August 31, 2015

Economics Group

Special Commentary

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What Was the Fed Talking About at Jackson Hole?

This year's annual Jackson Hole Economic Policy Symposium, hosted by the Federal Reserve Bank of Kansas City, had central bankers meeting to discuss *Inflation Dynamics and Monetary Policy*.[1] Inflation has proved to be the more challenging half of the Fed's mandate over the past year. As the labor market has steadily strengthened, inflation, measured by the Personal Consumption Expenditures (PCE) deflator, has fallen to just 0.3 percent year over year (Figure 1). Moreover, the Federal Open Market Committee (FOMC) has significantly lowered its inflation outlook since the start of 2014 (Figure 2). The research presented emphasized the global linkages that affect inflation and that a wider range of determinants must be considered when assessing inflation dynamics than has traditionally been the case.

Figure 1

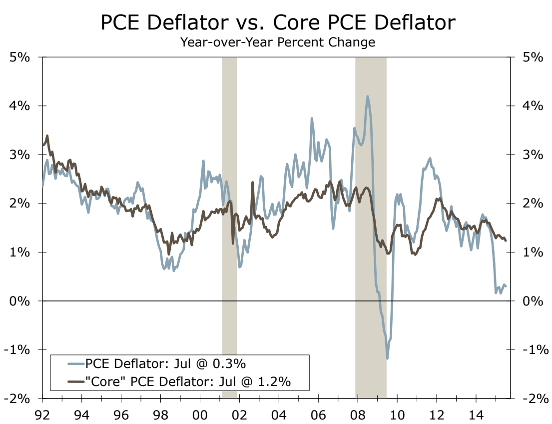
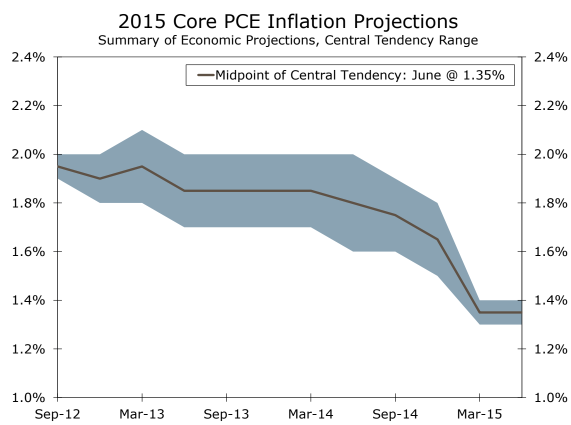


Figure 2



Source: U.S. Department of Commerce, Federal Reserve Board and Wells Fargo Securities, LLC

Be Wary of Simple Policy Rules

As the economy has strengthened over the past few years but core inflation remains stuck well below 2 percent, research has sought to shed light on why inflation has not necessarily moved in the direction or to the magnitude predicted by traditional models centered on resource slack. Similarly, inflation was remarkably stable during the past downturn, declining less than many models would have predicted, which was largely pinned on well-anchored inflation expectations.

Inflation dynamics are not as simple as implied by models and rules based on economic slack.

Simon Gilchrist and Egon Zakrajšek offer evidence that it is not solely resource slack and inflation expectations that influence inflation.[2] Financial conditions also play a role as financially stressed firms and industries more reliant on external financing are less apt to reduce prices in downturns in order to preserve cash flow. The result is more modest disinflationary pressure than would be expected based on demand and slack conditions alone. To that end, monetary policy should be wary of using a specific interest-rates rule when financial conditions may be affecting firms'

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[1] All papers discussed at the conference and referenced in this report are available at kansascityfed.org.
[2] Gilchrist, Simon and Egon Zakrajšek. (2015). "Customer Markets and Financial Frictions: Implications for Inflation Dynamics." Prepared for the 39th Jackson Hole Economic Policy Symposium, Aug. 11, 2015.

pricing behavior. Following financial shocks, policymakers should focus more heavily on stabilizing output as "rules that put a great deal of weight on inflation stabilization lead to significantly worse economic outcomes."

Jon Faust and Eric Leeper also stress that inflation dynamics are not as simple as implied by models and rules based on economic slack.[3] While views toward inflation dynamics have traditionally centered on the business cycle, Faust and Leper argue that "aggregate inflation and real-side dynamics reflect disparate and persistent movements in a myriad of variables, and the policy implications of these movements are not well captured by two (or a very small number of) conventional summary statistics for headline aggregates such as inflation and real activity." As such, policy rules are inadequate. The understanding of a wider range of inflation dynamics "has always been the key to good policymaking, and failure to understand those dynamics has played a key role in major policy mistakes." The greater range of variables to be taken into account when assessing inflation dynamics is not unlike the Fed's emphasis in recent years on a wider range of labor market measures to help disentangle cyclical and structural trends that have obfuscated what may be considered full employment.

Deflation Risk Low: No Meaningful Gains to Raising Inflation Target

Raising the Fed's inflation target now would have no meaningful impact on GDP.

With U.S. inflation nearly flat over the past year and disinflationary forces emanating from overseas, policymakers remain vigilant over the possibility of a deflationary episode in the United States. Given that the fed funds target rate is already at zero, the FOMC remains constrained by the zero lower bound in using conventional policy tools to generate higher inflation. Borağan Aruoba and Frank Schorfheide at least find the risk of deflation in the United States to be very small.[4] In the short run, the prospect of deflation is essentially zero and increases only to about 15 percent over the next five years. This compares favorably to the chance of deflation in other major economies where policy rates are essentially already at the zero lower bound. In the Eurozone, the probability of deflation is about 5 percent in the short run and 20 percent over the next five years, while the chance of deflation in Japan is significantly higher at close to 50 percent over the next five years.

One idea that has been discussed a bit more widely over the past year given that inflation remains low and the Fed's policy rate remains at zero is lifting the Fed's inflation target. A higher inflation target would presumably lift inflation expectations and therefore raise realized inflation. In turn, real interest rates could be cut further in periods of economic weakness. Of course, such a policy change would carry costs, such as the central bank's hard-won credibility over stable inflation. Aruoba and Schorfheide test whether raising the Fed's inflation target to 4 percent at the start of 2014 would have any meaningful effects on growth. While they find the Fed would be able to raise interest rates slightly earlier and the risk of deflation falls, there is no meaningful impact on GDP.

U.S. Inflation Only Moderately Affected by Major Dollar Moves

Central bankers have been taking a closer look at the global linkages that can effect domestic inflation. While the decline in the rate of U.S. inflation has in large part been due to the plunge in energy prices over the past year, the rapid rise in the value of the dollar has also been cited as a factor weighing on inflation.

U.S. inflation is relatively insensitive to currency fluctuations.

In *The International Price System*, Gita Gopinath looks at how sensitive U.S. inflation is to a change in the value of the dollar.[5] As the dollar strengthens, imports in the U.S. become effectively cheaper, and therefore the United States imports disinflationary pressure from overseas (Figure 3). Yet Gopinath highlights that inflation in the United States is relatively insensitive to currency fluctuations compared to other countries (Figure 4). This is because a high share of U.S. imports—93 percent—is already invoiced in dollars. Therefore, only a small share of imports is effectively repriced as the dollar fluctuates, compared to other countries such as Japan and

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[3] Faust, Jon and Erik M. Leeper. (2015). "The Myth of Normal: The Bumpy Story of Inflation and Monetary Policy." Prepared for the 39th Jackson Hole Economic Policy Symposium, Aug. 18, 2015.
[4] Aruoba, S. Borağan and Frank Schorfheide. (2015). "Inflation During and After the Zero Lower Bound." Prepared for the 39th Jackson Hole Economic Policy Symposium, Aug. 7, 2015.
[5] Gopinath, Gita. (2015). "The International Price System." Prepared for the 39th Jackson Hole Economic Policy Symposium, Aug. 20, 2015.

Turkey where only 24 percent and 3 percent, respectively, of imports are invoiced in the home currency.

Figure 3

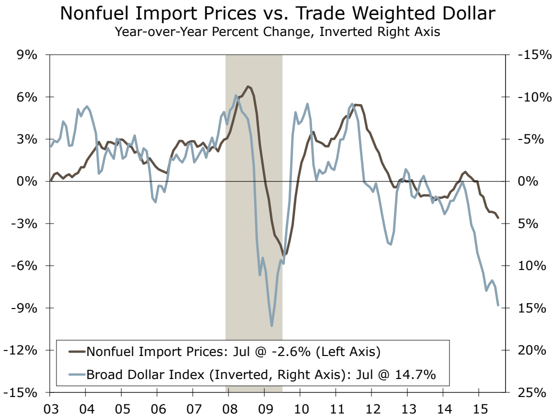
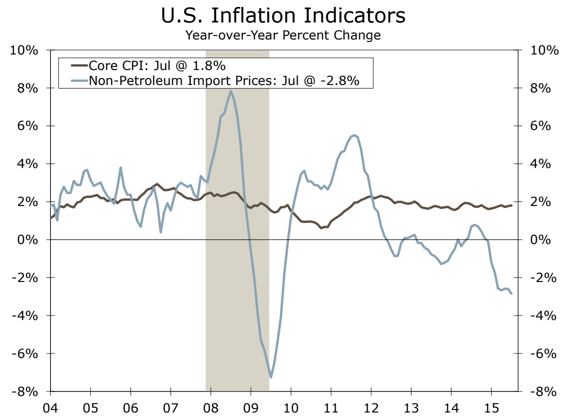


Figure 4



Source: U.S. Department of Labor and Wells Fargo Securities, LLC

That is not to say that the stronger value of the dollar does not weigh on inflation. Gopinath finds that a 10 percent appreciation in the dollar would cumulatively lower CPI inflation over two years by 0.4-0.7 percentage point. The impact on inflation outside of the United States, however, may be more concerning. As other countries have a smaller share of imports priced in their home currency, there is greater pass-through of currency fluctuations to domestic inflation. Therefore, as other countries' currencies depreciate against the dollar, the upward inflationary effects look to be more substantial.

While the United States, with its relatively closed economy and dominant currency, only sees modest impacts from currency movements on inflation, controlling inflation can be a much more difficult task for central bankers in small open economies. Thomas Jordan of the Swiss National Bank discussed whether small open economies can independently control inflation in a world of increasing global spillovers.[6] Jordan concludes that over the medium- and long-term, inflation in countries such as Switzerland can be independently controlled, but not in isolation. "If it is to be effective, monetary policy in a small open economy must take global factors into account. Given the multitude of international spillovers, monetary policy should never be used to fine-tune inflation." The research put forth by Gopinath and Jordan suggests that the FOMC should not be too concerned about the effects of the stronger dollar stemming from less accommodative monetary policy on domestic inflation, but policy changes will have implications for inflation elsewhere.

Thinking Globally But Acting Locally

Major central bank leaders speaking at the conference also focused on the global factors influencing inflation. Given increasing trade linkages, commodity cycles and financial channels, domestic inflation has a global component. However, as Bank of England Governor Mark Carney pointed out, movements in core rates of inflation continue to vary widely across countries, indicating that domestic economic conditions and monetary policy still matter for inflation dynamics.

Domestic inflation contains a global component.

Federal Reserve Vice Chair Stanley Fischer remarked on how the 16 percent increase in the broad dollar index has been an important factor in keeping inflation low over the past year. While changes in the dollar's value are passed through to inflation relatively quickly, the effect on overall growth takes longer to materialize, and Fischer notes that the rise in the dollar could restrain growth through 2016 and, even perhaps, 2017. At least for the United States, inflation

[6] Jordan, Thomas. (2015). "The Impact of International Spillovers on Inflation Dynamics and Independent Monetary Policy: The Swiss Experience." Prepared for the 39th Jackson Hole Economic Policy Symposium, Aug. 28, 2015.

expectations for the most part appear to be stable, which should help inflation move back to the Fed's target once the disinflationary effects from falling oil and a stronger dollar are digested. A return to the Fed's target should also be facilitated by a further reduction in labor market slack. All told, Fischer's views on the factors currently weighing on inflation and the expectation that these effects would be transitory were consistent with previous comments made by Chair Yellen and the statements and minutes of recent FOMC meetings.

Fischer's remarks and recent FOMC communications linking labor market conditions and the inflation outlook continue to demonstrate an implicit belief in some type of Phillips Curve framework. Under the Phillips Curve, inflation is expected to rise as resource slack diminishes. While the Phillips Curve seems to have broken down in recent years, with inflation during the Great Recession surprisingly resilient and more recently little pickup in inflation despite diminished slack, Vítor Constâncio, Vice President of the European Central Bank, argued that there remains a relationship.[7] Resource slack has played a smaller role in inflation in the post-Great Recession environment, however, when accounting for the difficulty in measuring resource slack and inflation expectations, the Phillips Curve can still explain the low rate of Eurozone inflation in recent years. As demonstrated in many of the papers discussed in Jackson Hole this year, however, there are many more factors—particularly global forces—for today's central bankers to consider when assessing the outlook for inflation and appropriate monetary policy.

Conclusion: Inflation Set to Remain a Challenge

The discussions at this year's Jackson Hole conference shed light on central bankers' latest views on inflation and the challenges still faced when formulating their outlook for inflation. Policymakers are still struggling to understand the continued low rate of inflation, even as the global economy has come a long way from the financial crisis. Domestic resource slack, a traditional driver of inflation, still has a role, but is just one of many factors affecting recent inflation dynamics. Global linkages look to be an increasingly important driver, which can make it difficult for central bankers to fine-tune domestic inflation. For the United States, disinflationary pressures look to continue over the next year via global channels, although the effect of the stronger dollar should be relatively modest compared to elsewhere in the world. On balance, it appears the generally low rate of inflation and wider scope of inflation drivers give central bankers around the world more to think about when to beginning to remove policy accommodation.

[7] Constâncio, Vítor. (2015). "Understanding Inflation Dynamics and Monetary Policy." Panel remarks at Jackson Hole Economic Symposium, Aug. 29, 2015.

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