Economic Bulletin

Despite High Inflation, Longer-Term Inflation Expectations Remain Well Anchored

by: Brent Bundick and A. Lee Smith

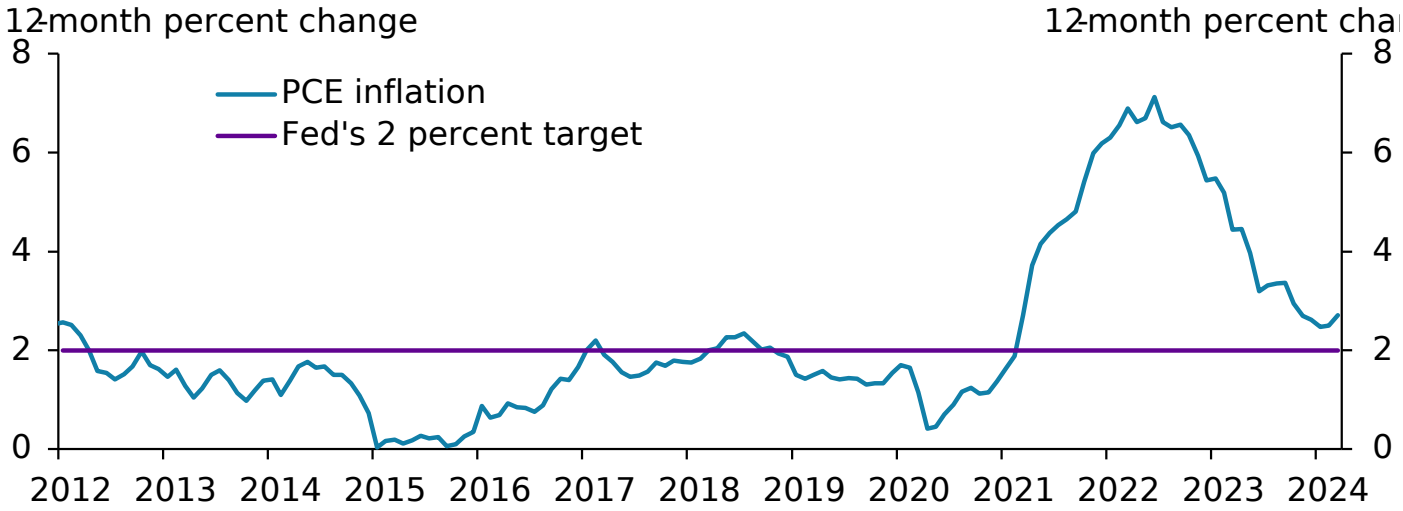
May 31, 2024

The Federal Reserve's long-run 2 percent inflation target is intended to prevent periods of high inflation from becoming embedded in longer-term inflation expectations. However, inflation has remained above the Fed's target for over three years, increasing the risk that longer-term inflation expectations could become unanchored. Building on our previous research, we study recent market reactions to inflation news and find that longer-term inflation expectations appear to remain well anchored.

Where individuals expect inflation to settle over the longer run has substantial influence on how firms set prices and workers negotiate their wages. For this reason, maintaining stable longer-term inflation expectations is critical to ensure periods of high inflation do not become embedded in price- and wage-setting behaviors. One tool the Federal Reserve uses to manage inflation expectations is a numerical inflation target of 2 percent. For the past three years, however, inflation has remained stubbornly higher than the Federal Reserve's longer-run 2 percent inflation target. Persistently above-target inflation increases the risk that longer-term inflation expectations could become "unanchored" and drift higher.

The recent surge in inflation has been the most significant deviation from the Fed's 2 percent target since the target was adopted in 2012. Chart 1 shows that after years of low and stable inflation, prices surged in the aftermath of the pandemic, rising above 2 percent in March of 2021. In the summer of 2022, inflation crested at more than 7 percent as shocks from the pandemic and policy response were compounded by a spike in commodity prices when Russia invaded Ukraine.

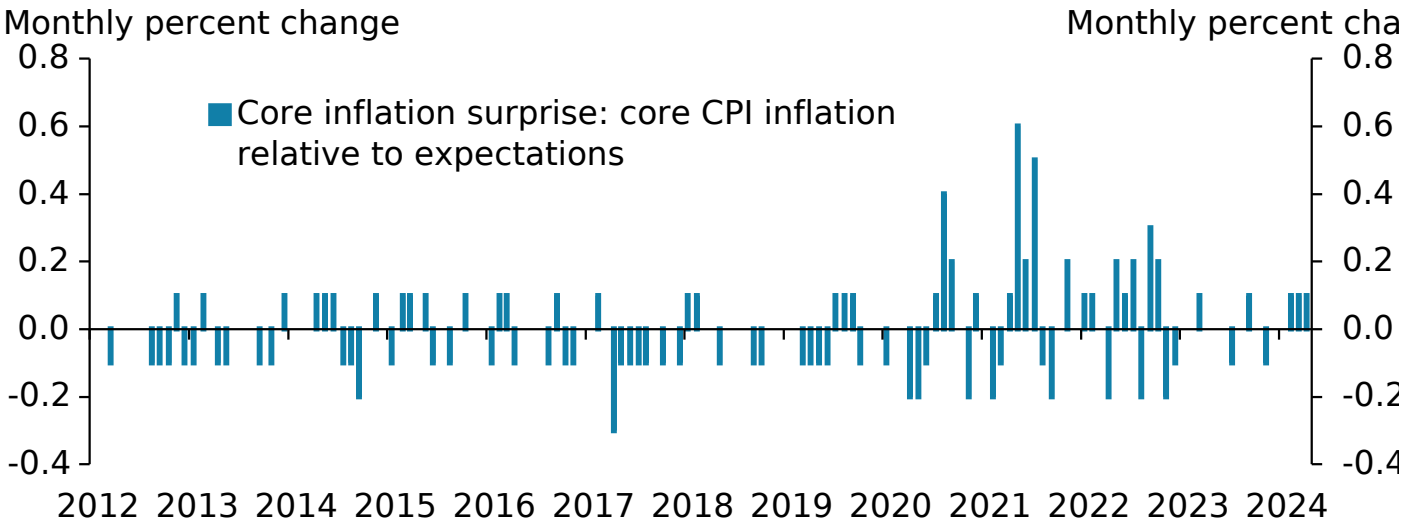
Chart 1: Inflation has remained above the Fed's longer-run 2 percent target for over three years



Sources: U.S. Bureau of Economic Analysis (Haver Analytics) and Board of Governors of the Federal Reserve System.

Although inflation has since moderated, it remains above target, and consumer price readings were higher than expected in recent months. Chart 2 shows the monthly percent change in the consumer price index excluding food and energy (core CPI) released by the Bureau of Labor Statistics compared with the median expectation from a panel of forecasters compiled by Bloomberg.[1] A positive value indicates that inflation in the previous month came in above expectations ("surprised to the upside"), while a negative value indicates that inflation came in below expectations ("surprised to the downside"). Prior to the pandemic, core CPI inflation releases were about as likely to surprise to the upside as they were to the downside. However, since March 2021, when inflation rose above 2 percent, inflation has been almost twice as likely to surprise to the upside (17 times) as to the downside (9 times). Although the magnitude of the upside surprises has declined since 2022 as inflation has come down, the inflation reports for the first three months of 2024 were each higher than expected.

Chart 2: Consumer price readings have disproportionately surprised to the upside in recent years



Sources: Bloomberg and authors' calculations.

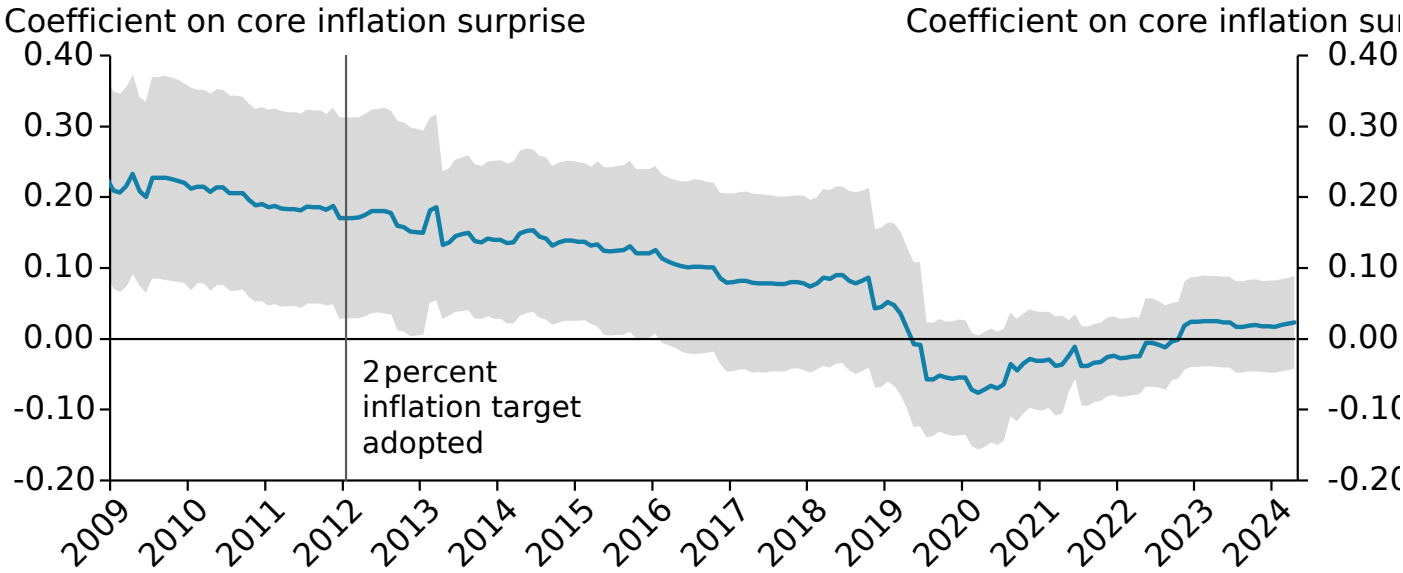
After years of above-target inflation, have these upside inflation surprises increased longer-term inflation expectations? We estimate the pass-through from these core CPI inflation surprises to longer-term inflation expectations to assess whether long-term inflation expectations remain anchored. If upside inflation surprises do not pass through to long-term inflation expectations, then the public likely believes that unexpectedly high inflation today will not persist indefinitely. Such evidence would be consistent with long-term inflation expectations remaining well anchored. However, if unexpectedly high inflation today *does* pass through to expectations for inflation far in the future, then the public may perceive a shift in the Fed's inflation target or believe that the Fed is unwilling to bear the cost of bringing inflation back to target. This finding would be consistent with long-term inflation expectations becoming unanchored.

We measure long-term inflation expectations using financial market measures of long-term forward inflation compensation, which are available at a high frequency. In particular, we examine the spreads between nominal Treasury yields and Treasury inflation-protected securities (TIPS), which are available daily from the Board of Governors of the Federal Reserve System, to assess whether investors adjust their expectations for inflation nine years in the future based on a CPI inflation surprise today.[2] Studying forward rates of inflation removes any mechanical effect from higher-than-expected inflation today on average inflation outcomes over the next 10 years and instead isolates expectations for inflation in future years.

Chart 3 provides evidence that longer-term inflation expectations remain well anchored despite persistently high inflation. The solid blue line shows the estimated pass through from core inflation surprises to longer-term inflation expectations, found by regressing the one-day change in forward inflation compensation on the core inflation surprise on CPI release days. We estimate the regression over a 10-year rolling window, progressed one month at a time. The left portion of the chart shows that prior to the adoption of a numerical inflation target in 2012, the estimated pass-through coefficient is positive and statistically

different from zero (that is, the gray confidence interval does not include the zero line). This estimation indicates that prior to 2012, longer-term inflation expectations were not well anchored, as inflation surprises moved longer-term inflation expectations in the same direction. After 2012, however, longer-term inflation expectations ceased responding to inflation surprises and inflation expectations became better anchored (Bundick and Smith 2023). This improved anchoring appears to have been maintained through the recent period of high inflation, as the pass-through in the most recent estimate is small and is not statistically different from zero.

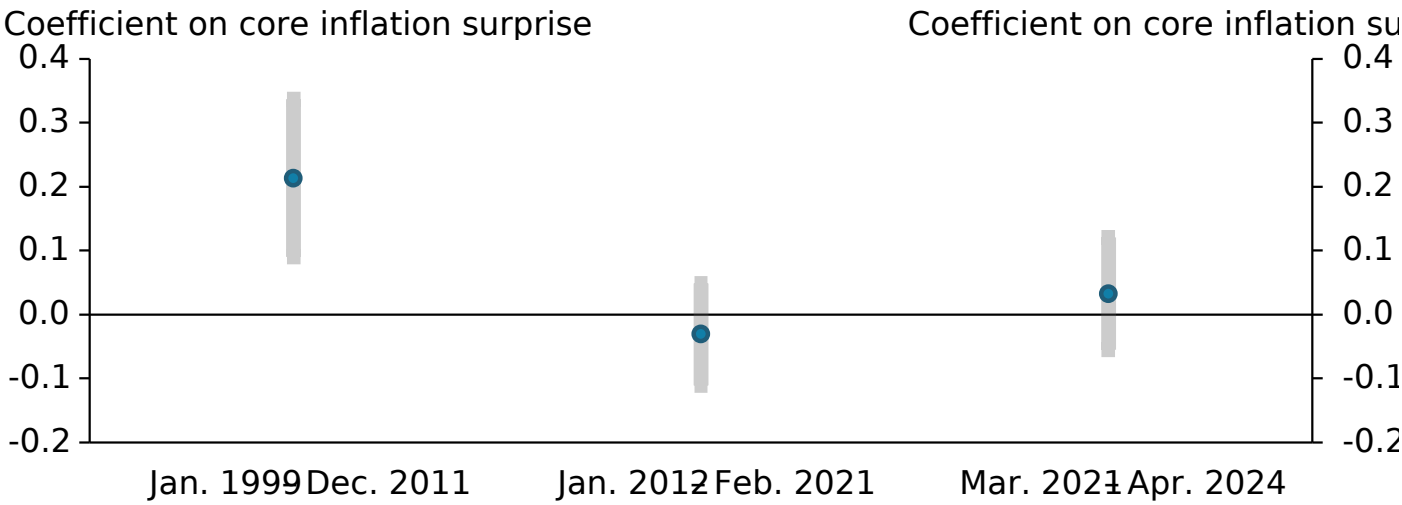
Chart 3: The pass-through from core inflation to long-term inflation expectations declined after 2012



Notes: The x-axis shows the end date of the 10-year rolling window sample. Our estimation begins in January 1999, when our inflation compensation measure first becomes available. The coefficient shows the change in longer-term inflation expectations (in percentage points) from a 1 percentage point surprise in core inflation. Gray shaded region shows the 90 percent confidence interval.
Sources: Board of Governors of the Federal Reserve System (Haver Analytics), Bloomberg, and authors' calculations.

Although Chart 3 provides some preliminary evidence that persistently high inflation has not unanchored long-term inflation expectations, the 10-year rolling sample for the last observation is shaped by data several years before the pandemic and the increase in inflation. To more formally assess the degree of pass-through from inflation surprises to inflation expectations in the recent period, Chart 4 zooms in on the post-March 2021 sample. The results for the 1999–2011 and 2012–21 sample periods are consistent with the illustrations in Chart 3: inflation surprises pass through to longer-term inflation expectations before 2012 but not after. More importantly, however, the estimated pass-through remains small and not statistically different from zero in the post-March 2021 sample, indicating that longer-term inflation expectations have remained well anchored in recent years.

Chart 4: Longer-term inflation expectations remain stable despite significant upside inflation surprises



Notes: The coefficient estimate (the dot in each period) shows the change in longer-term inflation expectations (in percentage points) from a 1 percentage point surprise in core inflation. Gray shaded region shows the 90 percent confidence interval.
Sources: Federal Reserve Board (Haver Analytics), Bloomberg, and authors' calculations.

Maintaining anchored inflation expectations helps ensure that high inflation does not become embedded in the economy through forward-looking pricing decisions and wage negotiations. Our analysis suggests that despite high inflation and the preponderance of upside inflation surprises, longer-term inflation expectations have remained well anchored in the United States, which should help return inflation to the FOMC's 2 percent target over time.

Endnotes

[1] Although the Fed's inflation target is specified in terms of PCE inflation, the CPI measure is released around the middle of each month, about two weeks before the PCE measure. In addition, given the overlap between the two series, significant information in CPI inflation pertains to PCE inflation. Another reason to focus on the CPI measure is that it serves as the official index for returns on Treasury Inflation-Protected Securities (TIPS). For these reasons, policymakers and investors closely watch the CPI release.

[2] One shortcoming of financial market measures of inflation compensation is that the risk and liquidity premiums may obscure the signal from underlying inflation expectations. Inflation expectations from household surveys and professional forecasters, alternatively, are free from any asset price premiums. However, these survey measures are recorded monthly or quarterly and may be influenced by many factors, some of which might be hard to decipher.

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