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When Tight Is Too Tight: The Federal Reserve's Response to the Post–World War II Spike in Inflation

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Summary:

With the end of World War II, the massive expansion of defense spending came to a halt, and the money supply financing it quickly stabilized. However, the real money supply declined further with the transitory inflationary upswing of 1946–47, which fueled deflationary expectations, passively pushing up real interest rates and triggering the 1949 recession. We compare the Fed's current stance to this historical episode, concluding that the ongoing tightening is already sufficient to normalize monetary conditions to prepandemic trends. This article also discusses how fiscal policy might affect "neutral" interest rates in this context.

Key findings:

1. After World War II, the US economy faced a sharp but temporary rise in inflation. Subsequent actions by the Federal Reserve led to an excessive tightening of financial conditions. This was a decisive factor in the ensuing recession of 1949.

2. The real money supply has now returned to prepandemic trends, potentially raising concerns of further tightening. In this context, increasing policy rates might fuel disinflationary expectations, passively raising real interest rates further.

3. This *Policy Hub* article also highlights the important interactions between fiscal and monetary policy. Government deficits during World War II quickly turned into surpluses. Deficits are now expected to continue to rise. Once the Fed begins to normalize policy, the new level of neutral interest rates might be higher than before the pandemic.

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Introduction

"[A] favorite theory of mine [is] that no occurrence is sole and solitary, but is merely a repetition of a thing which has happened before, and perhaps often."

—Mark Twain

This article expands on a *Policy Hub* article written in early 2021. That previous *Policy Hub* article highlighted the surge in inflation following WWII in 1946 and drew lessons for the economy's post-COVID reopening in early 2021. This article explains how the Fed reacted to the inflation surge of 1946 and the consequences of its actions for real economic activity. With inflation coming down and the Fed debating its future course of action, reviewing this historical episode is informative. Following a surge in government spending, both episodes saw a large increase in the money supply as well as a subsequent spike in the rate of inflation. During World War II, the Federal Reserve held long-term interest rates constant at 2.5 percent and continued to do so long after hostilities ceased. During the war, the huge federal deficits necessary to support wartime operations forced the Fed to monetize large amounts of debt to keep interest rates at this target level. Conversely, the huge deficits turned into record surpluses after the end of the war, pushing the neutral interest rate below the 2.5 percent Fed target. As a result, monetary policy became restrictive, reducing the growth of the money supply. Inflation began to fall, and inflation expectations turned negative, triggering a deflationary spiral that resulted in higher *real* interest rates. All these actions culminated in a recession in 1949. Below, we analyze this episode in detail while highlighting some similarities to, and differences from, the current situation.

WWII and COVID-19

At the beginning of 2021, when our previous *Policy Hub* was written, US inflation was 2 percent, and inflation expectations were well anchored close to the Federal Open Market Committee (FOMC)'s target rate of 2 percent. However, behind this apparent tranquility were some important developments on the fiscal and monetary fronts. After growing at a steady 5 percent annual pace for more than three decades, the money supply rapidly increased at a rate of 25 percent in early 2021, reflecting unprecedented fiscal support built on successive rounds of pandemic aid and stimulus packages. In this context, the mainstream forecasting models built during the so-called "Great Moderation" did not seem well suited to assess the massive shocks created by the COVID-19 pandemic.

At the time, we looked at comparable periods in history to drew lessons and highlight the striking similarities between the COVID-19 pandemic and World War II economic impacts. During and after WWII:

> (A) The debt-to-GDP ratio rose from 41 percent to 103 percent as a result of the war effort. The Fed—aiming to keep short- and long-term rates low—monetized most of the federal debt.

(B) The rearmament effort resulted in a booming economy with abundant jobs and profits during the war. But the increased disposable income could not be spent since factories stopped producing consumer durables and focused almost exclusively on weapons. In addition, food was severely rationed, and residential construction was effectively banned. As a result, households accumulated savings during the hostilities.

(C) The end of the war resulted in a release of pent-up demand by households. However, significant supply bottlenecks affected the transition from a war-driven to a consumption-driven economy.

During the pandemic:

(A) The debt-to-GDP ratio rose at a similar rate, although over a shorter length of time, from 79 percent to 100 percent. Again, the Fed primarily financed the federal debt, this time through the process of quantitative easing.

(B) Several rounds of stimulus boosted savings, while severe restrictions on mobility limited consumption.

(C) Pandemic restrictions in the United States resulted in pent-up demand and households eager to spend. However, as restrictions eased, significant supply bottlenecks—both global and local—took time to loosen.

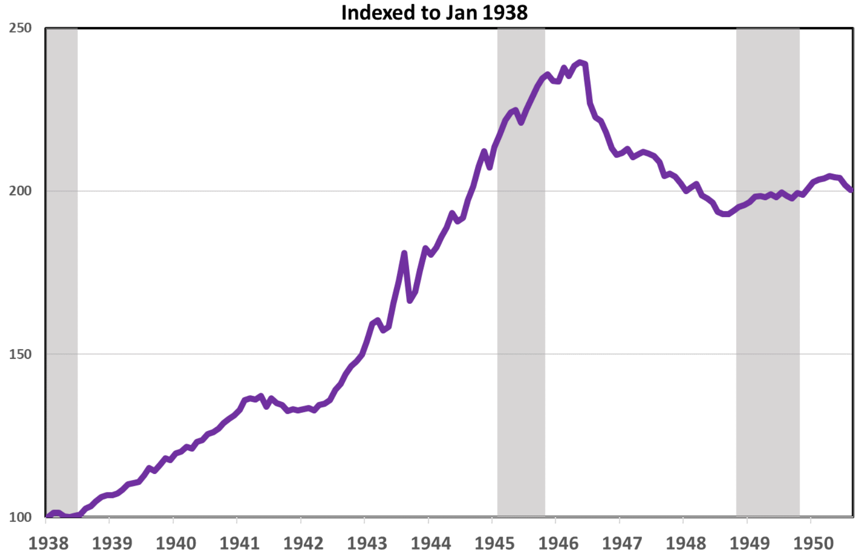
The initial inflation experiences of these two episodes are remarkable similar. Inflation jumped from 2 percent to 20 percent in 1946, while rising from 2 percent to 9 percent after 2021, reflecting a fiscal impulse that was roughly a third the size of that experienced during World War II. In our previous article we emphasized that the inflationary impulse after WWII was largely transitory, returning to 2 percent after two years, in 1948. Correspondingly, inflation has declined since 2022 and is now sitting at around a 3 percent annual rate. It is a good time to revisit the WWII historical episode. And, as suggested in the above Mark Twain quotation, the similarities do not end there. For example, following WWII the Fed was also criticized for being too slow to respond to inflation. Let's now take a closer look at the WW II episode.

The US Economy during WWII

In April 1942, the FOMC implemented a de facto yield curve control policy by fixing yields on Treasury bonds at various maturities: 0.375 percent for a three-month maturity, 0.875 percent for a 13-month maturity, and 2.5 percent for long-term maturities. At the same time, the US Treasury was issuing an increasing amount of bonds to fund expenditures associated with the war effort. The Fed was, therefore, forced to buy most of the newly issued bonds so that they would not affect bond prices (which are inversely related to interest rates). As a result of financing this massive increase in government spending, the money supply doubled approximately.

When the war ended, budget deficits turned into surpluses. The federal deficit, which represented 21 percent of GDP in 1945, was balanced by 1946 and became a 4.3 percent surplus in 1948 (which is the largest surplus recorded since then). Despite the rapid reversal of the government deficit, the money supply continued to significantly increase until 1946 (see figure 1). Two factors account for this continued growth. The first was an increase in private money. As the war ended, households felt safe depositing their cash in commercial banks, thus opening the door to credit expansion though the standard textbook bank-money multiplier. The second factor was that the very large pent-up demand for US goods by foreigners resulted in a huge inflow of gold, which—under the rules of the Breton Woods agreement—was matched by an increase in the monetary base. Not only were many goods not available to foreigners during the war—hence the pent-up demand—but many manufacturing facilities around the world had been destroyed.

Figure 1: Inflation Adjusted Money Supply Indexed to Jan 1938



Source: *NBER Macrohistory Database*

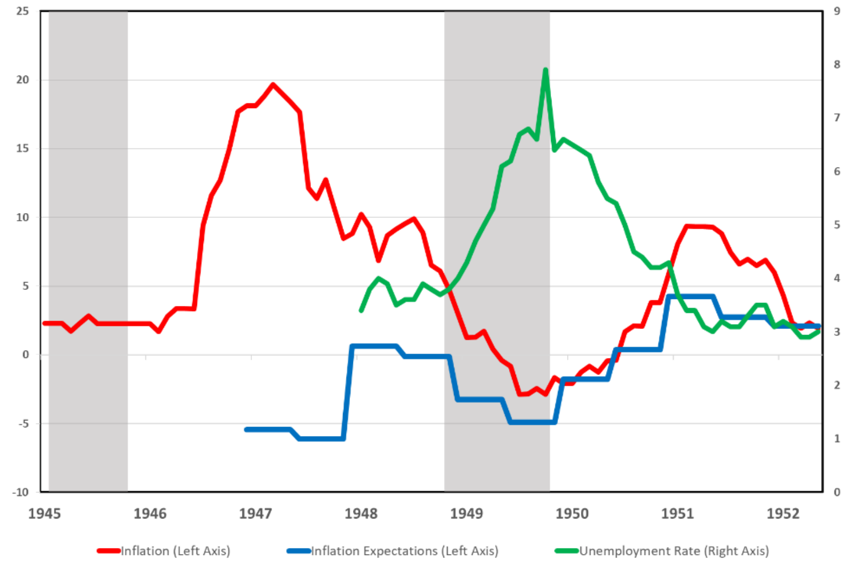
The Fed maintained its yield curve control policy in the postwar years in the face of double-digit inflation and loosening monetary conditions. Federal Reserve officials expressed great concern about inflation and repeatedly requested Congress for additional powers (which we discuss below) that would allow them to make monetary policy independent of Treasury's debt-management objectives. These powers were granted in 1951, but in late 1947 the only policy tool available to the Fed was to increase bank reserve requirements.

Given this loose monetary policy stance, it is puzzling why there was a monetary squeeze during late 1947–50 (see figure 2). One reason for the decline in the money supply was the elimination of the temporary factors that drove the outsized money supply growth in the first place. For example, the demand-driven inflows of gold were now offset by large capital exports in the form of loans and aid (for example, the Marshall Plan, the establishment of the World Bank, and US loans to other countries). These circumstances, in turn, implied that the increase in deposits was largely a one-time event whose reversal came quickly. More important, however, were the roles played by changes in fiscal policy and inflation expectations. In a 1963 book, Milton Friedman and Anna Jacobson Schwartz argued, only a massive increase in money creation during the war could sustain a 2.5 percent parity for long-term debt in the face of large government deficits. However, when fiscal deficits turned into surpluses, the pegged interest rate was *higher* than what was needed to keep the money stock constant. In fact, the long-term interest rate fell to 2.26 percent by the end of 1947, a decline that forced the Fed to sell Treasury bonds, and reduce the money supply, to raise the long-term rate to 2.45 percent (close to target).

Inflation expectations as measured by the Livingston Survey (conducted by the Philadelphia Fed since 1946) also shifted during this period. As figure 2 illustrates, while inflation was approaching 20 percent (the red line) in 1946, economic agents expected 5 percent *deflation* a year ahead (the blue line). At least two factors were behind this shift. First, the public was increasingly pessimistic about the US economy. Many believed that after the war, the boom economy would revert to the Great Depression economy. Second, World War I was immediately followed by a deep recession and an unprecedented deflation in the early 1920s, and more of the same was expected.

Inflation expectations were revised upward after the high inflation following 1946, eventually turning positive. However, this proved to be only temporary. When inflation returned to single digits amid tight money, agents' inflation expectations once again deteriorated rapidly. The deflationary spiral deepened, and in 1949 the economy fell into recession, with the unemployment rate doubling from 4 percent to 8 percent. Despite these developments, the Federal Reserve continued to conduct open market operations to maintain the 2.5 percent target interest rate. But in late June 1949, the Federal Reserve announced that open market operations would henceforth be conducted "with primary regard to the general business and credit situation," as real economy activity was declining. For many policy makers, deflation was a welcome change from the period of very high inflation, so the Fed's action was somewhat timid despite the deepening deflationary spiral.

Figure 2: Post-WWII Recession—Economic Activity



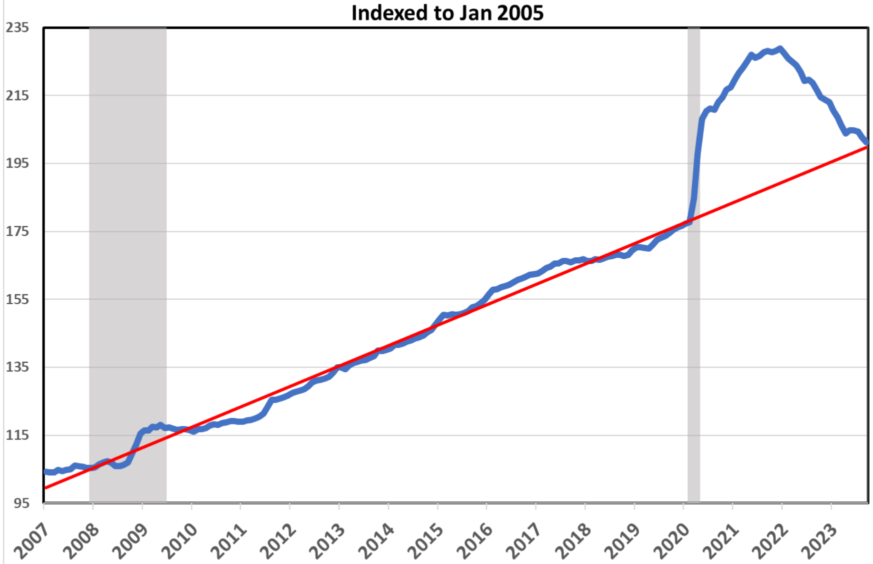
Source: *Livingston Survey retrieved from Philadelphia Fed, Bureau of Labor Statistics*

The recession turned out to be mild and short-lived because of the outbreak of the Korean War in June 1950. At that time and immediately thereafter, aggregate demand soared since households expected rationing, supply restrictions, and higher prices—just as they experienced at the start of World War II—and rushed to buy and hoard goods. The pickup in inflation was enough to break out of the deflationary spiral, with inflation jumping to almost 5 percent. But this was short-lived due to the 1951 Treasury-Federal Reserve accord. President Truman summoned the entire Federal Open Market Committee to the White House in late January 1951 to urge them to commit to keeping yields low during the Korean conflict. But in the face of rising inflation, the Fed refused to keep interest rates low and monetize the debt. A heated debate ensued, leading to a rapid deterioration in bond markets. Eventually, Fed and Treasury officials agreed to decouple monetary policy from debt management, and increased tax revenues resulted in a balanced budget during the hostilities. In the next section, we look at factors contributing to the current and future economy.

Current Developments

One key feature of the postpandemic economy is the behavior of the real (that is, inflation-adjusted) money supply, shown in figure 3. Since the 2007–08 Great Financial Crisis, real money was growing at a steady rate. The pandemic fiscal spending led to a sharp increase in real money balances in March 2020 as the Fed monetized roughly $5 trillion in stimulus spending while holding the policy rate near zero. The subsequent plateau (in late 2021) and notable decrease (after 2022) in the real money supply were the result of two factors. First, the "long and variable lags of money supply" (as Milton Friedman put it) resulted in an inflationary spike about a year after the increase in money aggregates, consistent with the empirical literature studying these lags. Such an increase in inflation eroded the *real* value of the existing stock of money. Second, the Fed's subsequent tightening via increases in fed fund rates led to an unprecedented decrease in the *nominal* money supply. In other words, first money became less valuable, and then liquidity was taken out of the system. After this, we conjecture that the current real money balance will return to its post–Great Recession trend. If this supposition is correct, it would indicate that monetary conditions might not need to be further tightened, especially given that inflation expectations have remained well-anchored around 2 percent. In addition, if inflation continues to decline to the FOMC's 2 percent target level, then holding the policy rate constant might effectively tighten monetary policy, as real short-term interest rates will increase.

Figure 3: Inflation-Adjusted Money Supply (M2)
Indexed to Jan 2005



Source: *Federal Reserve Board of Governors*

Looking Ahead

When inflation returns to its target, the stance of monetary policy can be "normalized." In the recent past, when inflation was at its target, the federal funds rate would be set at around 2.5 percent (which equals a 2 percent expected inflation plus a 0.5 percent "neutral" real rate). But what "normalized" means today is subject to debate. As our discussion in this article shows, we saw that fiscal considerations can affect the real rate. The end of WWII brought a fiscal surplus, which put downward pressure on rates. But we are in a different situation today than we were after the end of WWII: we are now facing significant fiscal deficits. In a 2009 article, Thomas Laubach notes that a 1 percentage point increase in the expected deficit-to-GDP ratio leads to a 20 to 30 basis point increase at the longer end of the yield curve. In turn, a 1 percentage point increase in the expected debt-to-GDP ratio leads to a 3 to 4 basis point increase in these yields. The federal budget deficit, as a percentage of GDP, now stands at 5.8 percent, compared to 2.4 percent in 2015. The Congressional Budget Office expects these budgets deficits to rise to 10 percent of GDP over the next two decades. Holding all else constant, the expected increase of the federal deficit would put upward pressure on interest rates, implying that the natural rate and real rate of interest should increase, and a "normalized" monetary policy could be associated with a fed funds rate higher than 2.5 percent.

Taking Stock

The post–World War II experience provides us with a number of important insights. First, excessive tightening poses economic risks even when the policy rate doesn't change. In the case of the postwar economy, monetary policy passively became very contractionary when the war-driven fiscal deficits turned into surpluses after the war ended—despite the fact that the Federal Reserve did not raise its policy rate. Second, agents' inflation expectations play an important role, as illustrated when they turned negative in 1949 and fueled a deflationary episode that culminated in a recession. Third, important interactions occur between fiscal and monetary policies. Federal debt held by the public was about 35 percent of GDP before the 2008 financial crisis. It now stands at almost 100 percent and is expected to rise to 118 percent over the next 10 years, according to the Congressional Budget Office (which assumes that average interest rates will remain at or below 3.2 percent over this period). The growing fiscal footprint could push "neutral" interest rates higher.