

Shifts in US Federal Reserve Goals and Tactics for Monetary Policy: A Role for Penitence?[†]

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During its first century, the Federal Reserve has made a substantial number of changes in the conduct of monetary policy. Figure 1 plots a short-term interest rate, a measure of inflation, and the dates of recessions (shaded areas), which allows one to separate the 100-year history of policy making at the Fed into distinct periods. I focus on four of them.

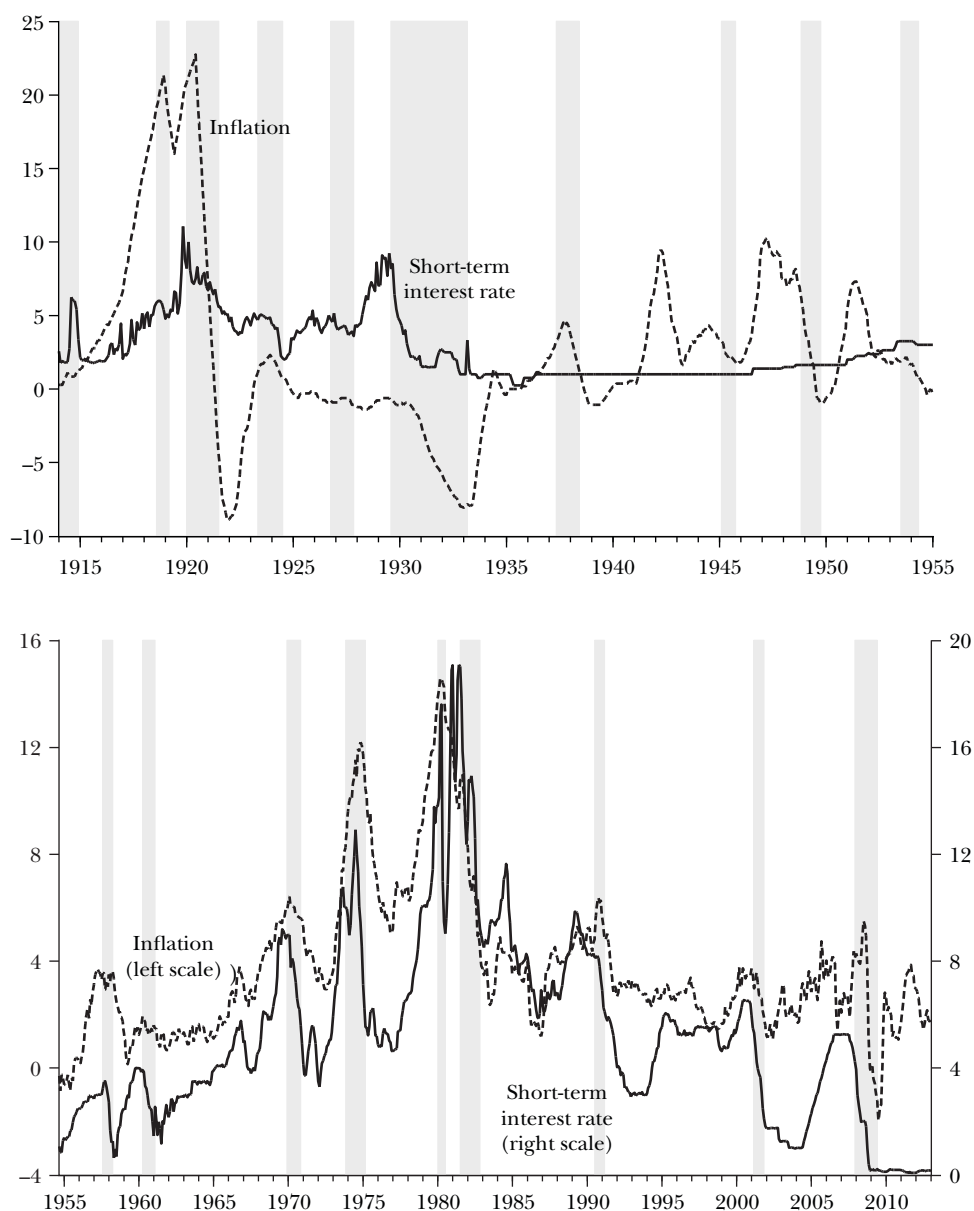
During the first period, starting in the mid-1920s, the Federal Reserve official policy was to support high-quality bank lending, but not speculative lending. This goal was set aside once in 1927, in an episode that many observers then blamed for the economic collapse that followed the financial crash of 1929. The Fed was then reluctant to increase the funds available to banks through the early 1930s, even as the Great Depression ravaged the economy. The Fed's concern with the volume and quality of lending in the setting of monetary policy did eventually wither. However, this only seems to have happened after the publication of Friedman and Schwartz (1963), a revisionist history of the Great Depression that blamed its depth on the Fed's inappropriate focus on "productive lending."

In the second period, after the experience of post-World War II inflation, the Federal Reserve in the 1950s was highly concerned with inflation and was willing to raise interest rates and bring on recessions to nip even modest inflation rates in the bud. This brought withering criticism for the Federal Reserve on the grounds that the recessions of 1957 and 1960 had been unnecessary. By the mid-1960s, some Fed officials seem to have developed an aversion to creating recessions as a method of

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Figure 1

Interest Rate Policy, Inflation, and NBER Recessions

Notes: Due to data availability, the variables (and sources) are not the same for these two panels. In the 1955–2013 panel, the short-term interest rate is the federal funds rate from the Federal Reserve Board while the inflation rate is the growth rate in the Consumer Price Index (CPI) (from the Bureau of Labor Statistics) over the past 12 months. The data used to construct the 1914–1955 panel are drawn from the NBER Macrohistory Database. The short-term interest rate is the call money rate while inflation is given by the 12-month growth rate in the NBER’s estimate of CPI inflation. Periods of NBER recessions are indicated by shading.

fighting inflation, and this aversion may have contributed to the Great Inflation of the late 1960s and 1970s.

The third period I focus on is Paul Volcker's pursuit of disinflation from 1979 to 1982. This involved a change in operating procedures that yielded unparalleled interest volatility. This too seems responsive to a criticism, in this case that the Fed's focus on interest rates as an intermediate target led to large departures from the Fed's announced paths for the growth of monetary aggregates.

Finally, the fourth period from 1982–2007 was a time of renewed inflation intolerance known as the “Great Moderation.” This period shows that, although the Volcker-led deflation of the late 1970s and early 1980s was widely viewed as a success, the Fed continued to change its approach to monetary policy. The federal funds rate became more stable, for example, though this change was much more gradual than the change in 1979.

A theme that emerges in these episodes is the tendency of the Fed to alter its methods and its objectives drastically when critics successfully argue that “bad outcomes” are a product of Fed “mistakes.” The Fed then acts as if it were penitent, in that it becomes averse to this now vilified pattern of behavior. My discussion draws on Romer and Romer (2002), in that they too emphasize the role of policymakers' ideas in the determination of Fed policy. However, many of the changes in ideas emphasized in the existing literature on the Fed are unrelated to the penitence scheme I propose here.

The Two Abandonments of the Quality of Bank Lending as an Objective

The *Tenth Annual Report of the Federal Reserve Board* (1924) is often taken as a landmark statement of its policy intentions in the 1920s. The report specified that the Fed should extend credit only for “productive” and not for “speculative” purposes (p. 33). At a minimum, this implied that loans made by the Fed to individual banks needed to be collateralized with loans that those banks had made for industry, agriculture, and so on. The Report worried, however, that “paper offered by a member bank when it rediscounts with a Federal Reserve bank may disclose the purpose for which the loan evidenced by that paper was made, but it does not disclose what use is to be made by the proceeds of the rediscount” (p. 35). Regional Federal Reserve banks were thus supposed to keep tabs on the overall lending portfolio of the individual banks borrowing from them. In addition, the Fed was supposed to use a “quantitative” criterion to limit “the volume of credit within the field of its appropriate uses to such amounts as may be economically justified—that is justified by a commensurate increase in the Nation's aggregate productivity” (p. 33).

In late 1925, this approach led the Fed to tighten monetary policy on the grounds that loans for purchases of securities had been rising (Wicker 1966, p. 98). This tightening does not seem to have generated much controversy, the resulting recession was mild, and there were no loud complaints afterwards.

However, in 1927 the Fed pursued an expansionary policy that temporarily ignored the objective of lending only for the purposes of productive credit. This expansionary turn was championed by Benjamin Strong, the president of the New York Federal Reserve, who was motivated at least in part by a desire to lower US interest rates so that England would find it easier to get back on the gold standard (Wicker 1966, p. 112). On the other side, Governor of the Federal Reserve System “Adolph Miller bitterly opposed [this] . . . on the ground that purchases of securities would fan the flames of stock market speculation” (p. 106). James McDougal and George Norris, the heads of the Federal Reserve Banks of Chicago and Philadelphia, actually wanted to raise rates at the time (Meltzer 2003, p. 226). McDougal famously resisted lowering his own discount rate in line with the requirements of Strong’s policy (the Federal Reserve Board ultimately succeeded in reasserting its oversight over regional Federal Reserve Bank discount rates).

The Fed quickly changed gears and started raising discount rates in early 1928 (Friedman and Schwartz 1963, p. 289; Hamilton 1987), and the tight policy was continued, and even somewhat strengthened in 1929. A key reason was that the Fed was unhappy with the substantial increase in speculative lending that took place in 1928 while the stock market was booming. As the Fed said in its 1929 Annual Report, “The problem was to find suitable means by which the growing volume of security credit could be brought under orderly restraint without occasioning avoidable pressure on commercial credit and business.” The Board asked regional banks to limit the credit they extended to banks that engaged in speculative lending. Friedman and Schwartz (1963, p. 257) report that several Regional Banks, including the New York Federal Reserve, resisted this pressure for “direct action.” Instead, George Harrison of the New York Federal Reserve wished to curb speculation by raising rates further.

Several Federal Reserve officials blamed the open market operations of 1927 for the dramatic contraction that took place between September 1929 and September 1930. For example, Governor Miller’s congressional testimony of January 1931 depicted the breakdown of the autumn of 1929 as an “inevitable” consequence of the increase in asset prices and linked these directly to the 1927 monetary expansion. After noting that the Fed had purchased a great many government securities in 1927, he said: “Coupled with the heavy purchases of [bankers’] acceptances it was the greatest and boldest operation ever undertaken by the Federal Reserve system, and, in my judgment, resulted in one of the most costly errors committed by it or any other banking system in the last 75 years” (US Senate, 1931, p. 134). Treasury Secretary Glass, who had a direct role in the Federal Reserve at the time, was also convinced that the 1929–30 collapse was due to the abandonment of the doctrine that lending should only be directed to “productive uses” (Meltzer 2003, p. 470).

According to Friedman and Schwartz (1963), the depth of the subsequent Great Depression was due to the timidity of the Fed’s response. The Fed did lower interest rates in 1929 and 1930, and while it loaned less to banks, it engaged in modest open market purchases so that the money supply (as measured by M1) fell only modestly. But when bank runs became widespread, the Fed generally refused

to lend to banks subject to runs. Moreover, the Fed resisted large-scale open-market purchases to offset the declines in banking, even as the money supply dropped substantially. Under pressure from Congress, such a program was started in April 1932, though it quickly ended in August.

Meltzer (2003, pp. 327–328, pp. 341, 364) and Romer and Romer (2013) point out that several Fed officials argued that, because banks were holding excess reserves, monetary conditions were easy and attempts to loosen monetary policy further would be ineffective. Meltzer (2003) and Romer and Romer (2013) suggests that this explains the Fed inaction at the time, but this explanation seems incomplete as an explanation of the Fed's behavior because some Fed members including Chairman Meyer favored increasing purchases even in 1933. Meyer's lack of success presumably owes something to people who saw expansionary policy not as irrelevant, but as actually detrimental. Negative views of this sort were expressed by Federal Reserve Bank of Richmond President George Seay, who "believed that the dangers of a further accumulation of reserves were greater than those of disposing of some securities" (Open Market Policy Conference Meeting, January 4, 1933). As excess reserves increased further in the 1930s, this concern became more widespread and reserve requirements were doubled between 1935 and 1937 (Meltzer 2003, p. 509).

A common explanation for the Fed's unwillingness to be more expansionary in this period is that it stuck to the principles of its *Tenth Annual Report* (1924) and to the procedures it had adopted in its wake (Calomiris and Wheelock 1998; Meltzer 2003, p. 400). As Friedman and Schwartz (1963, p. 411) argued, however, the expansionary policy of 1927 seems to represent a break from these principles and procedures. Given that this break was later condemned, it seems possible that penitence for departing from these principles in 1927 played a role in the 1930s. If the Fed now viewed the 1927 open market purchases as a mistake because they increased the liquidity of banks without a clear sense that this would be used for productive lending, penitence would be consistent with the Fed's aversion to excess reserves during the 1930s.

Of course, other factors contributed to the Fed's relatively tight stance. The 1931 increase in discount rates was clearly designed to stem gold outflows, for instance, so faithfulness to the ideals of the gold standard must have mattered too (Eichengreen 1992). However, Hsieh and Romer (2006) argue that even before the gold inflows that followed the devaluation of 1933, the Fed had ample room for more expansionary policies.

The level and quality of bank loans continued to play a role in Federal Open Market Committee (FOMC) discussions for some time. In 1953, for example, New York Federal Reserve President Allen Sproul told the FOMC that "bank credit, except for consumer credit and perhaps mortgage credit, has not moved out of line with a balanced situation" so that the evolution of several classes of bank loans was still followed closely. This changed after Friedman and Schwartz (1963) published their landmark study showing that the depth of the Great Depression was attributable to the Fed's concern for "productive lending" and its lack of attention to monetary aggregates. Even as late as 1964, Friedman complained that independent central

banks inevitably fell under the influence of bankers and thus “put altogether too much emphasis on the credit effects of their policies and too little emphasis on the monetary effects” (US House of Representatives, 1964, p. 73). Instead, Friedman argued: “Monetary policy ought to be concerned with the quantity of money and not with the credit market” (p. 74).

Eventually, this perspective became dominant and, consistent with penitence for its pattern of behavior during the Great Depression, members of the Federal Open Market Committee stopped focusing on the asset side of bank balance sheets. In the detailed memoranda of the first three meetings of the FOMC in 1970, for example, there is no substantive discussion concerning the composition of bank lending. The aggregate behavior of the banking sector, and total bank credit in particular, were still discussed, though some members explicitly said that they thought monetary aggregates were more relevant.

One has to wait until after the financial crisis of 2007 to see a resurgence of the argument that the Federal Reserve should pay attention to the quality of loans being made by financial institutions. The lead-up to the Great Recession featured a substantial number of mortgages that ended up in default. The dynamics of the financial crisis also suggest (as in the formal model of Shleifer and Vishny 1992) that economic downturns can force banks to sell certain assets at fire sales prices. As noted by Stein (2012), this means that an increase in one bank’s risky lending imposes an externality on other banks because it reduces the fire sale prices at which these other banks can dispose of their own assets. This externality suggests that the main institution charged with macroeconomic stabilization should pay some attention to the quality of loans being made and to how they would fare in a downturn.

Friedman and Schwartz’s (1963) analysis of the Great Depression also seems responsible for Ben Bernanke’s (2002) apology on the Fed’s behalf for its Depression-era policies. Consistent with a degree of penitence for these policies, the Fed responded to the 2007 financial crisis with heroic efforts to prevent bankruptcies among liquidity providers and with dramatic increases in excess reserves. Such policies were the opposite of the Fed’s passivity in the face of bank failures and its reluctance to allow excess reserves to rise during the Great Depression.

The Abandonment of Inflation Intolerance

The Eroding Anti-Inflation Stance of William McChesney Martin

During World War II and the rest of the 1940s, the Fed maintained the low interest rates desired by the rest of the US government. But after seeing inflation rise again in 1950–51, the Fed became less submissive and negotiations led to the Treasury–Federal Reserve Accord of 1951. In these negotiations, William McChesney Martin represented the Treasury. Once the negotiations were concluded, Martin was appointed Fed chairman so that, while the 1951 Accord recognized the Fed’s independence, the Fed was widely expected to abide by President Truman’s wishes for continued low interest rates. Instead, Martin’s inaugural statement painted

inflation as more threatening “than the spectacular aggressions of enemies outside our borders,” and the Fed immediately raised rates. Hetzel and Leach (2001), who describe how the Fed managed to reassert its independent basis of power in 1951, demonstrate that the Truman administration regarded these policies as a betrayal.

Martin’s hawkish stance on inflation remained in evidence for some time. At the FOMC meeting of July 30, 1957, for example, not all participants viewed “inflationary pressure” as the paramount problem. Those that did proposed raising the discount rate further from 3 to 3.5 percent, even though interest rates had been rising since early 1955. Martin noted that a discount rate increase might “create . . . difficulties . . . from the standpoint of relations with the Treasury.” He nonetheless added that “as far as he was concerned personally, he would want to assume the risk of being charged with precipitating a downturn rather than to take any action except one that was believed to be correct” (Minutes, July 30, 1957, p. 37–38). Discount rates were raised shortly after this meeting and, according to the dating by the National Bureau of Economic Research, a recession began in August 1957.

Barely a year later, even though the August 1958 level of the Consumer Price Index was actually 0.5 percent lower than in February 1958, some participants at the FOMC meeting of August 19, 1958, worried about the presence of an “inflation psychology.” Aside from a modest rise in long-term interest rates, the main source of this concern appears to have been the rapid growth of bank credit and money. Again, Martin agreed that “the System was dealing with . . . an inflationary psychosis as well as inflationary psychology.” Noting that the Treasury had not always done its part in fighting inflation, Martin added “that the System had to stand up and be counted in these things” (Minutes, August 19, 1958, p. 54). The Fed then embarked on a series of interest rate increases in 1958–59, and a new recession started in April 1960.

In this second case, the 12-month rate of inflation as measured by the Consumer Price Index never rose above 2 percent. The Fed was roundly and widely criticized by economists, with many examples on display during the Congressional hearings conducted by Wright Patman on the occasion of the Fed’s 50th anniversary (US House of Representatives 1964). Paul Samuelson complained about the “disastrously biased tight-money capers of 1956–60” (p. 50). Dudley Johnson opined “that we have been paying a very dear price in terms of foregone production and unemployment to fight a nonexistent inflation,” while Harry Johnson concurred saying that “in peacetime they have displayed a pronounced tendency to allow deflationary policies on the average” (p. 47). Milton Friedman testified, “Contrary to widely held views, the major mistakes of this kind in peacetime have all been in a deflationary direction” (p. 24).

While Martin refused to take responsibility for the downturns that Federal Reserve policy was widely perceived to have generated, he may nonetheless have been affected by this criticism, and this may explain why his commitment to fight inflation weakened. In September 1967, the Consumer Price Index had risen by 2.6 percent in the last year, the unemployment rate was considerably lower than

in August 1958, and the Fed had been lowering interest rates since November 1966. Some members of the Federal Open Market Committee had been expressing concern about inflation for several months. Martin recognized that “the simple logic of the economic situation implied the desirability of changing monetary policy” and then added, “[b]ut the overriding need at this point was to get some restraint from fiscal policy through a tax increase, and in his judgment that would be less likely if Congress came to believe that adequate restraint was being exercised by monetary policy” (FOMC Minutes, September 12, 1967, p. 78). As Bremner (2004, p. 237) notes in his biography, it was extraordinary for Martin to trust Congress to take the initiative against inflation. Nonetheless, monetary easing continued. In August 1968, when the 12-month inflation rate had climbed to 4.5 percent, Martin said that “the objective should be disinflation without recession” (FOMC Minutes, August 13, 1968, p. 81). The birth of the Great Inflation may thus be partly explicable by penitence over causing recessions earlier.

The Federal Open Market Committee did set a course for tighter monetary policy starting with the December 1968 meeting (Romer and Romer 1989). While Martin was absent from this meeting, he endorsed tight policy from then on. In the January 14, 1969, FOMC meeting, in particular, he said that “he thought monetary policy was now on the right track” and that, in his judgment, “it would be better to risk oversteering, rather than understating, a policy of restraint” (Minutes, January 14, 1969, p. 73). The rate of money growth fell substantially. In December 1969, Milton Friedman (1969, p. 75) called this policy “unduly restrictive” and predicted it would lead to a recession. Indeed, a recession would soon start in November 1969. A short while later, Friedman (1970, p. 68) expressed satisfaction that his “close friend and former teacher Arthur Burns” would become chairman of the Federal Reserve, and urged the Fed to “shift promptly to a less restrictive policy.”

The Flourishing of Inflation under Arthur Burns

Like many contemporaries, Arthur Burns was openly critical of the Fed actions that preceded the 1960 recession. Before taking office, he had written: “The abrupt shift in policy proved more restrictive than government officials planned or expected. Largely as a result of their actions, the economic expansion that started in April 1958 came to a premature end” (Burns 1969, pp. 284–85). Consistent with this, he was averse to creating recessions and told the Federal Open Market Committee in 1973 that “it was attempting to achieve an objective that had never been accomplished before—that of keeping the economy from developing an inflationary boom but without releasing forces of a new recession” (Memoranda of Discussion, March 20, 1973, p. 108).

Burns agreed with Friedman that the Fed needed to reduce the volatility of its own actions if it wanted to avoid unnecessary recessions. Friedman had testified, “The chief defect in Federal Reserve policy has been a tendency to go too far in one direction or the other, and then to be slow to recognize its mistake and correct it” (US House of Representatives 1964, p. 27). Echoing this sentiment,

Burns (1969, p. 284–85) had written before becoming chairman “we need to make necessary shifts of economic policy more promptly, so that they may be gradual instead of abrupt.”

Once Burns joined the Fed, his conviction that smooth changes in monetary policy were desirable appears to have had two implications. First, he seemed unwilling to react sharply to the inflation facing him. As he put it in his July 1974 testimony, “From a purely theoretical point of view, it would have been possible for monetary policy to offset the influence that lax fiscal policies and the special factors have exerted on the general level of prices. . . . But an effort to use harsh policies of monetary restraint to offset the exceptionally powerful inflationary forces of recent years would have caused serious financial disorder and dislocation” (US House of Representatives 1974, p. 257).

Second, Burns repeatedly expressed his intention to extinguish inflation over a number of years. His July 1974 testimony, for example, also said that “we shall need to stay with a moderately restrictive monetary policy long enough to let the fires of inflation burn themselves out. . . . We are determined to reduce, over time, the rate of monetary and credit expansion to a pace consistent with a stable price level” (US House of Representatives 1974, p. 253, 258). Similarly, in July 1977, Burns said: “We’ve enunciated a policy and repeated it on every occasion, namely, that we will gradually move our longer-range [money supply] targets down so that, several years from now, the monetary basis for general price stability may be restored. We’ve been proceeding slowly, perhaps too slowly, but that is a debatable point” (FOMC Transcript, July 19, 1977, p. 32).

However, certain apparent inconsistencies in Burns’s statements have allowed him to be characterized differently. In particular, Nelson (2005), DiCecio and Nelson (2013), and Romer and Romer (2013) have attributed Burns’s general failure to act against inflation to his conviction that the Fed was somewhat impotent. In a statement reflecting this conviction, Burns declared at the Federal Open Market Committee meeting of April 7, 1970, that “the inflation that was occurring—and that was now being accentuated, how far he could not say—was of the cost-push variety. That type of inflation, he believed, could not be dealt with successfully from the monetary side and it would be a great mistake to try to do so” (FOMC Memoranda of Discussion, April 7, 1970, p. 49). Some members of the FOMC strongly disagreed with this position.

Nonetheless, Burns continued to make statements of this sort, particularly in connection with his advocacy of administrative controls to prevent excessive increases in wages and prices. His July 1971 testimony, for example, stated: “In my judgment, and in the judgment of the Board as a whole, the present inflation in the midst of substantial unemployment poses a problem that traditional monetary and fiscal remedies cannot solve as quickly as the national interest demands. That is what has led me, on various occasions, to urge additional governmental actions involving wages and prices” (*Federal Reserve Bulletin*, August 1971, p. 662). According to Wells (1994, p. 72), this testimony was instrumental in pressuring a reluctant President Nixon to impose wage and price controls less than a month later.

When these wage and price controls were eventually lifted, inflation rose considerably, and the Fed became sufficiently concerned to raise interest rates to the point of causing the 1974 recession. Indeed, interest rates were increased even as this recession was in progress. As noted by Wells (1994, p. 136), Burns's July 1974 testimony alludes to the costs that a fight against inflation would impose, and this suggests he was aware at the time that he had temporarily departed from gradualism. In any event, the ensuing disinflation brought Burns a great deal of notoriety and prestige (Wells 1994, p. 178).

Alternative Sources of the Great Inflation

The Great Inflation of the 1970s has been attributed to a number of additional forces. Fed officials may, for example, have felt that they could not be tough on inflation for fear of the reactions in Congress and the Executive Branch (Burns 1979). What is certain is that Nixon pressured Burns to maintain a high rate of money growth on the eve of the 1972 election. On the other side, it is difficult to provide concrete evidence that political pressure for looser monetary policy had much effect (Mayer 1999, p. 64–82); after all, politicians sometimes were extremely critical of the Fed for having *caused inflation*.¹

Another view emphasizes the influence of the idea that a long-run downwards-sloping Phillips curve existed, so that higher inflation would bring down unemployment (Taylor 1992, p. 13; DeLong 1997). Analyses based on this idea were common among members of the Council of Economic Advisors in the 1960s (Romer and Romer 2002, p. 20). However, as far as I know, no one has found a Fed official arguing for higher inflation on the grounds that this would lower long-term unemployment. Indeed, several Fed officials went out of their way to distance themselves from this idea. For example, Martin testified in January 1963 that he thought the Phillips Curve was a “fallacy” (*Federal Reserve Bulletin*, February 1963, p. 124). Indeed, he suggested that the long-run relation between inflation and unemployment was actually upwards sloping when he said that low rates of unemployment “have been facilitated, and indeed made possible, by the absence of inflationary expectations on the part of both labor and management” (*Federal Reserve Bulletin*, December 1965, p. 1,678). Similarly, in the hearings conducted by Congressman Wright Patman in 1974 to pin the blame for inflation on the Fed (and thereby absolve budget deficits), Burns said the “so-called tradeoff between inflation and unemployment” was “quite misleading” (US House of Representatives 1974, p. 252). DiCecio and Nelson (2013) offer extensive additional evidence that Burns did not think a rise in inflation would lower unemployment.

¹ In a very interesting article, Weise (2012) shows that Federal Open Market Committee discussions were more likely to mention politicians who desired looser conditions in meetings in which the committee chose to loosen monetary policy. Note, however, that this correlation may reflect less the effect of outside pressure than the desire to present all the arguments that come to mind in favor of one's desired course of action.

Another literature seeking to explain the Great Inflation relies on imperfect information and learning by the Fed. In Sargent (1999), Primiceri (2006), and Carboni and Ellison (2009), the Fed acts as a rational decision maker that estimates the parameters governing the cost of disinflation, and inflation stops when these estimated parameters fall inside a particular region of parameter space. In Orphanides (2003) and Orphanides and Williams (2013), the Fed learns instead about the level of output or unemployment that is likely to trigger inflation. These last two variables do appear in Federal Open Market Committee discussions, whereas these discussions do not appear to involve the parameters governing the costs of disinflation (or even the relationship between future inflation and the variables chosen by the Fed). On the other hand, Bullard and Eusepi (2005) suggest that the post-1980 disinflation cannot be rationalized by a theoretical model in which the Fed learns about the level of output that triggers inflation.

Finally, an important contemporary explanation of the Great Inflation was that it was due to the use of a faulty operating procedure. The problem, according to Milton Friedman, was that the Fed targeted interest rates rather than targeting money growth directly. There clearly was some truth in this description of the Fed. In the Federal Open Market Committee meeting of March 16, 1976, for example, then-President of the New York Federal Reserve Paul Volcker said that “he favored . . . keeping the [federal funds] rate at about its current 4-3/4 per cent level or a little higher” and that “he would not want to see the funds rate move above 5 per cent at any time in the near future.” He would, thus “set relatively wide ranges for the aggregates for the March–April period—say, 3 to 8 per cent for M1 and 6 to 11 per cent for M2” (FOMC Memoranda of Discussion, p. 64).²

At the time, the Fed operated in a context in which money growth rates were very much in the public eye. Many individuals had testified at Congressman Wright Patman’s 1974 hearings that inflation was due to excessive money growth, and this had led Congress to pass a resolution in March 1975 requiring the Fed to publish its projections for money growth. Friedman (1975a) applauded this change on the ground that “the requirement that it state [money growth targets] publicly in advance and justify failure to achieve them makes it far more likely that they will be achieved.” However, the Fed consistently overshot its M2 upper limit from the fourth quarter of 1976 until the third quarter of 1977, at which point it consistently started overshooting its M1 upper limit. This pattern was intensely criticized as fueling inflation, which duly rose in the period.

Friedman’s (1975b) argued that the “anachronistic procedure” of targeting interest rates led to “self-reinforcing” errors in money growth rates. A mistake in which the Fed set the federal funds rate at a level that was too low would lead to high money growth rates and high inflation, which would itself tend to raise other market interest rates, thereby necessitating an even higher federal funds rate. An

² M1 and M2 are measures of the total money supply. While their definitions changed somewhat over time, M1 always included currency in circulation and most checking accounts, while it always excluded savings deposits and small time deposits, both of which were always included in M2.

alternative suggestion would have been to encourage the Fed to change its interest rate objectives more vigorously.³ However, Friedman argued that the Federal Open Market Committee should target the growth of reserves (or the monetary base) and let all interest rates be determined by the market.

The Abandonment of Interest Rate Stability

Upon becoming Fed Chairman in August 1979, Paul Volcker was not a gradualist. He seemed quite willing to bring about an immediate recession to lower inflation. At the Federal Open Market Committee meeting of March 18, 1980, Governor Frederick Schultz said: "I doubt that we can get out of this situation without a recession, and I think the unkindest thing we can do is to drag this on." Volcker followed this with: "I share the thoughts that some people have expressed, most recently Governor Schultz, that we better get this over with in terms of minimizing the total pain over a period of time" (Transcript, p. 35–36).

This sentiment may not have been shared by the entire Federal Open Market Committee. Indeed, at the September 18, 1979, FOMC meeting, Governors Charles Partee, Emmett Rice, and Nancy Teeters, as well as Boston Federal Reserve President Frank Morris and Philadelphia Federal Reserve President David Eastburn were sufficiently concerned about the possibility of a recession that they were reluctant to raise interest rates (Transcript, September 18, 1979, pp. 19, 24, 26, and 28). As suggested by Lindsey, Orphanides, and Rasche (2005), their reluctance may have led Volcker to suggest the widely publicized change in procedures that the FOMC discussed and adopted on October 6, 1979. This section discusses both the effects of these new procedures and the possible reasons leading FOMC members to use them.

The Effects of the October 1979 Procedures

At the Federal Open Market Committee meeting of October 6, 1979, the Committee started instructing its trading operation to assume a particular level of bank borrowing from the Fed and, on this basis, set a target for nonborrowed bank reserves that would keep the growth of money aggregates within the ranges that had been announced previously.⁴ At the same time, the Committee widened considerably the range of values that interest rates were allowed to take.

³ Mayer (1999, p. 45) and Clarida, Galí, and Gertler (2000) emphasize the weakness of the response of the federal funds rate to inflation and output in this period, and this is related to Friedman's complaint in his November 1975 statement that the Fed did not lower interest rates rapidly enough during the 1974 recession (US Senate, 1975, p. 38).

⁴ The procedures that the Fed adopted were not identical to those recommended by its critics. The focus on nonborrowed as opposed to total reserves or the monetary base was deemed by Allan Meltzer to lead to excessively volatile money growth (Rasche, Meltzer, Sternlight, and Axilrod 1982). Moreover, according to Friedman (1982), the requirement that banks hold reserves on the basis of their past (rather than their current) deposits also complicated the control of money. One reason the Fed may have settled on nonborrowed rather than total reserves might have been to stabilize interest rates somewhat.

Figure 1 shows that interest rates did become substantially more volatile after these procedures were instituted. The average of the absolute value of monthly changes in the federal funds rate from October 1979 to November 1980 was 145 basis points. For the twelve monthly changes from September 1978 to October 1979, it had been only 42 basis points. More generally, the volatility of interest rates immediately after October 1979 was both historically unprecedented and contrary to a key goal of the founding of the Federal Reserve (Strong 1922 [1989]). Consistent with that goal, the creation of the Fed had stabilized seasonal fluctuations in interest rates (Mankiw, Miron, and Weil 1987).

The procedures also had a mixed record in terms of keeping money growth rates within their announced ranges. In the period between October 6, 1979, and the Federal Open Market Committee meeting of January 8, 1980, money growth rates were close enough to their targets that Governor Partee considered the procedures to have been a “successful experiment” in the latter meeting (Transcript, p. 14). On the other hand, monthly money growth rates proved quite volatile under the new procedures (McCallum 1985). The standard deviation of monthly M1 growth rates was 9.3 percent from November 1979 to November 1981, whereas it had been only 4.6 percent from September 1977 to September 1979 inclusive.⁵ Not surprisingly, Volcker complained that “we got criticized by the bankers when they were here the other day for having too much volatility in the money supply growth and too much volatility in interest rates” (Transcript, September 16, 1980, p. 9).

Moreover, there were long periods in which money growth exceeded its official target. In particular, the growth in M1 equaled 11 percent in the 11 months from May 1980 to April 1981, and this led the Fed to be severely criticized by some Reagan administration officials (Greider 1987, p. 378). One potential reason for this growth was that money market mutual funds and checking accounts that paid interest (NOW accounts) grew in this period. Financial innovation of this sort led Governor Morris to exclaim, “we simply don’t have any basis for measuring what transactions balances are anymore” (FOMC Transcript, July 7, 1981, p. 24).

These failures to meet money targets should not be taken to mean that the procedures failed to have an effect on policy. Perhaps the most telling evidence that they mattered is that Volcker complained about their role in the October 5, 1982, meeting in which these procedures were at least partially jettisoned. Volcker was unhappy at the interest rate that had resulted from the previous meeting’s decision concerning nonborrowed reserves and said: “What we did last time was unacceptable to me. I just want to make that plain. I think we made a mistake last time . . . [I]t’s unfortunate that we ended up at this meeting with the federal funds rate and private rates about 1 percentage point higher than they were at the time of the last

⁵ These figures and those below are based on current measures of seasonally adjusted M1. In December 1980, before all these data became available, two Federal Reserve economists presented a paper at the AEA annual meetings saying that money growth over longer periods of time was close to its targets under the new procedures (Axilrod and Lindsey 1981).

meeting because we had a high M1 figure in September. That was the only reason it happened" (FOMC Transcript, October 5, 1982, p. 32).

Rationales for the October 1979 Procedures

I start with the rationales that were given when the October 1979 procedures were first instituted and then discuss the reasons why they remained in place even after they had quite clearly failed to stabilize money growth. Volcker seemed an unlikely champion for these new procedures because he had stated, for example in a 1978 *Journal of Monetary Economics* article, that the demand for money was sufficiently unstable in both the short run and the long run that fixing money growth rates would lead to undesirable movements in interest rates. In Volcker (1978), he also seemed somewhat uncertain of the Fed's ability to hit its money growth targets by setting the level of reserves.

Nonetheless, Volcker gave an argument for these procedures in October 1979, namely that their announcement would lower inflation expectations. As he explained in Greider (1987, p. 111), "What I hoped was that there would be a strong reaction in the markets. . . . The sign of psychological success was whether long-term rates would stabilize and start coming down." This did not happen right away; long-term rates rose alongside short-term rates immediately after the October 1979 announcement.

Meltzer (2009, pp. 1040, 1064, 1075, and 1093) suggests that, more generally, the 1979 procedures had only a modest effect on inflation expectations, and that these fell mainly when economic activity slowed. After the procedures had been operating for a year, Volcker himself seemed to doubt that they mattered for inflation expectations. In December 1980, he said "If we, in effect, go to the brink or let some of these things happen that we have not allowed to happen during the entire postwar period, people are not expecting that and they are not going to be very happy if and when it happens. And I'm not at all sure that we can change inflationary expectations without it happening" (FOMC Transcript, December 19, 1980, p. 62).

Governor Partee's initial support may have been based in part on his view during the September 1979 meeting: "I think it's important, very important, that we try to keep the aggregates within the ranges that we specify" (FOMC Transcript, September 18, 1979, p. 26). Partee recalled a different reason for his approval in his interview in Greider (1987, p. 112). There, he declared that the new procedures dealt with the Fed's past tendency of sticking "stubbornly with a strong position too long and causing more damage to the economy than it had intended" and that in recessions, particularly in the 1974–75 recession "there [was] also a hesitancy to reduce interest rates once they have been raised." As it happens, this hesitancy to lower rates may have had some benefits. While interest rates rose substantially when the new procedures were instituted, the decline in rates when the 1980 recession started was so dramatic that the recession was over almost immediately, and the reduction in inflation to acceptable levels had to wait until the arrival of the 1981–82 recession. Partee did not mention any concern he might have had with "sticking stubbornly" to the 1979 procedures themselves if velocity shifted. Such velocity shifts did, in fact, eventually lead to difficulties with the procedures.

As the procedures were being abandoned, two arguments for keeping them became prominent. The first was that the procedures provided “political shelter” for raising rates to fight inflation (FOMC Transcript, February 8–9, 1983, p. 24, 26, 29, and 30). The procedures may have diminished the criticism of the Fed, but they certainly did not eliminate it. Indeed, the high rates of interest of 1982 had led to a strong movement in Congress to reduce the Fed’s independence (Greider 1987, p. 474).

A second argument for keeping the procedures intact was made at the October 5, 1982, meeting in which the Federal Open Market Committee decided to announce that it would pay less attention to M1. Federal Reserve of St. Louis President Lawrence Roos, an ardent supporter of monetary targets, argued that reducing the official importance of the growth rate of M1 would imperil the Fed’s credibility and would be “misconstrued by the markets” (FOMC Transcript, October 5, 1982, p. 48). In fact, the reduction in short-term interest rates that followed this meeting was accompanied by a reduction in long-term rates.

It would seem, then, that the arguments that were given for initiating and maintaining these procedures were not very strong. This suggests another possibility, namely that these procedures embodied a form of penitence for the pre-1979 procedures, which critics had successfully associated with the Great Inflation. Roos emphasized this association at the October 5, 1982, Federal Open Market Committee meeting when he argued that the high interest rates that prevailed at the time were the ultimate consequence of “irresponsible monetary policies throughout the world” and to “a well-meant effort on the part of the Federal Open Market Committee . . . to try to do just what we’re doing today, and that is to lean against interest rate movements. I think that contributed in a major way to inflation” (Transcript, October 5, 1982, p. 48).

Extreme concern with the possibility of uncontrolled money growth if interest rates were stabilized even at very high levels was also on display at the earlier meeting of July 1, 1982, when Partee noted that he seemed “to have shocked quite a number of people with my suggestion that we ought to put a cap on the funds rate.” He had proposed that the federal funds rate should not be allowed to rise above 15 percent. Since the rate that day was equal to 14.73 percent, this cap was perceived as being potentially binding. At the same time, the unemployment rate was 9.8 percent and the growth rate in the Consumer Price Index over the last 12 months had been 6.5 percent, so a 15 percent federal funds rate would have been likely to be associated with a high real interest rate. This led Partee to argue that this “would give us an upper limit that is not unreasonable.”

Nonetheless, Partee was asked by Governor Henry Wallich, in apparent disbelief, “But if it got there, we would provide unlimited reserves?” and by Roos “how would that differ from the pre-1979 practices of our Committee?” When Partee answered it would be “similar on the top side,” Federal Reserve Bank of Atlanta President William Ford said “Are you implying that there wasn’t a change in October ’79? If I understood you, you said it would be similar to pre-October ’79—that there is precedent for it” (FOMC Transcript, July 1, 1982, p. 55). One reason for the aversion to returning to the pre-October 1979 may have been that, as Volcker and others

suggested, some members of the Federal Open Market Committee may have been afraid of losing their “self-discipline” if they were not constrained by “rules” (FOMC Transcript, December 21, 1982, p. 29, 38, and 43).

The “Great Moderation”

Once the procedures of targeting monetary aggregates were abandoned, interest rates came down and the Volcker disinflation was widely seen as a success. What followed was a period of low inflation and stable output growth that came to be referred to as the Great Moderation. This period involved a variety of gradual changes both in the way that policy was discussed inside the Federal Open Market Committee and in the way the Fed communicated with the public. This raises the possibility that the Fed’s capacity to adapt its approach to changing circumstances is enhanced when it can claim credit for some successes.

The Fed changed its approach incrementally along several dimensions, beginning with the way the Federal Open Market Committee dealt with interest rates. At the December 1982 meeting of the FOMC, Paul Volcker made it clear that he wanted interest rates to be more stable than in the past (Transcript, December 21, 1982, p. 42). However, discussions at the FOMC meetings continued to emphasize the quantity of discount window borrowing for a considerable period after October 1982. Also, discount window borrowing remained central in the policy options laid out in the “Bluebook” that members received before the meeting. Different options involved different assumptions regarding the amount that banks would borrow from the Federal Reserve. On the grounds that it was trying to stabilize total money growth, the Federal Reserve System would supply fewer nonborrowed reserves if it assumed that the amount borrowed was larger—and nonborrowed reserves were the intermediate target for managing the aggregate money supply under the October 1979 procedures. On its own, a smaller supply of nonborrowed reserves would be expected to raise overnight federal funds interest rates. These higher market interest rates would create an incentive for banks to borrow from the Fed (at an unchanged discount rate), so that actual borrowing could be expected to be higher as well. To some extent, then, a higher assumed level of bank borrowing would tend to raise actual borrowing.

One has to wait until October 1989 to find a Bluebook that lays out policy alternatives in terms of levels of the federal funds rate and *expected* levels of borrowings rather than doing the reverse (that is, offering alternative assumptions about borrowing combined with implications for *expected* federal funds rates). Even at the October 1989 meeting, some members preferred to discuss policy in terms of borrowing. As time went on, this focus ceased, and the federal funds rate became the focus of discussion.⁶ This is not to say that Fed chairmen were not targeting

⁶ Thornton’s (2006) quantitative evidence confirms this gradualism. He shows that the average distance of the federal funds rate from his constructed target was smaller after 1989, when it was still somewhat larger than it had been before 1979.

the federal funds rate much earlier. Indeed, as Thornton (2006) documents, some Federal Open Market Committee members openly suspected Volcker of doing so as early as 1983.

Unlike what happened in October 1979, the public was not told that a change in the conduct of monetary policy had taken place. No target for the federal funds rate was announced throughout the 1980s or into the early 1990s. Rather, just as had been true since 1983, the press releases continued to suggest that the federal funds rate would remain within a 4 percent range until the next meeting. Meanwhile, the Fed continued to publish its expected ranges for the growth in monetary aggregates, though it softened its commitment to these ranges.

Even in February 1993, many members of the Federal Open Market Committee expressed apprehension about releasing their federal funds target (Transcript, February 2, 1993, p. 62–67). But by then, movements in velocity of M1 and M2 had become so large that the Fed's plans regarding the growth in these aggregates were not very informative. After this point, its statements started explaining the federal funds rate changes that the FOMC had instituted in the past. Still, as late as March 1997, when FOMC members voted to raise the federal funds rate from 5.25 to 5.5 percent, the public minutes only commented on the past rate of 5.25 percent. This lack of transparency would finally end in August 1997, when the intended federal funds rates started to be published in the official minutes, although this was accompanied by a statement that the operating procedures of the Fed would not change. After this, the Fed gradually expanded the amount of information it released about its intentions concerning future policy (Woodford 2005). The Fed managed to stop supplying any monetary targets whatsoever when the legislation requiring these expired in 2000.

One of the most striking aspects of US monetary policy in this period is that the simple “rule” proposed by Taylor (1993)—in which the suggested federal funds rate is a function of inflation (as measured by the Consumer Price Index) over the last year and of the distance between current real GDP and trend GDP—leads to a federal funds rate that is remarkably close to the actual one for the period 1987 to 2000. This too was the result of a gradual evolution. Even though the correspondence is weaker before 1987, the relatively fast rise in the federal funds rate in 1983 and early 1984, as well as its subsequent decline were consistent with the Taylor rule. As Kahn (2012) demonstrates, discussion of the implications of variants of the Taylor rule for the federal funds rate quickly became part of the fabric of meetings of the Federal Open Market Committee. Nonetheless, the FOMC drifted towards applying the coefficients of the Taylor rule to their anticipations of future values of inflation rather than to the past values (FOMC Transcript, January 27, 2004, p. 76).

Conclusion

This paper has suggested that some of the changes in the Fed's approach to monetary policy are consistent with a form of penitence, where this penitence is the

end result of a three-step process. First, there are some deplorable economic results such as those in the initial 1930 downturn, the full Great Depression, the recessions of 1957 and 1960, or the Great Inflation. Second, critics attribute these results to patterns of Fed behavior that are interpreted as having been mistaken. Third, the Fed acts as if it implicitly accepted one of these criticisms and becomes averse to the criticized pattern of behavior. It is possible to view this form of penitence as helping the Fed perfect its approach to monetary policy. Particularly if one agrees with the critics, this penitence would represent a form of learning: it leads the Fed not to repeat mistakes.

Without further evidence, however, it seems premature to view this form of penitence as involving an accumulation of knowledge of the form one typically associates with learning. To see this, it is sufficient to imagine a two-state system that toggles from one state to the other whenever something bad happens outside the system. Such a system responds to poor outcomes, but is essentially devoid of historical information at all times.

The Fed has access to a rich menu of policy approaches, and one role of outsiders is to help devise new ones. Still, there are two aspects of the Fed's evolution that seem somewhat similar to the two-state system I just described, and which raise concerns over the extent to which the Fed's response to bad outcomes involves the accretion of knowledge. First, many of the changes in Fed behavior that follow such outcomes seem later to be reversed. In particular, the Fed both gained and lost its aversion to stabilizing interest rates, as well as its aversion to inducing recessions in response to inflation. Second, some knowledge seems to be lost when the Fed develops a new aversion. Entire topics can practically vanish from the discussions of the Federal Open Market Committee. As an example, the FOMC meeting of January 26, 1960, contained a remark by President of the Richmond Federal Reserve Hugh Leach in which he based his assessment of the tightness of monetary policy on the evolution of "loans to build up inventories" (Minutes, p. 20). Information of this sort stopped being incorporated into policy discussions when the Fed reduced its attention to the asset composition of bank balance sheets.

Even if one believes that the changes in approach triggered by poor outcomes have led to only limited accretions in Fed knowledge, the Fed may have accumulated a great deal of information at other times. During the Great Moderation, for example, the Fed appears to have gradually learned to stabilize interest rates to an ever-greater extent.

So how might the Fed's knowledge and approach evolve in response to the financial crisis of 2007? As was the case with previous bad outcomes, critics who blame this crisis on Fed mistakes do not speak with a single voice. Fleckenstein (2008) argues that the Fed started being prone to generate asset bubbles by having low interest rates as far back as 1987, when it lowered rates in response to a stock market crash. By contrast, Taylor (2012) applauds the Fed's approach from 1987 to 2003, and singles out for criticism the post-2003 period in which the Fed set interest rates below those implied by a backward-looking Taylor rule.

If such criticisms became accepted by the Fed to some extent, they could lead to dramatic changes in the Fed's approach by creating new aversions. The

Fed could, for example, seek to tamp down any potential increase in asset prices that it regarded as a “bubble,” though it seems likely that such an approach would quickly lead the Fed to be criticized for causing unnecessary losses in output. Acceptance by the Fed that it had mistakenly kept interest rates too low starting around 2003 could result in different aversions. If a consensus developed that the Fed’s mistake was to abandon a Taylor rule based on past values for one based on Fed projections, the Fed could become averse to using its forecasts in setting policy, at least for a time.

Another move that could come to be seen as an error is the Fed’s policy of announcing its expectations concerning future policy actions. At the December 9, 2003, meeting of the Federal Open Market Committee, Governor Donald Kohn said “policy is quite easy, quite stimulative” and nonetheless recommended that the Fed “continue to take [its] risks on the easy side of policy.” At the same time, he worried about the FOMC’s “flexibility” to raise rates given that its August 2003 statement had said “that policy accommodation can be maintained for a considerable period” (FOMC Transcript, December 9, 2003, p. 67). This raises the possibility that Kohn felt trapped into keeping interest rates low to honor the Fed’s implicit promise to do so. Thus, there is the possibility that the Fed’s use of “forward guidance” concerning its future policies could come to be seen as a mistake. Consistent with penitence, the Fed might decide in the future to steer clear of communicating in a way that seeks to affect expectations of future policy.

Papers in the volume *Is Inflation Targeting Dead?* (Reichlin and Baldwin 2013) propose more gradual changes that would not require the development of an aversion to past Fed practices. As discussed earlier, one possibility along these lines would be to return partially to the pre-1963 view that monetary policy ought to respond to the quality of assets held by institutions with monetary liabilities (Stein 2013). More gradual changes may prove less prone to reversals, and this would constitute an advantage. To institute such gradual changes, more radical changes may need to be held at bay. To successfully counter arguments for more radical change it might help to understand how, in the past, critics often succeeded in championing the abandonment of practices that, eventually, came to be seen as beneficial once again.

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