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Goldman Sachs Research

TOP of MIND

ASSESSING A LESS TRANSPARENT FED

Fed Chairman Kevin Warsh is steering the Fed into a less transparent era. So, is that a positive or negative development, and what could it mean for markets and the economy? We speak with Former Fed governors Donald Kohn and Stephen Miran as well as GS' Jan Hatzius who agree that rigid "Odyssean" forward guidance that commits policymakers to a pre-set path risks policy mistakes and is therefore rarely appropriate. But they somewhat disagree about the benefits of greater transparency around the Fed's reaction function. Hatzius and Kohn argue that such transparency helps markets better anticipate and price in policy changes, accelerating monetary policy transmission. But Miran believes that the line between committing to a path and being transparent is clearer in theory than in practice. And while GS economists and strategists find that reduced transparency leads to increased market volatility, the question is whether this just increases the market's noise or also improves the market's signal. Hatzius argues largely for the former and Miran for the latter.

INTERVIEWS *with…*

Jan Hatzius, Chief Economist and Head of Global Investment Research, Goldman Sachs

"Markets price what they think the Fed will do, not what they think the Fed should do. That will remain true even if the Fed obscures its reaction function… market guesses about the Fed's next moves will simply become worse, leading to more volatility... and importantly, volatility that serves no constructive economic purpose."

Donald Kohn, former Vice Chairman of the Board of Governors of the Federal Reserve System, Robert V. Roosa Chair in International Economics and Senior Fellow, Brookings Institution

"I sympathize with Chairman Warsh to some extent. [But] the real problem with Warsh's approach is his reluctance to articulate how the FOMC sees the economy evolving… explaining the Fed's thinking about the economic outlook is essential in helping markets act as a stabilizing force and is a core component of accountability."

Stephen Miran, former Member of the Federal Reserve Board of Governors and Chairman of the Council of Economic Advisers, Senior Strategist, Hudson Bay Capital Management

"Reducing guidance generates more volatility but also more signal... I'd rather have that signal, even if it's messy, than throw the signal out by anchoring market expectations to the Fed's near-term projections."

ALSO *inside…*

Transparency: more benefits than costs | Joseph Briggs and Megan Peters, GS Global Economics Research

A less transparent Fed and US rates | William Marshall, GS Rates Strategy Research

Fed communication and FX volatility | Michael Cahill and Lexi Kanter, GS FX Strategy Research

Fed: more transparent than most | Joseph Briggs and Megan Peters, GS Global Economics Research

Allison Nathan | allison.nathan@gs.com **Jenny Grimberg** | jenny.grimberg@gs.com **Ashley Rhodes** | ashley.rhodes@gs.com

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

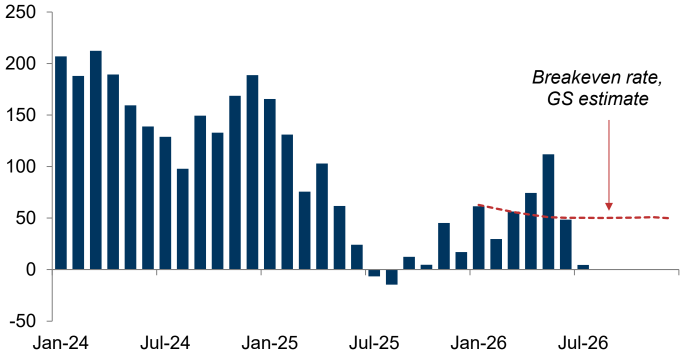
- No major changes in views.

Datapoints/trends we're focused on

- US consumer spending, which we expect to slow, with risks skewed to the downside as the Strait of Hormuz remains closed and further rises in gas prices would hurt consumers.
- US labor market; following weak July payroll growth, we estimate that the underlying pace of job growth now stands at 5k, well below our estimate of breakeven job growth.
- US inflation, which has improved meaningfully in the past two months, leaving us comfortable with our view that the Fed will remain on hold through the end of the year.

US job growth: well below breakeven

Underlying US trend job growth, GS estimate*, thousands/month



*We estimate underlying trend job growth as 0.75*3-month average payroll growth + 0.25*9-month average household employment growth.

Source: US Bureau of Labor Statistics, Haver Analytics, Goldman Sachs GIR.

Japan

Latest GS proprietary datapoints/major changes in views

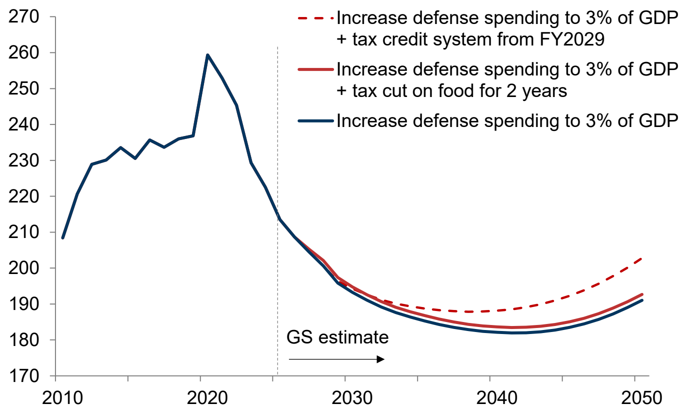
- No major changes in views.

Datapoints/trends we're focused on

- Recent US-Japan coordinated Yen intervention, which we think is unlikely to sustainably strengthen the Yen.
- BoJ policy; we expect the BoJ to continue hiking gradually, with the next hike in January 2027, but the risks are skewed toward an earlier rate hike, potentially as early as October.
- Japan consumption tax cut; while we think the tax cut will have an only limited impact on growth, it could materially worsen Japan's longer-term debt outlook.

Japan's debt-to-GDP: an upward sloping trajectory

Japan public debt-to-GDP ratio, % of GDP



Source: Cabinet Office, Goldman Sachs GIR.

Europe

Latest GS proprietary datapoints/major changes in views

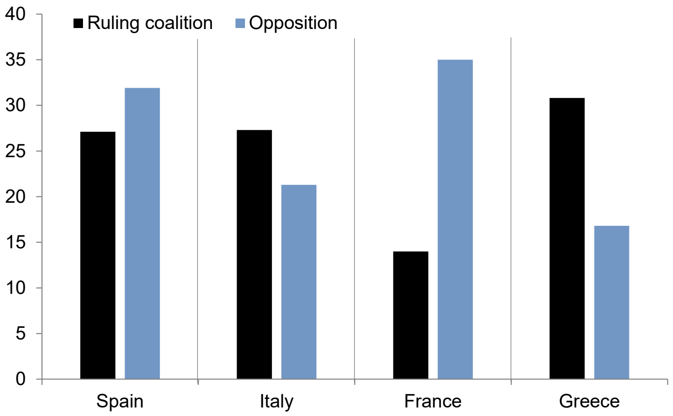
- No major changes in views.

Datapoints/trends we're focused on

- ECB policy; with core inflation only modestly above target, we maintain that the ECB will hike by 25bp in September but that the next move will be a cut (in mid-2027).
- 2027 European elections, including in France, Italy, Spain, and Greece, which risk producing hung parliaments.
- European defense spending, which has risen significantly but unevenly, with Germany driving much of the increase.
- BoE policy mandate; we think adding economic activity to the BoE's mandate would have dovish implications.

Europe: ruling parties losing share

Main parties in latest opinion polls by country (as of July 2026), %



Source: Politico, Goldman Sachs GIR.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

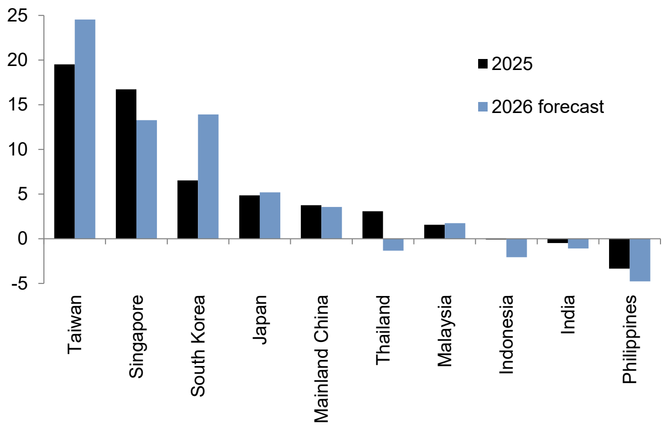
- No major changes in views.

Datapoints/trends we're focused on

- The AI boom, which is driving large trade surpluses in North Asia that are spilling over into stronger domestic activity.
- China's property downturn; we find the housing drag on the economy has diminished and should mostly fade by 2028.
- A historic opportunity for RMB bond internationalization, though we think sustaining gains will require broader structural changes.
- India's macro conditions, which are showing signs of cyclical improvement after a string of adverse shocks.

Super surpluses in North Asian tech exporters

Asia current account balances, % of GDP



Source: Goldman Sachs GIR.

Assessing less Fed transparency

New Fed Chairman Kevin Warsh is steering the Fed into a less transparent era characterized by shorter post-meeting statements, less forward guidance, and a more limited role for projections, marking a meaningful break from the transparency revolution that has defined central banking over the last quarter century. So, what could a less transparent Fed mean for markets and the economy?

For answers, we turn to former Fed governors Donald Kohn, now Robert V. Roosa Chair in International Economics and senior fellow at the Brookings Institution, and Stephen Miran, now senior strategist at Hudson Bay Capital Management, as well as Jan Hatzius, GS' Chief Economist and Head of Global Investment Research.

We first ask whether scaling back Fed communication is a positive or negative development. Hatzius says it's likely negative, though he draws a clear line between transparency and forward guidance. He argues that clarity about the Fed's reaction function helps markets better anticipate policy changes and quickly incorporate new information into financial conditions, thereby accelerating monetary policy transmission to the economy. So, he believes that unwinding that transparency would be a mistake. (Note: GS Global Economists Joseph Briggs and Megan Peters lay out the evidence backing this argument on pgs. 14-15.)

But Hatzius takes a more nuanced view of forward guidance, arguing that rigid "Odyssean" guidance that commits policymakers to a pre-set path regardless of new information only makes sense at the effective lower bound for the policy rate, while conditional "Delphic" guidance tied to the economic outlook is generally more defensible. Although markets could confuse the two, he believes that most sophisticated investors understand the difference and is therefore not particularly worried that markets have become overly reliant on the policy dots published in the Fed's Summary of Economic Projections (SEP). Instead, he considers them a "useful source of additional information about the Fed's reaction function" (except for the long-run policy dot). If anything, Hatzius would prefer the dots move in an even more informative direction—by publishing each policymaker's combined projections for growth, inflation, unemployment, and the policy rate on an anonymized basis.

Kohn agrees that clarity about the Fed's "narrative" and reaction function is vital. Explaining how the Fed sees the economy evolving and how policy would respond, he says, is "essential in helping markets act as a stabilizing force and is a core component of accountability." Still, he sympathizes somewhat with Chairman Warsh's view that the dot plot is "not helpful" (see pg. 9 for Warsh's own words on this), arguing that the market's hyper-focus on the SEP's median policy dot "illustrates the risk of excessive precision and false certainty," as small shifts in it can trigger unwarranted market moves. So, he has long favored omitting the median.

Miran, though, is more supportive of Warsh's push for a less transparent Fed. Like Hatzius and Kohn, he's concerned that excessive forward guidance that locks the Fed into a policy path raises the risk of policy errors and also argues that such guidance can impair market pricing of risk. But he's less convinced about the benefits of increased transparency around the Fed's reaction function, making the case that the distinction between the Fed committing to a pre-set policy path and being transparent about its reaction function is clear in theory, but less so in practice. So, he thinks "the policy dots absolutely have to go" but feels less strongly about omitting the SEP's economic projections.

But would less transparency allow markets to provide the Fed with more "direct and unfiltered" information about the economy, as Warsh has argued? The answer seems to boil down to the implications for market volatility, and whether any resulting volatility would simply increase the market's noise or also improve its signal.

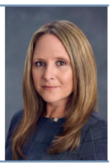
As for the volatility implications, the evidence is fairly clear. Briggs and Peters find that increased central bank transparency has led to a reduction in market volatility over the last several decades. This is consistent with GS Head of US Rates Strategy William Marshall's recent observation of the reverse: that the US rates market has already priced substantial uncertainty associated with a less transparent Fed, with the July FOMC representing the largest non-cut meeting day surprise in almost three decades.

But Marshall argues that whether such meeting-day surprises lead to structurally higher rates volatility depends (again) on whether the Fed's reaction function is well understood. If it's not, he would expect higher rates volatility to persist. GS FX Strategists Michael Cahill and Lexi Kanter find a similar pattern in FX: that central bank communication shifts can change which events and data drive FX volatility without necessarily raising it, but less transparency could increase Dollar volatility—all else equal (though global macro conditions remain its biggest driver).

But the key debate seems to be whether the increased volatility resulting from less Fed transparency will improve or worsen the market's signal. Hatzius is clearly in the "worsen" camp. He argues that markets price what they think the Fed *will* do—not what it *should* do—and less transparency won't change that; it would simply produce worse guesses. So, he says that while volatility in and of itself is not necessarily bad, volatility driven by uncertainty about the Fed's reaction function would serve no constructive economic purpose.

Kohn agrees that the lack of a clear Fed narrative could create damaging uncertainty. But he argues that removing overly specific guidance could help free markets to process new information more independently and isn't too worried about modestly higher volatility as a result. And Miran seems most convinced that reducing transparency would improve the markets' signal, with volatility an unavoidable but acceptable cost: "The first best world of signal without volatility doesn't exist. I'd rather have that signal, even if it's messy, than throw the signal out by anchoring market expectations to the Fed's near-term projections."

Allison Nathan, Editor



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Interview with Jan Hatzius

Jan Hatzius is Chief Economist and Head of Global Investment Research at Goldman Sachs. Below, he argues that a shift toward a less transparent Fed is likely a negative development.

Ashley Rhodes: Fed Chairman Kevin Warsh appears to be ushering the Fed into a less transparent era. Is that shift a positive or negative development?

Jan Hatzius: It's likely a negative development, although I would distinguish between transparency and forward guidance. The transparency revolution in central banking over the last 30 years has been extremely successful. When a central bank provides meaningful information about its reaction function—how it's likely to respond to different economic outcomes—markets can better anticipate policy changes. So, new information gets incorporated quickly into financial conditions, accelerating the transmission of monetary policy. The central bank can later decide whether to ratify that move and always retains the option not to. That framework has worked well for the Fed over the past several decades. Unwinding transparency about the reaction function risks delaying the transmission of monetary policy and would be a mistake, in my view.

Forward guidance about the policy rate path is a separate and more nuanced issue. In assessing the pros and cons, it's important to distinguish between "Odyssean" and "Delphic" forward guidance. With Odyssean guidance, like Odysseus tying himself to the mast, the central bank commits to a policy path even if subsequent data point in a different direction. That only makes sense at the effective lower bound for the policy rate, when conventional monetary easing is no longer an option. Even then, the hurdle for Odyssean guidance should be high because there is a real risk that policymakers lock themselves into an inappropriate policy stance. By contrast, Delphic guidance, named for the Oracle of Delphi, is a conditional description of what policymakers expect to do given their economic outlook that will change with new information. Delphic guidance is more defensible, even in normal times.

Ashley Rhodes: Let's take these in turn. Do you agree with the argument that Odyssean forward guidance increases the risk of policy errors?

Jan Hatzius: That argument is a serious one. In terms of practical examples, it is heavily centered on the 2021–2022 episode, when the Fed tightened policy much too late because they made a major forecasting error on inflation at a time of rigid Odyssean forward guidance. That was a bad combination. If the forecast is wrong, policy will be set incorrectly under any communication or transparency framework. And Odyssean forward guidance compounds that problem because it delays the inevitable course correction. This is why Odyssean forward guidance should be used sparingly, if at all.

That said, I am not sure how big a difference to the inflation outcome or to economic performance more broadly it would have made if the Fed had started to tighten in, say, September 2021 rather than March 2022. By early 2022, markets had already recognized that the funds rate would need to rise, and financial conditions tightened substantially on the back of higher rate expectations well before the Fed delivered those hikes. Also, the error was ultimately not disastrous economically; inflation expectations did not de-anchor and the Fed course-corrected without causing a recession.

Ashley Rhodes: Even if the Fed just provides Delphic guidance, are concerns that the market might confuse it with Odyssean guidance warranted, especially given how much weight markets put on the dot plot?

Jan Hatzius: Such confusion would be problematic, but I think it doesn't happen frequently in practice. Most sophisticated observers understand that the policy dots included in the Summary of Economic Projections (SEP) are conditional on data evolving in line with the economic projections. And the dots only provide information about the individual and anonymized views of FOMC participants, including non-voters. So, they aren't strong forward guidance, not even strong Delphic forward guidance. And market expectations have often diverged meaningfully from them, undermining the argument that investors view them as a commitment.

Instead, the dots are a useful source of additional information about the Fed's reaction function. The SEP could be made even more informative by publishing each policymaker's combined projections for growth, inflation, unemployment, and the Fed funds rate on an anonymous basis, which we have long argued for. Doing so would provide a clearer picture of how policymakers' economic forecasts relate to their anticipated policy paths. But that seems unlikely given Warsh's apparent preference for moving in the opposite direction.

Concerns about market confusion are more understandable when it comes to the long-run policy dot, where the Fed has less information to convey. Nobody knows where R-star is—as Chair Powell liked to say, "it is seen by its works"—but markets seem to assume that the Fed has special knowledge and therefore place too much weight on the long-term dot. That can lock down longer-term rate expectations too firmly. That said, removing the long-run dot could complicate the Fed's communication in its current form, as it has become an important benchmark for assessing the stance of monetary policy. I would prefer to eliminate the long-run dot and communicate the stance of policy with greater emphasis on financial conditions. Overall, though, the dot plot works well, and, despite the controversy surrounding it, I remain a fan.

Ashley Rhodes: Aren't the Fed's inflation and employment targets sufficient for the market to infer the Fed's reaction?

Jan Hatzius: No, because getting from point A to point B requires more information than just a stated objective. Take the inflation target, for example. The Fed's goal is 2% inflation, but how do you assess whether inflation is moving sustainably toward that target? How do you determine the current underlying rate of inflation? Should you look at headline PCE, core PCE, trimmed mean inflation, or something else entirely? Do you project future inflation changes based on the unemployment rate via a Phillips curve relationship, the monetary aggregates, or something else? To anticipate the Fed's moves—and thereby push financial conditions in a stabilizing direction—markets need insight into how the Fed assesses these questions. Those considerations go well beyond stating a broad policy goal.

Ashley Rhodes: Is there *any* merit to communicating less given that Fed officials have, at times, inadvertently made market-moving remarks?

Jan Hatzius: There is certainly an optimal level and frequency of communication. The Fed should not provide running commentary on every data release, especially as markets tend to overemphasize individual data points relative to the longer-term trend. The Reserve Bank presidents speak a lot more frequently than the governors and their comments are almost by definition less informative about the policy path than those of the Fed leadership. While that can complicate the public's understanding of the policy outlook, it can also be informative for market participants who nevertheless understand that the views of the troika—the Fed chairman, Fed vice chair, and New York Fed president—carry the greatest weight. On net, it's therefore unclear whether noise from frequent policymaker comments has had big practical costs. More broadly, communication mistakes are inevitable, and policymakers will say things they later wish they hadn't. But the question is whether these occasional mistakes outweigh the benefits from transparent communication. In my view, they don't.

Ashley Rhodes: Warsh believes that providing less guidance about the Fed's reaction function will allow policymakers to draw more "direct and unfiltered" information from markets. So, you don't agree?

Jan Hatzius: I don't. Markets price what they think the Fed *will* do, not what they think the Fed *should* do. That will remain true even if the Fed obscures its reaction function. So, if the Fed chooses to do so, market guesses about the Fed's next moves will simply become worse, leading to more volatility in rates markets and in financial conditions—and importantly, volatility that serves no constructive economic purpose. Volatility is not bad in and of itself. For example, if new data shows increased inflation risks, financial conditions should tighten as markets price in rate hikes. This accelerates the transmission of monetary policy. But volatility driven by uncertainty about the Fed's reaction function is more random and doesn't necessarily push financial conditions in a stabilizing direction.

Also, policymakers can already extract valuable information from market indicators. For example, a sharp rise in breakeven inflation above target is a statement that markets view the expected policy path as inappropriately loose. So, the information is already available without the Fed saying less.

Ashley Rhodes: Is there a risk of a "hall of mirrors" effect if the Fed uses market prices to not only glean information about the economy but also to guide what it should do?

Jan Hatzius: Yes, but I am not particularly concerned about this risk. While a "hall of mirrors" effect—whereby markets watch the Fed for clues, but the Fed watches the markets for clues—could push the policy stance far away from desirable levels, the likelihood of that scenario materializing is low. Warsh has said that he does not want to "be constrained or take verbatim from what the market's doing." And Fed officials, including the Chairman, are unlikely to take that logic to its extreme conclusion and follow the market simply because it has priced in a particular policy move.

Ashley Rhodes: Warsh has also said that financial markets "are probably the most important source of information to guide central bankers." Do you agree?

Jan Hatzius: Not entirely, as I would rank the economic data first. That said, financial market prices are very important, and central banks have become increasingly sophisticated in extracting information from them. There's always room for improvement, but again, the information is already available under the current regime. And communicating less transparently wouldn't help policymakers evaluate financial market signals more appropriately.

Ashley Rhodes: How durable is a less transparent Fed?

Jan Hatzius: That remains an open question. As Chairman, Warsh has significant control over the Fed's communications framework and can choose to provide less information at press conferences, as he has done. In that sense, a less transparent approach could prove durable, though its consequences remain to be seen. Other communication changes, such as eliminating the dot plot, would probably in practice require FOMC support, and my sense is that other Fed officials would see that as too great a step away from transparency.

A large reduction in Fed communication, defined by the number of speeches, is less likely to endure. Reserve Bank presidents have strong incentives to continue talking, in part because the influence and relevance of their institutions depend on it. This has been a perennial issue—Chairman Alan Greenspan was often very frustrated with the Bank presidents. Warsh could try to rein them in. But even Greenspan in his heyday failed to do so. If regional bank presidents continue speaking frequently while centralized communication declines, the cacophony could actually worsen.

Ashley Rhodes: More broadly, while the Fed held rates steady in July, three FOMC participants dissented in favor of a hike, fueling debate about whether further tightening is on the horizon. Where do you stand?

Jan Hatzius: We don't expect the Fed to hike, largely because we think much of the recent strength in core PCE inflation reflects temporary factors: higher oil prices related to the US-Iran war, roughly 70bp of lingering tariff pass-through, and distortions in software and accessories prices. As these effects fade, we expect core inflation to move close to 2% in 2027. That assessment is consistent with the ongoing deceleration in other measures of underlying inflation such as trimmed-mean PCE and core CPI.

The recent data are also broadly consistent with that view. The inflation data improved significantly in June and July, and the labor market reports for both months were somewhat weaker on balance. If those trends continue, policymakers will likely conclude that additional tightening is unnecessary, especially with the funds rate already around 3.5-3.75%—a level the Fed likely views as roughly neutral or even slightly restrictive.

Interview with Donald Kohn

Donald Kohn is former Vice Chairman of the Board of Governors of the Federal Reserve System and current Robert V. Roosa Chair in International Economics and senior fellow at the Brookings Institution. Below, he sympathizes with Warsh's desire to scale back forward guidance but sees a bigger issue with his reluctance to explain the Fed's reaction function.

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

Jenny Grimberg: You saw firsthand the Fed's evolution from a relatively opaque institution into one that communicates through statements, press conferences, projections, and public remarks. What drove this shift toward greater transparency?

Donald Kohn: A key motivation was to get financial markets on the Fed's side. While the Fed controls the overnight rate, which acts as the anchor for the short end of the yield curve, monetary policy transmission to the real economy works through broad financial conditions, including equity prices, the Dollar, and long-term yields. The Fed believed that the more the market understands its policy framework and objectives, the more it will work with, rather than against, the Fed—as new data arrives, markets will adjust in a stabilizing direction. The second motivation was accountability. The Fed benefits from being an independent institution largely insulated from the political process, but that independence comes with a responsibility to provide the public and Congress a clear explanation of its actions.

Jenny Grimberg: Why is it so important for markets to work with the Fed?

Donald Kohn: Markets work better and reinforce central bank policies more effectively when they understand how policymakers expect the economy to evolve and how policy will likely respond. Historically, a lack of explicit communication has sometimes caused costly misunderstandings. Prior to 1994, the Fed didn't announce its policy decisions; markets had to infer them from the New York Fed's open market operations. An infamous misunderstanding known as the "Thanksgiving turkey" occurred in November 1989, when markets misconstrued a routine reserve injection as policy easing. The resulting volatility prompted an emergency FOMC phone call where policymakers had to decide whether to validate the market's mistaken interpretation by cutting rates or maintain the existing policy stance, ultimately choosing the latter.

In 1994, the Fed introduced explicit policy announcements, which grew more complex over time by, for example, including a policy "tilt" to signal whether policy was more likely to tighten or loosen. This toolkit proved vital in the early 2000s, when markets prematurely priced in rate hikes, causing financial conditions to tighten faster than was consistent with the FOMC's objectives; the Fed was able to explain its thinking more clearly, successfully realigning expectations.

Jenny Grimberg: Which communication innovation has made the greatest practical difference?

Donald Kohn: The innovations we've discussed, as well as the move to increase the frequency of the publication of the Fed's economic forecasts from semi-annually to quarterly, were all important. But if I had to choose the single most important innovation, it would be the post-FOMC meeting press conference, which Chairman Ben Bernanke, who had a strong predilection for increasing transparency, introduced in 2011. The press conference provides the chair with a direct, unfiltered opportunity to articulate the FOMC's thinking and explain the rationale behind its decisions. That's very powerful.

Jenny Grimberg: Conversely, has history also provided lessons about the risks of greater transparency?

Donald Kohn: The most serious risk is that forward guidance—guidance about the likely future path of policy—can constrain both the FOMC's and the market's reaction to incoming data. A prominent example occurred during the Covid recovery, when the Fed committed to holding rates at zero until the economy reached full employment, almost regardless of the inflation rate. This "Odyssean" commitment effectively constrained the Fed's response to emerging inflationary pressures.

I've received blowback on this point from Fed officials who argue that the real problem was bad forecasts. It's true that most forecasters, including the Fed, failed to anticipate the persistence of the price pressures. But the forecasts, the Fed's Flexible Average Inflation Targeting Framework, and the resulting forward guidance were all born out of a 15-year mindset of combatting too-low inflation. So, the guidance was too constraining, even if the forecasts were also at fault.

The market's hyper-focus on the median forecast in the Summary of Economic Projections (SEP) also illustrates the risk of excessive precision and false certainty. This median is a very weak indicator of the FOMC's collective stance; a move by just one or two participants can shift it, triggering unwarranted market reactions, which is partly why I've long advocated for stopping its publication.

Jenny Grimberg: So, is Chairman Warsh's move to reduce transparency a positive or negative shift?

Donald Kohn: I sympathize with Chairman Warsh to some extent. Forward guidance with commitment is an important tool at the zero lower bound, even if the Fed's pandemic-era Odyssean guidance was a poor choice. But once policy rates are well above zero, the need for it diminishes. At that point, the Fed has ample conventional policy space to adjust rates as economic conditions evolve. And, as we've discussed, projecting a specific number of rate hikes or cuts as in the policy dot plot is pretending to know more than policymakers actually do. So, I would be a reluctant user of forward guidance away from the zero lower bound—and with the Fed funds rate currently at 3.5-3.75%, we're clearly far from it.

The real problem with Warsh's approach is his reluctance to articulate how the FOMC sees the economy evolving, seemingly out of fear that the market will interpret what he says as a policy hint. But explaining the Fed's thinking about the economic outlook is essential in helping markets act as a stabilizing force and is a core component of accountability. Central banks need a narrative. Chairman Alan Greenspan, whom Warsh has expressed a desire to emulate, always had a story—even if it wasn't always well understood—that was backed by deep analysis, and when economic developments diverged from expectations, Greenspan could investigate why the data weren't aligning. So, a narrative is crucial.

That said, I see merit in some of Warsh's other ideas, like reducing the number of FOMC meetings. While he hasn't specified a target, a move from eight to six meetings a year would allow policymakers to evaluate two months of economic data, encouraging the FOMC and markets to focus on trends rather than individual data points. So, I would support such a move, provided it doesn't disrupt the flow of information from the Fed staff to policymakers or increase intermeeting actions.

Jenny Grimberg: Warsh seems to want markets to "play the ball, not the referee," enabling the Fed to obtain more "direct and unfiltered" information about the economy from markets. How viable is such a feedback loop?

Donald Kohn: Markets will always react to new information based partly on how they expect the Fed to react. While Warsh has urged market participants to focus on the ball rather than the referee, the Fed is *not* the referee—it's the 800-pound gorilla in the rates markets. So, the market will always interpret incoming data through the lens of expected Fed policy.

But a golden mean exists. Overly specific forward guidance can potentially damp the market's reaction to incoming data, so backing off from such specificity could help free markets to process new information more independently. But the Fed must still provide its narrative—explaining how it's thinking and what it's focused on—to help the market figure out the appropriate rate path to achieve the Fed's objectives.

Jenny Grimberg: Curtailing guidance would likely increase short-term market volatility. Does that concern you?

Donald Kohn: Not necessarily. If forward guidance has indeed suppressed market reactions, removing it should improve the quality of the signal. So, a modest increase in short-term volatility is acceptable, provided the Fed equips market participants with enough information to react intelligently to incoming data. But an important distinction exists between productive volatility and harmful uncertainty. Creating uncertainty for its own sake is counterproductive and can dampen investment, and failing to articulate a clear story generates this damaging uncertainty. If the Chairman doesn't tell that story, dissenting policymakers may step in to fill the void—as occurred after the recent FOMC meeting—confusing the market and obscuring the actual policy consensus.

Jenny Grimberg: Warsh has also said that financial markets "are probably the most important source of information to guide central bankers." Do you agree?

Donald Kohn: I'm not sure they're the most important, but they're certainly very important. When I was at the Fed, I looked carefully at what the markets were saying about what they thought we should do, what they were reacting to, and whether that reaction was appropriate. But the Fed must interpret markets relative to what markets expect the Fed to do. Otherwise, policymakers risk the "monkey in the mirror" problem—watching the reflection of their own actions and adjusting policy to match owing to the mistaken belief that the market is providing independent validation. Navigating this issue requires a delicate balance. The more accurate markets' reactions are, the more they'll behave in a stabilizing manner, which, as we've discussed, was a key driver behind the Fed's shift toward greater transparency. But Warsh is also correct that forward guidance can become too prescriptive, resulting in market pricing simply reflecting the FOMC's past guidance and obscuring the informational value of the signal. So, while market prices are an invaluable source of information for central bankers, interpreting them is undoubtedly a tricky game.

Jenny Grimberg: Ultimately, how durable is the quieter communication regime that Warsh has ushered in?

Donald Kohn: Warsh's level of quietness is likely unsustainable. The market reaction to his July press conference—declining short-term rates and rising long-term rates—was undoubtedly not the outcome he desired. I sat next to him for nearly four years at the Fed, and I know him to be a highly capable policymaker. So, I'm confident he'll take this lesson on board and move in the direction of filling the current communication void. I'm also confident that the communications task force he's established will help move him in that direction, especially with Mervyn King co-leading it. King revolutionized communication at the BoE by introducing inflation projections and outlining the "key judgements" behind the BoE's forecasts, and in his book *Radical Uncertainty* emphasized that central banks need a narrative built on rigorous analysis that can be validated or contradicted by incoming data.

Warsh has also talked about less discussion from the Reserve Bank presidents. These policymakers are a vital liaison between the Fed and local communities and so shouldn't be silenced. But the public would benefit from a different form of communication from the Reserve Bank presidents—their public remarks should explain the FOMC's collective decisions and broader economic trends rather than offer instant analysis of individual data points or telegraph policy paths. So, the objective shouldn't be to restrict communication, but to foster more substantive and less reactive dialogue.

Jenny Grimberg: Investors are also focused on the Fed's near-term policy path. What do you expect the Fed's next move will be?

Donald Kohn: I wouldn't have voted to raise rates in July given that the June CPI print was favorable and long-term inflation expectations seemed anchored. But if forced to say whether the Fed's next move is more likely to be a hike or a cut, I would lean toward a hike. I am worried that inflation could be stuck at 2.5%, and because it has run above target for some time, longer-term inflation expectations may be less firmly anchored than usual. So, as a matter of risk management, buying insurance against inflation running too high for too long seems prudent. But if the favorable June, and now July, CPI prints were followed by another favorable one in August, hiking in September probably wouldn't be appropriate.

Fed Chairman's task forces, explained

Task force	Leaders	Goal	What changes should we expect?
Communications	• Mervyn King, Former Governor, Bank of England • Peter Fisher, Professor of Practice, Foster School of Business, University of Washington • Arminio Fraga, Chairman, Gávea Investimentos; former President, Central Bank of Brazil	Review how the Federal Reserve conveys policy deliberations and decisions amid uncertainty.	The FOMC would probably see getting rid of the Summary of Economic Projections (SEP) entirely as too large a step away from transparency, but it could modify it by, for example, no longer publishing the median projection to avoid seeming to endorse it. While Chairman Warsh has criticized forward guidance, some implicit soft forward guidance without commitment is likely inevitable as long as Fed officials share their views on the risks to inflation and employment and on the neutral rate.
Inflation Frameworks	• Greg Mankiw, Professor of Economics, Harvard University; former Chairman, CEA • Thomas Sargent, Professor of Economics, New York University; Nobel laureate • William White, Senior Fellow, C.D. Howe Institute; former economic adviser, BIS	Revisit how the Federal Reserve understands and responds to the drivers of inflation.	The task force leaders will likely take a mainstream view of inflation drivers but might advocate taking another look at monetary aggregates. They could also suggest new ways to measure the underlying inflation trend; one approach is to consider an average of several different measures that might each be optimal under different circumstances. The more immediate question is how to respond to inflation caused by supply shocks. While all agree that the Fed must ensure supply-driven inflation doesn't broaden out or compromise inflation expectations, policymakers still face the difficult task of judging how long supply shocks will last, for which no easy answer exists.
Data Sources	• Raj Chetty, Professor of Economics, Harvard University • Doug McMillon, Former President and CEO, Walmart Inc. • Kevin Murphy, Professor of Economics, University of Chicago	Improve the quality and timeliness of real economic signals that inform the Federal Reserve's policy judgments.	While broad support exists for incorporating alternative data sources, they often fail to meet three requirements for high-quality economic statistics: representativeness, accurate seasonal adjustment, and continuous availability. As a result, alternative data sources are unlikely to fully replace the official data but could be used to shed light on a subset of the economy.
Balance Sheet Policy	• Karen Dynan, Professor of Economics, Harvard University • Raghuram Rajan, Professor, Chicago Booth; former Governor, Reserve Bank of India • Jeremy Stein, Professor of Economics, Harvard University; former Governor, Fed Board	Review the benefits and risks of the current ample-reserves regime and the composition of the Fed's balance sheet and assess alternative frameworks for the conduct and operation of monetary policy.	We see little support for abandoning the ample-reserves framework and consequently see only limited room for regulatory and supervisory changes to shrink banks' demand for reserve balances and the size of the balance sheet. But whether the Fed's asset holdings should be proportional to Treasury debt outstanding or consist mainly of bills to reduce volatility in Fed profits remains an open question.
Productivity and Jobs	• Marc Andreessen, Co-founder and General Partner, Andreessen Horowitz • Charles I. Jones, Professor of Economics, Stanford University (on leave at Anthropic) • Asha Sharma, Executive Vice President and Xbox CEO, Microsoft Corp.	Assess the economic impact of new general-purpose technologies, including artificial intelligence (AI), to inform the Federal Reserve's policy judgments.	Warsh might invoke the Greenspan years to argue that the FOMC should not raise rates solely in response to strong GDP growth if it is accompanied by strong productivity growth driven by AI—an argument other Fed officials would likely find uncontroversial. But most Fed officials will likely be skeptical that monetary policy decisions today should be influenced by a forecast of how AI will affect productivity growth in the future as productivity growth has historically proven very hard to forecast.

Source: Federal Reserve, Goldman Sachs GIR.

Special thanks to US economist Pierfrancesco Mei for the table, which originally appeared in US Economics Analyst: The Fed Task Forces.

Fed guidance, in Warsh's own words

"I think financial markets perform best when they react to incoming data. I think they—the financial markets work less efficiently when they ask a question: How will the Federal Reserve react to that incoming information? The more that markets are paying attention to what's happening in the real economy, deciding what's good data and what's less good data, the more financial markets can price what they believe is the most likely and what are the tail risks. Financial market prices are probably the most important source of information to guide central bankers."

- June 2026 FOMC press conference

"This afternoon, you also received the usual Summary of Economic Projections. It's been the practice of this Committee for participants to submit these projections, and I have encouraged my colleagues to continue to do so. I, however, have refrained from offering any projections of my own, consistent with my long-held views on the SEP, at least as currently structured... For me, it's not helpful in the conduct of policy."

- June 2026 FOMC press conference

"Financial markets and the real economy work best when you look at what's happening in the real economy, you make your own judgments. There has been a tendency, and I take plenty of blame [for] this, the '08 crisis where we we're trying to suppress volatility, where we thought we needed to spoon feed markets to get out of that. That was the right policy for a crisis. It's not the right policy for the time that we have now. And so sometimes unlearning is harder than learning and I'm going to keep at it."

- ECB Forum on Central Banking, July 2026

"I think part of the reason why, after making a mistake in 2021 and 2022, the mistake was compounded, is the Fed gives its forward guidance. The Fed tells the whole world what their dots are going to be, what their forecasts are going to be. Well, the Fed's human. Then they hold on to those forecasts longer than they should. I think if the Fed were to wait until it gets into a meeting before making a decision, that incremental deliberation can keep the central bank from compounding its errors. I think these are big changes that are needed."

- Warsh's Senate confirmation hearing, April 2026

"I understand the desire for rolling forecasts and commentary from this Committee. But for our part, we need to observe market reaction to developments, direct and unfiltered... We're trying not to interfere with that market signal. That's part of the reason why we've been somewhat spare on our words, when we pulled back from forward guidance."

- July 2026 FOMC press conference

"Market participants are learning to play the ball, not the referee — and market prices will continue to respond in the direction and magnitude they see fit. This is, in my view, a change for the better—and we are just getting started... By not spoon-feeding markets, by not previewing our decisions, by not sort of giving nudges and leans, my colleagues and I have found in the intermeeting period what we're getting is the views from a very accomplished economist. That's the internals of financial markets... We're not going to be constrained or take verbatim from what the market's doing. But I think it's useful... to understand that markets can be a very good source of information."

- July 2026 FOMC press conference

"In the monthly window between FOMC meetings, policy makers provide the minutes of the preceding meeting and make dozens of statements, speeches, interviews, forecasts, and other predictions. They pay great attention to the latest payroll data and inflation prints and their immediate effect on the next decision. There is, however, little to be learned from the latest Fed forecast, little insight to be gleaned from the last piece of government data. I worry that Fed policy makers find themselves settling scores with one another while Fed watchers score count hawks and doves. All the while, the big questions for the economy go unanswered. And the big risks over the horizon go unaddressed... We should not encourage the financial markets to be the handmaiden of the central bank. We should allow asset prices to be an independent source of economic insight and discipline."

- From a chapter in "The Structural Foundations of Monetary Policy", 2018

"[The Fed's] "forward guidance"... offers ambiguity in the name of clarity. It licenses a cacophony of communications in the name of transparency."

- WSJ op-ed, August 2016

Source: Federal Reserve, ECB, Congress.gov, The Structural Foundations of Monetary Policy, WSJ, compiled by Goldman Sachs GIR.

Interview with Stephen Miran

Stephen Miran is former Member of the Federal Reserve Board of Governors and Chairman of the Council of Economic Advisers. He is a Senior Strategist at Hudson Bay Capital Management. Below, he argues that less forward guidance would reduce the risk of policy errors and improve the quality of market signals.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs or Hudson Bay Capital.

Allison Nathan: New Fed Chairman Kevin Warsh appears to be ushering the Fed into a less transparent era. Is this shift positive or negative?

Stephen Miran: It's positive. Forward guidance tends to dampen market volatility in the short run because telling the market what the Fed plans to do reduces the market's sensitivity to incoming data. But, over the long run, forward guidance tends to increase volatility for two reasons. First, it raises the risk of the Fed making a policy mistake because it leaves the Fed slower to adapt to changing economic conditions. For example, at the end of the post-pandemic period, the Fed was still buying mortgage bonds even though home prices were up 20%, in part because the Fed had provided calendar-based guidance committing it to doing so. But this ignored the fact that the way official shelter inflation data is constructed results in a long lag between changing market conditions and the pass-through to inflation, generating real persistence in inflation. The Fed continued to inject credit into the housing sector long after it was appropriate to do so.

Second, forward guidance can impair market pricing of risk. When the government provides explicit guidance about the future path of policy, many people naturally believe it's likely to happen. The experience of Silicon Valley Bank (SVB) illustrates the danger. SVB's management certainly made huge risk-management mistakes by extending duration and taking on excessive interest-rate risk. But part of the reason they felt comfortable doing so was because they took the Fed's guidance of an extended period of zero rates at face value. Over the longer run, forward guidance creates an environment in which these kinds of bad outcomes occur more frequently.

Allison Nathan: But we've also lived through periods of less Fed transparency that led to massive volatility, such as the Greenspan era. Is that a world we want to return to?

Stephen Miran: My sense is that Warsh does want to move in the direction of the Greenspan era. The question is, does that reduce the chance of categorical policy errors like those we discussed? Again, my answer is yes. Unlike large-scale inflation, I don't blame asset market bubbles and associated volatility on the Fed; they're an indelible part of capitalism. We don't like them, but they're part of life.

Allison Nathan: Isn't there an important distinction between the Fed committing to a policy path and being transparent about its reaction function?

Stephen Miran: In theory, yes. In practice, the difference is muddled because economic data often require interpretation. Inflation, for example, is the change in the general price level, which is not a directly observable metric like you get in physics or chemistry, but a constructed abstraction that incorporates many components, some of which may not accurately capture underlying price pressures. Case in point: the measured contribution to inflation of portfolio management fees, which are included in PCE inflation but not CPI inflation, is closely tied to stock market performance. This very positively contributed to PCE inflation in recent years as the stock market rose even though fees have declined steadily over the past two decades. GS' own economists estimate this one line contributed more than half of core PCE inflation in July. The Fed should clearly ignore this, and it needs the flexibility to do so. But, if there's too much transparency about the reaction function, the Fed then runs the risk of appearing to violate it or move the goalposts, denting the credibility of that reaction function. The Fed must have the flexibility to carefully interpret inflation data and separate true price pressures from measurement error when these are evolving in real time. So, the merits of reaction function transparency aren't as clear as they may first seem.

Allison Nathan: But wouldn't the Fed communicating more about how it's viewing and interpreting data—effectively the opposite of Warsh's intentions—avoid this issue?

Stephen Miran: I agree that an important distinction exists between guidance that tells people what you're going to do and guidance that tells people what you care about. And I feel more strongly about avoiding the former than the latter.

My view of the Summary of Economic Projections provides a useful illustration of this. The policy dots absolutely need to go because, as I explained, forward guidance on the Fed's policy path increases the likelihood of large risk events, and the policy dots play an important role in that, enabling markets to take cues from the Fed rather than forming their own expectations about the future. While the Fed emphasizes that the policy dots aren't a commitment or even a forecast, but a "projection," that's ultimately not credible because the Fed understands that if it violates its policy "projections" too much, people will start ignoring them. Forward guidance is only useful if people believe it. And it's only believable if the Fed follows it. So, the Fed is motivated to follow through on its projections. In contrast, the economy and inflation projections, which provide insight into what policymakers care about and their view of macro conditions, aren't as problematic. So, I wouldn't die on the hill for keeping or getting rid of them. I would be comfortable with narrowing the scope of guidance without removing it entirely.

Allison Nathan: Warsh believes that markets themselves should determine the appropriate policy path from macro conditions rather than rely on Fed guidance. But given that short-term interest rates price what markets expect the Fed *will* do—not what it *should* do—would less guidance simply make policy expectations harder to form?

Stephen Miran: A "hall of mirrors" problem will always exist at the front end of the interest rate curve, where the Fed is looking at the market to tell it what to do, while the market is pricing what it thinks the Fed will do. But forward guidance makes the market less responsive to data, so removing that guidance nevertheless allows markets to respond more freely and flexibly to incoming information. That will likely lead to increased volatility and a related rise in the term premium at the front end of the curve. But it would be positive in the sense that forward guidance has dampened short-rate volatility.

Allison Nathan: Warsh has also argued that this approach will, in turn, enable the Fed to obtain more "direct and unfiltered" information about the economy from markets. But is that true if markets are ultimately noisier as a result?

Stephen Miran: The question is, does removing forward guidance improve the signal coming from markets? Forward guidance generates little volatility and little signal at the front end of the curve, because the Fed's already said what it will do. In my view, reducing guidance generates more volatility but also more signal. Markets will always be volatile. But is that a reason to discard information from them? No. To get any signal from the markets, you must extract it from the noise of volatility, and the Fed has a longer timeline on which to parse it than do levered market participants. The first-best world of signal without volatility doesn't exist. I'd rather have that signal, even if it's messy, than throw the signal out by anchoring market expectations to the Fed's near-term projections.

And it's not just the front end of the curve that contains information. Inflation expectations priced across the yield curve are incredibly helpful when thinking about setting monetary policy. These data also aren't perfect, but they're among the best indicators of where inflation expectations are heading and are less susceptible to the hall of mirrors issue.

Allison Nathan: Are concerns about the Fed "outsourcing" monetary policy to the markets warranted?

Stephen Miran: The Fed shouldn't and likely wouldn't try to outsource policy completely to the markets. It should be the one setting policy. But that doesn't preclude the Fed from taking steps to improve the quality of the signals from markets, and with improved quality, make better use of them.

Allison Nathan: Could less forward guidance that puts greater onus on the market to form its own policy expectations in itself influence Fed behavior?

Stephen Miran: In the short run, the resulting increase in volatility and term premium at the front end of the yield curve would effectively amount to an incremental tightening in financial conditions, which, all else equal, would be contractionary for economic growth on the margin. So, if nothing else about the economy has changed, the Fed would need to offset that tightening by lowering the Fed funds rate. Over the long run, it might be a reason to expect a lower neutral rate, again, all else equal, since any given level of the funds rate would drive tighter financial conditions and therefore a looser funds rate would be required on average. So, reduced forward guidance could affect the level of policy rates consistent with balanced economic growth.

Allison Nathan: Could a sharp rise in market volatility force Warsh to rethink his push to usher in a quieter Fed regime?

Stephen Miran: Absolutely, in an extreme case. Forward guidance, quantitative easing, and related tools can be extraordinarily useful at the zero lower bound. They were appropriate to combat deflation risk in the aftermath of the Global Financial Crisis, but they should have been withdrawn once the emergency had passed. These tools are like antibiotics: they should be used when the economy is sick but overusing them just creates superbugs like the inflation we saw after the pandemic, linked to the housing QE and forward guidance we discussed earlier. The utility of these tools diminishes outside of a deflationary environment, and their preciousness shouldn't be squandered. If volatility ever tightened financial conditions enough to force the Fed to cut back to the zero lower bound, forward guidance could again be warranted. But we're very far from that today.

Allison Nathan: Even if Warsh likely won't be forced to rethink his communication approach anytime soon, won't other Fed officials continue to publicly share their views?

Stephen Miran: If the chairman wants less forward guidance, I would expect the officials that are a part of his leadership group and looped into the decision-making process to similarly communicate less about the Fed's intentions. But dissenting views should still be heard. During my time as a Fed governor, I frequently shared my views publicly because they were out of consensus, so I felt the need to explain myself. If I were in consensus, there'd be little point.

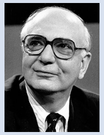
Allison Nathan: I'd be remiss if I didn't take the opportunity to ask you what you think the Fed should do next?

Stephen Miran: Recent too-high PCE inflation is concerning, but monetary policy today can do little about that given the well-documented lags between monetary policy and its impact on the economy. These lags mean that monetary policy today must be set based on where inflation is expected to be in the *second half of 2027*. And so, the question is whether the factors behind today's elevated inflation will repeat well into next year. I don't think that will be the case, as recent high PCE inflation is driven by a combination of energy and deglobalization shocks, as well as measurement error, none of which I forecast to repeat. If they don't, inflation will return toward its underlying levels near 2%. Indeed, core CPI is 2.5%, which historically is fine. If the typical CPI-PCE relationship held at present, PCE would be 2.1%; the nearly 1-point inversion of the CPI-PCE relationship is mostly measurement error, like the portfolio management services we discussed, but also software, which GS' economists have covered too.

At the same time, I view the labor market as still at risk and monetary policy as still modestly restrictive, although the truly astonishing investments in AI have nudged up my expectations of the neutral rate somewhat since I last submitted dots earlier this year. All told, I would still favor slightly easier policy ahead, since inflation is on track to be in a good place after monetary policy lags have elapsed. Hiking rates seems inappropriate, as that would effectively amount to asking people to lose their jobs to compensate for measurement error.

The evolution of Fed communications

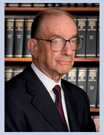
1979
Begins publishing a summary of policymakers' individual economic projections in the semiannual Monetary Policy Report to Congress


Paul Volcker
1979-1987

March 1993
Begins releasing minutes of FOMC meetings (with a 6–8-week lag)

November 1993
Begins releasing transcripts of FOMC meetings (with a 5-year lag)

February 1994
Begins announcing policy actions publicly on the day of the FOMC decision


Alan Greenspan
1987-2006

May 1999
Releases a statement about the FOMC decision even after no change in the Fed funds rate target; Begins announcing a policy "tilt" indicating most likely future interest rate action between then and the next FOMC meeting

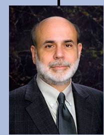
January 2000
Commits to publishing a statement after every FOMC meeting; Replaces "tilt" with statement describing "balance of risks" to the economic outlook intended to cover an interval extending beyond the next FOMC meeting

March 2002
Begins releasing votes of individual Committee members and preferred policy choice of any dissenters

August 2003
Begins to issue direct qualitative statements about its future policy inclinations in various verbal formulations

February 2005
Expedites the release of FOMC minutes to make them available before the subsequent FOMC meeting

November 2007
Increases the frequency and expands the content and horizon of its publicly-released inflation and economic activity forecasts


Ben Bernanke
2006-2014

April 2011
Chairman holds first press conference following an FOMC decision

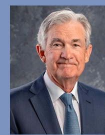
August 2011
Shifts to calendar-based guidance from vague qualitative guidance

January 2012
"Dot plot" is officially added to the Summary of Economic Projections (SEP) and the Statement on Longer-Run Goals and Monetary Policy Strategy debuts

December 2012
Replaces calendar-based guidance with outcome-based guidance


Janet Yellen
2014-2018

January 2019
Shifts to holding press conferences after every FOMC meeting from only after meetings associated with an SEP


Jerome Powell
2018-2026

August 2020
Updates its longer-run strategy following its first formal framework review


Kevin Warsh
2026-

June 2026
FOMC statement becomes shorter and omits forward guidance, and no SEP projections are submitted by the Chairman

Source: Federal Reserve, Goldman Sachs GIR.

The Fed's communication toolkit

Tool	Introduction*	Timing/frequency	Issuer/voice	Official purpose/content	Proposed changes
FOMC statement	1994	Released immediately following each scheduled FOMC meeting; eight such meetings are held per year	Collective FOMC	Announces the FOMC's policy decision, vote, and its assessment of economic conditions, inflation, and employment. Prior to Warsh becoming Chairman, the statement included forward-looking language about the likely policy path or conditions for future adjustments	Statement shortened significantly in June 2026 (explicit forward guidance and "balance of risks" content removed)
Chair's press conference	April 2011	Held after each scheduled FOMC meeting	FOMC Chair	Enables the chair to explain the FOMC's policy decision and answer questions from the press about the decision, economic conditions, the future policy path, etc. in real time	Warsh provided limited commentary during his first two press conferences and is considering reducing their frequency
Summary of Economic Projections (SEP)	November 2007	Released following select FOMC meetings, four times per year	Individual FOMC participants, compiled and published by the FOMC	Shows FOMC participants' projections for GDP growth, unemployment, PCE inflation, and interest rates (via the dot plot)	Warsh did not submit an interest rate projection (dot) at his first meeting, and the communications task force is actively reviewing the SEP and the dot plot (see pg. 8)
Publicly-released FOMC minutes	February 1993	Released three weeks after each scheduled FOMC meeting	Collective FOMC	Provide an overview of the discussion that occurred at the FOMC meeting, including a summary of economic and financial conditions, policy issues addressed, and the decisions made by the meeting participants	No active official proposals
Remarks by Governors and Reserve Bank presidents	N/A	Frequent but no set schedule	Individual policymakers	Allow individual policymakers to discuss the economy, regional conditions, research, and their individual policy views	No active official proposals (though Warsh has discussed limiting such remarks)
Implementation note	December 2015	Released alongside the statement following each scheduled FOMC meeting	Collective FOMC	Outlines operational details needed to implement the policy decision, including open market operations and balance sheet instructions	No active official proposals (though broader balance sheet operations are under review by the balance sheet policy task force)
Statement on longer-run goals and monetary policy strategy	January 2012	Updated/reaffirmed annually	Collective FOMC	Articulates the FOMC's monetary policy strategy and its approach to achieving its dual mandate	No active official proposals (though how the Fed understands and responds to inflation is under review by the inflation frameworks task force)
Monetary policy report and congressional testimony	1978	Report is delivered semiannually to the required Senate and House committees along with testimony from the chair	Federal Reserve Board; Chair for testimony	The report explains the conduct of monetary policy, economic developments, and the outlook, in accordance with the Federal Reserve Act that requires the Federal Reserve Board to submit written reports to Congress containing such discussions	No active official proposals
Beige Book	1970 (known initially as the "Red Book" owing to its red cover; public releases began in 1983)	Published eight times per year	Twelve Federal Reserve Banks	Each Federal Reserve Bank gathers anecdotal information on economic conditions in its District through reports from Bank and Branch directors and interviews with business contacts, economists, and market experts. The Beige Book summarizes this information	No active official proposals
FOMC transcripts	1994	Released with a five-year lag	Collective FOMC	Provide a detailed historical record of FOMC meeting proceedings	No active official proposals

**Column shows only the year the tool was introduced; for details on changes to these tools throughout the years, see timeline on pg. 12.*
Source: Federal Reserve, Goldman Sachs GIR.

Transparency: more benefits than costs

Joseph Briggs and Megan Peters argue that central bank transparency has more benefits than costs

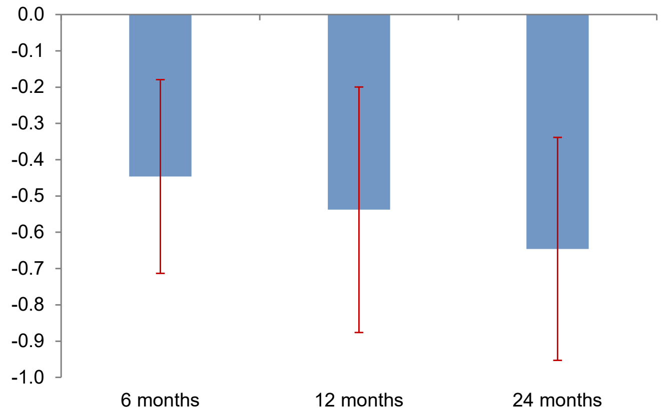
The potential benefits of increased central bank transparency, including a reduction in interest rate volatility and more effective transmission of monetary policy to the real economy, are often weighed against the potential costs of central banks adjusting more slowly to incoming information that conflicts with prior guidance—increasing the risk of policy mistakes—and too much communication generating confusion that amplifies market volatility. In practice, we find strong evidence of the former and little evidence of the latter.

Clear evidence of transparency benefits…

We find evidence that the global shift to greater transparency has yielded benefits through two channels: a reduction in rates volatility and more effective transmission of policy via financial conditions.

Increased information has generally lowered policy volatility…

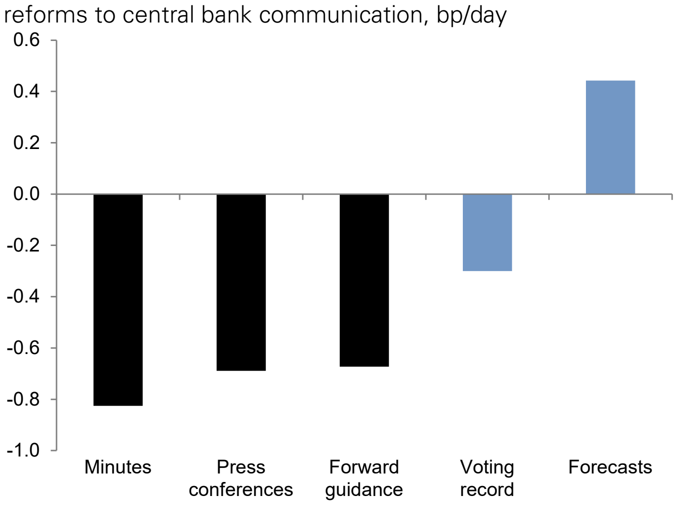
Changes in realized volatility 6, 12, and 24 months after major reforms to central bank communication, bp/day



Note: Error bars indicate 90% confidence intervals.
Source: GS FICC and Equities, Goldman Sachs GIR.

…with larger effects from minutes, press conferences, and forward guidance

Changes in realized monthly volatility 24 months after major reforms to central bank communication, bp/day



Note: Black bars indicate statistically significant changes at the 10% level.
Source: GS FICC and Equities, Goldman Sachs GIR.

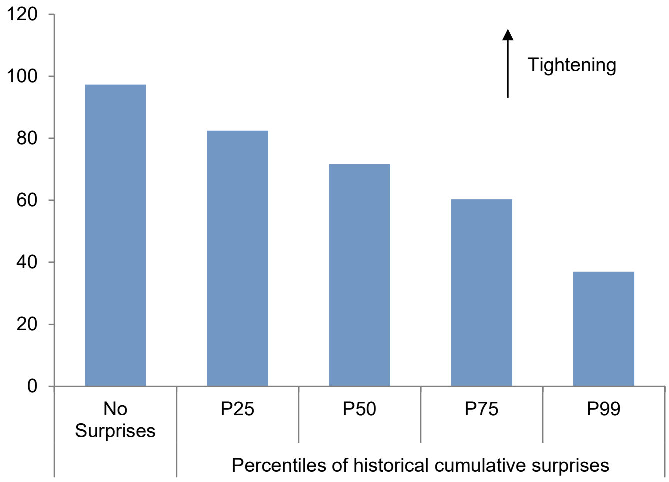
First, after compiling data on central bank communication policy changes over the last 30 years, we find that reforms that increased transparency have historically led to a roughly 10% reduction in daily 1y forward 1y swap rates volatility, with larger effects following the introduction of minutes, press conferences, and forward guidance. While modest, these patterns highlight that increased information has helped lower policy rate uncertainty and volatility.

Second, and more importantly, we find that increased communication and transparency have led to more effective transmission of policy via financial conditions. After conditioning on the average meeting day surprise over the last five years (which we view as a summary measure of communication effectiveness), we find that a 100bp hawkish policy surprise leads to 100bp FCI tightening if a central bank has not surprised recently, but only 70bp for central banks at the median of the historical surprise distribution, 60bp at the 75th percentile, and 40bp at the 99th percentile.

The dampened transmission for more surprise-prone central banks suggests that financial markets may be slow to fully incorporate policy signals if they view them as less credible or persistent, or if they confuse the interpretation of the central bank's reaction function. If markets then discover that the policy surprise is indeed followed by a more persistent policy shift that subsequently tightens (or loosens) financial conditions, the economic impact will arrive later, undesirably extending the lag of monetary policy.

Transparency and credibility have contributed to more effective transmission of policy via financial conditions

Effect of 100bp hawkish policy surprise on GS FCI over next week, by historical tendency to surprise, bp



Source: Bloomberg, Goldman Sachs GIR.

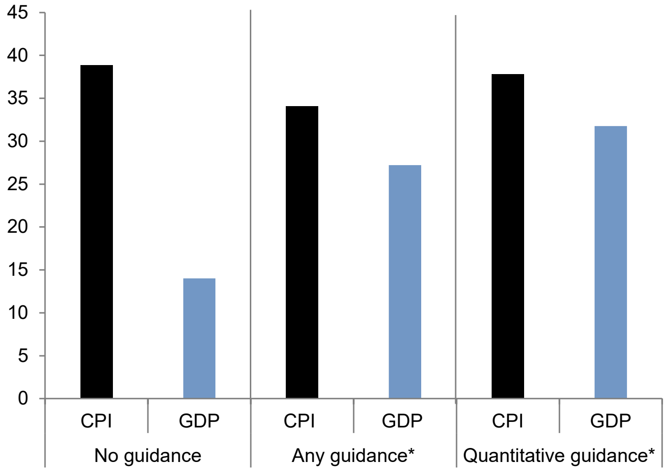
…but little evidence of transparency costs

But what about the potential costs of central banks reacting more slowly to incoming information that goes against guidance and too much communication in itself creating confusion and volatility? We find limited evidence for both.

First, we find[1] that central banks that provide guidance tend to react similarly to inflation surprises as those that do not and react more quickly to GDP surprises. While we are hesitant to over-extrapolate these results given that the differences in reactions are not statistically significant, the estimates push back against the narrative that providing guidance significantly dampens policy responses.

Guidance-providing central banks have, if anything, responded more quickly to forecast surprises

Effect of a 1pp annualized forecast revision on policy rate, by whether forward guidance was used over previous 12m, bp



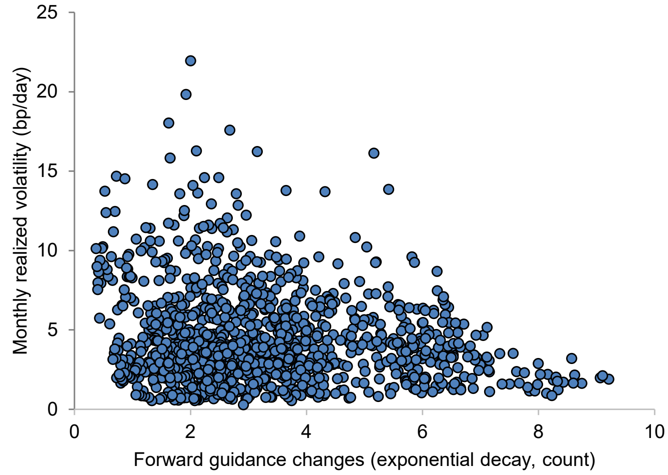
No statistically significant difference between central bank reaction functions with and without forward guidance.
Source: Sutherland (2022), Haver Analytics, Goldman Sachs GIR.

Second, we find little evidence that major central banks have reached a point where more information is counterproductive. Specifically, we find that the two-year total change in forward guidance (based on the extended Sutherland (2022) dataset) is associated with a decline in year-ahead policy-rate pricing volatility, although the marginal benefit of more frequent updates appears to diminish rapidly.

We also find an essentially flat relationship between the (normalized) number of central bank speeches and rates volatility. The lack of any visible uptick in volatility at higher communication levels suggests that DM central banks are not at a point where further communication is counterproductive, although the marginal benefits of more communication may be limited.

The marginal benefit of more information diminishes quickly...

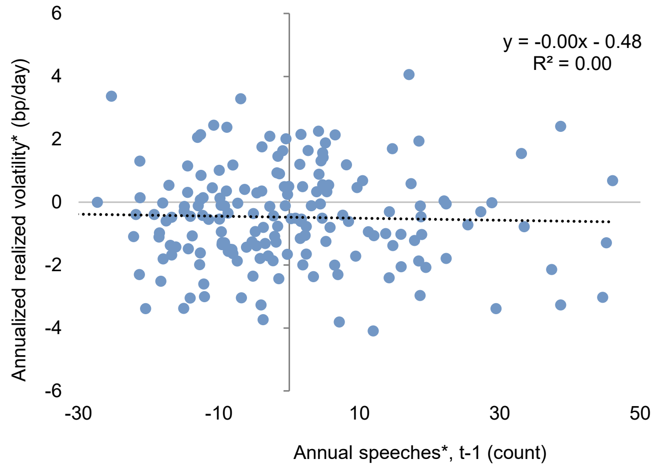
Forward guidance changes (exponential decay, count) vs. monthly realized volatility (bp/day)



Source: GS FICC and Equities, Bloomberg, Sutherland (2022), GS GIR.

...but so far communication has not led to market confusion and increased volatility

Annual speeches (count) vs. annualized realized volatility* (bp/day)



**Controlling for country and time fixed effects.*
Source: GS FICC and Equities, Bloomberg, Sutherland (2022), GS GIR.

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[1] To assess this, we compile cumulative year-ahead forecast surprises, which we define as the sum of GDP and inflation realizations (vs. benchmark forecasts) and the 2-year ahead forecast revisions (vs. benchmark forecasts). We then regress year-ahead policy outcomes on these same variables while also controlling for lagged policy rates and country fixed effects. We interact our cumulative forecast surprise measures with a general and quantitative guidance indicator (based on the Sutherland (2022) forward guidance dataset) to estimate whether providing guidance leads to a more delayed reaction.

A less transparent Fed and US rates

William Marshall finds that rates have priced in uncertainty related to a less transparent Fed, but whether it persists will depend on the clarity of the Fed's reaction function

US rates markets have already begun to reflect Chairman Kevin Warsh's shift toward a less transparent Fed regime. We find that understanding FOMC actions and the rationale behind them meaningfully improves the rates markets' ability to price future policy outcomes and that even meeting-day surprises don't necessarily equate to structurally higher rates volatility as long as the Fed's reaction function is well understood. Without that understanding, the recent increased uncertainty about the path of policy rates will likely persist, raising rate market volatility and leading investors to demand a higher term premium for holding duration.

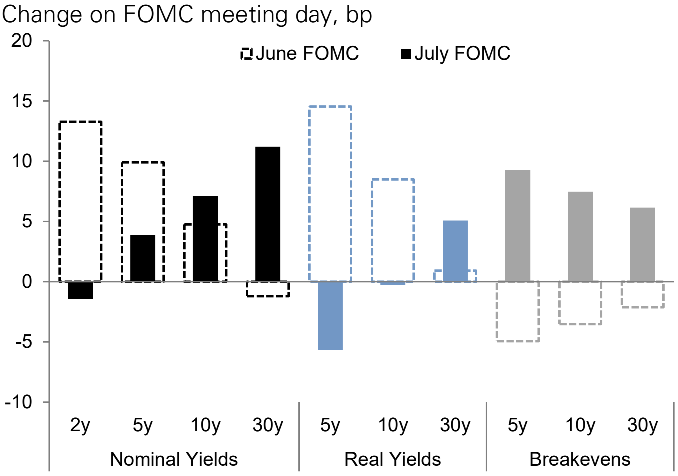
Rates markets already responding

The US rates market has quickly priced in the uncertainty that accompanies less transparent Fed communication. This was most readily visible in the substantial uncertainty implied heading into the July FOMC decision—the rates market priced unusually high ~30% odds of a hike prior to the ultimate decision to keep the policy rate unchanged. While larger "surprises" (measured as the gap between what markets priced ahead of the meeting and the realized outcome) have often accompanied rate cuts, July represented the largest non-cut meeting day "surprise" since the late 1990s.

Rates market moves on meeting days have also reflected the uncertainty inherent in a less transparent regime. The market interpreted the June FOMC as a relatively hawkish surprise, visible in a front-end led and real-yield driven rise in nominal yields. And the July decision to remain on hold despite non-trivial odds of a hike produced a mirror-image move, with long-end yields rising disproportionately and breakeven inflation playing a greater role in the rates selloff.

July's FOMC decision saw more or less the mirror image of the rate move from June

Change on FOMC meeting day, bp



Source: Bloomberg, Goldman Sachs GIR.

On net, market responses to Chairman Warsh's first two FOMC meetings have amounted to relatively higher long-end yields, a steeper curve, and higher volatility in the US compared to other major markets. However, a material reevaluation in the level of traded inflation has not occurred, suggesting that, at least for now, investors are mainly responding to greater uncertainty rather than pricing in diminished credibility.

History as a guide

As the market continues to digest the regime shift, the evolution of Fed communication over the last three decades offers useful takeaways about how this shift may continue to impact rates market dynamics. First, the historical experience suggests that understanding FOMC actions and the rationale behind them meaningfully improves markets' ability to price future policy outcomes. We find that the Fed's efforts to improve policy effectiveness via increased transparency in the mid-2000s compressed the absolute gap between ex-ante market pricing of the Fed funds rate and the eventual policy outcome. While transparency does not necessarily equip markets with perfect foresight, insight into the decision-making process reduces the risk that markets over or underreact to given pieces of information. As a result, we find that even though larger meeting-day surprises tend to correspond to larger yield swings on the day of the decision, they do not necessarily equate to structurally higher rates volatility if the market has a clear understanding of the Fed's reaction function.

Second, we find that, in such environments, Fed press conferences have played a clear role in shaping markets' interpretation of the FOMC statement, though different Fed chairs have used this tool to different ends. Under Bernanke and Yellen, rate moves suggested that press conferences tended to reinforce the statement's message, whereas under Powell yields tended to reverse their initial statement reaction during the press conference, suggesting he mainly used the press conference to add context that altered the rates market's initial read.

That said, we also find that post-meeting press conferences, as well as the publication of the dot plot, have not significantly improved the markets' ability to anticipate future policy rate outcomes. That is not to say that these innovations have not mattered as a rates market driver, but rather that there is stronger evidence that the initial mid-2000s shift towards transparency was more impactful. However, markets do take a signal from the frequency of press conferences—rates markets tended to put lower odds on a move at non-press conference meetings before the shift to holding a press conference after every meeting.

Lesson learned: Reaction function clarity is key

All told, history suggests that a shift toward more meeting-day surprises may change when volatility occurs but need not raise it structurally. But this is conditional on the Fed still providing clarity about its rationale for policy decisions and its reaction function. Markets need to understand which data the Fed thinks matter most and how policy is likely to respond as those data evolve. Less explanation on these fronts would likely amplify uncertainty about the path of policy rates, fueling higher rate market volatility and leading investors to demand greater compensation for holding duration via higher term premium.

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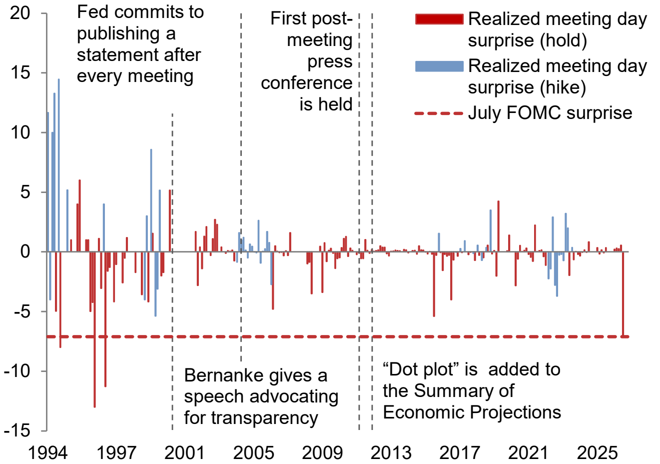
Fed transparency and markets, in pics

The Fed's move toward greater transparency over the last 30 years has led to a decline in FOMC meeting day surprises…

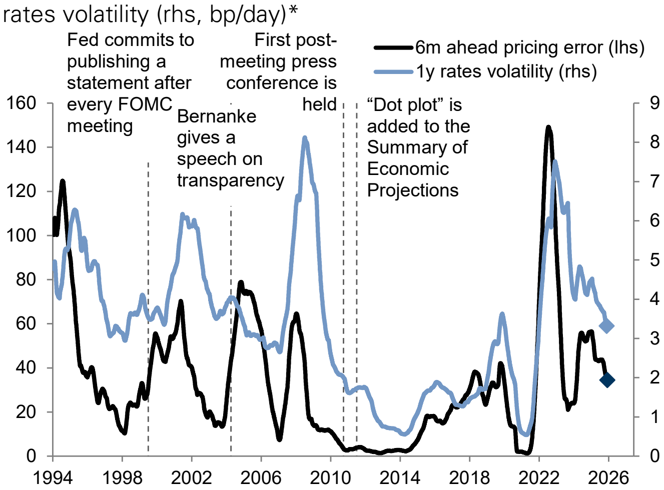
Est. non-cut meeting day "surprise" vs. market pricing, bp



Note: Surprise estimated as meeting day change in weighted 1st or 2nd Fed funds futures prior to 2002, 1m OIS from 2002 to present.
Source: Bloomberg, GS FICC and Equities, Goldman Sachs GIR.

…and more transparency has improved the market's policy path pricing accuracy and reduced volatility, outside of macro shocks

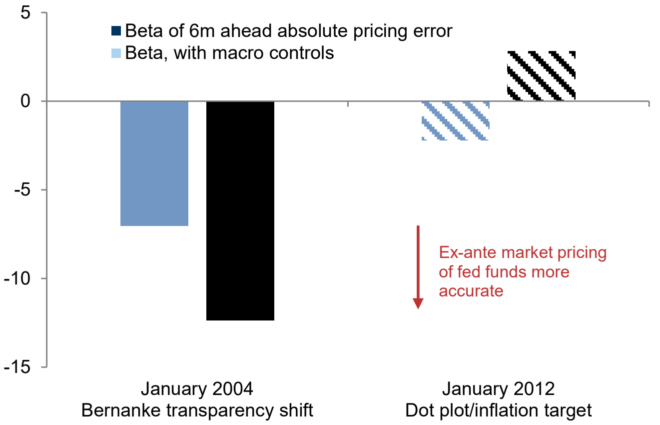
Absolute pricing errors of Fed funds futures (lhs, bp) vs. 1y rates volatility (rhs, bp/day)*



*1y rolling averages.
Source: GS FICC and Equities, Goldman Sachs GIR.

The shift away from deliberately vague communication under Bernanke drove the largest improvement in accuracy

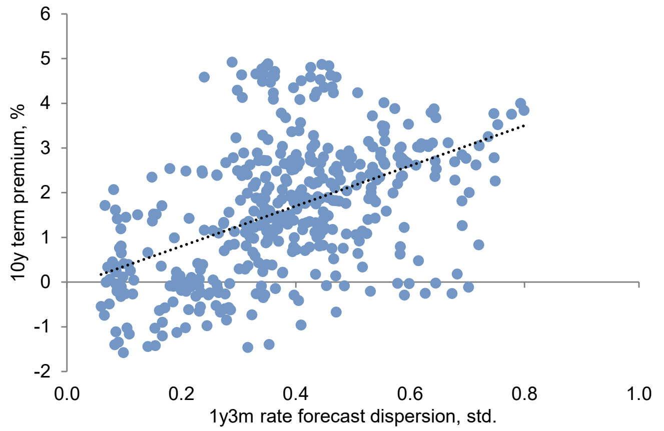
Beta of 6m-ahead policy pricing accuracy to Bernanke transparency speech (2004) and dot plot intro (2012), bp



Note: Shaded bars are beta insignificant.
Source: Goldman Sachs GIR.

Lower uncertainty about the policy path, measured as the dispersion in forecasts, also tends to dampen term premium and reduce borrowing costs

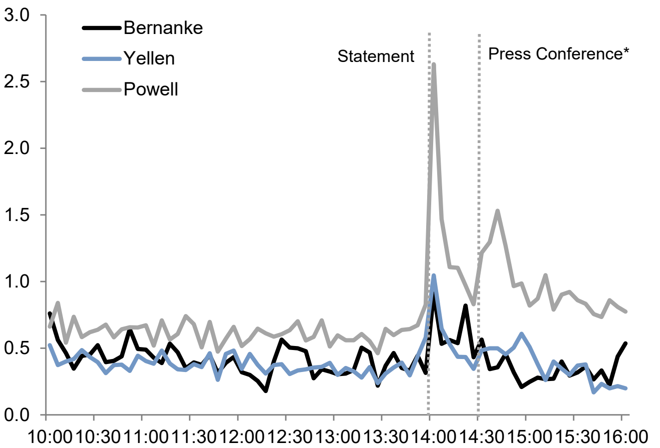
Forecast dispersion of 1y3m rates vs. 10y US term premium, GS estimate



Source: GS FICC and Equities, Consensus Economics, Goldman Sachs GIR.

That said, compared with the Bernanke and Yellen eras, press conferences under Powell generated higher rates volatility…

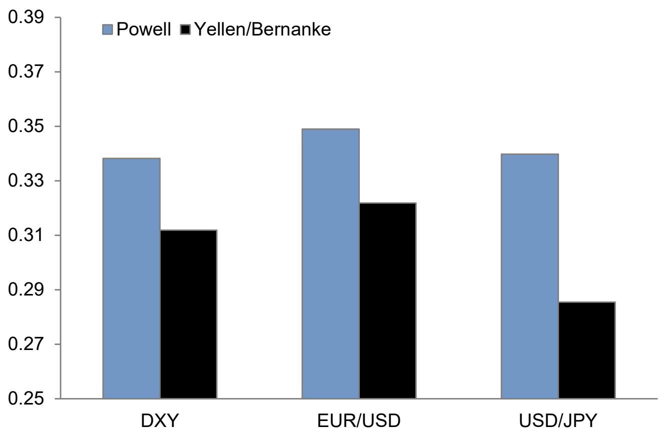
Intraday volatility in 2y Treasury yields on FOMC press conference days, measured in 5-minute intervals, bp



*Press conferences under Chair Bernanke began at 14:15.
Source: Goldman Sachs GIR.

…as well as FX volatility, partly owing to differences in Powell's communication style, which suggests that transparency alone does not guarantee calmer markets

Std. dev. of FX returns around FOMC press conferences, %



Note: 70-minute window from 10 minutes before to 60 minutes after the beginning of the press conference; we exclude the March 15, 2020 meeting.
Source: USMPD, Goldman Sachs GIR.

Special thanks to rates strategist Friedrich Schaper and FX strategist Lexi Kanter for charts.

Fed communication and FX volatility

Michael Cahill and Lexi Kanter find that global macro conditions remain the biggest driver of Dollar vol, but shifting Fed communication impacts when and how that vol manifests

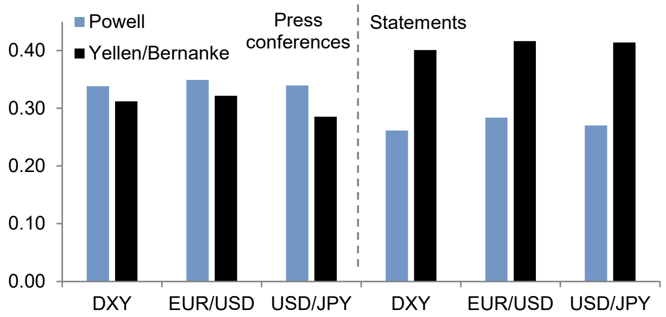
New Fed Chairman Kevin Warsh's push for a less transparent Fed raises the important question of whether this shift would increase Dollar volatility. The answer is more nuanced than just a simple "yes." Macro factors, including the growth and inflation backdrop, relative monetary policy expectations and rate differentials, are key determinants of the overall level of FX volatility. But historical evidence suggests that even small shifts in how—and how much—central banks communicate can change which events and data drive FX volatility and when that volatility is most pronounced.

Looking back: lessons from past Fed communication shifts

History suggests that Fed communication affects FX volatility, but it is more about the timing than the level. We find that intraday FX volatility increased more around the post-FOMC meeting statements under Fed Chairs Bernanke and Yellen, but more around the post-meeting press conference under Chair Powell. This shift is consistent with findings from our rates strategists and the academic literature, which attribute the recent increase in market volatility around press conferences partly to differences between Chair Powell's and his predecessors' communication styles. However, macro conditions and the policy choices they prompted—such as innovations in forward guidance and QE program details released in the FOMC statements—likely also played a role.

Different Fed communication styles have shifted FX volatility

Standard deviation of FX returns around each event, %



Source: USMPD, Goldman Sachs GIR.

Looking up: lessons from Canada

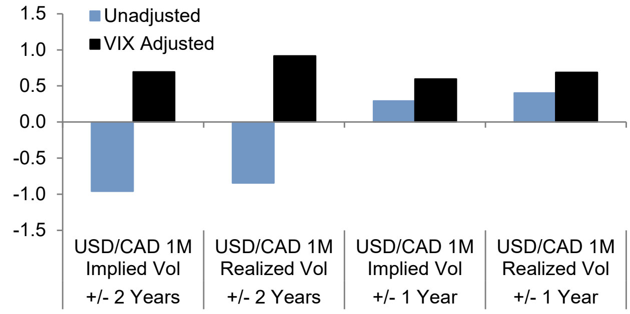
The Bank of Canada's transition from Governor Carney to Governor Poloz in 2013, which marked a significant shift in its communication framework, offers a useful parallel to the current US situation. Poloz deliberately dialed back the detailed, date-based forward guidance pioneered by Carney, arguing that less guidance would encourage the private sector to spend more time assessing Canada's economy and lead markets to better reflect what the Bank *should* do vs. what it *would* do.

We find that USD/CAD volatility was higher during the Poloz era than the global volatility backdrop would have predicted, which we attribute to the joint effect of less forward guidance and a potential shift in the Bank's reaction function. CAD volatility also became more idiosyncratic and less correlated with volatility in other G10 currencies and global factors between the final year of Carney's term and the first year of Poloz's, suggesting that domestic considerations became a more prominent driver of volatility.

The lesson learned is that reduced guidance can make FX volatility more sensitive to domestic developments and less tied to common global drivers. It may not, however, raise the overall level of volatility on its own. The Carney-Poloz transition coincided with a *reduction* in overall volatility, and the relative increase in CAD volatility emerges only after controlling for global factors. Central bank communication style can therefore affect a currency's volatility relative to peers, while macro factors remain far more important in determining the overall volatility regime. This suggests that reduced guidance alone is not necessarily a sign that implied and realized volatility will rise.

A relative rise in CAD vol only after controlling for global factors

Chg in avg USD/CAD implied and realized vol around Carney-Poloz transition



Source: Bloomberg, Goldman Sachs GIR.

Looking ahead: less guidance redistributing USD volatility

The historical Fed and Bank of Canada experiences demonstrate that shifts in central bank communication can have an important effect on FX volatility, often appearing as a redistribution of that volatility—whether from one form of communication to another or to a different set of datapoints—which can be detrimental if markets and policymakers are not in sync (see pgs. 4-5).

The implications are especially important for the Dollar. Given its global role, increased Dollar volatility can have wide-ranging market impacts, which is partly why Fed officials have long sought to suppress policy surprises. When the Fed talks, it also particularly pays to listen given that Fed communication tends to have the largest international spillovers, and, unsurprisingly, FX tends to respond more reliably than other asset classes to policy surprises owing to its relative nature.

While less important than the broader macro backdrop, the evidence shows that even small communication shifts can have a meaningful impact on how FX volatility tends to respond to different events, at different horizons, and even to different data. We expect less transparency from the Fed Chairman to lead to higher front-end volatility, a greater focus on other Fed communication, and potentially more market misfires as investors adapt to a different data framework—all else equal.

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Fed: more transparent than most

The growing recognition that managing market expectations is a key tool in managing the transmission of monetary policy has led to a consistent shift toward more transparent global central banking over the last 25 years. While the Fed was late to adopt many changes that increased transparency, today it is more transparent than most central banks.

Comparing central bank communication strategies

A comparison of global central bank communication strategies reveals that:

- Most major central banks make policy decisions by vote (except for the BoC, Norges Bank, and SNB, which make decisions by consensus) and **provide details of individual voting records** (the outlier is the ECB, which often reveals whether the vote was unanimous in its post-meeting press conference).
- Most DM central banks hold eight meetings per year, with **a press conference after each meeting** (except for the BoE and Norges Bank, which hold press conferences after every other meeting), and all major central banks release **meeting minutes**.
- Most DM central banks publish a quarterly Monetary Policy Report (MPR) with **detailed economic forecasts** that reflect either staff or monetary policy committee consensus (the ECB does not publish an MPR and the Fed shares a semi-annual MPR with Congress), while the Fed and BoJ publish committee members' individual forecasts. Most central banks do not publish policy rate forecasts, and those that do (besides the Fed) usually show a single modal rates path based on their economic projections.
- Nearly all DM central banks have provided some form of **forward guidance** in meetings over the last several years, although most central banks (besides those that publish rates forecasts) have not provided guidance at recent meetings.

Relative to other central banks, the FOMC provides more information about individual forecasts and policy expectations, but is an outlier in not publishing a quarterly monetary policy report and never publishing economic scenarios

	Decision process		Meetings			Forecasts				Forward guidance	
	Decision process	Publishes voting records?	Meetings / year	Press conferences / year	Delay until publication of minutes	Publishes MPR?	Publishes scenarios?	Forecast ownership	Publishes rate forecast?	Forward guidance frequency / year (last 10 years)	Explicit forward guidance today?
Fed	By vote	Attributed	8	8	Three weeks	Semiannually	Never	Individual	Individual	8	Yes
ECB	By vote	No	8	8	Four weeks	No	Sometimes	Staff	No	6	No
BoJ	By vote	Attributed	8	8	One month	Quarterly	Never	Individual	No	7	Yes
BoE	By vote	Attributed	8	4	On meeting date	Quarterly	Sometimes	MPC	No	7	No
BoC	Consensus	N/A	8	8	Two weeks	Quarterly	Sometimes	MPC	No	5	No
RBA	By vote	Unattributed	8	8	Two weeks	Quarterly	Sometimes	Staff	No	5	No
RBNZ	By vote	Attributed	7*	7*	On meeting date	Quarterly	Sometimes	MPC	MPC	7	Yes
Riksbank	By vote	Attributed	8	8	Five days	Quarterly	Sometimes	MPC	MPC	8	Yes
Norges Bank	Consensus	N/A	8	4	On meeting date	Quarterly	Sometimes	MPC	MPC	8	Yes
SNB	Consensus	N/A	4	4	Four weeks	Quarterly	Sometimes	MPC	No	0	No

**8 from 2027 onwards.*
Source: Goldman Sachs GIR.

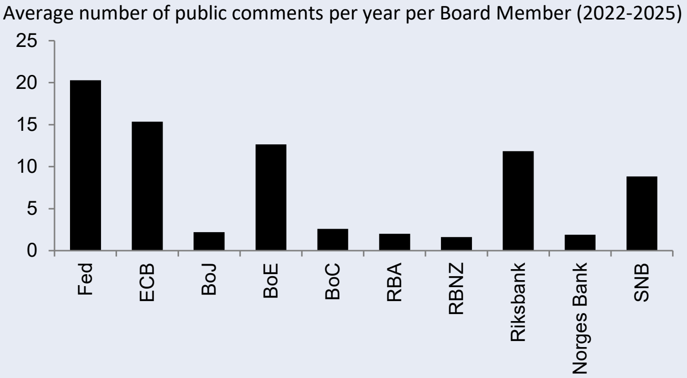
Fed: a more transparent central bank

On net, while the Fed has not always been a leader in providing information—it was relatively late to announce the outcome of policy meetings, adopt press conferences, regularly publish forecasts, and publish meeting statements (see pgs. 12 and 13)—today it is more transparent than most other central banks, mainly because it provides more details on individual FOMC members' economic and policy rate forecasts.

Other patterns support this overarching takeaway, including that the Fed generally provides more information in its meeting minutes and Fed officials tend to provide more public commentary than officials at other central banks. Accordingly, a moderate pullback in communication strategy could reflect a return to cross-country and historical norms, particularly if the changes focus on providing less information around individual forecasts. But that begs the question of whether the Fed's more transparent approach has been an advantage that it would then be giving up (see pgs. 14-15).

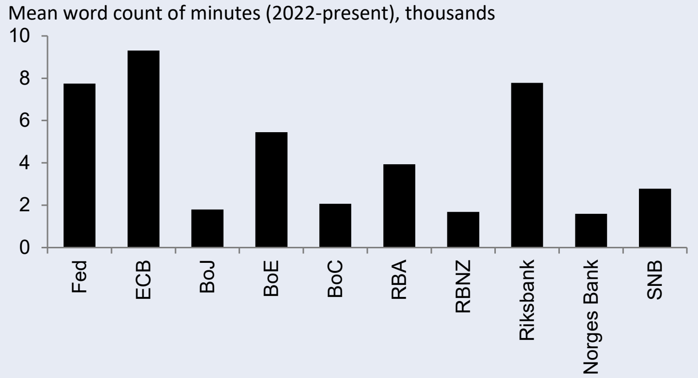
The Fed provides more information than most other DM central banks via more frequent public appearances…

Average number of public comments per year per Board Member (2022-2025)



…and more detailed meeting minutes

Mean word count of minutes (2022-present), thousands



Source: Bloomberg, Federal Reserve, ECB, BoJ, BoE, BoC, RBA, RBNZ, Sveriges Riksbank, Norges Bank, Swiss National Bank.

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Summary of our key forecasts

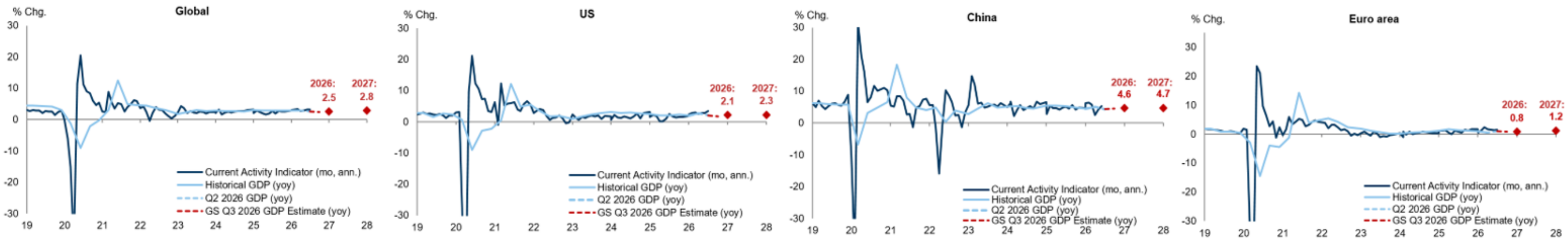
GS GIR: Macro at a glance

Watching

- **Globally,** we expect real GDP growth to slow to 2.5% yoy in 2026 amid headwinds from the rise in energy prices from the conflict in the Middle East. We expect global core inflation to end the year at 2.8%, reflecting a fading tariff boost and further normalization in shelter and wage inflation but a boost from energy price passthrough.
- **In the US,** we expect real GDP growth of 2.1% on a Q4/Q4 basis in 2026, reflecting subdued consumer spending growth but a boost from the AI boom via higher equity wealth as well as strong capex. We expect core PCE inflation of 2.9% in December 2026, boosted by the effects of tariffs, energy price passthrough, and AI demand exaggerated by measurement issues, with it falling closer to 2% in 2027 as those effects subside. We expect the unemployment rate to end 2026 at 4.2%.
- **We expect the Fed** to leave the policy rate unchanged at 3.5-3.75% for the rest of 2026.
- **In the Euro area,** we expect real GDP growth of 0.8% on a Q4/Q4 basis in 2026, reflecting resilient activity data but ongoing headwinds from elevated energy prices as well as subdued consumer confidence. We expect core inflation to rise to a peak of 2.7% yoy in 1Q27, reflecting energy price passthrough, before declining to 2.0% by end-2028.
- **We expect the ECB** to deliver one more 25bp hike in September to a peak policy rate of 2.5%.
- **In China,** we expect real GDP growth of 4.6% yoy in 2026, reflecting strong exports but headwinds from weak domestic demand. We expect CPI/PPI inflation to rise to 1.0%/2.0% yoy this year largely owing to commodity price passthrough.
- **WATCH CONFLICT IN THE MIDDLE EAST.** The situation remains fluid amid swings between de-escalatory and escalatory headlines, and we will be closely watching how oil flows through the region continue to evolve from here.

Goldman Sachs Global Investment Research.

Growth



Source: Haver Analytics, 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 "Technical Updates to Our Global CAIs," Global Economics Comment, Sep. 01, 2025.

Forecasts

Economics

GDP growth (%)	2026 GS (Q4/Q4)	2026 Cons. (Q4/Q4)	2026 GS (CY)	2026 Cons. (CY)	2027 GS (CY)	2027 Cons. (CY)
Global	2.4	–	2.5	2.6	2.8	2.6
US	2.1	2.0	2.1	2.2	2.3	2.1
China	4.6	4.6	4.6	4.6	4.7	4.4
Euro area	0.8	0.9	0.8	0.8	1.2	1.2

Policy rates (%)	2026 GS	2026 Mkt.	2027 GS	2027 Mkt.
US	3.63	3.87	3.13	3.97
Euro area	2.50	2.62	2.00	2.79
China	1.40	1.38	1.30	--
Japan	1.00	1.37	1.50	2.01

Markets

Interest rates 10Yr (%)	Last	E2026	E2027
US	4.71	4.40	4.25
Germany	3.25	3.00	3.00
Japan	2.94	2.50	2.25
UK	4.94	4.50	4.35

FX	Last	3m	12m
EUR/$	1.16	1.14	1.12
GBP/$	1.35	1.33	1.28
$/JPY	160	162	165
$/CNY	6.73	6.80	6.50

Commodities	Last	3Q26	4Q26
Crude Oil, Brent ($/bbl)	91	88	80
Nat Gas, NYMEX ($/mmBtu	2.78	3.50	3.50
Nat Gas, TTF (EUR/MWh)	63.75	60	53
Copper ($/mt)	14,235	13,600	13,700
Gold ($/troy oz)	4,404	4,600	4,836

Credit (bp)		Last	3Q26	4Q26
USD	IG	81	85	82
	HY	275	305	295
EUR	IG	90	91	88
	HY	255	320	315

Equities

S&P 500	E2026 GS	E2026 Cons.	E2027 GS	E2027 Cons.
Price	8,000			
EPS	$340	$363	$385	$408
Growth	24%	32%	13%	12%

Returns (%)	12m	YTD	E2026 P/E
S&P 500	8	12	22.1x
MXAPJ	23	22	12.8x
Topix	9	21	19.9x
STOXX 600	7	10	15.6x

Consumer	2026 CPI (%, yoy)	2026 Unemp. Rate	2027 CPI (%, yoy)	2027 Unemp. Rate	Wage Tracker 2026 (%) Q1	Q2	Q3	Q4
US	3.2	4.2	2.3	4.1	3.5	3.6	--	--
Euro area	2.9	6.3	2.4	6.2	--	--	--	--
China	1.0	--	1.0	--	--	--	--	--

Source: Bloomberg, Goldman Sachs Global Investment Research. For important disclosures, see the Disclosure Appendix or go to www.gs.com/research/hedge.html.

Market pricing as of August 18, 2026

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 Comment: Technical Updates to Our Global CAIs.

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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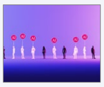

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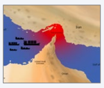

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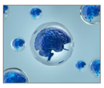

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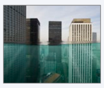

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