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ECONOMIC Synopses

The Year of Living Dangerously: The COVID-19 Shock and the Probability of Deflation

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Inflation tends to fall during recessions. And while the official determination likely will not occur for several months, the longest U.S. economic expansion in history probably ended sometime in March 2020 because of the social distancing actions in response to the COVID-19 pandemic. With inflation currently low, the probability that it turns negative (deflation) will likely increase over the near term.

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As seen in the accompanying table, in the four most-recent U.S. recessions (starting with the 1981-82 recession), the decline in the 12-month change in the personal consumption expenditures price index (PCEPI) from the business expansion peak to the recession trough averaged −2.3 percentage points. The average decline in consumer price index (CPI) inflation for all items was nearly 1 percentage point larger, −3.2 percent.[1] These averages are perhaps biased to the downside because of the large disinflations in the 1981-82 and 2007-09 episodes. The former reflected the Volcker Fed's deliberate attempt to reduce inflation, while the latter was driven importantly by a collapse in crude oil prices. Much smaller declines in inflation occurred in the remaining two recessions.

Currently, inflation is relatively low and below the FOMC's 2 percent target rate.[2] Through February 2020, the 12-month change in the PCEPI was 1.8 percent and the CPI was 2.3 percent. Thus, if the average decline in inflation occurs during this recessionary episode, inflation could—as in the 2007-09 recession—plunge into negative territory.

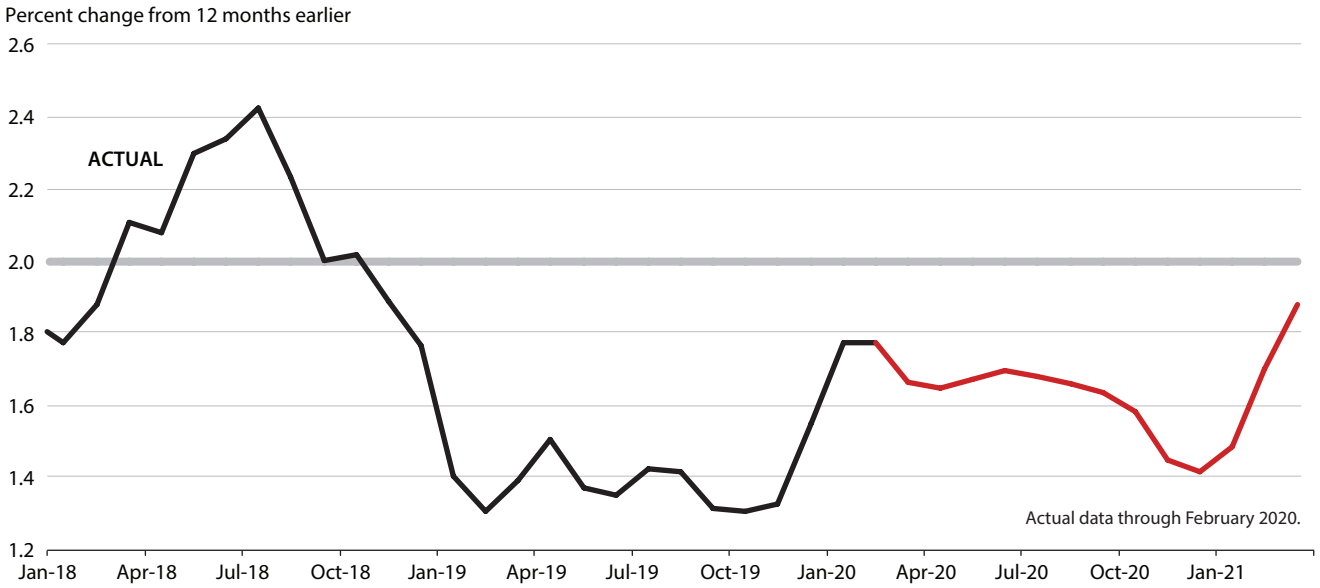
There are some close parallels between the current economic environment and the 2007-09 recession. First, this recession could be deep. The consensus of professional forecasters in late March was that real GDP would decline by nearly 16 percent at an annual rate in the second quarter. However, there is much less agreement on the duration of this downturn. Some forecasters expect a quick rebound in the third quarter, while others see a more prolonged downturn. Second, crude oil prices have collapsed. On January 6, 2020, the spot price of West Texas Intermediate crude oil closed at $63.27 per barrel. Nearly three months later, on March 30, it plummeted to $14.10 per barrel—a 78 percent decline. Likely reflecting the plunge in energy prices, the median prediction of economists and economic analysts surveyed by Thomson Reuters is that the level of the all-items CPI will decline by 0.3 percent in March.[3] If realized, this would lower the year-to-year percent change in the CPI from 2.3 percent in February to 1.6 percent in March.

Peak-to-Trough Decline in Headline Inflation during Recessions since the Early 1980s
12-month percent changes

	1981-82 Recession		1990-91 Recession		2001 Recession		2007-09 Recession		Averages across all episodes	
	CPI	PCEPI	CPI	PCEPI	CPI	PCEPI	CPI	PCEPI	CPI	PCEPI
Peak	10.8	8.9	4.8	3.9	3.0	2.0	4.1	3.4	5.7	4.6
Trough	4.5	5.0	4.8	3.7	1.9	1.3	−1.2	−0.8	2.5	2.3
Change	−6.3	−3.9	0.0	−0.2	−1.1	−0.7	−5.3	−4.2	−3.2	−2.3

SOURCE: Bureau of Economic Analysis; Bureau of Labor Statistics; Haver Analytics; and author's calculations.

Figure 1
Headline Personal Consumption Expenditures Price Inflation: Actual and Current Forecast



SOURCE: Bureau of Economic Analysis; Haver Analytics; and Federal Reserve Bank of St. Louis.

Figure 2
Deflation Probability Measure

SOURCE: FRED®, Federal Reserve Bank of St. Louis.

Although the economy has experienced a negative supply shock (shuttering of firms), which tends to raise prices, there has also been a significant negative demand shock (reduced spending), which tends to lower prices. In the short term, though, the negative demand shock (a possible deep recession) combined with the collapse in crude oil prices will likely result in an economy-wide disinflationary shock that could last for several months. But the key question is whether these forces will plunge headline inflation into negative territory—and for how long. Regrettably, most of the currently available data are only through February, so a lot of the March data that feed into forecasting models are not yet available. Still, using data through February, the St. Louis Fed's inflation model predicts that the 12-month change in the PCEPI will decline from 1.8 percent to 1.4 percent by December 2020. Thus, this model was predicting a modest disinflation even before the onset of the recession (Figure 1).

The St. Louis Fed's price pressures measure (PPM) is designed to provide market participants with a probabilistic view of inflation outcomes over the next 12 months.[4] Effectively, the PPM assesses the probability of the 12-month-ahead inflation forecast (in Figure 1) falling into four buckets: less than 0 percent (deflation); 0 percent to 1.5 percent; 1.5 percent to 2.5 percent; and greater than 2.5 percent.[5]

As seen in Figure 2, the St. Louis Fed's inflation model foresees almost no probability of deflation over the next 12 months. But the numbers from the table suggest that a recession could push headline inflation into negative territory over the next several months. Whether this occurs will be revealed by the flow of new data, which then results in updated forecasts. Thus, economic analysts may want to track the deflation probability measure (in Figure 2) to gauge the probability of a future deflation reoccurrence. If it occurs, though, it may be temporary, as in 2008-09. After all, market-based measures of inflation expectations, as gauged by Treasury inflation-protected security yield spreads over the next five years, are currently at 0.9 percent. That's low, but it's still positive. ■

Notes

[1] The median changes were the same as the average changes.

[2] See https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.

[3] See https://research.stlouisfed.org/datatrends/usfd/cover.php.

[4] These are found on FRED®, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/release?rid=364.

[5] Details about the inflation forecasting model and the PPM framework are found here: https://research.stlouisfed.org/publications/economic-synopses/2015/11/06/introducing-the-st-louis-fed-price-pressures-measure/.

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