

# TOP *of* MIND

## ROARING INTO RECESSION



Coronavirus has pushed the global economy into a recession of historic proportions and halted the longest-lasting equity bull market on record. As infections spread globally, economic activity collapses, markets recoil and policymakers respond, the depth and duration of the economic and market downturn is Top of Mind. We speak with the former Chair of the Council of Economic Advisers, Jason Furman, and GS Chief Economist, Jan Hatzius. Both agree that the near-term economic damage will be severe, but whether it proves longer-lasting will depend largely on the virus' trajectory and somewhat on policymakers, who have done a lot, but may need to do more to sustain households, businesses and market functioning in this difficult

period. To that end, we assess the risk that the global health crisis becomes a financial crisis. And we discuss how this might play out in markets, and what investors should do from here. For that, we draw on the wisdom of Oaktree Co-Chairman, Howard Marks. His advice? Buy things with solid fundamentals when they go on sale.



There's a tremendous amount of uncertainty at this stage. But I think there's a reasonable chance we'll still see negative growth next year.

- Jason Furman

It doesn't do any good to think about what's going to happen to the economy, or for how long the stock market is going to decline or to how low. These things are unknowable. What really matters is whether price is proportional to fundamentals. It's all about value.

- Howard Marks

If you focus on the level [of activity], you might say that we assume a U-shaped recovery... But if you focus on growth rates, you'd probably call our forecast V-shaped... but whatever growth we get will come from a much lower level.

- Jan Hatzius



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# Macro news and views

We provide a brief snapshot on the most important economies for the global markets

## US

### Latest GS proprietary datapoints/major changes in views

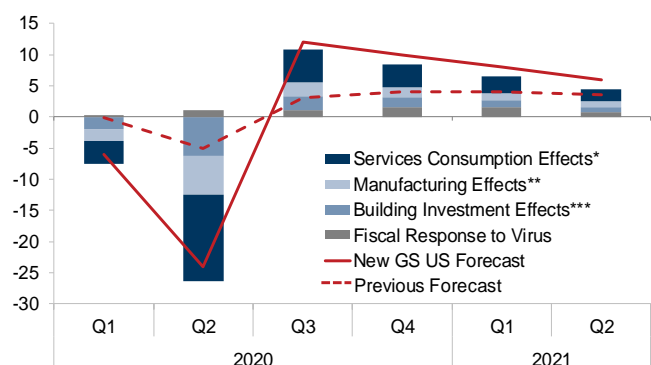
- We've lowered our full-year 2020 GDP forecast to -3.8% based on widespread virus-driven disruptions, and expect -24% qoq annualized growth in Q2 followed by a gradual rebound in H2.
- We now expect the U3 unemployment rate to peak at 9%.

### Datapoints/trends we're focused on

- Jobless claims, which we expect will rise to 2¼ mn, a roughly 9-fold increase from the pre-crisis trend and a new all-time high.
- The Fed's ability to calm markets, after it committed to purchase unlimited Treasuries/agency MBS, and buy corporate debt.
- Phase 3 fiscal stimulus package currently under consideration by Congress, which could deliver roughly \$2tn of stimulus.

### A sudden economic stop for the US

US real GDP annualized quarterly growth, percent



\* Includes cutbacks to consumption categories requiring face-to-face interaction.  
 \*\* Includes reduced domestic and foreign demand for goods, supply chain disruptions, and plant shutdowns.  
 \*\*\* Includes cutbacks to structures investment, homebuilding, and home sales.  
 Source: Goldman Sachs Global Investment Research.

## Japan

### Latest GS proprietary datapoints/major changes in views

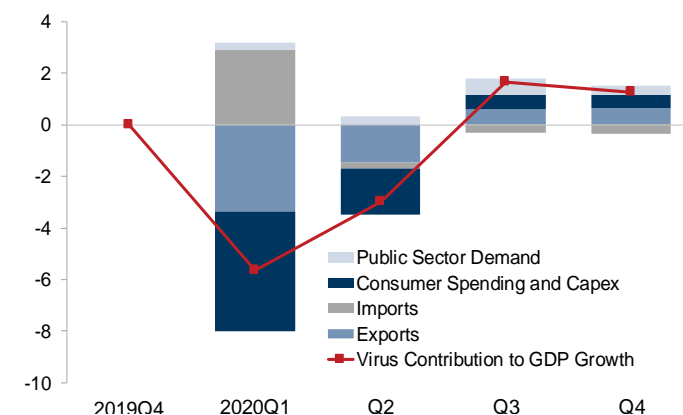
- We've lowered or full-year 2020 GDP forecast to -2.1%, and anticipate Japan will experience three consecutive quarters of negative growth from 4Q19 through 2Q20.
- We now think the government will deliver a fiscal package of around ¥3 trillion (equivalent to 0.5% of GDP) in April.

### Datapoints/trends we're focused on

- Postponement of the Tokyo Olympics, which we estimate will shave at least an additional 0.2pp off of FY2020 growth.
- The BoJ's ETF buying program; despite the recent decision to lift the annual purchase limit to ¥12tn, we expect only a temporary increase in the pace of monthly purchases.

### Three consecutive quarters of negative growth

Estimated COVID-19 impact on Japan GDP qoq ann., contribution pp



Source: Goldman Sachs Global Investment Research.

## Europe

### Latest GS proprietary datapoints/major changes in views

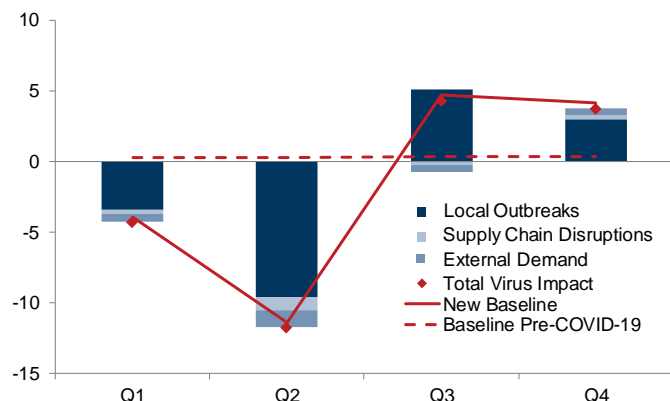
- We've lowered our full-year 2020 Euro area GDP forecast to -9%, with a roughly 11% non-annualized qoq contraction in Q2.
- We now expect a large increase in fiscal support, with budget deficits likely to reach 10% in both Italy and Spain, 7% in France, and Germany clearly breaching its debt break rule.

### Datapoints/trends we're focused on

- The ECB's "Pandemic" QE, which could enable up to EUR400bn in peripheral debt purchases assuming full capital key flexibility.
- Reform of the European Stability Mechanism (ESM), which would allow the ECB to use its Outright Monetary Transactions (OMT) program to backstop sovereign debt markets.

### A deep downturn

Baseline COVID-19 impact on non-ann. Euro area GDP growth, pp



Source: Goldman Sachs Global Investment Research.

## Emerging Markets (EM)

### Latest GS proprietary datapoints/major changes in views

- We've lowered our full-year 2020 China GDP forecast to 3%—the slowest rate since 1976—with -42% qoq annualized growth in Q1, but meaningful stimulus driving above-trend growth in H2.
- We reduced full-year 2020 GDP across EM, including to 0.3% in Korea, 3.3% in India (FY21), -1.1% in Brazil and -2% in Mexico.

### Datapoints/trends we're focused on

- China high frequency data, which has shown an increase in activity from previously depressed levels, with some indicators now back to normal while others continue to lag.
- Policy easing; we expect cuts by at least 20 EM CBs by end-Q2.

### A limited recovery in China economic activity

GS coronavirus China economic tracker, percent change one year ago



Note: Average of loaded coal, air pollution, daily coal consumption, and steel demand.  
 Source: Goldman Sachs Global Investment Research.

# Roaring into recession

2020's black swan—coronavirus—has pushed the global economy into recession, with several major economies now experiencing partial, or even near-complete, lockdowns. Alongside the collapse in economic activity has come an abrupt end to the historic equity bull market and a record-high spike in market volatility. As infections spread globally, economic activity screeches to a halt, markets recoil and policymakers snap into action, the depth and duration of the economic and market downturn is Top of Mind.

We first speak with GS Chief Economist Jan Hatzius, who now expects a global recession of historic proportions—worse than the deep recessions of the early 1980s and the aftermath of the 2008/09 Global Financial Crisis (GFC), and remarkable in both the speed and depth of the contraction in the first half of the year. Indeed, following an estimated 42% contraction in China's real GDP during Q1 on a quarter-on-quarter annualized basis (qoq ar), he expects Q2 real GDP in the advanced economies will contract at rates well into the double digits, including a 24% drop in the US that would be 2½ times as large as the previous postwar record. And while he's currently expecting some improvement in 2H depending on the trajectory of the virus, he sees risk to this view as skewed to the downside.

That said, Hatzius thinks that while it could take a year for activity to return to pre-virus levels once virus mitigation measures are eased, growth rates could recover rapidly from very low levels. And he doesn't expect the hangover from the crisis to last nearly as long as that from the GFC given the absence of any major economic or financial imbalances heading into it, as well as the aggressive monetary and fiscal policy responses globally, which can't solve the health crisis, but can help mitigate the damage to people and businesses affected by it.

Jason Furman, head of the Council of Economic Advisers in the Obama Administration, agrees that the recession could be severe. And he is unconvinced by the prospect of a rapid recovery given the potential extent of the harm to businesses and the labor market. Having been involved with the policy response during the GFC, he is amazed at the speed of the policy response this time around, but still thinks it may not be fast enough or big enough to fully address the enormity of the shock. As policymakers continue to respond, he argues that policies that address both the economy and the health issue simultaneously will be most effective, and that ensuring banks are part of the solution rather than the problem will be critical to avoiding the health crisis turning into a financial crisis.

We then ask Richard Ramsden, GS Banks analyst, and Lotfi Karoui, GS Chief Credit Strategist, how vulnerable we are to such a crisis. Ramsden argues that banks are well-positioned to help rather than hurt the situation this time around, especially given recent Fed actions that will facilitate bank lending (see pgs. 16-17 for a Q&A with Praveen Korapaty, GS Chief US Interest Rates Strategist, on funding pressures and how effective Fed actions will likely be in assuaging them.)

For his part, Karoui addresses both cyclical and structural weaknesses in the credit markets that could amplify the downturn. On the cyclical side, Karoui believes that the hit to corporate earnings from the weak growth outlook as well as the

oil shock—on top of the degradation of non-financial corporate balance sheets since the GFC—suggests a rise in HY defaults to low double-digits this year, and potentially to high double-digits—far more than during the peak of the GFC—if conditions don't improve in H2 as we expect. But, on the structural side, he argues that the Fed's new credit facilities reduce a major source of tail risk for markets: a lingering feedback loop between challenging secondary market liquidity conditions and corporate borrowers' ability to access capital markets in the wake of post-GFC regulation.

That said, with markets spiraling in the face of the economic collapse, and nobody sure quite how far the economic and market damage will go, we ask how investors should be positioned amid this uncertainty. There is perhaps no one better to consult than Howard Marks, long-time investor and co-founder of Oaktree Capital Management. In his view, nobody can ever tell you when things have bottomed, so the most productive thing an investor can do is to assess price changes versus fundamentals. In his view, some assets with good fundamentals that are now on sale are probably worth starting to buy, but that doesn't mean they won't be marked down further. So it makes sense to invest some cash today, but not all of it, in case they do.

What do GS strategists advise? Kamakshya Trivedi and Zach Pandl, GS Co-heads of Global FX, Rates and EM Strategy, recommend sticking with defensive positioning for now. But they lay out a set of conditions that—if met in full or convincingly enough in parts—could mark a trough in macro assets. These range from a flattening out of the infection rates in the US and Europe, to sufficiently large global stimulus measures, to a mitigation of funding and liquidity stresses; with some of these occurring earlier than others, and leading to a trough in some assets before a broader bottom in risk.

Peter Oppenheimer, GS Chief Global Equity Strategist, similarly discusses the anatomy of equity bear markets, and what the "event-driven" nature of the current bear market could mean for its depth and longevity. He finds that this type of bear market is typically shorter-lived than bear markets that instead have cyclical or structural drivers. But the caveat is that the unprecedented nature of the current shock—driven by a pandemic that seems to require extensive mitigation measures that will inflict a sharp hit to earnings—suggests this event-driven downturn could last longer and see bigger absolute declines than ones in the past.

Finally, Jeff Currie and Mikhail Sprogis of our commodities team explain why gold has so far not lived up to its "safe-haven" reputation in this crisis (think liquidity issues), but is set to once again become the currency of last resort.

We wish health and good luck to all of our clients and their families during this trying time.

P.S. Don't forget to check out the podcast version of this and other recent GS Top of Mind reports—on [Apple](#) and [Spotify](#).

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# Interview with Jan Hatzius

Jan Hatzius is Head of Global Investment Research and Chief Economist at Goldman Sachs. Below, he argues that the global economy is heading for a deep recession, and sees a U-shaped recovery in terms of activity levels, but a V-shaped recovery in terms of growth rates.



**Allison Nathan: Are we facing a global recession?**

**Jan Hatzius:** Yes, very much so. We forecast global GDP to decline 1% this year, which would be worse than the aftermath of the Global Financial Crisis (GFC) and the deep recession of 1982. Driving the weakness is a substantial decline in growth in China to 3% in

2020 from the 6-7% annualized pace in recent years, largely owing to an exceptionally sharp contraction in Q1 on the order of 42% on a quarter-over-quarter annualized basis, or 9% year over year. This is far weaker than anything we've ever seen in China. In other countries, we expect the largest hit in Q2, with output now likely to contract by an eye-popping 24% in the US and 38% in Europe on an annualized basis. Just to put the US number into perspective, that decline would be nearly two-and-a-half times the size of the largest quarterly decline in post-war history, which took place in 1958.

“The sudden stop in economic activity resulting from virus mitigation measures that we are seeing in the world's largest economies is simply unprecedented.”

**Allison Nathan: What's driving such an exceptionally negative near-term outlook?**

**Jan Hatzius:** The sudden stop in economic activity resulting from virus mitigation measures that we are seeing in the world's largest economies is simply unprecedented. On the consumer side, that includes shutdowns of airlines, sports events, restaurants, retail stores, conferences, theme parks, and any part of consumer spending that requires a high degree of face-to-face interaction. On top of that, a hit to manufacturing is likely to weigh further on growth, with recent manufacturing surveys already showing historically large declines and US auto manufacturers shutting down production. Construction is also likely to fall sharply. Data out of China show that the virus could have a tremendously negative impact on home sales—who wants to go to an open house these days?—and we are also seeing more reports of cancelled commercial construction projects.

**Allison Nathan: Financial markets have obviously reacted violently to these developments. Are tighter financial conditions contributing to the weakness we expect?**

**Jan Hatzius:** Weakness in the real economy driven by virus mitigation is by far the largest driver of the downturn. But changes in financial conditions are a potential accelerator of these real economic changes. Financial conditions have tightened dramatically, by 300bp in the US according to our

FCI. That translates directly into a negative GDP growth impact of nearly 3pp. That said, although these numbers are very large, right now we don't put quite as much weight on the impulse from financial conditions as we would in a more normal environment. That's because the impulse is very endogenous to what's going on with the medical situation and in the real economy, and can therefore change much more quickly than it would under other circumstances.

**Allison Nathan: How are you viewing risks around these forecasts?**

**Jan Hatzius:** Despite our negative outlook, risks remain skewed to the downside, especially as far as the timing of recovery is concerned. Right now we are assuming that recovery will start in May/June. But this depends on the trajectory of the virus. If we don't see stabilization in the number of infected people and a sharp decline in new infections within the next couple of months, then the shutdowns would likely have to last longer and the hit to growth would be bigger.

There's also the risk of greater spillover effects via the financial system, bankruptcies in the business sector—both among large businesses and small businesses—and sharp deterioration in the labor market. As it is, we now estimate that initial jobless claims totalled 2.3 million last week, which would be more than three times the previous record. More broadly, we expect US unemployment to rise from below 4% currently to 9% in coming quarters, just shy of the unemployment peak of 10% during the Global Financial Crisis (GFC). But unfortunately, the risks are still tilted to the higher side.

**Allison Nathan: How does this period compare to the Global Financial Crisis (GFC)?**

**Jan Hatzius:** It looks more severe in terms of the speed and depth of the downturn because the constraints on activity are primarily physical, not financial. Even the GFC, as wrenching as it was, didn't prevent people from producing and buying the same kinds of things as before the crisis—they just had a much harder time financing them. But now it doesn't matter how much you are willing and able to pay, you just cannot have a sit-down restaurant meal.

On a more positive note, however, I don't expect the hangover from the crisis to last nearly as long as that from the financial crisis. Coronavirus is a black swan event that came out of nowhere but will eventually diminish as infections peak, immunity across the population rises and vaccines are ultimately developed. In contrast, the GFC was the culmination of more than a decade of built-up imbalances that left a big debt overhang and substantial excess capacity in its wake, such as unwanted home vacancies that took a very long time to unwind.

**Allison Nathan: As was the case during the GFC, central banks around the world have jumped into action. How**

### effective will these measures be in stimulating the economy this time around?

**Jan Hatzius:** I don't think they can be particularly effective in terms of generating a large positive impulse in the very short term. For one, firepower was relatively limited heading into this situation. For example, in the US, 150bp of cuts isn't all that much when you consider that in the average post-war recession, the Fed has cut by about 500bp. More importantly, given the nature of the shock, the near-term path of the economy will be mostly determined by the path of the virus and the behavioral responses to it. So central banks still have an important role to play, but are not nearly as central to the solution as they have been in most recessions and during the GFC.

That said, central banks should definitely be using all the ammunition they have to stimulate demand and support businesses and households through this difficult period, as well as to ensure that markets continue to function. In the US, the resumption of a sizeable asset purchase program is a big step in the right direction. But given that the Fed is only allowed to buy a narrow range of assets for which it doesn't take on any credit risk—basically, Treasuries and Agency Mortgage-Backed Securities—the Fed's recent deployment of several crisis-era facilities that allow it to intervene in other markets, such as the commercial paper market through the Commercial Paper Funding Facility (CPFF) and other new corporate credit facilities, should prove even more effective in easing the flow of credit to where it's most needed (see pgs. 16-17 for more details). But, in order to make these new facilities truly powerful, the Fed needs a larger equity backstop from Congress, which is one of the key components of the stimulus bill now under consideration.

The ECB, for its part, has also taken an important step in launching a €750bn Pandemic Emergency Purchase Program (PEPP) on top of its existing Asset Purchase Program (APP), which together will significantly exceed the peak monthly purchase pace under previous programs. In contrast to the Fed, the ECB has more flexibility to purchase a wider range of assets, which should prove helpful in reducing mounting stresses in the Euro area's financial system. Perhaps most crucially, the ECB signalled that they are once again willing to do "as much as necessary and for as long as needed" to shore up financial market conditions, which is paramount given the structural weaknesses in the architecture of the Euro area that make it more vulnerable to stresses that could threaten the euro itself. In our view, it is therefore essential that the ECB continue to clarify that its commitment to protect the stability of the Euro area is unconditional.

### Allison Nathan: Governments are also busy at work rolling out fiscal policies. Is there much reason to believe that fiscal policy will be any more effective in boosting demand?

**Jan Hatzius:** The same points apply: fiscal policy won't have much impact on the near-term plunge in activity, but it is very important for supporting incomes of unemployed workers and

limiting negative amplification effects. Such targeted measures could include increasing access to unemployment insurance, Medicaid and food stamps to people who have lost their jobs owing to the virus, as well as loan guarantees to small businesses via the Small Business Administration or discretionary support for industries particularly damaged by the drop in demand. Some of this has already been passed, but much more is needed, especially in terms of income support measures for people hurt by the downturn.

Beyond these targeted measures, standard fiscal stimulus measures like the rebate checks that Congress is considering will likely have a positive impact, especially if deployed quickly. But again, this is mostly a way of shoring up people's incomes during the downturn—and help ensure that there really is a recovery after the virus news has improved—but won't change the disastrous Q2 growth picture by much.

### Allison Nathan: Will the recovery most likely be L, U or V-shaped?

**Jan Hatzius:** That terminology is problematic because it depends greatly on whether we are talking about the level or the change in activity. If you focus on the level, you might say that we assume a U-shaped recovery. In our forecast, it takes about a year for most of the disrupted activities to come back; in fact, some industries may be permanently impaired, such as cruise lines. But if you focus on growth rates, you'd probably call our forecast V-shaped. The sheer depth of the prior downturn and the ability to ramp some activities back up quickly, such as sit-down restaurants, should result in 10%+ growth rates for a few quarters. But there are a few important caveats to keep in mind, including the risk that recovery occurs later than we forecast—either because the medical situation takes longer to improve or because of large negative multiplier effects via the labor market—and the near-certainty that whatever growth we get will come from a much lower level.

### Allison Nathan: What will you be watching in the coming weeks?

**Jan Hatzius:** It will continue to be an "information overload" environment. At the top of my list are infection numbers and other medical information. What are we learning about the spread and the severity of the virus, and the potential impact of seasonality on its transmission? Next on the list are measures of financial market functioning, including not just standard ones such as moves in US equities, rates, and credit markets, but also commercial paper issuance and spreads, cross-currency basis, and European sovereign spreads. Moving further down the list, it will take a while for the standard economic indicators to show the damage clearly. So for the past few weeks, we have been closely following unconventional but very high-frequency measures such as restaurant reservations and movie theatre ticket sales. We're just at the point where those are becoming less useful—for example, opentable.com now shows a 100% decline in reservations in most cities, which won't change anytime soon. So we're now turning attention to the timelier parts of the standard indicator set, including jobless claims and business surveys.

# Interview with Jason Furman

Jason Furman is Professor of the Practice of Economic Policy at the Kennedy School of Government at Harvard University and former Chairman of the Council of Economic Advisors in the Obama Administration. Below, he argues that we are heading for a global recession that could last for some time, and that the most important policies to address it will simultaneously target the economy and healthcare, as well as ensure that banks are part of the solution—not the problem.

*The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.*



**Allison Nathan: Are we heading for a global recession, and, if so, how severe do you think it will be?**

**Jason Furman:** I think the world is heading for the most predictable recession we've ever had. Never before has there been such an abrupt, synchronized, and global shutdown of so much economic activity. And I think the recession could be severe, and potentially more severe than what we saw during the Global Financial Crisis. That will ultimately depend on how long the period of economic suppression lasts, how much difficult-to-reverse damage happens during that period, and the policy responses. But, at this point, there is little doubt that we are headed for a contraction that will see at least some businesses shut and unemployment rise substantially, at least temporarily; in the US, I think a 10% unemployment rate, or even higher is perfectly plausible.

**Allison Nathan: How long will it take the economy to recover from this downturn?**

**Jason Furman:** There seems to be a lot of discussion about a V-shaped recovery, but I am less confident in such a recovery because the dynamics of the business cycle are such that the unemployment rate can go up quickly, but it has never come down quickly. Businesses can go bankrupt, but they can't become un-bankrupt. And I think we will continue to deal with a 'whack-a-mole' spread of the pandemic around the world, so there will be global supply chain issues for some time.

That said, we don't have a lot of historical evidence from pandemics to gauge how quickly we might recover. In a financial crisis, it can take five to ten years to recover back to where you were, and the level of GDP can be permanently lowered as a result. We have a very different set of circumstances today. But if the global economy misses a year of growth, that's not something you usually rebound from quickly; there is a lot of R&D, capital investment, and innovation that isn't going to happen now because of this crisis. So my best guess is that the effects of something like this are persistent, and that some of the GDP loss is never made up, leading to a permanently lower level of GDP.

Of course, the most important factor for determining how growth evolves later this year and into 2021 is where we are in terms of controlling the virus. If we're still taking steps that limit global and domestic activity, negative growth could continue into 2021. If we mess up and this turns into a financial crisis in addition to a health crisis, the recession would certainly be prolonged. So there's a tremendous amount of uncertainty

at this stage. But I think there's a reasonable chance we'll still see negative growth next year.

**Allison Nathan: How concerned are you that we do end up with a financial crisis?**

**Jason Furman:** The trickiest job for policymakers and regulators will be to ensure that the banking system is safe and sound, and in a position to lend in the ways that are needed. Banks came into this in a much better capital position than before the GFC, but many people and businesses will have difficulty repaying loans and mortgages, and we've already seen a large withdrawal of credit lines. So I see regulatory steps directed at banks as an important part of the policy response. That includes regulatory forbearance for banks that will allow them to do things like "extend and pretend" on loans that, in normal times, would be a terrible thing to do, but right now might be a necessity. I'm typically in favor of tougher capital regulations on banks, but now is not a moment for that. The reason we have all of these regulations is to prepare for a flood, and, right now, we're in a flood. Another important regulatory action will be to disallow banks from buying back stock and paying dividends in order to free up as much bank capital as possible for those that need it the most. I hope all of these types of measures are already being taken, either formally or informally, across the range of financial sector regulators. The banking system must be part of the solution—not the problem.

**Allison Nathan: You were involved in the policy response during the GFC. Do you think it is more or less difficult to make policy then, or now?**

**Jason Furman:** Making policy during the financial crisis was difficult, but making policy right now is even more so. Economic and market events are unfolding even faster, which is demanding a more rapid policy response. I have never seen economic and market conditions—nor policy—moving at this speed. Take the recent legislation on paid leave. That legislation was extremely complex but went from a talking point to law signed by the president in about five days. The Federal Reserve took a series of actions—reducing interest rates to zero, resuming asset purchases on a massive scale, and deploying crisis-era liquidity facilities—and fiscal authorities are likely to enact a roughly \$2 trillion stimulus package—all within weeks of the onset of the crisis. And during all of this, the people putting together these policies are not allowed to interact face-to-face with each other; most are working remotely, many have children at home, and some are worried about someone getting sick. At the most basic level, the process of getting things done is incredibly difficult right now. So policymakers are doing much

bigger things much faster than during the GFC, and under very difficult circumstances.

**Allison Nathan: Given the above, how would you rate the overall policy response so far?**

**Jason Furman:** I think the Fed response has been excellent; the actions they've undertaken have been absolutely right, but there's only a limited amount they can do. I think Congress has worked faster than ever before, but it's still behind where it should be. And I think the administration was slow to comprehend the enormity of the situation on the economic side, but that they're there now. So, overall, I would rate the response as pretty good, and probably better than we've ever seen before. But it still might not be fast or big enough.

**Allison Nathan: So is the fiscal package Congress is now considering—on the order of \$2 trillion—too small?**

**Jason Furman:** I think the package is roughly the right size, for now. But it's very hard to know exactly what the economy will need, so policymakers need to be prepared to do a lot now, and even more later. One of the lessons we learned from the financial crisis is that you can see extraordinary action at the peak moments of crisis, but even when things are still quite bad, people can tire of taking action, and not want to do anymore. So in order to avoid a premature withdrawal of economic stimulus, I think it is very important to build-in automatic mechanisms today that would continue assistance if the economy remains in bad shape. Those types of mechanisms have been discussed, but are not included in any of the current legislative proposals.

**Allison Nathan: Is anything else missing from the package?**

**Jason Furman:** It's now under discussion, but the package had been missing one very large element, which is dedicated assistance to states and localities. They got some money in the second coronavirus bill—enough to offset a 0.85pp increase in the unemployment rate—but that is nowhere close to what they'll need to carry out emergency responses to assist businesses, and to make up for the hole in revenues they're about to see. So that's the one place where I think at least the original composition was badly off.

**Allison Nathan: Should we be at all worried that we're about to massively increase an already very large deficit?**

**Jason Furman:** Now is not the time to worry about fiscal constraints. We're facing a huge liquidity shock. Households, businesses, states, localities, and the federal government are all going to need to borrow. Of all those entities, the one that has the best ability to borrow at the lowest interest rate is the federal government. So the more it can borrow and take pressure off the others, through small business lending facilities, cash payments to individuals, and money for states, the more it's going to relieve the overall financial pressures in the economy. Also, if you're worried about fiscal sustainability, remember that you need GDP to collect taxes and pay off your debt. And if we don't have a large fiscal response, we're not going to have a lot of GDP.

**Allison Nathan: So should we be moving even further in the direction of financing fiscal deficits through policies such as helicopter money, and the like?**

**Jason Furman:** I would love for the Fed to be working on contingency plans for a variety of ways to effectively coordinate with fiscal policy. Right now, I don't see such action as necessary. Interest rates are relatively low, and the Fed can deploy further tools like increasing asset purchases or even yield curve control if it needs to. I think something closer to those traditional instruments will probably get us most of the way to the point where monetary policy ensures that the fiscal policies we need are doable without outright coordination, like helicopter money.

**Allison Nathan: As policymakers continue to develop policy to address the crisis, what should they prioritize?**

**Jason Furman:** The most effective and important policies are ones that will help the economy and healthcare at the same time. Money to states will do that by helping them avoid contracting and enabling them to respond. Money for testing and hospitals will also help. Direct cash to people falls into that category because it makes it easier for people not to go to work. Paid leave also helps families and healthcare simultaneously. The next tier are policies that protect people as much as possible—people who lose their jobs, people who rely on school lunches, and so forth—making sure that they can get through this very difficult period. And the third priority is anything that will help with business continuity. Businesses are in some ways a web of social relationships between employees, management, suppliers, customers, and banks, etc. And when those relationships break up because a business goes bankrupt, it's very hard to reconstitute them. So making sure that some dormant businesses are ready to be reactivated once we get beyond the pandemic is a priority.

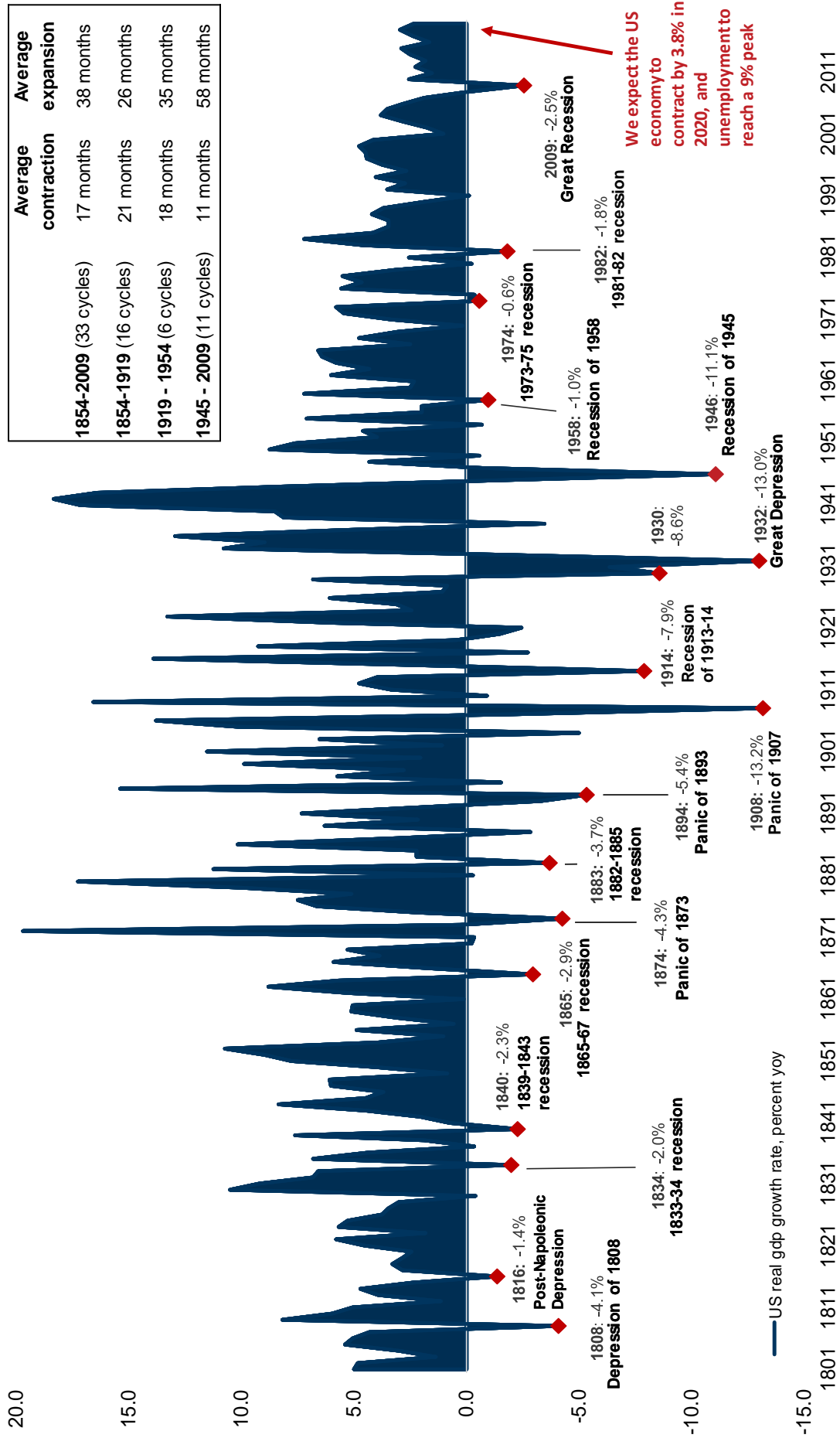
**Allison Nathan: Are you worried that political obstacles will prevent such a policy response from moving forward?**

**Jason Furman:** There will be some bumps in the road. Everyone brings their own causes and preconceptions to a moment like this, and everyone sees it as an opportunity to advance something that they have long wanted to. But, following Pearl Harbor, people recognized that was not the moment to try to advance causes that they had been pursuing for decades; they realized they had to shelve all of that to do what they needed to in order to win WWII. And this is a moment like that. I don't think everyone will rise to that moment at the same rate, but I think enough people will get there, and we'll get the response that we need.

**Allison Nathan: Will these developments have implications for the US elections later this year?**

**Jason Furman:** I think this will have huge implications for the presidential election, but I don't know what they are. People could see President Trump as a wartime president, and rally to him, or they could think that this disaster is his fault, and rightly or wrongly blame him for it. I could see either one of those unfolding. But I think prior to this event, President Trump was the favorite to win the election, and this event has injected additional uncertainty into the situation. That essentially is like option value for the Democratic candidate, presumably Joe Biden. So I think just variance alone is the friend of whoever is out of the money, and I think Biden was a bit out of the money prior to all of this.

# The long history of US recessions



Note: Red markers denote trough in yoy US growth in major recessions; US growth data for 1800-1979 from IMF "Fiscal Prudence and Profligacy database"; data thereafter from IMF WEO database; US business cycle data from NBER Business Cycle Dating Committee.  
Source: IMF, NBER, Goldman Sachs Global Investment Research.



# Snapshot of policy responses

		US	Euro Area	China
Monetary Policy	Policy Rate	<ul style="list-style-type: none"> <li>Fed cut the funds rate by 150bp in two steps to 0-0.25%, and provided soft forward guidance.</li> </ul>	<ul style="list-style-type: none"> <li>ECB kept the deposit rate unchanged at -0.5%.</li> </ul>	<ul style="list-style-type: none"> <li>PBOC cut the Open Market Operations (OMO) 7-day and 14-day rates and the Medium-Term Lending Facility (MLF) 1-year rate by 10bp each.</li> <li>PBOC cut the reserve requirement ratio (RRR) by 0.5% and then delivered a targeted cut, unleashing RMB 550bn (0.6% of GDP) of liquidity to the market.</li> <li>1-year and 5-year LPRs were cut by 10bps and by 5bps, respectively.</li> </ul>
	Large Scale Asset Purchases	<ul style="list-style-type: none"> <li>Fed will purchase US Treasuries and agency MBS "in the amounts needed to support smooth market functioning and effective transmission of monetary policy to broader financial conditions and the economy."</li> </ul>	<ul style="list-style-type: none"> <li>ECB increased its asset purchase programme (APP) by EUR 120bn (1% of GDP) until end-2020.</li> <li><b>Pandemic Emergency Purchase Program (PEPP):</b> a EUR 750bn (6.5% of GDP) <u>emergency purchase program</u> with flexibility over time in terms of countries and asset types, and inclusion of Greek government debt and non-financial commercial paper of sufficient credit quality.</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
	Lending Facilities	<ul style="list-style-type: none"> <li><b>Commercial Paper Funding Facility (CPFF):</b> provides a <u>liquidity backstop</u> to U.S. issuers of commercial paper.</li> <li><b>Primary Market Corporate Credit Facility (PMCCF):</b> provides IG firms access to new bond and loan issues.</li> <li><b>Secondary Markets Corporate Credit Facility (SMCCF):</b> purchases corp bonds issued by US IG firms and ETFs.</li> <li><b>Term Asset-Backed Securities Loan Facility (TALF):</b> supports ABS issues, backed by student, auto, credit card loans.</li> <li><b>Primary Dealer Credit Facility (PDCF):</b> offers credit (up to 90 days) to primary dealers collateralized by investment grade debt and equity securities, at the same interest rate as the discount window.</li> <li><b>Money Market Mutual Fund Liquidity Facility (MMLF):</b> <u>offer loans</u> to eligible financial institutions secured by high-quality assets.</li> </ul>	<ul style="list-style-type: none"> <li>Longer-Term Refinancing Operations (LTROs) are intended to backstop funding liquidity needs of banks until June 2020.</li> <li>The Targeted Longer-Term Refinancing operations (TLTROs) will be expanded (from 30 to 50% of banks' eligible loan book) and the funding rate will be cut to -0.75%, conditional on lending.</li> </ul>	<ul style="list-style-type: none"> <li>PBOC is providing liquidity support directly through relending/rediscount tools to alleviate illiquidity pressures.</li> <li>PBOC injected RMB1.2 trillion (~1.3% of GDP) via reverse repo.</li> </ul>
Fiscal Policy	Bridging Measures	<ul style="list-style-type: none"> <li>Recently-enacted Phase 2 package worth around 0.75% of GDP increases fiscal aid to states, funds small business sick/family leave, and expands unemployment insurance and food stamps.</li> <li>The Treasury will delay up to \$300bn (14% of GDP) in tax payments due April 15 for up to 90 days. Broad forbearance for federally backed mortgage and student loans is also under consideration.</li> </ul>	<ul style="list-style-type: none"> <li>The EU Finance Ministers agreed to provide liquidity facilities of at least 10% of GDP, consisting of public guarantee programs and deferred tax payments.</li> <li>More flexible access to short-term work in Germany and France.</li> </ul>	<ul style="list-style-type: none"> <li>Authorities have pushed banks to provide short-term loans, roll over maturing loans, allow firms to postpone repayment, reduce tax/fee burdens and subsidize firms for stabilizing employment.</li> <li>CBIRC announced that virus-related defaults would not affect SME credit records if loans are repaid during the extension period.</li> </ul>
	Stimulus And Other Fiscal	<ul style="list-style-type: none"> <li>Negotiations underway on a "Phase 3" stimulus package. The latest proposal from Republicans includes payments to individuals, small business loans and payroll subsidies, industry-focused relief, additional tax relief for businesses and individuals, and a guarantee of money market mutual funds. Phase 3 stimulus is likely to become law by end of March.</li> <li>The Trump Administration and congressional Republicans and Democrats continue to negotiate on the details of the bill after failing to reach an agreement by Monday, March 23. The composition of the bill could still change substantially.</li> </ul>	<ul style="list-style-type: none"> <li>The Eurogroup recognized the need for countries to implement discretionary fiscal measures of at least 1% of GDP (independently of existing fiscal space); but the EU coordinated action is a package of EUR95bn (0.8% of GDP) in the form of guarantees and loans to firms (jointly supported by the European Commission and the European Investment Bank).</li> <li>Stimulus measures would also be increased if necessary.</li> </ul>	<ul style="list-style-type: none"> <li><u>We expect</u> the augmented fiscal deficit to rise by 3pp to 14.5% of GDP in 2020, driven by greater special bond issuance, public investment, and stronger policy bank support.</li> <li>We expect the quota for new special bonds for this year to increase to Rmb3.3tn (~3.3% of GDP) from Rmb2.15tn in 2019.</li> <li>Provincial governments can grant approvals of changes land use (e.g. from agricultural purposes to construction purposes).</li> <li>Some cities are planning on giving out coupons to spend in restaurants/malls.</li> </ul>

Note: First published in Global coronavirus policy response, March 20 2020. Thanks to Daan Struyven and Blake Taylor.

Source: Goldman Sachs Global Investment Research.

# Interview with Howard Marks

Howard Marks is the co-founder and co-chairman of Oaktree Capital Management. Below, he argues that no one can ever tell you when we've hit bottom, so all an investor can do is assess price changes relative to fundamentals. On that basis, he sees some value today.

*The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.*



**Allison Nathan: Is this the end of—or just a pause in—the historic bull market that's lasted for more than a decade, given the temporary shock?**

**Howard Marks:** There are technical definitions to market movements these days; a correction is defined as down 10% and a bear market is defined as down 20%. So given that we are down well more than 20%

from the high, we are certainly in a bear market according to that definition. That said, I am not crazy about these percentage definitions, because I think bull and bear markets are a state of mind. A bull market is a market of optimism, enthusiasm and aspiration, and then eventually obliviousness to risk. But even through that lens, the optimism of the recent bull market has cooled, and we have clearly moved into a bear market. Hard as it may be to believe today, there will be another bull market someday. But when it comes, I don't think we will be able to call it a continuation of the bull market that technically lasted from March 9, 2009 until February 19, 2020—the longest bull market in history, defined as a rise without a decline of 20%. It will be a new one.

**Allison Nathan: Were the markets too optimistic before the virus-related sell-off, and how do you determine that?**

**Howard Marks:** I think that most markets were too optimistic. Stocks were moderately overvalued on historic valuation terms, and credit was too freely available. Because interest rates were low, people felt they had to invest in risky assets in order to get the returns they either wanted or needed. So I think that we were in a pro-risk environment.

In my view, the way to determine this is to ask: which is governing, optimism or pessimism? If you look at the performance of FAANGs, the fact that people were willing to buy bitcoin and hundred-year bonds from Argentina, and the amount of money flowing into venture capital, private equity and other prosperity-oriented forms of investing, you could have concluded that in this period the markets were governed by optimism.

**Allison Nathan: Given what we know about the virus—and that some countries in Asia seem to have gotten the virus under control—are markets now too pessimistic?**

**Howard Marks:** Some Asian countries may seem to have gotten the virus under control, but I don't think we know nearly enough to say that this problem is over. We don't know how many people in America are infected, because we haven't tested sufficiently. And, as people continue to get sick, we don't know whether our healthcare facilities will be adequate to take care of them, how many people will die, how long it will take to get the virus under control here, how many businesses

will shut to avoid the spread, how their workers will get paid, and so forth. So I think it's impossible to assess whether markets are too pessimistic given what we know, which is basically nothing.

**Allison Nathan: Does this feel like a more or less manageable environment for an investor than the Global Financial Crisis (GFC)?**

**Howard Marks:** It's very hard to compare the present to the past because the feelings of the past tend to fade. On the one hand, both experiences induced justified panic. On the other hand, the GFC was about money and this is about life, which is a big difference. But with Bear Stearns, Merrill Lynch, Wachovia Bank, Washington Mutual, and then, of course, Lehman Brothers either atomized, rescued or absorbed, there was also the sense of a downward spiral during the GFC and confusion about how to arrest it. Fortunately, great work on the part of our government did halt it. But, at the time, many people seemed convinced that the financial system would collapse, and the fallout for the markets and the global economy would be permanent. I don't think anybody believes that the damage this time is going to be permanent, so in that sense, we might actually be better off today.

**Allison Nathan: Even if the damage might not be permanent, is there an area of the economy that particularly concerns you right now?**

**Howard Marks:** Yes—all of it. First, if people are afraid, they may not go out. Second, they probably shouldn't go out. And third, the government is increasingly telling them they can't go out. That says to me that people will be likely be spending less money, companies will start to struggle, and many people could lose their jobs. And, of course, the people who are the most likely to lose their jobs are the people who can least afford to do so. That's the thing that makes me shudder on both a professional and a human level if we can't get this virus under control soon. Maybe we will, but we just can't know what the future holds.

**Allison Nathan: Are you comforted by the aggressive policy actions taken by the Fed and the US government, or concerned because we had limited firepower entering into this situation to begin with, and are now already well on our way to using it up?**

**Howard Marks:** I'm very worried about the lack of policy ammunition. Last year, I questioned the wisdom of the 2019 rate cuts, and before that the late-2017 tax cut that resulted in a trillion-dollar deficit, at a time when growth was solid. I don't think that the Fed or the federal government should be spending its ammunition to prolong prosperity, as opposed to pulling us out of recessions. As a result of this premature spending, we came into this episode short of fuel, with the Fed funds rate at only 1.5%, which is hard to square with the fact

that most historic rate cut regimes during recessions have been about 5%. And I think it's unfortunate not only that we spent too much ammunition to try to sustain economic growth and the bull market, but also that we did not take advantage of opportunities to raise rates. The Fed Chair tried but got discouraged. Policymakers might have been able to rebuild some ammunition by sneaking in some rate increases around 2014-15, when growth had taken hold but the expansion wasn't yet that old, but nobody wanted to do it.

All that said, spending the limited ammunition that we have now is the right thing to do. The Fed's aggressive actions—slashing rates to zeros, restarting asset purchases and providing additional liquidity backstops—have provided an appropriate dose of shock therapy to the markets. And the series of proposed fiscal policies aimed at supporting industries hard-hit by the virus-related disruptions, small businesses and households are also appropriate given the risks we face today. So it's good that policymakers are now acting decisively, but it's bad if their policy options are limited. Then again, this is a health crisis, not a financial crisis. We've never seen anything like this in modern times. So it's unclear how much all of this will help, and nobody can tell you how it will turn out.

**Allison Nathan: How concerned are you that the global health crisis could become a credit crisis, potentially exacerbating and prolonging the economic downturn?**

**Howard Marks:** My guess is that the banks are going to stand up to the credit they promised, and that the government will provide all the liquidity the banks need to do so. But the credit market is one of the most volatile markets: as recently as a couple of months ago, anybody could borrow any amount of money they wanted for any reason or no reason. Maybe we get to a time—or maybe we're already there—when good companies can't get any money for good reasons, and we have a credit crunch, so that companies can no longer roll over the short-term debt they rely on. An inability for businesses to continue to borrow money was at the heart of all three major debt crises that I've lived through, in '90-91, '01-02, '08-09—all which saw one or two years in which roughly 10% or more of the high-yield bond universe defaulted.

How likely is a similar credit crunch today? The linkages in these things are not always clear, and much of what fuels a credit crunch is psychological, which by definition defies prediction. But the Fed is out of ammunition in terms of rate cuts and the economy is shutting down, which I think will likely lead to large-scale job losses. So I think that many companies' revenues will stall. In that environment, credit will likely only be provided expensively, or maybe not all. So, while I never say that something will or won't happen, I think it certainly could happen today.

**Allison Nathan: Does any aspect of recent market behavior look particularly illogical or irrational to you?**

**Howard Marks:** There is an old saying that I've known as long as I've been in this business, which is that in times of crisis all correlations go to one. In other words, everything behaves the same—they all get killed. That is irrational. So the most productive thing an investor can do today is to look for things with a good future that have been treated as badly as the

things that have a bad future, and then buy those things. It doesn't do any good to think about what's going to happen to the economy, or for how long the stock market is going to decline or to how low. These things are unknowable. What really matters is whether price is proportional to fundamentals. It's all about value.

**Allison Nathan: So where do you see value today, and how do you assess this?**

**Howard Marks:** The great advantage of the fixed income business is that by knowing the price of the bond, the interest rate and the maturity, you know what the rate of return will be; the return is "fixed", as long as the company pays its interest and principal as promised, which most do. This is different from the return on equities, real estate, private equity, commodities and almost all other assets, which is determined by what the market wants to pay you for that asset. So, leveraging this advantage, we can read the promised return today of a safe instrument like a Treasury and the promised return on a risky asset, like a high-yield bond. The spread between the two is an indicator of the attitude toward risk, and we can make a judgment about the sufficiency of the spread to compensate for the risk.

A month or two ago, the interest rate on high-yield bonds, excluding energy, was probably about 300 basis points above the interest rate on Treasuries. Today, it's around 1000 basis points above Treasuries. Historically, that's been a very good reward; if you bought high-yield bonds at these levels, you did better than Treasuries over the subsequent couple of years. I think that'll happen again. So, I think this is a decent time to take a little risk. If I had a bunch of cash today, I would spend some of it today. But I sure wouldn't spend all of it. That's because all we can say is that high-yield bonds, for example, have been put on a sale relative to where they were a month ago—and it's probably a good idea to buy some when they go on sale. But nobody can tell you there won't be further markdowns. So maybe you buy some today, and husband some cash. And if they go lower, you buy some more. That's all you can do, because nobody will ever be able to tell you we're at the bottom. And the same can be said for equities. Certainly there's a lot of pessimism in the market today. We like to buy when people are pessimistic. Are they going to become more pessimistic? Nobody can say, but that doesn't mean you shouldn't be buying some today if they're on sale.

**Allison Nathan: What should the average member of the public be doing with their savings right now?**

**Howard Marks:** There is no one answer to that question. There are two risks that every investor, ranging from the amateur to the wealthy individual to the professional like me, has to shoulder every day: the risk of losing money, and the risk of missing opportunity. Every investor must assess—based on their age, resources, income, financial aspirations, number of dependents, ability to live with volatility and other factors—how to balance these risks. You can eliminate either risk, but doing so exposes you entirely to the other. So we must balance the two. The question is "how?" So, again, there is no one answer I can provide. The answer is, and should be, different for each person.

# Corp. credit: cyclical and structural concerns

Lotfi Karoui argues that despite cyclical and structural weaknesses, the Fed’s new credit facilities reduce a source of market tail risk

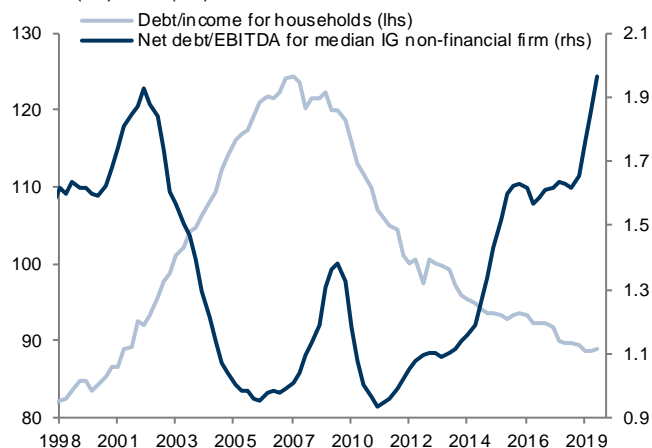
The severity of the coming economic downturn plays into many pre-existing vulnerabilities in corporate credit markets. Many of these vulnerabilities are fundamental in nature; reflecting years of balance sheet re-leveraging and declining credit quality. One of the key differentiators of the post-global financial crisis period has been the much less conservative stance of non-financial corporations versus households in deploying debt on balance sheets. And while the mindset of non-financial corporations did turn somewhat more conservative in late 2018, sluggish earnings growth has delayed progress on debt reduction plans, fueling more passive balance sheet re-leveraging. As a result, the ability of non-financial corporations to withstand even mild exogenous shocks, let alone a large, highly disruptive and persistent shock has been greatly diminished.

In addition to weaker credit quality, another, less scrutinized, pocket of vulnerability for credit markets has emerged in the post-crisis period: limitations on market makers owing to profound post-crisis regulatory changes. In our view, these changes have planted the seed for much a more fragile market microstructure, particularly during times of remarkably elevated volatility.

In assessing the risks that the severity of the current downturn poses to both corporate borrowers and credit investors, we think it is important to draw a clear distinction between cyclical themes and structural ones. Rising corporate defaults and credit rating downgrades are “*known knowns*”, reflecting cyclical patterns, i.e. the interplay between financial distress, credit availability and the general state of the economy. Similarly, reduced credit availability is common for issuers and sectors facing higher risks of financial distress.

## Re-leveraging corporates; deleveraging households

Percent (lhs); ratio (rhs)



Source: Bloomberg, FactSet, FRB, Goldman Sachs Global Investment Research.

These are cyclical themes that the ongoing economic slowdown will almost surely expose, possibly more so than in previous downturns. But we remain much more concerned about one key structural theme: the post-crisis deterioration in

the microstructure of fixed income markets; a “*known unknown*” that could amplify the growth damage of an already large demand shock.

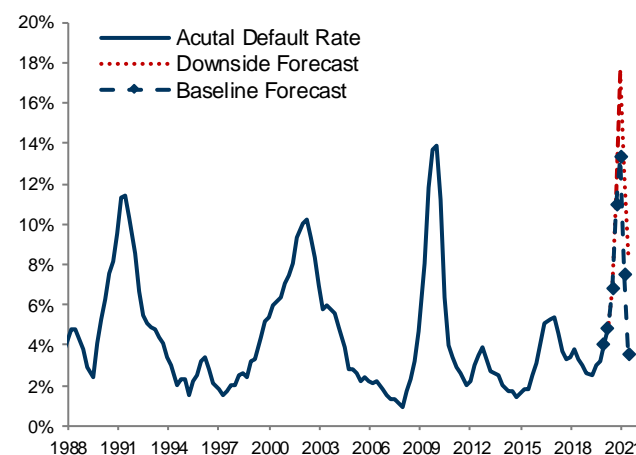
## The “known knowns”: Higher defaults and downgrades (likely more so than in previous downturns)

We find that a common shock typically affects defaults, earnings and economic growth at the same time. The significant downside risk that the coronavirus poses to corporate earnings, and more broadly to the global growth outlook, therefore implies that default and downgrade risks have also materially risen. On top of this risk, the recent material supply shock that rattled the oil market poses another fundamental headwind for credit markets. While lower relative to recent years, the share of Oil and Gas companies in the investment grade and high yield markets remains elevated, at 12.5% and 8.5%, respectively. As was the case following the onset of the New Oil Order in mid-2014, constrained access to capital markets coupled with a sharp decline in profitability will trigger more defaults and downgrades in the sector.

Where to from here? In our baseline scenario, we forecast the 12-month trailing default rate in the high yield market will increase to 13% over the course of 2020 before starting to decline as the economy normalizes in 2021. This base case assumes our economists’ expectations of a sharp, but transitory, negative shock followed by a gradual rebound in the second half of the year. However, should the economic contraction turn out to be more persistent than these baseline assumptions, the 12-month trailing HY default rate could possibly rise to almost 17% over the next several quarters and experience a slower decline. This downside scenario would imply a much higher peak in defaults relative to the Global Financial Crisis (GFC). Such an outcome is not implausible, in our view, considering the current large shock to aggregate demand, in addition to today’s weaker balance sheet credit quality relative to the pre-crisis period.

## We forecast a 13% rise in HY default rates by year-end

12-month trailing HY default rates, percent



Source: Moody’s, Goldman Sachs Global Investment Research.

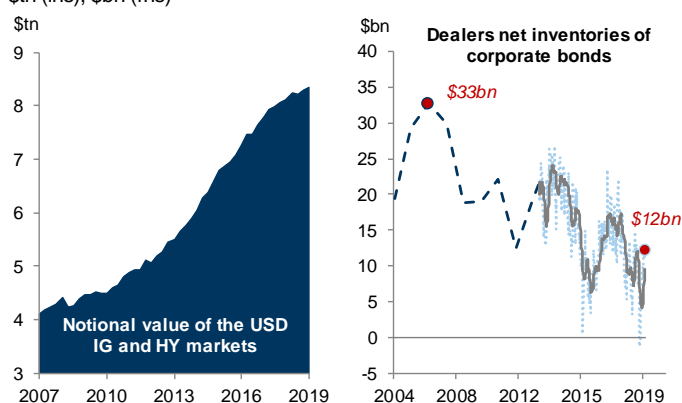
## The “known unknown”: The post-crisis relapse in market liquidity conditions

Changes in the corporate market structure have been profound since the crisis. First, dealers’ balance sheets—the primary

pipeline for risk intermediation—have shrunk while the combined size of the USD IG and HY corporate bond markets has almost doubled since the end of 2007. Second, demand for secondary market liquidity by foreign investors and mutual funds has grown significantly even as the “supply” of liquidity provided by dealers has contracted. Finally, the single-name CDS market, a key channel through which investors can express short views on credit risk, has significantly contracted, depriving market participants of a valuable tool to manage and intermediate risk.

**Bigger corp. bond market and smaller dealers' balance sheets**

\$tn (lhs); \$bn (rhs)



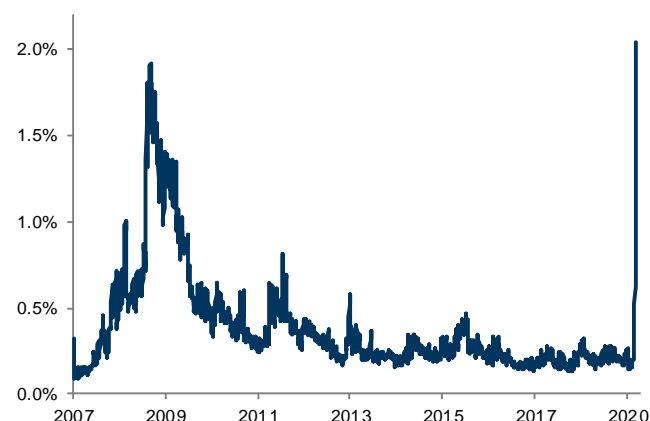
Source: Bloomberg, FRBNY, SEC, Goldman Sachs Global Investment Research.

These structural shifts largely reflect regulatory changes following the passage of the Dodd-Frank Act and the implementation of the Basel III standards. The combined effect of higher capital requirements and the implementation of the liquidity coverage ratio (LCR), the net stable funding ratio (NSFR), the supplementary leverage ratio (SLR), stricter risk limits imposed by the Volcker rule, and the total loss-absorbing capital (TLAC) rules have improved the resiliency of banks. But this improved resilience has also reduced balance sheet flexibility and diminished the ability of banks to respond to elevated volatility and stronger liquidity demand at times of elevated market stress.

We have long been concerned over the post-crisis deterioration in the liquidity of fixed income markets. The velocity and the persistence of the ongoing selloff appear to have exposed this fragility. Standard market illiquidity measures such as the Amihud illiquidity score suggests secondary market liquidity conditions are now as impaired as they were at the height of the GFC in the fourth quarter of 2008. But, unlike the 2008 episode, the speed with which liquidity conditions have moved into non-linear territory has been orders of magnitude faster.

**Illiquidity measures have jumped to GFC levels**

Amihud illiquidity score in the IG bond market, 5-day ma, percent



Note: The daily Amihud score is calculated using intra-day transaction data from TRACE. For each bond, it is as the average absolute change in price across sequential non-retail trades normalized by trade size. We only include bonds that traded at least 3 times in a day.

Source: TRACE, Goldman Sachs Global Investment Research.

While the Fed’s initial batch of easing measures was helpful for short-term funding markets, it fell short of addressing the root-cause of what became a market liquidity conundrum: the inability of dealers to expand their balance sheets and commit principal capital in the face of very elevated demand for liquidity. As the selling pressure intensified in credit markets, we became more concerned that absent a more forceful policy response that directly targets the corporate bond market, any improvement in liquidity conditions would hinge on a highly uncertain stabilization in risk sentiment and a decline in market volatility. But the Fed’s recent announcement that it will conduct direct purchases of corporate bonds in both the primary and the secondary markets has somewhat eased our concerns.

As they stand right now, the Fed’s new corporate credit programs—the Primary Market Corporate Credit Facility (PMCCF) and the Secondary Market Corporate Credit Facility (SMCCF), are smaller in size and narrower in scope relative to the Bank of England and the European Central Bank’s buying programs. Still, we view them as an important first step and expect the size and potentially the scope will likely be expanded if Congress grants additional capital to the Treasury’s Exchange Stabilization Fund.

More importantly, the Fed’s new credit facilities reduce a major source of tail risk for markets: a lingering feedback loop between challenging secondary market liquidity conditions and corporate borrowers’ ability to access capital markets. By directly intervening in the corporate bond market, the Fed has also implicitly embrace a role of “market liquidity” provider of last resort, which substantially reduces the risk of further impairment of the price discovery process that would lead to a freeze of the new issue market and a severe contraction in credit availability for otherwise creditworthy firms.

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Goldman Sachs and Co. LLC

# Conditions for a market trough

Kamakshya Trivedi and Zach Pandl advise to stay defensive in the macro markets for now, but lay out conditions for a market trough

The sharp drawdowns over the past couple of weeks have meant that market-based benchmarks of cyclical growth or risk appetite are now more clearly at recessionary levels. Given the increasingly harsh quarantines being rolled out across the world, this does not yet seem an excessive market response. We foresee a recession that is likely to end up being worse than not just the more modest global recessions of the early 1990s and 2000s, but also deeper than the early 1980s and the GFC. (see pgs. 4-5).

Moreover, the uncertainties around the depth and duration of the hit to the global economy remain high and the momentum in our own, and other, economic forecasts continues to be sharply negative with downside risks. Given the amount of policy support announced each day, a temporary bounce in markets could happen at any time. However, here we lay out key conditions for a more persistent positive view. Since we do not think those conditions have yet been met, we continue to think a defensive posture makes sense. But it is also easier to imagine how those conditions might be met in the weeks ahead than it was even a week or two ago.

## Why markets bottom in a crisis: reducing the deep tail risks

To think about the conditions for a market trough, we need an explanation for what drives market recoveries in crises. **The core insight is that while conditions are deteriorating rapidly, markets find it hard to be confident in the limits of the damage, and so put heavy weight on deep negative tail risks. Inflection points are often, in the first instance, about the market being able to put limits on those tail risks even before true recovery is visible.** The clearest version of this story is the historical evidence that equities, volatility and credit respond more to very early signs that growth is bottoming, while the major shifts in government bond and commodity markets seem to require something closer to a return to trend growth. When the rate of deterioration slows, even before real recovery occurs, the worst tails in the distribution can be priced out and that is usually enough for market recovery to begin.

## Conditions for reducing deep tail risks now

Simplistically, for asset markets to recover sustainably from the current crisis, we think the market will need to be able to put limits on the tail risks that are currently centre-stage and for new tail risks not to surface. The broad challenge is that this crisis is unique in its source and speed—rather than starting in the financial system and emanating out to the real economy, it begins with a sudden stop in the real economy works its way into financial markets—and it is still possible to imagine scenarios where the stop is longer and leads to much larger economic losses than in our own central case. At a high level, we see six conditions that we think would allow the market to define limits to that uncertainty on some key dimension of the problem.

1. **A stabilization or flattening out of the infection rate curve in the US and Europe.** After a period of reluctance,

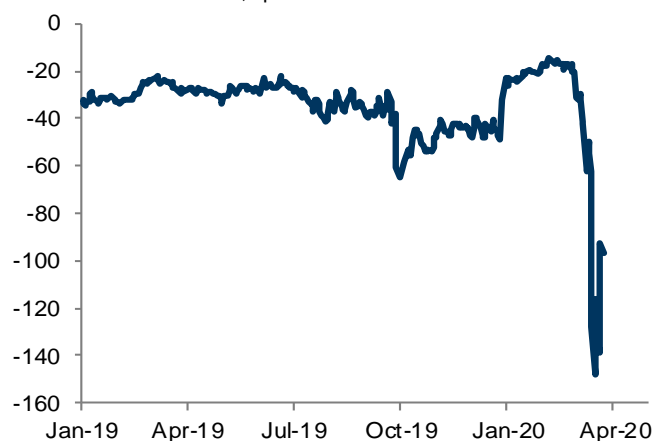
the major DM economies have now moved towards much more stringent quarantine and social distancing restrictions. The outperformance of Chinese equities in February suggests that even without clear signs of an end to economic damage, markets may respond to signs that containment measures are beginning to work. Until we see progress on that front, it will be hard to anticipate that recent restrictions—and the hit to economies that they bring—might be lifted, which we think is a minimum condition for understanding the depth of the shock.

2. **Visibility on the depth and duration of disruptions on the economy.** As many of the major economies now move to more dramatic disruptions, the precise extent and timing of the economic damage is also highly uncertain. Our current forecasts assume that the peak impact on US activity from the latest round of disruptions will be in April, with monthly GDP around 10% below where it would otherwise have been and a gradual recovery thereafter. But it will be hard to be confident in either the depth or duration of that trough without seeing signs that we are reaching one, particularly since there may be multipliers to the initial shock. It may be that enough progress on the infection rate or a sufficiently aggressive policy response is enough for the market to move ahead of this point. But we doubt that it will be able to *sustain* moves without validation from the macro data. With the data not yet reflecting the disruptions themselves, this point may be some way off.
3. **Sufficiently large global stimulus.** Market troughs are characterized by both a stabilization in data but also a strong policy response that finally gets ahead of deterioration in the data. The current policy response is beginning to become more urgent and more broad-based. DM central banks have cut rates pre-emptively, initiated or expanded asset purchases and started or restarted lending programs to aid the flow of funding and credit. But central banks' roles as lenders of last resort will likely need to be broader and more unconditional. And while fiscal responses are now focusing, appropriately, on income replacement, business disruption and credit risks, they still generally assume a relatively short period of disruptions to the economy. These are all moves in the right direction, but we doubt that they yet cover all that will be needed. More comprehensive backstops to business lending and perhaps to state and local finances are likely to be needed. In the process, we may find that not all governments can easily expand the public sector balance sheets if the size of the needed bailouts increases sharply.
4. **A mitigation of funding and liquidity stresses.** Beyond the economic shock, funding stresses and liquidity problems have also taken center stage, adding to the economic risks. The two problems are distinct. The funding issues, such as front-end Dollar funding shortages, are reminiscent of those from the GFC and central banks are quickly moving to reinstitute the programs and swap lines that stemmed that damage then. Market dysfunction has been as much about liquidity as funding, however. With post-crisis regulations reducing the ability of financial institutions to intermediate, many fixed income markets

are struggling to process the large risk transfers that are required as investors adjust portfolios. In corporate credit, munis and parts of the Treasury market, market illiquidity has become a major issue (see pgs. 12-13). The Fed's decision to resume Treasury purchases was aimed in part at alleviating some of these stresses at the heart of the bond market. And the BoE and ECB have resumed or expanded their corporate purchase programs. But unless central banks expand their role as "purchaser of last resort", as our Credit team has termed it, many fixed income markets may remain dislocated.

#### Some front-end funding pressures normalizing on Fed actions

EUR 3M OIS XCCY basis, bp



Source: Bloomberg, Goldman Sachs Global Investment Research.

- 5. Deep undervaluation across major assets and position reduction.** Everything has a price. Even without clear signs that the damage is coming to an end, if valuations come close to—or overshoot—plausible worst case scenarios, the risk-reward may be appealing even with high uncertainty. We have seen significant cheapening across assets over the past couple of weeks and pockets of deep value may now be emerging. But on a broad basis, we are not at Global Financial Crisis or overshooting levels yet. Valuations are rarely a sufficient condition for markets to recover. But an unusually large risk premium would allow investors greater comfort in terms of stepping back in if other conditions are fulfilled. The current crisis is forcing a transfer of risk on a number of dimensions, as investors cope not just with rising volatility and credit risk but with the failure of many traditional diversifying assets to offer real protection. Alongside economic conditions, market bottoms often occur only once assets have been transferred from weak to strong holders. That transfer creates the conditions for deep undervaluation, particularly where liquidity is a challenge. So positioning indicators that suggest that this process is nearing completion are also likely to be helpful.
- 6. No intensification of other tail risks.** The longer this crisis lasts, the higher the probability that other tails risks intensify further. A pandemic induced contraction in economic activity is different from typical economic recessions. In theory, at least, the recovery from the COVID-19 shock should be more rapid given the absence of factors such as the need to unwind a large overhang of

unused capacity or heal from the trauma of a banking crisis—unless the contraction and market reactions causes other things to break. We would highlight the following areas, some of which are already in train: (i) A further Dollar spike: a rush for safe haven assets, dollar funding shortages and reserve recycling have already caused a Dollar surge. (ii) Even lower oil prices and their implications in EM. The outbreak of the Saudi-Russia price war has already put severe pressure on asset markets across oil exporters. (iii) Politics and its spillovers into sovereign spreads and funding. A public health crisis and a prolonged economic shock are likely to put governments under severe pressure, and where there are already pre-existing fragilities, this could create political crises that can exacerbate the already negative price action.

#### A sum of parts

As in the GFC, sufficient progress on some may substitute for the others, and some assets may be more sensitive to one or other of these conditions. But a broadly favorable mix of these conditions will likely be required for us to turn more decisively positive. And like the GFC it is possible and likely that some issues will be resolved quickly and before others, and parts of the market may experience bouts of relief without all risky assets recovering. The institutional memory from the 2008-2009 period means that central banks have been quick to put in place facilities to limit funding stresses, so it is possible that these issues are mitigated and front-end volatility declines before the limits of economic damage are visible. Or it is possible that a US intervention in the Saudi-Russian oil price war puts a floor under the commodity price selloff, and the pressure on related assets.

But the sequencing may also be different to the GFC because the nature of the shock is different. In the GFC, banks and the financial system were at the epicentre of the shock, and its effects rippled outward onto the real economy. In the current case, the shock is in the real economy with its impact reverberating across markets and financial system, and central banks may be better equipped to protect the financial system (as in the GFC) than replacing lost income across the broader economy in short order. Equally, though, there are other 'magic bullets' that were not available in the GFC—more effective anti-viral drugs or clinical treatments can take the pressure off health systems, and ultimately a credible vaccine will clearly have a dramatic effect on the virus and market sentiment. It is also likely that institutional capacity to respond will vary across countries. The aggressiveness and effectiveness of the policy response, the varying constraints on public sector balance sheets and central bank remits and the political reverberations may ultimately lead to more variation in outcomes than the market is yet able to price.

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# Q&A on funding stresses and liquidity

Praveen Korapaty answers FAQs about recent funding stresses and whether Fed actions will be enough to maintain market liquidity

**Q: We saw dollar funding markets begin to seize up recently. What were the main causes?**

**A:** We attribute the funding market stresses seen in the past few weeks to a few factors. **First, the demand for cash has risen.** In periods of market volatility and heightened uncertainty, the preference for staying ‘liquid’, i.e., holding a larger amount of cash, increases. Some of it is mechanical due to, for example, margin calls that need to be posted in cash or a scramble to hedge currency exposure. And some of it is precautionary as money funds and asset managers may want to hold more cash in anticipation of future redemptions, and some corporates may want to draw on credit lines to increase their liquidity buffer.

**Second, credit and liquidity concerns are starting to get priced in.** Corporate credit spreads have widened on the view that disruptions to supply chains alongside falling demand as a result of the viral outbreak could impair firms’ ability to access liquidity. There are growing concerns vis-à-vis non-financial credit in particular, though, unlike 2008, systemic risk remains low as the banking system is better capitalized. However, if the current shock and associated dislocations persist, actual credit risk in the system could further increase.

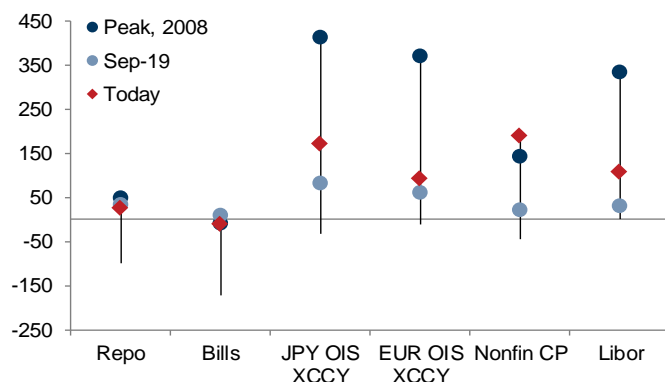
**Third, money market funds have been reluctant to lend at term, particularly in credit.** In particular, prime money funds appear to be only partially willing to migrate out to longer maturities, instead preferring to stay liquid due to redemption concerns and market microstructure dislocations.

**Q: Which funding markets were affected? How typical are the moves we’ve seen?**

**A:** Pressure has mounted in both secured and unsecured rates, as well as onshore and offshore dollar funding markets, reflected in varying degrees of spread widening. Specifically, repo and bill rates have widened, but have not breached the levels seen last September, when there was a scramble for reserves in the banking system.

## Funding spreads are wider, but mostly below '08 peaks

3m funding spreads vs. OIS, since 2007 (in basis points)

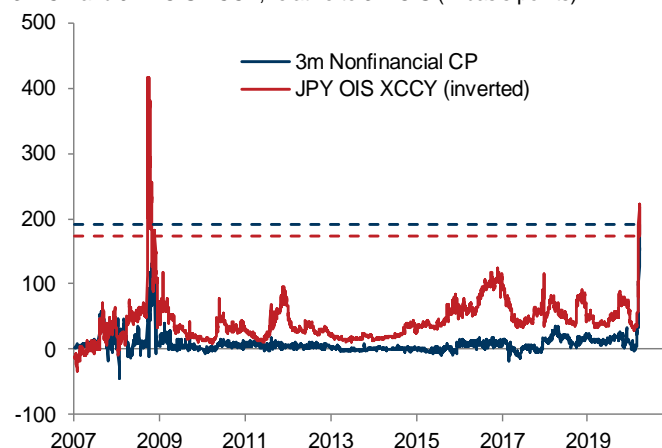


Source: Goldman Sachs Global Investment Research.

The larger moves have been in unsecured markets, such as term commercial paper spreads (CP-OIS) and cross-currency basis (both of which have fed through to Libor-OIS), both of which widened to levels not seen since the 2008 Global Financial Crisis. While pressure on some funding spreads has started to recede, spread levels remain elevated owing to a host of frictions.

## Non-financial CP spreads have reached '08 levels

3m CP and JPY OIS XCCY, relative to 3m OIS (in basis points)



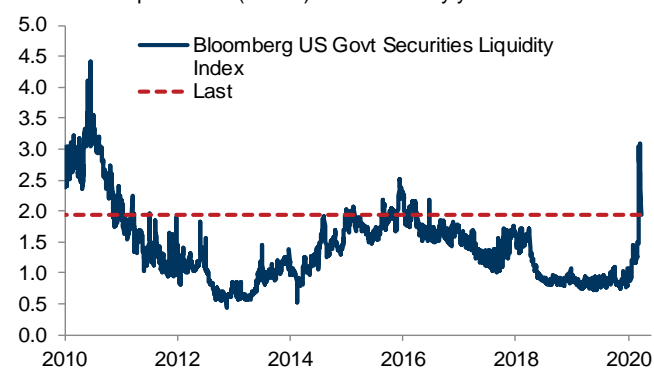
Source: Federal Reserve Board, Goldman Sachs Global Investment Research.

**Q: Besides funding, it appears there were also some significant liquidity issues in the Treasury and MBS markets. Why did that happen?**

**A:** The US Treasury market has increasingly shown signs of stress over the past few weeks, with the average yield dispersion from a fitted yield curve at post-2010 highs. This kind of dislocation is indicative of a breakdown in market microstructure—even spreads between new and almost identical older Treasuries, which are typically well-behaved, have widened sharply. We think these dislocations occurred because of a large flow imbalance that resulted in a large call on dealers' balance sheets, which is a scarce resource under post-crisis Basel regulatory rules. In the new regulatory regime, dealers aren't readily able to “lean against the wind” and absorb these flow imbalances onto their balance sheet. The only entity in the new regulatory regime that is able to freely expand its balance sheet is the central bank. Without a central bank backstop, we would expect to see similar dislocations on large flow imbalances in the future as well.

## Yield dispersion spiked, but has started to normalize

Root Mean Square Error (RMSE) of the Treasury yield curve



Source: Bloomberg, Goldman Sachs Global Investment Research.



What caused the flow imbalances? We hypothesize it was a combination of (i) very large position unwinds, (ii) liquidation by fund managers who needed to raise liquidity/cash, either for margin purposes or in anticipation of redemptions (and chose to do so by selling the “most liquid” portion of their portfolio, often also USTs), and (iii) de-risking by multi-asset portfolios following risk parity strategies, which likely resulted in selling of all assets, including bonds.

**Q: The Fed announced a slew of measures over the last week. What are these measures, and how could they help?**

**A:** The Fed has been very aggressive in trying to address these issues and inject more liquidity into the banking system. First, it upsized term and overnight repos operations so that banks can obtain as much funding as needed and, in turn, continue to lend to businesses and households themselves. Although many of these offerings are nominally capped at \$500bn, given the frequency of the operations, we essentially view this as a channel through which the Fed is willing to provide unlimited funding to banks and other dealers against UST and MBS collateral. It also lowered the Primary Credit Rate by 150bp to 25bp, and started to offer 90-day term loans at the discount window in addition to the usual overnight loans. And it created a **Primary Dealer Credit Facility (PDCF)** to allow primary dealers discount window-like access. While all of these measures are helpful in adding liquidity to dealer and bank balance sheets, market price action suggests that intermediation frictions remain, and therefore the efficacy of these programs in encouraging lending is limited, in our view.

The Fed also announced other measures to circumvent some of the intermediation bottleneck. First, it announced a **Commercial Paper Funding Facility (CPFF)**, which will enable the Fed to finance (via a SPV) corporate issuers that presumably can no longer access commercial paper markets. Next, it announced a **Money Market Liquidity Facility (MMLF)** to provide secondary market liquidity to commercial paper, short-term muni paper and other similar instruments.

The Fed also announced two facilities to support credit to large employers – the **Primary Market Corporate Credit Facility (PMCCF)** for new bond and loan issuance and the **Secondary Market Corporate Credit Facility (SMCCF)** to provide liquidity for outstanding corporate bonds.

The Fed also indicated it would establish a **Term Asset-Backed Securities Loan Facility (TALF)** to enable the issuance of asset-backed securities (ABS) backed by student loans, auto loans, credit card loans, loans guaranteed by the Small Business Administration (SBA), and certain other assets.

Finally, to meet dollar demand offshore, the Fed activated its existing FX liquidity swap lines with five central banks (BoE, ECB, BoJ, BoC, SNB), lowered the borrowing cost by 25bp, and then extended those swap lines to nine additional central banks. In addition to all of the above, the Fed also announced potentially unlimited direct purchases of USTs and Agency MBS (and Agency CMBS); in just a little over a week, it bought a record amount of Treasuries (over \$300bn).

**Q: How much have these measures helped, how effective could they be going forward, and will the Fed need to do more?**

**A:** On the funding side, some of the Fed's measures, such as the massive injections through term repo operations, have already helped, preventing term repo-OIS spreads from widening substantially. However, since an increase in term repo offerings on March 11, take-up has only amounted to \$278bn—substantially below the \$2.14tn amount on offer. Because of this, we suspect this avenue presents limited ability to cap disruptions in other markets, with intermediation capacity remaining a bottleneck.

Therefore, we do not believe promoting usage of the discount window or the PDCF will necessarily translate into funding flow-through to end-users without additional changes. Central bank swap lines may eventually face a similar bottleneck, unless the foreign central bank has a wide list of local counterparties it is willing to engage with. Instead, in our view, direct lending channels (like the CPFF, PMCCF, SMCCF, TALF) that do not involve intermediaries are likely to be more effective in the current environment. The MMLF facility, which, while involving intermediation, has a regulatory capital carve out for such activity, is also likely to be effective.

Another way to alleviate funding stress that does not consume intermediation capacity is outright asset purchases (“QE”), which the Fed has already announced. In theory, this should reduce demand for funding and for intermediation. While we think this will be effective, it will take some time to play out. Even Fed initiatives that require intermediation capacity, such as the FX swap lines, should over time help normalize markets.

A narrower set of measures address the poor liquidity conditions in the Treasury market. Specifically, asset purchases should help clear dealer balance sheets over time and give them more confidence in accumulating inventory in the course of intermediation. Already, the UST liquidity index stress has normalized somewhat, currently about 30% lower than peak stress levels on March 11. But we think getting back to “normal” will take some time, given that markets have remained volatile. The SMCCF, MMLF and TALF should help secondary market liquidity in a range of asset classes outside of Treasuries.

On the whole, we suspect the combination of measures should go some way in addressing dollar funding and market liquidity. While deteriorating credit could keep some funding spreads wide in the near term, over time, we expect to see the liquidity portion of these spreads normalize. That said, we expect the Fed will end up doing more. First, the more recently announced facilities supporting corporate credit and asset back securities are likely to be significantly increased in size once congress appropriates more funds for this purpose. Second, it will likely have to extend the maturities it is willing to purchase through some of these facilities. Finally, it will likely have to support some markets it currently doesn't—for example longer maturity state and local government securities, which remain very dislocated.

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Goldman Sachs and Co. LLC

# Banks: will they help or hurt?

Richard Ramsden answers FAQs about the ability of US banks to weather the virus and oil shocks, and help others weather them too

## **Q: How does the health of US banks today compare to the 2007 period, heading into the GFC?**

**A:** The post-crisis regulatory environment, largely shaped by Basel III capital and liquidity regulations and the Dodd-Frank Act, has resulted in significantly safer and more robust banks, with roughly twice as much loss absorbing capital (\$1.3tn today) and liquidity (\$2.9tn of high-quality liquid assets) compared to the pre-crisis era. Moreover, the riskiness of bank balance sheets has also decreased as a result of new post-crisis regulations, specifically the CCAR stress test. CCAR disincentivizes banks from holding the riskiest assets because they perform particularly poorly in the test and result in banks having to hold higher capital requirements. The CCAR test also gives regulators a much better line of sight into risks on bank balance sheets, allowing for a more expedient response in periods of stress; this may have helped inform the Fed's quick actions over the past few weeks.

## **Q: Are banks more likely to help (by sustaining lending) or hurt (by cutting off lending) the current situation?**

**A:** Even absent government intervention, we believe that banks are likely to help the current situation by expanding credit creation, given they have substantial excess capital and liquidity levels that can absorb significant additional lending capacity. We estimate that the seven largest banks have ~\$100bn of excess capital above their regulatory capital minimums and ~\$340bn of excess liquidity above the minimum requirements (per the Liquidity Coverage Ratio (LCR) requirement). We estimate that banks would be able to generate \$1tn of additional lending capacity even if they just eliminated excess capital and their management buffers above binding capital requirements, and lending capacity could be multiples of this if they begin to dip into capital ratios. We estimate that banks would have to take >\$170bn in losses before they would even have to consider cutting dividends, let alone raising capital.

In addition, the Fed has implemented measures that should further augment the ability of banks to lend in this environment. On the liquidity side, the Fed has encouraged banks to use the discount window, which allows banks to pledge a large portion of their assets in return for cash. Banks had historically been unwilling to access the window, given potential negative market perception. However, the largest banks in the US, the G-SIBs, all accessed the window on March 17, and we believe that this paves the way for banks of all sizes to use the window. Accessing the discount window to replenish liquidity drained by loans should allow banks to facilitate lending to industries affected by the coronavirus on an even greater scale. Similarly, the Fed reinstated the Primary Dealer Credit Facility (PDCF), a tool first used in the GFC, which offers a similar facility as the discount window to broker-dealers who are not banks, under which they can pledge a wide range of securities to the Fed in exchange for cash. On the capital side, the Fed

has also encouraged banks to dip into their capital buffers, modestly easing their payout restrictions if banks do so.

## **Q: Could companies drawing down credit revolvers owing to the virus or the oil shock breach banks' LCRs?**

**A:** Liquidity and capital effects from revolver drawdowns appear modest, with banks' use of the discount window largely able to mitigate any stress on liquidity. Across the most exposed industries to the coronavirus and oil price shock (energy; retail; materials, metal & mining; transport & leisure), we estimate ~\$460bn of funded loans, and ~\$513bn of lending commitments across the large, regional and trust banks. Our analysis shows that if 50% of the ~\$513bn of unfunded commitments were drawn down, which is based on the Fed's drawdown assumption in the capital rules, this would result in LCRs falling 9pp to 109%—14pp above the average minimum LCR. If 100% of these commitments were to fund, we estimate this would translate to LCR ratios of 99%—4pp above the 95% average minimum requirement, although a number of banks would end up below minimum requirements. That said, now that banks can access the discount window and pledge these loans to rebuild their cash levels, we believe the liquidity risk is largely mitigated. As for the capital impact, we estimate that a 50% drawdown in the at-risk industries equates to only a 10bps hit to Tier 1 capital (or CET1), and a 100% drawdown results in a 30bps hit to CET1.

## **Q: More broadly, how exposed are banks to bankruptcies/loan defaults of companies?**

**A:** Across the four industries we see as most exposed to the coronavirus and oil shock (see above), we estimate that banks will likely have to increase reserves meaningfully to cover potential credit losses in these industries. If banks need to build 5% incremental reserves on existing funded loans to at-risk industries, the 2020 EPS impact would be 13%. And if banks need to build a 6% reserve (1% upfront and 5% additional consistent with existing funded loans) for the revolvers that have been drawn (assuming 50% are funded), this represents a further 9% decline in 2020 EPS. This amounts to a total potential impact to 2020 earnings of 22%. We note that, depending on the economic impact, a portion of these reserves could be released in future periods, which would increase earnings in those periods. In addition, the new accounting standard for reserves that was implemented on Jan 1, 2020 (CECL) is expected to result in yet higher reserve builds upfront than under the old standard, but then these reserves are likely released over time.

## **Q: Are any areas of bank exposures to recent developments a particular cause for concern?**

**A:** In light of the stress on corporates, banks will need to materially increase reserves across corporate industries. And, given GS economists' expectations for materially higher unemployment, banks will also need to build reserves to cover potential consumer credit losses, which will further weigh on earnings. So while we think banks are in good shape to be part of the solution, rather than the problem, there is no doubt their earnings will suffer during this difficult period.

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# Navigating the next bear market

Peter Oppenheimer explains that event-driven bear markets like the current one typically see swifter falls—and swifter recoveries

Global equities have entered a bear market. In the US, this marks the end of the longest bull market in history—coming just days after its 11th anniversary. But most equity markets globally have fallen between 30 and 35%. What's unusual about these declines is not so much the magnitude, but rather the speed and volatility of the adjustment.

## A sharp and speedy fall

The US equity market was at a record high just a month ago, and the first 20% decline took place over just 16 trading sessions. This was faster than the previous record for a bear market move of 42 sessions in 1929. The speed of this adjustment partly reflects the optimism that was priced into markets before the fears about global recession took hold.

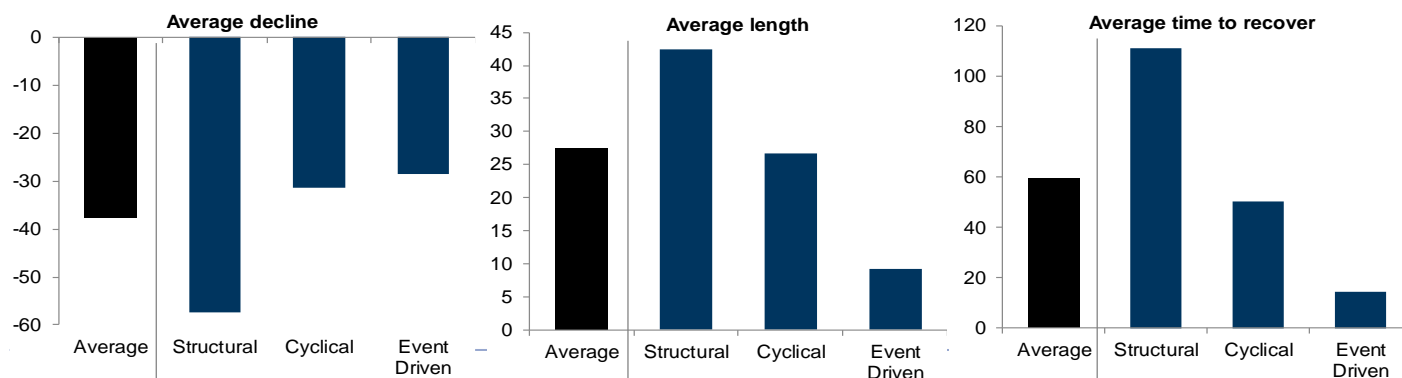
Risk assets—both equities and credit—enjoyed a strong surge in 2019 following a sharp, but short-lived, correction in late 2018 as investors feared that rising US interest rates would end the record-long economic cycle. Despite an escalation in the US-China trade war and flat profits across most markets, the Federal Reserve's return to rate cuts helped fuel a 29% rise in the S&P 500—the best annual return since 2013—while Europe posted its strongest return since 1999. All of this happened amid very low volatility—so risk-adjusted returns were unusually high. But, in the absence of much earnings growth, more than 90% of the performance of global equity markets came from valuation expansion.

Despite this fact, optimism increased heading into 2020 as worries over the trade war subsided and bond yields remained low, setting the stage for an extension of the economic expansion and the bull market. But the growing realization that the coronavirus would result in a global demand shock, rather than mainly a supply shock emanating from China, led to a sharp and rapid decline in expectations.

The unprecedented nature of the shock—as whole economies go into lock-down—coupled with growing liquidity concerns related to financial market plumbing (partly amplified by regulations put in place after the financial crisis) exacerbated the uncertainty, leading the VIX to spike to new all-time highs, with more consecutive days of 9%-plus moves than we've seen since 1929.

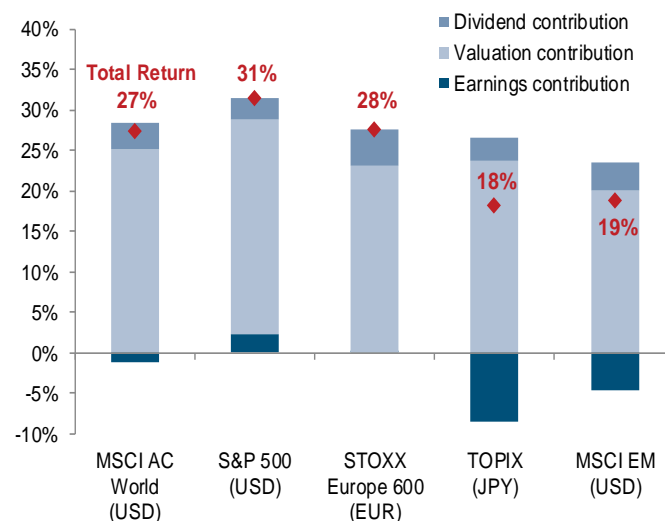
## US Bear markets & recoveries since the 1800s

Average S&P 500 bear market decline, percent; average length and recovery time, months



Source: Goldman Sachs Global Investment Research.

2019 returns were mainly driven by multiples expansion  
Major index returns by contributor, percent



Source: Datastream, FactSet, Goldman Sachs Global Investment Research.

## Bear market anatomy

So how does the current bear market fit with the past? Using the US as a template, we identify 27 bear markets since 1880, and 12 in the post-war period. These bear markets have come in three main forms, distinguished by different triggers and other characteristics.

- **Structural bear markets** are triggered by structural imbalances and financial bubbles; very often a "price" shock, such as deflation, follows.
- **Cyclical bear markets** are typically triggered by rising interest rates, impending recessions and declines in profits; they are a function of the economic cycle.
- **Event-driven bear markets** are caused by a one-off "shock" that doesn't always lead to a domestic recession (such as a war, oil price shock, EM crisis or technical market dislocation).

Each of these types of bear markets has a different profile in terms of the depth and longevity of the market declines and the time it takes to fully recover.

- **Structural bear markets** on average see falls of 57%, last 42 months and take 111 months to get back to the starting point in nominal terms (134 months in real terms).
- **Cyclical bear markets** on average see falls of 31%, last 27 months and take 50 months to get back to the starting point in nominal terms (73 months in real terms).

- **Event-driven bear markets** on average see falls of 29%, last 9 months and recover within 15 months in nominal terms (71 months in real terms).

So the main difference between a "standard" interest rate-led cyclical bear market and an event-driven bear market is less the severity of the fall itself, but more the speed of the fall and the subsequent recovery. These both tend to be faster in an event-driven downturn. Indeed, event-driven bear markets, on average, reach a low in around half a year compared with over two years for a cyclical bear market and nearly four years for a structural bear market. Also, in event-driven bear markets, equity levels are typically back to their starting point within a year on average, compared to four years for a cyclical bear market and nearly a decade for a structural bear market.

**Not a typical event-driven bear market**

At this stage, the current market downturn looks like an event-driven bear market, but there are four important caveats.

First, none of the event-driven bear market examples from history were triggered by a virus or other disease outbreaks. Most have been driven by some form of market-centered, domestic event (sovereign crises, LTCM default, program trading collapse or even political developments), and monetary policy was therefore able to respond. It's not clear that will be the case this time around, in part because interest rate cuts may not be very effective in an environment of fear where consumers are required, or simply inclined, to stay at home.

Second, none of the previous examples came during periods in which the starting point for interest rates was so low (and in some cases negative). This raises the concern that there is less room for an effective policy response.

Third, during past virus-related shocks, such as SARS in 2002-2004, equity markets ended to rebound when the second derivative of infections started to improve. While this may now be happening in China, it is clearly not yet true in many other parts of the world. The scale of the restrictions to mobility that may be required to achieve a similar moderation in the virus' spread in Europe and the US could be so great that unprecedented fiscal support is required to reduce the risk of a much deeper economic crisis and, with it, the bear market morphing into a more prolonged cyclical or even structural market downturn. The fear factor around the economic shock from preventative measures may push markets down further in the meantime.

Fourth, this shock is also unusual as the spread of lockdowns is likely to create a much bigger hit to growth and earnings than in prior event-driven markets. This does not necessarily mean that markets cannot rebound sharply, but it does suggest the recovery will come after a bigger average fall than in the past. Nonetheless, we remain hopeful that, like other event-driven bear markets, this one will also be relatively quick and followed by a speedy and strong rebound.

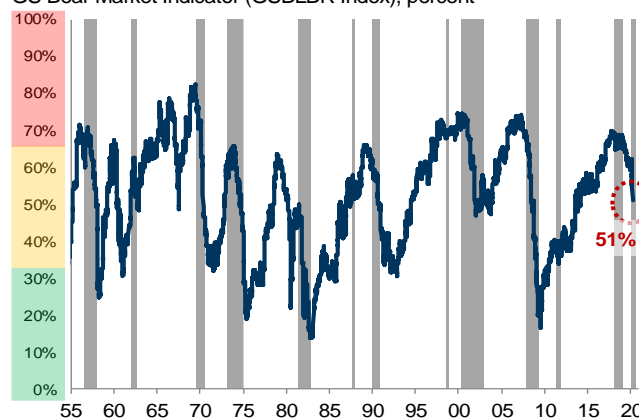
**Market signals to watch**

One indicator that we have developed to help assess the risk of bear markets, and the potential for recovery, is our Global

Bull/Bear Market Indicator (GSBLBR). This is based off an assessment of 6 major factors that historically have provided a strong signal for bear market risk and subsequent recovery. Encouragingly, the indicator's level has declined from the peak levels seen in both 2018 and 2019. This suggests less room for further downside risk and a higher likelihood of stronger longer-term returns ahead. So the risk/reward for investors that can take a longer-term view looks attractive.

**Our Bear Market Indicator is down from elevated levels**

GS Bear Market Indicator (GSBLBR Index), percent



Note: Shaded regions represent world bear markets.

Source: Goldman Sachs Global Investment Research.

That said, the factors underlying this model are showing conflicting signals at present. Generally low unemployment (a risk to margins), a flat yield curve and still-high high valuations are all pointing to vulnerability. On the other hand, low core inflation, a depressed level of the US ISM (growth momentum) and strong private sector balances should lend structural support to the market.

**But the underlying components paint a mixed picture**

Current level of GS Bear Market Risk Indicator's sub-components

	Level	Percentile
Unemployment	3.5	95%
Shiller PE	22.2	68%
0-6 quarter yield curve	1.1	47%
Core Inflation	2.4	45%
ISM	50.1	30%
Private sector Financial Balance	5.2	21%
<b>GS Bear Market Risk Indicator</b>		<b>51%</b>

Note: 100th percentile means these variables are at their highest level, except for Private sector Financial Balance, yield curve and unemployment where 100% means they are at their lowest.

Source: Shiller, Haver Analytics, Datastream, Goldman Sachs GIR.

The biggest risk from here in terms of this model is probably unemployment. Historically, every US recession has been preceded by a small rise in unemployment. If this were to happen today, it would likely imply a more prolonged recession and deeper declines in profits. On the other hand, an important support for markets would come from a reasonable de-rating in valuation, particularly given that risk-free rates are now at a record low. If there is any indication that normal demand will resume in 2H 2020, we would expect a powerful rebound in equity markets, albeit from a lower level.

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# History of bear markets

S&P 500				Time to recover back to previous level		Volatility	
Start	End	Length (m)	Decline (%)	Nominal (m)	Real (m)	Peak to trough	Trough to recovery
May-1835	Mar-1842	82	-56	259	-	13	17
Aug-1847	Nov-1848	15	-23	42	-	8	9
Dec-1852	Oct-1857	58	-65	67	-	19	25
Mar-1858	Jul-1859	16	-23	11	-	21	15
Oct-1860	Jul-1861	9	-32	15	-	31	17
Apr-1864	Apr-1865	12	-26	48	-	14	8
Feb-1873	Jun-1877	52	-47	32	11	11	11
Jun-1881	Jan-1885	43	-36	191	17	9	11
May-1887	Aug-1893	75	-31	65	49	10	12
Sep-1902	Oct-1903	13	-29	17	22	9	10
Sep-1906	Nov-1907	14	-38	21	250	15	11
Dec-1909	Dec-1914	60	-29	121	159	9	12
Nov-1916	Dec-1917	13	-33	85	116	12	12
Jul-1919	Aug-1921	25	-32	39	14	15	10
Sep-1929	Jun-1932	33	-85	266	284	30	20
Mar-1937	Apr-1942	62	-59	49	151	20	10
May-1946	Mar-1948	21	-28	27	73	14	12
Aug-1956	Oct-1957	15	-22	11	13	9	9
Dec-1961	Jun-1962	6	-28	14	18	15	9
Feb-1966	Oct-1966	8	-22	7	24	10	8
Nov-1968	May-1970	18	-36	21	270	9	10
Jan-1973	Oct-1974	21	-48	69	154	15	11
Nov-1980	Aug-1982	20	-27	3	8	12	20
Aug-1987	Dec-1987	3.3	-34	20	49	45	13
Jul-1990	Oct-1990	3	-20	4	6	17	14
Mar-2000	Oct-2002	30	-49	56	148	19	11
Oct-2007	Mar-2009	17	-57	49	55	32	16
<b>Average Structural</b>		<b>42</b>	<b>-57</b>	<b>111</b>	<b>134</b>	<b>20</b>	<b>14</b>
<b>Average Cyclical</b>		<b>27</b>	<b>-31</b>	<b>50</b>	<b>73</b>	<b>14</b>	<b>13</b>
<b>Average Event-driven</b>		<b>9</b>	<b>-29</b>	<b>15</b>	<b>71</b>	<b>19</b>	<b>102</b>

Note: First published in *Bear Essentials: a guide to navigating a bear market*, March 9 2020.  
Source: Robert Shiller, Datastream, Goldman Sachs Global Investment Research.

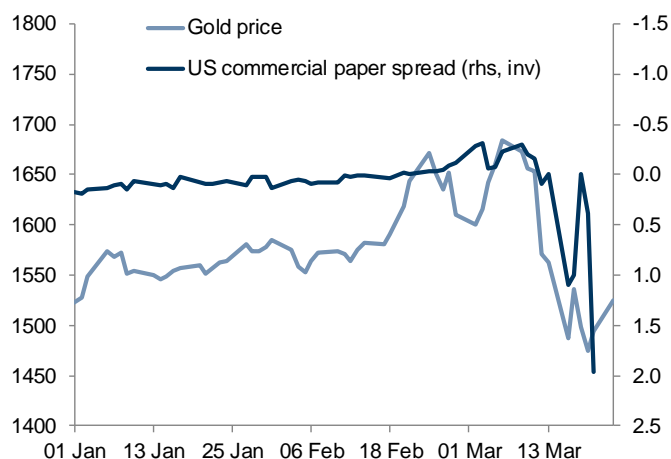
# The currency of last resort

Jeff Currie and Mikhail Sprogis argue that liquidity issues explain why gold has not lived up to its “safe-haven” reputation, but is set to once again become the currency of last resort

We have long argued that gold is the currency of last resort, acting as a hedge against currency debasement when policy-makers act to accommodate shocks such as the current one. So why has the gold price fallen? The answer is the world is short dollars. First, both physical and financial market participants face severe funding constraints; they have been forced to sell liquid positions which include gold and other commodities to generate dollars for other funding needs. Second, large falls in the price of oil have created dollar shortages for emerging market (EM) economies, also leading them to sell hard assets like gold for dollars. Case in point: as the oil price declines accelerated in recent weeks, the Russian central bank shifted from a net buyer of gold to a possible net seller. In our assessment, these liquidity issues drove the \$150 (9%) contraction in gold from its recent peak.

## Gold has sold off as liquidity has dried up

Gold price, \$/toz; US commercial paper spread (rhs, inv), %



Source: Bloomberg, Goldman Sachs Global Investment Research.

The current dynamic resembles 2008, when gold also initially failed to act as safe-haven asset, falling by around 20% due to dollar strength and a run into cash. In 2008, the turning point was the announcement of \$600bn QE in November, after which gold began to climb despite further weakness in equities and commodities. We are beginning to see a similar pattern emerge as gold prices stabilized over the past week and rallied yesterday upon the Fed’s announcement of new liquidity facilities and of open-ended QE.

## “Fear” and “Wealth”

We analyze gold through the prism of our “Fear and Wealth” framework, where “Fear” of currency debasement is the primary driver of developed market (DM) investment demand while “Wealth” is the primary driver of EM purchases. Debasement “Fear” is often, but not always, correlated with US long-term real rates. With funding stresses likely eased, focus will likely shift to the large size of the Fed balance sheet expansion, increase in DM fiscal deficits and issues around

the sustainability of the European monetary union. We believe that this will likely lead to debasement concerns similar to the post GFC period. Accordingly, we think we are likely at an inflection point where “Fear” driven purchases will begin to dominate liquidity-driven selling pressure as it did in November 2008. As such, both the near-term and long-term gold outlook look far more constructive, and we are increasingly confident in our 12-month target of \$1800/toz.

## Gold underperformed in '08, until the Fed stepped in

Performance of Gold, USTWD, SPX; indexed to Jan '08



Source: Bloomberg, Goldman Sachs Global Investment Research.

While “Wealth” is likely to remain a headwind for gold in the near term as oil prices, EM growth and EM currencies remain under pressure, China and other parts of Asia are showing reassuring signs of recovery. We recently reduced our 6-month gold price target by \$50/toz to \$1700/toz to reflect the impact of lower EM “Wealth”, and believe that this has already been reflected in current gold pricing. As such, we expect the increase in “Fear” driven investment demand will likely trump the negative “Wealth” shock in the near term, as was eventually the case in 2008. And, as Asian EM economies stabilize, we expect “Wealth” to drive a strong rebound in EM gold demand to make up for missed purchases, particularly for speculative purposes, as they have done in the past when chasing a trending market.

Ultimately, EM consumers should help prolong the current “Fear” driven bull market in gold as well, as we see potential for sequential improvement in Asian EM growth to lead DM out of the crisis, as it did in 2008/09. This China-driven growth will likely give rise to inflationary concerns given the sharp expected contraction in oil and other commodity supply like agriculture and livestock. Combined with the fiscal nature of the current policy response to COVID-19, we believe that physical inflationary concerns—with the dollar starting near an all-time high—will finally dominate the financial asset inflation that was a feature of the past decade. Such inflationary concerns should further support gold prices as the currency of last resort.

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# Snapshot of our views

## Following the sharp virus-driven repricing, how will your asset class perform over the coming year?

### EQUITIES

Peter Oppenheimer, David Kostin, Kathy Matsui, Tim Moe & Teams

- With widening economic shutdowns across the US, we expect corporate sales to plunge in coming months. As a result, we now forecast S&P 500 EPS of \$110 in 2020, a decline of 33% from 2019. In the near-term, we think the S&P 500 will fall toward a low of 2000 before rebounding to 3000 by year-end. Looking ahead, we expect S&P EPS will grow by 55% to \$170 in 2021.
- We expect -23% EPS growth for the STOXX 600 in 2020, with risks skewed to the downside. At current levels, the valuation for Europe is close to, but still slightly above, the 2008 trough, with the average percentile of valuation metrics now around 20% vs. their historical trend. We think policy stimulus and low valuation together provide some asymmetry to the upside over a 6-12-month horizon, and have a 12m price target of 370 for SXXP.
- We've lowered our forecast for Asia-Pacific EPS growth to -14% on the back of expectations for a global recession in 2020, and reduced our 12m MXAPJ target to 475. But we also see a downside scenario, based on valuation levels reaching those seen during the GFC, in which MXAPJ falls to 345 over a 12m horizon, considerably below current levels.
- In Japan, we expect TOPIX EPS to fall by -15% in FY19 and -18% in FY20, and we've lowered our 12m index target to 1,500.

### FX

Zach Pandl, Kamakshya Trivedi & Team

- After a sizable rally in recent weeks, we expect the Dollar to remain firm against most crosses until policymakers intervene and/or market conditions begin to subside. If the Dollar were to continue to rise, we would see a reasonably strong case for coordinated and targeted intervention, most likely against the Mexican Peso or Brazilian Real, and possibly including Norway, Korea, Canada and Australia if the Dollar were to move to extreme levels.
- While USD/JPY has risen substantially, we still expect eventual Yen appreciation, as continued market volatility drives repatriation flows from Japanese investors, and forecast USD/JPY at 102 on a 3m horizon.
- In EM, we find that currencies in EM Asia have generally outperformed broader EM through the recent selloff, driven by lower risk sensitivity, the benefit of lower oil prices, and a tighter anchoring to the heavily-managed CNY. We expect CNY and TWD to outperform, and think USD/CNY will rise to 7.15 in 3m before easing back down to 7.05 and 6.90 in 6m and 12m, respectively.

### Rates

Praveen Korapaty, George Cole, Zach Pandl, Kamakshya Trivedi & Teams

- Despite the recent back-up in long maturity sovereign yields, which we view as temporary and driven primarily by a breakdown in market functioning, we expect US 10y Treasuries to bottom out at 40bp in Q2 before moving higher to 75bp by year-end. With large government fiscal stimulus in train, we find that a 1% increase in the debt-to-GDP ratio typically leads to a roughly 3-4bp shift in equilibrium interest rate levels.
- The ECB's recently announced EUR 750bn "Pandemic Emergency Purchase Programme" (PEPP) should help to relieve near-term pressure in European rates markets, and we estimate the purchases will be worth 40-50bp in lower outright yields in Italy, Spain, and Portugal, which is roughly in line with the market move since the ECB's emergency announcement.
- As for EM, a number of credits look vulnerable in an environment of global recession and oil prices around \$30/bbl or lower.

### CREDIT (US)

Lotfi Karoui & Team

- Over the medium term, the Fed's intervention in the corporate bond market further improves the risk asymmetry, especially for the high-quality segments of the market. It also reinforces our conviction in many of our existing relative value views, including our preference for IG over HY, and our recommendation to add front-end IG bonds.
- We've revised our 12-month trailing HY default forecast significantly higher to 13% over the course of 2020. However, should the economic contraction prove to be more persistent than the baseline view of our economists, the HY default rate could possibly rise to almost 17% over the coming quarters.

### COMMODITIES

Jeff Currie & Team

- The unprecedented global demand loss owing to the coronavirus will force prices across the commodities complex to fall below cash costs. We think the virus-driven shock will cut 8m b/d from global oil demand at its peak, and with the additional impact of increased OPEC+ supply, see Brent crude prices to fall to \$20/bbl in Q2 before rising gradually to \$30/bbl and \$40/bbl in Q3 and Q4, respectively. We also expect metals to fall to cost support levels, with Chinese stimulus unable to offset ex-China weakness.
- While gold, the currency of last resort, has failed to rally over the past several weeks owing to global dollar shortages, we maintain a bullish outlook as QE programs boost liquidity, and forecast \$1,650/toz and \$1,800/toz on a 3m/12m basis.

# Summary of our key forecasts

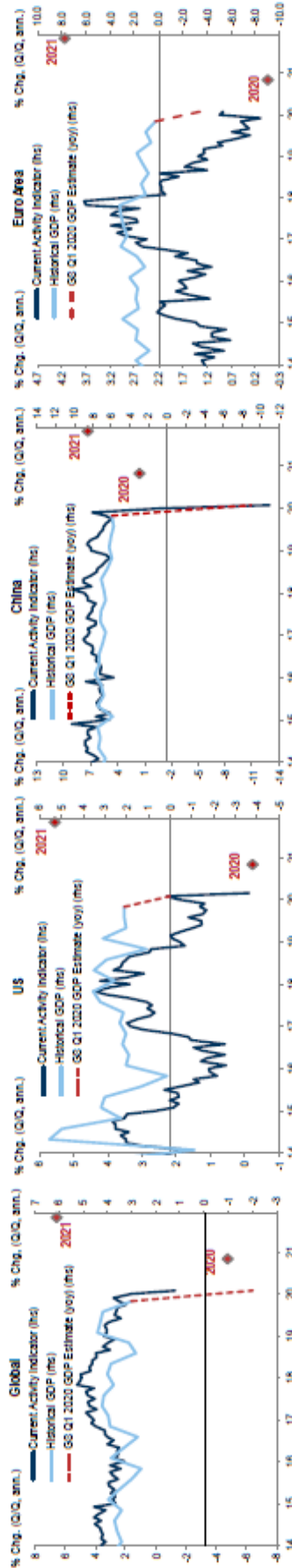
## GS GIR: Macro at a glance

### Watching

- Globally, we now think the coronavirus crisis has pushed the economy into a deep recession. We expect global real GDP to contract by about 1% this year, making 2020 weaker than the year following the Global Financial Crisis. We expect the global recession to be front-loaded, with a recovery in H2, assuming that the physical constraints on economic activity gradually loosen towards the end of Q2. But the risks to our forecasts are skewed to the downside, mainly because it may take longer than we expect to slow new infections.
- In the US, we now expect virus mitigation measures will lead to an exceptionally sharp near-term contraction in economic activity. We forecast US growth to decline by 3.8% yoy in 2020, with virus impacts lessening over H2, although the exact timing of the recovery is highly uncertain.
- In addition to returning rates down to zero and starting asset purchases, the Fed brought back several crisis-era facilities to provide corporates with funding amid significant market pressures, relaxed capital buffers and reserve requirements, and activated FX swap lines with other central banks. We think the size and potentially the scope of the facilities could further expand if Congress grants additional capital to the Exchange Stabilization Fund (ESF).
- In the Euro area, we expect that the coronavirus outbreak will lead to a 9% yoy decline in growth in 2020, owing to a large H1 contraction. Looking across countries, we expect larger contractions and slower normalizations of activity in Italy and Spain than in northern Europe.
- We believe the ECB's pandemic emergency purchase program (PEPP) is an effective tool to backstop significant stress in periphery bond markets. Given its large size and flexibility, we expect PEPP to help contain sovereign risks in southern Europe, and would expect a further increase in the program's size if acute sovereign stress returned.
- In China, we expect real GDP to contract by 9% yoy in Q1 owing to the virus outbreak before rebounding strongly in subsequent quarters, assuming the virus broadly comes under control worldwide by Q3 and accommodative monetary and fiscal policies generate positive growth impulses globally. On net, we forecast 3% yoy GDP growth in 2020, though this assumes the pandemic comes under control over the next few months.
- WATCH CORONAVIRUS. While the severity of the economic impact from the coronavirus remains highly uncertain, our base case assumes that the lockdowns and other measures will succeed in slowing new infections within a few months of their initial adoption, as they seem to have done in China. However, the risks to our global growth forecasts remain on the downside, especially if it takes longer than we expect to slow new infections.

Goldman Sachs Global Investment Research.

### Growth



Source: Haver Analytics and Goldman Sachs Global Investment Research.  
 Note: GS CAI is a measure of current growth. For more information on the methodology of the CAI, please see "Tracking All Over the World - Our New Global CAI," Global Economics Analyst, February 26, 2017.

### Forecasts

Economics	Inflated rates					Markets				Equities										
	2020		2021		10Yr (%)	FX	Credit (bp)	Commodities	Lact	3m	E2020	E2021	E2021	12m	YTD	E2020 P/E				
	GS	Cons.	GS	Cons.													GS	Cons.	GS	Cons.
GDP growth (%)	-1.0	2.6	5.1	3.1	3.1															
Global	-1.0	2.6	5.1	3.1	3.1															
US	-3.8	1.3	5.3	1.9	3.0															
China	3.0	5.3	8.5	5.8	3.0															
Euro area	-9.0	0.4	7.8	1.4	3.0															
Policy rates (%)	2020		2021		Wedge Tracker 2019 (%)															
	GS	Mkt.	GS	Mkt.	US	EU	JP	UK	Com	US	EU	JP	UK	Com	US	EU	JP	UK	Com	
US	0.13	0.07	0.38	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Euro area	-0.60	-0.55	-0.50	-0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
China	2.30	3.02	2.25	3.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Japan	-0.10	-0.08	-0.10	-0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Note: The 2020 global growth estimate corresponds to our top-down baseline scenario.  
 Source: Bloomberg, Goldman Sachs Global Investment Research. For important disclosures, see the Disclosure Appendix or go to www.gs.com/research/hedge.html.



# DM fiscal table

Global Fiscal Policy Response: Developed Markets						
Country	Status	Total Increase in Fiscal Spending*	% GDP	Total Loan Guarantees	% GDP	Notes
US	Actual	\$100bn	0.5%	< \$50bn	<1%	<ul style="list-style-type: none"> <li>• Congress has passed two phases of stimulus appropriating funds for health services, aid to states, and requiring sick leave.</li> <li>• Limited loan facilities and subsidies in place through Small Business Administration.</li> </ul>
	GS forecast	\$1 trillion +	6-7%	\$1-2 trillion	6-7%	<ul style="list-style-type: none"> <li>• Third phase of stimulus under negotiation between Congress and the White House.</li> <li>• Likely to include payments to individuals, assistance for small business, targeted aid for industries, and increased benefits.</li> </ul>
Euro Area	Planned		~1% for 2020			<ul style="list-style-type: none"> <li>• Eurogroup recognized the need for countries to implement discretionary fiscal measures of at least 1% of GDP</li> <li>• Initial EU coordinated action is a package of EUR95bn (0.8% of GDP) in the form of guarantees and loans to firms (supported by the EC and EIB).</li> </ul>
Germany	Actual	€62bn	1.9%	up to €953bn	28%	<ul style="list-style-type: none"> <li>• Contingent funds for additional discretionary spending on capital injections (€100bn) and corporate-sector loans through KfW (€100bn).</li> <li>• Guarantees on corporate debt securities (€400bn), and loans (unlimited pledge; €553bn budgeted) through KfW bank.</li> </ul>
France	Actual	€45bn	2.0%	€300bn	12%	<ul style="list-style-type: none"> <li>• Unlimited state guarantees and lending provision (~EUR300bn) and a first package of EUR45bn (EUR35bn for corporate tax and social contribution deferral, EUR8bn for short-term work and EUR2bn for health), which will increase if needed.</li> </ul>
Italy	Actual	€25bn	1.4%			<ul style="list-style-type: none"> <li>• Stimulus includes €3.5bn health services and €10bn employment subsidies. Government aims to mobilize up to €340bn. Loan repayments to SMEs frozen until 30 Sept.</li> </ul>
UK	Actual	£72bn	3.3%	£330bn	15%	<ul style="list-style-type: none"> <li>• Package includes extra resources for the NHS, sick pay measures, easier access to unemployment insurance benefits, deferral of tax payments, government guarantees on loans for working capital and our subjective assessment of 80% wage subsidy for affected employees.</li> </ul>
Spain	Actual	€32bn	2.6%	up to €182bn	15%	<ul style="list-style-type: none"> <li>• €100bn of state loan guarantees, that would trigger private money commitment of up to €82bn, through an unspecified mechanism.</li> </ul>
Japan	GS forecast	¥3 trillion	0.5%			<ul style="list-style-type: none"> <li>• We expect stimulus to mainly consist of income assistance. Government has announced a small package (~0.1% of GDP), mostly consisting of wage subsidies, other than loans and guarantees.</li> </ul>
Canada	Actual	CAD\$27bn	1.2%			<ul style="list-style-type: none"> <li>• CAD\$27bn in direct aid (individual tax credit, paid sick leave, labor income replacement, and a 3 month- 10% small business wage subsidy) and CAD \$55bn in deferred tax payments.</li> </ul>
Australia	Actual	A\$85bn	~4.5%			<ul style="list-style-type: none"> <li>• The package includes cash payments to households &amp; businesses, income support for job seekers/individuals already on welfare, and cash payments to SMEs tax and incentives to boost investment.</li> </ul>
New Zealand	Actual	\$12.1bn	~4%			<ul style="list-style-type: none"> <li>• Lump-sum wage subsidy for affected employers up to NZ\$150k per employer at a ~50% rate for the average wage. Only 60% to be delivered in next 12m.</li> </ul>
Sweden	Actual	>SEK303bn	~6%			<ul style="list-style-type: none"> <li>• Includes temporary layoff programs, support local authorities, sick pay and firm tax deferrals.</li> </ul>

Note: First published in Global coronavirus policy response, March 20 2020. Thanks to Daan Struyven and Blake Taylor.

Source: Goldman Sachs Global Investment Research.

# EM fiscal table

Global Fiscal Policy Response: Emerging Markets						
Country	Status	Total Increase in Fiscal Spending*	% GDP	Total Loan Guarantees	% GDP	Notes
<b>Russia</b>	Planned	300 billion RUB (\$4.1 billion)	0.3%			
<b>Turkey</b>	Actual	TRY100bn	2.3%			<ul style="list-style-type: none"> <li>• Deferrals of tax payments</li> </ul>
<b>Israel</b>	Actual	ILS15bn	1.1%			
<b>Chile</b>	Actual	US\$11.7bn	4.7%			<ul style="list-style-type: none"> <li>• Package is centered on tax breaks and income transfers to households and firms.</li> </ul>
<b>Brazil</b>	Actual	R\$150bn	2.1%			<ul style="list-style-type: none"> <li>• Mostly tax payment deferrals, anticipation of social benefits, healthcare spending and direct cash-transfers.</li> </ul>
<b>Argentina</b>	Actual	~ARS350bn	1.5%			<ul style="list-style-type: none"> <li>• Credit lines for housing, temporary elimination of payroll taxes for heavily affected sectors, partial payments of private sector salaries, increase in unemployment insurance and social security benefits, public investments.</li> </ul>
<b>Mexico</b>	Actual	No fiscal response so far	0.0%			
<b>China</b>	GS forecast					<ul style="list-style-type: none"> <li>• We expect an expansion of around 3pp in the augmented fiscal deficit.</li> </ul>
<b>India</b>	Actual					<ul style="list-style-type: none"> <li>• No new spending post outbreak.</li> </ul>
<b>Korea</b>	Actual	KRW11.7trn	0.6%			
<b>Malaysia</b>	Actual	MYR 16.5bn	1.1%	MYR 3.5bn	0.2%	
<b>Indonesia</b>	Actual	IDR 130.3tr	0.8%			
<b>Philippines</b>	Actual	PHP 27.1bn	0.1%			
<b>Hong Kong</b>	Actual	HK\$70bn	2.5%			<ul style="list-style-type: none"> <li>• The 2.5% of GDP estimate reflects the cash handouts measure only of HK\$10,000 (\$1,300) per adult.</li> </ul>
<b>Singapore</b>	Actual	SGD 6.4bn	1.2%			

Note: First published in Global coronavirus policy response, March 20 2020. Thanks to Daan Struyven and Blake Taylor.

Source: Goldman Sachs Global Investment Research.

# DM monetary policy table

Global Monetary Policy Actions: Developed Markets						
	Policy Rate			Unconventional Policies		
	As of Jan. 1	Current Rate	GS f'cast End-Q2	New Asset Purchases	New Credit Facilities	Intermeeting Action (Y/N)
<b>US</b>	1.50 - 1.75%	0 - 0.25%	0 - 0.25%	Announced buying a potentially uncapped amount of USTs and MBS	CPFF, PDCF, MMLF, PMCCF, SMCCF, TALF, relaxed capital buffers/res. requir., FX Swap lines	Y, two sets of emergency actions
<b>Euro Area</b>	-0.50%	-0.50%	-0.60%	EUR120bn APP increase + EUR750bn Emergency Programme	FX swap lines, LTROs, more attractive TLTRO-III terms aimed at SMEs	Y, PEPP announcement
<b>UK</b>	0.75%	0.10%	0.10%	GBP200bn new purchases, majority Gilts, "as soon as operationally possible"	FX swap lines, TFS with additional incentives for SMEs, lowered CCyB to 0%	Y, two sets of emergency actions
<b>Japan</b>	-0.10%	-0.10%	-0.10%	Temporary more active stance in ETF and REIT purchases	FX swap lines, temporary higher limits on CP and corporate bond purchases	Y
<b>Canada</b>	1.75%	0.75%	0.0%		FX swap lines, expanded bond buybacks, BA purchase facility for SMEs, lower bank stability buffer	Y
<b>Australia</b>	0.75%	0.25%	0.25%	RBA purchases A\$5bn of government bonds to lower funding costs	Term funding facility	Y
<b>New Zealand</b>	1.00%	0.25%	0.25%	RBNZ Launches NZ\$30bn Large Scale Bond Purchase Program	Term funding facility and FX swap lines	Y
<b>Switzerland</b>	-0.75%	-0.75%	-0.85%	Have been doing increased FX interventions	FX swap lines	N
<b>Norway</b>	1.50%	0.25%	0.25%		Reduced CCyB, FX swap lines	Y, two sets of emergency actions
<b>Sweden</b>	0.00%	0.00%	-0.25%	Up to SEK300bn this year. Could include govies, munis and MBS	Lower o/n loan rate, bank lending, increased collateral flexibility, FX swap lines	Y

Note: First published in Global coronavirus policy response, March 20 2020. Thanks to Daan Struyven and Blake Taylor.  
Source: Goldman Sachs Global Investment Research.

# EM monetary policy table

Global Monetary Policy Actions: Emerging Markets						
	Policy Rate			Unconventional Policies		
	As of Jan. 1	Current Rate	GS f'cast End-Q2	New Asset Purchases	New Credit Facilities	Intermeeting Action (Y/N)
<b>Czech Republic</b>	2.00%	1.75%	1.00%	Highlighted readiness to intervene in FX markets	Increased repo operations	Y
<b>Hungary</b>	0.90%	0.90%	0.90%			Y
<b>Poland</b>	1.50%	1.00%	0.50%	Large scale purchases of Treasury bonds	TLTRO-like program for banks	Y
<b>Russia</b>	6.25%	6.00%	6.00%	Additional FX sales		Y
<b>Ukraine</b>	13.50%	10.00%	8.50%			N
<b>Turkey</b>	12.00%	9.75%	8.00%		7 new liquidity measures	Y
<b>Israel</b>	0.25%	0.25%	0.10%	Flexible QE program	New repo transactions	Y
<b>South Africa</b>	6.50%	5.25%	4.75%		Supplementary repo operations, lower Standing Facilities rate	N
<b>Brazil</b>	4.50%	3.75%	3.50%		FX swaps, Dollar repo lines, Dollar spot sales, cut res. requir.	N
<b>Mexico</b>	7.25%	6.50%	6.00%		FX swap lines, cut reserve requirements	Y
<b>Chile</b>	1.75%	1.00%	0.50%	Extended FX intervention, OMOs up to USD4bn	New bank financing facility, expanded collateral to include corporate bonds	Y
<b>Peru</b>	2.25%	1.25%	1.25%			Y
<b>Colombia</b>	4.25%	4.25%	3.25%		USD400mn 60d FX swaps and USD1bn 30d NDF	Y
<b>China</b>	2.50%	2.40%	2.10%		Multiple targeted measures including 50-100bp RRR cut for qualified banks	Y
<b>India</b>	5.15%	5.15%	4.65%	RBI to purchase \$13.2 billion bond on March 26	FX swaps, LTRO	N
<b>Korea</b>	1.25%	0.75%	0.50%	KRW1.5tn purchases of govt bonds to stabilize markets	FX swap lines, lowered lending rate for SME loans, relaxed collateral for repos, credit facility, equity and bond market stabilization funds	Y
<b>Malaysia</b>	3.00%	2.50%	2.00%		Cut reserve requirement rate	Y
<b>Taiwan</b>	1.38%	1.13%	1.00%		Possible to expand repo counterparties	N
<b>Thailand</b>	1.25%	1.00%	0.50%	BOT purchases more than 100 billion baht (\$3.06 billion)	Money Market Facility, Corporate	N
<b>Indonesia</b>	5.00%	4.50%	4.00%	BI bought 14 trillion rupiah of government bonds to prop up financial markets	Set of measures including higher frequency of FX swap auctions	N
<b>Philippines</b>	4.00%	3.25%	2.75%	BSP to purchase PHP300bn of government securities		N

Note: First published in Global coronavirus policy response, March 20 2020. Thanks to Daan Struyven and Blake Taylor.  
Source: Goldman Sachs Global Investment Research.

# Glossary of GS proprietary indices

## Current Activity Indicator (CAI)

GS CAIs measure the growth signal in a broad range of weekly and monthly indicators, offering an alternative to Gross Domestic Product (GDP). GDP is an imperfect guide to current activity: In most countries, it is only available quarterly and is released with a substantial delay, and its initial estimates are often heavily revised. GDP also ignores important measures of real activity, such as employment and the purchasing managers' indexes (PMIs). All of these problems reduce the effectiveness of GDP for investment and policy decisions. Our CAIs aim to address GDP's shortcomings and provide a timelier read on the pace of growth.

*For more, see our CAI page and Global Economics Analyst: Trackin' All Over the World – Our New Global CAI, 25 February 2017.*

## Dynamic Equilibrium Exchange Rates (DEER)

The GSDEER framework establishes an equilibrium (or "fair") value of the real exchange rate based on relative productivity and terms-of-trade differentials.

*For more, see our GSDEER page, Global Economics Paper No. 227: Finding Fair Value in EM FX, 26 January 2016, and Global Markets Analyst: A Look at Valuation Across G10 FX, 29 June 2017.*

## Financial Conditions Index (FCI)

GS FCIs gauge the "looseness" or "tightness" of financial conditions across the world's major economies, incorporating variables that directly affect spending on domestically produced goods and services. FCIs can provide valuable information about the economic growth outlook and the direct and indirect effects of monetary policy on real economic activity.

FCIs for the G10 economies are calculated as a weighted average of a policy rate, a long-term risk-free bond yield, a corporate credit spread, an equity price variable, and a trade-weighted exchange rate; the Euro area FCI also includes a sovereign credit spread. The weights mirror the effects of the financial variables on real GDP growth in our models over a one-year horizon. FCIs for emerging markets are calculated as a weighted average of a short-term interest rate, a long-term swap rate, a CDS spread, an equity price variable, a trade-weighted exchange rate, and—in economies with large foreign-currency-denominated debt stocks—a debt-weighted exchange rate index.

*For more, see our FCI page, Global Economics Analyst: Our New G10 Financial Conditions Indices, 20 April 2017, and Global Economics Analyst: Tracking EM Financial Conditions – Our New FCIs, 6 October 2017.*

## Goldman Sachs Analyst Index (GSAI)

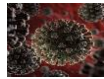
The US GSAI is based on a monthly survey of GS equity analysts to obtain their assessments of business conditions in the industries they follow. The results provide timely "bottom-up" information about US economic activity to supplement and cross-check our analysis of "top-down" data. Based on analysts' responses, we create a diffusion index for economic activity comparable to the ISM's indexes for activity in the manufacturing and nonmanufacturing sectors.

## Macro-Data Assessment Platform (MAP)

GS MAP scores facilitate rapid interpretation of new data releases for economic indicators worldwide. MAP summarizes the importance of a specific data release (i.e., its historical correlation with GDP) and the degree of surprise relative to the consensus forecast. The sign on the degree of surprise characterizes underperformance with a negative number and outperformance with a positive number. Each of these two components is ranked on a scale from 0 to 5, with the MAP score being the product of the two, i.e., from -25 to +25. For example, a MAP score of +20 (5; +4) would indicate that the data has a very high correlation to GDP (5) and that it came out well above consensus expectations (+4), for a total MAP value of +20.

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