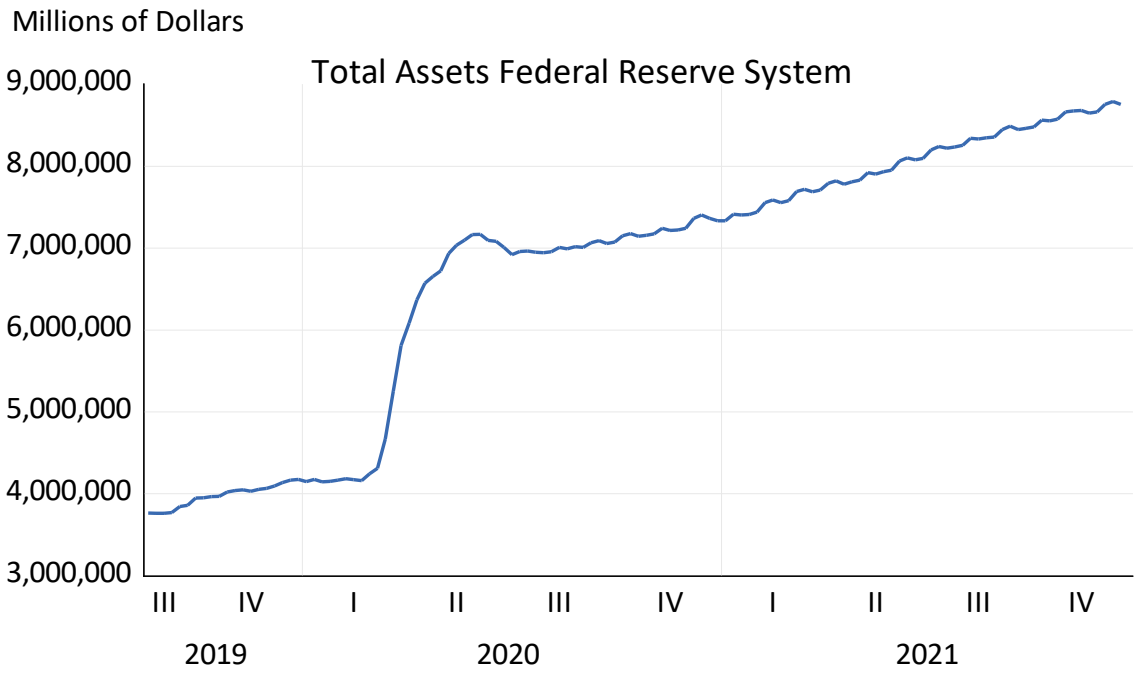
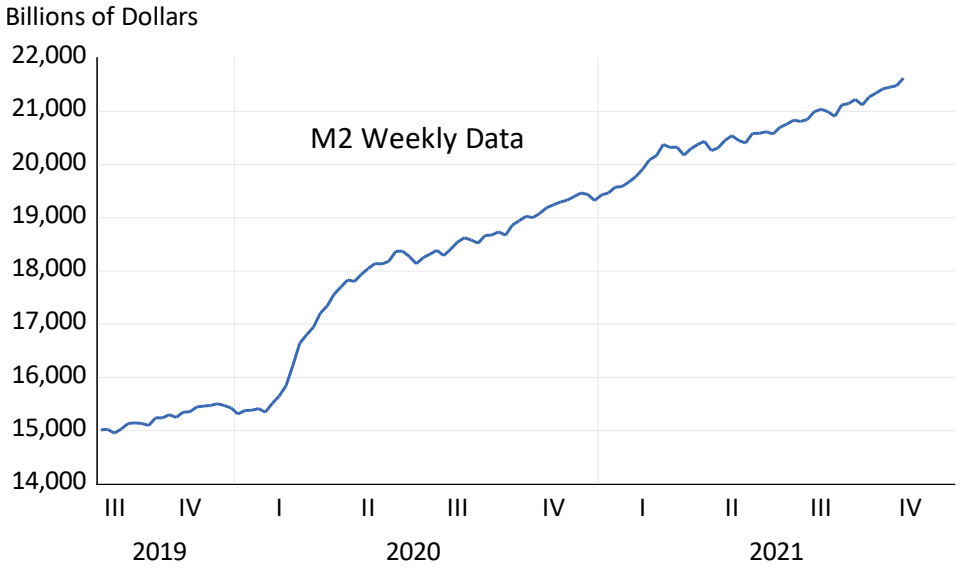
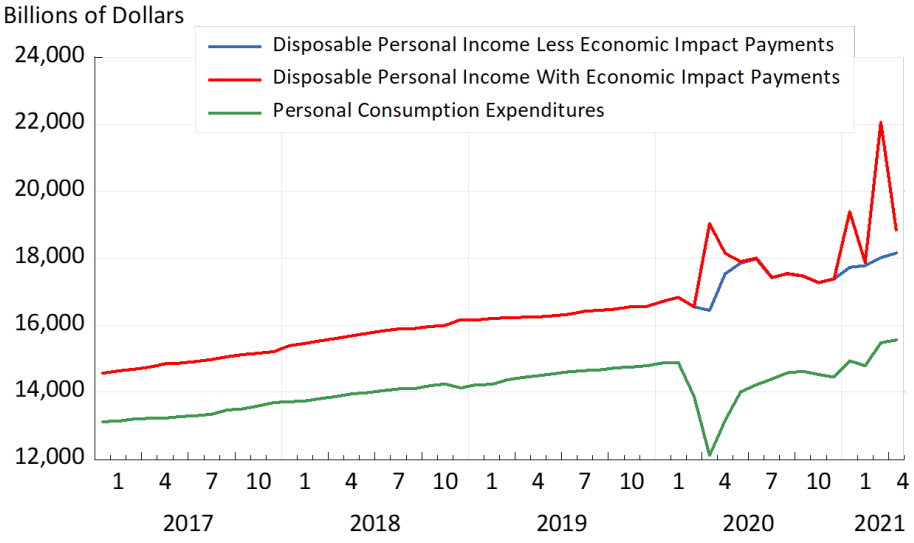
John Taylor, Hoover Economic Policy Working Group, January 5, 2022







From the Fed's July 9, 2021 Monetary Policy Report

A. Monetary policy rules

Taylor (1993) rule	$R_t^{T93} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t)$
Balanced-approach rule	$R_t^{BA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2(u_t^{LR} - u_t)$
Balanced-approach (shortfalls) rule	$R_t^{SBA} = r_t^{LR} + \pi_t + 0.5(\pi_t - \pi^{LR}) + 2min\{(u_t^{LR} - u_t), 0\}$
Adjusted Taylor (1993) rule	$R_t^{T93\,adj} = max\{R_t^{T93} - Z_t, \text{ELB}\}$
First-difference rule	$R_t^{FD} = R_{t-1} + 0.5(\pi_t - \pi^{LR}) + (u_t^{LR} - u_t) - (u_{t-4}^{LR} - u_{t-4})$

The Taylor (1993) rule and other policy rules are generally written in terms of the deviation of real output from its full capacity level. In these equations, the output gap has been replaced with the gap between the rate of unemployment in the longer run and its actual level (using a relationship known as Okun's law) to represent the rules in terms of the unemployment

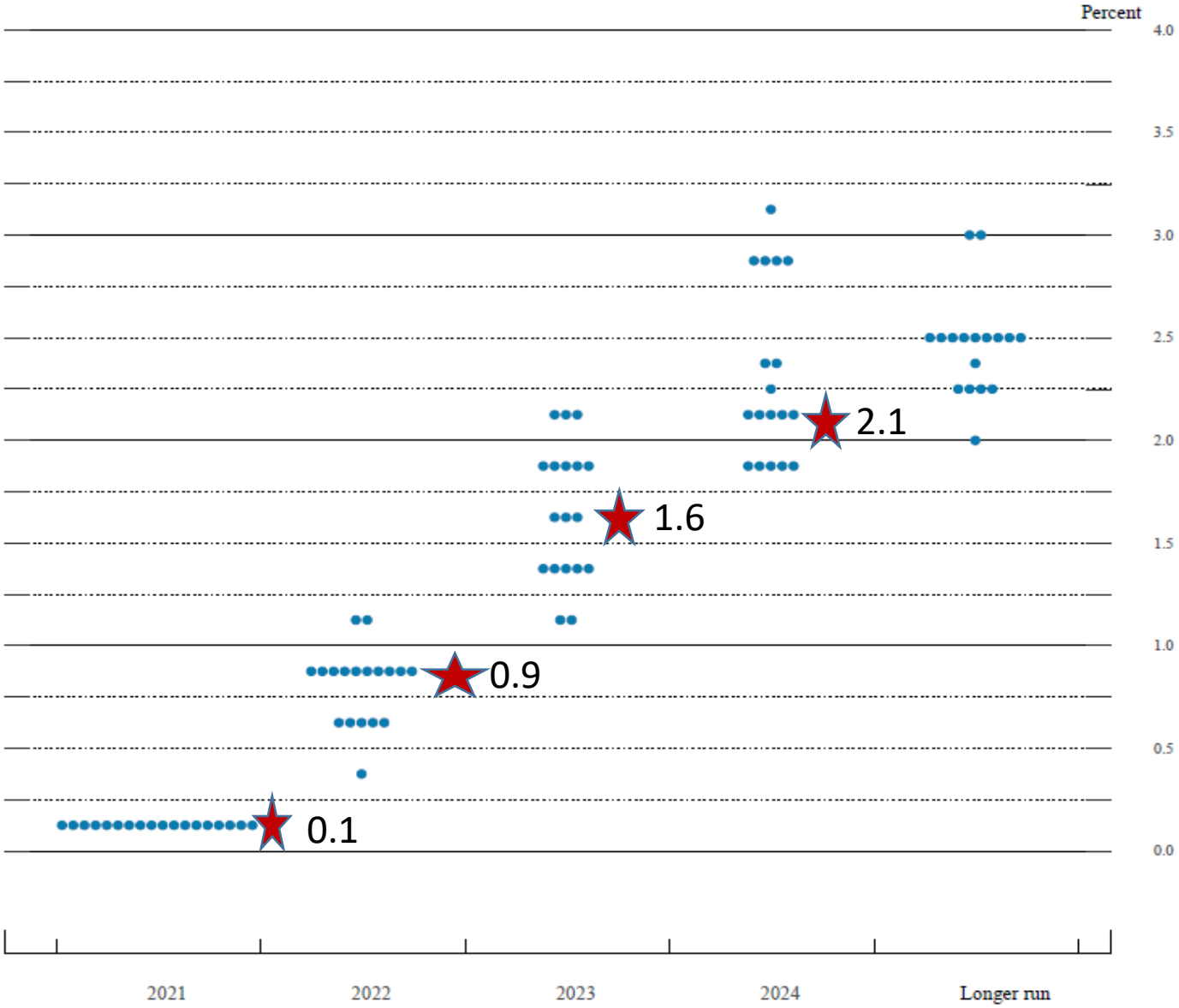
FOMC Median Federal Funds Rate Projections (Percent)

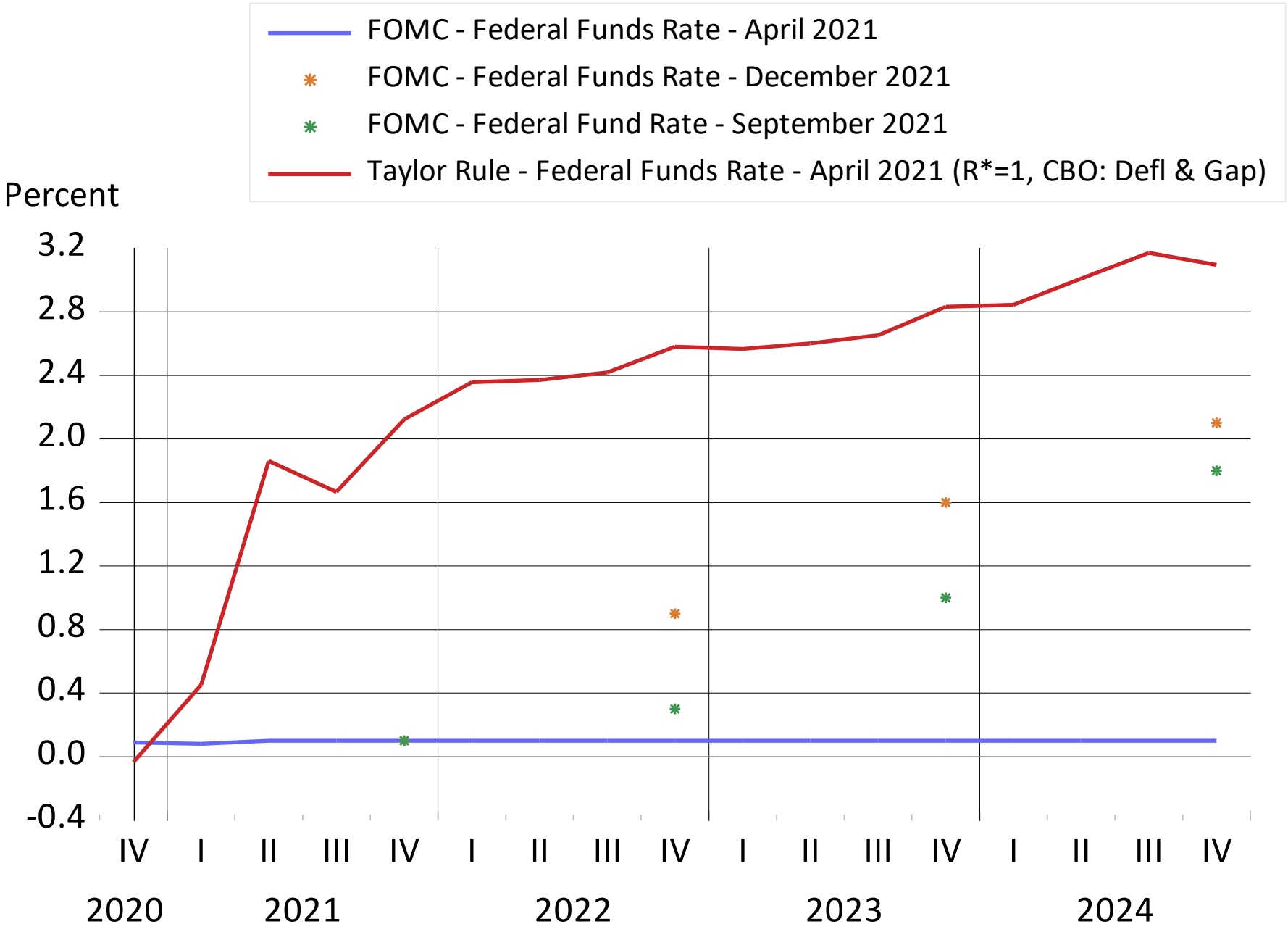
Year	2021	2022	2023	2024
December 14-15 meeting	0.1	0.9	1.6	2.1
September 21-21 meeting	0.1	0.3	1.0	1.8

"The projections for the federal funds rate are the value of the midpoint of the projected appropriate target range for the federal funds rate or the projected appropriate target level for the federal funds rate at the end of the specified calendar year…"

"'Appropriate monetary policy' is defined as the future path of policy that each participant deems most likely to foster outcomes for economic activity and inflation that best satisfy his or her individual interpretation of the statutory mandate to promote maximum employment and price stability."

Figure 2. FOMC participants' assessments of appropriate monetary policy: Midpoint of target range or target level for the federal funds rate




FOMC - Federal Funds Rate - April 2021
FOMC - Federal Funds Rate - December 2021
FOMC - Federal Fund Rate - September 2021
Taylor Rule - Federal Funds Rate - April 2021 (R*=1, CBO: Defl & Gap)
Percent
3.2
2.8
2.4
2.0
1.6
1.2
0.8
0.4
0.0
-0.4
IV I II III IV I II III IV I II III IV I II III IV
2020
2021
2022
2023
2024

Federal Funds Rate =

Gross Domestic Product: Implicit Price Deflator
+2
+0.5*(Gross Domestic Product: Implicit Price Deflator)
+0.5*(Real Gross Domestic Product-Real Potential Gross Domestic Product)/Real Potential Gross Domestic Product*100

<u>2021Q3</u>

r = **4.575** + 1 + 0.5*(**4.575** - 2) + 0.5*(**-1.60**)

= **6**

r = 4 + 1 + 0.5*(4-2) + 0.5*(-2)

= **5**

<u>Notes:</u>

pi21a = (pi21 + pi21(-1) + pi21(-2) + pi21(-3))/4

= (5.9 + 6.2 + 4.3 + 1.9)/4 = **4.575**

gap = 100*(RGDP-POT)/POT = **-1.60**

Way Behind

- Use July 9, 2021, *Monetary Policy Report* "Taylor rule," and plug in:
  - an inflation rate over the past four quarters of 4%,
  - the gap between GDP and its potential of about -2%,
  - a target inflation rate of 2%,
  - an equilibrium interest rate of 1%,
  - you get a federal funds rate of 5%.
- If inflation rate falls to 2% by end 2022, and output equals potential, the federal funds rate should be about 3%, way behind the .9%
  - Still assumes equilibrium interest rate of 1% rather than 2%
  - Calculations use average inflation rate over 4 quarters,
    - consistent with a form of "average inflation targeting"

References

Policy Rules in Fed Publications

- https://fredblog.stlouisfed.org/2014/04/the-taylor-rule/
- https://www.atlantafed.org/cqer/research/taylor-rule
- https://www.clevelandfed.org/our-research/indicators-and-data/simple-monetary-policy-rules.aspx
- https://www.federalreserve.gov/monetarypolicy/files/20210709_mprfullreport.pdf see especially pages 39-47

Policy Rules in Some Op-eds

- "Is the Fed Getting Burned Again?," *Project Syndicate*, June 25, 2021
- "The Fed's State of Exception," *Project Syndicate*, August 12, 2021