

# TOP *of* MIND

## THE BIGGER WORRY: GROWTH OR INFLATION?

RECESSION  
INFLATION  
RECESSION  
INFLATION

The recent sharp rally in bonds suggests that the market increasingly thinks inflation is yesterday's problem and that growth is the main worry for 2023. But are recession risks overblown and inflation risks underappreciated? Our own Jan Hatzius maintains that the US is headed for a soft landing in 2023 that won't see a resurgence in inflation because many drivers of disinflation don't require economic weakness. The Hoover Institution's John Cochrane also doesn't believe the Fed will need to engineer a recession to tame inflation in the near term, but is very worried about inflation (and growth) over the longer term. Market implications? GS GIR strategists find risky assets have far to fall in a recession, but would move higher in a soft landing, though

the upside would likely be capped, a view our own David Kostin shares given expectations of zero S&P EPS growth. Carlyle's David Rubenstein is more optimistic about the outlook for private equity. But even if recession clouds clear, growth clouds may not: GS GIR's Jeff Currie warns that commodity shortages could constrain growth in 2023.



All told, we feel pretty good about the possibility of a soft landing... Many sources of disinflation that we expect are "freebies", in that they don't require substantial economic weakness to play out.

- Jan Hatzius

I'm not that concerned [about inflation resurgence] over the short term, but I'm very concerned about a resurgence over the medium-to-long term.

- John Cochrane

S&P 500 earnings revisions point to a hard landing... and with consensus forecasts of 2% EPS growth this year vs. our forecast of zero, further negative revisions to earnings are likely.

- David Kostin

Based on what I know, PE marks are more likely to rise than decline in 2023.

- David Rubenstein



Allison Nathan | [allison.nathan@gs.com](mailto:allison.nathan@gs.com)

Jenny Grimberg | [jenny.grimberg@gs.com](mailto:jenny.grimberg@gs.com)

Ashley Rhodes | [ashley.rhodes@gs.com](mailto:ashley.rhodes@gs.com)

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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

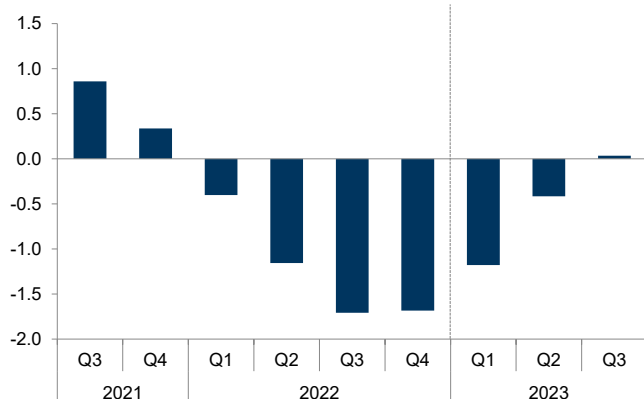
- No major changes in views.

### Datapoints/trends we're focused on

- Growth; we continue to expect the US to avoid a recession this year, and growth to accelerate in 2H23 as the drag from tighter financial conditions fades.
- Core PCE inflation; we expect it to decline significantly to 2.9% by year-end.
- Fed policy; we expect 25bp rate hikes in each of February, March, and May for a peak funds rate of 5.00-5.25%.
- Fiscal policy; we don't expect Congress to address the debt limit until Treasury has nearly exhausted all other financing options, likely sometime in August.

### Fading growth drag from financial conditions in 2023

Real US GDP growth impulse from GS FCI, 3Q moving avg, pp



Note: The impulses assume that the FCI stays flat after Jan. 25, 2023.

Source: Goldman Sachs GIR.

## Japan

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

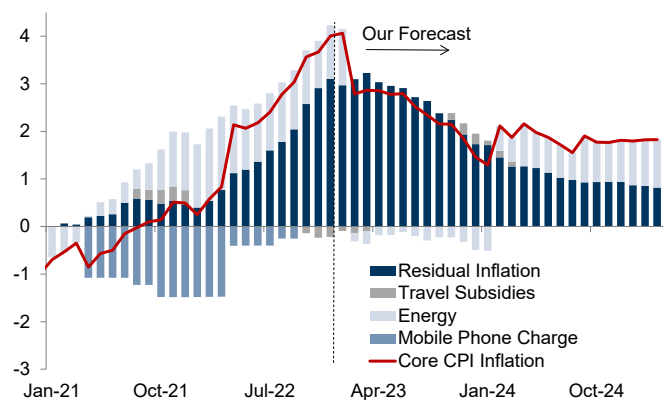
- We expect BoJ to shorten the target maturity of YCC to 5y yields in 2Q to keep policy easy and raise YCC sustainability.
- We recently lowered our 2023 Japan GDP forecast by 0.2pp to 1.2% on an increase in Covid cases and the BoJ's YCC adjustment, which are partially offset by better global growth.

### Datapoints/trends we're focused on

- Core CPI inflation, which we expect will fall to ~2% in Feb, mainly due to government subsidies for electricity and gas.
- Wage growth, which we think will remain below the 3% rate the BoJ believes is consistent with its 2% inflation target.
- BoJ leadership transition, which will occur in April.

### Core CPI to fall to ~2% in Feb due to energy subsidies

Core CPI inflation breakdown, %, yoy



Source: Ministry of Internal Affairs and Communications, Goldman Sachs GIR.

## Europe

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

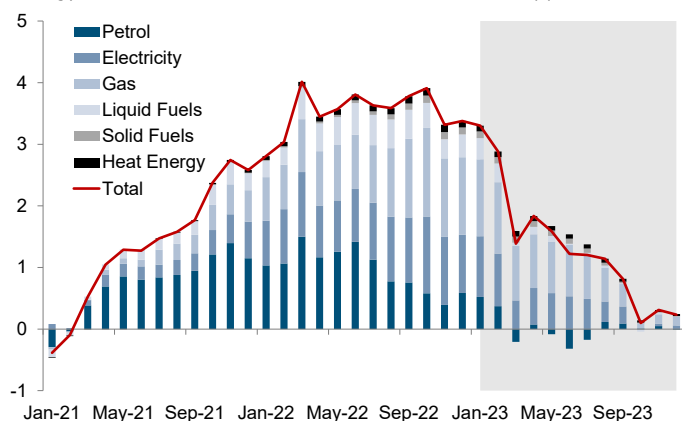
- We recently raised our 2023 Euro area growth forecast to 0.7% (vs. -0.1% previously) and no longer expect a recession due to resilient data, lower gas prices due to the mild winter, and China's earlier-than-expected reopening.
- We expect the ECB to tighten 50bp in February and March, followed by 25bp in May for a terminal rate of 3.25% given resilient activity, sticky core inflation, and hawkish communication.

### Datapoints/trends we're focused on

- EA core inflation, which we expect to fall to ~3.3% by YE.

### Lower Euro area headline inflation ahead

Energy contributions to Euro area headline inflation, pp



Source: Goldman Sachs GIR.

## Emerging Markets (EM)

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

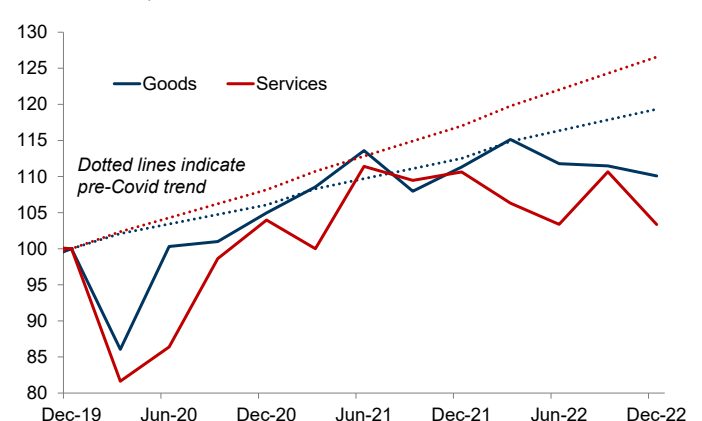
- We raised our 2023 China growth forecast to 5.5% (vs. 4.5% in early Dec) on the back of an accelerated reopening and a faster-than-expected post-"exit wave" recovery.

### Datapoints/trends we're focused on

- China macro policy; we expect monetary and fiscal policy to begin normalizing in 2023 from a very accommodative stance in 2022.
- China property; we expect an "L-shaped" recovery in the property sector given the long-term trend of falling demand.
- EM monetary policy; we think the EM tightening cycle is nearing an end, with easing starting in LatAm later this year.

### China consumption set for recovery

Real consumption vs. trend, index (4Q19 = 100)



Source: NBS, Goldman Sachs GIR.

# The bigger worry: Growth or inflation?

The recent sharp rally in bonds suggests that the market increasingly thinks inflation is yesterday's problem and that growth is the main worry for 2023. But are recession risks overblown and inflation risks underappreciated? What's in store for growth and inflation, and what that means for markets, is Top of Mind.

We first assess recession risks from here. While recession concerns seem to have recently eased a bit on better inflation news, [a majority of economic forecasters](#) and many [former policymakers](#) maintain that a US recession this year is more likely than not given the common views that the sharp tightening in financial conditions last year will act as a sizable drag on growth this year and that unemployment will have to rise sharply to return US wage growth to levels compatible with the Fed's 2% inflation target.

But Jan Hatzius, GS Head of Global Investment Research and Chief Economist, has long maintained that the US economy is headed for a soft landing in 2023. Driving this optimism is in part the view that the peak drag on growth from last year's tightening is actually occurring right around now as opposed to later this year. Indeed, GS senior global economist Joseph Briggs lays out the case for why lags between policy tightening and its effect on growth are shorter than many people think.

Hatzius also expects growing US real disposable household income—on the back of fading fiscal tightening and still-relatively high wage growth—to help support growth. And he maintains that the labor market rebalancing that's required to return wage growth to a pace more consistent with the Fed's target can be largely achieved through further declines in job openings as opposed to a sharp increase in the unemployment rate. More broadly, he underscores that an earlier and faster-than-expected reopening of China, which GS Chief China Economist Hui Shan argues sets the stage for a period of strong Chinese growth, as well as a warm winter in Europe that has eased the region's energy crisis, has substantially improved the global growth outlook, with all major economies (except the UK) now likely to avoid recession this year.

John Cochrane, Senior Fellow at the Hoover Institution at Stanford University, also doesn't believe that the Fed will need to engineer a recession to tame inflation. In his view, the source of the inflation was not actually pandemic-related supply shocks, but pandemic-era fiscal stimulus, which should subside now that the stimulus boost is largely behind us. And, he says, the Fed's current actions aren't nearly stringent enough to spark a financial shock that would induce recession.

But even if growth turns out better than many investors fear, would that just lead inflation to surge anew as some [warn](#) it could? Hatzius doesn't think so. That's mainly because many sources of disinflation he expects this year are "freebies" that don't require substantial economic weakness to play out. This includes the further healing of supply chains that should continue to bring down core goods inflation and a substantial decline in rents that haven't even begun to fall in official inflation measures. So, he remains "reasonably confident" that inflationary pressures will continue to subside, and expects US core PCE inflation to decline to 2.9% by year-end.

Cochrane also doesn't worry much about the possibility of an inflation resurgence in the near term, but is very concerned about it—as well as growth—over the medium-to-long term. In his view, inflation only goes away when monetary policy, fiscal policy, and growth work together to end it, and he thinks two of those three—fiscal policy and growth—are sorely lacking. He believes that the US' unsustainable fiscal policy could lead bondholders to lose faith in the government's ability to repay its debt, which could set off a spiral that ends in a sharp surge in inflation. And he argues that underinvestment in the supply side of the economy in recent decades will ultimately constrain the long-run growth necessary to fight inflation.

Jeff Currie, GS Global Head of Commodities Research, couldn't agree more about the effect on growth from underinvestment in supply capacity. Although he agrees with Hatzius that the rebound in commodity prices Currie expects won't be large enough to see commodity-led inflation this year, he warns that the bigger risk is the prospect of outright shortages of key commodities acting as a constraint on growth. With commodity demand surging on China reopening and better global growth against a backdrop of low inventories and limited excess production capacity, he views this risk as a real possibility in 2023. And he argues that commodity-related constraints on growth will become ever-more binding without a sizable commodity capex cycle, which has yet to begin.

So, what does this all mean for risky assets? GS market strategists Dominic Wilson and Vickie Chang observe that markets are not pricing recession as their base case, and assess the potential downside to assets if we have one, and the upside if we don't. While they find that risky assets would move higher in the soft landing scenario we expect, they also warn that the accompanying repricing of the policy path—as well as the rise in commodity prices we expect—may ultimately pose challenges for risky assets.

David Kostin, GS Chief US Equity Strategist, is also cautious about the US equity outlook, arguing that margin contraction will lead to zero earnings growth for the S&P 500 this year even if the US avoids recession and inflation continues to decline as Hatzius expects. He therefore sees limited upside to the index, and believes risks are skewed to the downside given that the index around the 4000 level today is "priced for perfection." That said, Kostin sees value in select cyclical stocks, which he thinks could move higher in the event of no recession.

Finally, we turn to David M. Rubenstein, Co-founder and Co-chairman of The Carlyle Group, for a discussion about the outlook for private markets, and whether a decline in private market valuations—which have remained notably elevated relative to public market valuations—could be the next shoe to drop. On the contrary, he argues that receding recession risk should see private equity deal activity pick up and that private marks are—if anything—more likely to rise than fall in 2023.

## Allison Nathan, Editor

Email: [allison.nathan@gs.com](mailto:allison.nathan@gs.com)  
Tel: 212-357-7504  
Goldman Sachs & Co. LLC



# Interview with Jan Hatzius

Jan Hatzius is Head of Global Investment Research and Chief Economist at Goldman Sachs. Below, he argues that the US remains on the path to a soft landing as real disposable income rises, the drag on growth from tighter financial conditions fades, and disinflation continues.



**Allison Nathan: You've long held that the US will avoid a recession this year, even as most forecasters have been expecting one. What's driving that relative optimism?**

**Jan Hatzius:** As we head into the New Year, two factors are driving my relatively optimistic growth view. One, real disposable household income is now growing. The first half of 2022 saw the largest decline in real disposable household income on a year-on-year basis in post-war history due to fiscal normalization and a surge in inflation, especially after Russia's invasion of Ukraine. But that fiscal adjustment is now in the rearview mirror, and headline inflation is slowing more quickly than still-relatively high wage growth, which is good for household income. We expect solid 3-3.5% growth in real disposable income for 2023.

Two, we think that the drag on growth from the substantial tightening in financial conditions in 2022 is likely peaking right around now as opposed to later this year, which is probably the main disagreement between us and most forecasters that expect a recession. Our work shows that the peak drag on growth from a tightening in financial conditions occurs after two quarters, on average. Given that the biggest tightening in financial conditions occurred in 2Q22 when the Fed pivoted sharply toward more aggressive rate hikes, we estimate that we are now feeling the maximum drag on growth—nearly 2pp—which should diminish over the course of 2023, barring another major tightening in financial conditions. So, we see weaker growth momentum of below 1% in 1H23 accelerating to above 1% in 2H23, and expect growth to approach trend levels of around 2% by the end of the year.

All told, we feel pretty good about the possibility of a soft landing. It's certainly not assured; we see 35% recession odds, which is not a low number. But we are comfortable maintaining a baseline view that the US avoids recession this year.

**Allison Nathan: You also expect inflation to continue to fall sharply, with core PCE declining to 2.9% by year-end. How does that square with your forecasted growth pick-up?**

**Jan Hatzius:** Even in a traditional Phillips curve framework, faster growth isn't inflationary if that growth is still below trend. More importantly, many sources of disinflation that we expect are "freebies", in that they don't require substantial economic weakness to play out. For example, the normalization of commodity prices is leading to a large decline in commodity price inflation, the healing of supply chains is starting to bring down core goods inflation, and rent inflation, which is still very elevated in the official CPI and PCE measures, is set to decline substantially in 2023 given that timelier measures of rents have already started to stagnate or even fall.

Lastly, while the debate about whether the unemployment rate will have to increase substantially—with potentially recessionary consequences—to cool the overheated labor market and rein in wage inflation rages on, my view remains that the labor market is overheated not because we're employing too many people, but because the number of job openings is too high. Openings have declined somewhat, but remain above 10 million versus about 6 million unemployed workers. That imbalance needs to be corrected, but we'll likely continue to be able to correct it through a decline in job openings, which should be sufficient to return wage growth to more sustainable levels without a big increase in the unemployment rate.

**Allison Nathan: But can the recent trend of disinflation continue if commodity prices rebound as we expect?**

**Jan Hatzius:** While the rebound in commodity prices our commodity team expects off the back of China reopening and structural underinvestment in capacity would probably reverse some of the progress made in headline inflation, the year-on-year change in prices should not be very large given the high level of prices over the past year. And even if headline inflation moves a bit higher, the key focus of policymakers remains on core inflation, and the pass-through of commodity inflation to core inflation tends to be relatively limited.

**Allison Nathan: So, do some concerns about a potential resurgence in inflation that would require the Fed to act more forcefully seem overdone?**

**Jan Hatzius:** Yes. It's true that some areas of transitory disinflation, or even transitory deflation exist. In addition to the rebound in commodity prices we expect, the significant downward pressure on durable goods prices from supply chain normalization won't last forever, and once that adjustment plays out, core goods inflation could rise again. But other areas that will be slower to normalize, most importantly rents, haven't even started to adjust in the official measures, as we discussed, and will be a large source of disinflationary pressure in 2023. So, while it's difficult to be very confident on the timeline of all these moving parts, I am reasonably confident that inflationary pressures, on net, will continue to subside.

**Allison Nathan: Even if inflation doesn't surge again, what's the risk that it stagnates above target, and that will force the Fed to act more aggressively?**

**Jan Hatzius:** The adjustments we've been discussing in terms of the fall or stabilization in commodity prices to date and a normalization in supply chains are probably the easiest part of the Fed's inflation fight. But developments in potentially "stickier" areas of inflation, such as wages, have also been comforting. Average hourly earnings decelerated sizably in the December US payrolls report, especially after adjusting for compositional shifts between high and low wage sectors. And other measures like the Atlanta Fed's Wage Growth Tracker,



which measures the wage changes for individuals in the household survey over a 3-month period, are also showing meaningful wage deceleration. That said, the continuation of such deceleration is hugely important for the sustainability of lower inflation. If nominal wage growth remains in the 5% range, it would be hard to believe that core inflation could fall to 2-2.5% on a sustainable basis. But if nominal wage growth continues to decline to the 4% range by the end of this year as we expect, that would be consistent with inflation returning to the neighborhood of the Fed's 2% target.

**Allison Nathan: So, you don't think that the Fed will need to do much more to rein in inflation, setting the US up for a soft landing?**

**Jan Hatzius:** We are a bit more hawkish on the Fed than the market is but agree with the market's view that the brunt of the adjustment is behind us—we expect the Fed to downshift to 25bp at next week's meeting and then hike another 25bp in both March and May before pausing, which would push the peak rate to 5-5.25%. And we expect the Fed funds rate to remain at this level into 2024. That said, the distribution of outcomes that includes our recession odds leaves our probability-weighted path for the funds rate somewhat lower, but still above market pricing given that the market sees a greater probability of recession. So, we agree that the Fed funds futures curve should be downward sloping on a probability-weighted basis, but a bit less so than what's priced.

**Allison Nathan: The equity market has recently risen on better inflation data. Won't easing financial conditions require the Fed to hike more, jeopardizing a soft landing?**

**Jan Hatzius:** The desired level of financial conditions is a moving target in the sense that if inflation returns to an acceptable rate, the Fed's tolerance for easier financial conditions and growth at or modestly above trend would likely be somewhat higher because the Fed would revise up its estimate of the level of utilization the economy can run at without generating unacceptable inflation. I don't see a big shift in that direction, but Fed officials are clearly more tolerant of an easing in financial conditions now than they were in the summer, when they were not comfortable with it at all, and Chair Powell responded with the hawkish Jackson Hole speech that reversed much of the easing that had occurred. Case in point: the Fed seems set to downshift the pace of rate hikes even though markets are doing better. That said, if markets run too far too quickly in response to better inflation and growth data, the Fed may have to do more than we expect. But somewhat higher interest rates in a stronger growth environment with inflation in check is not the worst outcome.

**Allison Nathan: Beyond the US, concerns about a Euro area recession seem to have faded away. Why?**

**Jan Hatzius:** We had expected a mild recession in the Euro area until recently, due largely to the region's energy crisis that was set to meaningfully eat into real disposable household income. But we no longer expect a recession this year for three reasons. One, the hard economic data were more resilient throughout 2022 than we expected and than the softer survey data would've suggested. For example, the manufacturing surveys remained in deep contraction territory for a sustained

period, but the industrial production data nevertheless remained relatively flat, even in hard-hit Germany.

Two, China's earlier-than-expected reopening should be especially beneficial to trade- and export-oriented European economies. And three, warm weather has led to a sharp decline in natural gas prices and forecasts, which should eventually show up in lower utility bills and a rebound in real disposable income. So, while Euro area GDP growth likely dipped into negative territory in late 2022, we expect below-trend but positive growth over the next few quarters.

**Allison Nathan: Probably the biggest shift heading into 2023 was the rapid reversal in China's zero-Covid policy. How important is that shift?**

**Jan Hatzius:** This is an important shift for the Chinese and the global economy. We estimate that Covid restrictions and caution were subtracting as much as 4-5% from the *level* of Chinese GDP prior to reopening. Getting a large chunk of that back on an earlier-than-expected shift in Covid policies led us to upgrade our growth forecasts from well below consensus over the past year to above consensus currently; we now expect Chinese growth of 6.5% yoy for 4Q23. Longer term, the Chinese economy still faces several headwinds, such as demographic and property market challenges. But we don't think these headwinds will prevent substantially stronger growth in the short term.

**Allison Nathan: Won't the reacceleration in Chinese growth make the US and other economies' attempts to rein in inflation harder? Are we underestimating that risk?**

**Jan Hatzius:** China's growth resurgence will likely have some impact on commodity markets; as we've discussed, this is one reason why our commodity team expects a rebound in prices. But outside of that, the biggest effect will probably be on the Chinese service sector, which was hit the hardest by Covid policies and fear. And since the service sector is domestically facing, I don't necessarily see a big read-across to inflation outside of commodities. In fact, whether China's reopening will be inflationary or deflationary is debatable. Some people argue that it will resolve lingering supply chain issues, hastening disinflation in the goods sector. I don't necessarily agree with that narrative because it seems that China had already figured out how to produce goods even in a Covid-restricted environment. But the broader point is that little evidence exists that China weakness was a large drag on global inflation in 2022 outside of the commodity sector, so China's growth resurgence is unlikely to meaningfully boost inflation this year.

**Allison Nathan: So, are you more optimistic on global growth than you were when we spoke in September?**

**Jan Hatzius:** Yes, only marginally so in the US but certainly more so in Europe and China, where we've meaningfully upgraded our growth outlook relative to where we were six months ago. Indeed, 2023 is potentially shaping up to be the flip side of 2022, when very high inflation ate into disposable income and confidence, weighing on growth. In 2023, the causality may run the other way, with ongoing declines in inflation boosting disposable income and, in turn, growth.

# Interview with John Cochrane

John Cochrane is Senior Fellow at Stanford's Hoover Institution and author of *The Fiscal Theory of the Price Level*. Below, he argues that US inflation should subside as the fiscal shock that caused it fades away, but that it will likely resurge unless the US' fiscal issues are resolved.

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



**Jenny Grimberg: Whether US policymakers can bring inflation back down to target is at the crux of the current growth debate. You've long studied the root causes of inflation and what it takes to vanquish it. What have you learned about the effectiveness of raising interest rates to fight inflation?**

**John Cochrane:** Nobody knows for sure how interest rates affect inflation—not even the Fed. In my view, the influence of interest rates on inflation is much weaker than most people think, for several reasons. First, raising interest rates has a bigger effect on financial markets than on the daily behavior of average people. It can lower interest-sensitive spending, but all prices are rising. Raising rates may lower demand for housing as mortgage rates rise, but how does it affect how many people want to go out to dinner? Second, the Fed lowers inflation by pushing the economy towards recession. But how does inducing a recession make all prices and wages fall? Third, as the Fed raises interest rates, it also raises interest costs on US debt, which increases the deficit, which in turn causes inflation to rise unless Congress tightens fiscal policy to pay for those higher interest costs. And fourth, if a recession does occur, the government's response is typically more bailouts and stimulus—the very thing that caused the current bout of high inflation in the first place. Inflation only goes away when monetary and fiscal policy as well as growth—the salve of all wounds—work together to end it.

**Jenny Grimberg: But how does that square with the 1980s, when the Fed seemingly slayed inflation with rate hikes?**

**John Cochrane:** That episode is often cited as the prime example of the Fed's inflation-fighting power, but many central banks have sharply raised rates only for inflation to come back stronger after a couple years. The history of Latin America is full of such episodes, because underlying fiscal problems were left unresolved. The Fed embarked on two tightening cycles in the 1970s that proved unsuccessful in bringing down inflation. In 1980, the Fed did not act alone. The 1980s were a period of major fiscal policy changes—social security reform, two major tax reforms that lowered the top marginal tax rate from 70% to 28%, creating significant incentives to work, save, invest, grow businesses, etc., and a wave of deregulation. That kicked off a period of strong growth, and by the 1990s, the US was rolling in fiscal surpluses. So, even the inflation-slaying success of the 1980s owed to a combination of monetary policy, fiscal policy, and growth, not just monetary policy.

**Jenny Grimberg: How does fiscal policy affect inflation?**

**John Cochrane:** The traditional idea of inflation originated with Milton Friedman, who said that inflation is “always and everywhere a monetary phenomenon”. But fiscal policy

matters more for inflation than it's given credit for. By fiscal policy I don't mean today's deficit, but rather the US' ability and commitment to solve its long-run fiscal problems and repay its debt. It works like any stock or bond: if people lose faith that a stock can pay dividends over decades, or a bond can pay its coupon and principal, the stock and bond values drop. Government money and debt is just like a stock or bond, repaid by fiscal surpluses. If people lose faith in repayment, the value of money must fall, so the price level must rise. If the government has issued more debt than people believe it can reasonably repay over the long run, people won't want to hold that debt and instead will try to buy other financial and physical assets, ultimately driving up the price of goods and services. So, too much debt chasing too few goods drives up inflation just as too much money chasing too few goods drives up inflation. Money and debt are conceptually the same.

**Jenny Grimberg: But do people realistically behave that way, spending rather than saving because they're worried that the government won't repay its debts?**

**John Cochrane:** Maybe not consciously, but yes. The pandemic-era stimulus is a good example. Most people chose to spend stimulus checks rather than save them, for instance by putting them in government bonds. People who sold them things didn't hold onto the money either. Article after article bemoans the fact that people aren't building wealth or saving for retirement, but America collectively chose to go on a spending spree rather than do so. Certainly, some part of that decision to spend rather than save involved the belief that government bonds are not a great long-term investment.

**Jenny Grimberg: Why was this stimulus inflationary when the one following the Global Financial Crisis (GFC) wasn't?**

**John Cochrane:** The 2008 stimulus was small compared to the pandemic stimulus—roughly \$1tn vs. \$5tn. And, unlike in the aftermath of the GFC, the government created money rather than just borrowing it; \$3tn of the pandemic stimulus was newly printed money. Borrowing money and spending isn't necessarily inflationary because the spenders are usually balanced out by the savers whom the government borrowed the money from—those who bought Treasuries.

**Jenny Grimberg: We know that a major effect of the pandemic was the snarling of supply chains. So, hasn't the current bout of inflation owed largely to supply shocks?**

**John Cochrane:** No. Supply constraints are important, and our central banks typically ignore them. But supply shocks at best set off the fiscal response that ultimately causes inflation. Take TVs. During the pandemic, TVs couldn't get through the Port of LA, so their price rose. But that's the price of TVs *relative* to other prices. A supply shock only changes a relative price. Inflation is the phenomenon of all prices and wages rising together, which comes from the government inducing more demand in the face of a supply shock. It does so by giving

people money. That's what happened in Europe recently—the energy supply crisis led to a sharp rise in energy prices, and to ensure that people could pay those higher prices, governments sent everybody checks. The price of everything rose.

**Jenny Grimberg: But doesn't the relative price rise caused by a supply shock feed through to other prices?**

**John Cochrane:** In a sense, yes—as the price of TVs increases, workers demand higher wages to pay for those TVs, which in turn leads firms to charge more for their products to cover the cost of higher wages. But if people don't have the money to pay those higher prices, that cycle ends, and prices come down again. Without an overall force to validate higher prices—more money in people's pockets owing to some kind of stimulus or support—the cycle of higher prices can't go on.

**Jenny Grimberg: Given your view that debt affects inflation, is the US recently hitting its debt limit troubling?**

**John Cochrane:** Yes and no. I'm not concerned in the sense that the debt limit really isn't about the big question of whether the US government can continue to borrow money that people believe it can pay back, which is ultimately what's relevant for the path of inflation. But the debt limit is serious because Treasuries are an important source of safe collateral in the financial system. If Treasury continues to make noise about defaulting—even if it's only a technical default and bondholders will eventually be made whole—it would be disastrous for the financial system because Treasuries could no longer be used as collateral. Seeing that coming, investors would start unloading Treasuries. This was the experience of mortgage-backed securities during the GFC—they didn't so much fail as become risky, so people wouldn't take them as collateral, and everyone started dumping them. Given that risk, I am appalled that Treasury doesn't say loud and clear that it will continue to pay principal and interest on the debt, which it has plenty of money to do. Not saying so risks igniting a financial crisis. But again, that's separate from the long run issue of whether the US government can pay back its debts.

**Jenny Grimberg: With all that in mind, how do you expect inflation to evolve this year and next?**

**John Cochrane:** My cautious bet is that inflation will fall to the 3-4% range as the source of the inflation—a fiscal shock—fades away. When the government prints extra debt to finance a fiscal blowout and people don't believe that the government has the resources to pay that back, inflation rises until the real value of the debt is back to equaling what people think the government will be able to repay. That's already happened. So, I expect inflation will continue to decline, although likely not all the way back down to target. And what happens from there depends entirely on what the next shock looks like. Like much else in the economy, inflation will be determined not by what we expect to happen, but by the next shock we don't expect.

**Jenny Grimberg: How concerned are you about the possibility of an inflation resurgence?**

**John Cochrane:** I'm not that concerned over the short term, but I'm very concerned about a resurgence over the medium-to-long term. The US is stuck in an unsustainable fiscal policy, with entitlement promises that the government cannot afford.

So far, bondholders have figured that the US will eventually do the right thing and have a straightforward fiscal, entitlement, and growth-oriented reform, after we have tried everything else. But that faith could evaporate, and investors may want to sell while they still can. So, my biggest worry is that if and when the next shock rolls around, the government will respond with a financial bailout and massive stimulus. Bond investors could demand higher interest rates on the debt as a risk premium, raising debt costs even more, in a spiral that leads to a debt crisis and a sharp and uncontrollable surge in inflation.

**Jenny Grimberg: The prospect of US debt issues blowing up seems to be often feared but never realized. Shouldn't concerns around a US debt crisis be put to bed already?**

**John Cochrane:** All financial crises happen just about when everyone has convinced themselves that they can't possibly happen. In the early 2000s, a few people were out on street corners with signs saying, "here comes the mortgage crisis", to which many said, "house prices are always going to rise". A few voices were also saying, "Greek government bonds don't look sustainable to me", to which people said, "a sovereign debt crisis can't happen in the Euro area". I can't say for sure when or if a US debt crisis will happen, but the danger is there.

**Jenny Grimberg: That said, in the short term, you don't believe that the Fed will need to engineer a recession?**

**John Cochrane:** The Fed is pretty attuned to overdoing it, so though it's possible, I'm less worried. I don't think the Fed "needs" to engineer a recession. Everyone seems to have forgotten the big lesson of 1980s economics: inflation can end painlessly if the government solves the long-run fiscal problem and shifts expectations back down. This inflation came from fiscal policy, and the main danger ahead is unreformed fiscal policy. But if the Fed must act alone, we can get recession with no improvement on inflation—the stagflation of the 1970s.

For now, recessions require financial shocks, and the Fed's current actions aren't nearly stringent enough to cause lending to collapse and a recession to begin. In the early 1980s, the Fed raised interest rates to 20%, 5-10pp above inflation, whereas interest rates are ~2pp below CPI inflation today. None of this is to say that a financial shock that sparks a recession couldn't happen, but it probably wouldn't be the Fed's doing.

**Jenny Grimberg: So, is there too much focus on recession?**

**John Cochrane:** Yes. Recessions are painful for people who lose their jobs and their businesses. But from the point of view of the overall economy, we should pay much more attention to long-run growth. Until 2000, the US economy was growing at an average rate of 4% a year; now it's growing at an average rate of 2%. That adds up to 40% of lost GDP, much bigger than any recession. Long run growth is all about supply. This bout of inflation settled a long running debate: low growth was not the result of demand-side secular stagnation, fixable only with massive stimulus, but of supply: the economy's capacity to produce goods and services turned out to be lower than expected, due to, among other things, burdensome regulations and disincentives to work. Unleashing supply is essential to reinvigorating long-run growth, which is most important on its own, but also crucial in the fight against inflation.

# Short lags mean less drag in 2023

## Joseph Briggs argues that monetary policy affects growth with a short lag, implying less of a drag from policy tightening in 2023

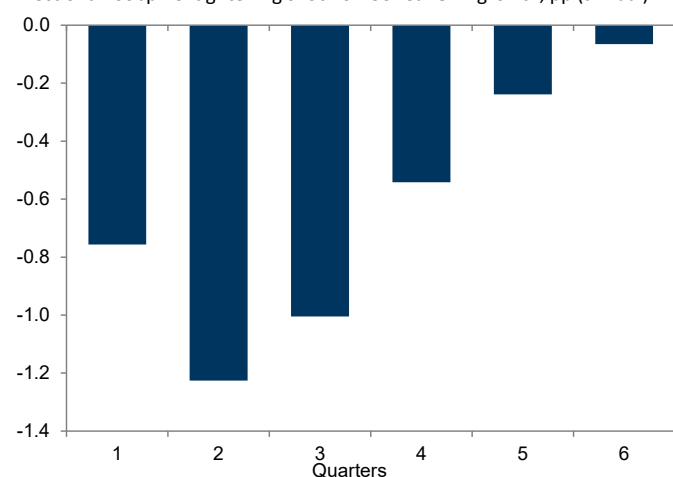
Most forecasters expect a recession in the US this year, largely driven by the view that the aggressive rate hikes the Fed delivered in 2022 will drag significantly on growth in 2023. Such a view is seemingly consistent with Milton Friedman's famous [observation](#) that monetary policy affects the economy with "long and variable lags". However, we find that the lag between policy tightening and the peak drag on GDP *growth* is relatively short, which suggests that the US economy has already bore the brunt of this drag, and is a key reason why we believe the US is likely to avoid a recession this year.

### Front-loaded drags on growth

Our view that the lag between policy tightening and the resulting drag on GDP growth is relatively short centers around our finding that monetary policy affects the economy via broader financial conditions, as reflected by our financial conditions index (FCI)<sup>1</sup>. Specifically, we estimate that an unexpected 100bp of Fed rate hikes is associated with 100bp of FCI tightening, which leads to a peak GDP hit of just under 1pp. And we find that the peak drag on GDP *growth* from this FCI tightening occurs after just two quarters on average, consistent with widely-cited models from the Federal Reserve and academic research that all imply a peak drag on GDP growth after 1-3 quarters<sup>2</sup>. Given that the vast majority of FCI tightening that we, other forecasters, and the market expect for this cycle occurred in 1H22, this analysis suggests that the drag on US GDP growth from tighter financial conditions is peaking now and will fade over the course of 2023.

### The lags from financial conditions to growth are short and the peak effect occurs after two quarters

Effect of a 100bp FCI tightening shock on US real GDP growth, pp (annual)



Source: Goldman Sachs GIR.

### Countering the "long and variable" view

Why do other forecasters assume longer lags between monetary policy tightening and growth than we do? One, we

believe that a tightening in financial conditions begins to affect the economy when financial markets react to *expected* policy changes rather than when rate hikes are actually delivered. Market pricing of the Fed funds rate increased and financial conditions tightened well before rate hikes were delivered in 2022, which suggests that the drag on growth from tighter policy likely started earlier than the Fed funds rate would suggest on its own.

### Peak financial tightening occurred in mid-2022

GS US Financial Conditions Index



Source: Goldman Sachs GIR.

Two, many economic commentators and forecasters confuse lags from monetary policy to GDP *growth* with lags to GDP *levels*. In fact, Milton Friedman's assessment that monetary policy acts with "long and variable lags" clearly referred to the time until the peak impact on the *level* of GDP. Correctly interpreted, Friedman's 12-16 month estimate of the time until changes in policy have their peak impact on the *level* of GDP is consistent with our estimate of a peak drag on the GDP *level* after six quarters, but on GDP *growth* after two quarters. The commonly held view that monetary policy changes have a very lagged impact on economic growth therefore seems to largely reflect a misinterpretation of Friedman's original comments.

### A global phenomenon

These findings are not unique to the US. Conducting a similar set of analyses for other developed economies, we find that both our FCI framework and a range of external estimates imply that the peak drag on GDP growth occurs 2-3 quarters after financial conditions tighten—sooner than is commonly appreciated—although the cumulative effects on GDP levels and inflation again take longer. These findings similarly support our broader view that no major economy will enter a monetary policy-driven recession, and that global growth will run above consensus, in 2023.

### Joseph Briggs, Senior Global Economist

Email: [joseph.briggs@gs.com](mailto:joseph.briggs@gs.com)  
Tel: 212-902-2163

Goldman Sachs & Co. LLC

<sup>1</sup> Our FCI is a weighted average of the Fed funds rate, 10y Treasury yields, the exchange rate, equity valuations, and credit spreads, with weights corresponding to the estimated direct impact of each variable on GDP.

<sup>2</sup> [Romer Romer \(2004\)](#) policy shocks imply that the peak impact on GDP growth occurs after two quarters, and [Nakamura-Steinsson \(2018\)](#) shocks imply that the peak impact on economic growth happens after one quarter, although both find the peak impact on the output gap occurs later.



# US recession rhetoric

## Around a soft landing...

**"I do continue to believe that there's a path to a soft, or soft-ish, landing... And I think the path is pretty clear... We see inflation and, you know, the goods inflation get better, housing services inflation gets better, and the labor market softens but doesn't go into recession."**

**– Jay Powell, Federal Reserve Chair**  
(*Brookings Institution interview, December 2022*)

**"The probability of a soft landing has increased compared to where it was in the fall of 2022, where it was looking more questionable... And the reason I think that the prospects for a soft landing have increased is that the labor market has not weakened the way many had predicted... and growth levels rebounded from weakness."**

**– James Bullard, President, Federal Reserve Bank of St. Louis**  
(*CFA Society speech, January 2023*)

**"We might see, actually, the job market loosen up dramatically... but that GDP grows much faster than most people think and we have a chance, if the Fed pivots, to really avoid a recession and have a good year for profits."**

**– Jeremy Siegel, Professor, Wharton**  
(*CNBC interview, December 2022*)

**"The deeper I look into the bowels of last week's job market data, the more I think we can skirt a recession..."**

**– Mark Zandi, Chief Economist, Moody's**  
(*Twitter, January 2023*)

**"My own prediction is indeed for a softish landing: inflation does seem to be coming down, and while we might not completely avoid a recession, if we have one it will probably be mild."**

**– Paul Krugman, Nobel Prize winning economist**  
(*New York Times column, January 2023*)

**"All the signs are pointing to a higher, not a lower, probability of a soft landing... It may still not be more than 50-50. But 50-50 is looking better than it was a few months ago."**

**– Alan Blinder, former Federal Reserve Vice Chair**  
(*Fortune interview, January 2023*)



## ...versus a hard landing

**"One has to be careful of false dawns... I would stick with my view that a recession this year is more likely than not."**

**– Larry Summers, former Secretary, US Treasury**  
(*Bloomberg interview, January 2023*)

**"A recession is pretty likely just because of what the Fed has to do."**  
**– Bill Dudley, former President, NY Fed**  
(*Bloomberg interview, January 2023*)

**"A recession does appear to be the most likely outcome at this time. While the last two monthly inflation reports did show a deceleration in the rate of price increases, it does not change the fact that prices are still increasing... Wage increases, and by extension employment, still need to soften further for a pullback in inflation to be anything more than transitory."**

**– Alan Greenspan, former Federal Reserve Chair**  
(*Advisors Capital note, December 2022*)

**"I don't want a recession. I hope we luck out with a soft landing but I just think a soft landing is a hard thing to achieve..."**

**It's easy to avoid a recession, its hard to avoid a recession while bringing inflation down."**  
**– Jason Furman, former Director, National Economic Council of the US**

(*CNBC interview, January 2023*)

**"I think either it's going to be a borderline or very mild recession, or it could be a deeper one... There has been a little bit of good news recently, but the markets maybe are overplaying it, wages have a long ways to go. Wages have not kept up with inflation."**

**– Kenneth Rogoff, Professor, Harvard University**  
(*CNBC interview, January 2023*)

**"[We] are predicting the recession to start mid-year and it's because we think the Fed is continuing to push on the QT accelerator and continuing to drive down inflation as well as labor costs... The more quantitative tightening that we see, the more we see the risk of a more prolonged and deeper recession."**

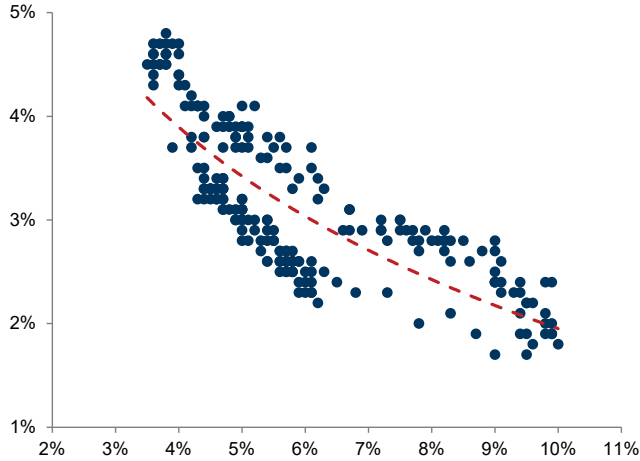
**– Anne Walsh, CIO, Guggenheim Partners**  
(*CNBC interview, January 2023*)

Source: Various news sources, Goldman Sachs GIR.

# The case for a hard landing...

Historically, a substantial decline in job openings—a key requirement to tame the current bout of inflation—has never occurred without a sharp rise in unemployment...

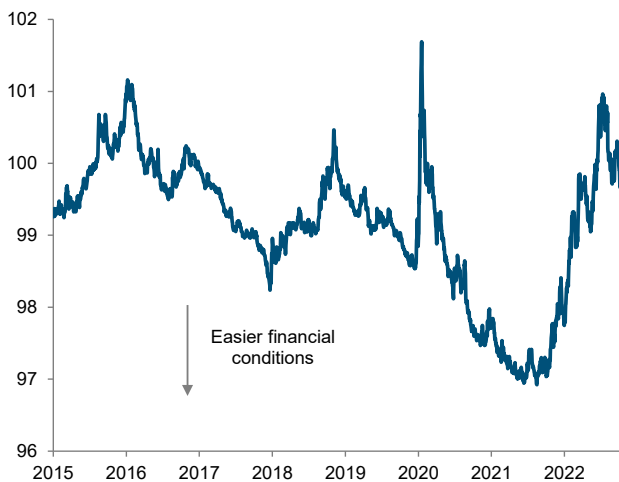
Unemployment (x-axis), job openings (y-axis), rate, 2000-19



Source: Department of Labor, Goldman Sachs GIR.

Financial conditions tightened substantially over the course of 2022...

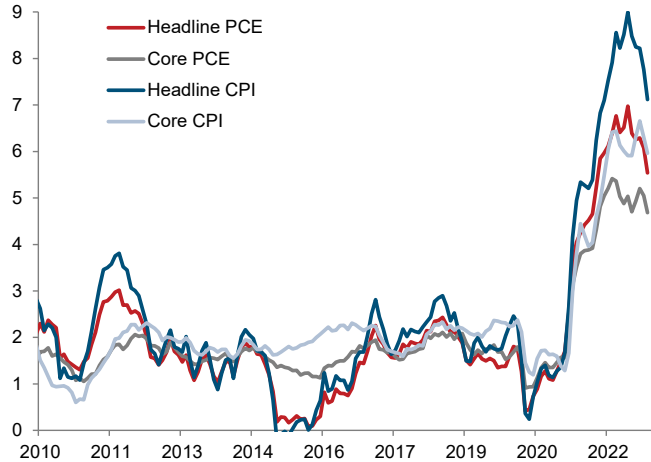
US Financial Conditions Index (FCI)



Source: Goldman Sachs GIR.

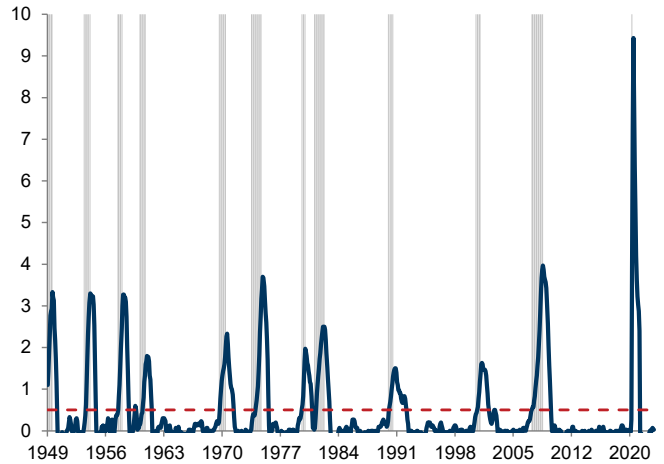
Inflation has declined, but remains well above target...

Core and headline PCE and CPI inflation, % change, year ago



Source: Department of Commerce, Department of Labor, Goldman Sachs GIR.

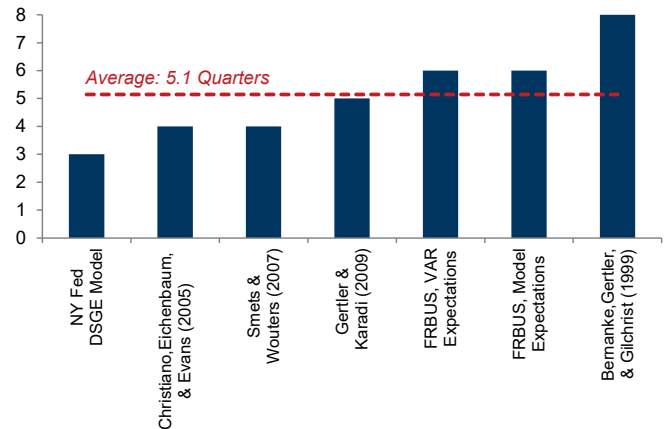
...and since 1949, every time the three-month moving average of the unemployment rate has risen by 0.5pp+ relative to its low during the previous 12m, a recession has ensued (Sahm Rule) 3mma – lowest 3mma unemployment rate over past 12m, pp



Source: FRED, NBER (shaded areas indicate US recessions), GS GIR.

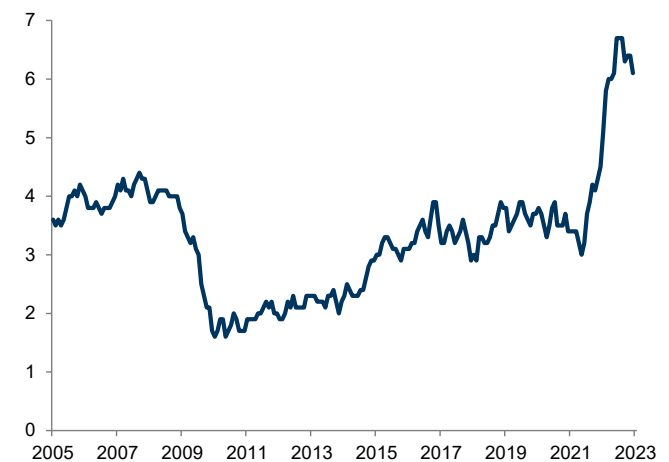
...and macro models suggest that monetary policy, which affects the economy through financial conditions, affects the level of GDP with a relatively long lag

Lag of contractionary monetary policy shock to peak drag on GDP level, quarters



Source: Goldman Sachs GIR.

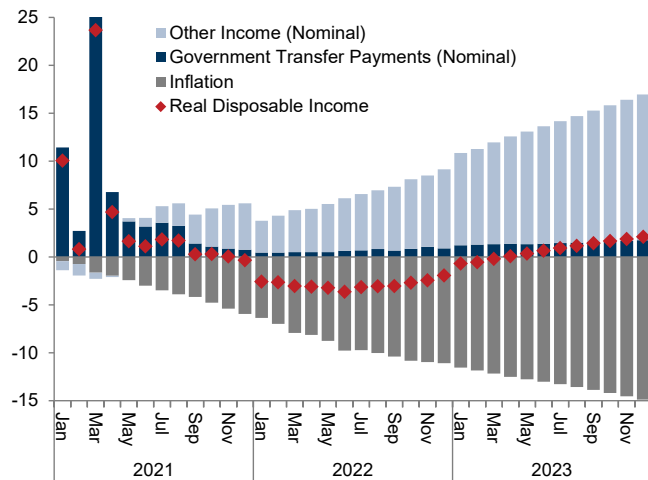
...and while wage growth has moderated, it remains high Atlanta Fed Wage Growth Tracker, 3mma (hourly data)



Source: Federal Reserve Bank of Atlanta, Goldman Sachs GIR.

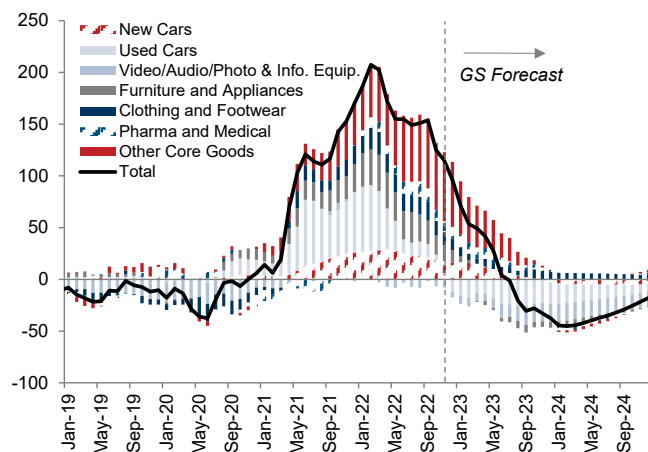
# ...and a soft landing

We expect solid growth in real disposable income this year  
% change vs. Dec 2020



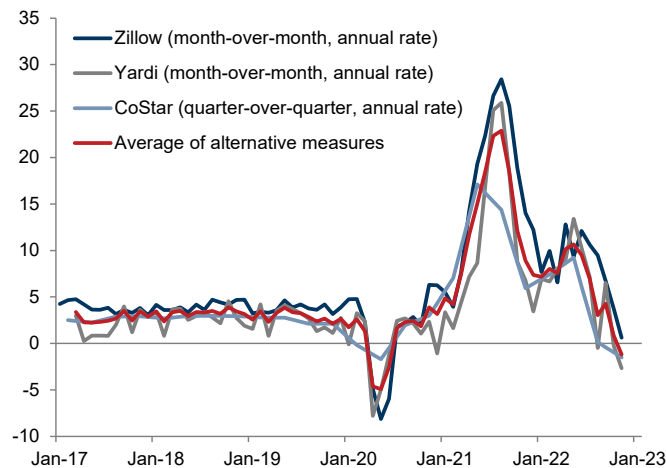
Source: Goldman Sachs GIR.

We expect core goods inflation to turn negative this year  
Contributions to year-on-year core PCE inflation from core goods categories, bp



Source: Department of Commerce, Goldman Sachs GIR.

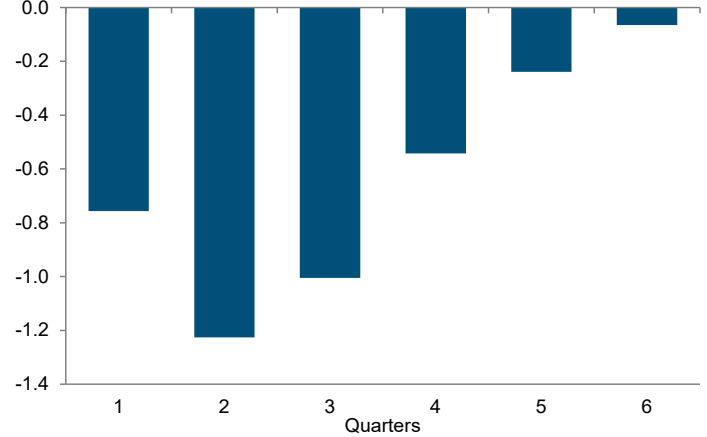
The best alternative measures of new lease rent growth have slowed, and show signs of further slowing ahead  
Sequential pace of alternative rent measures, % change, SA



Source: Department of Commerce, Census Bureau, CoStar, Zillow, REIS, GS GIR.

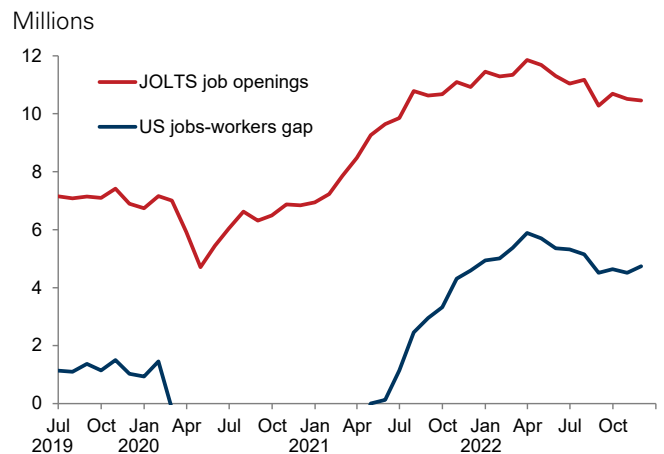
We find that the lags from financial conditions on GDP growth are relatively short, suggesting that the US economy has already bore the brunt of the 2022 tightening in financial conditions

Effects of a 100bp FCI tightening shock on US real GDP growth, pp, annual rate



Source: Goldman Sachs GIR.

The jobs-workers gap has so far shrunk mainly through a decline in job openings without a sharp rise in the unemployment rate, and we expect this pattern to continue



Source: Department of Labor, Goldman Sachs GIR.

Accordingly, we expect core PCE inflation to decline to 2.9% by YE23  
GS US core PCE inflation forecasts

Core PCE	Weight	Nov 2022	GS Bottom-up Core PCE Forecast		GS Bottom-up Core PCE Forecast	
		YoY	Dec 2023	Dec 2024	Dec 2023	Dec 2024
			YoY	Contribution to Change	YoY	Contribution to Change
<b>Core PCE</b>	<b>100.0</b>	<b>4.7</b>	<b>2.9</b>	<b>-1.8</b>	<b>2.4</b>	<b>-2.3</b>
<b>Core Goods</b>	<b>26.8</b>	<b>3.8</b>	<b>-1.6</b>	<b>-1.3</b>	<b>-0.7</b>	<b>-1.1</b>
New Vehicles	2.3	7.2	-1.3	-0.2	-2.0	-0.2
Used Vehicles	1.5	-3.2	-15.4	-0.1	-5.8	0.0
Household Appliances	0.5	-0.3	-4.7	0.0	-1.8	0.0
Video, Audio, Computers	2.4	-3.9	-9.6	-0.1	-7.2	-0.1
Recreational Vehicles	0.7	-0.2	2.1	0.0	1.1	0.0
Jewelry, Watches	0.7	5.0	0.0	0.0	1.1	0.0
Clothing & Footwear	3.2	3.6	2.4	0.0	1.5	-0.1
Pharma & Medical	4.1	2.5	0.5	-0.1	0.5	-0.1
Pets Products	0.6	13.0	2.3	-0.1	2.3	0.0
Expenditures Abroad	0.1	-2.8	-1.8	0.0	-1.3	0.0
Residual Core Goods	10.7	6.4	-0.5	-0.6	0.1	-0.6
<b>Core Services</b>	<b>73.2</b>	<b>5.0</b>	<b>4.4</b>	<b>-0.5</b>	<b>3.4</b>	<b>-1.2</b>
Housing	16.9	7.3	5.3	-0.4	3.6	-0.6
Ground Transportation	0.4	2.5	2.3	0.0	1.8	0.0
Air Transportation	1.0	17.4	1.2	-0.2	3.3	-0.1
Food Services & Accommodation	8.5	7.2	5.2	-0.2	3.3	-0.3
Financial Services & Insurance	8.5	0.2	3.3	0.3	3.2	0.3
Medical Services	17.7	2.7	4.0	0.2	3.4	0.1
Foreign Travel	1.5	10.4	4.3	-0.1	3.0	-0.1
Residual Core Services	18.7	5.7	4.5	-0.2	3.5	-0.4

Source: Goldman Sachs GIR.

Special thanks to US economics team for charts.

# Market implications of (no) recession

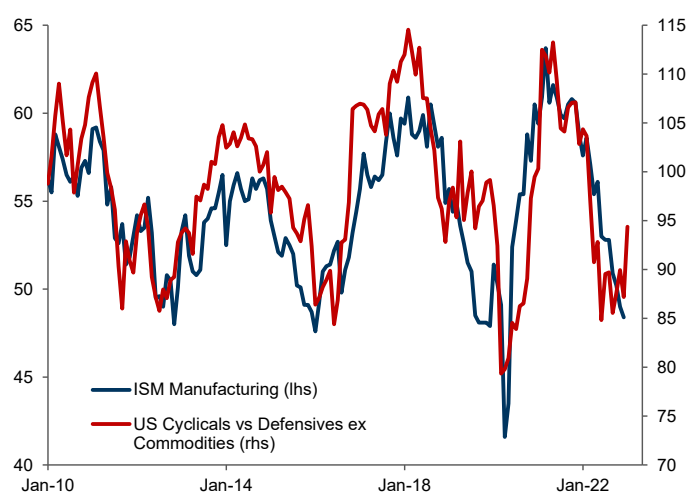
Dominic Wilson and Vickie Chang explore what “recession” and “no recession” scenarios would mean for risky assets

The last few months have seen significant shifts in some of the key areas of market worry. China’s rapid reopening has boosted its growth outlook (see pg. 19), Europe’s mild winter has sharply reduced its recession risk, and a string of better inflation news has increased hopes that the Fed may be able to engineer a “soft landing” in the US. Indeed, while we continue to believe that recession risk remains higher than normal, we now forecast that all major economies will avoid recession this year (see pgs. 4-5). That said, US recession risk remains a prominent worry, and may now be the most significant risk to the global cyclical picture. Here, we examine the extent to which market pricing reflects that risk, and the difference in market outcomes between three “recession” and “no recession” scenarios.

## Recession not priced as base case, even in rates

Even with ongoing focus on recession and the central role it plays in many market forecasts, we find that markets are not currently priced for a very high risk of recession. The relative performance of US Cyclical versus Defensive equities is consistent with an ISM slightly above 50, soft but clearly non-recessionary and somewhat higher than the index’s current level. Equity implied volatility appears to have largely removed the “recession risk premium” that prevailed for much of the last few months, and credit spreads are much tighter than in past recessions. Rate markets, on the surface, seem to be expressing more concern about recessionary risks. US bond yields are well off their October peaks and have fallen meaningfully in the first weeks of 2023. The yield curve is deeply inverted, and the market is pricing over 200bp of rate cuts from the expected peak in mid-2023.

The relative performance of US Cyclical versus Defensive equities is consistent with a soft but non-recessionary ISM Index



Source: Bloomberg, Goldman Sachs GIR.

While an inverted yield curve has historically been associated with recession, we think that lesson is overstated in the current case, in which inflation is slowing from well-above target and the market views policy as significantly restrictive versus the long run level, a situation that we have not seen for several decades. A weighted average of our own non-recessionary baseline view and an elevated probability of recession would be consistent with significant inversion in the Fed funds strip and the broader rates curve. Recent relaxation about inflation risks and the downshift in Fed rate hikes has led the market to sharply reduce the odds on the deep upside tail to the policy rate, consistent with deeper inversion in the Fed funds strip in the presence of a higher-than-usual probability of recession. A friendlier inflation environment may also have led the market to raise its odds of more significant rate cuts should a recession occur, consistent with a deeper inversion in the broader rates curve. So, both shifts deepen the inversion that you would expect to see, even without a recessionary base case. While we think this illustrates that recession is not necessarily the rate market’s base case, the recession risk needed to generate today’s inversion does look higher than we generally see in the equity market.

## Defining “recession” and “no recession” scenarios<sup>1</sup>

Given that US recession risk is not fully priced, how would markets behave if we have one, and if we don’t? To answer these questions, we map out three scenarios.

The first scenario (**US recession**) is a US recession, which assumes a 200bp downgrade to 1-year ahead US GDP growth from current expectations and roughly corresponds to a ~5% rise in the unemployment rate over the next 12 months. This scenario also assumes that US recession has some spillover effects for Europe and China growth.

The second scenario (**US recession, non-US resilience**) assumes the same US recession, but also assumes that a portion of China’s reopening and our recent upgrade to the Euro area outlook due to the region’s better energy situation still needs to be priced. These impacts somewhat shield the non-US economies from the US recession.

The third scenario (**No recession**) envisages instead that a US recession is avoided. This assumes some modest upgrade to US growth expectations, alongside the remaining upgrades to China and Europe from the more positive recent developments there. Essentially, global growth expectations rise to some degree on all three major engines. This scenario is close to our baseline economic forecast.

## Significant downside in a recession, but a real upside case

The main implications of these scenarios across key assets are:

1. In Scenario 1 (**US recession**), US equities would be expected to fall significantly, with cyclical equities underperforming, and credit spreads widening sharply. Non-US equity markets would decline too, but to a lesser degree. US yields would decline along the curve, with the 10-year Treasury yield falling by nearly 60bp and smaller predicted declines in bund yields. Front-end rates would likely fall by more, implying yield curve

<sup>1</sup> These scenarios are illustrative (they do not incorporate asset-specific information that our simple method does not capture) and selective (inflation resurgence or other risks like a hawkish BoJ or Russia-Ukraine escalation are important but not considered).



steepening. In FX, cyclical and EM currencies would mostly weaken against the USD, but EUR, CHF, and, most significantly, JPY would be expected to strengthen against the USD. Commodities would generally weaken. A “hawkish recession”—in which inflation proved stickier—would be expected to lead to larger declines in risky assets, more limited declines in yields, and broader USD strength.

- In Scenario 2 (**US recession, non-US resilience**), better growth in China and Europe mitigates the declines in equities and bond yields. Those expected declines would remain large in the US, so the outperformance of non-US equities in USD terms (and of bund yields over USTs) would be more pronounced. Commodity declines would also be mitigated, and perhaps offset altogether. The USD TWI would be expected to weaken. JPY strength would remain likely, but European currencies would be bigger beneficiaries of the better local outlook, while cyclical and EM currencies would also be more likely to rise against the USD.
- In Scenario 3 (**No recession**), the avoidance of a US recession and an improving global growth picture would push global equities higher. US 10y Treasury yields would be expected to rise by around 40bp, and bund yields potentially by more. Shorter-dated rates would also potentially climb higher as the market backs away from the deep rate cuts it has begun to price. Non-US equities would still be expected to outperform, both in local and USD terms, but by less than in Scenario 2. Commodities would be expected to rise significantly, particularly under the more generous assumptions about China pricing. The USD would broadly weaken but would strengthen against JPY and weaken less versus EUR, with cyclical currencies performing strongly. A “Goldilocks” version of this outcome in which rapid inflation declines lead to more Fed relief despite improving growth would mitigate upward yield moves, provide a further tailwind to global equities, and reinforce USD weakness.

### An upside case, but capped by rates and commodities

US recession remains the key near-term risk to our more positive global growth outlook. But given the significant moves in equities, bonds, and currencies associated with a recession, positioning for a decline in US equities and credit in particular or in bond yields or bond proxies would hedge against this risk. Bonds should also function as a more effective portfolio hedge for risky assets than they did last year.

Even with the market not reflecting very high risks of a US recession, outright avoidance of recession would still be a relief for markets, in our view. Our central forecast is most closely reflected by the “**No Recession**” scenario (Scenario 3), which looks consistent with modest upside to US equities, larger upside to non-US equities, and potentially significant upside to commodity prices. But it also envisages a rise in bond yields

from current levels as the market prices out the deep Fed easing it now expects from mid-2023 to early 2025. In fact, there are good reasons to think that commodity prices and bond yields could move higher than our simple estimates here, which is what our official forecasts reflect. The commodity supply backdrop is unusually tight, and avoidance of recession could push the market’s perceptions of the long-term neutral rate higher, both forces that we do not capture here.

This potential repricing of the policy path—and the rise in commodity prices—may ultimately pose challenges for risky assets even if the growth outlook is better than expected. This is one reason why we have argued that US equities still offer quite poor asymmetry (real downside in a recession and potentially capped upside in a non-recessionary scenario; see pgs. 16-17) unless we see *both* resilient growth and more inflation and bond relief. Accordingly, continued better-than-expected progress on the inflation front may be a prerequisite for a more convincing upside case for US stocks. By contrast, non-US equities generally outperform both in the upside and downside scenarios. This is partly by construction, since we are focusing on the prospect of US recession amid some growth upgrades outside the US. But our analysis suggests that the likely spillovers from a potential US recession to other major economies would have to be quite large to undo that result.

### Main implications across key assets

Asset	US recession		US recession, non-US resilience		No recession		
	25-Jan	Change	Level	Change	Level	Change	Level
<b>Equities</b>							
S&P 500	4016	-17%	3316	-17%	3335	3%	4149
Russell 2000	1890	-22%	1474	-22%	1476	4%	1958
Nasdaq 100	11815	-18%	9712	-17%	9760	3%	12214
Eurostoxx 50	4148	-14%	3577	-8%	3830	8%	4487
Nikkei 225	27395	-14%	23579	-13%	23807	3%	28344
HSCEI Index	7484	-7%	6977	0%	7480	7%	8043
MSCI EM	1041	-12%	912	-9%	950	5%	1,091
<b>FX</b>							
EUR/USD	1.09	1.1%	1.10	4.2%	1.14	1.6%	1.11
USD/JPY	129.5	4.1%	124.5	4.2%	124.4	-2.0%	132.1
GBP/USD	1.24	-1.8%	1.22	-0.6%	1.23	0.6%	1.25
USD/CAD	1.34	-2.7%	1.38	-1.0%	1.35	1.4%	1.32
AUD/USD	0.71	-3.0%	0.69	0.0%	0.71	2.2%	0.73
(AUD/USD)*	--	--	--	2.9%	0.73	5.1%	0.75
USD/CNH	6.78	-0.6%	6.82	0.6%	6.74	1.1%	6.71
<b>Credit</b>							
CDX IG	71	52bp	124	52bp	123	-5bp	66
CDX HY	434	349bp	783	347bp	781	-33bp	401
<b>Commod</b>							
Copper	9305	-7%	8697	0%	9275	7%	9988
(Copper)*	--	--	--	8%	10052	16%	10825
WTI	80.2	-16%	67.2	-13%	69.7	6%	84.6
(WTI)*	--	--	--	-9%	73.0	10%	88.5
<b>Rates</b>							
UST 2y	4.13	-92bp	3.21	-80bp	3.33	67bp	4.80
UST 5y	3.55	-103bp	2.52	-86bp	2.69	73bp	4.27
UST 10y	3.44	-56bp	2.88	-46bp	2.98	39bp	3.83
DEM 10y	2.16	-42bp	1.73	-9bp	2.07	48bp	2.63

\*Alternative estimates for commodity/commodity-exposed assets that assume that less of the China reopening impact has been priced.

Note: All FX changes are in local currency vs. USD terms—a positive number implies currency appreciation vs. USD.

Source: Bloomberg, Goldman Sachs, Goldman Sachs GIR.

### Dominic Wilson, Senior Markets Advisor

Email: [dominic.wilson@gs.com](mailto:dominic.wilson@gs.com)  
Tel: 212-902-5924

Goldman Sachs & Co. LLC

### Vickie Chang, Global Markets Strategist

Email: [vickie.chang@gs.com](mailto:vickie.chang@gs.com)  
Tel: 212-902-6915

Goldman Sachs & Co. LLC

# Interview with David M. Rubenstein

David M. Rubenstein is Co-founder and Co-chairman of The Carlyle Group and author of *How to Invest: Masters on the Craft*. Below, he shares his evolving views on the macro backdrop, as well as his outlook for private equity activity and marks, which he believes will most likely rise this year as recession fears recede and the pace of rate hikes slows.

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



**Allison Nathan: How concerned are you about the prospect of a US recession this year?**

**David Rubenstein:** I'm more optimistic that the US can avoid a hard landing now than I have been in recent months. As John Maynard Keynes famously said, "when the facts change, I change my mind." Along

with conventional wisdom, I had believed that the Fed, in its fight against inflation, would raise interest rates to a level that was likely to produce a mild recession. But the data is now showing that inflation is declining. And while it remains well above where the Fed ultimately wants it to be, it seems likely that enough progress on inflation has been made to at least slow the pace of rate hikes; the Fed wants to avoid plunging the economy into recession and would certainly be blamed for any recession that occurs if it continues to sharply increase rates even as inflation is already declining. So, I expect the Fed to increase the Fed funds rate by 25bp at the February meeting, and perhaps another 25bp after that, and then pause.

The Fed is also likely to change its inflation target, either explicitly or implicitly. A target of 3% inflation is much more realistic than 2% in the current environment. If the Fed signals that it would be willing to tolerate 3% inflation, and that inflation won't need to decline all the way down to 2% before it is willing to consider pausing or lowering interest rates, the US will very likely be able to avoid recession, barring an unforeseen shock beyond anyone's control.

**Allison Nathan: You've just returned from Davos. Did you get the sense that sentiment more broadly is improving?**

**David Rubenstein:** As usual, opinions about the global outlook varied at Davos. Some people adhered to a more optimistic school of thought that I am now leaning towards, namely that the US is not destined for recession, China's economy is likely to roar back from very weak growth last year, and the war in Ukraine won't go on for a long time, all aided by global economic and military cooperation. Another school of thought was more pessimistic, believing that a global recession is likely to occur, globalization's finest days have passed, and the war in Ukraine is set to drag on for some time. So, uncertainty remains high, and people remain cautious. But people generally weren't wringing their hands and walking around worrying that the world is falling apart.

**Allison Nathan: Are you concerned that the soft landing you increasingly expect could be accompanied by a resurgence in inflation?**

**David Rubenstein:** I don't see so much a resurgence in inflation as a period of higher inflation than what we've become

accustomed to in recent decades. For much of the 20th century, US inflation actually hovered around 3%, which was considered normal. That changed in the latter part of the century when the Carter Administration brought in Fed Chair Paul Volcker to address the high inflation that began in President Ford's administration, which Ford's Whip Inflation Now (WIN) program failed to whip. Volcker obviously did so in dramatic fashion, for example by increasing interest rates 200bp over a single weekend. The sharp increase in rates under Volcker pushed the economy into a deep recession and inflation eventually came down, also aided by China emerging onto the world scene and supplying low-cost goods to the rest of the world. So, 2% inflation became the new norm. But I believe that inflation is now set to revert to its old norm of around 3%, at least for some time, because getting down to 2% would likely require a large increase in unemployment that the Fed would prefer to avoid. While the Fed's principal job is to manage inflation and protect the currency, it is not insensitive to the effects its actions have on employment.

**Allison Nathan: You actually served in the Carter Administration when Paul Volcker was appointed Fed Chair. How does the current environment compare to that period, and what does that likely mean for the Fed?**

**David Rubenstein:** The situation was quite different then. The US economy was much more insular in the 1960s and 1970s. The workforce was 25% unionized compared to about 10% today. Imports from the rest of the world, let alone China—one of our largest trading partners today—were relatively small. The concept of globalization and globally integrated supply chains had not really taken off. And access to data and the advent of digitized trading have been monumental—today, investors can leverage tons of data to make decisions quickly and, with the push of a button, can move mountains.

None of this is to say that the Fed isn't just as ready and willing to act aggressively to fight inflation as it was during the Volcker era—it's just that many more global influences and considerations exist. But the Fed has changed in at least one important way. When the Fed adjusted interest rates in the 1960s and 1970s, there was no communication around it. Investors had to figure it out by seeing what was going on in the market. Today, the Fed explains what it's doing before and after it does it. So, much more transparency exists, and investors can anticipate and rapidly respond to that transparency in ways they couldn't before.

**Allison Nathan: You've lived through many market cycles over your career. How does the current opportunity set for investors compare to that of past cycles?**

**David Rubenstein:** I recently wrote a book about investing, in which I spoke with many of the greatest investors in the US about their habits and secrets. My main takeaway from those

interviews was that the greatest investors generally go against the conventional wisdom of getting out of markets when they're choppy and getting back into them when they're robust and resilient. The most successful investors are the ones that invest in difficult conditions when competition is lower, and prices are better. So, given the uncertain macro backdrop today, now seems like a pretty good time to invest.

“...the greatest investors generally go against the conventional wisdom of getting out of markets when they're choppy and getting back into them when they're robust and resilient... So, given the uncertain macro backdrop today, now seems like a pretty good time to invest.”

**Allison Nathan: What areas of the market look particularly undervalued to you right now?**

**David Rubenstein:** Two areas that were beaten down substantially in 2022 have the potential to come back in 2023: technology stocks and real estate. Tesla, Apple, Amazon, Microsoft, Meta, etc. lost a significant amount of their market value last year, but they remain extraordinary companies which aren't going away. I suspect investors will start to get back into those stocks this year as the Fed takes its foot off the brake, although how antitrust policy and regulation evolve will be important to watch. And real estate, which was also hard hit by the sharp increase in interest rates last year, is also set to perform better in 2023.

**Allison Nathan: Will the backdrop for private markets remain difficult this year after a tough period for dealmaking in 2H22?**

**David Rubenstein:** The narrative around the difficult environment for private equity (PE) over the last six months seems to center around a lack of financing for buyouts amid the substantial re-rating of rates. But the problem was not so much that debt was unavailable; while it was certainly harder to secure than in the prior low-rate environment, many more sources of debt exist today as private equity firms and hedge funds have developed private credit businesses, so commercial banks are no longer the only game in town for financing.

Instead, the main problem was that markets tend to freeze when recession risk rises. When recession could be on the horizon, the gap between the price sellers—who don't want to be seen as giving something away—are willing to sell at and the price buyers—who are afraid of overpaying on the eve of a recession—are willing to buy at widens. So, as recession risk recedes and the pace of rate hikes slows, I suspect deal activity will improve. And two straight years of very modest deal activity is very unusual, so my sense is that activity will probably pick up this year.

**Allison Nathan: That said, the large gap between private and public valuations has received significant attention. Could the de-rating of private equity be the next shoe to drop for markets?**

**David Rubenstein:** It's true that the valuation gap between public and private markets widened substantially last year; public markets declined 20-30% while private markets were marked down 5-10% in some cases, and not at all in others. Some people believe that this divergence is the result of PE firms not being realistic or tough enough on themselves, and that these marks should decline. But as someone who has participated in many investment committee meetings on valuation issues like this, my view is that many PE firms have been more resilient than many people expected simply because these firms have substantial skin in the game and so tend to be laser-focused on the bottom line and managed very intensely and, in many cases, better than public companies. Based on what I know, PE marks are more likely to rise than decline in 2023.

“Based on what I know, PE marks are more likely to rise than decline in 2023.”

**Allison Nathan: More broadly, how do you expect the PE industry will evolve? Will it continue to grow at similar rates to recent decades, or is the “golden age” of private equity behind us given today's higher cost of capital?**

**David Rubenstein:** Ever since I helped start Carlyle in 1987, people have warned that too much money is chasing too few opportunities in private equity, the prices PE firms are paying are too high, and returns are set to disappoint projections. But these warnings have proved wrong almost every year. PE returns over the last 30 years have outperformed public market indices by 200-500bp almost every year on average. I believe that outperformance will continue, in large part because the economic incentives in the industry are so compelling; PE firms typically get 20% of the profits on their investors' money if they perform well—which means above a preferred return in some cases—and are also investing some of their own money, which they obviously guard carefully. So, PE firms are highly motivated to do well. I also don't worry that too much money is chasing too few deals in part because two-thirds of all PE deals are done in Western Europe and the US today; vast opportunities lie in China, India, Latin America, Africa, and the Middle East—markets that PE has up to now only very modestly penetrated.

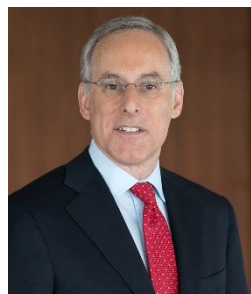
**Allison Nathan: What risks are you most focused on?**

**David Rubenstein:** How the macro environment evolves remains the biggest risk factor, but I also worry about the dysfunction of the US government, which is a type of geopolitical risk. That risk is in full focus given the impending debt limit fight, which I don't expect to end in default but do think will be a Perils of Pauline up until the last moment. There is a rule that applies to Washington called Parkinson's Law, which basically says that the amount of time it will take to complete a task exactly equals the amount of time available to it. The government will no doubt take every last second to resolve the debt limit issue. And I suspect that won't be great for markets.



# Interview with David Kostin

David Kostin is Chief US Equity Strategist at Goldman Sachs. Below, he argues that even assuming the US avoids recession this year, earnings growth will disappoint consensus expectations due to margin contraction, but that the S&P 500 will end the year flat as the equity market looks ahead to a more favorable earnings environment in 2024.



**Allison Nathan: What side of the “soft landing” vs. “hard landing” debate is the US equity market currently on?**

**David Kostin:** The US equity market is currently pricing a soft landing. The performance of Cyclical vs. Defensives stocks has historically tracked the ISM Manufacturing Index.

The relative performance of these stocks currently corresponds with an Index level slightly above 50, in line with its most recent reading of 48.4, indicating an economy that’s slowing, but not in recession. Accordingly, the market has rallied a good amount over the last several weeks, with the S&P 500 currently right around our year-end target of 4000 and valuations just above our year-end target of 17x, which remains somewhat expensive relative to history.

That said, it’s important to note that S&P 500 earnings revisions point to a hard landing. The current 3m trend of S&P 500 EPS revision sentiment—which measures the breadth of consensus estimate revisions—stands at -25%, which has only been surpassed by the 2008 and 2020 recessions. The source of that degradation in the profit outlook is weaker margins, and with consensus forecasts of 2% EPS growth this year vs. our forecast of zero, further negative revisions to earnings are likely. This is crucially important to the outlook because S&P 500 performance in 2022 was all about a reset in valuations on the large re-rating of interest rates—2022 earnings generally came in as expected. But with valuations still entering 2023 at relatively stretched levels, performance this year will likely be all about earnings.

“S&P 500 earnings revisions point to a hard landing... and with consensus forecasts of 2% EPS growth this year vs. our forecast of zero, further negative revisions to earnings are likely.”

**Allison Nathan: Why are you more bearish than consensus on earnings growth?**

**David Kostin:** The relative bearishness largely reflects our lower margin forecasts—we forecast 58bp of margin contraction this year vs. consensus of 39bp. S&P 500 net margins contracted for the first time since the pandemic in 3Q22 and again in 4Q22 due to upward cost pressures, and we expect continued contraction across every sector as some of the drivers of rising net margins in years past likely reverse. A company’s cost structure is made up of several components, including the cost of goods sold (COGS), selling, general, and administrative expenses (SG&A), which often include labor

costs, interest expenses, and taxes, the net of which is the profit margin. S&P 500 ex-Energy net margins rose between 2019 and 1H22 largely due to declining SG&A as a share of sales. So, despite all the talk about labor gaining the upper hand, this was decidedly not the case until very recently. But that is increasingly set to reverse, with SG&A as a share of sales likely to continue to revert towards its long-term average and weigh on margins this year, partly due to still-elevated wage inflation. Companies’ borrowing costs have also risen as the cost of capital has increased, which will eat away at margins. And companies nearshoring or reshoring would increase COGS. Our view is that none of these shifts are sufficiently incorporated into the consensus forecasts.

**Allison Nathan: Shouldn’t the pressures compressing margins ease in 2023 if inflation continues to decline as we expect?**

**David Kostin:** Only to an extent. The deceleration in inflation we expect, along with continued normalization of supply chains, should lead to less margin contraction this year than in 2022—during which margins ex-Energy contracted by 86bp—but it won’t reverse the pressure on margins entirely. Even if the labor market weakens and wage inflation declines as we expect, SG&A isn’t the largest component of companies’ cost structure. As of 2Q22, SG&A accounted for only 13% of company costs, while COGS accounted for around two-thirds, and again, COGS may increase due to factors unrelated to inflation. Interest expenses are also likely to remain high given the higher cost of capital environment, which is a secular, not just a cyclical, trend. And even if inflation continues to decline, we still expect prices to rise, and not every company can pass those increased costs through to consumers.

**Allison Nathan: Why, with your relatively negative view on earnings and your expectation that valuations will move lower from here, do you believe the S&P 500 will end the year flat from current levels?**

**David Kostin:** The stock market is anticipatory; it traditionally looks forward into the following year, on average around July, although it has in the past looked forward as early as March and as late as November. The 2024 outlook looks relatively favorable—our economists expect US and global growth to rise and interest rates to have stabilized as inflation returns to target. We expect this better environment to increase EPS growth by 5% in 2024, from \$224 this year to \$237 next year. All else equal, that should translate into a 5% rise in the S&P 500 by year-end, although that will also depend on valuations, which in turn will depend on the path of interest rates, among other factors.



**Allison Nathan: What would the hard landing scenario that earnings revisions are pointing to likely mean for earnings, valuations, and S&P 500 performance?**

**David Kostin:** In a hard landing scenario, we forecast margins would contract by 125bp and S&P 500 EPS would fall by 11% to \$200. This would be significantly less than the 45% decline in earnings during the Global Financial Crisis, but only slightly smaller than the 14% decline during the pandemic and the 13% median EPS decline of the average post-war recession. We also estimate that valuations would trough at 14x, although the trough in valuations probably wouldn't occur at the same time as the trough in earnings; we've found that equity valuations generally bottom out while EPS estimates are still falling, and the index reflects that. Sometime around the early part of a recession, the index starts to move higher as falling earnings are offset by rising multiples. On net, we would expect a peak-to-trough decline of the S&P 500 index of around 35%—consistent with the magnitude of the average historical bear market—which would see a trough of 3150 given the market peaked just shy of 4800 around this time last year.

**Allison Nathan: Is there an upside scenario that's currently being underappreciated?**

**David Kostin:** Our forecast is the upside scenario. On the multiple side, as I mentioned, valuations are already relatively stretched; they fell from 21x early last year to around 15x in October, but are now at around 18x, so they've retraced a significant portion of the way back towards full valuation. The most likely way to get multiple expansion would be for rates to decline, but it seems unlikely that rates would fall substantially barring a severe downturn that would otherwise be quite negative for performance. Assuming we avoid recession, rate risk remains substantially skewed to the upside on the possibility that the Fed will have to hike more than expected to cool the labor market and rein in inflation. And on the earnings side, it's hard to identify drivers of upside surprises. If firms can raise prices more quickly than expenses, that would be one path to higher-than-expected earnings. However, these price hikes would likely reflect an inflationary environment that would lead to higher interest rates, and therefore lower valuations. All that said, as investors increasingly look forward to better earnings prospects in 2024, that could provide some support to the market.

**Allison Nathan: So, how should investors be positioned right now, and what would you recommend for those concerned about a hard landing?**

**David Kostin:** We recently identified two groups of stocks that should outperform in our baseline soft landing case and a hard landing scenario. We recommend that investors positioning for a soft landing lean into cyclical companies, which would outperform in the event of no recession. Those are mostly companies in the Capital Goods and Diversified Financials space. For investors concerned about a hard landing, we would

recommend profitable companies with resilient margins in defensive industries, mostly Software, Consumer Staples, and Healthcare stocks. Across both portfolios, we recommend stocks of companies with strong balance sheets given the higher rates backdrop. And in both cases, we would caution against paying too much. Again, the market is expensive on both an absolute and relative basis. Equity valuations across several metrics—P/E, P/B, EV/sales, EV/EBITDA, etc.—are in the 83rd percentile vs. history, down from the 98th percentile a year ago but still very expensive. And relative to interest rates, equity valuations are around the 72nd percentile, up significantly from the 50th percentile a year ago on the back of higher real rates and a narrower yield gap.

**Allison Nathan: Given all that, will the shift from TINA—There Is No Alternative to equities—to TARA—There Are Reasonable Alternatives to equities—that began last year continue?**

**David Kostin:** It's likely. Our economists forecast that the Fed funds rate will rise to around 5% this year, which means a 5% return on cash with zero volatility. Credit will likely deliver much higher returns, with somewhat more volatility than cash but less than equities. So, both of those asset classes look attractive relative to equities, which we forecast will deliver returns in the very low single digits after accounting for a small dividend yield. On a risk-adjusted basis, it therefore makes sense to be in other assets. So, we expect households will shift from equities to cash and bonds this year, although the pace of that shift will depend on the economic environment.

**Allison Nathan: What risk to the US equity market this year are you most concerned about?**

**David Kostin:** The market is priced for perfection, so any negative developments on valuations or earnings could send the index lower. Again, the distribution of risks around valuations is skewed to the downside given their elevated levels and our expectation that bond yields will move higher from here. Earnings are the greater vulnerability because valuations have already reset dramatically. While EPS estimates remained stable throughout 2022, the magnitude of S&P 500 earnings revisions over the last few months points to a downside story this year.

All that said, the biggest risk event for equities this year will no doubt be the debt limit. Our economists believe that raising the debt limit this year is likely to rival the 2011 debt limit episode—the most disruptive in recent history—in its disruption to the economy and financial markets. During that episode, Standard and Poor's lowered the US' sovereign credit rating from AAA to AA+, and the S&P 500 fell almost 20% in a two-week period, with the stocks of companies with primarily government-driven revenues falling by 25% in a month. I'm very concerned that the market could go through a similarly horrific period again this year.

# GS US equity outlook and risk in pics

In our soft landing baseline scenario, we expect zero earnings growth and a flat S&P 500 index in 2023

S&P 500 level (lhs); S&P 500 EPS (\$, rhs)



Source: FactSet, Goldman Sachs GIR.

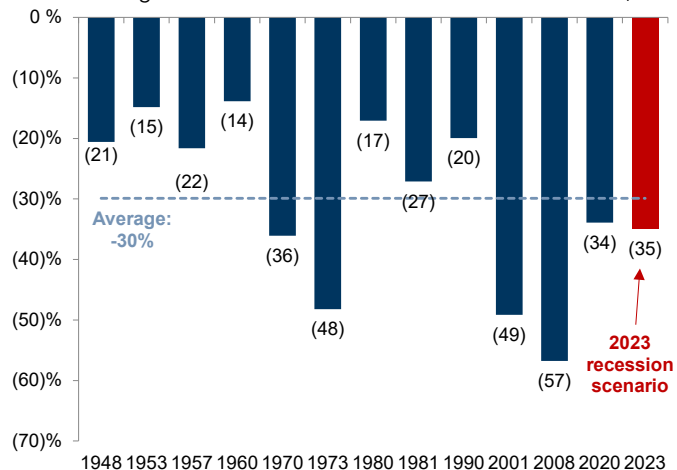
The performance of Cyclicals vs. Defensives stocks, which has historically tracked the ISM Manufacturing Index, appears fairly priced and suggests a soft landing...



Source: Bloomberg, Goldman Sachs GIR.

In a hard landing scenario, we expect a peak-to-trough decline in the S&P 500 Index of around 35%, consistent with the average decline during previous recessions...

Peak-to-trough S&P 500 decline in recessions since WWII, %



Note: Based on monthly data. Source: Goldman Sachs GIR.

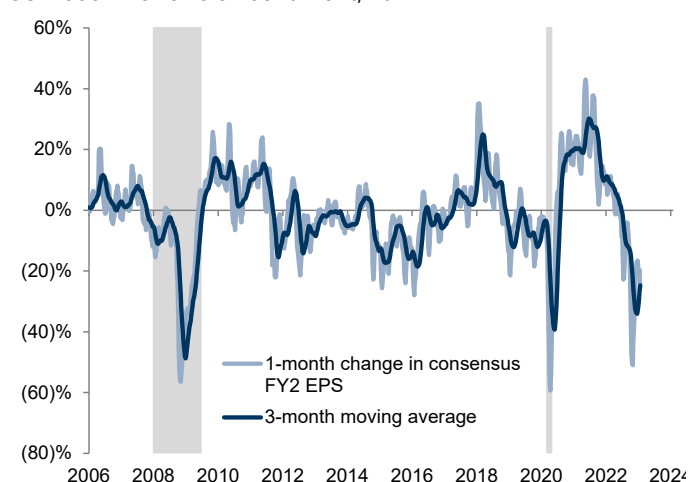
Our S&P 500 EPS estimates are below consensus, primarily due to our lower margin forecasts

GS top-down vs. consensus bottom-up S&P 500 forecasts

	GS top-down		Consensus bottom-up	
	2023E	2024E	2023E	2024E
S&P 500 ex. Financials, Real Estate, Utilities				
Sales growth	4 %	4 %	3 %	5 %
Profit Margin	11.6%	11.8%	11.6%	12.3%
Year/Year growth	(58)bp	19 bp	(39)bp	73 bp
<b>S&amp;P 500 adjusted EPS</b>	<b>\$224</b>	<b>\$237</b>	<b>\$226</b>	<b>\$251</b>
Year/Year growth	0 %	5 %	2 %	11 %

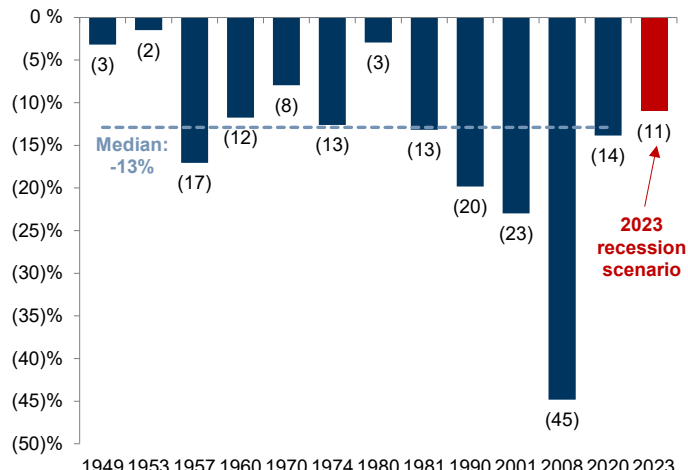
Source: FactSet, Goldman Sachs GIR.

...but S&P 500 earnings revision sentiment is negative and at levels only surpassed in 2008 and 2020, which points to a hard landing



Note: Revision sentiment is calculated as [(# of positive revisions - # of negative revisions)/total revisions]. Grey shaded areas indicate recessions. Source: Goldman Sachs GIR.

...and an EPS decline of 11%, slightly below the median decline in prior recessions due to a lack of large imbalances



Note: Based on quarterly data. Source: Goldman Sachs GIR.

Special thanks to GS US equity strategist Jenny Ma for charts.

# What comes down must go up

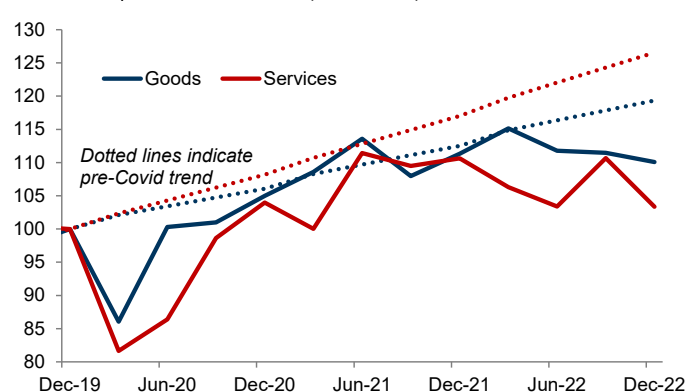
## Hui Shan argues that China is set for a period of strong growth this year following exceptionally weak growth in 2022

After three years of zero-Covid policy, China has reopened—testing requirements have been scrapped and cross-border travel has resumed. With the worst now seemingly in the rearview mirror as the peak in daily cases has likely already passed and mobility has bottomed out, we think the stage is set for a period of strong growth this year after a difficult 2022. Indeed, we expect growth to nearly double this year, to 5.5%, driven by a strong recovery in consumption and services, and likely further aided by policymakers' recent refocus on growth.

### A consumption—and services—led rebound

Household consumption was extremely depressed on the eve of reopening in 4Q22. We estimate that the gap between actual household consumption and the trend level in 4Q22 was almost as wide as in 1Q20, when the initial Covid outbreak triggered a national lockdown. The potential for consumption recovery therefore seems significant—we forecast 8.5% real household consumption growth for this year, even after accounting for any lingering scarring effects of the pandemic, with the potential deployment of households' RMB 3.3tn of excess savings representing an upside risk to this forecast. In addition, many services industries faced sizable output gaps at the end of 2022, which should start to close this year now that China has reopened. Even a partial recovery in these areas would lead to meaningful cyclical growth acceleration, which is why we expect growth to accelerate sharply in 1H23 and real GDP to grow by an above-consensus 6.5% yoy in 4Q23.

Goods and services consumption were well below trend on the eve of reopening, implying significant potential for recovery



Source: NBS, Goldman Sachs GIR.

### "Pro-growth" policy

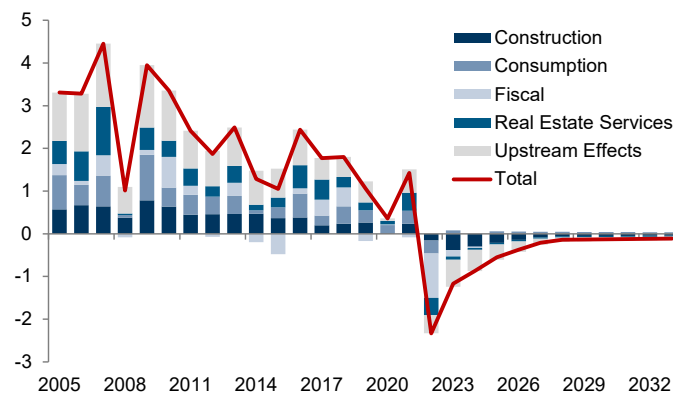
The policy tone has also been unmistakably pro-growth since early December. Pro-growth in this cycle does not mean further monetary and fiscal easing. Indeed, we expect the interbank market rate to climb back to the 2% policy rate and the augmented fiscal deficit to narrow by 2pp this year after widening by 3pp last year, as the large growth impulse from reopening implies less need for traditional monetary and fiscal stimulus. Rather, pro-growth means easing industry-level policies and more market-friendliness—regulations in several sectors have eased materially recently, and the tone towards

private-owned enterprises (POEs) and opening to the rest of the world has become more positive.

In particular, the policy tone on the property sector has turned decisively more dovish, and if the post-Lunar New Year recovery were to disappoint, we believe policymakers would step up easing given the sector's importance for China's economy. Vice Premier Liu He stressed this point in his speech at Davos, indicating that the property sector accounts for 40% of bank lending, 50% of local government revenues, and 60% of urban households' assets. That said, we expect only an "L-shaped" recovery in the property sector given the long-term trend of falling demand, which suggests that policymakers will aim to manage the multi-year slowdown rather than to engineer an upcycle. This explains the easing approach adopted by the government; on the demand side, only cities with declining home prices are allowed to lower mortgage rates beyond the national floor. And on the supply side, only "quality" developers are receiving policy assistance. This approach is also consistent with the [recent statement](#) from Ni Hong, Head of the Ministry of Housing and Urban-Rural Development, that said the government will vigorously support first-time homebuyers, reasonably support second-home demand, and not support the purchase of third or more homes. As such, we expect the property sector to remain a drag on growth this year, although a smaller one than in 2022.

We expect the ongoing property downturn to be a multi-year drag on growth, although a smaller one than in 2022

Housing contribution to yoy GDP growth, pp



Source: Haver Analytics, Goldman Sachs GIR.

### Structural challenges, cyclical strength

Structurally, the Chinese economy still faces multiple challenges. China's population declined in 2022 for the first time in 60 years, debt levels are high, and tensions between China and the US remain high. But while we're sympathetic to these concerns, we also think it's important for investors to recognize the power of reopening cyclically. Many aspects of the Chinese economy and society will normalize over the coming quarters after three years of zero-Covid policy. Although demographics, debt, and decoupling will weigh on China's long-term growth outlook and probably remain top of mind for China investors for years to come, over the next few quarters, reopening is likely to be in the driver's seat for the Chinese economy and markets.

### Hui Shan, Chief China Economist

Email: [hui.shan@gs.com](mailto:hui.shan@gs.com)  
Tel: 852-2978-6634

Goldman Sachs (Asia) L.L.C.

# Commodity scarcity worse, not better

Jeff Currie argues that the risk of commodity-related constraints on global growth this year should not be underestimated

Despite the fact that energy shortages in Europe contributed to a sharp contraction in the region's industrial output late last year, commodity supply constraints are rarely mentioned as a risk to global growth and asset valuations in 2023. With commodity prices 25% off their June 2022 highs, even concerns around energy security have taken a backseat to wages on the forward path for inflation and rates.

As a result, much of last spring's just-in-case inventory build-up in oil, metals, and grains has already been destocked. Although a rebound in commodity prices stemming from tight supplies is unlikely to significantly impact 2H23 year-over-year inflation rates unless oil and commodities rally another 40% over the next six months, the real risk is that inventories and spare capacity are fully exhausted later this year after China reopens and EMs reaccelerate, causing the global economy to experience this year with oil, metals, and food what the European economy experienced last year with gas.

The underappreciation of this risk likely owes to a common misperception about the drivers behind last year's energy and commodity shortages, with too much emphasis placed on Russia's invasion of Ukraine and not enough emphasis on the structural underinvestment in commodity capacity stemming from a combination of historically poor returns and misguided environmental policy. As we have repeatedly pointed out, Europe's impending energy crisis incentivized Russia's invasion of Ukraine, rather than the other way around, with energy shortages beginning to emerge before Russian troops were amassed. The invasion didn't cause the energy and food crisis, it only exacerbated it.

## China was a bigger commodity shock than Russia

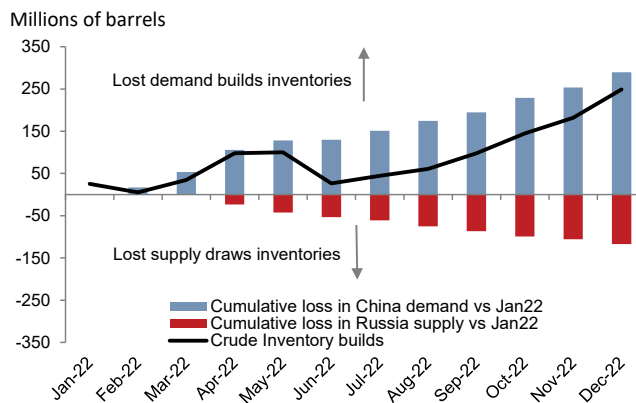
China, not Russia, was the largest shock to commodities in 2022. More commodity demand was lost than supply disrupted. A Chinese economy beset by policies leading to rolling pandemic lockdowns and an aggressive deleveraging of the property sector drove the recent commodity price weakness. At the same time, the sharp rate hikes that central banks delivered in 2022 slowed global commodity demand growth and strengthened the Dollar, further dampening commodity prices. But the demand weakness driven by China and rate hikes only created temporary spare capacity, not investment. Before the Russian invasion and rate hikes, oil and commodity demand were already pushing near capacity with oil prices above \$95/bbl. Since then, China alone has reduced global oil demand by nearly 2%, which is larger than most recessionary contractions that markets fear, yet prices are still \$88/bbl without investor participation as they remain skeptical.

## Underinvestment remains

Demand weakness can relieve the symptoms of underinvestment—commodity inflation—but cannot cure the underlying illness of inadequate production capacity. Only large-scale capital investments into commodity production capacity to debottleneck the system and provide excess capacity will

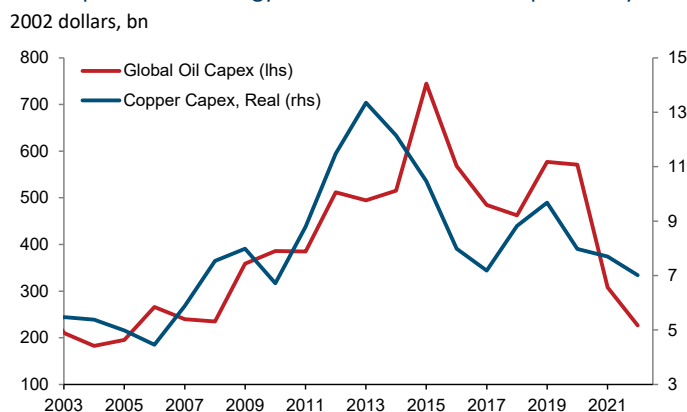
cure the illness. Unfortunately, the exact opposite has occurred over the past two years. Despite the sharp rise in commodity prices, real capex in both energy and metals has fallen, not risen, exacerbating the problem.

## China, not Russia, was the largest shock to commodities in 2022



Source: IEA, EIA, JODI, China NBS, GTT, national sources, Goldman Sachs GIR.

## Real capex in both energy and metals fell over the past few years



Source: Haver Analytics, Kpler, Goldman Sachs GIR.

Although investments in green energy have grown, the green revolution is simply too nascent for green capex alone to drive global economic growth without brown and dirty investment, particularly in metals like copper that are critical to enabling the green revolution. To put this into perspective, over the last decade, the \$3.8tn spent on renewable energy globally has reduced fossil fuel's share of primary energy by just c.1pp from 82% to 81%. The old carbon economy still needs investment until the green transition is complete, otherwise the global economy risks hitting capacity constraints on growth.

## Demand growth could lead supply constraints to bind again this year

Commodity markets today are priced and destocked for a recession that is unlikely to happen, at least over the next several quarters. China's Covid and property sector policies have reversed at staggering speed. A warm winter and European conservation efforts that generated 15-16% energy savings have unshackled Europe's growth potential, which is further supported by a stronger China. And better growth in China and Europe, as well as an expected slowdown in the pace of Fed rate hikes on better inflation news, suggests the recent weakening Dollar trend is set to continue.

The bottom line is that against critically low inventories and limited spare production capacity across the key commodity



markets such as oil, copper, and the grains, it won't take much commodity demand growth to hit the wall of supply constraints in 2023. The margin is thin. At the beginning of this year, global oil demand was likely near 100 mb/d with supply of 101.5 mb/d and spare capacity of 2 mb/d, which is a surplus market keeping investors away. Now add in 2.5 mb/d of Chinese demand this year from reopening, and half of the spare capacity is exhausted, and that doesn't even factor in further losses in Russian exports that seem likely after the Feb 5 oil product ban and solid demand growth in other EMs such as India.

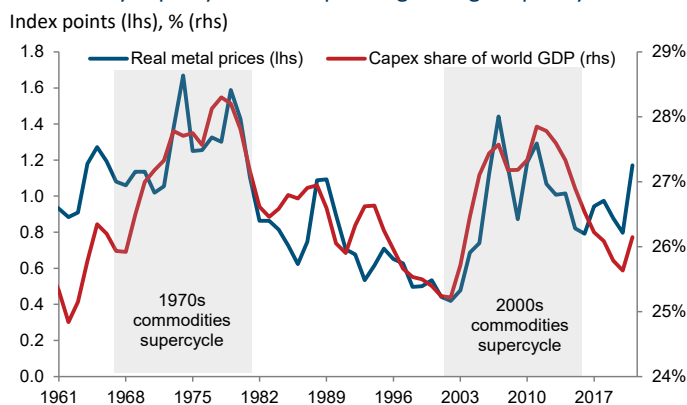
### Late cycle commodity rallies are common

Does this set up sound familiar? It should. In late 2006, after the Fed raised rates by 450bp, oil sold off from \$77/bbl to \$52/bbl on the back of recession concerns and a warm winter. Markets were primed for a recession that didn't occur for another year. The yield curve inverted and commodity markets destocked amid limited spare production capacity. As the Fed paused, China aggressively stimulated, and Europe ultimately raised rates. These shifts led to a 12% decline in the Dollar and a near doubling in commodity prices. Ironically, it was the onset of a US recession—which everyone fears today—that pushed commodity prices to dizzying heights in early 2008 as Fed rate cuts, coupled with Chinese stimulus, led to a surge in commodity demand, causing supply constraints to bind. Although we don't expect a repeat of 2008 today, these events underscore the vulnerability of commodity markets to a resurgent China, slowing US, and weak Dollar against a backdrop of critically low inventories and limited spare production capacity.

### A commodity supercycle is simply a capex cycle

Given the capacity constraints commodity markets face today, we continue to believe that we are in the early stages of a commodity supercycle, which we define as a capex cycle in which physical constraints on growth create physical pricing pressures. It's no coincidence that the last two supercycles corresponded nearly precisely to the two largest global capex cycles of the last 70 years. As the global economy grinds against physical constraints and prices rise, the need for physical capital over financial capital leads to higher interest rates, creating an inflation-duration trade-off.

### Commodity supercycles corresponding to large capex cycles



Source: World Bank, Maddison Project, Haver Analytics, Goldman Sachs GIR.

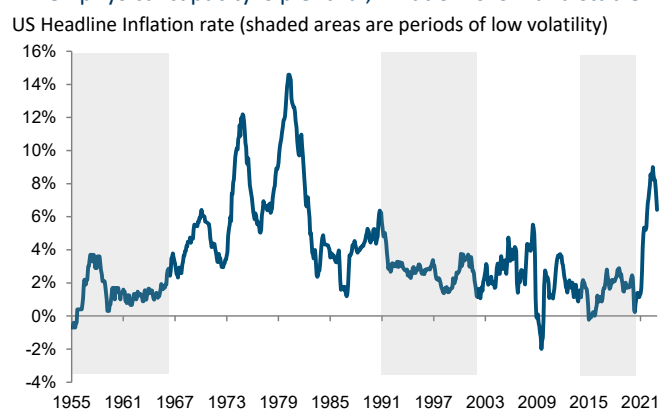
### Inflation-duration trade-off is the value-growth rotation

In other words, when physical capacity is plentiful, inflation is low and stable, which allows for the lower interest rates that

create a pathway for long-term growth. As the cost of capital falls and investors expand their horizons, they become more focused on duration and longer-term growth opportunities. As longer duration financial returns become more attractive than physical ones, capital is redirected into the financial economy, i.e. the Nifty Fifty, Dot-com Boom and FAANG Boom.

Eventually, however, demand catches up to physical capacity constraints, creating better returns in the physical economy than the financial economy, motivating the redirection of capital back into the physical economy, i.e. 1968-1980 and 2002-2014. The higher cost of capital simply reflects the better returns in the physical economy and the need to attract capex to expand production capacity, which is where we are today.

### When physical capacity is plentiful, inflation is low and stable



Source: FRED, Goldman Sachs GIR.

### Expect more price volatility, not a steady rise in prices

At its core, the substantial rise in interest rates is the result of demand growth exceeding the economy's ability to supply key goods, particularly commodities. Higher rates work to rectify this imbalance, increasing the returns associated with physical capital as opposed to financial capital. This pattern of global growth hitting commodity supply constraints, generating price spikes that rebalance markets until growth resurfaces is nothing new—this pattern played out in the 1970s and 2000s.

As we often say, commodity supercycles are a sequence of price spikes, with each high and low higher than the previous spike. Unlike financial markets that average out the growth in forward earnings over time, commodity markets must balance supply and demand over a shorter horizon. When traditional buffers—inventories and spare capacity—are depleted, prices spike to generate demand destruction. But when prices fall back down again it doesn't mean that the problem has been solved. It simply means that demand has temporarily fallen back away from the supply constraints.

The physical economy growth runway is limited. With resurging economic growth in China—the world's largest commodity consumer, biggest oil importer, and home of the world's most populous middle class—about to be unleashed on the global economy, the odds of hitting those physical constraints on a global basis, just like Europe did last year, start to quickly rise.

### Jeff Currie, Global Head of Commodities Research

Email: [jeffrey.currie@gs.com](mailto:jeffrey.currie@gs.com)  
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Goldman Sachs International

# Summary of our key forecasts

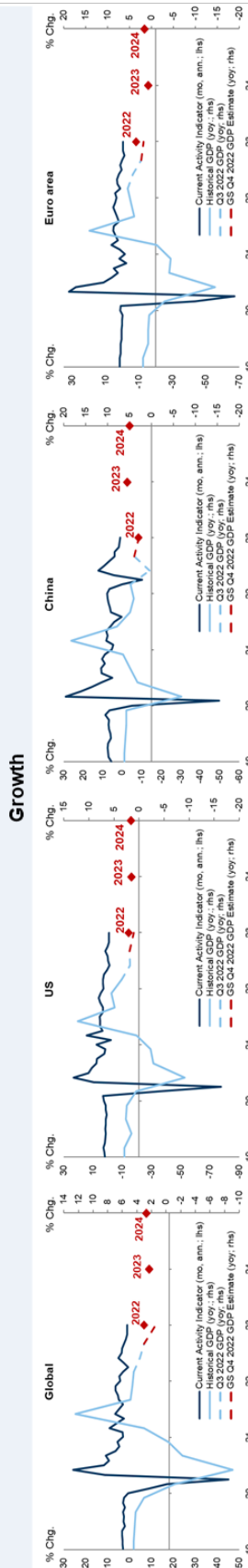


## GS GIR: Macro at a glance

### Watching

- **Globally**, we expect annual average GDP growth to slow to a below-potential 2.3% in 2023, as central bank policy remains restrictive, although we expect growth to accelerate in the second half of the year, reflecting diminishing drags from tighter financial conditions and the energy crisis, and a stronger growth impulse from China's reopening. We think the peak in global inflation is behind us, and that the combination of a moderation in demand growth, improvements in goods supply, and tighter monetary policy will be sufficient to bring inflation back toward DM central banks' targets over the next two years.
- **In the US**, we expect GDP growth to slow to 1.5% in 2023, reflecting a negative impulse from tighter financial conditions. We see a below-consensus 35% probability of entering a recession over the next year due to continued labor market rebalancing and a diminishing drag from fiscal and monetary policy tightening. We expect core PCE inflation to decline significantly to 2.9% by end-2023, reflecting an easing in supply chain constraints, a peak in shelter inflation, and slower wage growth, although we expect progress on wage growth to be more gradual than disinflation from core goods and shelter. We expect the unemployment rate to increase to 4.0% by end-2023 and to 4.2% by end-2024.
- **We expect the Fed** to deliver 25bp hikes in February, March, and May for a peak funds rate of 5.00-5.25%. On the fiscal policy front, additional funding in the FY2023 spending bill presents upside risk to our assumption of roughly flat real federal spending growth in 2023.
- **In the Euro area**, we expect GDP growth to slow to an above-consensus 0.7% in 2023, reflecting the ongoing energy crisis driven by the war in Ukraine and we see a 40% probability that the Euro area enters a recession over the next year. We expect headline inflation to remain high in January and February, with rising food prices offsetting some easing from lower energy prices, before falling to around 3.60% by the end of 2023.
- **We expect the ECB** to hike by 50bp in February and March, and by 25bps in May for a terminal rate of 3.25% reflecting more resilient activity, sticky core inflation, and hawkish communication that points to a higher hurdle for further stepping down the pace of hiking. On balance sheet policy, we expect the ECB to stop reinvestments completely after June, when the recently announced APP run-off of €150bn per month starting in March 2023 ends.
- **In China**, we expect real GDP growth to accelerate to an above-consensus 6.5%yoy in Q4 2023, driven by China's rapid reopening and likely to be further aided by policymakers' recent refocus on growth, although significant uncertainties remain around how Covid evolution, consumer behavior, and policymakers' reactions will affect the Chinese economy's recovery throughout the year.
- **WATCH CHINA REOPENING AND INFLATION**. China's bumpy reopening is a key source of upside risk to global growth as well as commodity prices in 2023, which could worsen inflationary pressures elsewhere and raise central banks' challenge to tame inflation without a recession.

Goldman Sachs Global Investment Research.



Sources: 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 "Lessons Learned: Re-engineering Our CAIs in Light of the Pandemic Recession," Global Economics Analyst, Sep. 29, 2020.

### Forecasts

Economics	2023				2024				Markets				Equities											
	GS (Q4/Q4) (CY)	GS (CY)	Cons. (CY)	GS (CY)	GS (CY)	Cons. (CY)	GS (CY)	Cons. (CY)	Last	E2023	E2024	FX	12m	3m	Last	E2023	E2024	GS	Cons.	12m	YTD	E2023	PIE	
GDP growth (%)	2.6	2.3	2.1	2.7	2.9	2.9	2.9	2.9	3.49	4.20	4.00	EUR/USD	1.09	1.02	1.10	Price	4,000	-	-	S&P500	1.0	6.0	18.2x	
Interest rates 10Yr (%)	1.1	1.5	0.5	1.6	1.2	1.2	1.2	1.2	2.17	2.75	2.25	GBP/USD	1.24	1.15	1.22	EPS	\$24	\$26	\$237	IIXAPJ	11.0	11.0	14x	
Commodities	6.5	5.5	5.1	5.0	5.0	5.0	5.0	0.49	0.50	0.50	USD/JPY	130	132	125	Growth	0%	2%	5%	Topix	11.0	5.0	12.8x		
Policy rates (%)	0.8	0.7	0.0	1.6	1.3	1.3	1.3	3.31	4.00	3.75	USD/CHF	6.8	6.80	6.50	Credit (bp)	6.8	6.80	6.50	STOXX 600	2.0	7.0	12.8x		
US	5.13	4.40	4.38	2.86	2.86	2.86	2.86	87	95	105	USD	IG	119	117	115	US	3.6	4.0	2.7	Unemp. Rate	4.2	5.6	5.3	
Euro area	3.25	3.29	3.00	2.55	2.55	2.55	2.55	2.94	3.70	3.60	EUR	HY	414	400	390	Euro area	5.8	6.8	1.4	6.7	-	-	-	
China	2.00	2.52	2.00	2.94	2.94	2.94	2.94	9,307	9,500	11,000	EUR	IG	165	150	145	China	2.1	-	2.2	-	-	-	-	
Japan	-0.10	0.20	-0.10	0.38	0.38	0.38	0.38	1,932	1,850	1,950	USD	HY	440	415	405	Japan	2.1	-	2.2	-	-	-	-	
Wage Tracker 2022 (%)																								
Q1																								
Q2																								
Q3																								
Q4																								

Sources: Bloomberg, Goldman Sachs Global Investment Research. For important disclosures, see the Disclosure Appendix or go to [www.gs.com/research/hedge.html](http://www.gs.com/research/hedge.html). Market pricing as of January 26, 2023.

# 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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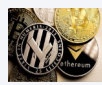
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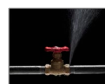
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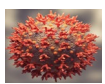
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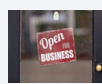
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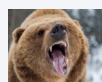
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### Reg AC

We, Allison Nathan, Jenny Grimberg, Ashley Rhodes, Joseph Briggs, Vickie Chang, Jeff Currie, Jan Hatzius, David Kostin, Hui Shan, and Dominic Wilson hereby certify that all of the views expressed in this report accurately reflect our personal views, which have not been influenced by considerations of the firm's business or client relationships.

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