February 21, 2019

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Global Inflation: Should Central Banks Be Worried?

Executive Summary

Fears of deflation have plagued the global economy for the better part of the past decade. Concerns began to ease in 2017 when growth in many of the world's major economies strengthened. But with the global economy now showing signs of a synchronized deceleration, should central banks again be worried about deflation?

In this note, we update our previous work on the near-term probability of inflation or deflation in the global economy. We find that the most likely scenario for the global economy is that inflation will continue to run well below historic levels, what we deem a "deflationary pressure" scenario. In the United States, the most likely scenario is that inflation will remain "stable", i.e., not meaningfully above or below the Federal Open Market Committee (FOMC)'s 2% target. At the same time, the risk of a notable inflation overshoot in the United States is beginning to decline, consistent with the FOMC taking a more "patient" stance on future policy tightening. Our analysis of the Eurozone and Japan suggests that inflation is most likely to remain at or below the ECB's and BoJ's desired rates in the near term, with the probability of an inflation overshoot quite low in both regions. A period of benign price growth, along with subdued growth prospects in the Eurozone and Japan, will likely keep the ECB and BoJ patient when approaching monetary policy decisions in the months ahead.

Inflation in the global economy will continue to run well below historic levels.

An Early Warning System for Inflation, or Deflation as the Case May Be

In our previous work, we developed an early warning system to predict the near-term probability of inflationary or deflationary pressure for the global economy.[1] Specifically, we utilized an ordered probit approach to estimate the six-months-ahead probability of three distinct price scenarios: inflationary pressure, deflationary pressure or price stability.[2] We define "inflationary pressure" as an inflation rate more than half a percentage point above a region's target range. "Deflationary pressure" implies an inflation rate more than half a percentage point below a region's target range, and is synonymous and used interchangeably with "disinflation." A "stable price" scenario implies an inflation rate +/- 0.5 percentage points from a central bank's inflation target (or inflation's long-run average in the case of the global economy).

We utilized an ordered probit approach to estimate the six-months-ahead probability of three distinct price scenarios.

We apply our early warning inflation framework to the global economy as well as for advanced economies. The IMF produces a world CPI and we utilize that series to construct the global model. For the advanced economies, we utilize the advanced economies CPI series to create the dependent variable of the ordered probit model.[3] We then look at the inflation outlook for the United States, Eurozone and Japan, given the outsized role central bank policy in these three countries plays in global financial markets. For the United States, we utilized the PCE deflator as a measure of

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[1] **For more detail see our report, "Does Disinflation Threaten the Global Economy?" published on January 26, 2015. This report is available upon request.**
[2] **Please see the original report for more detail about target ranges.**
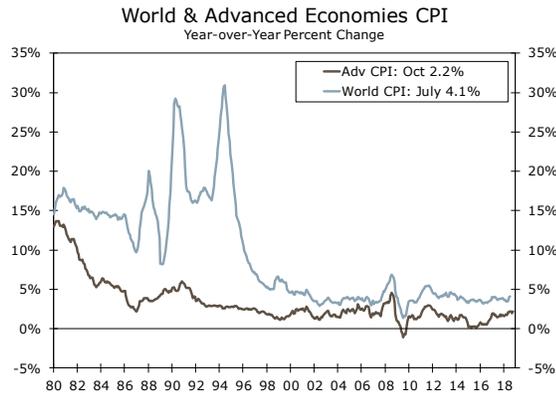[3] **As of October 2018, there are 39 countries in the advanced economies group. A complete list of the countries can be found at the IMF website.**
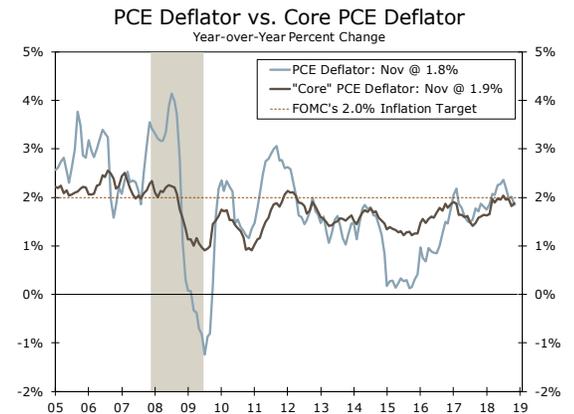
inflation because it is the preferred inflation measure of the FOMC. For the Eurozone and Japanese models, we use CPI inflation because this is the primary measure of prices in these economies.

Each of the five models includes four predictors which are region/country specific measures of: the unemployment rate, equity prices, the 10-year sovereign bond yield and the index of leading indicators.[4]

Figure 1

World & Advanced Economies CPI
Year-over-Year Percent Change

- Adv CPI: Oct 2.2%
- World CPI: July 4.1%

Figure 2

PCE Deflator vs. Core PCE Deflator
Year-over-Year Percent Change

- PCE Deflator: Nov @ 1.8%
- "Core" PCE Deflator: Nov @ 1.9%
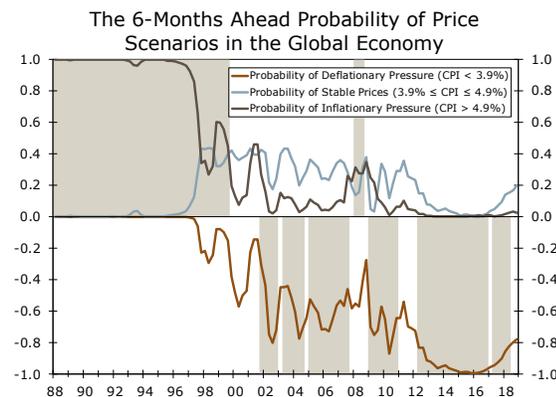- FOMC's 2.0% Inflation Target

Source: U.S. Department of Commerce, IMF, IHS Markit and Wells Fargo Securities
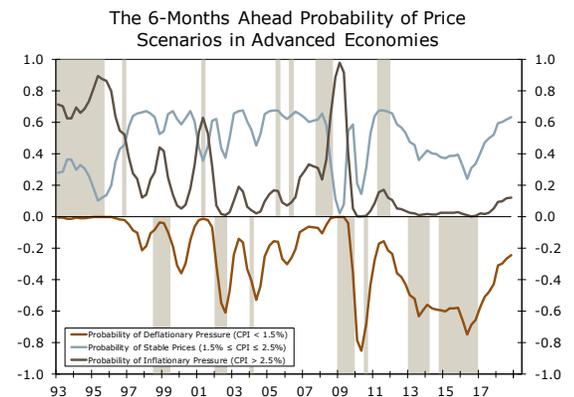
What Do the Models Tell Us?

For all five models, we generate simulated real-time out-of-sample probabilities of the three distinct price scenarios. The major benefit of this exercise is that, as we have the actual inflation scenarios for a historical time period, we can evaluate each model's out-of-sample performance. The simulated real-time out-of-sample probabilities for the global model are plotted in Figure 3. The shaded area above zero represents periods of inflationary pressure. That is, the shaded area above the zero line indicates that the world CPI growth rate was greater than 4.9% during that time period (the average CPI growth rate from 1996-2018 was 4.4%). Similarly, the shaded area below the zero line corresponds to periods of deflationary pressure, i.e., when CPI inflation was below 3.9%. The blank area, between Q4-1999 and Q3-2001 for instance, shows prices were stable (CPI inflation between 3.9% and 4.9%).

For all five models, we generate simulated real-time out-of-sample probabilities.

Figure 3

The 6-Months Ahead Probability of Price Scenarios in the Global Economy

- Probability of Deflationary Pressure (CPI < 3.9%)
- Probability of Stable Prices (3.9% ≤ CPI ≤ 4.9%)
- Probability of Inflationary Pressure (CPI > 4.9%)

Figure 4

The 6-Months Ahead Probability of Price Scenarios in Advanced Economies

- Probability of Deflationary Pressure (CPI < 1.5%)
- Probability of Stable Prices (1.5% ≤ CPI ≤ 2.5%)
- Probability of Inflationary Pressure (CPI > 2.5%)

Source: Wells Fargo Securities

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[4] **Please see the original report for more detail about the inputs. This report is available upon request.**

The global model suggests disinflation remains a significant risk, with the most recent probability of deflationary pressure at 0.78. Yet the probability of disinflation has been declining over the past year and the chances of stable price growth have risen for the same time period. In the world's advanced economies, the likelihood of "deflationary pressure" has fallen sharply since 2016. Inflation, now close to 2%, looks to be the most likely scenario for price growth.

The global model suggests disinflation remains a significant risk.

U.S. Inflationary Risks Receding, but Fears of Deflation Premature

As illustrated in Figure 5, the risk of an inflationary scenario (PCE above 2.5%) has receded since the third quarter. That suggests a lower likelihood of inflation snapping back like in 2017, when the probability of inflationary pressures was continuing to rise. At the same time, the probability of the PCE deflator slipping below 1.5% (deflationary pressure) has increased.

The diminishing probability of a meaningful overshoot has not been lost on the Fed. The lower risk of too-high inflation was noted in the January FOMC meeting minutes and highlighted by Chairman Powell in his post-meeting press conference as a reason for the FOMC's pivot to a more dovish policy outlook. Yet a real fear of deflation seems a bit premature, in our view, as the overall risk of "deflationary pressure" remains rather low at 0.21.

Instead, the most likely scenario is that inflation will remain "stable", i.e., close to the FOMC's target. The Goldilocks outlook for inflation—not too hot or too cold—suggests that the FOMC therefore can indeed afford to be "patient" with further adjustments to the fed funds rate, as the committee pledged in January. We look for headline PCE inflation to temporarily dip in the coming months due to lower energy prices. Core inflation, however, should rise a bit further this year before topping out a touch above 2%.

The most likely scenario is that inflation in the U.S. will remain "stable", i.e., close to the FOMC's target.

Figure 5

The 6-Months Ahead Probability of Prices Scenarios in the United States

Probability of Deflationary Pressure (PCE < 1.5%)
Probability of Stable Prices (1.5% ≤ PCE ≤ 2.5%)
Probability of Inflationary Pressure (PCE > 2.5%)
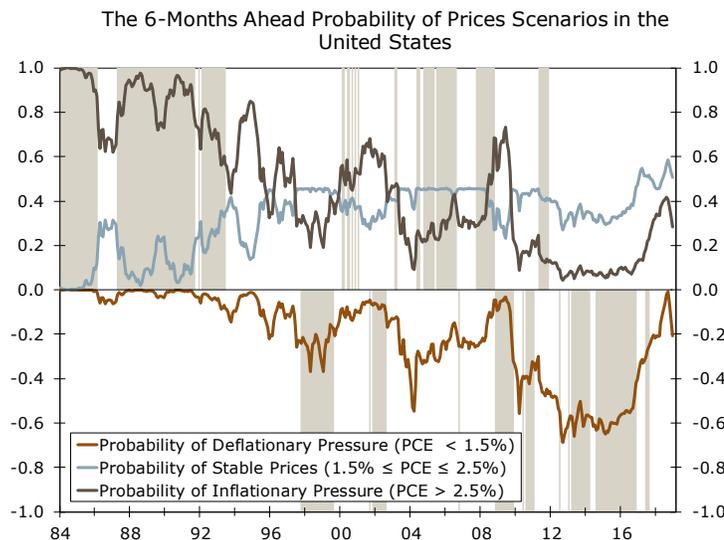
Source: U.S. Department of Commerce and Wells Fargo Securities

The Eurozone and Japan Still Facing Risks of Below-Target Inflation
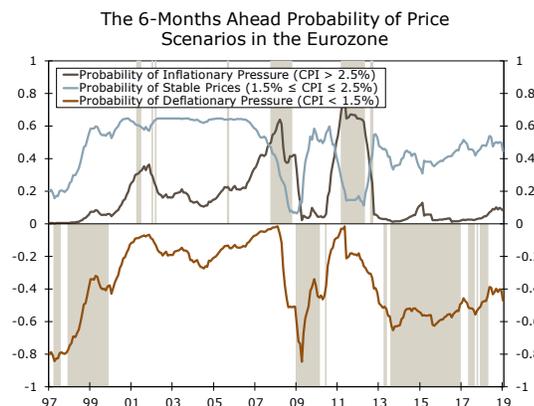
Figure 6 shows how the probability of each scenario has evolved in the Eurozone since the last update. As of the most recent update to the model, the Eurozone stable prices probability dropped to 0.45 in January 2019, down from around .50 in mid-2018. The probability of deflationary pressure has also risen, up to 0.47 from 0.40 in September 2018. The chances of a significant inflation overshoot—which the model suggests have been low for years—has not moved all that much of late, at just 0.08. Downward pressure may be mounting on Eurozone inflation at a time when CPI inflation has been below the ECB's 2% target rate since November 2018.

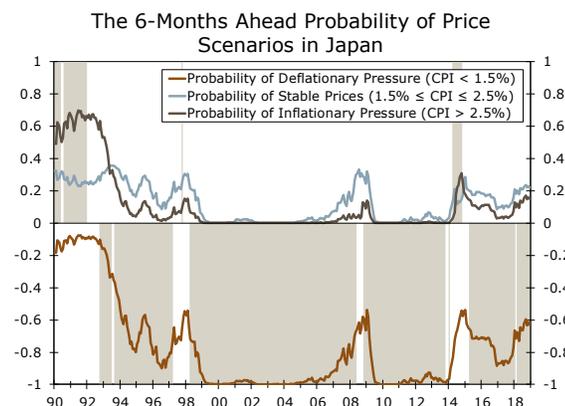*The Eurozone stable prices probability has dropped and deflationary pressure has risen.*

Should growth/ inflation continue to falter, the first rate hike from the ECB would likely be pushed back even further.

A below-target-inflation outlook may put added pressure on the ECB as it strives to continue removing monetary policy stimulus in 2019. Stimulus measures enacted by the ECB in 2015-2016 helped boost real GDP growth, which peaked at 2.8% on a year-over-year basis in Q3-2017. Since then, economic activity has decelerated alongside a gradual removal of policy stimulus as the ECB reduced and eventually ended its net asset purchase program. Weak growth, along with some tentatively rising risks of deflationary pressure ahead, may keep the ECB from removing accommodative monetary policy this year. As economic growth and inflation have remained subdued, our forecasts for ECB policy rate hikes have continued to get pushed back. We call for one 20bp hike in Q4-2019, while we forecast another 20bp hike in Q2-2020. This forecast is predicated on economic growth and inflation stabilizing and eventually strengthening over the course of 2019. Should growth/inflation continue to falter, the first rate hike from the ECB would likely be pushed back even further.

Figure 6

The 6-Months Ahead Probability of Price Scenarios in the Eurozone

Figure 7

The 6-Months Ahead Probability of Price Scenarios in Japan

Source: IHS Markit, Bloomberg LP and Wells Fargo Securities

Our Japan model continues to assign the highest probability to a deflationary pressure environment, which has been the case since 1994 (Figure 7). The most recent deflationary pressure probability reading is 0.63 for December 2018, which, while relatively high, is not quite as bad as the 2010-2014 period, or the weakness seen in late 2016. Despite multiple rounds of qualitative and quantitative easing largely aimed at boosting CPI inflation, price growth in Japan has remained subdued and well below the central bank's 2% target. At present, year-over-year growth in the CPI in Japan is just 0.2%. A strong labor market is one potential source of inflation upside risk: the unemployment rate continues to decline, wage growth has picked up and the employment-population ratio is at its highest level in decades. Even still, the probability of maintaining even stable price growth over the next six months is just 0.22 according to our model.

We expect the BoJ's core message of easy monetary policy to continue for the foreseeable future.

With the deflationary pressure trend likely to persist for the time being, we expect the BoJ's core message of easy monetary policy to continue for the foreseeable future. The BoJ implemented its current yield curve control policy in late 2016, purchasing government bonds in an effort to keeps yields on 10-year bonds as close to 0.0% as possible. Small tweaks to this framework have been made over time, and we expect the BoJ to continue making minor adjustments to allow the yield on government bonds to be more market determined. These small changes should not be interpreted as the central bank looking to fundamentally alter the path of monetary policy in Japan. Inflation remains anchored below the central bank's target, and this is unlikely to change in a period of slowing global growth/global inflation.

Concluding Remarks: Connecting Probabilities of the Five Models

Are the probabilities of these five models connected? The answer is yes, in our view. For instance, during 2008, all five models were in the inflationary pressure range (even Japanese inflation was either in the inflationary pressure or stable prices region throughout mid-2008). During 2008, all five models estimated an uptick in inflationary pressure/stable prices probabilities along with declining deflationary pressure probabilities. By the same token, during 2009, all five models produced an increasing trend in deflationary pressure, and actual inflation rates were in the deflationary zone in all five economies during the same time period. This suggests that if all models signal a particular inflation scenario, then that can be viewed as a strong signal of that particular price scenario for the global economy in the near term.

Given the real-time as well as historical accuracy of these models, what are the models telling us now? We predict the highest probability event is that the stable prices scenario unfolds for the global economy in 2019. The model outputs suggest an outcome similar to our domestic and international forecasts: the world's major central banks dial back their tightening plans amid slower growth and little chance of an inflation overshoot in the near term. But a full scale easing cycle is avoided, as the risk of deflationary pressure has not risen notably enough that we think the Fed, ECB or BoJ will need to meaningfully reverse direction. In a period of heightened uncertainty and somewhat stable price growth, "patience" might be just what the doctor ordered.

We predict the highest probability event is that the stable prices scenario unfolds for the global economy in 2019.

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