



GETTING MONETARY POLICY BACK ON TRACK

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PREFACE

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On May 12, 2023, we convened for the annual Hoover Monetary Policy Conference. This year's conference was titled "How to Get Back on Track."

We met at a tumultuous time in monetary policy. Inflation surged starting in February 2021. When we met previously on May 6, 2022, the Federal Reserve had only begun to react, with its first 0.25% rate increase in March 2022. That conference was titled "How Monetary Policy Got Behind the Curve and How to Get Back." The central questions were why inflation had surged, why the Fed failed to forecast or perceive inflation when it happened, whether the Fed had made inflation worse by waiting so long to take action, and whether it would be necessary to sharply raise interest rates before inflation got out of control.

As always, an underlying question remained whether the Fed should follow a rule-like monetary policy, which balances the potential benefits of reacting to the perceived particularities of each situation versus the costs of misperceiving the situation and acting unpredictably.

Inflation peaked at 9% in the summer of 2022, while the Fed had only raised the federal funds to 1.25%. Inflation then eased, settling somewhat the question of whether interest rates must exceed past inflation for inflation to decline. The Fed continued to raise interest rates. By May 2023, the Fed had enacted a swift tightening cycle, reaching 5.00–5.25%, where the Fed "paused."

Meanwhile, inflation had eased further to just about equal to the level of the federal funds rate. Yet inflation was still high at 5%, and as such, far above the Fed's 2% target.

Was policy, therefore, back on track? What will it take to wring out the remaining inflation? What headwinds will the Fed face from a still unprecedentedly loose fiscal policy and the financial troubles epitomized by the spring 2023 bank failures? How did the Fed get inflation forecasts so wrong? How did it miss the plain-vanilla interest rate risk suffusing the banking system? How can both forecasting and financial oversight improve?

Looking forward, monetary policy and financial regulation clearly interact. As we met, many outside commentators worried that higher interest rates would lead to greater financial instability and argued for a pause unrelated to inflation and employment. Others, and many participants, felt that the Fed needed to raise rates further.

We met to discuss these issues.

Opening Remarks

The Hoover Institution's director and former secretary of state Condoleezza Rice opened the conference, reminding us of the global, historical, and geostrategic context of US economic issues. A new great-power competition is emerging with China, which is both more productive economically and more integrated in the global economy than the Soviet Union ever was. Technology continues to advance, bringing opportunities and dangers. Most of all, she asked, "What is happening in the international global order?" reiterating the view that the international economy is a positive-sum game, built on free trade, cooperative monetary and exchange-rate policies, and countries building their way out of poverty, including, spectacularly, 1.4 billion Chinese. China's turn to authoritarian expansion is provoking a reaction, including sanctions

and restrictions on capital and trade with China. It also threatens to construct “artificial barriers to commerce based on a broad definition of national security.”

Sage domestic economic policy is needed within the context of international cooperation. “Inflation and the great spending sprees of governments” undermine that cooperation.

Rice closed with a memorable contrast: Whatever one thinks of the policies, the international responses to the terrorist attacks of 9/11 and the 2008 Global Financial Crisis were quick and closely coordinated across countries. Every airport in the world now looks the same. But, “During COVID-19, for each nation it was *my* vaccines, *my* border restrictions, *my* travel restrictions, and *my* citizens.” So, “We will have to contemplate over the next few years how we build or rebuild a sense of a common project for the international order.”

Thirty-Year Anniversary of the Taylor Rule

The first session celebrated the thirtieth anniversary of John Taylor’s 1993 “Discretion versus Policy Rules in Practice.”¹ John Cochrane opened the session by putting the Taylor rule and this paper in historical and theoretical perspective. Taylor’s paper was not the first to state the basic principle of the Taylor rule that interest rates should react aggressively to inflation. But the paper’s vital contribution is in practice. By explaining how the Taylor rule is an important guide to practical monetary policy, this paper really put the Taylor rule on the map. And, of course, stressing the link of academic research to practice has been the hallmark of these conferences for over fifteen years.

The Taylor rule is a central contribution to economic theory. Our central banks control inflation via interest rate targets. Central banks do not control the money supply. The Taylor rule is the key element of all theories in which a central bank can control inflation via an

interest rate target. The rule is beautifully robust: it is not the exact optimal policy in most theories, but it works very well in dramatically different economic theories, including Old Keynesian (ISLM), New Keynesian (DSGE), and fiscal theory. Its roots are empirical, however: Taylor showed how inflation performed well when central banks followed such a rule and badly when they did not.

Richard Clarida added perspective from the point of view of an academic and a central banker. (Clarida wrote classic articles showing how the Taylor rule works in New Keynesian models and showing how the conquest of inflation in the 1980s came with a shift toward Taylor-rule policy.²) Clarida also started with a historical perspective. He pointed out that in Milton Friedman's famous 1968 address, he had isolated the basic concepts of the natural rate of interest and unemployment (u-star and r-star) but did not make them part of his policy rule. Clarida noted how money supply control was briefly tried and failed—central banks now set interest rates, not money supplies. So “the time was right for something to fill the vacuum in central bank practice left by the realization that monetary aggregate targeting was not, in reality, a workable monetary policy framework. . . . There was a growing sense at the time that a simple, systematic framework for central bank practice was needed.”

Clarida emphasized that the Taylor rule doesn't just recommend interest rates that respond to inflation but anchors that response at the natural rates of interest and unemployment or output. Understanding how the natural rate of interest has varied has proven to be an important challenge in applying Taylor rule ideas in real time. Clarida summarized some of his and other researchers' study of Taylor rules when both people and the Fed have to learn about shifts in natural rates and Fed behavior over time and pointed out that central banks typically respond to expected future inflation, not current inflation, as in the simplest version of the Taylor rule. Since inflation expectations are a function of many variables, the central bank can seem to respond to many different variables,

though it really only responds to expected inflation. Clarida presented a nice graph showing that the Fed did follow a Taylor rule much more closely in the inflation-reducing 1980s than in the inflationary 1970s. Clarida went on to outline how thinking in terms of the Taylor rule quickly infused the study of interest rates and exchange rates, where expectations of future interest rates and Fed policy changes are central.

Clarida next reported on his experience at the Fed. Taylor rules are “ubiquitous in any economics literature in which macro factors and asset prices are objects of interest.” Whether or not the Fed follows the rule, it is at least an important benchmark.

Finally, Clarida aimed straight at the central question: just how far off track has the Fed been? He presented simulations of the recent past that include real-time data, the Fed’s assessment of r -star, the fact of the zero bound so the Taylor-rule interest rate might start below the achievable value, and an inertial component, recognizing how the Fed routinely adjusts interest rates slowly in response to inflation. Each of these considerations allows a delayed response to inflation. Clarida also includes quantitative easing (QE) operations in his view of monetary tightening: “By the fall of 2021, monetary policy rules I consult . . . were indicating that lift-off from the effective lower bound (ELB) was or soon would be warranted. In the event, the Federal Open Market Committee (FOMC) began to pivot in the fall of 2021 to end quantitative easing earlier than had been expected.” In short, in Clarida’s view, “The conditions the committee laid out in its September 2020 forward guidance for lifting off . . . were met by the December 2021 FOMC meeting, just three months after they were met by the balanced approach Taylor rule.”

John Lipsky gave a market practitioner’s point of view. He was chief economist for Salomon Brothers at the time he read Taylor’s paper. Reading the paper and calculating that the federal funds rate was a bit more than a percent below the Taylor rule allowed Lipsky

to correctly interpret Alan Greenspan's famously delphic remarks and see a big interest rate rise ahead: "My colleagues and I virtually ran around the trading floor yelling, 'The Fed is coming! The Fed is coming!'" And it did. Alas, the Salomon Brothers trading desks did not listen. They "lost copious amounts of money in their portfolios on a mark-to-market basis. As Salomon Brothers research analysts, we were mortified to realize that our bond trading colleagues simply hadn't believed our Fed analysis."

In 1994, however, long bond yields also moved up roughly in parallel with short-term interest rates, leading to a "wave of Treasury bond selling by traders seeking to control their duration risk." This time, Lipsky saw that policy was tighter than the Taylor rule prediction, allowing him to see that rates would decline.

In part, Lipsky told these stories to answer the question, how did the Taylor rule become the "Taylor rule?" Taylor himself did not use that name. At least in practitioner circles, Lipsky and his team's reports certainly get a lot of credit for the baptism.

Why did the Taylor rule spread so far and so fast? To Lipsky, "One key lesson from investment banking is that the right deal at the right time and the right price will be snapped up in a flash." The Taylor rule proved useful to understanding how the Fed will move interest rates, and so it spread quickly in financial circles in the 1990s. Except sadly, at Salomon Brothers, which, as Lipsky recounted, did not survive the bond market losses of the early 1990s.

Volker Wieland spoke next, with the particular viewpoint of an academic steeped in explicit quantitative models. Wieland started by noting how Taylor's 1993 paper, in fact, summarized a decade's worth of detailed academic research, including work by Taylor going back to the 1970s. The key contribution, and reason for its influence, was showing how "monetary macroeconomics has undergone a major transformation and this scientific progress has had important implications for policy . . . It is time to recognize the huge progress in monetary macroeconomics, the advances in

New Keynesian modeling of real effects of monetary policy, and the design of feedback rules for stabilization policy with a wide impact on policy practice.”

Wieland emphasized how in models and in practice, the Taylor rule is important to stabilize expectations of how policymakers will behave. If a bank follows a rule, you know what the bank will do. Here models give important insight into why that advice is so sage.

Wieland specializes in comparing models. He showed a surprising result: across several different medium-scale models, the Taylor rule works quite well. Also, the different models generate about the same responses to monetary policy shocks—deviations from the rule. Wieland showed that even computing optimal rules in different models leads to about the same result. There is one interesting exception, however. In rational expectations models, a first difference rule is often optimal, in which the Fed raises the interest rate from whatever it was before in response to inflation. Such a rule is disastrous in adaptive expectations models. The Fed is usually estimated to follow a rule with a great deal of such persistence. Whether it should do so remains an active research question and a frequent bone of contention in our conferences.

Wieland next presented an evaluation of history with a variety of sensible variations on the Taylor rule. He finds that policy should have been tightened more before the financial crisis. Rules called for negative rates in its aftermath, suggesting QE and other unconventional policies. But most rules suggested an earlier lift-off than 2016.

Turning to current events, Wieland showed how conventional measures showed an astonishing output gap during the pandemic. But was the fall in output a lack of demand or supply during a pandemic? Wieland pointed to recent epidemic-macro models that capture the common sense of the latter. More money doesn't do any good if the stores are shut down. The models produce only a small fall in inflation, as we saw, and only recommend a small interest rate decline.

In the event, the stimulus did produce inflation. Wieland pointed to explicit New Keynesian models that track the result. In Wieland's models, the Fed should also have reacted more promptly to inflation.

In the discussion, Harald Uhlig asked whether, with nominal rates about equal to year-on-year inflation, real interest rates are actually positive. David Papell highlighted the importance of inertial terms (whether interest rates react immediately or slowly to inflation) in empirical estimates and also in evaluating whether the Fed is or is not reacting as promptly as the Taylor rule recommends. Sebastian Edwards reminded us of the conundrum of 1994 and how much short-term rate rises result in higher long-term rates, and he asked what might be different across episodes. Andrew Levin pointed out that the Taylor rule has achieved economic immortality—in that we leave out the citation (1993) when we reference it, like the Modigliani-Miller theorem and the Black-Scholes formula. As a better measure of influence, he mentioned Google trends that show Taylor rule searches at an all-time high. He also related how John Taylor once had a business card with the Taylor rule on it and suggested that might have a lot to do with its popularity. Bring back business cards! Christopher Erceg asked whether, in light of our new understanding of just how important financial affairs are to monetary transmission, if perhaps a financial conditions index ought to be included in a monetary policy rule. Michael Boskin offered several reflections on Taylor's interactions with colleagues and students in producing and popularizing the rule and pointed out how a similar effort quickly produced a pre-scient estimate of the fiscal multiplier in 2009.

Brian Sack asked a simple but provocative question, if you could choose one variable to add to the Taylor rule, what would it be? Cochrane clarified that “none” is an acceptable answer, and indeed one point of the Taylor rule and the Fed's mandate is that the Fed should *not* pay attention to other variables. Wieland answered for

inertial, lagged, or first-difference rules, which obviate the need to guess the natural (r -star) interest rate. Lipsky echoed, “None.” Clarida added that the Fed should *drop* a variable: “It’s so hard to measure potential output, [and] it can lead to such mischief.” Cochrane agreed, endorsing a pure inflation or price-level target.

Financial Regulation: Silicon Valley Bank and Beyond

The second panel centered on financial regulation. The Silicon Valley Bank (SVB) failed in early 2023 from a simple run due to losses on long-term government bonds as interest rates rose. Now, the huge regulatory machinery seemed to have a failure on its hands comparable to the failure of monetary policy to perceive inflation. One wonders how the Fed and other regulators could have missed something so seemingly simple. Moreover, in the aftermath, monetary policy and regulation are now clearly linked. Must the Fed restrain interest rate hikes to keep banks afloat?

Anat Admati set the stage. She reminded us of the failures of Silicon Valley, Signature, and First Republic Banks, along with the larger failure of Credit Suisse. The latter is particularly salient as it was designated a systemically important financial institution (SIFI). It was quickly merged with UBS, creating a “monster SIFI in Switzerland, twice the country’s GDP.”

Admati noted that all of the failed banks were deemed well capitalized by their regulators. Banks fulfilled hundreds of thousands of rules but failed anyway. In the post-2008 burst of financial regulation, much effort was devoted to orderly liquidation, living wills, and the issuance of loss-absorbing securities (other than equity), such as convertible bonds, all to avoid too-big-to-fail bailouts. Yet, Admati pointed out that when the time finally came, “The authorities chose not to go to resolution and not to impose losses on 50 billion Swiss francs of TLAC [total loss-absorbing capacity]

securities. . . . What happened to those promises that the TLAC will be there for failed banks?” Naturally, Admati, long a principled advocate for the simple answer of more common equity, opined: “We should also have market-based stress tests, which involve, for example, *the* market stress test, what I call ‘raise equity!’”

Darrell Duffie started by focusing on liquidity. Yes, the failed banks were fundamentally insolvent in that the market value of their assets was less than that of their liabilities. But the sudden and unexpected run was part of their failure and points to deeper problems in current liquidity rules.

In experience and regulation, depositors leave slowly. More Signature and Silicon Valley deposits “left in a single day than the Fed’s liquidity coverage ratio had anticipated would leave in an entire month.” Once, it was impossible for everyone to get their money out in a day; long lines at the teller windows would slow things down. And now everyone has news instantly. (According to media reports, many SVB customers drained their accounts via cell phones from Jackson Hole, Wyoming.) Deposits are no longer “sticky,” a warning against extrapolating past statistical experience too blithely.

If the rest of the banking structure remains the same and we rely on liquidity to avoid runs, something has to be fixed. Duffie first addressed one obvious solution: that all large uninsured deposits be backed by reserves at the Fed. If the quantity of large deposits remains unchanged, however, and banks do not pursue other forms of funding, this means trillions of additional reserves, and banks cannot use those deposits for other purposes, such as underwriting bond market trading activity.

Duffie then advocated a different approach to greater liquidity, with characteristic vision and clarity: rather than pile on liquid assets that banks must *hold*, instead make it easier for them to *get* liquidity in times of stress. For centuries, banks have stopped runs by borrowing against illiquid assets when under stress, including

under the pre-Fed clearinghouse system. “Going back to the formation of the Federal Reserve System, a primary purpose of the Fed has been to provide crisis liquidity to banks as a lender of last resort. . . . Banks should have posted lots of their assets at the Fed’s discount window to receive the liquidity they needed to cover fleeing depositors.” Despite this longstanding tradition, the Dodd-Frank era took a different turn: “Under current regulations, lender-of-last-resort liquidity from the Fed does not count. . . . Currently, banks must be self-reliant in meeting these requirements.”

Duffie emphasized that the point is not just that banks should be *able* to borrow more freely at the discount window but that such a contingent borrowing capacity should count in their *ex ante* liquidity requirements. Regulators must also allow them to use that borrowing ability in times of stress, not like the famous joke about regulations that require one taxi always to be present at the station or lifeboats to stay on the ship even as it sinks.

Randal Quarles was the vice chair of the Federal Reserve for supervision and chair of the Financial Stability Board through the fall of 2021. As such, he has been subject to political criticism over the Fed’s role in the bank failures and the charge that regulatory changes under his guidance were responsible for the failures. He gave a detailed and eloquent account of how Fed regulation evolved and how the problems cropped up. He asserted that while SVB’s run shows a deep regulatory failure, the changes in regulation were not responsible.

Quarles started with the Fed’s Barr Memo analyzing the regulatory problems behind SVB’s failure.³ That report has “four key conclusions: 1) SVB’s executive team failed to manage its risk. 2) The Fed’s supervisory team failed to appreciate the extent of the vulnerabilities. 3) When they did recognize the vulnerabilities, they didn’t do enough about them. 4) The Fed’s lassitude was attributable to the regulatory tailoring project mandated by the Economic Growth, Regulatory Relief, and Consumer Protection Act of 2018. . . . Most

of the Barr Memo's recommendations stem from the final conclusion," a view that has "now been quite widely discredited."

The first charge in the report is that banks like SVB were allowed to exclude losses on available-for-sale securities against regulatory capital. But there's a reason for that. Otherwise, banks have an incentive to stuff even more securities into the hold-to-maturity portfolio, which is never marked to market. In any case, "even if SVB had been required to hold capital against its AOCI [Accumulated Other Comprehensive Income] losses, it would still have been a very highly capitalized bank. . . . The AOCI rule would not have required SVB to raise a penny of capital." Hold-to-maturity rules are a problem, but not this problem.

The second charge is that regulatory tailoring excluded SVB from the capital stress test. However, SVB would have done fine under the Fed's Comprehensive Capital Analysis and Review stress test. Quarles again notes there is a central regulatory problem: the stress tests contemplate a severe recession; they contemplate interest rates falling, and they do not include an evaluation of funding stability. Again, Quarles reveals a deep problem: Why did the Fed not stress test banks for interest rate rises as it was preparing to raise interest rates? But even in such a test, which was conducted once under Quarles, SVB would have been fine, because most of its securities were in that hold-to-maturity portfolio.

Third, "The Tailoring Changes effectively excluded SVB from applying the net stable funding ratio (NSFR) and the most stringent version of the liquidity coverage ratio (LCR). But these changes, too, did not matter for SVB's ultimate resilience."

In sum, "the Barr Memo itself recognizes the weakness of the case that the Tailoring Changes and the supposed cultural shift were relevant to the failure of SVB." But, in our view, the conclusion is more damning for the essential regulatory structure, with or without tailoring. Hold-to-maturity assets hide mark-to-market losses. There is no rule linking the potential for plain-vanilla interest rate

risk to spark depositor runs. Banks can fill the checkboxes of thousands of rules, and simple risks will remain.

Quarles went on to examine the claim that a shift in supervisory culture impeded supervision. He humorously compared the Barr Memo to an email he received from a French madwoman. But he went on to isolate the problem that remains: supervisors are overwhelmed with administrative responsibilities such as third-party vendor management and audit management, which though admittedly important, distract them from the core financial issues facing the bank.

So if it wasn't tailoring and it wasn't weak supervision, then what was it? Here, Quarles echoed both Admati and Duffie: neither regulators, nor rules, nor SVB management put two and two together in time, that large uninsured deposits might run much more quickly than historical experience suggested.

Here Quarles eloquently expanded on Duffie's suggestion. "For decades the Fed has been affirmatively eroding its core reason for being: providing liquidity to the banking system, especially in times of stress. The Fed's express mantra since the Great Financial Crisis has been that banks need to "self-insure" their liquidity needs. But . . . it simply isn't possible for a bank to rely solely on its own liquidity resources in a world where a very large percentage of bank liabilities are going to be highly runnable." Note that this view clashes a bit with Duffie's view (and Amit Seru's, as follows), that SVB was fundamentally insolvent, not just illiquid, but the larger point remains.

Amit Seru provided a contrasting view, focusing on insolvency rather than illiquidity—which both Quarles and Duffie actually agreed was the central problem in this case. No matter how generous the Fed had been, SVB simply did not have enough securities to borrow against to meet the depositor run. In a remarkable effort, "When the run at SVB occurred over that weekend last March, and SVB collapsed, we decided to stress test the whole US banking system of 4,800 banks." That this is possible for a small group of

academics with public records and not routinely done by the Fed is an interesting observation. As Seru reported, the US banking system has \$24 trillion in assets, \$24 trillion in liabilities, including \$9 trillion in uninsured deposits, and \$2 trillion of equity. When Seru and coauthors mark assets to market, however—most are in hold-to-maturity portfolios or otherwise not marked to market, just like SVB’s—they find about \$2 trillion of losses—all the equity of the US banking system is wiped out. Seru and coauthors also found that banks had done very little hedging against interest rate risk, even though higher interest rates after a year of surging inflation ought to have been an obvious possibility, and hedging interest rate risk with swaps is easy and commonplace.

“If you thought that SVB was an outlier and special just because it has huge mark-to-market losses, there could be another five hundred banks that should have faced a similar kind of run as SVB. But they didn’t.” They did not largely because they had fewer uninsured depositors. But the risk remains.

One answer, of course: “A bank can sustain the stress if it has enough equity.”

Seru also opined that regulators still mistake insolvency for illiquidity. The Barr Memo “mentions the word ‘liquidity’ in relationship to SVB a staggering 320 times. ‘Solvency’ is only mentioned once, which almost suggests it may have been a typo.” Long-term government bonds are very liquid. The problem was simply that there were not enough to sell or borrow against at market prices to stem an uninsured depositor run. Finally, Seru pointed out that there is strong pressure for local regulators to go easy on important regional banks.

Looking ahead, Seru warned against repeating the Savings and Loan Crisis. Already, the Fed has extended deposit insurance to all deposits and is lending money against underwater assets at par rather than market value. But gambling for resurrection by allowing banks to take large risks with taxpayer money is a dangerous

strategy. Instead, Seru argued for separating insolvent from solvent banks with a real market test.

In the long run, Seru stressed just what a failure of regulation this whole fiasco represents and that piling on more rules is not the answer: “Interest rate risk is in the first chapter of any finance textbook. And if four collaborators working two days over a weekend can do a stress test of the banking system as we did, it is unclear what the real issue is. I think the ultimate answer is, rather than trying to tweak this into an amazing physics laboratory-based experiment, we need to just realize there are limits to regulation and what regulators can do.” The answer is equity. Banks lever up with insured deposits. Shadow banks, by contrast, with no deposit insurance or bailout expectations “end up taking a lot of equity. Why? Because these institutions and the market understand there’s a lot of runnable risk in these institutions.”

Bottom line: “I think in the long run, the answer is not liquidity or more liquidity requirements. . . . The answer is asking banks to have a significant amount of equity capital.”

In the discussion, Admati pressed Quarles on whether the whole resolution planning effort was a waste, since regulators refused to use it for SVB and especially Credit Suisse. Quarles answered that, in analogy to military preparations, planning is essential even though the plans may end up not being used. Admati, Quarles, and Duffie agreed that, in the end, common equity is better than the TLAC, and all agreed that SVB and related failures were primarily about insolvency, not illiquidity.

Disinflation and the Stock Market

Peter Blair Henry presented his paper with Anusha Chari, “Disinflation and the Stock Market: Third-World Lessons for First-World Monetary Policy.” Chari and Henry used evidence from a panel of twenty-one developing countries between 1973 and 1994,

which included eighty-one disinflation programs involving the International Monetary Fund (IMF).

They used these experiences to get at central questions for the current US disinflation strategy: Will disinflation produce a soft or a hard landing? When do disinflations succeed, and when do they fail? Is the historical evidence different for large versus small inflations?

The hard landing issue goes back to the 1970s, when economists argued over the sacrifice ratio, just how much unemployment and lost output would be required to eliminate inflation. For some economists, the cost would be too large to bother trying to lower inflation. Others argued that disinflation could happen relatively costlessly if it accompanied a credible change in a regime that shifted inflation expectations.

To assess the economic impact of the disinflations from moderate inflation (above 10% per year), Chari and Henry assess stock market performance. If a disinflation is perceived to be successful, it will be reflected in higher equity valuations as an indicator of the net benefit of the disinflation program.

Chari and Henry find that for high-inflation episodes (above 40% per year), the net benefit of the disinflation programs is positive. But the net benefit is negative for moderate disinflations in their sample. This result resonates with the disinflation shock engineered by Paul Volcker in the United States from 1979 to 1982. It took some time before the Fed gained the credibility needed to restore price stability. The effects on the real economy were painful. On the other hand, that particular US episode differs from the average in Chari and Henry's sample in that inflation did come down quickly in 1982, and the stock market subsequently boomed.

Joshua Rauh offered comments. First, he questioned the timing of the disinflation episodes. In the high-inflation cases, during the time window that Chari and Henry used to measure the impact on stock prices, inflation was already declining. Whereas in the time window in the cases of moderate disinflation, inflation continued

to accelerate. He then asked what happens to markets after the moderate-inflation countries start to cool.

Second, Rauh questioned the timing of the discount rate used to calculate the net present value of investment opportunities. Third, he pointed out that the sample of emerging-market countries with moderate inflations may be quite different from the United States today. Perhaps the experience of other advanced countries that successfully reduced inflation from moderate levels is more apt. Last, Rauh asked what happens to the distribution of wealth as real interest rates rise in the tightening episode.

John Cochrane, in the discussion, reflected on the positive experience of the early advanced inflation-targeting countries in reducing moderate inflation based on their achieving credibility. This agrees with Thomas Sargent's focus on a credible change in the fiscal, monetary, and microeconomic regimes in the cases of the successful German and Austrian decelerations from high inflation and the French from moderate inflation in the 1920s. Sargent's emphasis on the importance of gaining credibility was echoed by Andrew Filardo, Andrew Levin, Michael Bordo, and James Bullard. Perhaps Chari and Henry's empirical finding that high inflations are more successfully resolved than moderate inflations reflects more permanent institutional reforms needed to stop them. Several commenters asked about differences between the emerging-market experience in the sample versus advanced countries like the United States. Henry reminded us that we shouldn't ignore international and emerging-market experiences. Finally, Sebastian Edwards described how Chile recently achieved a soft landing based on its record of credible monetary policy.

Inflation Targeting in Japan, 2013–2023

Over lunch, Haruhiko Kuroda, former governor of the Bank of Japan, updated us on the Japanese situation. In his introductory

comments, Kuroda explained that Japan adopted a 2% inflation target in 2013 yet undershot inflation for most of that time. Recently inflation has risen to 3–4%, in Kuroda's view, "almost wholly caused by the import price hike." Though "the 'no price increase and no wage increase' norm is changing (long-term inflation expectations are rising)," he was confident that 2% inflation would return soon.

Kuroda gave a quick history of Japan's monetary policy in the context of below-2% inflation, including the steadily increasing quantitative easing, negative interest rates, and long-term bond price target innovations. The recent inflation, though undesirable, has broken the long deflationary period and coincided with a large increase in employment. He closed, stressing the importance of the inflation target in the quest for long-term control of inflation.

Sebastian Edwards asked about Japan's policy of yield curve control, which directly targets both short- and long-term interest rates. Kuroda responded that directly targeting the price of long-term bonds, rather than buying fixed quantities, is "more effective and more transparent," especially to ordinary people. Beat Siegenthaler asked whether the inevitable interest rate normalization would cause financial impacts. Kuroda responded that households have substantial assets, so they stand to gain from higher interest rates, while firms and banks hold a large amount of cash. The greatest danger Kuroda foresees is that government interest costs on the 200% of GDP debt will rise substantially. Though Japan's debt is relatively long term, that maturity choice only buys five years or so of protection against interest rate increases.

Central Bank Balance Sheets

Niall Ferguson and Paul Schmelzing presented their paper, "Five Centuries of Central Bank Balance Sheets: A Primer." The paper presents a new comprehensive database on the balance sheets of

seventeen advanced countries going back four hundred years. The authors use that data to measure the macroeconomic effects of central bank balance sheet expansions—buying securities in exchange for newly created money or central bank loans.

They thus provide a history-based perspective on the recent massive liquidity expansions by advanced country central banks during the Global Financial Crisis of 2007–9, the subsequent long zero bound, and the COVID-19 pandemic of 2020.

Schmelzing discussed the construction of their database. The authors delved into historical archives in several languages to produce central bank balance sheets that were consistent over time and comparable across countries.

Central banks expand balance sheets *in response* to events, so one needs a strategy to isolate the causal effect of the balance sheet expansion. Ferguson explained that they use an index of central bank governors' prior stance as either a hawk or a dove as an instrument to identify this causal effect. Ferguson and Schmelzing base this index on extensive narrative analysis of speeches, newspaper articles, and biographies to indicate bankers' stances before crises erupt. Hawks would then worry more about the moral hazard consequences of intervention, while doves would worry more about the deleterious economic and financial effects of not intervening. Based on this index as an instrument, Ferguson and Schmelzing calculate the average response of economic conditions to an unexpectedly large or small balance sheet expansion. The key result is that balance sheet expansions led to statistically significant higher money growth, real GDP, and inflation in the short to medium runs. These effects are followed by a statistically higher likelihood of another systemic financial crisis. Both economic impact and moral hazard occur in turn.

In his discussion, Barry Eichengreen praised their data collection effort but raised some fundamental questions about the empirical methodology. His first question was about the definition of a

central bank used in their long historical database. It was unclear to him if every institution demarcated in the study as a central bank would satisfy a modern definition. His second question concerned the distinction made in the paper between financial, war-related, and “other” related balance sheet expansions. He presented a number of important historical examples where making such distinctions was difficult. He also posited that there was a major regime change in liquidity expansions after the Overend Gurney crisis of 1866 in London, when Walter Bagehot criticized the Bank of England for not providing sufficient liquidity to allay the crisis. This led to Bagehot’s 1873 rule, which made the crucial distinction between liquidity and solvency in prescribing lender-of-last-resort operations. His reading of the paper was that the empirical results were driven by experience after Overend Gurney. Related to Bagehot’s rule, Eichengreen also raised the issue of whether banks in crisis were forced to borrow at a penalty rate, as Bagehot advocated, or not, as is modern practice. Finally, he wondered whether the relevant policymaker in different institutional environments is the central bank governor, a committee, or the minister of finance.

In discussion, Jeffrey Lacker questioned the meaning of lender-of-last-resort actions used in the paper—whether it is discount lending to individual banks or open market operations providing liquidity to the economy as a whole. He also stressed that the paper did not distinguish between sterilized and unsterilized balance sheet expansion. Sterilized lending, as conducted during the Global Financial Crisis, did not expand the balance sheet yet had significant economic effects. (In a “sterilized” operation, the central bank lends money to a bank in trouble but reduces other sources of money supply at the same time.)

Andrew Levin followed up on Barry Eichengreen’s comment that his reading of Walter Bagehot’s book *Lombard Street: A Description of the Money Market* (1873) suggests that the agents

responsible for lender-of-last-resort policy were a much larger group of experts than the central bank governor. Christopher Erceg asked whether longer-lived interventions created larger problems of moral hazard. Finally, Krishna Guha wondered whether the international monetary regime mattered in demarcating the effects of balance sheet expansions.

Forecasting Inflation and Output

Mickey Levy presented “The Fed: Bad Forecasts and Misguided Monetary Policy.” The Fed—and most industry analysts—completely missed the rise to 8% inflation, both ahead of time and as it was happening. This is a major institutional failure for an institution whose first mandate is price stability, interpreted as a 2% inflation target. Why? How can the Fed do better? If such a large rise in inflation is unforecastable and its persistence unrecognizable, clearly, Fed policy procedures should change, but how? And why is the Fed not investigating this question?

James Wilcox, the session chair, started with a view that the Fed was late to recognize inflation due to a belief that the Phillips curve—linking inflation to unemployment—is quite flat. In recent history, large changes in unemployment have occurred with very little change in inflation. Elevating the Phillips curve to a central determinant of inflation then, the immense rise and sudden reversion of unemployment back to the low value of February 2020 (3.6%) should not have led to an inflation rate much different from the low February 2020 value; and observed inflation in the meantime must be the sort of transient supply shock noise that temporarily moves relative prices. Alternatively, or equivalently, “too much too late” might also result from underestimating how fast Phillips curves can shift.

Wilcox also addressed the question of why the Fed waited so long and here suggested that its new flexible average inflation targeting

policy may be at work. Simply put, the Fed promised such slow responses, though in the positive direction only.

Levy analyzed the Fed's inflation projections in the quarterly Summary of Economic Projections (SEP). He finds that as inflation rose higher and higher, the Fed persistently projected inflation would fall back toward 2% while dramatically underestimating the rise in interest rates that would be required to achieve their inflation projections. He then analyzed the modeling, analytical, human, and institutional errors, including not heeding the important lessons from history behind those forecasts.

In Levy's summary, the SEP projections slowly incorporate observed inflation but always quickly decline back to 2%. Indeed, to our eyes, Levy's plot of Fed inflation forecasts comes down nearly perfectly to AR(1) reversion to 2%, no matter what history or current circumstances are. Levy also showed projections for the federal funds rate that never exceeded the projected inflation rate. On the view that high real interest rates are needed to quell inflation, the Fed always projected inflation to go away on its own. Comparing forecasts to what happened later, the Fed was overly optimistic on inflation, that it would recede rapidly toward 2%, and it significantly underestimated the federal funds rate that it would later raise to fight that inflation. Also striking is the "lack of dispersion of forecasts among FOMC members." How can everyone come to the same wrong answer so confidently?

Levy went on to consider the sources of the projection errors, admitting the exercise must be speculative. First, he considers analytical and conceptual errors. The Fed's modeling, both formal (the FRB-US model) and informal, pretty much ignored the impact of the "unprecedented fiscal stimulus," with "\$5.1 trillion in additional deficit spending, over 27% of real GDP." In addition, that spending came with extreme monetary accommodation. The Fed effectively bought about half of the Treasury's new bond issuance.

Neither does the Fed pay any attention to monetary aggregates, as “M2 surged 40%.”

The FRB-US model and informal thinking put strong and perhaps excessive weight on the Fed’s ability to credibly manage inflationary expectations in the New Keynesian style. But Levy points out that to manage inflationary expectations, the Fed needs people to expect some action, not just more forward-guidance promises.

In sum, with a presumption that inflation would stay low, when inflation did rise, it didn’t fit the Fed’s model, and the Fed was quick to blame it on transitory factors. For example, Levy showed the December 2020 SEP, which projected inflation to decline sharply, while at the same time forecasting the unemployment rate to be materially below its estimate of the natural rate—while simultaneously estimating the appropriate policy rate below inflation. It doesn’t add up in the standard Phillips curve thinking, so the projections must reflect quickly waning effects of some external shock.

Next, Levy considered institutional errors. In his view, the new “flexible average inflation targeting” strategic plan stands out like a sore thumb. It prioritized employment, favored higher inflation, and committed the Fed to stop raising rates preemptively, instead promising to allow inflation to exceed its target before reacting. All of these contributed to the policy errors of 2021–22. More charitably, one might say the strategic plan was a well-constructed defense against deflation, which proved to be a Maginot Line against the actual challenge that emerged. Levy also pointed to the lack of diversity, with no dissents in 2021, and then significant failures in risk management, including relying on the consensus forecasts without considering alternatives. The latter point is striking. The Fed’s main mindset is to agree on a forecast and what policy is appropriate given the forecast. It spends relatively little effort, in an uncertain world, gaming out how it might respond if forecasts

are wrong. Its time-based forward guidance provides an additional commitment to sticking to a forecast-based policy.

Levy encapsulated the discussion of the failed inflation response to the Fed's other recent institutional failure, neglecting simple interest rate risk in the banking system to the point of a run and series of bank failures. The Fed's delayed exit from zero interest rates, its misleading forward guidance provided by its projections, plausibly misled banks that had profited from slowly declining interest rates for decades, and the Fed's regulators, to underestimate the risk of higher interest rates. Higher rates really shouldn't have been a surprise, but they were, even to the Fed's stress testers, who had banks simulating interest rate *declines* in late 2022!

Steven Davis provided an excellent discussion, building on the paper to describe a central incentive problem. The Fed issues forecasts, but it also tries to shape expectations. The two efforts conflict. Like public health authorities, the Fed can be afraid to reveal its actual fears. Specifically, Davis proceeded from two widely shared views: First, "Expected inflation affects actual inflation." Second, "Fed projections influence expected inflation." If you accept those two propositions, then the Fed faces an incentive to distort the inflation projections. This incentive will not just infect verbal statements but will influence the Fed's choice, design, and the features of headline models, like the FRB-US. "There is a trade-off between the Fed's desire to meet near-term policy goals at least cost and the desire to preserve its credibility and reputation." Indeed, if Fed officials did not believe the soothing messages they were trying to convey, if there were visible evidence against that message, like model simulations, the messages would not be credible.

Davis emphasized that all these considerations come to a head at a time of uncertainty, such as the postpandemic inflation breakout. If there is some uncertainty about the cause of inflation and its likely persistence, if there is at least a plausible narrative that inflation comes from swiftly self-correcting supply shocks, if

keeping expectations anchored is critical to a swift and costless (no Phillips curve shift) end to inflation, then the Fed would certainly not want to validate alternative narratives that would add to inflationary pressure. Davis added that the “flat Phillips curve” belief adds to the pressure. “If you approach the conduct of monetary policy through the lens of a Phillips curve and you further believe that economic slack has little impact on inflation, then monetary policy can materially influence inflation only through its impact on inflation expectations. It’s either that or pray for favorable supply shocks.” More generally, the flat Phillips curve leads to a mental model in which inflation is entirely driven by expected inflation. So, with that conceptual framework, trying to manipulate expectations becomes the entire focus of monetary policy.

Davis suggested some institutional reforms. First, clarify the inherent contradiction in making federal funds rate and inflation forecasts simultaneously. A forecast should be conditional on a policy rate, and an optimal policy conditional on a forecast. Second, the Fed needs more out-of-the-bubble, alternative-scenario, and risk management thinking. Davis suggested an annual conference that “highlights tail risks for monetary policy and central banking, advances nonstandard scenario analyses, considers emerging and latent threats to sound monetary policy, and draws lessons from historical episodes,” largely featuring analysts outside the Fed. Third, “Separate business-as-usual forecasting from assessing recession risks, major inflation threats, financial crisis risks, and the implications of unprecedented shocks.” They are indeed different conceptual exercises. And lastly, include historians.

In comments, Richard Clarida led off, pointing out that the missed forecasts and slow responses were common basically to all G10 countries. The problem is not Fed specific. He pointed out that private-sector economists shared the Fed’s missed forecasts. All seventy-five economists surveyed by the *Wall Street Journal* missed the inflation breakout, “an epic forecast missed here.” He

reiterated that the Taylor rule, in his calculation, did not recommend much earlier tightening, and the new flexible average inflation targeting strategy less so. And he pointed out that inflation is easing worldwide, with interest rates below inflation, and that expectations do seem “anchored.”

James Bullard also pointed out that the end of asset purchases began much before rate tightening. So “hawkish moves were being made.” He also emphasized that we did not know at the time how swiftly the economy would recover from the pandemic, justifying some doveish caution: “[It was widely feared] that this was going to be the Great Depression.”

Andrew Levin gave a good medical analogy about doctors giving patients bad news. He argued that greater preparation is in order, analogous to the point that the Fed should pay more attention to risks and less to the center of the forecast: “The problem the Fed is still facing now is they haven’t clearly told the public, Congress, or the markets that the possibility [for substantially higher interest rates and persistent inflation] is still out there.”

John Cochrane echoed the fact that the forecast mistakes were pervasive to central banks around the world, analysts, and markets. That means “conceptual problems are common to lots of people.” He added a few conceptual problems to the list: Central bankers routinely ignore supply, and “demand and output are practically synonyms.” If supply shocks are serious economics and not just a dog-ate-my-homework excuse, then “where is the team of central bank economists monitoring supply? They’re not there. If there are going to be supply shocks, we needed such a team.” On the Fed ignoring the massive fiscal stimulus, he noted the Fed seems to deliberately blind itself to fiscal policy to avoid seeming political. He criticized the use of the Phillips curve as a causal relation or a model in itself in thinking about inflation. He criticized expectations management. Expectations must be anchored by expected

actions, not by speeches and expectations of more speeches. For example, people must expect the Fed to be ready to replay 1980 if necessary. The Fed is unwilling to say anything so harsh. Cochrane emphasized the need for risk management with military and sports analogies. There, people think about alternative scenarios and risk management. Finally, he noted that in the face of such a large institutional failure, an inquest or self-examination is necessary.

Jeffrey Lacker endorsed Steven Davis's view and made an analogy to old-fashioned paternalistic doctors who didn't tell you how sick you were. He offered that there was something like the risk-management approach in the early 2000s, but that fell out of favor with the SEP procedure. "The SEP was sort of built around trying to influence expected inflation, and I think it needs to be rebuilt now."

On the strange fact that stress tests did not ask about interest rate rises, he added, "The macroeconomic assumptions were vetted at the most senior levels. A perspective brought to bear on those assumptions was how it might get out and how it might reflect on what the Fed thought about what was going to happen," validating Davis's view. Davis's incentive problem extends to stress tests and explains why the Fed could not ask banks about their exposure to sharply higher interest rates.

Volker Wieland spoke in favor of SEP projections, noting that the European Central Bank does not produce them, and he has been arguing for them. "It's worse if the central bank is not transparent in this regard. The advantage of the SEP is that these individual forecasts are public. This allows criticism and makes the central bank somewhat vulnerable." He also stressed that even when making mild forecasts, talking about risks would lead central banks to prepare to address them.

Terry Anderson asked the eternal question, how does institutional change come about? Davis responded, praising the role of regional Feds in institutional and conceptual change.

Toward a Monetary Policy Strategy

The conference day ended with the traditional policy panel. James Bullard pointed to the huge fiscal stimulus as the central source of inflation. He argued, however, that “the fiscal stimulus is receding, and monetary policy has been adjusted rapidly in the last year to better align with traditional central bank strategy. Accordingly, the prospects for continued disinflation are good but not guaranteed.”

To understand the fiscal-monetary impulse (large deficits, mostly monetized), he pointed out that “the spirit of the macroeconomic policy response to the pandemic was to err on the side of too much rather than too little . . . risking a high-inflation regime.”

He also said that to analyze fiscal policy, it’s important to study what government spending is used for. In this case, it was mostly transfer payments to individuals and businesses. That led to a “sharp increase in personal savings,” as money temporarily piled up in bank accounts. Both the size and this nature of fiscal stimulus are “unprecedented in US postwar macroeconomics,” so it’s not surprising that previous experience missed the mark on its effects. He pointed to George Hall and Thomas Sargent’s view at our last conference, that we should think of pandemic fiscal policy like a war financed by huge borrowing and money creation, often leading to sharp but temporary inflation, which devalues government debt, a form of capital tax.⁴

Thinking about inflation going forward, Bullard first showed a chart with several different measures of underlying inflation that are not receding as quickly as the more popular measures.

More optimistically, though, he presented an interesting and novel analysis of fiscal pressure on inflation, focusing on the personal savings rate. We can think of that somewhat informally as indicating how much pent-up cash is still lying around waiting to be spent and drive prices up. The large increase in personal savings during the pandemic fiscal transfers has reversed. But cumulative lower savings

are still about half a trillion dollars less than the cumulatively higher previous saving: “Excess savings are diminishing but have not yet dissipated.”

Bullard went on to evaluate current monetary policy. He stressed the importance of a credible regime and how a Taylor rule is most important to solidify expectations rather than to try to fine-tune long and variable lags. Evaluating policy with a wide range of plausible assumptions about Taylor rule coefficients and inflation measures, he found current policy close to a Taylor rule with no inertial elements. Yes, policy was slow to react, but the speed of the reaction and the fact that it was widely expected may make up for some of that slowness.

In sum, onetime inflation from a onetime warlike fiscal shock is petering out; we are returning to a pretty good previous monetary policy regime roughly following a Taylor rule, and “the prospects for continued disinflation are reasonably good.”

Philip Jefferson started by announcing his appointment as vice chair of the Federal Reserve, which got a well-deserved ovation. He then jumped right in, thoughtfully challenging the premise of the conference title:

The title of the conference, “How to Get Back on Track: A Policy Conference,” is potent. Its intent and ambiguity are striking. First, the title presupposes that US monetary policy is currently on the wrong track. Second, the webpage for this conference advances a puzzling definition of the phrase “on track.” How so? According to the Hoover webpage, “A key goal of the conference is to examine how to get back on track and, thereby, how to reduce the inflation rate *without* slowing down economic growth” (emphasis added). . . . Third, the definition of “on track” in the title contrasts with more commonplace definitions such as “achieving or doing what is necessary or expected,” as offered by a standard reference such as the Merriam-Webster dictionary. My view is that this commonplace definition provides a more practical lens through which to assess real-world policymaking.

The standard Fed view of monetary policy is that higher interest rates lower aggregate demand, which reduces output and employment, and via Phillips curve logic, then slowly brings down inflation. The painless disinflations that come from a shift in monetary (and fiscal) policy regimes, giving a shift in the Phillips curve, are unusual events. “Without slowing down economic growth” is not the usual “track.”

Jefferson proceeded to methodically lay out a case that the Fed is, as he sees it, “on track.” After laying out contrasting measures of inflation, he said that he expects “slower consumer spending growth over the remainder of the year in response to tight financial conditions, depressed consumer sentiment, greater uncertainty, and declines in overall household wealth and excess savings.” Most of all, he sees tighter financial conditions, though no crisis, on the horizon to depress demand. However, he acknowledged “that there is significant uncertainty” in both directions.

He thoughtfully evaluated monetary policy in terms of a few strategic principles:

First, policymakers should be ready to react to a wide range of economic conditions with respect to inflation, unemployment, economic growth, and financial stability. The unprecedented pandemic shock is a good reminder that under extraordinary circumstances, it will be difficult to formulate precise forecasts in real time.

This is an important statement that came up several times at the conference: think in terms of how the Fed will react to events rather than commit to one policy based on the central tendency of the forecast. Of course, a Taylor rule is an explicit example of a policy that states a reaction to events rather than a firm course. It is a data-dependent rather than a time-dependent commitment.

Second, policymakers should clearly communicate monetary policy decisions to the public. Our commitment to transparency should be evident to the public, and monetary policy should be conducted in a way that anchors longer-term inflation expectations. Third—and this is where I am revealing my passion for econometrics—policymakers should continuously update their priors about how the economy works as new data become available. In other words, it is appropriate to change one’s perspective as new facts emerge.

In sum, with unemployment at a record low of 3.4%, yet personal consumption expenditures (PCE) inflation already declining from 7% to 4.2%, with long and variable lags of current tightening still ahead, Jefferson closed with the view that we are well on track.

Jeffrey Lacker and Charles Plosser presented a contrasting view. Lacker started with a critique of Fed communication: “The gyrations in public perceptions of the Fed’s likely policy course were the result of significant gaps in the FOMC’s communications and could have been avoided.” Lacker cited the phrase *sufficiently restrictive* and discussion over what it meant.

He recommended anchoring policy discussions with several rules as a way to enhance transparency. Moreover, Lacker emphasized that commitment to a rule provides needed anchoring: “Referencing systematic policy rules that are grounded in historical experience can be a constructive way for the Fed to communicate about the likely path of monetary policy.” Lacker emphasized rules as a benchmark, not that policy should mechanically follow a rule, stating, “Such references would not constitute rigid commitments but would be more informative to markets and the public than the subjective, discretionary, ‘trust me’ approach that largely describes current practice.”

He followed with a concrete example. We don’t know what will happen to inflation over the next year. He calculated policy-rule responses to several plausible scenarios, and they are quite different.

A single number for forward guidance does not capture or communicate that reaction.

Plosser added comments on discretion versus rules, a broader sense of “on track” than just the level of interest rates. A rule, like a mandate, is a precommitment both to act and not to pay attention to items outside the mandate. The Fed has, however, resisted steps to limit its own discretion and has done so for many years, thus limiting its transparency and any ability to hold it accountable.

Why? One answer is the political pressures that the Fed is under. Since the 1951 Treasury-Fed Accord, the Fed has had independent control over its balance sheet. But the Fed’s assets are no longer just Treasury debt. So political pressure can get really applied to the balance sheet, and now the Fed is heavily engaged in credit policy. Additionally, he said that we (and the Fed) are asking monetary policy to achieve too many goals, which are far beyond its reach.

Mickey Levy challenged Bullard’s assumption that fiscal policy is back to normal after a onetime pandemic stimulus. Much of the pandemic money has not been spent, we still have trillion-dollar deficits despite a 3.4% unemployment rate, and entitlement programs are looming.

Charles Siguler asked about the money supply. M2 surged with the pandemic fiscal transfers but now has shrunk dramatically. Is that good news, and should the Fed go back to looking at the money supply? Bullard responded that while M2 did surge ahead of this inflation, it has not proved a reliable guide over longer time periods.

William Nelson asked whether the Fed bears some responsibility for financial turmoil, both from regulatory failures to spot interest rate risk in banks and from raising interest rates so quickly. He also asked panelists what they thought the neutral interest rate was. (Lacker responded that it depends on how you define neutral.)

Andrew Levin noted that the Bank of England seems to have more dissent, while the FOMC now seems to circle the wagons

to offer a unified view and encourages more independent thinking and its expression. He went on to note that Bullard showed the Fed in the bottom of the comfortable zone, Jefferson thinking interest rates are just fine, and expressing a view that now the risks of 1970s inflation blowout are high. With that and a risk-management framework in mind, he asked just where each thought the right zone should be.

Krishna Guha noted that if the Fed's inflation projections are correct, even the Taylor rule will recommend a funds rate between 2.5% and 3% by the end of 2024, so maybe the muted market reaction to inflation is not incorrect. Then he asked how one might extend Taylor-rule thinking to include balance sheet and credit tightening along with the usual level of interest rates.

In response, Jefferson highlighted the importance of the dual mandate, but Bullard pointed out that inflation is a tax that hits hardest "the lowest segment of the population," so perhaps equity concerns should push one in a hawkish direction. Bullard and Lacker pointed out that credit is part transmission mechanism, not necessarily an independent policy lever.

Latin American Inflation

In his dinner speech, Sebastian Edwards discussed the progress that Latin America has made in recent decades in reducing endemic inflation, its lessons, and the Chilean miracle initiated by the Chicago Boys, which raised Chile from one of the poorest countries of the continent to becoming its superstar.

Edwards showed that the majority of Latin American countries experienced a dramatic drop from three-digit annual inflation fifty years ago to numbers comparable to the advanced countries today. He attributed this success to the market-friendly reforms, fiscal consolidation, and adoption of rules-based monetary policies stemming from the policy advice of the IMF and US (mainly University

of Chicago) economists. The principal exceptions to this heartening story are Argentina, which has never solved its fiscal problem, and Venezuela, which functions under a harsh socialist regime.

Then, based on his new Princeton University Press book, *The Chile Project: The Story of the Chicago Boys and the Downfall of Neoliberalism*, he told the story of how in fifty years, Chile became the success story of Latin America. He described the role of the Chicago economists Milton Friedman and especially Arnold Harberger and his students—the Chicago Boys—in instigating this remarkable transformation from the high-inflation, dysfunctional, and planned economy under Salvador Allende to the institution of Chicago School reforms, including a massive reduction in tariffs, the liberalization of goods and factor markets, and fiscal and monetary stabilization.

He described some of the bumps in the road of reform—especially the major financial crisis of 1982—reflecting the decision in the 1970s to peg the Chilean peso to the US dollar during a period when US disinflation elevated the Chilean real exchange rate. He also discussed how the democratic regime that succeeded the Pinochet dictatorship in 1990 adopted and improved upon the blueprint laid out by the Chicago-trained economists. Indeed, much of the economic growth happened after Augusto Pinochet.

To Edwards, Chile is a good example of the fact that a central bank acting on its own doesn't control inflation. He then warned that the social unrest in Chile in 2019 and the leftward shift in the political regime currently pose a severe threat to Chile's continued economic progress.

Notes

1. John B. Taylor, "Discretion versus Policy Rules in Practice," *Carnegie-Rochester Conference Series on Public Policy* 39 (1993): 195–214. Amsterdam: North-Holland.

2. Richard Clarida, Jordi Galí, and Mark Gertler, “The Science of Monetary Policy: A New Keynesian Perspective,” *Journal of Economic Literature* 37, no. 4 (December 1999): 1661–707; Richard Clarida, Jordi Galí, and Mark Gertler, “Monetary Policy Rules and Macroeconomic Stability: Evidence and Some Theory,” *Quarterly Journal of Economics* 115, no. 1 (February 2000): 147–80.
3. Michael S. Barr, “Review of the Federal Reserve’s Supervision and Regulation of Silicon Valley Bank” (which has become known simply as the Barr Memo), April 28, 2023, <https://www.federalreserve.gov/publications/review-of-the-federal-reserves-supervision-and-regulation-of-silicon-valley-bank.htm>.
4. George J. Hall and Thomas J. Sargent, “Financing Big US Federal Expenditures Surges: COVID-19 and Earlier US Wars,” in *How Monetary Policy Got Behind the Curve—and How to Get Back*, ed. Michael D. Bordo, John H. Cochrane, and John B. Taylor (Stanford, CA: Hoover Institution Press, 2023), 253–91.