

The Fed's Monetary Policy Exit Once Again Behind the Curve

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Historical Perspectives on Fed Exits

- This study assesses the current situation through the lens of history
- We analyze business cycles since World War I with a focus on Fed exits following periods of countercyclical easing
- Our general finding is the tendency for the Fed to overstay its easing and delay its exits, which frequently has led to rising inflation
- The Fed's exits from monetary accommodation have generated some economic soft-landings, but more frequently they result in recession
- The Fed's current challenge is daunting: it has never been so far behind with such a deeply negative real Fed funds rate

Outline of Study

- Section II. Description of Fed exits during every cycle since WW I
 - Includes measures of Fed timing of Fed exits
- Section III. Comparison of current situation and 1970s
 - Includes detailed historical comparisons of dispersion of inflation
- Section IV. Factors explain why the Fed has been constantly behind
- Section V. Lessons from history and suggestions for policy reset

Measuring the Fed Exits in the Early Years

- Table 1 on page 5 shows the measured timing of the Fed's exits in each cycle 1920-1960, based on Bordo and John Landon-Lane (2013)
- The trough of each business cycle is used as the base of measurement
- The timing of changes in the **general price level** (Col 2) and changes in the **unemployment rate** (Col 3) are measured from the trough
- Columns 4-7 measure the timing of **Fed monetary policy moves** (the Fed's discount rate and monetary base growth in real and nominal terms) relative to the trough
- Column 8 describes the economic outcome: the Fed's miss-timing most frequently led to recessions

Cyclical Turning Points in Monetary Policy 1920-1960

(1) Cycle Peak to Trough (Trough)	(2) Price Level: <u>CPI^c</u> (Inflation)	(3) <u>Unemployment^d</u>	(4) Discount Rate ^e (Fed Funds Rate)	(5) Real Discount Rate (Real Fed Funds Rate)	(6) Monetary Base <u>Growth^f</u>	(7) Real Monetary Base Growth	(8) Comments and Result
1. 1920Q1 – 1923Q2 (1921Q3) ^a	1922Q1	1921Q1	3, 7 ^g	-	3, 7	-1, 3	Too late, serious recession
2. 1923Q2 – 1926Q3 (1924Q3)	1924Q1	1924Q1	3, 3	4, 4	2, 2	4, 4	Too late, mild recession
3. 1926Q3 – 1929Q3 (1927Q4)	1928Q1	1928Q1	-1, -1	-1, -1	0, 0	-1, -1	On time, mild recession
4. 1929Q3 – 1937Q2 (1933Q1)	1933Q1	1932Q1	-6, -5	-6, -5	3, 4	3, 4	Too soon, real bills mistake, Great Contraction
5. 1948Q4 – 1953Q2 (1949Q4)	1950Q1	1949Q4	1, 2	4, 5	-3, -2	-3, -2	Too late, mild recession
6. 1953Q2 – 1957Q3 (1954Q2)	1954Q4	1954Q3	(0, 1)	(-1, 0)	-1, 0	-1, 0	On time, mild recession
7. 1957Q3 – 1960Q2 (1958Q2)	(1958Q2)	1958Q2	(0, 0)	(0, 0)	-1, -1	-1, -1	On time, mild recession

Source: Bordo and Landon-Lane (2013). Tables 1a, 1b, 2a, 2b. ^a
NBER trough dates for each cycle.

Footnotes to Cyclical Turning Points Table

Source: Bordo and Landon-Lane (2013). Tables 1a, 1b, 2a, 2b. ^a
NBER trough dates for each cycle.

^b We omitted 2 cycles containing WWII years: 1937Q2-1944Q4 and 1945Q1 – 1948Q3.

^c The turning point was determined by visual inspection for the first quarter after the start of the recession when the price level changes from having a negative slope to a positive slope.

^d The turning point was determined as the first quarter after the start of the recession when the derivative of the unemployment series changes from positive to negative.

^e The turning point was determined as the first quarter after the start of the recession when the interest rate started to increase from a period of falling or relatively level rates.

^f The turning point was determined as the first quarter after the start of the recession when the monetary base growth rate started to fall from a time of increasing or relatively constant growth rates.

^g In each cell the first number represents the number of quarters after the price level trough, and the second number represents the number of quarters after the unemployment peak. Missing value represents a cycle in which no definitive turning point was identified.

1920s and 1930s

- Fed policy anchored by price stability and the Gold Standard; fiscal policy anchored by longer-run balanced budget
- Mid-1920s timely responses termed “The High Tide of the Federal Reserve” by Friedman and Schwartz
- 1930s: Fed’s egregious policy mistakes based on adherence to real bills doctrine, irresponsible responses to banking panics & collapse of money generated Great Depression; in 1936-1937 premature tightening of bank reserve requirements resulted in deep recession

World War II, Aftermath and 1950s

- Under the Treasury's dominance, the Fed helped finance WW II with artificially low rates and rapid money growth
- Post-WW II: ongoing monetary accommodation stemming from sustained Treasury dominance; unanticipated surge in pent up demand generates 3 years of double-digit inflation
 - Ends in recession of 1949
- 1950s: relatively timely Fed exits result in moderate fluctuations in aggregate demand and smoothed business cycles
- Low and stable inflation from end of Korean War (1953) to 1965

Significant Shifts in the 1960s

- Transition from price stability anchor to moderate inflation as goal, and easing of constraints imposed by Gold Standard
- Keynesian revolution popularized by Phillips Curve underlies Fed's shift toward more policy activism and discretionary approach
- Surge in government spending (Vietnam War spending + Great Society spending) accommodated by Fed under pressure from LBJ
- Inflation rises from 1.5% to 6% during 1965-1970, and inflationary expectations and bond yields rise
- Sets stage for Arthur Burns-led Fed and disastrous 1970s

Assessment of Fed Exits 1960s to Present

- Table 2 on page 8 provides a summary assessment of the Fed's exits
- In each cycle and some intra-cycle periods, it shows the trends in inflation (Col 2) and unemployment (Col 3), the pattern of the real Federal funds rate and real money (Col 4)
- Column 5 measures deviations of the Fed funds rate from estimates of the Taylor Rule
- The right Column 6 describes the economic result
- There were some episodes when the Fed tightened policy and orchestrated economic soft-landings
- But more frequently, the Fed's exits resulted in recessions

Cyclical Episodes of Fed Exits from Policy Ease

(1) Cyclical Expansion	(2)	(3)	(4)		(5)	(6)
	Inflation ¹ Start → End	Unemployment rate ² Start → End	Fed Policy		Fed Funds Rate minus Taylor Rate ⁴	Comments Result
			Real FFR ³	Money		
1961 Q2 - 1969 Q4	12% → 5.5%	6.4% → 3.5%	0.9% - 3.7%	↓ real MB & M2	1966 - 1969: -2.4pp	1970 recession
Note: 1965 Q4 - 1967 Q1	16% → 3.2%	4.5% → 3.8%	Credit tightening (Reg Q ceilings)			sharp slowdown, sustained expansion
1971 Q1 - 1973 Q4	5.6% → 6.2%	5.4% → 4.9%	1.5% - 3.4%	↓ real MB & M2	1971 - 1973: -1.6pp	Oil price shock & deep recession
1975 Q2 - 1980 Q1	11.1% → 12.4%	7.3% → 6.0%	-2.1% - 2.8%	↓ real MB & M2	1975 - 1979: -4.0pp	oil price spike & recession
1980 Q4 - 1981 Q3	13.6% → 11.1%	7.2% → 7.4%	2.6% - 7.2%	↓ real MB, M2 unchanged		recession
1983 Q1 - 1990 Q3	5.2% → 5.0%	10.1% → 5.4%	5.7% - 4.2%	↓ real MB & M2	1983 - 1987: +2.3pp 1988 - 1989: +1.1pp	mild recession
Note: 1987 Q1 - 1987 Q4	1.7% → 3.7%	6.9% - 6.2%	Fed hikes until Oct '87 stock market crash then eases (↑ MB & M2)			extended expansion
1991 Q2 - 2001 Q1	4.3% → 2.5%	6.3% → 4.0%	2.7% - 3.7%	↓ real MB, ↑ M2	1991 - 1993: -0.3pp 1994 - 1999: +1.4pp	recession in 2001
Note: 1994 Q1 - 1995 Q1	2.4% → 2.1%	6.8% → 5.8%	0.7% - 2.7%	↓ real MB & M2		extended expansion
2002 Q1 - 2007 Q4	1.6% → 2.6%	5.1% → 4.6%	1.3% - 2.5%	↑ real MB & M2	2001 - 2006: -0.9pp 2007 - 2008: -0.7pp	GFC recession
2009 Q3 - 2019 Q4	-0.3% → 1.5%	8.5% → 3.7%	0.5% - 0.7%	decline in 2018-19	2009 - 2019: -1.7pp	pandemic recession
Note: 2015 Q4 - 2018 Q4	0.2% → 2.1%	5.3% → 3.9%	-0.1% to -0.3%	↓ real MB, ↑ M2	2015 - 2018: -2.0pp	extended expansion
2020 Q1 - present	1.6% → 6.3%	3.7% → 3.6% ⁵	0.3% to -6.3% ⁶	surge in MB & M2	2022 Q1 ⁷ : - 8.1pp; Modified TR = -6.5pp	?

Source: Bureau of Labor Statistics, Bureau of Economic Analysis, Federal Reserve Board, Haver Analytics, author's calculations

1. CPI before 1991, PCE after 1991, 4-Quarter average of yr/yr inflation

2. 4-Quarter average unemployment rate

3. 4-Quarter average of Real Fed Funds rate

4. Fed Funds Rate minus Taylor Rule estimate, average measured in percentage points.

Taylor Rule: $r^* + \pi^* + 15(\pi_t - \pi^*) + 0.5 \cdot \text{CBO GDP Gap}_t$, where $r^* = 2\%$, $\pi^* = 2\%$ and π is core PCE. See Chart 1.

5. March 2022 unemployment rate

6: As of February 2022

7: Based on Q1 core PCE inflation of 5.2% and Q1 effective Fed funds rate of 0.12%

See Chart 1 for modified Taylor Rule equations and assumptions

Monetary Policy Highlights, 1970s and Volcker

- **1970s.** Inflation and inflationary expectations ratcheted upwards, with: negative supply shocks and monetary accommodation, wage and price controls and Burns' complicity with White House, and enactment of the Full Employment and Balanced Growth Act of 1978
- Inflation rises sharply 1977-1979, Fed and government lose credibility; US dollar crisis in 1978
- **Volcker's** anti-inflationary policies aggressive and necessary
 - Costly back-to-back recessions because of Fed's lack of credibility

The Great Moderation and Modern Cycles

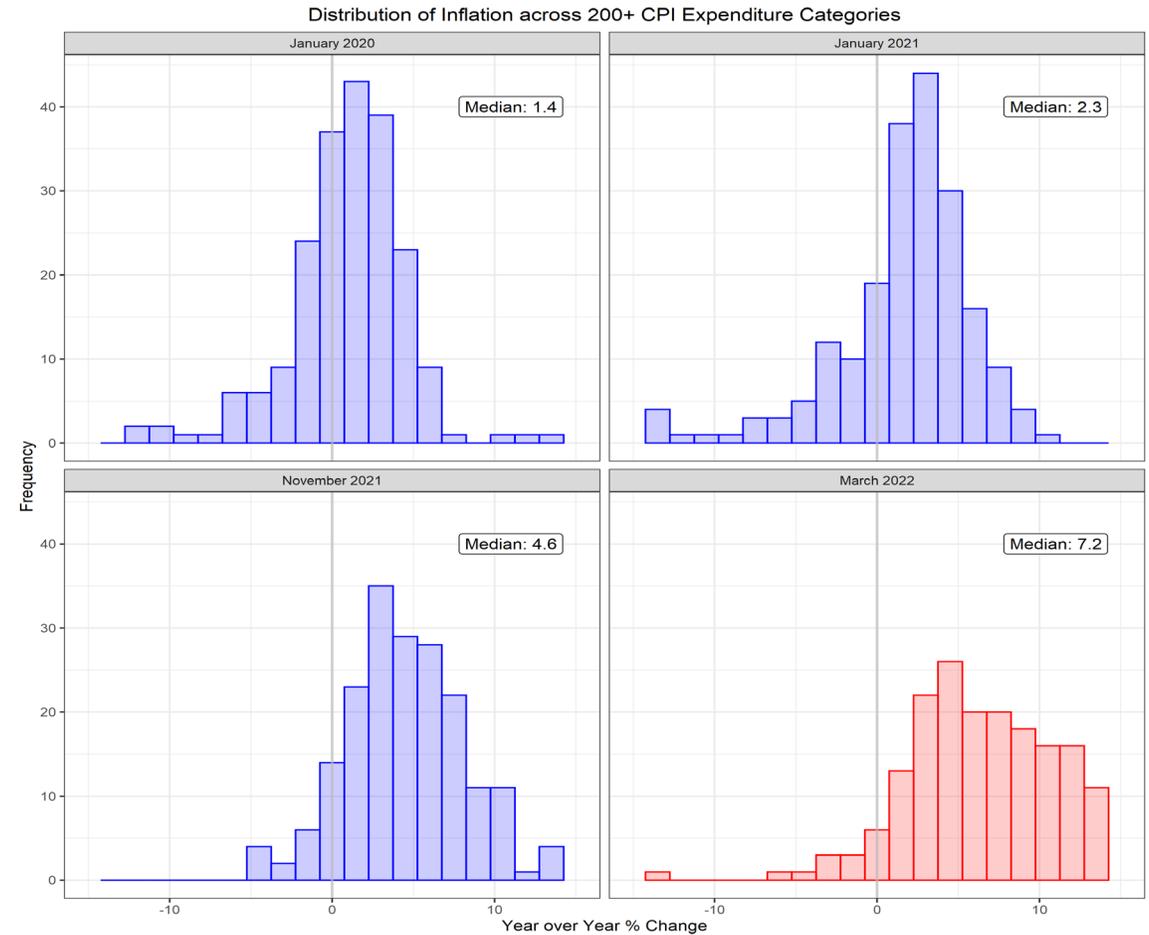
- **Great Moderation:** vastly improved economic performance, better timed Fed exits and mostly economic soft-landings (1987, 1994)
- **Early 2000s:** Fed's too-low-too-long rates and delayed exit facilitates debt-financed housing bubble and eventual financial instability
- **Post-GFC:** Fed extends zero rates and conducts QE well after economy was in a self-sustaining recovery with focus on employment
 - Fed's delayed exit followed by continued expansion
- **Pandemic:** expansive monetary and fiscal responses, delayed Fed exit and soaring inflation

Comparisons Between Current Situation and the Great Inflation 1965-1982

- **Similarities**. current inflation driven by fiscal profligacy and accommodative monetary policy, repeat of late-1960s & early 1970s
- Burns blamed inflation on everything but monetary policy; in much of 2021, Fed blamed supply shortages and said inflation was transitory
- Burns prioritized employment and tolerated higher inflation
- Fed misread data in 2021; so did Burns in 1970s
- Magnitude and pervasiveness of current inflation similar to late-1960s and early 1970s

The Spreading Pervasiveness of Inflation

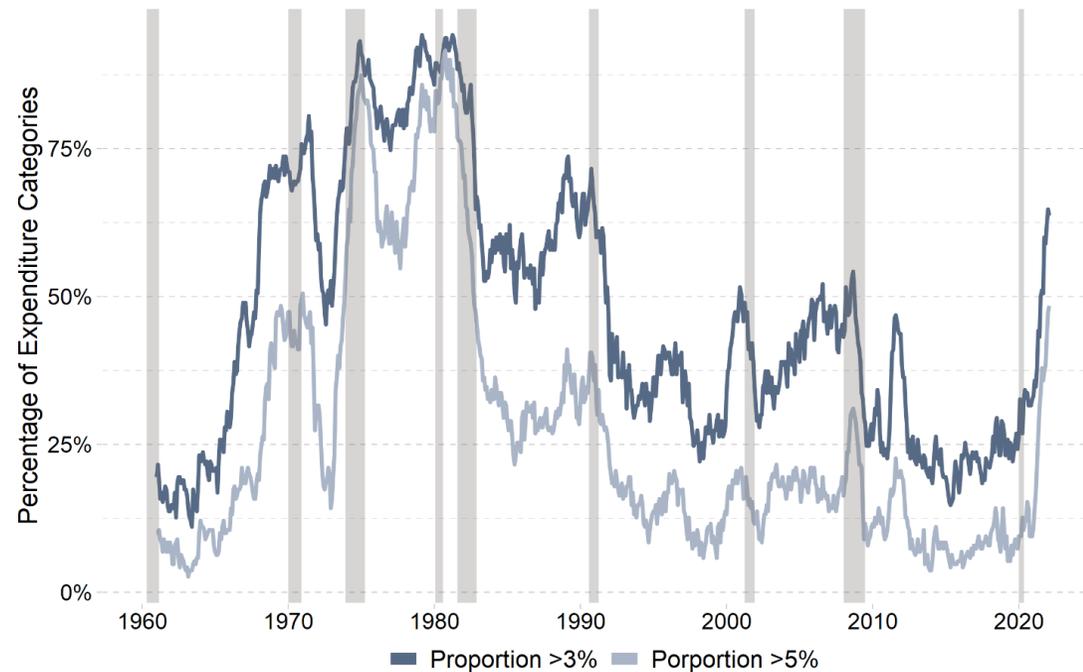
- This shows the evolving frequency distribution of inflation of 200+ components of the CPI since January 2020
- Rightward movement shows spreading of inflation
- CPI measures out-of-pocket costs
- PCE pattern similar



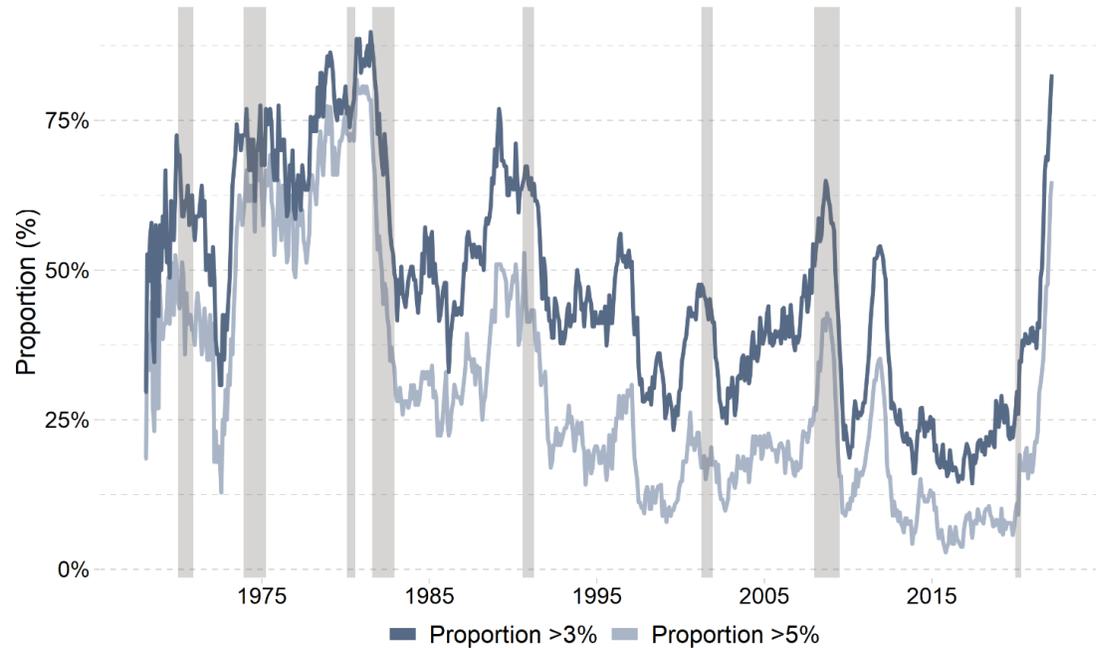
Source: Bureau of Labor Statistics, Berenberg Capital Markets
Note: expenditure categories with yryr changes greater than 15% in magnitude dropped from chart

Portions of PCE & CPI with High Inflation

% of PCE Components >3% & >5%



% of CPI Components >3% & >5%



Source: Bureau of Labor Statistics, Berenberg Capital Markets

Differences between Current Inflation and 1970s (So far)

- Shorter time span of recent inflation; Fed now expressing anti-inflation resolve
- 1970s: abandon Gold Standard, disastrous wage and price controls
- Inflationary expectations have risen significantly, but not nearly as high as 1970s (Levin and Taylor 2013)
- Interest rates and bond yields sky-high in 1970s; rates currently negative in real terms
- Nominal GDP growth double-digit in late-1970s involved persistent excess demand
- 1970s: weak US dollar & currency crisis; dollar currently firm

Why Has the Fed Nearly Consistently been Behind?

- **Evolving doctrines** have affected Fed thinking and conduct of policy
- **Dual mandate:** the Fed's interpretation has evolved toward prioritizing employment and favoring higher inflation
- **Misreads** of inflation and the economy
- **Political pressures**

Evolving Doctrines

- **1960s:** The Keynesian revolution and Phillips Curve encouraged activist and discretionary policies that frequently reflected misguided judgment
- **Volcker:** aggressive or incremental tightening? The battle against embedded inflationary expectations
- **The Great Moderation**
 - Volcker-Greenspan: stable low inflation is best framework for maximum employment
 - Benefits of targeting inflation
 - Benefits of constraining inflationary expectations and maintaining Fed credibility
 - The Taylor Rule and settling on 2% inflation target

Evolving Doctrines: Asymmetries Emerge

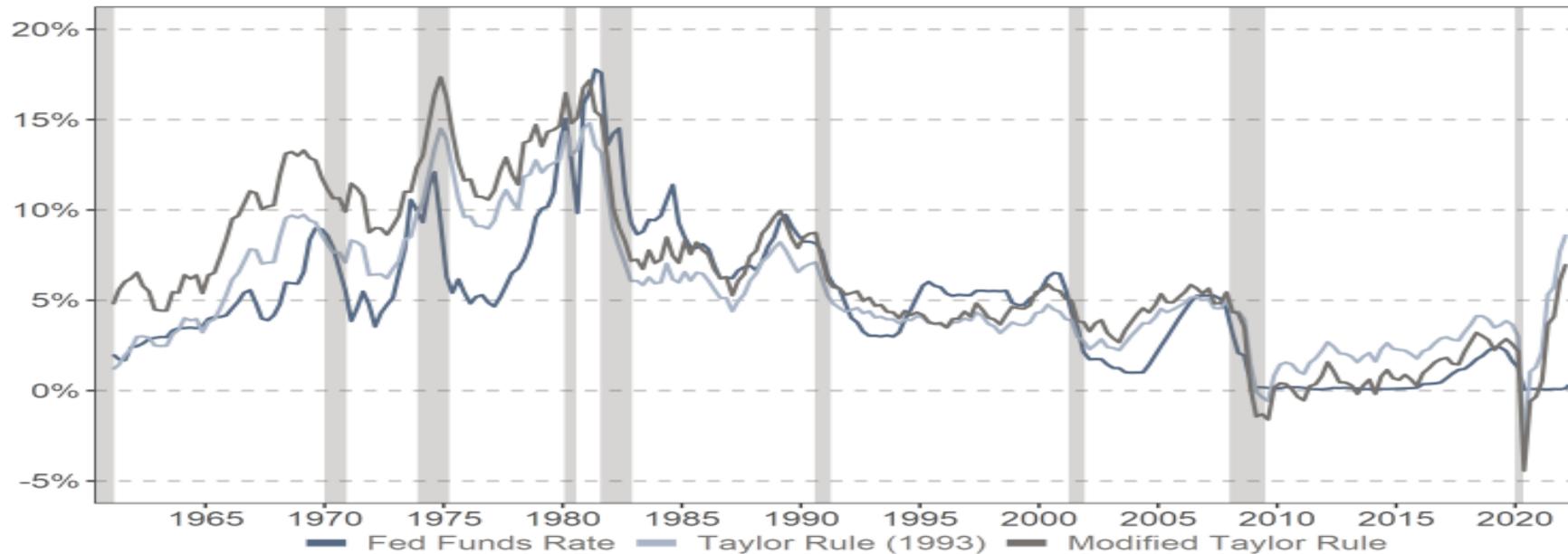
- **Early 2000s:** Fears of deflation & too-low inflation leads Fed to view inflation risks asymmetrically
 - Stems from Japan experience and low US inflation & bursting of dot.com bubble
 - Beginning of focus on constraints of the effective lower bound
- **GFC and post-GFC:** Fed extends zero rates & QE to lower unemployment rate
 - Fed attributes low inflation to flatter Phillips Curve and does not explain why inflation remained subdued
 - Fed heightens importance of managing inflationary expectations
- **Fed's new strategic plan** institutionalizes asymmetrical interpretation of its dual employment and inflation mandate and framework for achieving them
 - Fed learned wrong lessons from the post-GFC expansion

Factors Underlying Fed's Delayed Exits

- **Misreads of economic and inflation conditions:**
 - Fed's forecasting track record has been unreliable
 - 2021 presumption that inflation would stay low wrong lesson from GFC
 - Failure to incorporate scenario analysis and contingency planning into policy deliberations amid uncertainties
- **Political pressures**
 - William McChestney Martin: "Fed is independent within the government"
 - White House and Congress have different priorities (keep economy and employment pumped up) and impose pressures on Fed
 - Outside influence over regulatory policies (Dodd-Frank); choices of Fed Governors and Federal Reserve Bank Presidents; and much more
 - Fed frequently asked to accomplish more and expand scope of monetary policy beyond its mandate

Fed Funds Rate and Taylor Rule Estimate

Chart 1. Taylor Rule Estimate and Actual Federal Funds Rate



Source: Federal Reserve Bank of Atlanta, authors' calculations

Taylor Rule (1993):

$$\widehat{FFR}_t = r^* + \pi^* + 1.5(\pi_t - \pi^*) + 0.5Gap_t$$

$r^* = 2\%$, $\pi^* = 2\%$, π_t is measured using annual Core PCE inflation, and Gap_t is the CBO's estimate of the real GDP gap

Modified Taylor Rule:

$$\widehat{FFR}_t = r_t^* + \pi^* + 1.5(\pi_t - \pi^*) + 0.5Gap_t$$

r_t^* uses Laubach-Williams 1-sided estimate of r^* (Laubach and Williams, 2003 and Federal Reserve Bank of Atlanta 2022). Note: r^* from Q3 2020 onward is assumed to be equal to Q2 2020 level (0.36%); $\pi^* = 2\%$, π_t is measured using annual Core PCE inflation, and Gap_t is the CBO's estimate of the real GDP gap

The Current Situation in Historical Perspective

- The Fed's delayed exit poses a daunting challenge
- It has exited before and orchestrated an economic soft-landing (1966, 1987, 1994, 2015-2018)
- But the Fed funds rate has never been so negative
- Historically, Fed exits have involved raising policy rate above inflation
- Fed must raise rates above neutral to dampen aggregate demand while being cognizant of impacts of supply constraints on inflation

The Path Forward and Suggestions

- Too many unforced errors, particularly current late exit and predicament, calls for monetary policy reset
- First, more systematic rules-based guidelines must replace discretion
 - Objective: avoid biased judgments and topical themes that influence monetary policy; make policymaking truly data dependent
- Second, correct flaws in new strategic framework: eliminate its asymmetries and establish a balanced interpretation to dual mandate and balanced approach to achieving objectives
- Pay attention and absorb the appropriate lessons of history, and make sure theoretical underpinnings are consistent with history