th>
<th>ISM Mfg PMI</th>
<th>Markit Mfg PMI</th>
<th>ISM svcs PMI</th>
<th>Markit svcs PMI</th>
<th>NFIB</th>
<th>GS Analyst Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>47.8</td>
<td>51.7</td>
<td>54.9</td>
<td>52.8</td>
<td>102.7</td>
<td>49.6</td>
</tr>
<tr>
<td>January 2020</td>
<td>50.9</td>
<td>51.9</td>
<td>55.5</td>
<td>53.4</td>
<td>104.3</td>
<td>54.4</td>
</tr>
<tr>
<td>February</td>
<td>50.1</td>
<td>50.7</td>
<td>57.3</td>
<td>49.4</td>
<td>104.5</td>
<td>47.0</td>
</tr>
<tr>
<td>March</td>
<td>49.1</td>
<td>48.5</td>
<td>52.5</td>
<td>39.8</td>
<td>96.4</td>
<td>24.2</td>
</tr>
<tr>
<td>April</td>
<td>41.5</td>
<td>36.1</td>
<td>41.8</td>
<td>26.7</td>
<td>90.9</td>
<td>23.7</td>
</tr>
<tr>
<td>May</td>
<td>43.1</td>
<td>39.8</td>
<td>45.4</td>
<td>37.5</td>
<td>94.4</td>
<td>29.2</td>
</tr>
<tr>
<td>June</td>
<td>52.6</td>
<td>51.3</td>
<td>57.1</td>
<td>47.9</td>
<td>100.6</td>
<td>58.0</td>
</tr>
<tr>
<td>July</td>
<td>54.2</td>
<td>50.9</td>
<td>58.1</td>
<td>50.0</td>
<td>98.8</td>
<td>57.8</td>
</tr>
</tbody>
</table>

- ISM PMI non-manufacturing (services) index strengthened in January and February, reflecting increased strength in new orders and employment, weakened in March, plunged in April (business activity, new orders, and employment contracted substantially); led by business activity and new orders, the rate of contraction slowed in May, the index soared well into positive territory in June and July, reflecting reopening of economic activity in most states (business activity and new orders showed solid improvement, but while employment improved in June, it decreased slightly in July); Markit services PMI fell much more deeply into contraction territory in March – May, but improved in June, and reached 50.0 in July which is the dividing line between expansion and contraction.

- NFIB optimism index rose in January and February, but the hard stop in the economy during March led to the largest one month decline in the optimism index (-8.1 to 96.4) in its history; the index fell further in April to 90.9; recovered a little in May to 94.4, rebounded to 100.6 in June as many communities reopened, but pulled back a little to 98.8 in July as some state paused or rolled back reopening.

- GS analyst index: expanded in January; contracted moderately in February with sharp deterioration in new orders, shipments and exports; contracted sharply in March and April in response to Covid-19 impacts (new orders and sales/shipments collapsed; employment...
and wages/labor costs moved into contraction territory); and improved in May, but remained at a very low level; popped above 50 in June and July with exceptional strength in orders and sales/shipments, probability reflecting reopening of economic activity in many locales – inventories were very low in July which moves inversely to new orders, materials prices are rising, but labor costs are falling

- Manufacturers “very” or “somewhat” positive about their company’s outlook: 2018 Q4 = 88.7%; 2019 Q4 = 67.9%; 2020 Q1 = 75.6%; 2020 Q2 = 33.9%

- Duke/Richmond Fed CFO Optimism Index: 2018 Q4 = 66.4; 2019 Q1 = 64.6; 2019 Q2 = 65.7; Q3 = 62.6; Q4 = 66.6; 2020 Q1 = 50.9; Q2 = 58.9 (50 dividing line between expansion and contraction)

- NABE 2020 Q1 business conditions survey ticked down to 15.5 from 4-quarter average of 25.5 and is the lowest since the Great Recession

- Data on bankruptcies and business closures during the recession are mixed but collectively suggest that damage so far has been limited, perhaps because of the PPP cash injections or perhaps simply that not enough time has passed yet for companies to exhaust liquidity; data from the BLS household survey indicate that 25% of small businesses ceased operations in April but this percentage fell to 6% in July, implying that most of the closures were temporary; there is no evidence yet that indicates that the volume of business closures eventually will differ materially from the experience of past recessions

- **Industrial production** will increase modestly in 2020 as the manufacturing recession ends.

<table>
<thead>
<tr>
<th></th>
<th>2019</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>109.7</td>
<td>109.2</td>
<td>109.3</td>
<td>104.6</td>
<td>91.2</td>
<td>92.0</td>
<td>97.2</td>
<td>100.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>%</td>
<td>-0.7%</td>
<td>-0.7%</td>
<td>-0.6%</td>
<td>-1.9%</td>
<td>-7.1%</td>
<td>-12.2%</td>
<td>-14.4%</td>
<td>-11.7%</td>
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</tbody>
</table>

- Weakness in the industrial sector continued into January; improvement in February was due to utilities, business equipment declined, the Covid-19 expected decline hit in March and deepened dramatically in April, led by a 72% decline in auto production and a 10% decrease in all other manufacturing, industrial production eked out a very small recovery in May, but much larger improvements in June and July which still left the index far below its beginning of the year level
• **Capacity utilization** will be stable to slightly higher, but will remain below 80%, which is traditionally considered to be a capacity level that stimulates investment spending.

<table>
<thead>
<tr>
<th>2019</th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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</thead>
<tbody>
<tr>
<td>77.2%</td>
<td>76.9</td>
<td>76.9</td>
<td>73.6</td>
<td>64.2</td>
<td>64.8</td>
<td>68.5</td>
<td>70.6</td>
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</tbody>
</table>

✓ Capacity utilization was slightly weaker over the first 2 months of 2020; the Covid-19 expected decline began in March and worsened considerably in April (worse than at the trough of the Great Recession in 2009), there was a very small recovery in May and much greater recovery in June and July, but capacity utilization remained well below the beginning of the year level

• **Business investment** inflation-adjusted spending growth should continue to be weak and is likely to be worse than 2019’s disappointing level; growth in 2020 is expected to be in a range of 0.0% to 2.0% (the average for the past 20 years = 3.13%).

✓ GS original 2020 forecast = 1.5%; revised = -3.7%
✓ B of A original 2020 forecast = 0.0%; revised = -4.7%
✓ GS’s capital expenditures tracker edged up in January and February, plunged in March, April and May to -14% due to Covid-19, but improved to -8% in June and -2% in July; GS expects a 40% decline in the GDP contribution of residential and business structures investment in 2020
- The contraction in Evercore ISI’s capital goods survey deepened in January – April; this diffusion index registered an exceptionally dismal 24.4 on April 3rd; the index improved to 35.6 on August 7th (still indicating significant contraction)
+ NFIB capital spending was stable in January, but edged down in February and fell farther in March – June, followed by a very small improvement in July; capital spending plans fell in February – April during the height of the Covid-19 shutdown but increased a little in May and June and more in July; plans do not necessarily lead to actual spending, which depends considerably on profits, which are still under intense downward pressure
✓ New orders for durable goods rebounded 15.1% in May and 7.3% in June after falling 16.7% in March and 18.3% in April; new orders were 13.3% below the year earlier pace in June
✓ Construction spending declined further in June but the decreases in April and May were revised to show slightly lower declines
Evercore ISI’s survey of 53 companies indicated a record net low of -21% reported that inventories were too low; this is consistent with a surge in new orders and a strong recovery in truck transportation activity, all of which corroborates the reopening and recovery in economic activity story.

<table>
<thead>
<tr>
<th>Month</th>
<th>Evercore ISI Capital Goods</th>
<th>NFIB Capital Spending Plans</th>
<th>NFIB Capital Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>46.9</td>
<td>28%</td>
<td>63%</td>
</tr>
<tr>
<td>January 2020</td>
<td>44.8</td>
<td>28%</td>
<td>63%</td>
</tr>
<tr>
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<td>July</td>
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<td>August</td>
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<td>December</td>
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Real Private Investment Growth (net of inventories)

(average annual rate)

Source: Bureau of Economic Analysis & CBO
## Real Private Investment (Residential and Nonresidential) Growth Rate Forecasts

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<td><strong>Bill's Scenarios</strong></td>
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<td>8.20</td>
<td>5.73</td>
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<td>-2.74</td>
<td>5.10</td>
<td>3.98</td>
<td>1.83</td>
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</tr>
</tbody>
</table>

*Average 1999-2020

**Real private investment = 1.20% for 1999-2020

- **Business credit** growth should continue to expand near levels experienced in 2018, but credit spreads, which tightened during 2019, could widen.
  - Federal Reserve Senior Loan Officer Opinion Survey 2019 Q4: underwriting standards for commercial and industrial loans did not change, but pricing tightened; demand weakened slightly
  - Federal Reserve Senior Loan Officer Opinion Survey 2019 Q4: underwriting standards tightened slightly on commercial real estate construction loans but were unchanged on other CRE loans; demand weakened for CRE construction loans but was unchanged for other CRE loans
  - Federal Reserve Senior Loan Officer Opinion Survey 2020 Q1: underwriting standards and loan terms for commercial and industrial loans tightened significantly; coronavirus-induce liquidity demand strengthened for middle market companies
  - Federal Reserve Senior Loan Officer Opinion Survey 2020 Q1: underwriting standards tightened for construction and development, commercial real estate and multi-family loans; demand weakened for all three categories
Federal Reserve Senior Loan Officer Opinion Survey 2020 Q2: underwriting standards and loan terms for commercial and industrial loans for large, medium-sized and small companies tightened significantly; loan interest-rate spreads were increased for large and small companies; loan demand weakened for large and medium-sized firms

Federal Reserve Senior Loan Officer Opinion Survey 2020 Q2: underwriting standards tightened significantly for construction and development, commercial real estate and multi-family loans; demand weakened for all three categories

At the beginning of 2020 the CRE sector was generally healthy with low vacancies; multifamily was particularly strong; this has changed dramatically for the worse with the onset of the Covid-19 recession; lodging, malls and commercial office space are vulnerable to coronavirus social distancing restrictions

When uncertainty skyrockets, as it has with the Covid-19 recession, companies hoard cash; when this extends to delays in vendor payments, cash hoarding results in a deterioration in credit conditions

In the face of plummeting revenues, weak cash liquidity can precipitate bankruptcy; GS estimates that the Covid-19 recession will cause the percentage of Russell 3000 firms with negative cash flow to increase from 24% to 55%; most adversely impacted include companies in the media and entertainment, transportation, retail, and consumer services sectors; 36% will exhaust liquid cash reserves within 6 months; investment grade companies will need $40 billion in financing after 3 months and $90 billion after 6 months to cover cash revenue shortfalls and an additional $110 billion to refinance maturing debt; the Fed’s Primary Market Corporate Credit Facility has a capacity of $500 billion which is more than sufficient to cover business cash flow requirements

- **Residential housing investment** should reverse 2019’s decline and grow in a range of 1% to 4%

  _2019 residential housing investment (4-Q moving average) = -1.51_%
  - GS 2020 original housing investment forecast = 3.4% (4-Q moving average); revised = 1.6%
  - B of A 2020 original housing investment forecast = 1.2% (4-Q moving average); revised = 0.5%
The 4-quarter increase in residential housing investment = 0.79% in Q1 and 0.43% in Q2

Lower mortgage rates have stimulated demand for housing and this had a favorable impact on housing starts and residential housing construction in January and February; however, social distancing policies implemented in March crushed housing demand temporarily, but demand bounced back with reopening.

Federal Reserve Senior Loan Officer Opinion Survey 2020 Q1: some banks tightened underwriting standards for residential mortgages; demand strengthened due to lower interest rates.

Federal Reserve Senior Loan Officer Opinion Survey 2020 Q2: banks tightened underwriting standards for all types of residential mortgages significantly; demand strengthened due to lower interest rates.

Credit risk of residential mortgages delivered to Fannie Mae and Freddie Mac has declined over the past year, particularly with respect to LTVs of 95% or greater and high debt-to-income ratios; credit quality of Ginnie Mae loans has also improved.

Tighter conventional mortgage credit guidelines have forced first-time home buyers increasingly to turn to FHA – the share of first-time home buyers receiving FHA loans rose to a near record 77% in February and stabilized near that level through May.

Mortgage applications to purchase homes surged 25% from late December to early February; the collapse in interest rates in late February and March stimulated a flood of refinancing activity which continued in April - July.

- **Housing starts** should grow in a range of 1.0% to 5.0%.
  - 2019 housing starts = 3.8% (12-M moving average) [single family = -2.4%; multi-family = 7.2%]
    - GS housing starts 2020 original forecast = 2.8% (12-M moving average); revised = -1.6%
    - B of A housing starts 2019 original forecast = 1.7%, revised = -5.6% (12-M moving average)
    - Bill’s BASE housing starts 2019 original scenario = 4.7%, revised = 5.7% (12-M moving average)
Permits and starts were very strong in January because of warm winter weather, but also because of low interest rates; permits and starts fell in March and plunged in April; the 12-month moving average remained above the top of the forecast range because of strong growth prior to the onset of the Covid-19 recession; permits and starts recovered strongly from May – July and reflect a predictable response to increasing demand and limited supply; growth in starts is likely to be very robust over the remainder of 2020

The NAHB builder index (>50 expansion): began the year at a very high level and eased slightly in January, February and March, but crashed deeply into contraction territory in April; the index rose modestly in May and reflected improvements in current and future sales and prospective buyer traffic; the index soared in June and July and climbed to an all-time high in August, indicating favorable buying conditions with very low interest rates and helped by the relaxation of social distancing requirements and a huge surge in household formation

Evercore ISI’s homebuilder index (>50 expansion): strengthened in January and February and was buoyed in early March by plunging interest rates; plunged in late March and early April as social distancing cut buyer traffic; but improved significantly in May and returned to expansion territory in June and July and rose further in early August, as social distancing restrictions were relaxed

Existing home sales peaked in November 2017, but higher interest rates and higher housing prices depressed affordability and caused sales to decline during 2018; sales rose 10.6% in 2019 in response to much lower interest rates; the 12-month moving average slowed to 0.8% in March 2020, and plunged -17.2% in April and -26.6% in May, but improved to -11.3% in June
New home sales rose 9.6% in 2019 in response to much lower interest rates; the pace of sales has been consistently stronger over the first six months of 2020 compared to 2019.

<table>
<thead>
<tr>
<th></th>
<th>NAHB Builder Index</th>
<th>EverCore ISI Builder Index</th>
<th>New Home Sales</th>
<th>Existing Home Sales</th>
</tr>
</thead>
<tbody>
<tr>
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<td>76</td>
<td>57.1</td>
<td>9.6%</td>
<td>10.6%</td>
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<tr>
<td>January 2020</td>
<td>75</td>
<td>59.3</td>
<td>12.0%</td>
<td>8.8%</td>
</tr>
<tr>
<td>February</td>
<td>74</td>
<td>61.3</td>
<td>12.9%</td>
<td>7.1%</td>
</tr>
<tr>
<td>March</td>
<td>72</td>
<td>52.8</td>
<td>11.5%</td>
<td>0.8%</td>
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<td>April</td>
<td>30</td>
<td>33.2</td>
<td>9.8%</td>
<td>-17.2%</td>
</tr>
<tr>
<td>May</td>
<td>37</td>
<td>40.5</td>
<td>11.6%</td>
<td>-26.6%</td>
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<td>June</td>
<td>58</td>
<td>52.4</td>
<td>10.7%</td>
<td>-11.3%</td>
</tr>
<tr>
<td>July</td>
<td>72</td>
<td>58.3</td>
<td></td>
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<tr>
<td>August</td>
<td>78</td>
<td>61.5P</td>
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<td>September</td>
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<td>December</td>
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</table>

Household formation decelerated during 2019: Q1 = 2.31 million (12-month moving average); Q2 = 2.03 million; Q3 = 1.80 million; Q4 = 1.60 million, eased further in 2020 Q1 to 1.54 million, but was well above the long-term average of 1.18 million, household formation took off in March and averaged 4.33 million in Q2 and brought the 12-month moving average up to 2.23 million; this surge in demand accompanied by a shortage of existing homes and very low interest rates have combined to drive home prices much higher – this trend seems to be firmly entrenched and may run for some time.

The home ownership rate bottomed at 63.1% in 2016 Q2 and has risen gradually since then: 2019 Q1 = 64.2%; 2019 Q2 = 64.3%; Q3 = 64.7%; Q4 = 64.9%; 2020 Q1 = 65.3%; Q2 = 68.2% (all-time high was 69.4% in 2004 Q2); the surge in home ownership is consistent with the explosion in household formation.
• **Residential housing prices** should rise more slowly in 2020 in a range of 1.5% to 3.0% (12-M moving average).

  ✓ S&P Core Logic Case Shiller national housing price index peaked at 7.5% in April 2018 (12-M moving average) and has trended down since then; however, prices have risen so far in 2020

  ✓ S&P Core Logic Case Shiller 20-city housing price index peaked at 7.1% (12-M moving average) in February 2018 and has trended down since then; however, prices have risen so far in 2020

  ✓ FHFA housing purchase-only price index indicates consistently greater housing price increases than the S&P Core Logic Case Shiller indices

  ✓ Median new home prices declined -0.4% in 2019 and average new home prices declined -1.7%, indicating greater price softness in higher priced homes; over the first four months of 2020 both average and median prices have changed very little

  ✓ The S&P Core Logic Case Shiller and FHFA housing price indices control for mix of housing types, while the new and existing housing indices do not control for mix; when the new and existing housing indices are consistently lower, this indicates that the mix of housing sales is shifting toward lower-priced homes

  ✓ GS 2020 housing price original forecast = 3.0% (YoY); revised = -2.1%

<table>
<thead>
<tr>
<th>Month</th>
<th>S&amp;P National</th>
<th>S&amp;P 20 City</th>
<th>FHFA</th>
<th>New Median</th>
<th>New Average</th>
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</thead>
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<tr>
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<td>3.3%</td>
<td>2.7%</td>
<td>5.9%</td>
<td>0.1%</td>
<td>-2.0%</td>
</tr>
<tr>
<td>December</td>
<td>3.5%</td>
<td>3.0%</td>
<td>6.0%</td>
<td>-0.4%</td>
<td>-1.7%</td>
</tr>
<tr>
<td>January 2020</td>
<td>3.8%</td>
<td>3.3%</td>
<td>6.2%</td>
<td>0.4%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>February</td>
<td>4.4%</td>
<td>3.6%</td>
<td>6.3%</td>
<td>0.5%</td>
<td>0.1%</td>
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<tr>
<td>March</td>
<td>5.0%</td>
<td>3.9%</td>
<td>6.3%</td>
<td>1.6%</td>
<td>0.1%</td>
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<td>April</td>
<td>5.3%</td>
<td>4.0%</td>
<td>5.9%</td>
<td>0.1%</td>
<td>-0.6%</td>
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<tr>
<td>May</td>
<td>5.0%</td>
<td>3.9%</td>
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<td>-1.1%</td>
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<td>0.6%</td>
<td>-0.4%</td>
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<td>July</td>
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  ✓ B of A 2020 original housing price forecast = 1.8% (YoY)
Bill’s BASE scenario 2020 housing price forecast original = 1.7%; revised = -2.1% (this is GS’s forecast and likely is far off the mark)

The CARES ACT authorizes deferred mortgage payments on Fannie Mae and Freddie Mac mortgages; in the longer run this could result in more foreclosures and downward pressure on home prices; this provision of the CARES Act has expired but it is too early to determine possible consequences

Bill’s V-recession scenario assumes that cumulative real housing price appreciation is at a peak; prices will fall during the Covid-19 recession and then will rise less rapidly than inflation in coming years

Increasingly, it is likely that this forecast is wrong and that home price increases will accelerate; the surge in demand, the shortage in supply and very low interest rates will probably drive prices higher over the next few months, as long as interest rates remain very low, a return to the long-term trend seems unlikely
- **Goods Trade deficit** should decline slightly and fluctuate in 2020 in a range of 2.7% to 3.0% (data revisions reduced the range to 2.5% to 2.8%). (12-M moving average)
  - Annual growth rates in both goods imports (9.6%) and exports (9.2%) peaked in October 2018; annual growth of both imports and exports has slowed sharply since then and turned negative in October 2019 due to slowing global growth and the negative effects of tariffs and the trade war
  - In June 2020, trade data from 1999 to the present were revised; the revisions reduced the December 2019 trade deficit as a percentage of nominal GDP by 19 basis points from -2.88% to -2.69%
  - Trade will decline substantially in 2020 as the Covid-19 recession progresses; the negative effects of Covid-19 will greatly overwhelm the small expected rebound from reduced trade tensions;

<table>
<thead>
<tr>
<th>Month</th>
<th>Goods Trade Deficit</th>
<th>Growth in Imports of Goods</th>
<th>Growth in Exports of Goods</th>
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<tbody>
<tr>
<td>December 2019</td>
<td>-2.69%</td>
<td>-1.6%</td>
<td>-1.5%</td>
</tr>
<tr>
<td>January 2020</td>
<td>-2.65%</td>
<td>-2.0%</td>
<td>-1.8%</td>
</tr>
<tr>
<td>February</td>
<td>-2.59%</td>
<td>-2.4%</td>
<td>-2.0%</td>
</tr>
<tr>
<td>March</td>
<td>-2.56%</td>
<td>-3.3%</td>
<td>-2.8%</td>
</tr>
<tr>
<td>April</td>
<td>-2.62%</td>
<td>-4.9%</td>
<td>-4.9%</td>
</tr>
<tr>
<td>May</td>
<td>-2.63%</td>
<td>-7.0%</td>
<td>-7.6%</td>
</tr>
<tr>
<td>June</td>
<td>-2.63%</td>
<td>-8.4%</td>
<td>-9.3%</td>
</tr>
<tr>
<td>July</td>
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</table>

- Phase 1 trade deal was signed by the U.S. and China on January 15th; however, $361 billion of Chinese imports are still subject to tariffs and significant issues remain unresolved; the Phase 1 deal is viewed generally as a “truce” in an ongoing war, which is likely to last until after the U.S. election in November; this has favorable implications for the American and Chinese economies in 2020 but matters could worsen in 2021, if the U.S. determines that China has not made good efforts to comply with terms of the agreement
The Phase 1 trade deal with China could put upward pressure on the value of the dollar and lead to trade confrontations with other countries; this risk did not materialize because the global Covid-19 recession changed everything.

Slowing trade in 2019 was reflected in container data: container imports from China declined 11.7% in 2019, but this was nearly offset by gains from other countries in Asia and Europe; container exports rose 0.6% in 2019 compared to 5.0% in 2018.

The Trump Administration had intended to broaden products covered by 25% steel and 10% aluminum tariffs, but this is unlikely to occur because of the Covid-19 recession; existing tariffs have been ineffective in bolstering steel and aluminum production in the U.S.; the legality of existing tariffs imposed pursuant to national security considerations (Section 232) has been challenged; China, the EU, Taiwan, Japan and India would be most affected; no action has occurred on any of these trade issues so far in 2020.

In April the Trump administration permitted American importers who can “demonstrate a significant financial hardship” to defer tariff payments for 90 days.

- The dollar’s value on a broad trade-weighted basis should weaken during 2020 as global growth strengthens a bit and interest rates remain low, in a range of -2.0% to -6.0%.
- The dollar’s value declined -0.1% in January YTD, but rose 1.1% in February YTD, 5.1% YTD in March, 7.1% YTD in April, 6.5% YTD in May, 4.0% YTD in June and 3.1% YTD in July; the dollar’s value in July was 3.3% above July 2019’s level.

<table>
<thead>
<tr>
<th></th>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>-0.2</td>
<td>0.8</td>
<td>1.7</td>
<td>5.1</td>
<td>6.6</td>
<td>5.7</td>
<td>4.2</td>
<td>3.3</td>
<td></td>
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</tr>
</tbody>
</table>

Although the dollar is overvalued and its value should fall, especially now that interest rates have fallen to near zero, the U.S. safe haven status during a global Covid-19 recession has caused the dollar’s value to rise early in 2020; now that global financial markets have stabilized and economic activity is in the very early stages of recovery, the dollar’s value has begun to decline and the decline is likely to continue.
• **Oil prices** are likely to average slightly higher during 2020 as global growth strengthens and fluctuate in a range of $50 to $70 during the year; upside risk could be triggered by supply interruptions; downside risk could occur if global and U.S. growth is lower than forecast.

  ✓ **West Texas Intermediate oil prices averaged $57.05 per barrel in 2019 and $59.79 in December 2019**

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>June</th>
<th>July</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
<th>YTD</th>
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</thead>
<tbody>
<tr>
<td>$58</td>
<td>$51</td>
<td>$31</td>
<td>$20</td>
<td>$29</td>
<td>$38</td>
<td>$41</td>
<td>$42</td>
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<td></td>
<td></td>
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<td>38.24</td>
</tr>
</tbody>
</table>

✓ Oil prices fell sharply in late January and continued declining in February, March and April and then began to recover in May – August as economic activity began to rebound from the Covid-19 recession; the price decline was caused primarily by reduced demand, initially in China, due to Covid-19; global demand in March was 15% below the year earlier level; by June supply had been cut and demand stabilized, resulting in an upward trend in prices, which continued modestly in July and August

✓ In early March, OPEC attempted to reduce production to support prices, but Russia refused to cooperate and a price war broke out sending prices down sharply

✓ On April 12th major oil producing nations agreed to reduce production by 9.7 million barrels per day starting in May and continuing into 2022, effectively ending the Russia-Saudi Arabia price war; oil prices did not increase in response to this agreement because demand has fallen more than this planned reduction in production; GS estimates that demand will be down 19 million barrels per day in April and May; prices fell below $20 per barrel in mid-April and stabilized at $25 per barrel in May

✓ In mid-April OPEC forecast that oil demand in 2020 would be 6.9 million barrels per day lower, for this forecast to be reasonable, demand will need to improve significantly in coming months

✓ If the WTI price of oil remains below $60 per barrel for any length of time, as now seems likely, the financial viability of many energy companies will be challenged; cumulative bankruptcy debt in this sector rose from $25 billion in 2015 to $207 billion in 2019; perversely, the good news is that trauma in this sector will reduce supply and help stabilize prices in the longer run

✓ Unlike other countries where the government controls oil production, the US cannot compel a reduction; a reduction instead in the US is occurring through bankruptcies and cessation of new drilling; oil
production in the US has declined slightly since December but at 12.4 million barrels per day remains 1.6% higher than a year ago

- **Monetary policy** – the Federal Reserve will not raise interest rates during 2020 and could lower rates, if growth and inflation are weaker than forecast.
  
  ✓ 2020 monetary policy expectations and interest-rate projections have been up-ended by the Covid-19 pandemic; in response to extreme market turmoil, the FOMC cut short-term rates, which were expected to be stable in 2020, by 150 basis points in two steps between regularly scheduled meetings; Chairman Powell said the FOMC will be “patient,” which means that rates will not be raised until the FOMC “is confident that the economy has weathered recent events and is on track to achieve its maximum employment and price stability goals”

  ✓ The FOMC cancelled its regularly scheduled meeting for March 17-18 and did not release revised projections of GDP, unemployment, inflation and the federal funds rate; refreshed projections were released at the time of the June FOMC meeting

  ✓ The Fed and FOMC took extraordinary policy actions to increase liquidity for markets, businesses, governments, financial institutions and households:

    o March 9th – New York Fed increased repo facilities substantially
    o March 12th – primary dealers gained unlimited access to temporary liquidity via repos; the program is capped at $1.5 trillion compared to demand of $345 billion on March 13th and will include a variety of maturities
    o March 15th – bank reserve requirements will terminate permanently on March 26th
    o March 15th - $700 billion in Treasury ($500 billion) and MBS ($200 billion) purchases for the Fed’s balance sheet beginning on March 16th
    o March 15th – enhanced dollar swap lines in partnership with foreign central banks
    o March 15th – improved discount window terms, by reducing the interest rate by 50 bps and providing 90-day loans
    o March 15th – reduction in capital ratio liquidity buffer requirements for banks
    o March 17th – activation of 13(3) emergency lending authority to launch two credit facilities – one to buy commercial paper
(CPFF), which will become operational on April 14th, and a second to provide credit to primary dealers (PDCF); the Treasury is providing $10 billion in risk capital support for these programs through the Exchange Stabilization Fund

- March 18th – activation of 13(3) emergency lending authority to provide liquidity for money market funds (MMLF); backstopped by $10 billion in risk capital from the Exchange Stabilization Fund
- March 20th - MMLF expanded to support the finance of high quality-municipal debt
- March 20th – amount of daily purchases of Treasury securities and MBS increased
- March 23rd – Fed created Primary Market Corporate Credit Facility (PMCCF) to support new bond and loan issuance, the Secondary Market Corporate Credit Facility (SMCCF) to provide liquidity for outstanding corporate bonds, the Term Asset-Backed Securities Loan Facility (TALF) to support issuance of asset-backed securities, and expanded eligibility of securities for purchase in CPFF and MMLF; limited to investment grade, high yield corporate debt, CDOs, CLOs, leveraged loans and non-agency CMBS not eligible for purchase
- March 23rd – substantial expansion of the amount of Treasury and MBS purchases for the Fed’s balance sheet; Fed’s balance sheet on track to more than double from $4.2 trillion at the end of February to $9.5 trillion by the end of 2020
- March 23rd – relaxation of mark to market accounting rules to curb fire sale of high quality bonds at depressed prices and permitting banks to use capital buffers to restructure loans or make new loans
- March 27th – as financial markets begin to stabilize, the Fed begins to scale back the amount of its daily purchases of Treasury securities and MBS
- March 27th – Congress provided $454 billion in the CARES Act to the Exchange Stabilization Fund which can be used to provide equity support to Fed 13(3) credit facilities
- March 31st – creation of FIMA facility to enable foreign central banks to raise dollars through repo transactions with the Fed instead of forcing them to sell Treasuries and MBS into
stressed credit markets and intended to help stabilize global financial conditions

- April 1st – Fed eases bank supplemental leverage ratio (SLR) to prevent surge in bank balance sheets caused by the Fed’s QE activity from constraining bank lending; bank reserves at the Fed and Treasuring eliminated from SLR calculation, which should reduce large bank capital requirements by approximately 2 percentage points

- April 6th – Fed provides term financing for SBA loans extended pursuant to the forgivable loan program (Paycheck Protection Program – PPP) established by the CARES Act

- April 9th – Fed establishes the Main Street Lending program (MSNLF) for small and medium enterprises with fewer than 10,000 employees or less than $2.5 billion in 2019 revenues (SME) on which it will assume 95% of the risk on $600 billion in loans up to 4-years maturity

- April 9th – Fed establishes $500 billion Municipal Liquidity Facility to purchase short-term notes up to 24 months in maturity directly from states, cities and counties and support the SBA forgivable loan program

- April 9th – Fed expands the Primary Market Corporate Credit Facility (PMCCF) to $750 billion to purchase investment grade corporate bonds up to 4 years in maturity and confirmed eligibility for firms that had a BBB- credit rating or better as of March 22nd

- April 9th – SMCCF expanded to buy ETFs that invest in high-yield debt up to 5 years in maturity

- April 9th – TALF expanded to include purchase of AAA-rated non-agency CMBS and CLOs

- April 9th – Fed reduces QE purchases, signaling growing confidence that markets are stabilizing

- Notwithstanding this unprecedented Fed support of financial markets, governments, businesses and households, more work remains to be done
  - Implementing announced programs will take time, particularly the Main Street Lending Program, which will require the involvement of banks
  - Pricing may need to be reduced to improve the transmission of monetary policy and reduce rates on household and business loans
Developing ways to improve mortgage market functioning

Determining whether and how to support orphan credit classes that are not covered by existing credit facilities

Crafting strong and credible monetary policy forward guidance that convinces businesses and households to take on additional credit that the 13(3) credit facilities are intended to encourage

- June 3rd – the Fed lowered the population thresholds in the Municipal Liquidity Facility for smaller states, cities and counties, and extended the program to certain special revenue districts

- June 8th – in response to criticism that the original facility left out small businesses, the Fed revised the Main Street Lending Program (MSLP) to provide more generous loan terms – maturities extended to five years from four years for businesses with up to 15,000 employees, an extra year of deferred principal, bringing deferral of principal payments up to two years and no interest in the first year, and higher loan maximums and lower minimums; lending banks receive substantial origination and servicing fees and retain a 5% participation in the amount of a loan extended pursuant to the program

- June 15th – MSLP became operational; the general market consensus is that corporate borrower uptake will be limited because the loans are expensive and restrictions on leverage and loan amounts are relatively unattractive

- June 15th – the New York Fed announced that the Secondary Market Corporate Credit Facility (SMCCF) will begin buying corporate bonds in addition to the $5.5 billion in ETFs purchased since May 12th, but indicated that corporate bond purchases will replace ETF purchases; the amount of bonds bought each day will depend upon how well the market is functioning

- June 29th – the New York Fed announced that the PMCCF was operational; call options will be available when PMCCF is the sole investor in corporate bonds; pricing is based on spreads above equivalent maturity U.S. Treasury securities with a floor at the 50th percentile and ceiling at the 95th-97th percentile over the past 15 years
o August 11th – interest rates on MSLP tax-exempt notes lowered by 50 basis points

✓ Current market forward yield curve for federal funds – 0.0% to 0.25% until 2023 Q1; however, the 5-year Treasury yield is currently 0.25%, which implies that the federal funds rate will not change for least another 5 years

✓ Federal funds: original GS – no increases or decreases; (GS believed the reductions in 2019 would be temporary and would be followed by 4 rate increases in 2021 and 2022); revised: rates cut to a range of 0.00% to 0.25%, no change in 2021 - 2023

✓ Federal funds: original B of A – no increases or decreases; revised: rates cut to a range of 0.00% to 0.25% through 2021; no guidance provided for 2022 and beyond

✓ Federal funds: original CBO – no increases or decreases; revised: rates cut to near zero through 2025 with one increase in 2026 and two increases in 2027; this forecast is consistent with recent pricing of longer-term Treasury securities

✓ My econometric model projects 6 decreases in the federal funds rate during 2020 (has already occurred) and no increases from 2021 through 2030; notably, my model’s interest-rate projections match the market’s CBO’s projections; the model’s projection of near zero rates over the longer run stems from slowing employment growth and falling inflation, a result which had been deeply outside of the consensus view, but may become the consensus view in the aftermath of the Covid-19 recession

Number of Federal Funds Rate Changes of 25 Basis Points

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<thead>
<tr>
<th></th>
<th>2020</th>
<th>2021</th>
<th>2022-25</th>
<th>Total</th>
<th>Long Run</th>
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<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
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<td>-6</td>
<td>2.50*</td>
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</tr>
<tr>
<td>B of A</td>
<td>-6</td>
<td>0</td>
<td>-6</td>
<td>0.00-0.25</td>
<td></td>
</tr>
<tr>
<td>GS</td>
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<td>0.00-0.25</td>
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<tr>
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<td>0</td>
<td>0.00-25</td>
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<tr>
<td>Bill’s V-recession</td>
<td>-6</td>
<td>0</td>
<td>0</td>
<td>0.00-25</td>
<td></td>
</tr>
<tr>
<td>Bill’s U-recession</td>
<td>-6</td>
<td>0</td>
<td>0</td>
<td>0.00-25</td>
<td></td>
</tr>
</tbody>
</table>

*FOMC and CBO rates are equilibrium estimates; CBO does not expect the equilibrium rate to be reached until 2030
In an April 16th webinar for the New York Economic Club, New York Federal Reserve president and FOMC vice chair John Williams made comments that implied that FOMC members do not expect a rapid return to full employment – "couple of years," "one or two years," "a few years;" he suggested that would be disinflationary beyond the end of the recession with slack demand outweighing supply frictions.

Dallas Fed president Kaplan expressed concern that consumers would emerge from the shutdown phase more careful and more reluctant to spend, thus contributing to a slow recovery; San Francisco president Daly was more pessimistic and said she expects "negative quarters of growth throughout 2020" followed by a "gradual return to positive growth in 2021."

On May 13th Board of Governors Chairman Jay Powell observed that the economic path ahead is "highly uncertain and subject to significant downside risks" and urged Congress to provide ongoing fiscal support; he also observed that monetary policy would operate in a complementary manner with fiscal policy.

Fed Beige Book – the July 15th report covered the period from May 19th through July 6th; economic activity increased in 9 districts through early July, but there was weakness in 3 districts – Atlanta "remained soft," Minneapolis "mixed," and San Francisco "contracted modestly"; employment increased, particularly leisure
and hospitality; employers cited health concerns, childcare, and emergency unemployment insurance payments as challenges to rehiring; PPP loans provided employers with adequate liquidity in the short run but the strength of demand over time will determine whether they can avoid layoffs; wages were flat to mixed; prices were little changed; anecdotes indicated that federal fiscal assistance had materially strengthened demand (this implies that the withdrawal of assistance following the end of July could become a significant negative factor); (Fed nomenclature for describing economic activity: flat, slight, modest, moderate, solid, strong, in ascending order)

✓ July 29th FOMC meeting: the policy statement noted that “economic activity and employment have picked up somewhat in recent months but remain well below their levels at the beginning of the year.” The statement also included a caution that “the path of the economy will depend significantly on the course of the virus;” this implies that the FOMC views containment of Covid-19 as the most important matter impacting economic activity; the statement also noted that weaker demand and lower oil prices are holding down inflation

✓ Minutes of the July 29th meeting will be released on August 19th

✓ At the September FOMC meeting, the strategic review of monetary policy will be concluded; a key outcome of the review is likely to be replacing the 2% inflation target objective with an average 2% inflation target over the cycle, which would imply that inflation could run above 2% at times without prompting a monetary policy response; the review will also include discussion of forward guidance alternatives and asset purchase policies; the policy intent would be to anchor inflation expectations and reduce market volatility in short-term interest rates; forward guidance could be time based or could be explicitly tied to a market metric such as pegging the 3-year Treasury yield at 0.25% as the Royal Bank of Australia has done – this form of forward guidance is referred to as yield curve control and would indicate that the FOMC has no intention of raising the federal funds rate for at least 3 years; while the FOMC may add yield curve control to its policy took kit, it is unlikely that the FOMC will adopt an explicit yield curve control policy at this time
• **Financial conditions** should remain relatively easy during 2020 as long as the FOMC maintains an easy monetary policy; however modest tightening during the year is possible from the extremely easy level of conditions that prevailed at the beginning of the year
  - GS’s FCI index = 98.76 at the beginning of the year; as the Covid-19 recession gathered momentum, FCI peaked at 100.78 on April 3rd, reflecting a sharp decline in stock prices and widening credit spreads, partially offset by lower interest rates; however, following massive monetary and fiscal stimulus, it dropped back to 98.54 on August 14th as stock prices continued to rise and credit spreads tightened further; financial conditions are now easier than they were prior to the onset of the Covid-19 recession – monetary policy has been super accommodative and this is likely to continue for a long time
  - In spite of the severity of the Covid-19 recession, financial conditions tightened only briefly and are nowhere near as tight as they were during the GFC in 2008-09; that outcome owes to the swift action of the Federal Reserve in providing copious amounts of liquidity to the market and setting up quickly several credit facilities to improve liquidity for various asset classes

• **Total inflation** measures (CPI and CPE) will rise slightly in 2020 as the economy continues to operate above full capacity: total CPI will rise 2.0% to 2.4% and total CPE will rise 1.6% to 2.0%.
  - GS total 2020 CPI original forecast = 2.2%, revised = 1.3% due to the decline in oil prices since the beginning of 2020 and slack demand caused by the Covid-19 recession
  - B of A total 2020 original CPI forecast = 2.4%, revised = 1.2%; total original PCE forecast = 2.0%; revised = 1.1%, primarily due to collapse in oil prices and weak demand caused by the Covid-19 recession
  - FOMC total 2019 original PCE forecast = 1.8% to 1.9%; revised = 0.6% to 1.0%
  - Bill’s original PCE forecast = 1.5% to 1.6%; revised = 0.1%
  - Total CPI inflation exceeded the forecast range in January, was within the forecast range in February, and fell substantially below the forecast range in March - July; falling oil prices and slack demand during the Covid-19 recession will keep this measure below the forecast range in coming months
Market expected long-term CPI inflation rate, embedded in TIPS (Treasury Inflation Protected Securities) = 1.81% (approximately 1.51% CPE) in December 2019

TIPS rate averaged 1.74% in early August, implying 1.44% long-term CPE inflation

The recent rise in inflation expectations is being driven by two forces: the ongoing economic recovery from the Covid-19 recession and the market’s expectation that the FOMC will adopt a 2% average inflation policy guideline at its September meeting, which the market interprets to mean that the FOMC will wait much longer, perhaps until the economy is very near or at full employment before it raises interest rates

<table>
<thead>
<tr>
<th>Month</th>
<th>Total CPE</th>
<th>Total CPI</th>
<th>Univ. Mich. LT Inf. Expectations</th>
<th>TIPS Inf. Expectations</th>
</tr>
</thead>
<tbody>
<tr>
<td>December 2019</td>
<td>1.64%</td>
<td>2.29%</td>
<td>2.2%</td>
<td>1.81%</td>
</tr>
<tr>
<td>January 2020</td>
<td>1.88%</td>
<td>2.48%</td>
<td>2.5%</td>
<td>1.77%</td>
</tr>
<tr>
<td>February</td>
<td>1.84%</td>
<td>2.32%</td>
<td>2.3%</td>
<td>1.65%</td>
</tr>
<tr>
<td>March</td>
<td>1.34%</td>
<td>1.52%</td>
<td>2.3%</td>
<td>1.30%</td>
</tr>
<tr>
<td>April</td>
<td>.48%</td>
<td>.38%</td>
<td>2.5%</td>
<td>1.45%</td>
</tr>
<tr>
<td>May</td>
<td>.50%</td>
<td>.24%</td>
<td>2.7%</td>
<td>1.47%</td>
</tr>
<tr>
<td>June</td>
<td>.75%</td>
<td>.71%</td>
<td>2.5%</td>
<td>1.53%</td>
</tr>
<tr>
<td>July</td>
<td>2.6%</td>
<td></td>
<td></td>
<td>1.60%</td>
</tr>
<tr>
<td>August</td>
<td></td>
<td></td>
<td>2.7%</td>
<td>1.74%P</td>
</tr>
<tr>
<td>September</td>
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<tr>
<td>October</td>
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<td>December</td>
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</table>

University of Michigan survey of long-term consumer price inflation expectations has increased from 2.2% in December 2019 to 2.7% in August 2020, which may reflect concern about the potential impact of federal stimulus in response to the Covid-19 recession of future inflation; (this survey consistently reports higher inflation expectations than TIPS, so what is important to watch is directional changes in consumer expectations)
• **Core inflation** (CPI and CPE) will rise slightly from 2019’s level in response to an economy operating above full capacity: core CPI will rise 2.2% to 2.4% and core CPE will rise 1.8% to 2.0%.

  ✓ GS original core 2020 CPI forecast = 2.3%, **revised** = 1.6%; original core PCE = 1.9%, **revised** = 1.3%; GS core PCE inflation tracker indicates the trend rate is 1.75%

  ✓ B of A core 2020 CPI original forecast = 2.4%, **revised** = 1.6%; core PCE original = 1.9%, **revised** = 1.3%

  ✓ FOMC core 2020 PCE original forecast = 1.9% to 2.0%, **revised** = 0.9% to 1.1%

  ✓ Bill’s core PCE original forecast = 1.43%, **revised** = 0.62%

  ✓ Core CPI inflation declined month over month in March – April for the first time since January 2010
<table>
<thead>
<tr>
<th>Month</th>
<th>Core CPE</th>
<th>Core CPI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019</td>
<td>1.62%</td>
<td>2.25%</td>
</tr>
<tr>
<td>January</td>
<td>1.75%</td>
<td>2.27%</td>
</tr>
<tr>
<td>February</td>
<td>1.87%</td>
<td>2.37%</td>
</tr>
<tr>
<td>March</td>
<td>1.65%</td>
<td>2.10%</td>
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<tr>
<td>April</td>
<td>.93%</td>
<td>1.44%</td>
</tr>
<tr>
<td>May</td>
<td>.96%</td>
<td>1.24%</td>
</tr>
<tr>
<td>June</td>
<td>.95%</td>
<td>1.19%</td>
</tr>
<tr>
<td>July</td>
<td></td>
<td></td>
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<tr>
<td>August</td>
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<td>December</td>
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**Core PCE Inflation Forecasts**

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</thead>
<tbody>
<tr>
<td>Actual</td>
<td>1.84</td>
<td>1.68</td>
<td>2.08</td>
<td>1.62</td>
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<td></td>
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<tr>
<td>B of A</td>
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<tr>
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<td>1.70</td>
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<td>CBO</td>
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<td>1.76</td>
<td>1.91</td>
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<td></td>
</tr>
</tbody>
</table>

**Bill’s Scenarios**

| V-recession | 1.08 | .59 | .79 | .56 | .18 |
| U-recession | 1.07 | .59 | .77 | .63 | .12 |
| FOMC – High# | 1.1  | 1.7 | 1.8 |      | 2.0LR|
| FOMC – Low # | .9  | 1.4 | 1.6 |      |      |

**Core CPI Inflation Forecasts**

<table>
<thead>
<tr>
<th></th>
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<th></th>
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<tbody>
<tr>
<td>Actual</td>
<td>2.21</td>
<td>1.77</td>
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<td>B of A</td>
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*CPI – total index; over the past 20 years core CPI has averaged 30 basis points higher than core CPE

“In the long run, my model’s inflation projections decline in response to slower employment growth and structural trends, such as aging demographics, and is outside of the consensus view that the FOMC
will be successful in achieving and sustaining its 2% inflation target; note, however, that TIPS implies a long-term CPE inflation rate of approximately 1.44%

✓ [Note: because of the construction of my econometric model and its dependence upon historical relationships, extreme volatility in key economic variables over a short period of time, which is what has occurred recently, leads to hyper volatility in the model’s projections; this volatility is apparent in the projections of inflation and interest rates; the spike in core PCE inflation in the chart above reflects the historical V-shaped recovery in inflation but within a very compressed time frame; this is not a very likely outcome; a secondary spike repeats in 2022-23; this hyper volatility in the projections of core CPE inflation is not likely to occur; the projections should be interpreted as indicating the direction of inflation, increasing or decreasing, but not the precise level]

- **The 10-year Treasury rate** is likely to remain relatively stable during 2019 and fluctuate during the year in a range between 1.50% and 2.25%. Strong real GDP and employment growth would push the rate toward the top end of the range; soft inflation and/or heightened financial instability would push the rate toward the bottom end of the range.
  ✓ The 10-year Treasury Note yield averaged 1.86% in December 2019; the table shows the average rate for each month
  ✓ GS original forecast for 2020 Q4 = 2.25%; revised = 1.05%
  ✓ B of A original forecast for 2020 Q4 = 1.80%; revised = 1.00%
  ✓ CBO’s original forecast for 2020 Q4 = 2.32%, revised = .75%
  ✓ Bill’s original forecast for 2020 Q4 = 2.07%, revised = .10%; the out-of-consensus decline in the 10-year rate after 2022 follows directly from Bill’s out-of-consensus decline in inflation; this longer-term out-of-consensus view looks more reasonable in light of the recent plunge in long-term interest rates, providing that long-term interest rates do not rebound appreciably once recovery from Covid-19 recession occurs and provided that inflation remains well below 2%
[Note: because of the construction of my econometric model and its dependence upon historical relationships, extreme volatility in key economic variables over a short period of time, which is what has occurred recently, leads to hyper volatility in the model’s projections; this volatility is apparent in the projections of inflation and interest rates; the 3-quarter spike in the 10-year rate in the chart reflects a V-shaped increase in interest rates during recovery from the Covid-19 recession; this is not a very likely outcome; the main takeaway is that long-term rates are likely to remain near zero for an extended time and not rise as other forecasters expect]

- **State and local investment spending** growth will be modest within a real growth rate of 1.5% to 2.0% (4-Q moving average).
  - **Original GS 2020 forecast** = 1.4%, **revised** = 0.4%
  - **Original CBO 2020 forecast** = 0.6%, **revised** = -3.7%, decrease caused by budget cuts forced by substantial decline in revenues; note the huge disparity between GS’s and CBO’s revised assumptions – growth in state and local investment spending slowed during and immediately following the Great Recession but did not turn negative; it is possible that GS’s assumptions may be too optimistic and
CBO’s may be too pessimistic unless Congress fails to provide fiscal support to the states in Phase 4 fiscal stimulus legislation, which is an increasing possibility

- As measured by the EVRISI diffusion index, expansion in tax revenues slowed a little at the end of 2019: Nov. = 60.4; Dec. = 57.0; but increased in early 2020: Jan. = 62.7; Feb. = 62.8; however growth in revenues slowed substantially in March = 51.1, and plummeted in April to 31.5 and May to 29.9, signaling contracting state tax revenues, contraction continued in June =35.8 and July = 44.0 at a slower rate

- State and local revenue shortfalls in coming months are likely to exceed declines experienced during the Great Recession when states and local communities were forced to cut spending, which subtracted an estimated 1.5% from GDP growth; during the recovery from the Great Recession in 2010 and 2011, state and local spending budget constraints reduced real GDP by 0.4% to 0.8%

- The Center for Budget and Policy Priorities forecasts a funding shortfall for states and local communities of $325 billion in 2020; this shortfall could be as high as $555 billion over 2020 and 2021

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*1999-2020 annual average growth rate = 1.56%; federal = 2.52%; state & local = 1.01%
The federal budget deficit as a percentage of nominal GDP will differ little from fiscal year 2019’s average level of 4.57% (4.64% for the month of September); expected range is 4.4% to 4.8%. Stronger than expected growth would push the deficit toward the lower end of the range.

Consequences of Covid-19 will push up the 2020 federal fiscal budget deficit substantially, because of a decline in nominal GDP, reduced tax revenues and increased federal spending:

- President Trump declared a state of national emergency on March 13th, which freed up $42 billion for emergency services for states and local communities
- Interest on student loans waived
- Oil purchases authorized for the Strategic Petroleum Reserve
- Congressional legislation passed; estimated to cost about $100 billion (Phase 1):
  - Medicare and Medicaid coverage of CV testing at no cost
  - Increased aid to states for Medicaid ($50 billion)
  - Requires employers with fewer than 500 employees to provide up to 12 weeks of paid sick leave with limited refundable tax credits provided to the businesses
  - Unemployment insurance expanded to cover lost wages
  - Interest-free loans to states to pay for increased state-funded benefits
Expansion of food stamp benefits

- Phase 2 legislation, the CARES Act which was passed on March 27th, included programs to respond to lost wages and cash flow problems of businesses stemming from substantial losses in revenues, including large companies such as airlines and strategic defense companies (Boeing);
  - CBO estimated that the CARES Act will add $1.8 trillion to the federal deficit over the next 10 years:
    - $988 billion increase in mandatory spending
    - $446 billion in revenue decreases
    - $326 billion in discretionary outlays, stemming from emergency supplemental appropriations
    - There will be no impact on the deficit from the $454 billion appropriate to the Treasury Department to provide equity capital for Fed credit facilities because CBO assumes that income from the loans will offset credit losses

Business relief

- $50 billion for airlines split between loans and grants
- $8 billion for cargo split between loans and grants
- $17 billion in loans for national security firms, e.g. Boeing
- Conditionality – limitations on stock buybacks, executive compensation and employee layoffs

Fed credit facilities - $454 billion to Treasury to provide equity support to new 13(3) Fed credit facilities – includes limitations on stock buybacks, executive compensation and employee layoffs

Small business loans for firms with no more than 500 employees - $377 billion in loans and forgivable grants 100% guaranteed by the SBA for 2.5 times monthly payrolls, mortgage/rent payments, utilities – reduction in employment reduces amount of loans that is forgivable

Individual relief - $1,200 checks to individuals with phase out for higher earners; $500 checks per child

Expansion of unemployment insurance eligibility and additional $600 per week through July

Employee retention credit – refundable credit for employer portion of social security taxes equal to 50%
of eligible wages from March 31 to December 31, 2020 up to a maximum of $10,000 per employee

- Deferment of payment of payroll taxes from date of enactment to December 31, 2020; half due by December 31, 2021 and the remainder due by December 31, 2022
- Net operating losses for 2018, 2019, and 2020 can be carried back 5 years, which will enable some firms to claim tax refunds
- Relaxation of the limits on business interest deductions from 30% to 50%
- Waiver of the 10% tax penalty for early withdrawal from retirement funds for coronavirus-related relief (2020 only)
- Waiver of minimum retirement withdrawal amount requirement (2020 only)
- For individuals who do not itemize, a 2020 tax deduction up to $300 for contributions to churches and charities
- For individuals who itemize waiver of the percentage of income limitation on deductible contributions to charities
- Employers permitted to make tax-free payments on an employee’s student loans until December 31, 2020
- $100 million provided to the Treasury Department to hire banks to act as “fiscal agents” of the federal government
- Fiscal relief in Phase 2 could amount to $2.2 trillion over 2020 and 2021
- An early assessment of Phase 2 is that it is not adequate, with the Paycheck Protection Program (PPP), in particular, in need of substantial additional funding; GS believes that Phase 4 tax relief could amount to an additional $500 billion and that as much as $1.5 trillion more fiscal relief will be needed in 2021 and 2022
- Phase 3 legislation included $484 billion in funding:
  - $320 billion for PPP in addition to the $350 billion approved in Phase 2 with $60 billion ($50 billion in loans and $10 billion in grants) dedicated to small lenders and community based financial institutions; maximum needed under the eligibility guidelines, assuming full take down, amounts to $740 billion
$50 billion goes to the SBA disaster relief fund and $10 billion to the SBA Emergency Economic Injury Grant program

$75 billion for hospitals, $11 billion for states for coronavirus testing, and other miscellaneous health care funding

Proposals not included in phase 4 legislation include: a second round of individual checks; additional family and medical leave; rollback of limitations on state and local tax deductions; new OSHA regulations to assure a standard for airborne illness; and infrastructure investments

Failure to include funding for states and local communities will force those governments to cut spending by as much as $350 billion; President Trump indicated he was open to state and local aid in the future, but skeptics were quick to observe that his support might be contingent on state governors to lift lockdowns

The House of Representatives passed the $3 trillion HEROES Act, Phase 4 fiscal stimulus, on May 15th; Senate majority leader Mitch McConnell and Republicans took no action; the HEROES Act included the following provisions:

- Approximately $1 trillion for aid to state and local governments
- A second round of stimulus checks to individuals, $1,200 for individuals earning less than $75,000 annually and the same amount to children rather than $500
- Extension of the extra $600 per week in unemployment insurance payments from July 31st to January 2021
- $75 billion for Covid-19 testing and contact tracing
- $100 billion for hospitals
- $75 billion in mortgage relief and $100 billion for assistance to renters
- $25 billion for the insolvent U.S. Postal Service
- $200 billion for a “heroes fund” for essential workers to receive hazard pay
- Health care changes including increasing the Federal Medical Assistance Percentage payments by 14% through June 2021 and eliminating cost sharing for
Medicaid and Medicare beneficiaries for Covid-19 treatment and vaccines

- Raising the Child Tax Credit
- Making the EITC more generous
- Eliminating the $10,000 cap on state and local tax deductions

- The House passed legislation to liberalize PPP on May 29th and the Senate followed with its approval on June 5th
  - Deadline to hire back employees to qualify for PPP loan forgiveness extended from June 30th to December 31st
  - 24 weeks of eligible expenses, rather than 8 weeks, eligible
  - Lowers minimum amount of eligible expenses that must be payroll expenses from 75% to 60%
  - Minimum loan maturity extended from 2 to 5 years
  - Changed terms apply to all existing as well as new PPP loans
  - Subsequently, Congress approved an extension of PPP from June 30th to August 8th

- Congress returned on July 20th and then recessed in early August for the Democrat and Republican presidential conventions; Congress was unable to reach agreement on Phase 4 stimulus legislation and may make another attempt to reach agreement in September; the Senate (Republican) bill provides for an additional $1 trillion in spending; the House passed HEROES Act has a $3 trillion price tag, however Speaker Pelosi has suggested the House could accept a $2 trillion bill; Phase 4 legislation, should it eventually pass, likely will include several categories of fiscal relief:
  - The Senate Republican bill contained $105 billion in education funds to states and local governments and reportedly negotiations added another $100 - $150 billion in broader assistance; the final bill, if it is passed by Congress, is likely include broader assistance of approximately $500 billion to be spread out over two fiscal years
  - Modified extension of enhanced unemployment benefits; current enhanced benefits amount to about $18 billion per week in the aggregate or 4% of annual nominal GDP, thus failure to extend enhanced benefits
would have very negative macroeconomic consequences; the Senate Republican bill establishes a $200 per week enhanced payment for August and September (raised to $400 per week through mid-December in negotiations) after which payments would vary with each unemployed worker up to 70% of prior wages but with a cap of $500 per week; implementation of this proposal will be operationally complex for states and many would be challenged to meet a December deadline; a possible compromise is to extend the $600 per week benefit for a couple of months and gradually reduce it perhaps with some customized limits for individuals

- The Senate bill includes a hiring bonus that would expand the existing “Work Opportunity Tax Credit” to cover 50% of wages paid to individuals who had been on unemployment benefits up to $5,000; this would be available for wages paid between the enactment date of legislation and December 31st

- The Senate Republican bill provides an additional $90 billion, bringing the total in this program to $749 billion of which $521 billion has been disbursed, for PPP business loans and grants which focus on small businesses with up to 300 employees who can demonstrate a 50% reduction in revenues; the Senate bill also expands the employee retention credit to provide a 65% subsidy for wages paid to employees of hard-hit businesses

- Another round of stimulus checks to households ($1,200 per adult and $500 per child (HEROES Act provides for $1,200 per child), the same as in round 1) – targeted at incomes of $40,000 or less; each eligible family would receive an average of $1,200 and total cost of the program would be approximately $240 billion; (first round of stimulus checks targeted incomes of $75,000 or less; average per family was $1,550 and total cost was approximately $300 billion); the timing of sending checks will be highly politically charged; if they go out quickly it could boost consumer sentiment in
October just prior to the November 3rd presidential election

- The Senate Republican bill provides $79 billion for various health programs and $25 billion for health providers; the HEROES Act provides $175 billion for hospitals
- The Senate Republican bill includes $97 billion for a variety of other programs; The HEROES Act also has a variety of miscellaneous funding provisions; in final Phase 4 legislation the House and Senate will have to reconcile their differences
- The Senate Republican bill includes Covid-19 liability protection for businesses and others; this provision is not in the HEROES Act but Democrats are likely to accept this provision, perhaps with minor modifications

- President Trump issued executive orders on August 8th intended to provide financial assistance to individuals and businesses in lieu of Congress’ failure to pass Phase 4 legislation
  - $44 billion was redirected from the Disaster Relief Fund to enable states to pay an extra $400 per month in unemployment insurance; the federal government would pay $300 and the states would pay $100; these repurposed funds will be exhausted in approximately one month; checks to unemployed workers are not likely to be disbursed until the end of August
  - Employee payroll taxes were deferred from September 1st to December 31st; this will help only if businesses cooperate voluntarily and many are unlikely to do so because they may have to cover deferred employee payroll taxes after December 31st; of course, companies could deduct deferred employee payroll taxes from paychecks after December 31st but this prospect could prompt employees not to spend the extra income, which would negate the intended stimulative impact of the executive order
  - The CARES Act suspended student loan payments through September 30th and reduced the interest rate to zero; the executive order directs the Department of Education to extend the expiration date to December
31st; this will result in a modest benefit of approximately $10 billion

- The executive order directs the Housing and Urban Development Department (HUD) to take actions to prevent evictions and foreclosures due to Covid-19-related financial hardships and directs the Treasury Department and HUD to make funds available to provide assistance to renters and homeowners unable to meet their obligations
  - The general verdict on President Trump’s executive orders was that they were primarily intended to score political points but are unlikely to have a material impact on the economic activity
  - Failure to pass Phase 4 fiscal stimulus legislation will cut August disposable income by $70 billion, equal at an annual rate to 4% of nominal GDP
  - September 30th marks the end of the fiscal year; Congress will need to pass a continuing resolution to fund government until after the election and avoid a partial shutdown of the government on October 1st, something that neither party is interested in letting happen; the deadline for passing a continuing resolution may turn out to be the catalyst that breaks the impasse on Phase 4 fiscal stimulus legislation

- CBO fiscal 2020 deficit: original = 4.51%, revised = 18.34%; CBO’s January 10-year budget projections increased the 2020 fiscal deficit, reduced the forecast deficits slightly in the next few years, but raised deficits in later years; in May CBO revised fiscal 2020 and 2021 deficits for impacts of Covid-19 recession and in July CBO revised estimates of GDP for 2020 – 2030; estimates for deficits for 2022 – 2030 not yet revised, which means that the ratio of the accumulated public debt to GDP ratio for 2022 – 2030 is understated
- GS fiscal 2020 deficit original forecast = 4.56%; revised = 20.38%; includes forecast decline in nominal GDP and substantial additional federal spending; 2020 fiscal deficit forecast = $4.0 trillion; fiscal 2021 = $2.4 trillion
- B of A fiscal 2020 deficit: original = 4.47%, revised = 21.26%; includes forecast decline in nominal GDP and substantial additional federal spending; 2020 fiscal deficit forecast = $4.3 trillion; fiscal 2021 = $2.5 trillion
Bill’s V-recession scenario fiscal 2020 deficit = 19.81%: includes forecast decline in nominal GDP and substantial additional federal spending; 2020 fiscal deficit forecast = $4.0 trillion; fiscal 2021 deficit = $2.4 trillion

Bill’s U-recession scenario fiscal 2020 deficit = 19.83%: includes forecast decline in nominal GDP and substantial additional federal spending; 2020 fiscal deficit forecast = $4.0 trillion; because of slow recovery fiscal 2021 deficit = $2.6 trillion

Table below shows ratio of 12-month moving average of deficit divided by current quarter nominal GDP for fiscal years 2019 and 2020

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- Fiscal 2020 federal budget deficit: January and February = 4.94%, March = 4.81%, April = 9.19%, May = 10.09%, June = 14.15%, July = 14.11% and will worsen in coming months as the Covid-19 recession depresses tax revenues and if Congress authorizes additional spending to mitigate the consequences of the Covid-19 recession

Prior to the Covid-19 crisis, the Trump Administration submitted to Congress its proposed fiscal 2021 budget, which included substantial cuts to services; this was a political document which never had a chance of adoption and has now been overtaken by events
By law, CBO is required to assume existing tax law will not be changed in the future; however, it is likely that provisions of the Tax Cuts and Jobs Act, which are set to expire in coming years, will be extended by Congress; this would result in higher deficits in later years; CBO has updated its deficit projections for fiscal 2020 and 2021 for Covid-19 recession impacts and additional spending to combat its consequences.

My projected deficits include the estimated consequences of the Covid-19 recession and congressional legislative responses; in the longer run they are higher than other estimates because nominal GDP grows more slowly in my model due to lower inflation and productivity.
CBO updated its 10-year budget deficit projection in January: the accumulated deficit rose $160 billion to $12.4 trillion; reductions in tax revenues and increases in Medicare spending were offset partially by lower interest costs and other minor legislative and technical changes (not revised for the consequences of the Covid-19 recession); CBO updated its deficit projections for fiscal 2020 an 2021 in May, but has not yet revised its deficit projections for the remainder of the 10-year forecast period.

CBO projects that the cumulative federal budget deficit will rise to 180% of nominal GDP by 2050 (this estimate is likely to increase when CBO updates its deficit projections for the impact of the Covid-19 recession).

Pursuant to the requirements of the Budget Control Act of 2011, CBO submitted a report to Congress in August that spending has not exceeded budget caps as amended and thus no sequestration of expenditures is required; the provisions of the Budget Control Act expire at the end of fiscal 2021.
2. **Rest of the World - 2020 Outlook**: Global economic activity, which peaked in mid-2018, slowed in 2019 and is expected to improve in 2020. (“+” indicates growth above potential or improving trend; “-“ indicates growth below potential or worsening trend). The OECD global leading indicator index is expected to improve in 2020, driven by Europe and China.

- Original 2020 forecasts for GDP and CPI were made at differing times; timing discrepancies may account for some of the forecast differences:
  - GS: December 2019; updated July 2020
  - B of A: December 2019; updated August 2020
  - IMF: October 2019; updated June 2020
  - World Bank: October 2019: January 2020; updated June 2020
  - OECD: November 2019; updated March 2020 (global only)

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- OECD global leading economic activity indicator peaked at 101.56 in November 2017 and declined steadily to 99.46 in July 2019; between July and December this indicator rose to 99.59, indicating modest improvement in global economic activity, but as the coronavirus pandemic swept through the world, the indicator fell to 91.14 in April, a lower level than the worst month during the GFC of 2008-09, but
began to recover in May (93.76), June (97.11) and July (97.91); (values of this measure below 100 indicate below trend growth; previous month’s values are revised every month and adjusted for cyclical amplitude)

✓ JP Morgan’s global composite output index (manufacturing and services) fell from 52.2 in January to 26.5 in April, but recovered to 36.3 in May and 47.8 in June, then expanded modestly in July (50.8); the global manufacturing PMI fell from 50.4 in January to 39.6 in April, but recovered to 42.4 in May and 47.8 in June, then expanded modestly in July (50.3), reflecting the consequences of the Covid-19 pandemic and an emerging recovery

✓ GS’s global current activity indicator has been a good indicator of the strength of economic activity in many countries; however, GS ceased publishing these data in June 2019; the only other timely monthly indicators of economic activity are OECD’s leading economic indicator (note: OECD LEI is amplitude adjusted every month going back years, which means that the data in the table above will be revised every month)

✓ IMF updated its global economic outlook in June 2020 and observed that “This is a crisis like no other and will have a recovery like no other;” the global recession has worsened and the recovery in 2021 is likely to be weaker than expected

- **Global growth** is likely to improve in 2020 to 3.2 % (B of A) to 3.4% (GS and IMF). However, downside risks, such as U.S. trade policies, and, of course the risks of political turmoil in Europe, Iran, the Middle East, Korea, and possibly elsewhere could lead to slower growth.

✓ GS 2020 global growth original forecast = 3.4%, vs. 3.1% in 2019; revised = -3.3%
  - GS reports that global growth was 7.5% below its pre-Covid-19 recession level in early August compared to -17% in mid-April

✓ B of A 2020 global growth original forecast = 3.2%, vs. 3.1% in 2019; revised = -4.3%

✓ IMF 2020 global growth original forecast = 3.41% vs. 3.01% in 2019; revised = -4.9%

✓ World Bank 2020 growth original forecast = 2.5% vs. 2.4% in 2019 (lower because of different weighting methodology; 2020 forecast = 3.2% using purchasing power parity weights); revised = -5.2%

✓ OECD 2020 global growth original forecast = 2.94% vs. 2.91% in 2019; revised 2020 = 2.4%
• **Global inflation** is expected to rise slightly in 2020.
  ✔ B of A *original* forecast = 3.3%; *revised* = 2.6% vs. 3.1% in 2019 
  ✔ GS *original* forecast = 3.1% 
  ✔ IMF *original* forecast = 3.56% vs. 3.41% in 2019; *revised* = 2.99%

• **European growth** will slow slightly to 1.0% (B of A) to 1.1% (GS) from 2019’s 1.0% pace.
  ✔ 2019 real GDP growth was 1.0%, the weakest since 2013 and was depressed by the trade war, a slump in auto sales, which hit Germany particularly hard, Brexit, and Turkey’s economic and currency woes 
  ✔ 2019 Q4 real GDP growth was 0.1%, which annualizes to 0.4% and does not herald good momentum going into 2020 
  - 2020 Q1 real GDP growth = -3.8%; Q2 = -10% QoQ 
  - Real GDP fell to a 15-year low in 2020 Q2 
  ✔ B of A 2020 *original* forecast = 1.0% vs. 1.0% in 2019; *revised* 2020 = -7.9% 
  ✔ GS 2020 *original* forecast = 1.1%; *revised* = -7.6% 
  ✔ IMF 2020 *original* forecast = 1.39%; *revised* = -10.2% 
  ✔ World Bank 2020 *original* forecast = 1.0%; *revised* = -9.1%
  ✔ ECB forecast = -8.7%; slow recovery; output 4% below pre-Covid-19 expected level at end of 2022 
  ✔ GS no longer publishes CAI data regularly, but occasionally provides monthly data in reports, which will be provided in the table below when available

<table>
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<tr>
<th>CAI</th>
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Manufacturing and services diffusion indices are provided at the beginning of the month for many countries; values greater than 50 indicate expansion, while values less than indicate contraction; each month’s index is relative to the prior month, which means that expansion during a recovery from recession does not mean that the level of output is higher compared to what prevailed prior to the recession.

Manufacturing was contracting in the euro area as 2019 ended; the rate of contraction was slower in January and February, but manufacturing remained in recession; because of Covid-19, the contraction deepened in March and was much worse in April, contraction slowed in May and June, and recovery began in July.

Services expanded modestly in January and February; plunged in March and April in response to the Covid-19 recession; contraction slowed in May and June, and recovery began in July.

Evercore ISI’s European sales diffusion index fell from 41.9 (contraction) in December 2019 to 31.2 (severe contraction) in June 2020, but recovered modestly to 36.9 on August 14, 2020.

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With the exception of the U.K. and Sweden, most European nations were successful in containing the Covid-19 pandemic, albeit at substantial cost to economic activity; Europe is now reopening and economic activity is recovering, and importantly unlike the United...
States but like China, this appears to be occurring without an reescalation in Covid-19 cases

✔ **Germany**
  - B of A 2020 original GDP forecast = 0.5%, **revised** = -5.9% vs. 0.6% in 2019
  - GS 2020 original GDP forecast = 0.8%, **revised** = -5.5%
  - IMF 2020 original GDP forecast = 1.25% vs. 0.56% in 2019; **revised** = -7.8%
  - OECD 2020 original GDP forecast = 0.44% vs. 0.60% in 2019
  - Real GDP 2020 Q2 = -10% QoQ
  - Manufacturing continued to contract in January, but at a slower rate; contraction got much worse in April but moderated in May and June, recovery began in July
  - Services expanded at a greater rate in January, but contracted in March, plunged in April, contraction moderated in May and June, recovery began in July
  - 47% of Germany’s GDP is exported which makes it especially vulnerable to global declines in demand for its manufactured goods; Germany was particularly hard hit in 2019 by the decline in Chinese demand; Germany’s manufacturing production declined 7.4% in 2019; Germany’s manufacturing accounts for 38.3% of euro area manufacturing (Italy = 15.3%, France = 14.6%, and Spain = 7.4%); it goes without saying that Germany’s manufacturing sector has an outsized impact on the euro area economy; Covid-19 and China’s slowdown had a devastating impact on German and European growth; however, with Covid-19 tamed and vigorous fiscal support, economic recovery in Germany is poised to be potentially quite strong in the second half of 2020
  - Germany’s governing coalition agreed on a €130 billion fiscal stimulus package, equal to about 4% of GDP, which would shift fiscal emphasis from loan guarantees to spending and transfers that would support economic activity as the economy reopens; the package includes €20 billion value added tax cut, €25 billion to offset fixed costs for hard-hit businesses, €50 billion in investments and research and development including green energy; this initiative coupled with previous fiscal initiatives in response to the Covid-19 recession will bring Germany’s fiscal...
stimulus to 8.5% of GDP compared to the U.S.’s 10.5% of GDP fiscal stimulus

✓ **France**
  ✓ France imposed substantial social distancing policy to contain the spread of Covid-19; economic damage was severe

? 2019 Q4 real GDP was -0.1% or -0.4% annualized; 2020 Q2 = -14% QoQ

✓ B of A 2020 original GDP forecast = 1.2%, revised = -10.2% vs. 1.3% in 2019
✓ GS 2020 original GDP forecast = 1.0%, revised = -10.3%
✓ IMF 2020 original GDP forecast = 1.26% vs. 1.31% in 2019; revised = -12.5%
✓ OECD 2020 original GDP forecast = 1.20 vs. 1.31% in 2019

- Both manufacturing and services expanded at a very modest rate in January, but manufacturing growth stalled in February, and both manufacturing and services plunged in March and April in response to the Covid-19 shutdown; the rate of contraction in manufacturing and services moderated in May and both moved into expansion territory in June and July

✓ **Italy**
- Italy was extremely hard hit by Covid-19 and restricted travel and public gatherings; health care facilities were overwhelmed; stock prices dropped by more than half and it was worse for bank stocks; bank solvency is an increasing risk
- Italy’s public-debt-to-GDP ratio is expected to top 170% in 2020

? 2019 Q4 real GDP was -0.3% or -1.2% annualized
- Real GDP fell to a 26-year low in 2020 Q2; -12% QoQ
✓ B of A 2020 original GDP forecast = 0.3%, revised = -10.4% vs. 0.2% in 2019
✓ GS 2020 original GDP forecast = 0.1%, revised = -9.6%
✓ IMF 2020 original GDP forecast = 0.54% vs. 0.30% in 2019; revised = -12.8%
✓ OECD 2020 original GDP forecast = 0.42% vs. 0.19% in 2019
- Manufacturing continued to contract in January, but at a slower rate, but contraction deepened in March and April, the rate of contraction slowed in May and June
- Services expanded at a slightly greater rate in January and February, but cratered in March and April in response to the Covid-19 shutdown; the rate of contraction slowed in May and June, recovery began in July

✓ **Spain**

- Like other European countries, Spain imposed substantial social distancing policies to contain the spread of Covid-19; economic damage was severe; unlike most other European nations, Spain has experienced a secondary wave of Covid-19 infections

✓ B of A 2020 *original* GDP forecast = 1.6%, *revised* = -12.1% vs. 2.0% in 2019

✓ GS 2020 *original* GDP forecast = 1.7%, *revised* = -12.6%

✓ IMF 2020 *original* GDP forecast = 1.85% vs. 1.98% in 2019; *revised* = -12.8%

✓ OECD 2020 *original* GDP forecast = 1.64% vs. 1.98% in 2019

- Real GDP 2020 Q2 = -19% QoQ

- Manufacturing continued to contract at a slower rate in January (48.5), expanded in February (50.4), contracted in March (45.7), April (30.8), May (38.3), and June (49.0), then returned to expansion in July (53.5)

- Services expanded at a slower rate in January (52.3) and February (52.1), plunged in March (23.0) and April (7.1), the rate of contraction moderated in May (27.9), and returned to modest expansion in June (50.2) and July (51.9)

✓ A coalition government was stitched together in early January ending the long running political impasse; it remains to be seen how effective the coalition government will be in handling the many challenges confronting Spain, including the secessionist movement in Catalonia

- **European inflation** in 2020 will rise slightly to about 1.4%, still well short of the ECB’s 2.0% target.

✓ **Euro Area**

✓ B of A 2020 *original* CPI forecast = 1.4%; *revised* = 0.4% vs. 1.2% in 2019

✓ GS 2020 *original* CPI forecast = 1.1%, *revised* = 0.6%

✓ IMF 2020 *original* CPI forecast = 1.38% vs. 1.23% in 2019; *revised* = 0.23%

✓ ECB: 2020 = 0.3% = 2021 = 0.8%; 2022 = 1.3%
- March 2020 = 0.7%; April estimate = -0.3%, reflecting primarily plunge in oil prices

✓ Italy
  ✓ B of A 2020 original CPI forecast = 0.8%, revised = -0.1% vs. 0.6% in 2019
  ✓ GS 2020 original CPI forecast = 0.6%
  ✓ IMF 2020 original CPI forecast = 1.04% vs. 0.63% in 2019; revised = -12.8%
  ✓ February CPI was 0.3%; deflation is likely in coming months

✓ Germany
  ✓ B of A 2020 original CPI forecast = 1.5%, revised = 0.5% vs. 1.4% in 2019
  ✓ IMF 2020 original CPI forecast = 1.67% vs. 1.35% in 2019; revised = -7.8%
  ✓ March YoY = 1.4%

✓ France
  ✓ B of A 2020 original CPI forecast = 1.5%, revised = 0.6% vs. 1.3% in 2019
  ✓ GS 2020 original CPI forecast = 1.1%
  ✓ IMF 2020 original CPI forecast = 1.33% vs. 1.30% in 2019; revised = -12.5%

✓ Spain
  ✓ B of A 2020 original CPI forecast = 1.4%, revised = -0.2% vs. 0.8% in 2019
  ✓ GS 2020 original CPI forecast = 0.6%
  ✓ IMF 2020 original CPI forecast = 1.05% vs. 0.70% in 2019; revised = -12.8%
  ✓ March 2020 = 0.1% YoY; July 2020 = -0.6% YoY

- European financial markets should do better in 2020 as growth improves and volatility should be moderate.
  - As the shutdown of economic activity evolved in response to the Covid-19 pandemic, bank stock prices crashed and sovereign bond spreads widened, particularly in Spain and Portugal, which reflected increasing default probability; note: Europe’s ESM (European
Stability Mechanism) fund has a lending capacity of €500, but there are obstacles to rapid deployment

- **ECB** did what it could to stabilize financial markets by massively expanding it purchases of financial assets by €750 billion through the end of 2020, by expanding purchases to include non-financial commercial paper, by relaxing collateral requirements, and by lifting issue/issuer limits to accommodate more asset purchases (Greek bonds can now be purchased); in June the ECB added €600 to the program and extended the program to June 30, 2021, bringing the total to €1.35 trillion; in July the ECB extended a net additional €550 in funds to banks at an interest rate of -1%, which will help bank profitability and keep interest rates on government debt, particularly Italian government debt, very low; this generous bank funding, however, won’t help much in supporting financially-stressed businesses or promote new investment activity

**✓** Germany’s Constitutional Court ruled on May 5th that the ECB’s QE program is beyond the ECB’s competency and gave the ECB 3 months to adopt a new policy directive that its regular QE program is “proportionate;” failure to comply would compel Germany’s Bundesbank to cease participating in the regular QE program; “proportionate” means balancing the ECB’s monetary mandate with the side-effects of QE on economic policy ... specifically the easing of fiscal constraints and fiscal discipline; informed opinion believes that the ECB can make the case that its regular QE program is “proportionate” by preparing detailed and lengthy analysis that makes the case that its primary mandate of price stability remains firmly in place, even as it demonstrates that the evidence would support a finding of proportionality on a standard that puts more weight on a possible tradeoff with economic policy; markets did not react much to Germany’s Constitutional Court ruling which indicates that it believes the ECB can construct the necessary analysis to satisfy the court and continue the regular QE program; it has become clear that the German Constitutional Court’s ruling will not adversely impact the monetary policy initiatives of the ECB

**✓** In expanding its Covid-19 special bond buying program (PEPP) to €1.35 trillion, the ECB essentially ignored the German Constitutional Court’s ruling; ECB President Lagarde set out analytical material to substantiate a proportionality test as required by the German Constitutional Court, without acknowledging that the ECB is subject to any judicial jurisdiction other than the European Court of Justice
ECB’s PEPP purchases plus its regular bond buying program will amount to €1.462 trillion over the next year and will more than cover anticipated eurozone government’s deficit spending of €1.366 trillion.

Italy’s public-debt-to-GDP ratio is headed to 170%; its economy is extremely depressed; Fitch downgraded government debt to one notch above junk; but credit spreads remain narrow on Italian debt thanks to aggressive bond buying by the ECB and the pending adoption of the proposed European Recovery Fund which will provide needed fiscal assistance.

European political dysfunction, populism and nationalism will continue to be a concern during 2020 in many European countries, but risks have diminished since 2019 with a Brexit deal, transitory political stability in Italy, and more pragmatic leadership; however, issues continue to fester below the surface and could erupt at any time.

Germany: prior to the Covid-19 pandemic it appeared that the political situation was deteriorating and that an early national election might occur in 2020; for the time being political infighting has gone into hibernation, but will probably re-emerge once economic recovery is well underway; the next general national election must occur some time between August and October 2021.

The absence of a fiscal union complicated the initial governmental responses to the damage being inflicted by the Covid-19 lockdown and social distancing policies on businesses and individuals;

- A suboptimal compromise was reached after extensive negotiations to assist governments of countries, such as Italy and Spain, in responding to the crisis (1) by extending a credit line from the European Stability Mechanism of 2% of GDP for each member country conditional on the use of funds for specified health purposes; (2) providing a €25 billion EIB guarantee program to support €200 billion of financing for small and medium-sized enterprises; and (3) a temporary European Commission program to lend up to €100 billion to hard-hit countries to support unemployment/short-work programs; a better overall solution, which is politically challenging, would involve the issuance of coronabonds which would be guaranteed jointly and severally by all EU members; the suboptimal solution adopted buys time but sets the stage for future political consequences that will threaten the continued existence of the EU in its present form.
On May 18th German Chancellor Merkel and French President Macron proposed a €500 billion Eurozone Recovery Fund (later increased to €750 billion), which would be financed through Eurobonds issued by the EU and guaranteed by EU revenues, which bypasses direct guarantee by individual EU members which has blocked all attempts to date to raise funds to be used where they are most needed; implementation of the Eurozone Recovery Fund requires increasing the EU’s tax revenues from 1.2% to 2.0% of EU gross national income, or an extra €180 billion in revenues; the proposal, if approved by all EU members, would enable the EU to amplify considerably its financial assistance programs to member countries beyond existing budget passthroughs through borrowing at very low interest rates; while the proposal circumvents the troublesome issue of directly taxing one country to assist others, the need to increase the EU’s taxing authority considerably will challenge national sovereignty and may prove difficult to achieve; however, it is more feasible than other alternatives and may be what is required to prevent an EU existential crisis.

The Eurozone Recovery Fund was approved with only minor modifications on July 21st by the 27 EU member governments; each member’s legislative body will need to ratify the agreement before it can become operational and this will probably take a few months; of the €750 billion fund, €390 billion (reduced from the original proposal of €500 billion) is designated for grants and €360 billion for loans.

Despite the promising aspects of the Eurozone Recovery Fund proposal, EU fiscal risk sharing is unlikely to be adopted and implemented quickly enough to deal effectively with the economic consequences of the Covid-19 recession or to allay concerns about debt solvency of weak members, such as Italy; however, the ECB’s pandemic QE (PEPP) and bank funding initiatives are keeping a lid on sovereign debt interest rates; these are stopgap measures which appear to be sufficiently effective for the time being and which gives EU members the necessary time to agree to the proposed requirements of the European Recovery Fund.

Spain: Catalonia’s desire to secede from Spain is under wraps for the time being but is likely to resurface after the worst of the
coronavirus impacts on human movement and economic activity pass

- U.K. growth is expected to be somewhat weaker in 2020, even though political turmoil has subsided and Brexit is scheduled to occur at the end of January.
  - B of A 2020 original GDP forecast = 1.0% vs. 1.3% in 2019; revised 2020 = -11.4%
  - GS 2020 original 2020 forecast = 1.0%; revised = -10.6%
  - IMF original GDP forecast = 1.45% vs. 1.41% in 2019; revised = -10.2%
  - OECD original GDP forecast = 1.00% vs. 1.24% in 2019; revised = -11.5%
  - 2020 Q1 real GDP declined -2.2% QoQ and was -1.7% YoY; Q2 = -20.4% (annual rate of -59.8%)
  - Retail sales were -13.1% YoY in May
  - PMI Manufacturing Diffusion Index: improvement in January and February stemmed from elimination of political uncertainty in December; contraction in March – May because of Covid-19 pandemic; barely discernible expansion in June and stronger expansion in July
  - PMI Services Diffusion Index: modest expansion in January and February; significant contraction in March – May due to Covid-19 recession, with improvement in June to only modest contraction, strong recovery commenced in July

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- Brexit became final on January 31; since the Covid-19 recession took hold, attention has focused on other matters but negotiations between the UK and EU are underway about the final Brexit terms which are scheduled to take effect at the end of 2020; realistically there are two options: (1) a skinny deal in which there are some agreements but still an increase in trade barriers, of (2) “no-deal” in which case the UK reverts to trading with the EU under WTO rules; up until June 30th there was an opportunity to extend the “transition period” beyond December 31st, but this deadline passed without action, so December 31st is now a hard and unchangeable deadline;
either option will result in increasing trade barriers and both will create long-term economic costs

✓ Business sentiment improved in early 2020 in response to the end of political turmoil; however, the “bounce” was short-lived as the negative consequences of Covid-19 decimated economic activity

✓ UK government announced on March 17th 330 billion pounds for credit guarantees, cash grants, and tax relief for retail, hospitality and leisure businesses, an enhanced business interruption loan program, and a 3-month mortgage loan holiday for homeowners; the entire package equals about 15% of GDP

✓ Also in March the government launched a Job Retention Scheme to pay furloughed workers up to 80% of their salaries; this benefit begins to shrink in August and expires in October

✓ On July 8th Chancellor of the Exchequer Sunak announced that the Job Retention Scheme would not be amended but a 9.4 billion pounds Job Retention Bonus would be added which would pay employers 1,000 pounds per furloughed employee reemployed between October and January; also announced on July 8th were a variety of other stimulus measures amounting to about 20 billion pounds; the additional stimulus would amount to approximately 1.5% of GDP

✓ BOE and UK Treasury jointly launched a Covid-19 Corporate Financing Facility

- The UK did not implement as drastic social distancing policies as occurred in Europe; this policy appears to have backfired – the UK’s experience with Covid-19 contagion has been worse and the downturn in economic activity has been worse compared to other European countries; recovery appears likely to be much weaker

✓ In early April the UK became the first developed economy to link directly central bank financing of government spending; this linkage is intended to be temporary, but by taking this step raises the risk in the longer run is that UK monetary policy will lose its independence and become subject to political dictates

✓ In June the Bank of England increased the size of QE asset purchases by 100 billion pounds, but indicated it intends to slow the pace of assets purchases through the end of 2020 by approximately 2/3

✓ The Bank of England took no substantive action at its August policy meeting, but kept the option of negative rates on the table as part of
its policy tool kit, but indicated no immediate plan to introduce negative rates

- **U.K. inflation** will continue to rise at a rate below 2.0%
  - B of A 2020 *original* CPI forecast = 1.4%; *revised* = 0.7% vs. 1.3% in 2019 (2019 core inflation = 1.4%)
  - GS 2020 *original* CPI forecast = 1.5%
  - IMF *original* CPI forecast = 1.94% vs. 1.79% in 2019; *revised* = 1.19%

- **China’s GDP growth** is expected to slow to a range of 5.7% (B of A); 5.9% in 2020 from 6.0% in 2019; risks are to the downside as China’s economy transitions from industrial to consumer emphasis, as President Xi continues to emphasize the goal of a “better quality life” over GDP growth and assuming no further escalation in the trade war with the U.S.
  - China’s draconian social distancing policies were successful in arresting the spread of Covid-19; the number of new daily cases peaked in late February and then declined rapidly; policy is now focused on limiting new cases from foreign sources
  - Economic damage was severe in Q1; economic activity began the slow process of returning to normal in March; *(data reported as YoY)*; production has recovered rapidly; recovery in consumptions is lagging

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<tr>
<td><strong>Industrial Value Added</strong></td>
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<td><strong>Retail Sales</strong></td>
<td>-20.5%</td>
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<tr>
<td><strong>Housing Starts</strong></td>
<td>-44.0%</td>
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<td><strong>Property Sales</strong></td>
<td>-2.1%</td>
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<td><strong>Unemployment</strong></td>
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<td><strong>Passenger Vehicle Sales</strong></td>
<td>-43.5%</td>
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<tr>
<td><strong>Shanghai Composite Index (YTD)</strong></td>
<td>6.0%</td>
<td>4.3%</td>
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<tr>
<td><strong>Hang Seng Index (YTD)</strong></td>
<td></td>
<td>15.6%</td>
<td>13.8%</td>
<td>10.0%</td>
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- Property sales are growing rapidly and prices are rising raising the risk of overheating in this market, but momentum likely to slow
during remainder of year – pent up demand from Q1 trough likely to be exhausted soon, monetary policy becoming less supportive, local governments scaling back support to contain speculation

✓ Consumption has recovered more slowly than production; retail sales of consumer goods are only slightly negative YoY; sales of passenger vehicles are very strong reflecting pent up demand; consumer spending growth unlikely to return to 2019’s trend rate during the remainder of 2020

✓ Since late May the Peoples Bank of China has lifted short-term interest rates to assist regulatory initiative to limit arbitrage activities; as China’s economy improves, monetary policy has shifted focus back to containing financial risk by flattening the yield curve which will slow credit growth somewhat

✓ Monetary easing is unlikely in coming months as China’s economy regains forward momentum, although weakness in global economic activity will dampen China’s growth prospects

✓ Micro and small businesses continue to struggle

- The biggest risk to China’s economic growth involves its export markets; in the short run exports have held up well, but declining export demand from the rest of the world is likely to take hold eventually as the U.S. and other countries decouple their supply chains from China

+ Stock prices are up strongly YTD because of targeted policies implemented to offset financial damage to companies; Chinese stock decimated other global stock markets; banks have done a good job helping small businesses deal with short-term cash flow shortages; A shares rose sharply in early July in response to government cheerleading, which quickly reversed when stock prices took off; price momentum is likely to moderate in the second half of 2020 as policy support ebbs and profits recover slowly

✓ B of A 2020 original GDP forecast = 5.8%, vs. 6.2% in 2019; revised = 2.0%

✓ GS 2020 original GDP forecast = 5.8% vs. 6.1% in 2019; revised = 3.0%

✓ IMF 2020 original GDP forecast = 5.82% vs. 6.11% in 2019; revised = 1.0%

✓ World Bank 2020 original GDP forecast = 5.9% vs. 6.1% in 2019; revised = 1.0%

✓ OECD 2020 original GDP forecast = 5.73% vs. 6.16% in 2019
- Evercore ISI’s China sales diffusion index declined from 41.6 (contraction) in December 2019 to 32.3 (contraction) in March, but has improved from this low level to 46.2 on August 14, 2020, as the Chinese economy has reopened
- 2020 Q1 real GDP YoY = -6.8%, the first contraction since the Chinese government began publishing GDP statistics in 1992
- 2020 Q2 real GDP = 3.2% YoY; Q3 forecast = 5.0% YoY; Q4 forecast = 6.0% YoY
  ✓ China’s requirements to import goods from the U.S. in 2020 and 2021 under the Phase 1 trade agreement generally exceed its needs; China is likely to solve this problem by re-exporting surpluses to other countries; it appears that China is making serious efforts to honor the trade deal’s import requirements, which is coming at the expense of other countries, especially Australia
  ✓ Caixin (Cx) manufacturing and services diffusion indices, official (Off) manufacturing and services diffusions indices and Evercore ISI China sales diffusion (major company sales to China):

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- **China Inflation**
  ✓ B of A 2020 original CPI forecast = 3.1%, revised = 2.8% vs. 2.9% in 2019
  ✓ GS 2020 original CPI forecast = 3.6%, revised = 3.0% vs. 2.95 in 2019
  ✓ IMF 2020 original CPI forecast = 2.43% vs. 2.90% in 2019; revised = 3.05%
  ✓ OECD 2020 original CPI forecast = 3.6% vs. 3.5% in 2019
  ✓ CPI = 3.3% YoY in April

- **China’s leadership** will continue implementing *economic reforms* gradually; financial and political stability will be maintained.
  + Policy has stayed the course even as Covid-19 decimated economic activity; rather than implement a massive fiscal stimulus program as was done in 2008 and to a lesser extent in 2015, policymakers have
pursued a program of selective supply side support for companies most adversely affected

+ The migration from a GDP-centric growth goal to more broad-based “development goals” provides room for policy makers to report disappointing GDP growth and emphasize successful avoidance of a potentially far worse outcome and an orderly transition back to normal compared to the economic damage and policy disarray increasingly evident in other countries

✓ The National People’s Congress met in Beijing on May 22, 2020; perhaps the most important development was draft national security legislation for Hong Kong, which became effective on June 30th; the U.S. responded by revoking Hong Kong’s special economic status and targeting Chinese officials deemed to have undermined “one country, two systems” doctrine, but has not yet adopted a more confrontational policy response – it seems likely that the Trump Administration will avoid responses that damage the global economy and jeopardize the China-U.S. trade deal prior to the November election

- Japan’s growth is expected to slow from 0.9% to 1.1% in 2019 to a range of 0.3% to 0.7% in 2020.
  ✓ IMF original GDP forecast = 0.47% vs. 0.65% in 2019; revised = -5.8%
  ✓ World Bank original GDP forecast = 0.7% vs. 1.1% in 2019; revised = -6.1%
  ✓ OECD original GDP forecast = 0.55% vs. 1.02%
  ✓ B of A 2020 original GDP forecast = 0.3% vs. 1.0% in 2019; revised 2020 = -5.2%
  ✓ GS 2020 original GDP forecast = 0.3%; revised = -5.6%
  ✓ Economic activity appears to have bottomed in April but is not recovering; swift recovery is unlikely; Q2 quarterly real GDP growth = -7.8%, -27.8% annualized
- A second wave of Covid-19 infections slammed Japan in April which was worse than the first wave; new infections remained at a high level in May; cases then slowed for a few weeks but then began to accelerate again in late June three weeks after the state of emergency was lifted; new cases leveled off in August but remained at a high level
- Japan’s economy was in recession at the end of 2019 because of the value added tax increase implemented in October 2019; Covid-19 and
the postponement of the July Olympics will extend and deepen recession
  o Plans for capital spending and increases in wages have declined significantly
  o Corporate profits, important in supporting investment, declined 32% YoY in 2020 Q1
  o The future economic conditions index plunged in late February to about the same level as experienced during the Great Recession
  o Machine tool orders are down 70% from the 2018 peak
  o Industrial production was -11.9% in April YoY
  o Retail sales were -12.3% YoY in May
✓ April probably marked the bottom of the recession; however, recovery is expected to be very gradual
  o Small business survey continued to decline in May; a wave of bankruptcies, particularly in the service sector is expected; small businesses employ about 70% of workers in Japan
  o The official unemployment rate was 2.9% in May, but if workers “absent from work” are added, the unemployment rate jumps to 10%
  o Vehicle sales dropped in May and were -40.2% YoY
  o Economic data in July and August indicated that economic recovery has stalled
✓ The government lifted the state of emergency in late May; however, slow recovery is expected
- Bank of Japan released its quarterly regional economic report on July 9th
  o Economic activity deteriorated in all nine regions from early April to early July
  o Most of the deterioration is accounted for by a decline in business investment, which has weakened across the board
  o Consumer spending remains depressed with signs of bottoming in some regions
  o This overall continuing weakness in economic activity is disappointing in light of vigorous fiscal stimulus and progress in containing the Covid-19 pandemic
  o On a somewhat more optimistic note, anecdotal commentary from major businesses suggests that economic activity is bottoming; 47% expect economic conditions to improve over the next year and 47% plan to increase capital spending
Consumer confidence improved in June but is still at a very depressed level

- PMI Manufacturing Index: contraction continued in January-June
- PMI Services Index plummeted in March – May as the second wave of Covid-19 infections led to more stringent social distancing policies, contraction slowed in June

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- As the Covid-19 pandemic was getting underway, the government announced plans to extend $5 billion in emergency lending to small businesses
- The Olympics scheduled to be held in Tokyo in July 2020 were postponed until 2021; this will roll the expected GDP boost from the Olympics forward one year
- In response to the Covid-19 global recession, Japan approved a stimulus program equal to 7% of GDP which is expected to raise disposable personal income by 15%; it will be financed primarily by the Bank of Japan through the purchase of government bonds
- A second round of stimulus amounting to $1.1 trillion and equaling 20% of GDP was announced in May; about a quarter of the amount will be spent directly and the remainder will be in the form of loans and guarantees
- Japan’s government is expected to issue approximately 200 trillion yen in bonds during 2020 and the Bank of Japan will buy most of it
- After years of QE and zero interest rates, monetary policy’s ability to stimulate economic activity is negligible; policy appears to be focused on preventing the yen from appreciating; this policy projects Japanese company profits and has been positive for stock prices

- **Japan’s Inflation** is expected to rise slightly in 2020, but deflationary headwinds remain very strong and monetary policy is becoming less effective.
  - B of A 2020 original CPI forecast = 0.5%; **revised** = -0.4% vs. 0.4% in 2019
  - GS 2020 original CPI forecast = 0.6%; **revised** = 0.0%
  - IMF original CPI forecast = 1.30% vs. 0.48% in 2019 **revised** = 0.23%
  - OECD original CPI forecast = 1.08% vs. 0.88% in 2019
  - OECD original core CPI forecast = 1.06% vs. 0.54% in 2019
Core CPI (excludes food and energy) fell from 0.9% in December to 0.8% in January, but excluding the impact of the consumption tax increase imposed in October 2019 the underlying trend is stable at about 0.5%; however, the Covid-19 recession is expected to push Japan back into deflation.

India’s growth was very disappointing in 2019, but is expected to rebound in 2020; however, there is a wide divergence of opinion about the strength of the rebound.

- B of A 2020 original GDP forecast = 6.7%, revised = -6.8% vs. 4.7% in 2019
- GS 2020 original GDP forecast = 6.6%, revised = -3.2%
- IMF 2020 original GDP forecast = 7.03% vs. 4.23% in 2019; revised = -4.5%
- World Bank 2020 original GDP forecast = 5.8% vs. 5.0% in 2019; revised = -3.2%
- OECD 2020 original GDP forecast = 6.20% vs. 5.76% in 2019

PMI Manufacturing Diffusion Index: expansion in manufacturing was stronger in January and February, weakened in March, then plunged deeply into contraction territory in April and May, contraction continued in June and July at a much slower rate.

Services Diffusion Index: expansion in services ramped up in January and February; contracted modestly in March, plunged in April and May, contraction continued in June and July at a slower rate, but remained extremely weak.

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Budget deficit is expected to widen to 3.8% of GDP in 2020; investing in Indian assets is relatively unattractive.

India’s financial services sector is fragile with high levels of bad debts; if Covid-19 impacts India in ways experienced by other countries, solvency issues will leap to the forefront.

- The Reserve Bank of India announced in August a forbearance plan to allow struggling borrowers relief from their bank loans – “extend and pretend,” which is likely to exacerbate India’s bad debt problem in the future and could contribute to a very lethargic recovery from the Covid-19 recession.
According to the Reserve Bank of India, non-performing loans are expected to rise from 8.5% to 12.5% of total loans by March 2021 and could go as high as 14.7%

India is preparing to sell its majority stock position in six banks, hoping that an infusion of private capital and managerial skill can improve their financial health; however, privatization alone will not fix the poor regulatory governance that afflicts the entire financial sector

- India’s health care system is ill-prepared to deal with the consequences of the Covid-19 pandemic; millions of deaths are possible, which would decimate India’s fragile economy
- India’s total lockdown of the economy was effective in reducing new Covid-19 infections by more than half, but economic activity has been devastated – 175 million are unemployed and the unemployment rate is estimated to be 24%; a V-shaped recovery is unlikely as indicated by the ongoing contraction in both the manufacturing and services PMI indices
- On May 13th India’s finance minister announced a fiscal stimulus package equal to 10% of GDP, which is considered to be modest; many of India’s 4.5 million small businesses are expected to fail

- Emerging market countries, including China, should experience stronger growth 2020 after disappointing growth in 2019.
- Covid-19 has exposed the fragility of supply chains and will probably force reconsideration of how the global economy and markets are structured
  - Emerging markets’ growth in 2020 will be depressed by both domestic lockdowns and the collapse of global demand, especially from Europe and the U.S.
- B of A 2020 original GDP forecast = 4.4%, vs. 4.0% in 2019; revised = -5.5% (-2.8% including China)
- GS original GDP forecast = 4.1% vs. 4.0% in 2019
- IMF original GDP forecast = 4.52% vs. 3.71% in 2019; revised = -3.0%
- World Bank original GDP forecast = 4.1% vs. 3.5% in 2019 (different weighting methodology); revised = -2.5%
- Manufacturing PMI = 51.0 in December and January; February = 44.6, the lowest level since March 2009
- The Fed’s dollar repo facility for certain emerging market central banks with Treasury securities on deposit with the Fed helped alleviate dollar funding pressures; spreads which gapped out during
the initial financial markets turmoil have narrowed, but swap spreads remain wide; emerging market countries that are viewed as more vulnerable to the coronavirus pandemic have not rebounded strongly as the market has stabilized
✓ Equities bottomed in March and rose 25% by mid-June aided by massive injections of liquidity interest rate cuts by central banks; the rise in prices occurred in spite of deteriorating economic fundamentals
✓ Turkey’s economy continues to struggle and its currency is under downward pressure; as of August, the possibility of a currency crisis remains a major risk
✓ Argentina and Ecuador restructured their international debt in August which offers limited relief, but downside economic and currency risks remain

• **Brazil’s growth** is expected to improve in 2020 after disappointingly weak growth in 2019.
  ✓ B of A 2020 original GDP forecast = 2.4%, vs. 1.0% in 2019; revised = -5.7%
  ✓ GS 2020 original GDP forecast = 2.3%, revised = -7.7% vs. 1.2% in 2019
  ✓ IMF 2020 original GDP forecast = 2.04% vs. 1.13% in 2019; revised = -9.1%
  ✓ World Bank 2020 original GDP forecast = 2.0% vs. 1.1% in 2019; revised = -8.0%
  ✓ OECD 2020 original GDP forecast = 1.67% vs. 0.83% in 2019
  - Brazil’s health system response to Covid-19 has been weak and deaths are at the highest level among emerging markets economies
  - The Brazilian real has declined 30% and capital outflows have been significant
  - Fiscal stimulus equals 5.5% of GDP and the 2020 budget deficit is expected to rise to 14% of nominal GDP
  - Parliament passed a constitutional amendment to allow Brazil’s central bank to buy corporate debt and bonds directly from the government
  - Brazil’s federal government is dysfunctional and President Bolonaro could face impeachment
  ✓ PMI Manufacturing Diffusion Index: expansion accelerated a little in January, significant contraction March – May, followed by modest expansion in June and stronger expansion in July
PMI Services Diffusion Index: expansion slowed in February; significant contraction in March – July

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- Brazil’s Inflation is expected to rise slightly in 2020 in response to stronger growth in economic activity.
  - B of A 2020 original CPI forecast = 4.0%, revised = 2.7% compared to 3.7% in 2019
  - GS original CPI forecast = 4.2%, revised = 2.7% vs. 3.7% in 2019
  - IMF original CPI forecast = 3.47% vs. 3.73% in 2019; revised = 3.56%
  - OECD original CPI forecast = 3.13% vs. 3.70% in 2019

- Russia’s growth was worse than forecast in 2019 and is expected to improve only modestly in 2020.
  - GS 2020 original GDP forecast = 2.2%, revised = -4.0% vs. 1.3% in 2019
  - B of A 2020 original GDP forecast = 1.6%, revised = -5.6% vs. 1.2% in 2019
  - IMF 2020 original GDP forecast = 1.87% vs. 1.34% in 2019; revised = -6.6%
  - World Bank 2020 original GDP forecast = 1.6% vs. 1.2% in 2019; revised = -6.0%
  - OECD 2020 original GDP forecast = 1.57% vs. 1.08% in 2019
  - PMI Manufacturing and Services Diffusion Indices: contraction in manufacturing continued in January – March at a modest rate, but plunged in April and May in response to the Covid-19 pandemic, contraction was very modest in June and July; expansion in services continued in January and February, but severe contraction ensued in March – May followed by modest contraction in June, recovery began in July

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- **Venezuela's economy** continues to implode; regime change is unlikely, however, unless the military intervenes; no one seems to care about what happens in Venezuela anymore and its oil exports have shrunk to the point that Venezuela is no longer a significant factor or risk in world oil prices.
  - 2020 GDP forecast = -10% vs. -35% in 2019; **IMF revised** = -15%
  - 2020 inflation forecast = 15,000% vs. 19,906% in 2019
  - U.S. sanctions failed in 2019 to lead to regime change as intended; the U.S. recently endorsed negotiations and new elections which critics observe would more deeply entrench the Maduro regime; in the meantime, the Venezuelan economy continues to disintegrate

- **Saudi Arabia** needs high oil prices to balance its budget.
  - B of A 2020 revised GDP forecast = 2.4% vs. 0.3% in 2019; **revised** = -5.7%
  - IMF 2019 = 0.33%; **IMF revised** 2020 = -6.8%
  - World Bank = -3.8%
  - **PMI Non-Oil Diffusion Index**: expansion continued in January and February at a slightly slower pace, but contracted in March – June, and was stable in July

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- Decline in oil prices puts pressure on Saudi budget; 2020 fiscal deficit likely to exceed 20% of GDP, which could use up 1/3 of Saudi Arabia’s foreign exchange reserves
  - The government is cutting the Citizens’ Account Program welfare program which risks angering the populace and may undermine essential economic reforms and require additional subsidies to placate the populace
- **Government debt is 25% of GDP, so there is plenty of borrowing room to supplement dwindling foreign exchange reserves**
- **The government launched a “Relief Fund for Tourism Industry” in June in response to the cancellation of the annual pilgrimage to Mecca**
3. **U.S. Risks** – stated in the negative relative to the forecast; “+” risk realized; “-” risk not realized

- **U.S. real GDP growth** falls short or exceeds expectations of 1.7% to 2.2%; falling short is the more serious risk as this is likely to happen only if recession occurs.
  + **Risk realized:** 2020 Q1 real GDP declined 5.0% and Q2 declined 32.9%; 2020 real GDP is forecast to fall between 4.5% and 7.5% during 2020, which would eclipse the 3.25% decline that occurred during the Great Recession

- **GDP positive output gap** is greater or less than expected, or turns negative, which will only happen if recession occurs.
  + **Risk realized:** The gap was -2.2% in 2020 Q2 and could be as great as 6% by the end of 2020 because of the severity of the Covid-19 recession followed by slow recovery

- **U.S. productivity** is greater or less than the forecast range of 1.1% to 1.5%.
  + **Risk realized:** Productivity in 2020 Q1 was -0.3% but soared to 7.3% in Q2; 4-quarter moving average productivity fell to 1.64% from 1.71% in 2019 Q4, which was slightly above the forecast range; productivity is expected to be above the forecast range by the end of 2020

- **U.S. employment growth** is slower or faster than the expected range of 90,000 to 150,000 per month; slower growth is the more serious risk as this is likely to happen only if recession occurs.
  + **Risk realized:** Monthly average 2020 payroll employment through July fell dramatically; as 2020 progresses employment could decline by 7 to 10 million, depending upon the strength of the recovery in the second half of 2020

- **Employment participation rate** is greater or less than the forecast range of 63.00% to 63.35%, “greater than” risks placing upward pressure on inflation; “less than” is likely to happen only if recession occurs.
  + **Risk realized:** Average participation rate YTD through July = 61.92%, which exceeded the lower bound of the forecast range; the Covid-19 recession will keep the participation rate substantially below the bottom end of the forecast range in coming months
• **U.S. unemployment rate** is greater or less than the forecast range of 3.2% to 3.6%; “less than” risks placing upward pressure on inflation; “greater than” is likely to happen only if recession occurs.
  + **Risk realized:** the unemployment rate peaked at 14.7% in April and fell to 10.2% in July

• **U.S. hourly wage rate growth** is lower or higher than the forecast range of 3.4% to 3.8%; “greater than” risks placing upward pressure on inflation; “less than” is likely to happen only if recession occurs.
  + **Risk likely to be realized:** January, February and March wage growth (12-month moving average) for production and nonsupervisory workers was within the forecast range, but surged above the forecast range in April – July due to a substantial decrease in the proportion of low-wage workers which skewed the wage index higher; wage growth for all employees was below the lower bound of the forecast range in January – March, but moved up sharply in April to the middle of the forecast range due to shifts in worker composition and moved above the top end of the forecast range in May and June; growth in wages is likely to fall below the lower end of the forecast range later in the year; lower wage jobs and production and nonsupervisory workers will be more adversely affected; the wages and salaries component of the Employment Cost Index, which is not impacted by changes in the composition of the labor force, declined to 2.87% in Q2, well below the forecast range

• **Nominal U.S. consumer disposable income** increases more or less than the expected range of 4.0% to 4.5%; “less than” is the more serious risk and is only likely to occur if economic growth weakens more than expected or recession occurs.
  + **Risk realized:** Only April was within the forecast range, January – March were below the forecast range and May – June were above because of stimulus checks; by the end of 2020 the Covid-19 recession and high unemployment will probably result in consumer disposable income growth falling below the bottom end of the forecast range, unless Congress passes Phase 4 stimulus legislation
- **Nominal U.S. consumer spending** increases more or less than the expected range of 4.0% to 4.5%; “less than” is the more serious risk and is only likely to occur if economic growth weakens more than expected or recession occurs.
  + **Risk realized:** While January and February growth rates (12-month moving average) were within the forecast range, March – June fell well below the forecast range; the Covid-19 recession assures that consumer spending will decline in 2020

- **Auto sales** are expected to decline in 2020; the risk is that they rise or decline considerably more than expected.
  + **Risk realized:** Auto sales collapsed in March and April and recovered in May – July to a level still well below the pre-Covid-19 recession number; sales will probably remain anemic until a vaccine is developed and as long as unemployment remains high

- **Retail sales growth** is expected to be stable or fall slightly in 2020; the risk is that growth rises or falls considerably more than expected.
  + **Risk realized:** 12 month moving average growth rate rose in January and February, but slowed substantially in March and fell April – July; however, the rebound in retail sales has been very strong and positive growth is likely to resume in August

- **Measures of consumer confidence** drop substantially.
  + **Risk realized:** Measures of consumer confidence were very strong in January and February; most measures softened a bit in early March, plummeted in April and May, edged up only moderately in June and stalled in July and August

- **Consumer credit growth** is expected to slow during 2020; the risk is that growth rises or falls considerably more than expected.
  + **Risk realized:** Consumer credit growth fell sharply in May - June, driven primarily by a collapse in the growth of credit card debt; growth in nonrevolving credit also slowed; historically, credit card debt rose in the early stages of recession, the failure to follow the historical pattern flows directly from immediate and substantial cash infusions to consumers through stimulus checks and enhanced unemployment insurance payments
• **Consumer saving rate** rises or falls more than the expected range of 7.5% to 8.0%; a higher than expected saving rate is the greater risk because that is likely only in the event of recession.
  + **Risk realized**: Saving usually rises during a recession, which is exactly what occurred in March (12.8%), April (33.5%), May (24.2%) and June (19.0%) because of the collapse in consumer spending and substantial fiscal initiatives to support income through the PPP program, stimulus checks to individuals and enhancement of unemployment benefits

• **U.S. stock prices** rise more or less the forecast range of +10% to -5%; “more than” risk would signal continued expansion of the bubble in financial assets; “less than” risk, if modest, would reflect more reasonable valuations, but if substantial, would indicate the bursting of the price bubble and potential onset of recession.
  - **Risk not realized**: Stock prices plunged in late February and March as investors tried to figure out just how much damage the coronavirus and the Saudi Arabia – Russia oil price war would inflict on the U.S. and global economies; unprecedented fiscal and monetary policy stimulus helped boost stock prices in April – August, prices were up YTD in August 4.4%, which was within the forecast range

• **U.S. business activity** expands more than expected or contracts; contraction
  + **Risk realized**: While most measures of business activity strengthened modestly in January and February, they softened in March, plunged in April and May, and improved in June and July

• **Industrial production** does not rise modestly as expected.
  + **Risk realized**: Industrial production was substantially lower in March – July than in December; it is likely to remain at a depressed level over the remainder of 2020

• **Capacity utilization** falls.
  + **Risk realized**: Capacity utilization fell slightly from December to February and more sharply in March – May, then rose in June and July but remained well below the pre-Covid-19 recession level; it is likely to remain at a depressed level over the remainder of 2020
- **U.S. private business investment** grows more or less than the expected range of 0.0% to 2.0%; falling short of expectations is the more serious risk.
  + **Risk realized:** Business investment growth decelerated in Q1 and fell in Q2; growth is expected to decline substantially over the remainder of 2020 as the Covid-19 recession depresses business activity and earnings; investment in energy is likely to be especially hard hit because of weak oil prices

- **Residential housing investment** grows more or less than the expected range of 1.0% to 4.0%; “more than” could occur if the economy is extremely strong and interest rates remain low; “less than” could occur if strong price increases dampen demand or if recession occurs.
  ✔ **Risk not realized:** Q1 residential investment growth was positive, but slightly below the lower end of the forecast range; Q2 growth declined sharply, but the 12-month moving average was positive and only modestly below the bottom end of the forecast range; opinion is mixed about the impact of the Covid-19 recession on residential investment during the remainder of 2020; low interest rates historically have stimulated housing construction; however, social distancing policies initially crushed housing demand, but demand strengthened in May - July; updated forecasts indicate that housing investment in 2020 is likely to be near or slightly above the bottom end of the forecast range

- **Housing starts** grow more or less than the expected range of 1.0% to 5.0%; “more than” could occur if the economy is extremely strong and interest rates remain low; “less than” could occur if strong price increases dampen demand or if recession occurs.
  + **Risk likely to be realized:** Original forecast range was a 1% to 5% increase in housing starts in 2020; two events with opposing impacts have happened since the beginning of 2020: interest rates have fallen substantially, which normally stimulates increased housing construction, but the Covid-19 pandemic put a damper on buyer traffic and depressed demand; forecast revisions for 2020 project moderate negative growth, however extremely large increases in new household formation may drive starts up into the forecast range by the end of 2020
- **U.S. residential housing price increases** are greater or less than the expected range of 1.5% to 3.0%; “greater than” would be an indication of price speculation, while “less than” would most likely be caused by recession or deteriorating consumer confidence.
  + **Risk likely to be realized:** Housing prices were generally above the forecast range in January – May; recent data on surging demand and shortfalls in supply imply that prices are likely to be very strong over the remainder of the year and will probably exceed the top end of the forecast range.

- **U.S. goods trade deficit** is greater or less than the forecast range of 2.7% to 3.0%; “greater than” could occur if the economy is strong and the trade war abates; “less than” would reflect escalation in the trade war and/or recession.
  + **Risk likely to be realized:** Data were revised for the past 20 years in June, which lowered the trade deficit by about 20 basis points; the goods trade deficit was within the revised forecast range in January – June; however, global trade is declining rapidly as recession spreads worldwide; it is likely that the goods trade deficit will fall below the lower end of the forecast range by the end of the year.

- **Value of the dollar** is expected to decline in 2020 in a range of -2% to -6%; a smaller decrease or an increase could occur if U.S. interest rates rise or global turmoil favors the dollar as a safe haven.
  + **Risk likely to be realized:** The broad measure of the dollar increased YTD through July; although the dollar is overvalued and its value should fall, especially now that interest rates have fallen to near zero, the U.S. safe-haven status during a global recession has caused the dollar’s value to rise; now that the crisis in global financial markets has abated, the dollar’s value has begun to decline and is likely to continue declining over the remainder of the year; this could result in the risk not being realized by the end of the year.

- **Oil prices** rise above or fall below the expected range of $50 to $70 per barrel; prices above the forecast range could occur if global turmoil results in significant decrease in production (supply problem); prices below the forecast range would be indicative of global recession (demand problem).
  + **Risk realized:** Oil prices collapsed in February and March in response to a 15% decrease in global demand, but the price decline was exacerbated by Russia and Saudi Arabia entering into a price war; prices have remained well below the forecast range despite an
OPEC agreement to cut daily production by 9.7 million barrels; OPEC production discipline and a gradual global economic recovery has supported higher oil prices in May – early August, but prices still remain below the bottom end of the forecast range.

- **U.S. monetary policy** is expected to be on hold during 2020; the risk is that the FOMC tightens or eases; tightening would occur if the economy is strong and inflation rises more than expected; easing could occur if the economy is weaker than expected or the FOMC is forced to ease to preserve financial market stability or respond to the onset of recession.
  + **Risk realized:** The FOMC took no action at its January meeting; however, financial market turmoil in late February and March caused by uncertainties about the rapidly emerging Covid-19 global pandemic led the FOMC to cut rates to near zero, amplify repo funding substantially, escalate balance sheet expansion, and reduce bank capital requirements; several credit facilities with Treasury Department equity backing were established to stabilize markets and provide credit to cash-strapped businesses; short-term interest rates are projected to remain at the zero lower bound through 2023 and that could extend through 2025 according to CBO’s forecast.

- **Financial conditions** are likely to remain easy during 2020; the risk is that financial conditions tighten in response to financial market volatility, perhaps caused by realized geopolitical risks, collapse in investor sentiment or recession.
  - **Risk not realized:** Falling stock prices and widening credit spreads contributed to substantially tighter financial conditions in March and April, but financial conditions have eased since then as Federal Reserve policy actions helped stabilize financial markets and were easier in August than they were prior to the Covid-19 recession.

- **U.S. inflation** rises or falls more than expected; the risk of higher than expected inflation could occur if the output and employment markets overheat … escalation of the trade war and an upside breakout in oil prices could also trigger higher inflation; the risk of lower than expected inflation could occur from "idiosyncratic" downward adjustments in inflation measures or weaker than expected economic growth or recession.
  + **Risk realized:** Inflation has fallen well below the bottom end of the forecast range due to the decline in oil prices and recession-driven reductions in demand for goods and services; inflation is expected.
to remain low during the remainder of 2020 at a level below the lower end of the forecast range; inflation expectations initially plummeted but August were only slightly below the pre-Covid-19 recession level

- **U.S. long-term interest rates** fall or rise more than the expected range of 1.5% to 2.25%; rates above the expected range would indicate stronger than expected economic growth and inflation; rates below the expected range could occur if the economy weakens more than expected or enters recession, but also could occur if monetary policy is eased to maintain stability in financial markets.
  + **Risk realized**: The 10-year Treasury yield fell decisively below 1.0% and is likely to stay below that level at least until the economy recovers from the Covid-19 recession in late 2020 or during 2021

- **State and local investment spending** increases more or less than the expected range of 1.5% to 2.0%; “greater than” could occur if the economy and tax revenues are strong; “less than” is the greater risk and would be indicative of slower than expected growth or recession and falling tax revenues.
  + **Risk realized**: Q1 and Q2 state and local investment spending fell below the lower end of the forecast range; although plummeting state tax revenues will depress investment spending, fiscal transfers from the federal government to state governments may prop up spending during 2020 – the prospect for additional fiscal transfers are cloudy because Congress is at an impasse on Phase 4 fiscal stimulus legislation; CBO and other analysts project that state and local investment spending will decline in 2020 to a level below the forecast range

- **U.S. fiscal policy** is expected to be on hold during the 2020 election year; the risk is that fiscal policy is more or less expansionary than expected; “more” could occur in response to U.S. involvement in global conflicts or disaster recovery spending; “less” seems unlikely in an election year.
  + **Risk realized**: The “more” caveat has been triggered by the Covid-19 recession; Congress has passed legislation to assist cash strapped households and businesses, which amounted to more than 10% of GDP; this will drive the fiscal 2020 deficit from $1 trillion to approximately $4 trillion; Congress may pass another stimulus bill in September with an estimated impact of $1.0 to $1.75 trillion, which would result in an even higher fiscal 2020 deficit
- **U.S. federal budget deficit** is greater or less than the expected range of 4.25% to 4.75%; a smaller deficit could occur if the economy is much stronger than expected; a larger deficit could occur if Congress spends more than expected or the economy enters recession.
  - **Risk realized:** The federal budget deficit exceeded the top end of the forecast range in every month of 2020 so far and exploded in April – July; the Covid-19 recession will drive the deficit much higher as 2020 progresses, to approximately 20%
4. **Global Risks** – stated in the negative relative to the forecast; “+” risk realized; “−” risk not realized

- **Global risks to monitor in 2020**
  - **U.S.-China trade war** – will the skinny “Phase One” deal signed on January 15th hold or will escalation return? Will trade escalation extend beyond China?
    Risk likely to be realized, but because of the Covid-19 recession and not because of an escalation in the trade war: The trade war has receded into the background as the global coronavirus pandemic has taken center stage; a Phase 2 trade deal between the U.S. and China is off the table; global trade is dropping precipitously (IMF has forecast a 12% decline in global trade in 2020), however, because of falling demand and supply chain disruptions; this risk is evolving and broadening into a significant deterioration in U.S. – Chinese relations.
  - **Brexit** – will there be any significant repercussions from the U.K. exit from the EU on January 31st?
    Risk likely to be realized: While exit became official on January 31st, exit terms are being negotiated over the remainder of 2020 and, depending upon the outcome, could impact U.K. and EU growth negatively; prior to June 30th the transition period could have been extended but this did not occur; December 31st is now a hard deadline – thus there will be some kind of deal or a “no deal” Brexit will occur.
  - **Will oil shocks occur?**
    Risk realized: Covid-19 depressed Chinese oil demand in January and February and prices declined; but matters got a whole lot worse when Russia and Saudi Arabia started a price war and Covid-19 became global in scope; the price war ended with agreement of oil producing countries to cut daily production by 9.7 million barrels; however, because demand dropped by a much larger amount prices did not rebound; however, as the global economy has gradually reopened in May and June, the gap between supply and demand has narrowed and prices have firmed, but still remain well below the 2019 average. In early July, Saudi Arabia threatened OPEC members with another price war if they didn’t agree to further production cuts.
Political turmoil – there was plenty of it during 2019, with modest adverse impacts on global growth in 2019; what will 2020 bring? Governments, politicians and voters are preoccupied with dealing with the consequences of the Covid-19 pandemic; political repercussions will surface later after the pandemic fades from center stage and those repercussions are likely to continue the hollowing out of the political center in many countries and reinforce nationalist and populist trends. Social upheaval did not wait for the Covid-19 recession to fade in the U.S. The economic consequences of the recession coupled with racial inequities unleashed a firestorm of protests that became global in scope. The movement gathered momentum and is likely to have significant political repercussions, especially in the U.S.

Financial shocks that morph into political shocks – as was the case in 2019, Italy tops the list; U.S.-China trade war remains a candidate Risk of a financial shock realized: Political repercussions are likely to occur in due course in response to the Covid-19 mega financial and social disruption shock. Trade and Italy have faded as potential political shocks. Financial risks were contained through massive intervention by central banks, but economic risks are enormous and ongoing.

Inability of monetary policy to respond to recession, particularly in Europe and Japan

Risk likely to be realized: as it turned out, Europe was not prepared to deal with Covid-19 and implemented social distancing policies too late to avoid significantly adverse health and economic activity impacts; the European economy, which fared poorly during the global manufacturing recession in 2019, was clobbered by the Covid-19 recession; monetary policy has helped stabilize financial markets and has helped governments finance stimulus spending by keeping interest rates low and buying government bonds, but has had limited impact on reigniting economic activity. European governance flaws has impeded the development of substantial and timely fiscal policy relief, which is needed to prevent the European economy from imploding and threatening the existence of the EU. The Franco-German May 18th announcement of a €500 billion Eurozone Recovery Fund, later upsized to €750 billion to be funded by Eurobonds issued by the EU, creates an opportunity for fiscal policy to accomplish what monetary policy has been unable to do; this is a favorable
development which has been accepted in principle but must be ratified by each member of the EU.

✔ Chinese policy measures have limited impact in reversing a deceleration in growth with knock on adverse impacts on global growth

Risk realized because of the negative impacts of the Covid-19 on Chinese growth and not because of Chinese monetary and fiscal policies. China’s draconian Covid-19 containment policies were effective in coralling the pandemic but at tremendous cost to Chinese economic activity. Recovery is well underway but is being slowed by declining demand in the rest of the world caused by the Covid-19 recession. Initiatives to decouple supply chains will contribute to slower growth in China and globally in the long run.

✔ Geopolitical confrontations: Iran, Middle East, North Korea. Potential escalation in the U.S.-Iran confrontation de-escalated after the early January trading of blows.

Risk not realized: No geopolitical confrontations of consequence have surfaced during 2020. Minor incidents have occurred such as the destruction of one of Iran’s nuclear facilities and Russia placing bounties on killing U.S. soldiers in Afghanistan.

- **Global GDP growth** improves less than expected.
  
  + Risk realized: Global growth will be negative in 2020 because of Covid-19 pandemic
  
  + The IMF in its April Global Financial Stability Report cited two significant risks that could develop if the economic consequences of the Covid-19 pandemic extend and cumulate – a wave of emerging market crises could weaken global recovery and financial system stress could re-emerge in spite of the actions taken by the Fed and other central banks (to date this has not materialized); Turkey is on the brink of a major financial crisis; the fuse is long, so the fact that nothing of note has happened yet does not mean this risk is inconsequential

- **Global trade** declines as the U.S. and other countries pursue protectionist policies.
  
  + Risk realized: The Covid-19 global recession has caused substantial decreases in global demand and disrupted supply chains (IMF has forecast a 12% decline in global trade in 2020); in the longer run, global trade is likely to be depressed by the trend away from globalization; governments and businesses in the U.S., Europe,
Japan and Australia are focused on reducing their dependence on China.

- **European growth** improves less than expected.
  - **Risk realized:** Real GDP declined 3.8% in Q1 and an additional 10% in Q2 and is expected to be extremely negative in 2020 because of the Covid-19 pandemic.
  - Europe’s export-heavy economy, particularly Germany, remains extremely weak; Covid-19 will make matters much worse; however, Europe’s apparent success in containing the pandemic should lead to quicker and potentially stronger recovery.
  - The European economy would be adversely impacted if the U.S. imposes tariffs on cars, automobile parts or other goods and services, or retaliates in some other way to punish Europe for the digital tax; this risk appears to be on the backburner for the time being; however, digital taxes placed on U.S. companies could prompt U.S. retaliation.

- **European financial conditions** tighten, financial market volatility escalates and the ECB’s monetary policy is relatively ineffectual in boosting growth and inflation.
  - **Risk not realized:** Early in 2020 bank stock prices were down by more than 50%; fiscal stimulus delayed the onset of serious credit problems, but credit issues could mushroom if economic activity remains depressed and recovers slowly; aggressive ECB bond buying stabilized markets; the Eurozone Recovery Fund, announced on May 18th and subsequently approved subject to ratification by all European Union members, will help matters by shoring up EU member countries with weak economies, such as Italy.

- **European political and social stability** – political instability and social unrest rises more than expected potentially threatening survival of the Eurozone and the European Union.
  - **Risk not realized:** Covid-19 pandemic has put enormous stress on member country relationships and heightened existential risk; however, this risk has prompted the creation of a form of fiscal union (Eurozone Recovery Fund) which could benefit weak economies and diminish the threat of an escalation in political and social instability.
• **UK growth** is worse or better than expected following the U.K.’s exit from the EU at the end of January.
  + **Risk realized:** Growth has been extremely negative so far during 2020 because of the impact of Covid-19 on economic activity; Brexit is a downside risk that appears to be contributing to the U.K.’s extremely poor economic performance; negotiations are ongoing and some progress has been made, but a “no deal” Brexit remains a nontrivial possibility when the December 31st deadline arrives and the transition ends

• **China’s growth** slows more than expected.
  + **Risk realized** because of the Covid-19 pandemic; real GDP YoY declined substantially in Q1 but rebounded in Q2 to a level well below pre-Covid-19 expectations; recovery will be impeded by the global Covid-19 recession and downward pressure on exports

• **China’s trade war with the U.S.** worsens and adversely impacts global growth.
  - **Risk not realized:** Both countries have been busy dealing with the consequences of the pandemic; trade issues have receded into the back ground, but have been replaced by an escalating technology war

• **China and U.S. global leadership confrontation** – cold-war sparring continues and adversely affects global growth
  + **Risk realized:** Relations between the two countries are deteriorating rapidly on matters that reach beyond trade; decoupling of the U.S. and Chinese economies is likely to accelerate as a consequence of the Covid-19 pandemic, which will diminish world trade and growth over time; in late June the U.S. imposed regulations to deny U.S.-origin technologies to many Chinese companies; numerous other points of friction are simmering including limiting U.S. entry of Chinese students, TikTok (forced merger with Microsoft in the works) and WeChat, Hong Kong

• **Japan’s economic growth** slows or improves more than expected.
  + **Risk realized:** Japan’s economy has been severely impacted by a second wave of Covid-19 infections; the economy is in deep recession and a developing recovery has stalled; a return to deflationary conditions is increasingly likely; there is not much
Japanese policymakers can do to counter the consequences of declining global demand and trade and distinctly negative demographic trends

- **Emerging economies** – growth does not improve as much as expected on the back of easier global monetary policies and a weaker U.S. dollar.
  + **Risk realized:** Negative growth will occur in 2020 because of lockdowns and collapse of global trade; the recent weakening in the exchange value of the dollar will help many emerging economies

- **Severe and, of course, unexpected natural disasters** occur, which negatively impact global growth
  + **Risk realized - Covid-19 pandemic:** Impact was severe in China in Q1; by Q2 all global economies had been impacted and economic activity contracted severely just about everywhere; immediate containment policies appear to have limited the damage Covid-19 inflicted on many Asian economies and only Japan experienced a significant second wave of infections; other global economies were slow to react and the consequences of delay have been severe, especially in developed economies in Europe and in the United States; most European countries have been successful in containing the pandemic and that will help accelerate recovery; the U.S. reopened its economy too quickly without adequate containment strategies and experienced a surge in new infections, which will delay and slow economic recovery; emerging countries, particularly in Latin American and Africa, many of which have inadequate health care systems, are being especially hard hit

- **Global trade war** threatens global economic growth
  - **Risk not realized:** There have been no new developments; this risk appears to be in hibernation until after the U.S. presidential elections and until recovery of the global economy from the economic consequences of the coronavirus recession is well underway; however, Covid-19 is likely to accelerate the decline in globalization that was already underway because of the trade war and this will amplify the decline in global trade and probably contribute to slower global growth over the long run
• **Geopolitical risks** occur and negatively impact global growth
  - **U.S.-North Korea tensions escalate - risk not realized:** this potential confrontation is on the backburner; President Trump expressed no interest in another summit meeting
    o In June, North Korea blew up a liaison office shared with South Korea, signaling the probable end of a policy of détente that began in 2018 with the opening of the liaison office
  - **Potential U.S.-Iran conflict – risk not realized:** After trading blows in early January, both countries backed away from direct confrontation; another tit-for-tat episode occurred in March, but both countries again avoided escalation; incidents are likely to continue to occur because Iran sees harassment as a means of trying to get economic sanctions lifted
    o In early July an Iranian nuclear facility was destroyed, reportedly the work of Israel with possible U.S. assistance; Iranian retaliation is possible
  + **Hong Kong political turmoil – risk realized:** Pro-democracy demonstrations diminished during the Covid-19 pandemic
    o The National People’s Congress met in Beijing on May 22, 2020 and approved draft national security legislation for Hong Kong, which became effective in early July; the U.S. responded by revoking Hong Kong’s special economic status and targeting Chinese officials deemed to have undermined the “one country, two systems” doctrine; however, the U.S. has not yet chosen to take more stringent responses
  ✓ In June, China and India engaged in a border skirmish which reportedly resulted in the deaths of 15 Indian soldiers; this may push India, which has historically taken a nonaligned position, to join other democracies, including the U.S., to prioritize national security over trade and investment
  ✓ In early August Israel and the United Arab Emirates agreed to engage in full diplomatic relations
    o Israel agreed to drop its proposed plan to annex the Palestinian West Bank
    o Both countries seek to contain unwelcome Iranian aggressive foreign policy initiatives in the Middle East