



HOW
MONETARY
POLICY
GOT BEHIND
THE CURVE—AND
HOW TO
GET BACK

EDITED BY

Michael D. Bordo, John H. Cochrane,
and John B. Taylor

**THE FED'S
DELAYED EXITS
FROM MONETARY
EASE**

CHAPTER EIGHT

THE FED'S MONETARY POLICY EXIT ONCE AGAIN BEHIND THE CURVE

Michael D. Bordo and Mickey D. Levy

Every business cycle has different characteristics that economic policy makers influence and respond to. The COVID-19 pandemic posed a negative shock to aggregate supply and aggregate demand. Pent-up demand and unprecedented fiscal stimulus and sustained aggressive monetary ease fueled a V-shaped recovery involving strong demand amid ongoing supply constraints. The result is that, as of mid-2022, the Federal Reserve finds itself in an uncomfortable situation that it failed to anticipate, but one that has occurred before in its modern history: it faces undesired high and rising inflation and is behind the curve, and it must tighten monetary policy just enough to reduce inflation but not so much as to generate a recession.

In this chapter, we assess the current situation through the lens of history, comparing the current inflation and the conduct of monetary policy to the recovery phase of prior business cycles. Focusing primarily on cycles since World War II, we highlight a persistent pattern of the Fed extending its monetary policy, easing too long, and delaying its tightening exits. Most frequently, this has led to rising inflation and then catch-up tightening that led to a recession more frequently than to a soft economic landing. While countercyclical monetary policy is a difficult task, the Fed does not seem to take away the appropriate lessons from history (Bordo and Levy 2022).

Prior to World War II, the Fed's focus on price stability under the gold standard and adherence to the real bills doctrine led it to

prevent inflation but at the expense of depression and financial instability. The evolving policy anchors and the Fed's developing objectives resulted in major policy errors that contributed to the Great Inflation of 1965 to 1982. The current high inflation has some key differences that distinguish it from the 1970s, but the Fed's extended denial of any similarities between the two periods has allowed some of the more troubling characteristics of the Great Inflation to reemerge and threaten sustained economic growth. We provide empirical evidence that shows how the recent pervasive-ness of inflation has begun to mirror the 1970s while intermediate-term inflationary expectations have risen but remain below the upward ratcheting of inflationary expectations during the Great Inflation found by Levin and Taylor (2013).

The Fed's current monetary policy mistakes did not just occur out of the blue. Rather, the Fed's new strategic framework and delayed exit from its emergency policy responses to the pandemic are a culmination of the evolution of its objectives and discretionary policy deliberations. The Fed's earlier anchor of price stability evolved into a low inflation target and more recently toward favoring higher inflation as a vehicle for avoiding the effective lower bound (ELB) while its long-standing tilt toward prioritizing low unemployment has become more pronounced. These asymmetries, which have been institutionalized in its new strategic framework (Levy and Plosser 2020), have contributed to its current dilemma.

The recent rise in inflation has been predictable, based on the expected excess demand that would be generated by the unprecedented expansive monetary and fiscal policy responses and the nature of the pandemic (Bordo and Levy 2020 and 2021; and Levy 2021). The Fed's failures to predict the higher inflation and acknowledge its sources in 2021 are puzzling.

Sections of this chapter, in turn: provide a historical perspective on business cycles, including a description and measures of the Fed's earlier delayed exits; analyze the similarities and differences

between the current situation and the Great Inflation of 1965–82; consider factors that explain why the Fed has tended to be behind; and lastly, provide a recap of lessons from history and make recommendations that would help avoid future policy mistakes.

BEHIND THE CURVE IN HISTORICAL PERSPECTIVE

The Federal Reserve has long had difficulty in timing its exits from countercyclical expansionary monetary policy. Bordo and Landon-Lane (2013) examined the historical and empirical record on the timing of the Fed's exits from recessions following the business cycles approach taken earlier by Milton Friedman, Karl Brunner, and Allan Meltzer.¹ In general, they found that since the Fed was founded in 1913 it has followed a pattern of waiting too long to tighten. The pattern has evolved over time. After World War I, the Fed under the leadership of Benjamin Strong focused on stabilizing the real economy and maintaining price stability, leading to the development in the US of countercyclical monetary policy. It did so within the frameworks of the gold standard and the real bills doctrine. Under this strategy once the economy began recovering, the Fed usually tightened when the price level increased, as adhering to the gold standard would require. It paid less attention to the real economy.

After World War II and the Employment Act of 1946, the Fed began pursuing its dual mandate, which attached importance to

1. Friedman (1953) first laid out the difficulty of using discretionary monetary policy to stabilize the business cycle, i.e., of fine-tuning. He showed that when the Fed used its policy tools to offset exogenous shocks in most cases it aggravated the business cycle. It mistimed policy actions because of long and variable lags between policy changes and its effects on output and prices. Friedman and Schwartz (1963) and others (Nelson 2019) supported this with their historical analysis. Brunner and Meltzer (1964) published a report for the US Congress documenting episodes in the post–World War II era when the Fed fell behind the curve. They criticized the Fed for following an incorrect policy doctrine, the Burgess Riefler Strong Doctrine—an extension of real bills (Bordo 2022). This monetarist evidence was used in their case against discretion and in favor of a monetary rule.

maintaining full employment and stabilizing the real economy along with the continued connection to the fixed dollar peg of the gold standard under Bretton Woods system. Price level stability remained important until the mid-1960s. The Fed's exits were similar with those of the mid-1920s.

After 1965, the Fed began jettisoning the gold peg under pressure to accommodate expansionary fiscal policy and fully abandoned it in the Nixon Shock of August 1971. The Fed's focus shifted towards full employment at the expense of rising inflation. During the Great Inflation, the Fed's exits from recessions became subsumed by higher inflation, tightening when inflation went up but never enough to stamp out inflationary expectations. The government's misguided wage and price controls failed to contain inflation and the Arab oil embargo imposed a negative supply shock. The upward ratcheting of inflation and inflationary expectations, enabled by accommodative monetary policy, undercut the Fed's credibility, leading to the US dollar currency crisis in 1978.

The Volcker disinflation shock in 1979–82 led to a new regime of low inflation and ushered in the Great Moderation during which the Fed's more balanced approach to inflation and employment resulted in more timely exits. The Fed's aggressive monetary tightening in 1994 lowered inflationary expectations and resulted in a stronger economic expansion—a picture-perfect soft landing. In the early 2000s, the foundations of the Great Moderation eroded as the Fed's fears of the risks of deflation led it to delay its exit from easy monetary policy. Its policies facilitated the debt-financed housing bubble and financial instability that resulted in the great financial crisis (GFC) of 2008–9. Following the GFC, inflation stayed low and the Fed sustained zero interest rates and used quantitative easing to keep bond yields low and reduce unemployment. Its concern about a downward spiral in inflationary expectations and the ELB led it to reassess its strategy, which resulted in a new

strategic framework in 2020. That framework institutionalized its asymmetric prioritization of maximum inclusive employment over inflation and de-emphasized preemptive monetary tightening. The Fed's delayed exit from its emergency policy responses to the pandemic has allowed a surge in inflation and inflationary expectations that poses a serious challenge to sustained economic expansion.

The Historical Record

Bordo and Landon-Lane (2013) examined the Fed's exits from 1920 to 2007, comparing the timing of changes in policy—policy rate, monetary base, and money supply (in nominal and real terms)—with the timing of changes in macro variables—real GDP, prices, inflation, output gap, and unemployment. They measured the turning points in these variables compared to National Bureau of Economic Research (NBER) business cycle troughs.² Table 8.1 presents some salient variables pertaining to the Fed's exits.

For seven NBER cycles from 1920 to 1960, the table shows the turning points around the cyclical troughs in the price level (column 2) and the unemployment rate (column 3) compared with the turning points in monetary policy representing tightening measured by the nominal and real discount rate until 1953 and the federal funds rate thereafter (columns 4 and 5) and the nominal and real rate of growth of the monetary base (columns 6 and 7). When the Fed tightened, the policy rate would increase and the rate of growth of the monetary base would decline. The last column of the table ascertains the timing of the policy measures (whether on time, too soon, or too late) and the economic outcome.

2. Regression analysis was used to measure the timing of policy changes relative to the trough of a set of real variables and price variables. The results suggest that in the post-World War II era, especially after 1965, the Fed's tightening was more responsive to the level of unemployment than to inflation. In the pre-World War II period the Fed was more responsive to the price level than the real economy.

TABLE 8.1. Cyclical Turning Points in Monetary Policy, 1920 to 1960

(1) Cycle Peak to Trough (Trough) ^a	(2) Price Level: CPI ^b (Inflation)	(3) Unemployment ^c	(4) Discount Rate ^d (Fed Funds Rate)
1. 1920 Q1–1923 Q2 (1921 Q3) ^f	1922 Q1	1921 Q1	3, 7 ⁹
2. 1923 Q2–1926 Q3 (1924 Q3)	1924 Q1	1924 Q1	3, 3
3. 1926 Q3–1929 Q3 (1927 Q4)	1928 Q1	1928 Q1	–1, –1
4. 1929 Q3–1937 Q2 (1933 Q1)	1933 Q1	1932 Q1	–6, –5
5. 1948 Q4–1953 Q2 (1949 Q4)	1950 Q1	1949 Q4	1, 2
6. 1953 Q2–1957 Q3 (1954 Q2)	1954 Q4	1954 Q3	(0, 1)
7. 1957 Q3–1960 Q2 (1958 Q2)	(1958 Q2)	1958 Q2	(0, 0)

Source: Michael D. Bordo and John Landon-Lane, “Does Expansionary Monetary Policy Cause Asset Price Booms; Some Historical and Empirical Evidence,” in *Macroeconomic and Financial Stability: Challenges for Monetary Policy*, ed. Sofia Bauducco, Lawrence Christiano, and Claudio Raddatz (Santiago: Central Bank of Chile, 2014), tables 1a, 1b, 2a, 2b.

^a We omitted two cycles containing World War II years: 1937 Q2–1944 Q4 and 1945 Q1–1948 Q3.

^b 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.

^c 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.

Pre–World War II: 1918 to 1941

In general, the timing and narrative evidence suggest the Fed waited until the price level (CPI or GDP deflator) rose before tightening, but in two cycles in the mid-1920s, the exit involved timely responses to both real and nominal variables. Friedman and Schwartz (1963) referred to these episodes as “The High Tide of the

(5) Real Discount Rate (Real Fed Funds Rate)	(6) Monetary Base Growth ^e	(7) Real Monetary Base Growth	(8) Comments and Result
—	3, 7	-1, 3	Too late, serious recession
4, 4	2, 2	4, 4	Too late, mild recession
-1, -1	0, 0	-1, -1	On time, mild recession
-6, -5	3, 4	3, 4	Too soon, real bills mistake, Great Contraction
4, 5	-3, -2	-3, -2	Too late, mild recession
(-1, 0)	-1, 0	-1, 0	On time, mild recession
(0, 0)	-1, -1	-1, -1	On time, mild recession

^d 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.

^e 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.

^f NBER trough dates for each cycle.

^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.

Federal Reserve.” In sharp contrast, Friedman and Schwartz viewed the Fed’s responses in three other business cycles in this period as policy failures.

In the first cycle (1920–23 peak to peak), the Fed waited until inflation reached 15% per year before commencing tightening in late 1919. The mistiming is generally blamed on pressure from the Treasury on the Fed to keep interest rates low to support bond

prices. When the Fed finally tightened, it led to the second deepest recession in US monetary history. The Fed's largest policy mistake was during the Great Contraction from 1929 to 1933. Its tightening cycle began in early 1928, not because prices were rising, but because of fears based on the real bills doctrine that the Wall Street boom in stock prices would lead to inflation. The ensuing recession that began in July 1929 turned into the Great Contraction when the Fed failed to appropriately address the four banking panics from 1930 to 1933 and allowed the money supply to collapse. The Fed's third mistake unfolded in 1936 when it doubled reserve requirements on commercial banks because it feared that banks would monetize their excess reserves and that would lead to high inflation. This "too soon" tightening led to the recession of 1937–38, the third deepest in US history.³ These episodes provide valuable cautionary tales of the risks of misguided monetary policy.

1945 to 1965

World War II was financed by a combination of taxes, bond issuances, and the inflation tax of money issue. M1 and M2 surged during 1940–45. Compared to World War I, inflation during World War II was constrained by extensive price controls. Following the war, it was widely agreed that managing aggregate demand was an important role of the government, and the biggest concern was that aggregate demand would collapse and recession and deflation would follow, as in the post–World War I period.

Instead, pent-up demand surged, fueled by the lagged impact of monetary ease and sustained low interest rates, as the Fed was constrained from rising interest rates under the fiscal dominance

3. This cycle is not shown because the recovery phase from 1938 Q2 to 1945 Q1 was dominated by World War II and the Fed, under the control of the Treasury, did not conduct countercyclical monetary policy.

of the Treasury (Bordo and Levy 2020). Consumption, housing, and business investment spending boomed. The excess demand strained the transition from wartime to civilian production, and inflation surged after the wartime wage-price controls were lifted. The inflation of 1945–48 was temporary but intense, exceeding 10%, following the removal of wartime price controls.

The Fed belatedly tightened monetary policy in 1948 through higher bank capital and reserve requirements while the government's fiscal policy turned restrictive as defense spending fell faster than anticipated. This generated a mild recession and deflation in 1949.

The Fed regained its independence in March 1951 with the Treasury–Federal Reserve Accord and under Chairman William McChesney Martin followed a balanced approach to inflation and employment during the 1950s and early 1960s, with relatively successful exit policies (Meltzer 2010). The business cycles and recessions of 1953–54, 1957–58, and 1960–61 were relatively mild, similar to those in the mid-1920s. Like the 1920s, inflation was anchored by the gold standard constraint so that when the exits were delayed they did not lead to inflation but to a rise in the price level which then declined with recessions (see table 8.1).

Cyclical Episodes since the 1960s

Table 8.2 provides a description of the NBER business cycles since the 1960s and conduct of monetary policy around them. Reflecting the modern monetary policy regime, it includes for each expansion the trend in inflation and the unemployment rate (columns 2 and 3) and monetary policy reflected by the real fed funds rate and money supply (column 4). For an early and late stage of each cycle it measures in percentage points the deviation of the fed funds rate to an estimate of the Taylor rule (column 5). Column 6 describes the economic result of the Fed tightening.

TABLE 8.2. Cyclical Episodes of the Federal Reserve's Exits from Monetary Ease, 1961 to Present

(1)	(2)		(3)		(4)		(5)	(6)
	Inflation ^a	Unemployment Rate ^b	Real FFR ^c	Money	Fed Funds Rate minus Taylor Rate ^d	Comments		
Cyclical Expansion	Start → End	Start → End	Real FFR ^c	Money	Fed Funds Rate minus Taylor Rate ^d	Result		
1961 Q2–1969 Q4 Note: 1965 Q4–1967 Q1	1.2% → 5.5% 1.6% → 3.2%	6.4% → 3.5% 4.5% → 3.8%	0.9%–3.7% Credit tightening (Reg Q ceilings)	↓ real MB & M2	1966–1969: –2.4pp 1971–1973: –1.6pp	1970 recession Sharp slowdown, sustained expansion		
1971 Q1–1973 Q4	5.6% → 6.2%	5.4% → 4.9%	1.5%–3.4%	↓ real MB & M2	1975–1979: –4.0pp	Oil price shock & deep recession		
1975 Q2–1980 Q1	11.1% → 12.4%	7.3% → 6.0%	–2.1%–2.8%	↓ real MB & M2	1983–1987: +2.3pp	Oil price spike & recession		
1980 Q4–1981 Q3	13.6% → 11.1%	7.2% → 7.4%	2.6%–7.2%	↓ real MB & M2 unchanged	1988–1989: +1.1pp	Recession		
1983 Q1–1990 Q3 Note: 1987 Q1–1987 Q4	5.2% → 5.0% 1.7% → 3.7%	10.1% → 5.4% 6.9% → 6.2%	5.7%–4.2% Fed hikes until Oct '87 stock market crash then eases (↑ MB & M2)	↓ real MB & M2	1991–1993: –0.3pp 1994–1999: +1.4pp	Mild recession Extended expansion		
1991 Q2–2001 Q1 Note: 1994 Q1–1995 Q1	4.3% → 2.5% 2.4% → 2.1%	6.3% → 4.0% 6.8% → 5.8%	2.7%–3.7% 0.7%–2.7%	↓ real MB, ↑ M2 ↓ real MB & M2	2001–2006: –0.9pp 2007–2008: –0.7pp	Recession in 2001 Extended expansion		

2002 Q1–2007 Q4	1.6% → 2.6%	5.1% → 4.6%	1.3%–2.5%	↑ real MB & M2	GFC recession Pandemic recession Extended expansion ?
2009 Q3–2019 Q4	–0.3% → 1.5%	8.5% → 3.7%	0.5%–0.7%	decline in 2018–19	
Note: 2015 Q4–2018 Q4	0.2% → 2.1%	5.3% → 3.9%	–0.1% to –0.3%	↓ real MB, ↑ M2	
2020 Q1–present	1.6% → 6.3%	3.7% → 3.6% ^e	0.3% to –6.3% ^f	surge in MB & M2	
				Modified TR = –6.5pp	

Sources: BLS, BEA, Federal Reserve Board, Haver Analytics; authors' calculations.

^a CPI before 1991, PCE after 1991, 4-quarter average of year-over-year inflation.

^b 4-quarter average unemployment rate.

^c 4-quarter average of real fed funds rate.

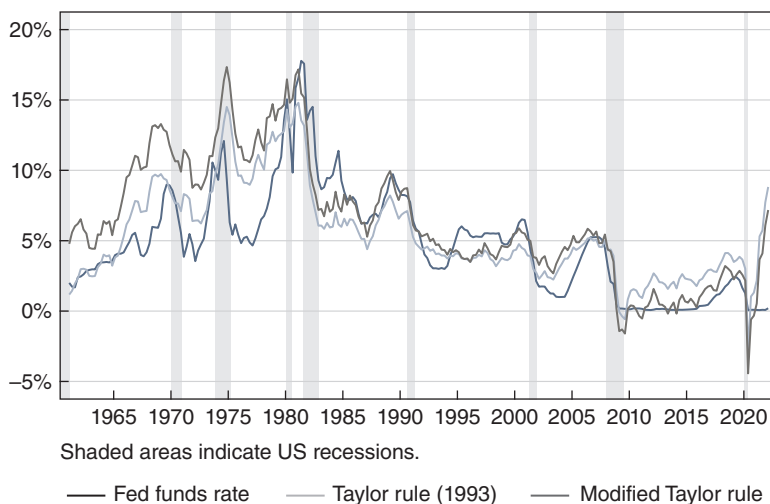
^d Fed funds rate minus Taylor rule estimate, average measured in percentage points.

Taylor rule: $r^* + \pi^* + 1.5(\pi_t - \pi^*) + 0.5^* \text{CBO GDP Gap}$, where $r^* = 2\%$, and π is core PCE. See figure 8.1.

^e March 2022 unemployment rate.

^f As of February 2022.

^g Based on Q1 core PCE inflation of 5.2% and Q1 effective fed funds rate of 0.12%. See figure 8.1 for modified Taylor rule equations and assumptions.



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 one-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

FIGURE 8.1. Taylor Rule Estimate and Actual Federal Funds Rate

Sources: Federal Reserve Bank of Atlanta; authors' calculations.

Figure 8.1 shows a comparison of the actual fed funds rate with estimates of several variations of the Taylor rule.⁴ The gaps between the Taylor rule and fed funds rate are consistent with the descriptions of the business cycles provided below.

4. Both variations use the Congressional Budget Office's estimate of the GDP Gap and core PCE inflation rather than the GDP deflator used in the original Taylor rule (1993). Our second variation uses Laubach-Williams (2003) estimates of r^* in place of Taylor's $r^* = 2.0\%$ in his 1993 version. See figure 8.1.

The Beginning of the Great Inflation: 1965 to 1970

During the first half of the 1960s, the Fed under Chairman Martin was dedicated to both price stability based on its indirect link to the gold standard under the Bretton Woods system (Bordo and Eichengreen 2013) and full employment. But the policy-making environment was evolving. The historical objective of price stability was replaced by the view that moderate inflation was good for economic performance, and the anchor provided by the gold standard eroded. Keynesian policy prescriptions advocated activist macroeconomic policies that attempted to exploit what was perceived to be a reliable and stable Phillips curve trade-off between unemployment and inflation.

Beginning in 1965, under pressure from the Johnson administration, the Fed began accommodating the fiscal imperatives of the Vietnam War and President Lyndon B. Johnson's Great Society program. This generated excess demand and higher inflation (Levin and Taylor 2013). Inflation accelerated from 1.6% in 1965 to 5.9% in 1970. The Fed attempted to tighten credit during the summer of 1966 through higher bank capital requirements, and by not lifting Regulation Q on interest rates. This resulted in a "credit crunch" that slowed economic growth but did not cause a recession, forcing the Fed to step back.⁵

Meanwhile, accelerating spending on the Vietnam War and renewed monetary accommodation generated rising inflation. Inflationary expectations and bond yields rose. The Fed's delayed exit began only after President Johnson announced he would not seek reelection. The Fed's sharp tightening in 1969 involved a rise in real interest rates and a decline in the real monetary base and M2. Coupled with the extension of the Vietnam War surtax, a recession unfolded in 1970.

5. Some economic journalists referred to the Credit Crunch as a recession but the NBER never designated it as one.

The 1970s: Upward-Ratcheting Inflation

Arthur Burns became Chairman of the Federal Reserve in February 1970. He blamed inflation on nonmonetary (cost-push) factors including strong labor unions and greedy businesses, advocating wage and price controls to stem it. In response to the mild recession of 1969–70, and even though inflation was nearly 6%, the Burns-led Fed lowered interest rates aggressively, below inflation by early 1971. The result was a rapid growth in money. The Fed then raised the discount rate to slow credit and eased rates. In 1972, the Fed kept rates too low, allowing a sharp expansion in money aimed at supporting Richard Nixon's reelection bid (Meltzer 2010). At the same time there was significant fiscal stimulus. Although the Fed raised rates from 5% to 10% in the twelve months between the November 1972 election and the November 1973 Arab oil embargo, the lagged impacts of stimulus coupled with an acceleration in money velocity associated with the higher interest rates generated a surge in nominal GDP growth, to 9.8% in 1972 and 11.4% in 1973. This excess demand overwhelmed the wage and price controls, and CPI inflation rose from 3.3% in 1973 to 8% even before the Arab oil embargo generated soaring oil prices in November 1973. The Arab oil embargo contributed to a deep recession from late 1973 to early 1975 with real GDP declining by 4.7% while inflation rose to 11% in 1974 when the wage and wage price controls were lifted.

While inflation fell sharply following the recession, it troughed at 5.2% in late 1976, far above its mid-1973 low, while the unemployment rate was very slow to recede. The unemployment rate rose from 4.8% to a peak of 9% in the second quarter of 1975 and drifted only gradually lower to 7.8% at year-end 1976 even as the economy recovered.

The Fed lowered rates aggressively from an average of 10.5% in 1974 to 5.4% in late 1975 and kept them below inflation through September 1977. It belatedly raised rates faster, but only enough to

keep pace with the sharply accelerating inflation rate, which rose to 6.6% in the fourth quarter of 1977, 9% in 1978, and 10.75% before the second oil price shock in mid-1979. Despite accelerating inflation, the high unemployment rate remained the top priority of Congress, and Burns did not attempt to stamp out inflation because he feared the implications of higher unemployment (Burns 1979). The Humphrey-Hawkins legislation, which was enacted as the Full Employment and Balanced Growth Act of 1978, established employment and inflation as the dual mandate for the Fed.

The ratcheting up of inflation during the Great Inflation took a heavy toll. From late 1965 to mid-1982, the CPI rose over 300%. Damage to the Fed's credibility culminated in a US dollar crisis in 1978. Higher inflationary expectations and bond yields generated sustained real declines in financial asset values, and the rising real costs of capital and depressed investment and potential growth. The higher inflation distorted the tax system, which was not indexed to inflation at the time.

Volcker's Aggressive Disinflationary Monetary Policies and the Great Moderation

In August 1979, President Carter appointed Paul Volcker, a well-known inflation hawk, as Fed chairman. Two months after taking office, Volcker announced a major shift in policy aimed at rapidly lowering inflation. He desired the policy change to be interpreted as a decisive break from the past policies. The Fed imposed a series of sizable hikes in the federal funds rate. The roughly seven percentage point rise in the nominal funds rate between October 1979 and April 1980 was the largest, most rapid increase in the Fed's history.

Although Volcker tightened monetary policy aggressively, because inflationary expectations were embedded and the Fed lacked credibility, the exit was costly, with back-to-back recessions in 1980 and 1981–82, and it took until 1983 to definitively

lower inflationary expectations (Bordo, Erceg, Levin, and Michaels 2017 and Sargent and Silber 2022).

Volcker's successful disinflationary policies ushered in the Great Moderation. During this period the Fed took a more balanced response to inflation and employment, with more timely exits following monetary easing. The result was moderate inflation and virtually sustained economic expansion. The Fed began raising rates soon after the 1983 expansion began and well before inflation pressures ensued in mid-1983. It began raising rates before inflation turned up in late 1986 but eased in response to the stock market crash of October 1987. Soon after the crash, the Fed began raising rates in nominal and real terms when sustained economic growth lowered the unemployment rate and inflation picked up. It raised rates aggressively from 6.6% in March 1988 to 9.9% in March 1989, and the yield curve inverted.

Economic growth slowed sharply beginning in the second quarter of 1990, and a mild recession unfolded in late 1990 associated with the Gulf War spike in oil prices.

The Fed's most noted preemptive exit was in 1994. Following the so-called jobless recovery of 1991–93, the Fed raised rates sharply, from 3% to 6% from February 1994 to February 1995 in response to declining unemployment and signs of overheating labor markets when there were no signs of rising inflation. The Fed's tightening dampened inflationary expectations and successfully orchestrated an economic soft landing and ushered in strong performance in the second half of the decade. While Fed research touted this successful preemptive tightening, Fed Chair Greenspan expressed concerns about its negative impacts on the mortgage market and housing. The Fed delayed its monetary response to strong economic and financial performance and rising inflation in 1999 because of worries about liquidity needs around Y2K, opting to raise rates gradually. Following the collapse of the dot.com bubble, business investment fell and consumption growth slowed. In this environment, the Fed

tightened too much in 2000, raising rates to 6.5%, far above the 2.6% inflation. The collapse in capital spending contributed to a recession that was accentuated by the shock of 9/11.

The 2000s: Worries about Deflation Contribute to a Delayed Exit

Following the bursting of the dot.com bubble and the 9/11 shock that extended the recession, inflation fell to 1%, and a new fear gripped the Fed: based on observations of Japan's bouts with mild deflation following the bursting of its equity bubble in 1990, the Fed began to fear the downside economic risks of deflation. Even though Japan's economic performance was far different from the United States', its experience resonated with the Fed, which feared that if deflation were to unfold, aggregate demand would spiral down and would be hard to reverse through monetary stimulus. The Fed thought that the risks of the costs of deflation far outweighed the risks of higher inflation, which it believed it could address through monetary tightening, so it strived to avoid any probability of deflation. This led the Fed to delay its exit from monetary easing, even as inflation moved back up. The Fed delayed raising rates and then raised them gradually, trying to avoid harming financial markets, in sharp contrast to the aggressive tightening of 1994. Keeping rates too low for too long facilitated the debt-financed housing boom that contributed to financial instability that later evolved into the GFC of 2008 (Taylor 2007 and Bordo and Landon-Lane 2014).

Post-Great Financial Crisis

In direct response to the extreme financial market dysfunction that centered on the mortgage market, the Fed engaged in large-scale purchases of mortgage-backed securities (MBS), quantitative easing or "QE1." Fed Chair Bernanke emphasized that QE1 was credit

policy, not broad-based quantitative easing, and said the Fed would unwind its holdings on a timely basis (Bernanke 2008). The Fed subsequently extended its zero-rate policy and ramped up its quantitative easing with purchases of MBS and Treasury securities well after the financial crisis had ended and the self-sustaining economic recovery had ensued. The low inflation allowed the Fed to focus on employment and extend its unprecedented monetary ease.

Inflation stayed low during the post-GFC expansion primarily because the expansive monetary and fiscal policies (the American Recovery and Reinvestment Act of 2009) did not stimulate sustained acceleration in aggregate demand. Nominal GDP growth remained below 4%, providing little support for higher prices or wages (Levy 2017). The Fed's QEs boosted bank reserves and the monetary base, but they did not translate into increased M2 or a credit expansion capable of generating stronger economic activity (table 8.2, column 4). Instead, changes in the Fed's operating procedures, including paying interest on excess reserves (IOER), and tighter capital and liquidity requirements, along with a shift to tighter controls and bank supervision imposed by stress tests, constrained credit (Ireland and Levy 2021). While the low interest rates boosted home prices and equity markets, the damages imposed by the financial crisis on the banking system, consumer finances, and the housing sector took years to repair. The Fed may have taken away the wrong lessons from this period, attributing the low inflation to the ex post observation that the Phillips curve had flattened. It subsequently presumed that inflation would stay low.⁶

The Fed raised rates very gradually beginning in late 2015 and began unwinding a portion of its bloated balance sheet beginning in 2017. By the third quarter of 2018, the Fed had raised rates to a range of 2.25–2.5%, modestly above PCE inflation of 2.4%. Following the

6. There were no cautionary voices within the Federal Reserve System to point out that historically, fiscal stimulus financed by monetary accommodation led to inflation.

Fed's delayed exit, the economy continued to grow at a moderate pace and inflation receded to 1.5%, close to its average of 1.4% since 2012.

Although inflationary expectations remained fairly well anchored to 2% and the Fed continued to forecast that inflation would rise to 2%, the Fed harbored mounting worries that if inflation persisted below its 2% target, there was a risk of a downward spiral in inflationary expectations that would lower interest rates to the ELB and constrain the Fed's ability to respond to the next cyclical downturn. These concerns led the Fed to conduct a strategic review beginning in 2018. Underlying its strategic review, the Fed focused on the risks of lower inflation, and the more focus was directed at the goal of maximizing employment for all groups of people. The new strategic framework that was rolled out in August 2020 (Powell 2020) introduced a flexible average inflation targeting regime that incorporated an asymmetry that favored higher inflation, and dialed down the Fed's historic reliance on preemptive tightening to control inflation, while prioritizing and broadening the Fed's employment mandate to "maximum inclusive employment." It was a structurally flawed strategy (Levy and Plosser 2020).

The Pandemic and Subsequent Recovery

The negative shock to aggregate supply and aggregate demand and government shutdowns generated a short but massive decline of 9% in real GDP in the first half of 2020. The Fed's response was purposely more aggressive and expansive than its response to the GFC. It quickly lowered rates to zero, conducted massive purchases of Treasuries and MBS, and additionally established an array of direct business lending and grants programs coordinated with and capitalized by the Treasury and Congress (Bordo and Duca 2022). The Fed's asset purchases generated a surge in the monetary base. At the same time M2 surged, reflecting primarily government income support initiatives. Fiscal policy authorized over \$5 trillion

in deficit spending, more than 25% of GDP, largely in the form of checks distributed to individuals and small businesses, beginning with the CARES Act of March 2020. A sizable portion of the government's fiscal transfers in the ensuing twelve months were saved and deposited in banks. Associated with the decline in economic activity consequent upon the pandemic and government-imposed shutdowns, M2 money velocity declined.

The strong V-shaped economic recovery and sharp rise in inflation surprised the Fed. Nevertheless, the pandemic crisis had encouraged the Fed to be more interventionist, and its policies had helped lift the economy out of a deep contraction and were considered successful. The Fed maintained its emergency monetary policies of zero rates and ongoing purchases of Treasuries and MBS until March 2022. Its exit began long after inflation and inflationary expectations had risen sharply, and labor markets were characterized by accelerating wages and signs of extreme tightness. Measured against any inflation or employment benchmark, the Fed's exit has been more delayed than any in history. Most strikingly, as inflation rose sharply and the labor market recovery of all groups far exceeded expectations and exhibited clear signs of tightness and stress, the Fed ignored the data and insisted that tapering its asset purchases and raising rates would be delayed until "substantial progress" had been made toward its new employment mandate. By March 2022, the fed funds rate was 6.3% below PCE inflation (5.4% below core PCE inflation), the unemployment rate had fallen to 3.6%, and Chair Powell termed the extreme tightness of labor markets "unhealthy."

THE CURRENT SITUATION: SIMILARITIES AND DIFFERENCES FROM THE GREAT INFLATION

As the economy recovered from its second quarter 2020 trough, Fed officials presumed that there would be a repeat of low inflation the post-GFC conditions. When inflation began accelerating, the

Fed said it was transitory, attributing it to the base adjustments following the decline in the CPI and PCE indexes in March and April 2020 and to temporary supply shortages. Any comparisons to the 1970s were dismissed as inappropriate and uninformative. The Fed's extended denial that inflation had anything to do with strong demand that was generated by monetary policy and unprecedented deficit spending contributed to the persistent acceleration of inflation and allowed some current conditions to become uncomfortably similar to the 1970s.

So far, the rise in inflation in 2021–22 has been similar in magnitude to the inflation of the late 1960s and early 1970s, but below levels during 1978–82. Through March 2022, CPI inflation had risen to 8.5% from 2.2% in 2019, while PCE inflation has risen to 6.6% from 1.5% over the same time frame (their core measures excluding food and energy have risen to 6.4% and 5.2%, respectively). These increases are similar to the rise in CPI inflation to 5.9% in 1970 from 1.5% in 1965.⁷ Both inflation episodes were generated by a surge in government spending and accommodative monetary policy.

A detailed analysis of price increases of components of both the CPI and PCE price index show that current inflation has been pervasive across a wide array of goods and services, similar to the inflation of the late 1960s and early 1970s. Figures 8.2 and 8.3 show the acceleration of inflation in a growing number of components of the CPI and PCE. Through much of 2021, the rightward movement of the shares of the components indexes experiencing rising inflation was inconsistent with statements by Fed officials (Powell 2021) and the Biden administration that the inflation was attributable to sharply rising prices of select goods and services.

7. The CPI measures inflation for out-of-pocket consumer expenditures (it excludes expenditures that are paid for by employer-financed health insurance, Medicare, and Medicaid) and its components are not weighted by expenditure shares. The PCE components capture all personal consumption expenditures including those that are financed by third parties and are weighted by shares of spending.

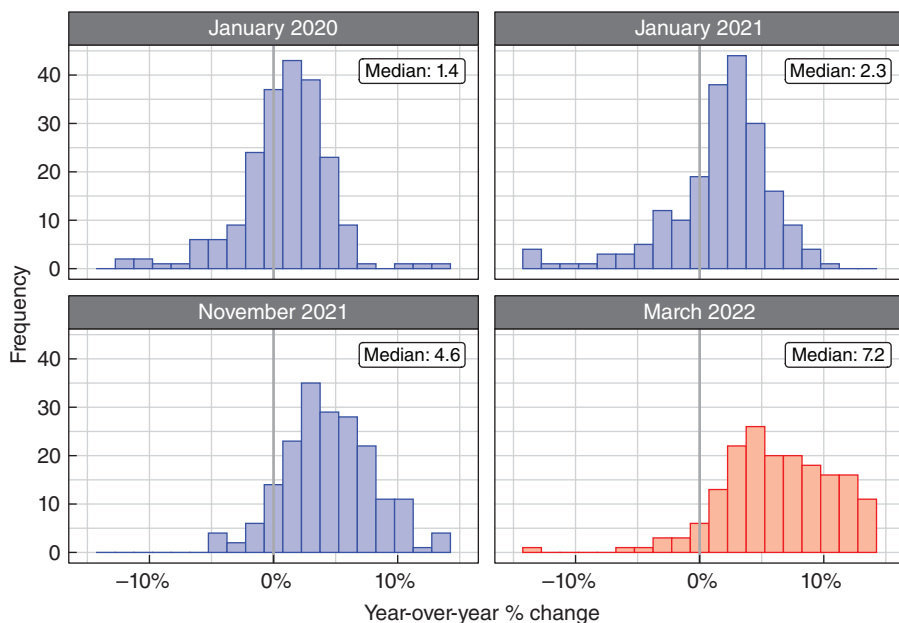


FIGURE 8.2. Distribution of Inflation across 200+ CPI Expenditure Categories

Sources: Bureau of Economic Analysis (BEA), Berenberg Capital Markets.

Note: Expenditure categories with year-over-year changes greater than 15% in magnitude dropped from the chart.

The growing pervasiveness of inflation and similarities to the 1970s are striking. Figure 8.4 shows the portion of CPI components experiencing inflation exceeding 3% and 5%, while figure 8.5 shows similar shares of components of PCE inflation. Through February 2022, the shares of CPI components experiencing inflation exceeding 3% and 5% rose to 82% and 65%, respectively, while the shares of PCE components with inflation exceeding 3% and 5% rose to 68% and 48%. These shares are as high as in the late 1960s and early 1970s, but remain below the late 1970s. Of note, while the shares of the PCE components experiencing high inflation are less than the CPI shares and below the shares experienced in the 1970s, the CPI measures out-of-pocket expenditures, which may influence inflationary expectations.

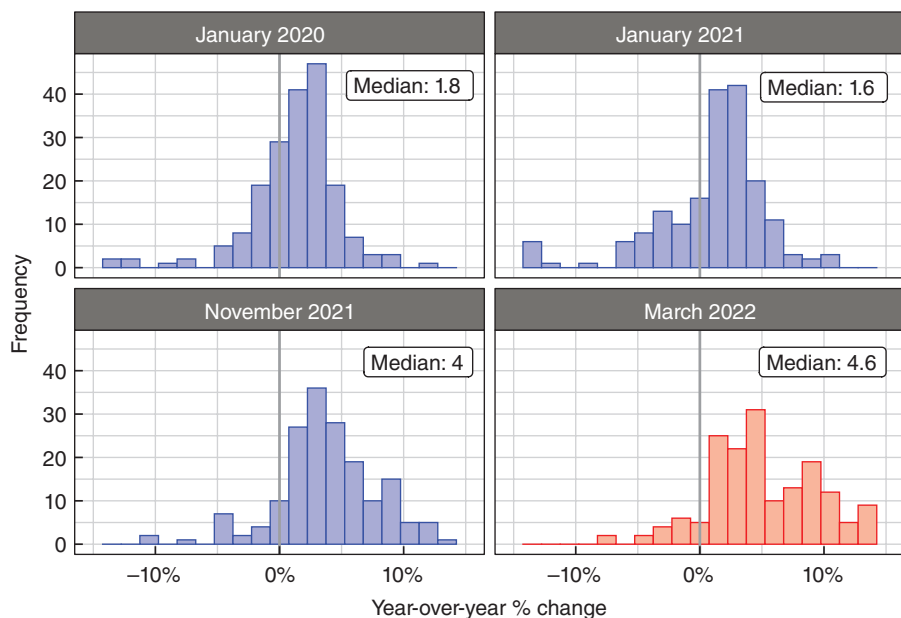


FIGURE 8.3. Distribution of Inflation across 191 PCE Expenditure Categories

Sources: Bureau of Labor Statistics (BLS), Berenberg Capital Markets.

Note: Expenditure categories with year-over-year changes greater than 15% in magnitude dropped from the chart.

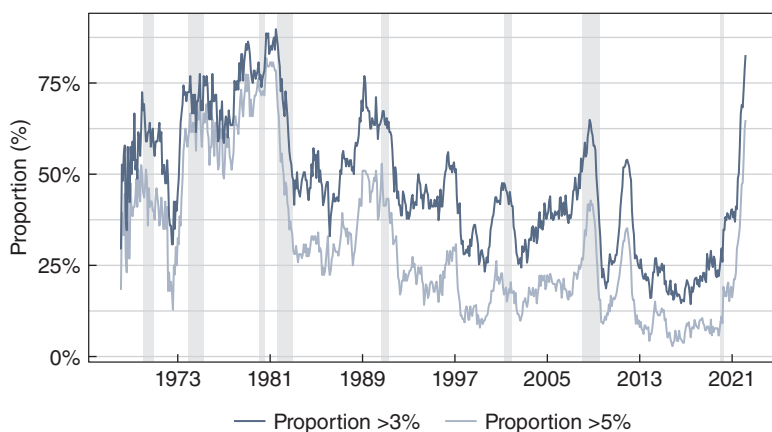


FIGURE 8.4. Portion of CPI Components Experiencing Inflation Exceeding 3% and 5%

Sources: BLS; authors' calculations.

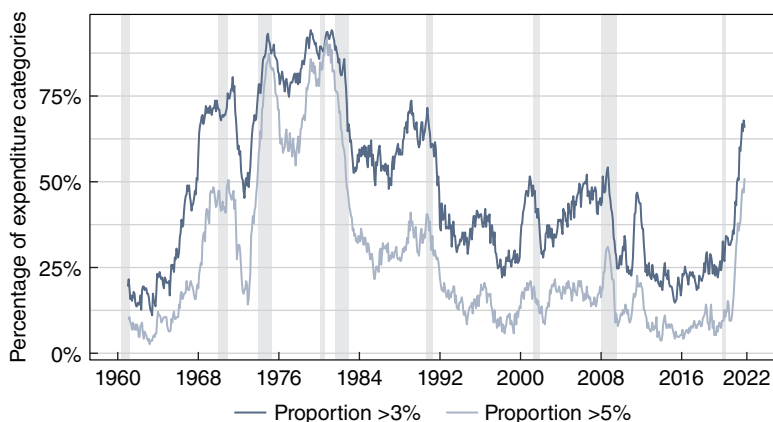


FIGURE 8.5. Portion of PCE Components Experiencing Inflation Exceeding 3% and 5%

Sources: BEA, Haver Analytics; authors' calculations.

The Fed's misreads of the economy and inflation have been disturbingly similar to the rhetoric of the 1970s. The Fed placed blame on special factors even when measures of aggregate demand including final sales to domestic purchasers had accelerated to their fastest pace in history. The Biden administration, similar to the Nixon administration, has blamed the inflation on greedy businesses (but not labor unions!). Fortunately, the Fed has acknowledged that wage and price controls failed. Instead of blanket controls, the Biden administration is attempting to lower prices of select goods by providing financial incentives to specific industries to increase supply and by imposing regulations on others aimed at controlling their prices. It is also releasing oil from the Strategic Petroleum Reserve.

Inflationary expectations have risen significantly in 2021 and 2022, but they remain well below those of the 1970s. Short- and intermediate-term expectations have risen markedly, while longer-run expectations have risen only modestly, suggesting that at least so far, the Fed's long-run inflation fighting credibility remains intact. Expectations of inflation in the next year have risen dramatically, to

TABLE 8.3. The Fed's Summary of Economic Projections of Inflation

Inflation forecast made in:	2021		2022		2023	
	PCE	Core PCE	PCE	Core PCE	PCE	Core PCE
December 2020	1.8	1.8	1.9	1.9	2.0	2.0
March 2021	2.4	2.2	2.0	2.0	2.1	2.1
June 2021	3.4	3.0	2.1	2.1	2.1	2.1
September 2021	4.2	3.7	2.2	2.3	2.2	2.2
December 2021	5.3	4.4	2.6	2.7	2.3	2.3
March 2022	—	—	4.3	4.1	2.7	2.6

Source: Summary of Economic Projections, Board of Governors of the Federal Reserve System.

Note: Measured Q4/Q4.

5.4% (University of Michigan) and 6.6% (Federal Reserve Bank of New York Consumer expectations), while three-year expectations have risen to 3.7% (Federal Reserve Bank of New York Consumer expectations). Market-based measures of inflationary expectations for five years have risen to 3.4% while inflation is expected to average 2.6% in years six through ten (based on the 5-year, 5-year forward curve).

The Fed's unwillingness to acknowledge the persistence of inflation is illustrated in the quarterly updates of its Summary of Economic Projections (SEPs) (table 8.3). In each succeeding quarterly SEP in 2021, the Fed raised its projection of inflation for 2021 to reflect inflation that had already occurred, but forecast inflation would fall sharply in 2022–23, despite assuming that it would be most appropriate that the Fed would not raise rates from zero until 2023. That forecast changed materially in March 2022.

Direct comparisons of inflationary expectations with the 1970s are limited by data availability. However, derived estimates of inflationary expectations during the Great Inflation by Levin and Taylor (2013) are materially higher than current levels. Current survey-based measures of inflationary expectations are higher than

market-based measures, and may have a bigger influence on wage and price-setting behavior. Whereas market-based measures are determined by factors that influence yields on US Treasury securities and the TIPs markets—include changes in the Fed's holdings of these securities, commercial bank holdings, foreign central bank policies, the US dollar exchange rate, and foreign demand—consumer expectations may be more closely linked to household and business decisions that affect the inflation process (Reis 2021).

In sharp contrast to the upward ratcheting of bond yields between 1965 and 1982, bond yields remained far below inflation since the beginning of the pandemic. Yields on 10-year Treasury bonds were 1.5% in February 2020 and fell to 0.7% in October 2020. They have now risen to 3%. Ten-year Treasury yields rose from 4.2% in 1965 to 7.8% in early 1970. During the 1970s, they ratcheted up with higher lows and higher highs. Between June 1978 to June 1982, yields rose from a low of 8.6% and 15.3%.

The higher yields during the 1966–82 period pushed down stock valuations, and real total returns on stocks were negative over the entire period. In contrast, low bond yields since early 2020 have supported high stock valuations, although this now may be changing. Whereas the high rates during the Great Inflation raised the government's debt service costs and heightened concerns about persistent budget deficits, recent low interest rates have reduced government debt service costs and diluted concerns about rising government debt. Of note, nominal GDP growth was persistently high in the 1970s, rising to average 11.3% per year during 1978–81. This environment of persistent excess demand fueled the wage price spiral.⁸

8. While the oil price shocks and other negative shocks aggravated inflation, the rapid growth of nominal GDP could not have persisted without accommodative monetary policy. The high interest rates that reflected the upward ratcheting inflationary expectations raised the opportunity costs of holding money boosted money velocity that contributed to the excessive aggregate demand.

Inflation seems likely to persist at elevated levels, reflecting excess demand even after supply bottlenecks ease. Monetary and fiscal policy responses may have elongated lagged stimulative effects, reflecting the character of the pandemic, government shut-downs, and the magnitude of the policy excesses. The Fed's policy rate will likely remain well below inflation and an appropriate level estimated by a Taylor rule.

The current backlog of fiscal stimulus is sizable. A portion of the \$5 trillion in deficit spending authorized has not been spent, and through year-end 2021 personal savings is an estimated \$2.5 trillion (13.6% of disposable income) higher than pre-pandemic. An added wrinkle is that state and local governments saved virtually all of the \$500 billion in Federal grants received through fiscal legislation in 2020–21. Their excess savings eventually will be spent or used to finance tax cuts, effectively providing lagged fiscal stimulus even as Federal budget deficits recede. Another \$1 trillion of government spending has been authorized by the Infrastructure Investment and Jobs Act enacted in November 2021. Such investment is expected to have a higher fiscal multiplier than transfer payments. In addition, national defense spending is likely to rise. These sources point toward sustained excess demand even if supply chain disruptions dissipate.⁹

Through March 2022, the robust recovery of goods demand and the oil price spike have generated PCE inflation of 10.6% while PCE inflation of services have risen to 4.5%, as the recovery of spending on services has lagged. Services activities are now catching up, which points to continued inflation acceleration. Services sectors are labor intensive, pushing up operating costs. In addition, the largest component of services inflation is shelter costs, and inflation

9. Money velocity should recover from its abrupt pandemic collapse as the economy returns to normal and interest rates rise. Similarly, money velocity rebounded following World War II as the lagged impact of monetary stimulus during the war and pent-up demand generated a surge in spending as normal civilian life resumed.

of its two biggest components, owner-occupied rental equivalent (OER) and rental costs, is accelerating and may remain elevated, based on the historic lags following rising home prices (Levy 2022).

Tight labor markets and higher expected inflation may combine to put upward pressure on nominal wages. The unemployment rate at 3.6% is below the Fed's estimates of its natural rate of 4%, and job openings of 11.5 million exceed job hires of 6.7 million, reflecting an unprecedented gap between labor demand and available supply. The job quits rate of 3.0% hovers near an all-time high. Real wages have been declining, as 8.5% CPI inflation has exceeded the 6.75% rise in average hourly earnings of private sector production and nonsupervisory workers. Higher inflation is influencing wages and a growing number of wage contracts at large corporations now include cost of living adjustments (COLAs). Nominal wages are expected to catch up to inflation, reflecting the tight labor market conditions, the pickup in labor productivity, and the feedback loop between wages and inflation.

In sum, the persistence and pervasiveness of inflation have begun to take on some of the negative characteristics of the 1970s.

WHY HAS THE FED BEEN CONSISTENTLY BEHIND?

The Federal Reserve's track record of delayed exits stems from a confluence of factors. Economic theories have evolved and become more conducive to activist macroeconomic policy making and the Fed's reliance on discretion has been prone to misjudgments. The Fed's interpretation of its dual mandate has evolved toward prioritizing maximum inclusive employment over inflation and has introduced asymmetries that require discretion in interpreting how to achieve its objectives. The Fed has expanded its set of monetary tools, including its heightened reliance on forward guidance to manage expectations and an expanded balance sheet, in ways

that have confused its policy deliberations and introduced delays. It has complicated and muddled the Fed's communications. The Fed's assessments and forecasts of the economy and inflation occasionally have led to monetary policy mistakes. In addition, the Fed faces constant political pressures from elected officials to facilitate their short-term objectives. These political pressures have affected the Fed in significant ways during some critical periods.

Evolving Doctrines

Even following World War II when the government assumed the role of managing aggregate demand and the Employment Act of 1946 mandated the Fed to pursue maximum employment, monetary policy was grounded in price stability and a longer-run balanced budget anchored fiscal policy makers.

Replacing price stability as an anchor for monetary policy in the 1960s with the goal of moderate inflation and the Keynesian revolution, popularized by the Phillips curve that used inflation as a tool for reducing unemployment, fueled discretionary activist monetary policy. These new analytical frameworks promoted the role of the Federal Reserve Board staff that advocated the Phillips curve framework and activist countercyclical policy making. The prospects that the Fed could actively use monetary policy to achieve desired trade-offs between inflation and unemployment attracted like-minded policy makers. The realities of higher inflationary expectations in the 1970s and the Fed's loss of credibility unhinged the relationship between the unemployment rate and inflation and undercut any notion of a permanent stable Phillips curve. In response, the Phillips curve was modified and has remained as the Fed's benchmark, despite its analytical flaws and unreliability.¹⁰

10. While new ideas by the monetarists in the 1960s and 1970s and the rational expectations school in the 1980s and 1990s and research conducted at several Federal Reserve Banks, particularly St. Louis and Minneapolis, influenced thinking in the Federal Reserve System,

The trauma of the high inflation of the 1970s and Volcker's jarring disinflationary monetary policy ushered in the Great Moderation. During this period, the basic premise of the Volcker-Greenspan regimes was that low inflation was the foundation for achieving maximum employment, a clear departure from the doctrine of the 1970s. The Fed was quicker to reduce monetary accommodation at signs of inflation pressures. During this period, scholarly research focused on the benefits of rules that targeted low inflation and eventually settled on 2% (Taylor 1993). Others advocated the benefits of a framework for targeting low inflation without rules (Bernanke et al. 1999), also centering on 2%. Inflation targeting and guiding inflationary expectations toward the inflation target became the dominant anchor guiding monetary policy, operating as a constraint on the pursuit of full employment.

An ensuing pivot in the Federal Reserve System's thinking at the turn of the twenty-first century had a significant impact on monetary policy that remains central to monetary policy. The Greenspan-led Fed's concerns about deflation and its perception that the risks of deflation and the stagnation that would result were a far bigger concern than the risks of high inflation, became influential.¹¹ This new asymmetric view of risks around inflation resulted in the Fed's delayed exit from its 2001–2 countercyclical easing that proved costly for economic performance and financial stability. This asymmetric concern re-emerged as a dominant theme in the decade following the GFC.

Subdued inflation following the GFC allowed the Fed to aggressively pursue maximizing employment. In 2012, Fed Chair

the Phillips curve remained as the dominant framework for conducting monetary policy (Bordo and Prescott 2019).

11. Chairman Greenspan referred to "low probability but high-cost outcomes" (Greenspan 2003) and argued that while deflation would create a downward spiral in aggregate demand that would be hard to escape from, while higher inflation posed fewer risks because the Fed "would know how to address the problem." Then governor Bernanke articulated how the Fed could resort to quantitative easing at the zero lower bound (Bernanke 2002).

Bernanke stated that a key objective of QEIII was to lower the unemployment rate (Bernanke 2012), a noted departure for then unconventional monetary policy. Fed Chair Yellen was even more aggressive in pursuing low unemployment and posted a new labor market dashboard on the Fed's website. The persistently sub-2% inflation fueled Fed's worries about the risks of a downward spiral in inflationary expectations and asymmetries imposed by the ELB.

These ELB concerns along with the prospects that sustained monetary ease could promote maximum inclusive employment became a cornerstone of its new strategic plan. The new strategic framework institutionalized the Fed's asymmetries, including prioritization of its enhanced maximum employment mandate and flexible average inflation targeting that favored inflation above 2%.¹² Underlying its new strategy, the Fed acknowledged that the Phillips curve was flat, which allowed it to eschew the preemptive monetary tightening that had been critical to its high priority of managing inflationary expectations. The strategy's tenuous theoretical foundations, including heavy reliance on forward guidance and precise management of expectations, and the absence of any numeric targets was impractical for conducting sound monetary policy (Plosser 2021). It contributed to the Fed's excessive extension of its crisis management policies.

12. Fed Chair Powell's description of the Fed's new strategic plan in his August 2020 Jackson Hole speech emphasized its enhanced maximum inclusive employment. "The stories we heard [at the *Fed Listens*] events became a potent vehicle for us to connect with the people and communities that our policies are intended to benefit." "With regard to the employment side of our mandate, our revised statement emphasizes that maximum inclusive employment is a broad-based and inclusive goal. The change reflects our appreciation for the benefits of a strong labor market, particularly for many of the low- and moderate-income communities. In addition, our revised statements say that our policy decision will be informed by our 'assessments of shortfalls of employment from its maximum level' as in our previous statement. This change may appear subtle, but it reflects our view that a robust job market can be sustained without causing an outbreak of inflation." Vice Chair Clarida restated these points and concluded, "This is a robust evolution in the Federal Reserve's policy framework." (Clarida 2020).

Misreads and Unreliable Forecasts

Forecasting is very difficult and fraught with challenges. The Fed's models do not seem to have captured critical variables that have driven important shifts in the economy. They largely ignore money supply and the monetary transmission channels in its forecasting. The Fed, presumably for political reasons, has not forecast prior recessions. Nor has the senior Fed staff who manage the Fed's macro-economic models, according to the minutes of FOMC meetings that are released with a five-year lag. Prior to the GFC, the Fed's macro models did not capture the economic implications of failing credit conditions and the spreading of financial instability and the precarious nature of the short-term funding market. As the housing and mortgage market unraveled, the Fed's forecasts were consistent with its assertion that the problems facing the housing sector would not spill into the economy.

The Fed's misread of how sharply inflation was rising in 2021–22 was not its first. In the 1970s, the Fed attributed the upward ratcheting of inflation to special factors rather than to monetary accommodation and did not account for the mounting negative impacts of rising inflationary expectations. Following the GFC, the Fed's senior staff model and SEPs significantly overestimated inflation. When inflation remained low, the Fed attributed it to a flatter Phillips curve, while it paid insufficient attention to factors and policies that may have bottled up the monetary policy transmission mechanism and inhibited the impact on nominal GDP.

As the economy recovered from the pandemic, the Fed presumed that inflation would stay low as it did post-GFC. When inflation rose, the Fed attributed it to supply shortages, and stuck to a forecast that it would decline back toward the Fed's target. In doing so, it understated any stimulative impacts of an increasingly negative real fed funds rate and the surge in M2, and the unprecedented increase in fiscal deficit spending. The Fed did not acknowledge

the fastest growth of aggregate demand in modern history. It is uncertain whether the Fed's models estimated that the trillions of dollars of fiscal stimulus financed by the Fed's monetary ease would have no impact on the economy or inflation, or used judgment and overrode its models. The oversight of readily available data raises more questions. In light of the challenges facing forecasting and the sizable uncertainties posed by the pandemic, incorporating into policy deliberations more rigorous use of scenario and probability analyses of forecasts would be wise (Bordo, Levin, and Levy 2020).

Political Pressures and the Fed

Political pressure on the Fed has been a constant influencer. As William McChesney Martin has stated, the Fed is “independent within the government.” Elected officials—the White House and members of Congress—try to impose their own personal interests on the Fed and clearly influence monetary policy. Congress chartered the Federal Reserve and is charged with supervising it. The Fed's history is replete with a series of powerful members of Congress's House and Senate banking committees with unfavorable views of the Fed and lack of knowledge about how monetary policy affects the economy who tried to steer the Fed in pursuit of their own political agendas. These politicians have affected the Fed in many ways. Populist Wright Patman, a decades-long member of the House Banking Committee, exerted constant pressure on the Fed to keep rates low on the belief that higher rates were inflationary and benefited commercial banks at the expense of workers. Others proceeded and followed with their own agendas.

In the 1960s, Fed Chair Martin was a fiscal conservative whose instincts were to tighten monetary policy in response to the expansive “guns and butter” government spending that began in 1965, but he was bullied by President Johnson to delay raising rates. This proved costly, as higher inflationary expectations became embedded and

set the stage for the 1970s. Burns's direct involvement in President Nixon's policy agenda influenced the Fed in the 1970s. Burns was intimately involved with President Nixon's strategies for dealing with labor unions, and the lengthy General Motors strike in 1970 reinforced Burns's views and led him to team up with Treasury Secretary John Connally and Nixon to impose the wage and price controls. Following Burns's assistance to Nixon's reelection in 1972, in 1976–78 he was heavily influenced by the heated political debate on the Humphrey-Hawkins legislation and did not exit policy accommodation.

Political impacts on the Fed are pervasive. Choices of Fed governors nominated by the president are driven by politics, and congressional members have influenced the choice of Federal Reserve Bank presidents. Congressional initiatives have forced Fed governance changes. The Dodd-Frank legislation significantly affected the Fed's operations and constrained its lender of last resort facility. The Fed has been forced to adjust its communications and accountability to meet Congressional demands. The Fed is frequently expected and called on to do more to boost the economy and lower unemployment. In the past, when budget deficit concerns constrained Congress from pursuing fiscal stimulus, the Fed was expected to be more accommodative. Since the pandemic began, the Fed's stimulative stance has paralleled the desires of the Trump and Biden administrations and Congress. Now, in 2022, as the Fed begins to raise rates, it may come under intense pressure on several fronts. As the Fed removes monetary accommodation, it may get blamed for the slower growth and weaker labor markets. The higher rates and bond yields will drive up the government's debt service costs, for which the White House and Congress may blame the Fed instead of accepting blame for their fiscal profligacy. Higher consumer debt costs and mortgage rates will hit household pocketbooks. History suggests that pressures may mount to limit its rate increases and not allow unemployment to rise.

LESSONS FROM HISTORY AND THE PATH FORWARD

Throughout its history, the Fed has learned from several monumental mistakes. The Great Depression taught how monetary policy based on the wrong doctrine and neglect, turned a modest recession into a deep contraction. Following World War II, the Fed learned its important role in aggregate demand management. The 1970s taught the costly mistakes of persistently accommodative monetary policy that allowed high inflation and a de-anchoring of inflationary expectations. But the Fed has not heeded many other important lessons. One recurring source of the Fed's lapses that has led to undesired outcomes—high inflation resulting from extended monetary ease followed by delayed exits and more frequently than not, recessions—is its discretionary approach to the conduct of monetary policy. The Fed has continued to eschew systematic rules as policy guidelines, instead favoring discretion and relying on its judgment.

In many spectator sports, professional analysts measure unforced errors and often refer to them as game-breakers. An unforced error is a mistake of one's own doing that is frequently based on bad judgment. "If (s)he would have only followed the rules and lessons learned from years of experience and practice. . . ." Our analysis of modern business cycles and the Fed's monetary policies describes a series of unforced errors, some large that led to recessions and a few that resulted in economic soft landings. The Fed's current challenge is difficult. While there have been episodes of delayed exits in which the Fed raised rates and lowered inflation without interrupting the expansion—the best examples are 1966, 1987, and 1994—the Fed has never been put into a position like the current one in which it must reverse monetary accommodation when inflation is so high, except for the late 1970s. This is highlighted in figure 8.1 by the current historically wide gap between the Taylor rule estimate and the actual fed funds rate. History has taught that the Fed must raise its

policy rate above the underlying rate of inflation. But under current circumstances, the Fed must distinguish between the underlying inflation generated by excessive monetary and fiscal policy and the inflation that has resulted from supply shortages. The Fed must be evenhanded in its assessment (Bordo and Levy 2022).

Whether or not the Fed is successful in managing a soft landing, the number of the Fed's unforced errors—in which the Fed's discretion led to poor judgment and costly errors—strongly suggests the need for a policy reset. Were the Fed to adopt more systematic rules-based guidelines—or behave in a more rule-like manner as it did in the Great Moderation—it would avoid big mistakes and have a useful framework for conducting monetary policy under abnormal circumstances. Secondly, the Fed needs to correct the flaws of its strategic framework, eliminate its asymmetries and adopt a balanced approach to interpreting and achieving its dual mandate. Forecasting will always be a challenge, but the Fed should reassess its mistakes and analyze why it has been prone to occasional sizable mistakes. Finally, the Fed must pay attention to history and absorb the appropriate lessons.

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DISCUSSANT REMARKS

Jennifer Burns

This response is taken from the transcript of spoken remarks at the conference and retains the character of live speech.

Hello, everyone. Coming to an event like this and eavesdropping on the conversations feels as though I'm stepping into the pages of the book that I'm writing on Milton Friedman. And I'm particularly glad to comment on this excellent paper by Mickey Levy and Michael Bordo. In this paper, as you know, Bordo and Levy go over a huge sweep of history and compress it down to the essentials. Reading the paper, I reflected on how various monetary policy regimes correspond in interesting ways with regimes of thought. So, in my comment I want to outline a few of those, traversing them fairly quickly, but offering a little more detail at certain points, ahead of the policy conversation.

I'm going to start in the 1960s with the advent of the Phillips curve, which originally was derived from British data. As Bordo and Levy noted, the curve persists to this day. But even as it persists, the way it's formulated and expressed has changed in important ways. One of the first, and most influential, expressions of the Phillips curve is the famous paper by Paul Samuelson and Robert Solow. What Samuelson and Solow did was to take this British curve and construct one for the United States, since the data seemed to fit. And so they created a curve showing "the different levels of unemployment that would be needed for each degree of price level change." And they went on to conclude that the price index should be allowed to rise by as much as 4% or 5% a year. So, it may be the Phillips curve, but it's coming out with an inflation figure that's quite far from contemporary 2% inflation targeting. Samuelson and Solow went on to say, well, if this level of inflation creates any

disharmony, “it could be addressed with price and wage controls.” And then they speculated that maybe even inflation would be harmless under these circumstances, while further noting, “school teachers, pensioners, and others” would “devise institutions to protect their real incomes from erosion by higher prices.” Now, it’s not a coincidence that they picked schoolteachers, pensioners, and others. They were thinking of people on fixed incomes who suffer the most in an inflationary situation.¹

What’s noticeable is their glib confidence that should high rates of inflation occur—quick, we can whip up some institutions that will compensate. If people in those fixed-income situations can get their incomes to go up with inflation, it sort of won’t matter. Wages will rise and prices will rise, but there won’t be a real difference. In this paper, Samuelson and Solow also explicitly resist what came to be known as the accelerationist thesis, associated at the time with Friedman, that inflation has a tendency to go faster and faster. And so, as they claim, “It may be that creeping inflation leads only to creeping inflation.”²

In later years, Samuelson and Solow asserted that the paper, which I’ve simplified here, is much more nuanced and was misread. But the paper is really easy to misread, especially because they include a chart, which they labeled, “A Menu of Choice between Different Degrees of Unemployment and Price Stability.”³ It’s very easy, since they call it a “menu,” for people to think of it as a menu. You expect to be able to order up the exact thing that you want from it.

It’s also important to know this formulation was really important to policy. James Tobin of Yale, who authored the very influential 1962 CEA report that defined full employment as 4% for the first time, reflected later that the 4% full employment target was chosen

1. Paul A. Samuelson and Robert M. Solow, “Analytic Aspects of Anti-inflation Policy,” *American Economic Review* 50, no. 2 (May 1960): 192, 194.

2. Samuelson and Solow, “Anti-inflation Policy,” 185.

3. Samuelson and Solow, 192.

“with an eye on the Phillips curve.” And in the data they had, 4% unemployment coincidentally corresponded to 4% inflation. As Tobin noted, nobody got in trouble for having 4% inflation, so politically that was a safe target. In summary, it’s easy to see a real connection between that paper, the CEA report, and goals of policy.⁴

Beyond the menu metaphor, I want to highlight the implied idea, in this early version of the curve, that you can program the economy: put in numbers, and a predictable outcome will arise. In many ways that is emblematic of the early 1960s, this moment of optimism and the “can-do” spirit—for example, we can and will make it to the moon. This was before the great crash in faith in government and institutions. So, there is an early-1960s flavor to this formulation. On the other hand, it’s also a universal human hubristic assumption that we can see what’s coming and control it. We may see some of that overconfidence still at work today, as some of our other panelists have discussed.

The Phillips curve also fits into a broader universe of understandings of inflation current at the time. In the 1960s, a popular idea was cost-push inflation, the idea that inflation is due to the rising cost of materials and the rising cost of wages. As a result, you get a wage-price spiral. There was also a demand-pull explanation. More similar to contemporary ideas, this explanation highlights aggregate demand getting ahead of the capacity of the economy. Now in the 1960s, the cost-push tends to be the more dominant approach. In part, this is because aggregate demand stimulation is really the name of the game for a lot of policy makers. If stimulating aggregate demand led to growth, which everyone wanted, there’s not a lot of incentive to look at the downside. Also, the idea of cost-push inflation is more plausible in an environment where 20–25% of the workforce is unionized. The ability of unions to push through wage

4. James Tobin, *The New Economics One Decade Older* (Princeton, NJ: Princeton University Press, 1972), 17.

increases that would really ripple through the economy makes more sense than in today's context of a union membership closer to 10%. So those are some of the larger regimes of thought—from sixties optimism to cost-push to the Phillips curve—that form the background for earlier monetary policy regimes and our understanding of inflation.

I want to turn now to the mysterious case of the Fed chairman for most of the 1970s, Arthur Burns. Burns came into the Fed with a reputation as an inflation fighter. Instead, his term saw the “Great Inflation,” a period of high inflation, sustained over many years. And this created some really interesting dynamics in his relationship with Milton Friedman, who was one of his oldest friends. Here's a brief clip from a letter that Friedman wrote him only a few months after he had taken over as the chairman. Friedman wrote, “Never in my wildest dreams did I believe that the central bank virus was so potent that it could corrupt even you in so short a time.”⁵

What was going on with Arthur Burns? Mike Bordo and I differ a little bit on this. Mike tends to emphasize the political nature of Burns's term. I focus a bit more on the ideas that were guiding him. Burns was an institutionalist and a pragmatist—someone who had a theory not to have a theory, which, in the particular case he was in, left him a bit rudderless. Regardless, it is a great irony that Burns and Friedman were so close personally, and that Burns comes into a position of such potential power and influence right as Friedman's ideas on monetarism—which I'll simplify quickly as inflation is always and everywhere a monetary phenomenon—are getting greater credence. Yet, Friedman's ideas are almost completely ignored. Burns actually, and explicitly, rejects the idea that

5. Milton Friedman to Arthur Burns, May 18, 1970, Folder 8, Box 138, Milton Friedman Papers, Hoover Institution Library & Archives, Stanford University.

the Fed really has anything to do what's happening. As he writes to Nixon, "Monetary policy, I feel, has done its job fully."⁶

As this is unfolding, a series of famous Brookings Institution studies are published. They mainly look at the Phillips curve; specifically, they are testing Friedman's critique of the Phillips curve. As new data on inflation in the 1970s emerges, Friedman's argument about the curve—that it might work in the short run, but not the long run—becomes increasingly accepted. And that, in turn, will make monetarism in general more influential. So we have a fascinating case: the great inflation coincides with Friedman's ideas gaining greater acceptance, at least in academic and think tank circles, but not in the actual policy-making circles or in Burns's thinking.

There's another irony here, in that all this is happening even as what some people call the "fourth Chicago School" is rising. Concurrently, there is discussion of the so-called policy ineffectiveness proposition coming out as a major theoretical innovation. I find it a delicious irony that this conversation begins right before Paul Volcker arrives as Fed chair and puts monetary policy right back at the center of American conversation, politics, and history.

Volcker was not a monetarist. He was in tune with the basic debates, and he did say he was going to start targeting monetary aggregates, one of the most important aspects of monetarism. Now there's a whole debate, which I cover in my book, about how genuine or how cynical that particular policy was. Were aggregates a veil because he really wanted to go after interest rates? I tend to think his interest in monetarism started out more genuine than the standard account implies. The first takes on the Volcker Shock were written without the benefit of the documentary material we now have. Regardless, although Friedman and Volcker aren't personally close like Burns and Friedman were, there is definitely an influence.

6. Burns to Nixon, June 22, 1971, reprinted as Appendix B in George P. Shultz and John B. Taylor, *Choose Economic Freedom: Enduring Policy Lessons from the 1970s and 1980s* (Stanford, CA: Hoover Institution Press, 2020), 73.

There's yet another irony here. Just as monetarism is being applied, or some version of it is being applied, the data underneath it starts breaking down. So, if the early 1970s were the triumph of monetarist ideas, the early 1980s are the Waterloo. The monetary aggregates are no longer doing anything that relates to the broader macroeconomy. Even as Friedman wins the war on the importance of monetary policy, his more specific policies did not hold up well. Yet as I also discuss in my book, many of his ideas feed into what has become central banking consensus, from expectations management to Taylor rules.

I'll move quickly now over a few more policy and intellectual regimes. We see a shift to interest rates during the Greenspan years, and this corresponds to a shift in academic focus toward interest rates. Now, there is some leftover monetarism, such as letters from Alan Greenspan to Friedman saying nice things about M2. You can see it in some of the speeches and footnotes. And Friedman was certainly a fan of Greenspan. Yet like Volcker, Greenspan is more applied than theoretical. Moving on to Benjamin Bernanke, I just want to flag him as an academically trained economist. The focus on interest rates continued during his regime, both in policy and in academia. His was the era of the Taylor rule. I think Bordo and Levy do a good job of dissecting that era, and what follows with Janet Yellen, so I'm not going to add more.

Fast-forwarding to today, with Fed Chair Jerome Powell, we really have a return to what I think of as the banker-practitioner tradition: somebody who has not come out of a university faculty but rather from a more applied background. And if we look to the regime of intellectual thought, what is changing or what is emerging? I have to mention the emergence of modern monetary theory, which, as some of you must know, is really a reworking of Abba Lerner's functional finance. As I was preparing for this talk, I remembered that Milton Friedman had reviewed a book by Abba Lerner. Friedman was at the time pretty much unknown,

and hadn't published much himself, but he did a big review essay, talking specifically about Lerner's functional finance. Here's what he called it: "A brilliant exercise in logic." This was *not* a compliment. Friedman's point was that Lerner's ideas were too abstract, too disconnected from empirical evidence and history. He goes on to conclude, "What looks like a prescription evaporates into an expression of good intentions," which I think is actually a pretty good summary of a creed that its supporters summarize as: anything we can imagine, we can afford.⁷

By way of conclusion, let me pull back here and reflect on a few things. The changes in thinking about monetary policy have been profound. And they have some relation to policy, but it's not really clear what it is. When you look back over the history, in some cases you see the Fed and policy makers using academic insights, and in some cases not. In some cases, it's a good idea that they used them. In some cases—such as in the account we get from Michael and Mickey—maybe it has been too much theory, and that is not as good as staying attuned to the moment.

In my book, I separate the academic economists interested in monetary theory, of whom Friedman is really emblematic, from the bankers and practitioners and those people who are putting the ideas into practice. I also think about the Federal Reserve System writ large—the researchers, the scholars, the network, and the intellectual climate—not just the actual members of the policy-making bodies.

And so, I have three questions for you. First, as you think generally about this relationship between what I'm calling the research wing and the practitioner wing, between the people who come up with ideas and frameworks about inflation, and then the men and women who try to put them into action, what are some features

7. Milton Friedman, "Lerner on the Economics of Control," *Journal of Political Economy* 55 (October 1947): 413.

of this relationship? What factors connect and separate these two fields? Is it different mentalities, different training, different incentives? Second, what would be the ideal relationship? Because as I described, looking at the history there's a mix: sometimes too much theory is bad, and sometimes not enough theory is bad. Is there a balance here to strike? The third question I'd like to leave you with: If you could make one or two changes, institutional or cultural changes between the academic research wing and this practitioner community, what would they be?

Thank you so much.

GENERAL DISCUSSION

KEVIN WARSH (INTRODUCTION): How did we get into this inflation mess, and how do we get out of it? It is difficult to gain perspective on events so immediate. Our panel, nonetheless, is tasked with wrestling with this central question. We have a duty to speak clearly about the ideas and institutions we hold dear: the United States economy and the Federal Reserve are at a tipping point.

An anxious conformity of voices—inside and outside of official policy-making circles—should avoid rationalizing reality or redirecting responsibility. I will endeavor to frame the current policy conjuncture. And then turn it over to my colleagues to provide important historical insights and offer lessons learned that may be applicable at this critical moment in economic history.

Allow me first to introduce my fellow panelists. Michael Bordo is a staple of Hoover monetary conferences past, a professor of economics at Rutgers, and the author of an important recent book on the historical performance of the Fed.

Mickey Levy is the chief economist at Berenberg. Mickey served as the chief economist at Bank of America during the prior financial crisis. In a past time of peril, he provided invaluable data on the real economy, and he is a longtime source of insight to policy makers, myself included.

We're also honored to be joined by Jennifer Burns. Jennifer is a professor of history here at Stanford and a trusted colleague of mine at Hoover. Jennifer's academic work is directed at the thinkers and ideas of the twentieth century and their influence on politics and policy.

Jennifer's intellectual biography of Milton Friedman is to be published soon. I can't help but wonder whether Milton would be surprised that some of the errors of the 1970s would again be so resonant. Given the imprudent conduct of monetary and

fiscal policy in the past several years, I am curious what he would have proffered as the preferred policy path forward. Jennifer will help give voice to a mentor to so many of us assembled here.

The twenty-first century is off to a rocky start. Four major shocks—the terrorist attacks of 9/11, the global financial crisis, the plague of COVID, and the land war in Europe—have left an indelible mark on the economy and policy-making institutions.

The series of shocks over two decades catalyzed the most extraordinary, unprecedented expansion of monetary and fiscal policy in history. And the periods of relative peace and prosperity between shocks failed to correspond with concomitant reductions in policy accommodation. The asymmetry in the policy response is disconcerting.

Condi Rice spoke at the outset of the conference about the Russian invasion of Ukraine. An important takeaway from her discussion of national security: the price for stopping a dictator goes up over time. Well, the same is true of inflation. The surge in prices was fixable at considerably less cost a year ago, even six months ago.

Inflation—now running more than four times the rate of the Fed's promised inflation target—is a clear and present danger to the economy. The level, rate of change, and variance of prices are interfering with the decision making of households and businesses. And it is causing a dramatic cost-of-living squeeze for most Americans.

In some sense, the highly elevated levels of inflation owe to errors in tactics, timing, and risk management made by the Federal Reserve in the last year. But the broader sources of error—strategic, doctrinal, and institutional choices made by policy makers—have been long in the making.

In the last decade, monetary policy makers became increasingly precise in their definition of price stability, namely inflation of 2.0%. They also became more exacting about their preferred

measure of inflation that would be tantamount to its target. Policy makers mistakenly believed that they possessed a reliable, robust model to forecast inflation dynamics. The central bank's understanding of the true underlying causes of inflation, however, are far fuzzier.

First, large structural forces (e.g., demographics, globalization) pushed inflation down since the early 1980s. The central banks were significant beneficiaries of many of these forces, largely outside of their control. The structural forces are now reversing. I know of no theory that assigns the central bank credit for the Great Moderation of inflation over this long period but absolves it of responsibility of the current inflation surge.

Second, many in the central bank community came to believe that inflation was running around 2% per year because central banks ordered it so. Inflation expectations have an important role to play in the inflation forecasting business, but expectations are not established by edict. Inflation-fighting credibility—and the expectations that flow from it—are earned over time. They can be lost more quickly.

Third, the dominant workhorse (dynamic stochastic general equilibrium) models used by the Fed (including FRB/US) are designed to be mean reverting. That helps explain why a year ago the Fed believed inflation would fall back to 2.0%—it had happened before. But the Lucas critique is directly applicable here. If policy makers change regimes, that is, change markedly how they they conduct policy, then the mean-reverting forecasts will invariably be in error.

Fourth, r -star, the neutral equilibrium real interest rate, is a useful theoretical monetary policy construct for considering the proper conduct of policy. But policy makers err when they make r -star their north star. Unlike a star in the sky, r -star is unobservable. And it changes its position in the horizon in response to changes by policy makers in the conduct of policy.

Finally, the Fed announced a major regime change in the conduct of monetary policy in August 2020. The regime change was an important catalyst for the subsequent inflation surge. The Fed promised to increase the inflation rate, which was running a mere three-tenths of a percent below its numerical objective. Most notably, the Fed relegated the tried, trusted, true idea that monetary policy affected the economy with “long and variable lags.” Instead, the authorities said policy would be inert until the Fed fully achieved its new objectives.

Hence, we should not be surprised that the extraordinary conduct of monetary policy in recent years—for all seasons and all reasons—ushered in an era of surging prices, which first manifested in financial assets like equities before spreading to goods and, ultimately, services.

We should be surprised, however, that the Fed’s reaction function to the inflation shock differed so materially from the shocks of 2008 and 2020. To date, we find the central bank’s response plodding and begrudging in comparison.

Inflation is a choice, a choice for which the Fed is chiefly responsible.

In a sign of our times, most in Washington believe someone else is to blame for the inflation surge. So we hear a lot about Congress’s fiscal profligacy, the ravages of COVID, and the war in Ukraine. These are relevant factors. But the central bank is no victim. The causes of inflation are varied, but the Fed chooses what it will permit to find its way into the generalized price level.

Former Supreme Court justice Antonin Scalia said once, “We aren’t last to decide a case because we’re right. We’re right because we’re last.” The same is true of the Fed. The central bank has the benefit of observing fiscal decisions by the Congress and global linkages. Then it decides what actions to take to establish the nominal price.

Other contributing sources of central bank error are procedural but no less worthy of mention. I sense a far greater divergence of views around the FOMC than captured by their quarterly forecasts and public speeches. The term of art is “preference falsification.” Some policy makers somehow may abide by a set of views contrary to their own best judgment. And whether that’s owing to comity, contrivance, or convenience, policy making is impaired if there is not a candid and frank deliberation around the table and in the public square.

Is it plausible that early last year no one at FOMC thought the fed funds rate would rise until 2024? Or this past September that there’d only be one rate rise in 2022?

In times of critical decision making, I worry about an anxious conformity of views. We should be discomfited when a critical institution in aggregate is delivering considerably less than the sum of its immensely talented professionals.

Finally, permit me to say a word about the central bank’s risk management. Being a member of the FOMC is not a prize for the perfect. All individuals—and institutions—make misjudgments. The best institutions, however, conduct their policy deliberations to minimize big errors so that they avoid significant deadweight losses in welfare.

With Milton Friedman’s biographer by my side, we should recall his admonition that central bankers should conduct policy to minimize substantial deviations in output and inflation from its objectives. The operative word here is “substantial.”

At the time the Fed adopted its new pro-inflation policy regime in 2020, the Fed noted that it was falling short of its inflation objective by just a fraction. And, yet, its leaders bet the ranch. It’s not entirely fair to measure an institution by the outcome of its decision. But, it is fair to question the decision making itself. Too much emphasis is placed on modal forecasts and not enough on tails of the distribution. And ultimately, the central

bank bears a special responsibility to mitigate large tail risks. That's the job.

At the outset of the conference, John Taylor asked the right forward-looking question: Where do we go from here?

Another regime change in policy will likely be needed to fix the inflation problem. Unless the inflation is resolved imminently and resolutely, today's inflation will rank among the most significant economic policy errors in the last half century. US households and businesses will bear the primary costs of the policy mistake, especially the least-well-off among us. Substantial harm is already done.

We need a regime change in the conduct of monetary policy, not least to show households and businesses that price stability will be achieved, come hell or high water. The Fed should rid itself of its existing forward guidance, where the authorities continually revise and reveal their then-preferences for policy in the coming meetings. Instead, as first proffered last year by my friend and fellow central banker from days of old Mervyn King: the only forward guidance the Fed should put on offer is that they will achieve price stability—no ifs, ands, or buts. Imagine the clarity when paired with credibility.

I also recommend that the central bank ditch the existing notion of data dependence. Policy must be forward looking, not periodically reliant on stale data that is indicative of how the economy once was. My old Fed colleague and dear friend Stan Fischer used to say, "We move policy early because we're late." And yet in the Fed newfangled regime, they choose to move late as a design feature.

As I mentioned earlier, we have a duty to speak clearly about the ideas and institutions we hold dear. We convene as policy makers (past and present), market participants, academics, and historians to move the conduct of monetary policy in a better direction. Ideas must be refined, institutions reformed, and credibility fortified.

So today isn't the time to pile on. Rather, it's high time, if not long past time, to put on the table what needs to be done.

With that perspective on the current policy conjuncture, allow me next to turn to our resident historians to offer a perspective on the current moment.

* * *

MICKEY LEVY: One observation based on our research of history that just jumps out is the Fed's series of mistakes that do not reflect the appropriate lessons of past cycles. The current episode calls for a policy reset. As Kevin mentioned at the outset, policy makers can't get every judgment right but should strive to avoid the major mistakes. Accordingly, a high priority should be the adoption of some kind of rules-based policies in place of total discretion. A rules-based policy framework would provide policy guidance based on the lessons from history. It would still provide flexibility for discretion. If the Fed deviates from the rules, it would provide a basis for explaining why. Rules could provide valuable guidelines during normal times as well as abnormal times, like the one we've just been through. This issue of rules versus discretion has been around for a long time, and the current situation stemming from the Fed's misguided judgments is a wake-up call that once again, heavily reliance on discretion has been the source of a major policy mistake.

MICHAEL BORDO: I greatly appreciate Jennifer's comments. I have read her book on Milton Friedman and I highly recommend it. In answer to her question, central banks evolved in the early modern period and later to provide finance to the new nation-states, to manage the gold standard, to serve as lenders of last resort, and later to stabilize the macroeconomy. Along with the evolution of central banks came the development of economic thinking on the role of money and on central banks in maintaining stability

in the value of money and financial stability. Many of the early economists also were central bankers, so economics has always been tied to central banking. Some of the basic theories like the quantity theory of money and the price-specie flow mechanism had a great influence on central banks. This may be because central bankers were initially drawn from the financial sector, including some of the great pioneer monetary economists like David Ricardo and Henry Thornton, who well understood from their private practice the role of money in the economy. As economics has become more technical there have been occasional disconnects between theory and practice, but the coevolution between policy and theory has persisted. Whether the theories were correct and whether they were always understood by central bankers is another issue, which is at the heart of some of the major policy errors, like the present one.

RICARDO REIS: In his introductory remarks, Kevin worried that there has been a worrying consensus within the FOMC in the last 12 months. In your paper, you follow the usual convention of referring to periods in history by the name of the chair of the FOMC: Burns, Bernanke, etc. Realizing that this is an impossible question to answer in a few minutes, can I ask you to describe how much consensus or disagreement there was within the FOMC during the periods that you highlight? Was there a healthy debate within the institution? Were the regional Fed presidents playing a role of adding diversity of views, and pushing against when mistakes were made? Or does history confirm Kevin's hypothesis of consensus coming associated with mistakes?

BORDO: I have been working with Ned Prescott from the Federal Reserve Bank of Cleveland on the issues of the structure and governance of the Federal Reserve System. The regional Feds have become an important part of the policy-setting process since the 1950s. In the 1960s the Federal Reserve Bank of St. Louis was a key conduit for the monetarist views of Friedman, Schwartz,

Brunner, and Meltzer. The St. Louis Fed was treated as a maverick by the establishment of the Board of Governors, but as the Great Inflation exploded in the 1970s their views had a great impact, leading to the Volcker shock that ended it. A similar story can be told for the role of the Federal Reserve Bank of Minneapolis in the 1980s and '90s in transmitting rational expectations into Fed policy deliberations. The federal structure of the FRS has been instrumental in the introduction of new ideas into policy making.

WARSH: In my assessment of Fed history, the chairman of the institution has aggregated power and authority over time. It's not a perfect relationship over time, but it is the broad trajectory, especially since the Greenspan era. That's why it is fair nomenclature to describe the periods as the "Bernanke Fed," the "Yellen Fed," and the "Powell Fed." The central bank, as an institution, has dominated the front pages since 2008 to be sure. So it's hard to overstate the influence of the chairman. Nonetheless, my judgment is that there's a large dispersion of views inside the institution itself. There might be something like a thousand PhDs at the Federal Reserve today. While the large majority of economists arrive from much of the same intellectual timbre and the same academic institutions, there is a pretty healthy dispersion of views. But the organization's decision-making process—the deliberations—seem to remove the outliers and cast them aside. This is done ostensibly in the name of conformity, comity, convenience, or contrivance. It comes with the best of intentions but has some very problematic consequences.

In my own experience at the Bernanke Fed—especially during the crisis—we would end up speaking with one voice, which is good. But there was a fierce debate inside the room. And it wasn't always inside the FOMC: there was a meeting before the meeting, often in the chairman's office. You would get your "day in court." In my case, I'd make my argument and would lose as

often as I'd prevail. But there was an opportunity for a fierce, truth-seeking debate.

The Fed today needs to ensure that the deliberation process leads not to parochialism or groupthink. And historians will someday judge if a lack of genuine deliberation led the Powell Fed to this troubling moment.

LEVY: My perception is within the FOMC meetings there's an extremely healthy debate. But the actual decisions on policies are skewed toward the chair and the Board of Governors. This brings up the whole issue of governance. I think the institution needs to have more modernized governance rules that, among other things, would take advantage of the 12-Federal-Reserve-Bank system. The bank presidents should be voting members at every FOMC meeting and be involved in other critical monetary policy decisions. This morning's panels referred to the Fed's quarterly Summary of Economic Projections (SEPs), which are important inputs to the Fed's deliberations and important communications vehicles to the public. They also reflect a tilt within the Fed's organizational structure. The SEPs are dominated by the FRB/US model, because the governors, when they submit their quarterly estimates, cannot deviate very much from the FRB/US model, which are developed by Board staffers. So deviations from the FOMC median forecasts heavily reflect the views of the Federal Reserve Bank presidents, who are underrepresented in FOMC voting on monetary policy.

WARSH: In the name of transparency, we end up with less transparency. Rich, care to weigh in?

RICHARD CLARIDA: Great panel. Jennifer, great survey. You, Mickey, and Mike, you talked about 1966 as a successful soft landing. I think of 1966 as a disaster. The Fed hiked aggressively in '66 out of concern the economy was overheating, and then they caved. The Livingston survey of inflation expectations in '65 is running around 1%, and by the end of '67, after it reverses course and cuts interest rates, inflation expectations were on the way to 5[%]. So

it may or may have been a soft landing, but it was, you know, *ex post*, a spectacular policy mistake. So for the soft landing credit, perhaps we at least include an asterisk or a footnote. Thank you.

LEVY: Rich, I agree with you. The Fed's tightening was less about hiking rates but more about the credit squeeze as inflation pushed rates above Regulation Q interest rate ceilings on savings deposits Q. So it wasn't a great period for a lot of reasons.

WARSH: I don't think Rich wanted to follow up on our discussions about the transparency inside the Federal Reserve. [laughter]

JAMES BULLARD: Jim Bullard, St. Louis Fed. I have two parts to this. One is the '83–84 episode. I was wondering what you guys thought about that. If you look at the effective fed funds rate, it goes up 300 basis points. *Ex post* real interest rates are extremely high. I've often wondered about this period from the perspective of the kind of models we're writing up here. They would predict an astonishingly deep recession in 1984–85. Instead you got this huge boom, all through the 1980s. You got a very strong dollar obviously in '85 and so on.

This was a moment, to me, where inflation expectations were far more unmoored than they have been in recent times. So, that tightening was more game theory and less econometrics. It was more about establishing the idea that the central bank was going to get inflation under control, and you'd better pay attention if you're working in this economy. Indeed, inflation basically came down—was still kind of volatile through the '80s. So I think that that's an interesting episode. The current episode is very different, and inflation expectations are threatening to become unmoored, as opposed to in many of our models, where we just assume inflation credibility is very solid and we're talking about relatively small deviations around the steady state.

I can't let this go without talking about the influence of the regional banks. I'll give a recent example about what I think the role is. I'll give the Charlie Evans example. Evans—since Charlie

is not here, I will be very complimentary to him, because he can't respond—gave a speech about thresholds. He said, "Okay, we're going to have this forward guidance. And we're going to have these thresholds. We're not going to raise the policy rate until one of these thresholds is met." This was going to be a way to get a "lower for longer" policy rate. When he first gave that speech, no one else in the Fed was talking about this. Then he gave his speech again, gave his speech again, talked about it more, and it eventually started to show up in the policy options. Then, lo and behold, six months after that, that actually became Fed policy. This was an example where you could float an idea through this channel. If Bernanke had floated that idea, markets would have gone crazy right away. But that isn't how it works, right? You've got the staff in Chicago thinking this up, and you've got Charlie promoting it, and then it became actual US monetary policy. I think a great advantage of our system is that you can have that kind of diversity of thinking across the board.

LEVY: Jim, great point on 1983. We had just come out of back-to-back recessions, inflation had come down. The back-to-back recessions were the cost of purging inflationary expectations from economic behavior. But Volcker was very frustrated that inflationary expectations and bond yields hadn't come down. The economic recovery was robust. Although the unemployment rate remained very high, the Fed hiked rates aggressively. Growth slowed, but there was an economic soft landing. Volcker slamming on the brakes emphasized the Fed's commitment to keeping inflation low and set the stage for what was to come in the Great Moderation, when the Fed shifted gears from the 1970s and emphasized the importance of stable low inflation. We've come a long way since then, and the Fed has seemingly lost those important lessons. It's really been wonderful working with Mike on this paper and revisiting the history and just thinking about how much things have changed. When I say

“things,” it’s not just policies but theoretical foundations. Before the 1960s, as Mike said, the foundations were price stability and balanced budgets. The evolution of intellectual thinking and policy implementation from those anchors to where we are now has been monumental.

JENNIFER BURNS: In response to Richard Clarida’s comment, I just have to remember the anecdote of William McChesney Martin going out to LBJ’s ranch and getting a really bumpy ride around the ranch that was kind of symbolic of the other ride you might have. Right? So there was some pressure there.

BORDO: The Federal Reserve has benefited from its regional structure in bringing new ideas into its policy development and in having a wide array of people involved in the policy-making process. But policy mistakes, as is the case today, still happen. The question arises as to why the Fed, with its huge number of well-trained economists, has done so poorly in allowing inflation to take off. It is as if the experience of the 1970s was totally ignored. Is it because they have not been following rule-like policies, as John Taylor has argued? Is it because of political pressure? Is it because they adopted a strategy of flexible average inflation targeting, which was a solution to an outdated problem? Whatever the answers that history will later reveal, it still raises the question of why an organization with thousands of bright, well-educated people got it wrong.