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Fed Thoughts: The Zero Lower Bound Warps Time & Space

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The defining feature of 21st-century monetary policy is a lesson from the 1930s: Economic circumstances can be so constricted that the nominal policy rate cannot go low enough to offset sufficiently. Whether low is zero, when holding cash dominates bank deposits as is the view at the Federal Reserve (Fed), or slightly negative as has been set in other advanced economies, is second order. The important point is that there is a hard floor to the nominal policy interest rate around zero. This is relevant for understanding the longer arc of policy and its immediate manifestation in what the Federal Open Market Committee (FOMC) will do at its upcoming meeting.

The zero lower bound (ZLB) to the policy rate creates:

- An asymmetry in policy effectiveness in that a central bank can raise rates to the roof in response to excess demand but hits the floor of the ZLB in response to extreme resource slack.
- A discontinuity in policy communications in that a slight shift in the probability weight attached to malign economic outcomes where the ZLB binds can materially alter the policy narrative.

This note covers both topics, starting with how the policy asymmetry shaped the response to the pandemic shock and opens the door for fiscal dominance of monetary policy. While the door is not wide open, we believe that the Fed will feel the weight of ongoing large federal deficits and accumulating debt when setting monetary policy, to the detriment of its price-stability goal over the medium and longer run.

Of more immediate import, the ZLB raises the potential of abrupt changes to elements of Fed communication. Fed officials, as enshrined in the Summary of Economic Projections (SEP), emphasize the most likely outcome for the economy and for policy because it simplifies their story telling. However, the accumulation of a range of possible adverse outcomes where zero is the appropriate rate might swamp the policy recommendation of a nonzero rate for the most likely macroeconomic outcome. The practical application of this likely plays out at the upcoming FOMC meeting. In the second year of the pandemic, a small probability placed on very bad outcomes in the outlook will likely hold most fed funds rate forecasts in the “dot” chart at zero for the next two years, even if the more likely destination is a well-performing economy. The risk, though, is that even a marginal decrease of pandemic risks puts some of those dots into an upward flight.

The Asymmetry of the ZLB

The clearest places to look for the asymmetric effect of the ZLB is to compare the episodes in the post-World-War-II period when the Fed fell furthest from its dual objective of maximum employment and stable prices. An old-fashioned measure of overall performance, suited to the purpose and introduced by Arthur Okun in the 1970s, is the “Misery Index,” or the sum of the unemployment and inflation rates, as plotted on the next page. The Misery Index breached 15 percent three times, challenging three Fed chairs—Arthur Burns, Paul Volcker, and Jay Powell. The first failed the test, the second legendarily passed, and the third is still to be graded. To their benefit, Burns and Volcker were on the smooth side of the ZLB asymmetry, in that raising interest rates was within their ability in order to create the slack necessary to curb inflation, the major contributor in their time to the Misery Index.

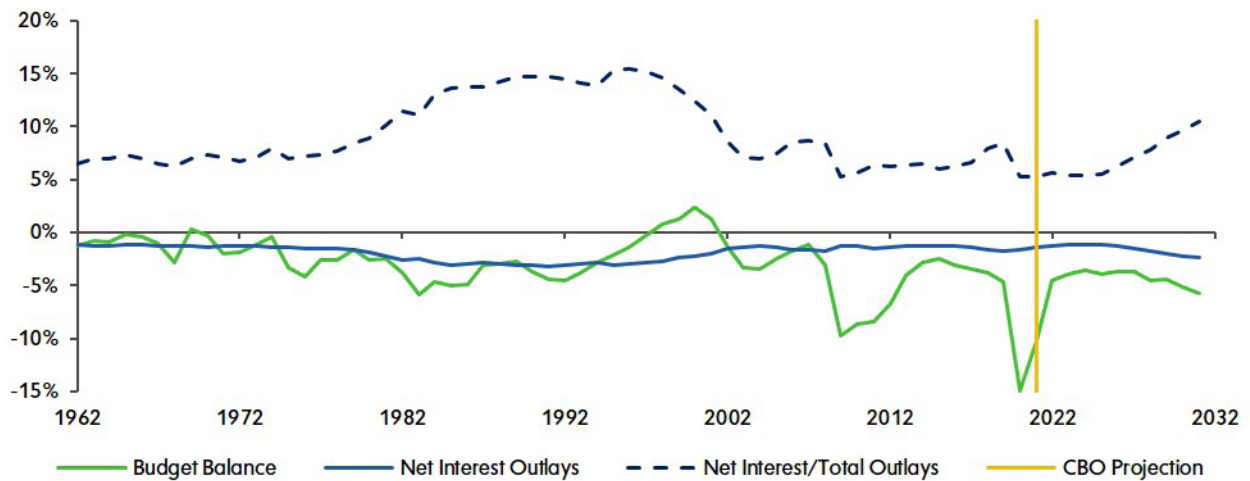
Misery Index: Unemployment Rate plus Core Inflation Rate



Source: BEA, accessed via FRED on 3/5/21, and Mellon calculations.

Arthur Burns chose not to operate that lever sufficiently to tackle the problem. While the attribution of his error is complicated and contested, including a misconception of the extent of economic excess and an institutionalist view of price determination, some part owed to his deference to political authorities. As seen in the next chart, interest expense was running about 7 percent of federal budgetary outlays at the time, and Fed tightening would add an unwelcome amount to that burden. Allowing monetary policy decisions to be dominated by fiscal policy considerations produced poor monetary policy decisions.

Federal Budget as a Share of Nominal GDP



Source: Congressional Budget Office, accessed 1/28/21.

Paul Volcker, in contrast, raised rates as far as his eye could see. Indeed, his genius was to adopt a quantitative reserve target so that he could generate an increase in interest rates and deny causality. But he could do it, and did, thereby making monetary policy independent of fiscal policy. The consequence was harsh for the Treasury, with interest expense consuming 15 percent of outlays for a time. Having established a regime of monetary dominance, Alan Greenspan could follow with policy firming when necessary (even during the party convention of the president who nominated him) so as to cement the Fed’s commitment to low inflation.

Government Debt held by the Public as a Share of Nominal GDP



Source: Congressional Budget Office, accessed 1/28/21.

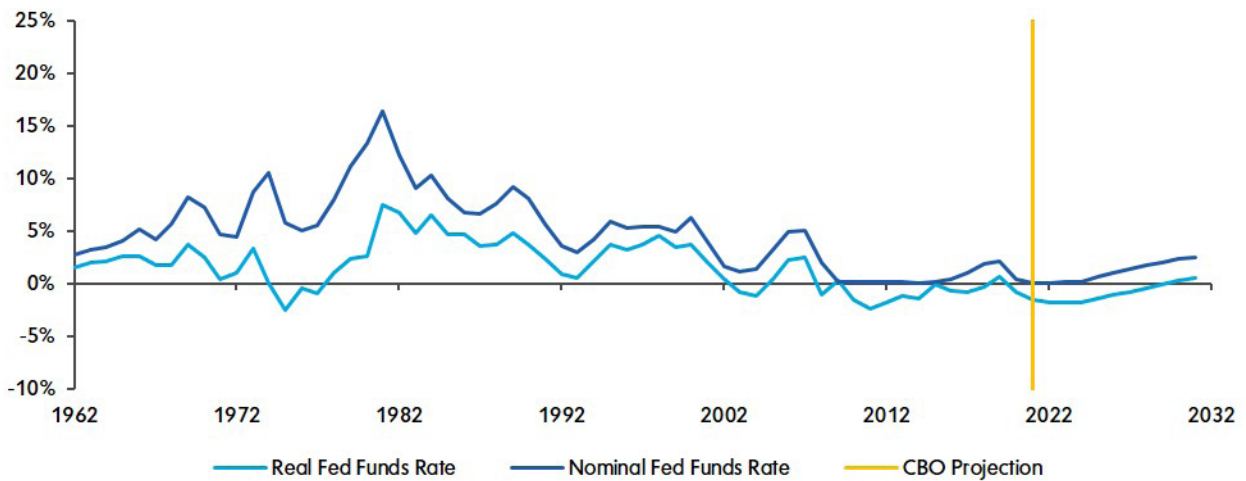
Jay Powell is on the awkward side of the ZLB asymmetry. The recent spike in the Misery Index is all about unemployment. As a result, conventional monetary policy room ran out on March 15th, 2020, when the policy rate was pushed down to zero. Powell’s understandable remedy was to rely on unconventional policies, all of which have a fiscal element to them. Large-scale asset purchases pull government securities from private investors’ portfolios, lowering Treasury interest expense and creating “fiscal space” (to use the delicate phrase in Bernanke and Reinhart, 2004) for government stimulus.¹ Those purchases, along with the rock-bottom policy rate, implies Treasury interest expense is running around 5 percent of outlays, even lower than Burns’ day despite the debt held by the public being four times larger relative to nominal GDP (as in the chart below). Lending against or purchasing outright private obligations puts taxpayer resources at risk and were rightly made with first-loss protection from the Treasury. On the awkward side of the ZLB, the Fed became a fiscal policy player.

Fed Chair Powell’s place in history depends on how skillfully the Fed extricates itself from its mutual embrace with fiscal authorities. The programs may be put back on the shelf when macroeconomic circumstances stabilize, but everyone (including Washington DC progressives) know they are there. The bigger risk to monetary policy’s fiscal dominance is the relatively concurrent consequence to federal interest expense of raising rates to rein in excess demand when it eventuates.

Powell steadfastly maintains that the Fed has the tools necessary to do so, which owes to the challenge being on the easier side of the ZLB asymmetry. But Arthur Burns was there, too, and now the multiplier effect of Fed tightening on the federal budget is four times greater. Complicating matters, even if he has the willpower to do so, Powell may not be at the helm as his term as chair comes up next February. Thus far, the Biden administration has shown a predilection to place party loyalists in high positions.

The Congressional Budget Office (CBO) thinks it will not be necessary to raise rates much, as in the chart on the following page, presumably on the view that the equilibrium real interest rate has permanently shifted lower. As a result, interest expense does not balloon. We worry that expecting the real short rate to stay negative for two decades is too rosy an outlook. The challenge for future Fed officials will be to do otherwise if we are right. Our concern that inflation will rise above the Fed’s goal and that they will be slow on the uptake, hemmed in by fiscal dominance.

Policy Rates



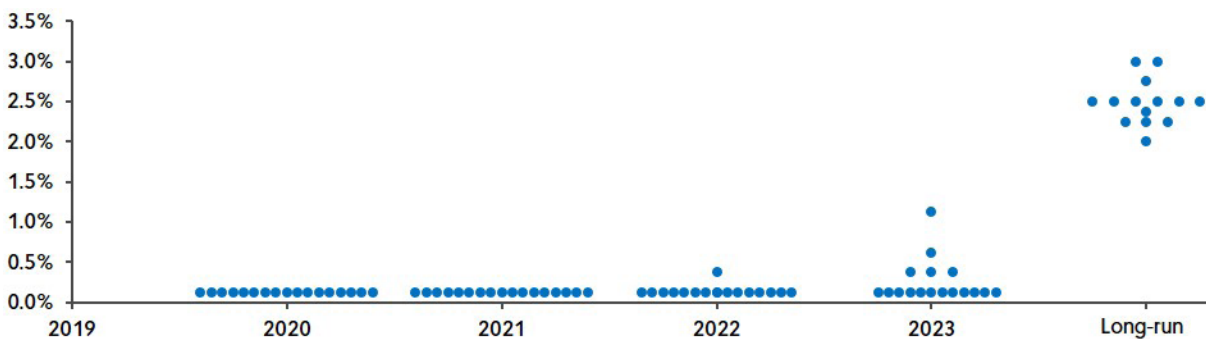
Source: Congressional Budget Office, accessed 1/28/21.

The Wrinkle in Fed Time of the ZLB

Monetary policy makers weigh the range of possible economic outcomes in light of their costs and benefits. Their decisions are usually explained, however, in terms of a central story. This is formalized quarterly in the Summary of Economic Projections (SEP) of FOMC participants, which will be updated at the March 16-17 meeting. The Fed started surveying FOMC participants in 1979 in light of instructions from Congress to provide an official forecast, which evolved into the SEP as we now know it. Respondents are asked to provide their mostly likely outcomes for real GDP growth, the unemployment rate, and inflation for the next few years. Such a central tendency, the mode to their individual distributions of possibilities, was thought to fit better with the narrative descriptions of the most likely progression of the economy in the Monetary Policy Report and the chair’s testimony.

Adding the most likely path of the appropriate fed funds rate to the SEP in 2012 introduced the “dot” chart, with its latest variant shown below. The prospects for this pancake-flat outlook to continue depends, in part, on the wrinkle in time of the zero lower bound that can drive a wedge between the central tendencies of the appropriate fed funds rate and economic performance. If enough probability weight were spread across economic eventualities where the appropriate policy rate were zero, the mode may be zero even when the most likely outcome for real GDP growth, for instance, calls for a positive policy rate.

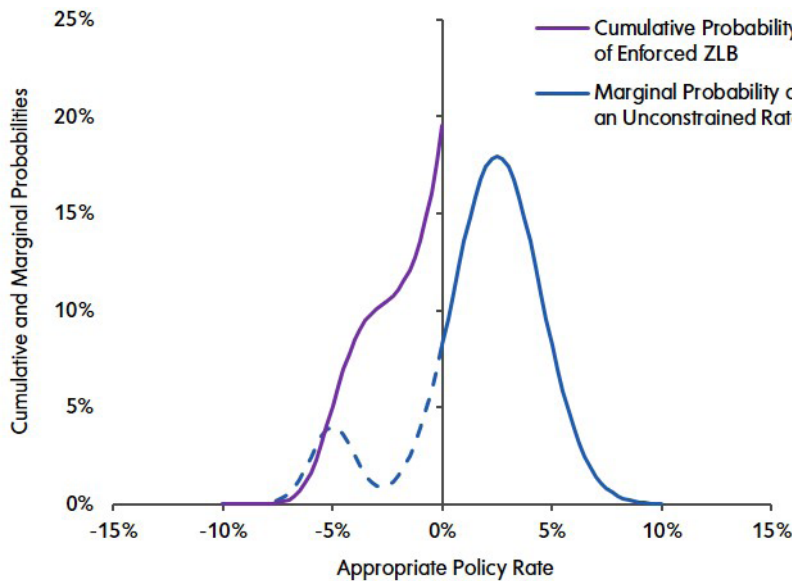
Summary of Economic Projections



Source: Federal Reserve, accessed 12/16/20, at <https://www.federalreserve.gov/monetarypolicy/fomcprojtabl20201216.htm>.

A picture helps. Suppose that the frequency distribution for possible fed funds rates lurking in the mind of an FOMC participant below merges two cases of relatively benign outcomes drawn as a normal distribution centered at 2½ percent accounting for 90 percent of the total probability mass and a 10 percent chance of a horrific outcome in which the policy would be centered at -5 percent, if that were possible. Because it is not possible, all the probability weight slams to the vertical axis of the zero lower bound. Note that the most likely result for policy driving the official narrative is zero, which does not align with the most likely direction of the economy. This was not about complicated risk management of policy, it was about adding up numbers. And the addition is sensitive to the relative weights placed on the benign and malign outcomes.

Distinct Possibilities for the Appropriate Fed Funds Rate when 10% Weight is put on the Malign Outcome



OTHER POSSIBILITIES	
Weight on Malign Outcome	Mode of the Distribution
5%	2.5%
6%	2.5%
7%	2.5%
8%	2.5%
9%	0%
10%	0%
11%	0%
12%	0%

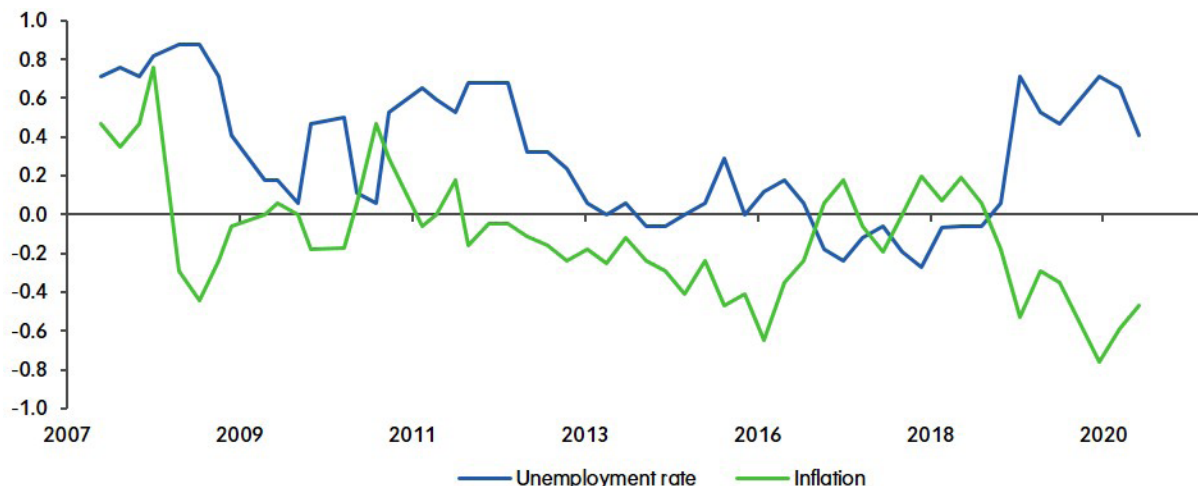
Source: Mellon calculations as in text. Shown for illustrative purposes only and does not reflect actual results.

As shown in the table, a two-percentage-point weight shifted from the bad to the better scenario (from 10 percent to 8 percent) elevates the mode of the appropriate policy rate from zero to 2½ percent. The sensitivity of the key descriptive statistic to the underlying regime raises the risk at the upcoming meeting that the brighter news on the vaccine roll out shifts a few FOMC participants from the left to the right modes, which would levitate their dots. Most likely, monetary policy makers will be hesitant to do much to their messaging in light of the recent back-up in yields.

The place to look for moving parts that might presage future shifts is the back of the SEP book, which provides diffusion indexes of the tilt to the distribution of risks in the outlook. The following chart gives the responses regarding the unemployment rate (in blue) and inflation (in green) over time. As 2020 closed, FOMC participants apparently dreaded that outcomes were skewed toward too-high unemployment and too-low inflation, a concern fed by the uncertain path of the pandemic. With greater assurance of the eventual attainment of herd immunity now, expect those lines to move closer to the horizontal axis. Will it translate to budging the dots representing the appropriate interest rate higher? Perhaps for a few, but it will signal that more is to come.

Diffusion Indexes of Risk Weightings in the SEP (At Each Fed Meeting)

Neutral = 0



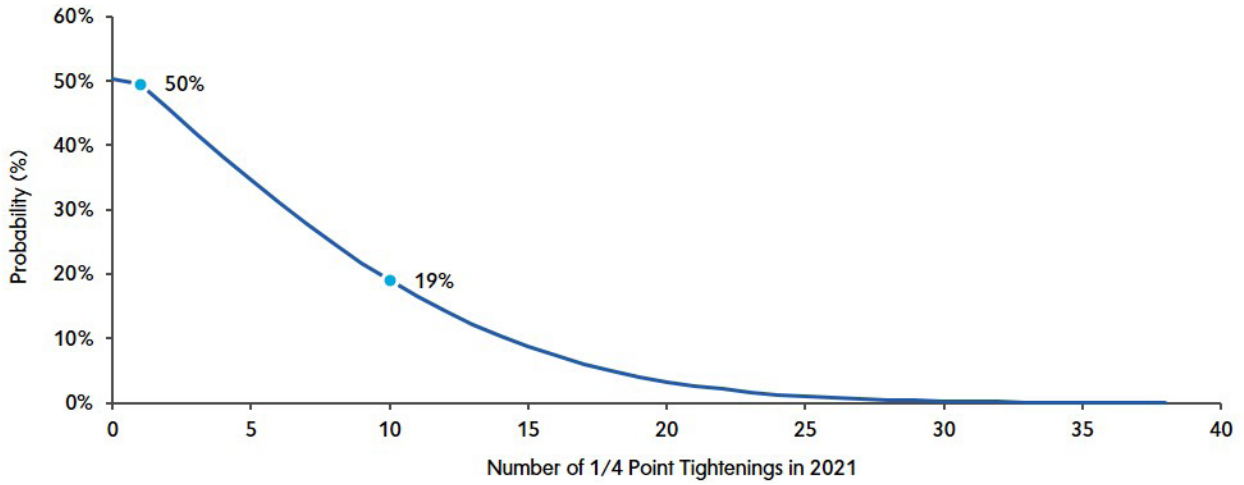
Source: Federal Reserve, as of 12/5/20.

Conclusion

Assuredly, this slices the salami of Fed communication exceedingly thin. Ironically, we can dig still deeper into the back of the book of the SEP for cautionary advice on that score. The table below reports a 70 percent confidence band at different horizons around the point estimates of real GDP growth, the unemployment rate, inflation, and the policy rate based on the out-turns of a collection of public and private forecasts over the past thirty years. Beyond the first year, the confidence bands widen quickly. For the policy rate one year out (which is the end of this year for the December SEP shown), the 70th percent confidence band is plus or minus 1.4 percentage points centered on a point forecast of zero. No, wait, the ZLB applies so that all of the mass below zero huddles at zero. Thus, as in the figure on the next page, 50 percent of the cumulative probability is at zero, making it the modal result and hard to dislodge. But to the right of that, the wide confidence band is consistent with the possibility of much higher interest rates. This is how shaky the Fed’s guidance really is: It is a coin flip as to whether policy tightens this year, at least based on historical confidence bands. And while zero is the mode and populates the dot chart, the uncertainty spread is so wide that there is a 20 percent chance that the funds rate will be raised ten times in ¼ percentage point increments to get to 2½ percent in 2021. This, of course, is ludicrous. Or, perhaps, it is ludicrous to read the dot chart too finely.

AVERAGE HISTORICAL PROJECTION ERROR RANGES				
70th percent confidence range around forecast, percentage points				
Change in real GDP	±0.8	±1.5	±1.9	±2.0
Unemployment rate	±0.1	±0.8	±1.4	±1.9
Total consumer prices	±0.2	±0.9	±1.0	±0.9
Short-term interest rates	±0.1	±1.4	±2.0	±2.4

Implied Probability of Action in 2021



Source: Federal Reserve and Mellon calculations of implied probabilities, 12/20.

The broad-brush story might be the most useful one. The Mellon forecast is that the pancaked dot plot mostly stays flat and that the fed funds rate holds at zero in 2021. Rising inflation thereafter makes 2022 a test for Fed leadership, most likely different leadership. They do not pass with flying colors.

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Vincent is Mellon's Chief Economist and Macro Strategist. In this role, he is responsible for developing views on the global economy and making relative value recommendations across global bond markets, currencies and sectors.

Previously, Vincent served as the Chief US Economist and a managing director at Morgan Stanley. For the prior four years, he was a resident scholar at the American Enterprise Institute (AEI). Vincent also worked in several roles at the Federal Reserve over 24 years, including Director of the Division of Monetary Affairs and Secretary and Economist of the Federal Open Market Committee (FOMC). His responsibilities at the Federal Reserve included directing research and analysis of monetary policy strategies and the conduct of policy through open market operations, discount window lending and reserve requirements. Prior to these roles, he was the principal liaison with the domestic desk at the Federal Reserve Bank of New York and was responsible for preparing a document outlining policy alternatives for each FOMC meeting. He was Deputy Director in the Division of International Finance and Associate Economist of the FOMC and spent five years at the Federal Reserve Bank of New York in both the domestic and international research departments.

His academic publications primarily concern the conduct of policy and issues related to the monetary transmission mechanism as well as an analysis of alternative auction techniques and Treasury debt management. After an undergraduate training at Fordham University, he received graduate degrees in economics at Columbia University.

Endnotes

¹ Bernanke, B. S., & Reinhart, V. R. (2004). Conducting monetary policy at very low short-term interest rates. *American Economic Review*, 94(2), 85-90.

Disclosure

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