The Fed and the Shortfall of Inflation

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During most of the time since January 2012 when the Fed officially established 2 percent as its longer-run inflation target in its "Statement of Longer-Run Goals and Monetary Policy Strategy", inflation has lingered below that target. Through its June 2017 FOMC meeting, the Fed attributed the low inflation to temporary factors, and continued to forecast inflation to rise to 2 percent. The recent decline in inflation--from February 2017 through July, the year-over-year increase in the PCE deflator receded to 1.4 percent on both its headline and core measures from 2.2 percent and 1.9 percent, respectively--has highlighted its shortfall, and some FOMC members have begun to question their near-term forecasts. How should the Fed think about this shortfall in inflation? How has it affected economic performance? Has inflation been consistent with the objectives of the Fed's dual mandate? Is monetary policy appropriate? How should the Fed respond?

Although inflation has lingered below the Fed's longer-run target, it remains consistent with the Fed's broader objectives for monetary policy, in a range conducive to healthy economic growth while inflationary expectations remain well anchored. The recent reduction in inflation largely reflects factors that are favorable for the economy and not worrisome. Inflation is forecast to rise. Monetary policy remains stimulative, with a negative policy rate and an outsized amount of excess reserves. Under these conditions, the Fed should continue to normalize monetary policy by gradually raising its Fed funds rate target above inflation and proceed with unwinding its balance sheet. These policy steps would enhance economic performance and improve financial health.

Inflation targeting and the Fed's dual mandate. Following enactment of the Full Employment Act of 1977 that established the Fed's dual mandate, Fed Chairmen Paul Volcker and Alan Greenspan emphasized that the greatest contribution the Fed could make to sustained maximum economic and employment growth was stable low inflation and well-anchored inflationary expectations. They did not refer very often to the Fed's dual-mandate, but constantly underlined the importance of low inflation. They clearly understood that long-run inflation was as monetary phenomenon and that the unemployment rate, productivity and potential growth were determined by factors other than monetary policy.

After Volcker broke the back of double-digit inflation, 2 percent became the unofficial aim during the Greenspan regime, bolstered by the mounting attention to the Taylor Rule and the growing attraction of the value of inflation targeting. Greenspan emphasized that the Fed's goal should be anchoring inflationary expectations sufficiently low such that household or business economic decisions were not affected. Of note, until 1988, the Fed's preferred measure of inflation was the GDP deflator (which it forecast in its central tendency forecasts); it switched to the CPI through 1998, and then switched to the PCE deflator in 2000 and to the core PCE deflator in 2004.

In the early 2000s, PCE inflation fell to a low of 0.7 percent and 1.2 percent on its core in

lagged response to the 2001 recession and significant declines in prices of energy and durable goods. The Fed became concerned about deflation, which Greenspan acknowledged was a low probability but high cost outcome. The worry was that deflation--a persistent decline in the general price level of all goods and services -- would generate deflationary expectations that would lead households and businesses to save rather than spend, depressing aggregate demand and would be difficult to escape. The Fed downplayed an important lesson of US economic history: there have been numerous episodes of deflation, and with the sole exception of the Great Depression, the real economy continued to grow, and expectations of deflation did not become prevalent or influence aggregate demand. Amid this policy debate, in 2003, then-Fed Governor Bernanke expressed concern with the conduct of monetary policy constrained by the zero bound, but argued that the Fed could engage in quantitative easing that would stimulate aggregate demand and end deflation.

The Fed's lingering concerns about deflation contributed to it keeping rates too low for too long, which facilitated the debt-financed housing bubble. The deflation debate subsided as economic activity picked up and inflation rose to 2 percent, and the Fed gradually raised rates. By 2006, inflation reached 3 percent and the Fed had raised rates to 5.25 percent. During the subsequent financial crisis and recession, inflation fell to a low of 1 percent and the Fed funds rate hit the zero lower bound and the Fed implemented quantitative easing.

Formally establishing the 2 percent target. The Fed became increasingly explicit in linking its monetary policy to its dual mandate as the economy recovered from recession and the Fed piled on its asset purchases in an aggressive effort to lower unemployment. Following a thorough debate of the issues regarding targets consistent with its dual mandate, in January 2012 the Fed formally adopted a "Statement of Longer-Run Goals and Monetary Policy Strategy" that established longer-run targets of 2 percent inflation (based on the PCE deflator) and "maximum employment".

The Fed's Strategic Statement did not identify 2 percent as a ceiling (as the ECB did) or an average, but stated that the Fed would be concerned "if inflation were running persistently above or below that objective." The Strategic Statement was explicitly imprecise about the goal of maximum employment, saying that would be based on a "wide range of indicators" but added a caveat, noting that the maximum level of employment "is largely determined by nonmonetary factors that affect the structure and dynamics of labor markets." Every year the Fed reviews and affirms its Strategy Statement which is posted on its website.

The Fed choice of a 2 percent longer-run inflation target was based on a variety of factors. Importantly, a single numeric target was considered valuable because of its clarity, which would improve the Fed's transparency, and in doing so would help to anchor inflationary expectations. The Fed had been aiming toward 2 percent since the

1990s and many other leading central banks, including the Bank of England and the European Central Bank had already chosen 2 percent as their official target, so it was easy for the Fed to follow.

2 percent was considered to be consistent with healthy growth and would lubricate the economy in light of the downside rigidity of wages and other characteristics. (Note that this assessment does not distinguish between the rigidity of nominal and real wages). It was perceived to provide the Fed flexibility to conduct countercyclical monetary policy in response to recession. This was based on the observation that during recent recessions the Fed has cut its policy rate by an average of nearly 5 percentage points. The Fed seemingly did not consider its quantitative easing capabilities at the zero bound. The 2 percent also accounts for mismeasurement biases that historically have been found to overstate inflation (primarily on the CPI).

It is noteworthy that as the Fed debated and formulated its inflation target leading up to its Strategic Statement in January 2012, core inflation was 2 percent, headline was 2.5 percent, and inflationary expectations were modestly higher. As such, the Fed was "looking down" at 2 percent. That is no longer the case.

Trends in the inflation and measurements. The most notable longer-run trend in inflation is that it has drifted down: the PCE deflator averaged 2.3% in the 1990s, 2.1% in the 2000s and 1.5% so far this decade (Chart 1). The US Bureaus of Economic Analysis (BEA) and Labor Statistics (BLS) measure PCE inflation in quality-adjusted terms designed to reflect quality improvements and new (improved) products that result from technological innovations. These quality adjustments along with changes in costs of production and distribution have contributed to the drift down in inflation (and stronger real growth and higher standards of living) and sizeable changes in relative prices among the various goods and services.

Consider the PCE deflator. Since 1995 the deflator for durable goods, which includes computers and related consumer electronics, has declined nearly continuously, cumulatively by 35.3 percent, while the deflator for nondurable goods has increased by an annual average of 1.7 percent and cumulatively by 44 percent. The deflator for services, which constitute over two-thirds of total consumption, has increased nearly persistently and is now 73 percent higher than its 1995 level (Chart 2).

There are many striking examples of relative price changes. Among durable goods, the deflator for motor vehicle and parts has increased a mere 6 percent since 1995, while the deflator for furnishings and durable household equipment has fallen 27 percent (reflecting in part lower production costs from overseas) and the deflator for the category "recreational goods and vehicles" which includes computers and consumer electronics has fallen 75.5 percent. The actual market prices of most consumer durable goods have increased—for example, the average sticker price of an automobile has

nearly tripled since the mid-1990s--but the BEA has estimated that the improved quality and enhanced efficiency of these goods have significantly exceeded the increases in market prices.

Among nondurable goods, prices of gasoline and energy have more than doubled since 1995 and prices of food and beverages (purchased for off-premises consumption) have increased over 50 percent while prices of clothing and footwear have fallen 11% (presumably reflecting lower production costs of goods made overseas).

The PCE deflator for services, which presumably involve fewer estimated quality adjustments and is influenced less by international markets, has experienced relative uniformity of price increases of its major components. From 1995 to the present, the deflators for the key categories of housing and utilities, healthcare, recreation services, food and accommodation, financial services and insurance have increased cumulatively between 66 percent and 81 percent (between 2.4-2.8 percent average annualized). Prices of transportation services have increased a bit less.

These data highlight the importance of the BEA/BLS's quality adjustment estimates in the official inflation data. The BEA estimates the quality change of goods and services using hedonic regression techniques that involve identifying the differences in characteristics between the updated and new goods and services versus the old ones and estimating their value-added. These estimates involve a significant amount of judgment.

Unfortunately, the BEA and BLS do ***not*** publish their estimates of quality adjustments, so data for any specific period or any span of time are not available. This is too bad: such estimates would help explain some short-term fluctuations in inflation, but much more importantly, their trends and sums for different goods and services would deepen our understanding about the longer trends in economic performance and higher standards of living in critical ways that are not captured by GDP.

Other issues arise in inflation data, particularly for services. Over half of all consumption of services is for housing and utilities (27 percent) and healthcare (25 percent). The deflator for housing is driven largely by a measure of owners' equivalent rent (OER) of primary residence, which is imputed from a survey of homeowners and updated based on actual rental prices. Note that the OER measure has increased much more slowly than home prices; whereas home prices are the value of an asset, rents are the price of consuming a service (shelter) and are influenced by factors other than the value of the home, including the disposable income of the renter.

The deflator for medical services has been significantly influenced by estimated quality advances of specific medical services, but importantly, prices of medical services are heavily influenced by reimbursement schedules administered by government

regulators (for Medicare and Medicaid) and private sector insurers.

The decline in inflation in 2017 reflects declines or flatter increases in the deflators for energy, recreation services, financial services and insurance, clothing and footwear, pharmaceutical goods and cell phone services. These trends are positive for the economy.

A note on the soft wage gains. The soft wage increases despite the low unemployment rate has been disappointing to the Fed, which considers wages as a key labor market indicator and perceives accelerating average wages as a necessary precursor to rising inflation. Importantly, amid the low inflation, real wages have been rising.

Underlining the constraining impact of weak productivity on wages, a disturbingly large portion of the working age population has relatively low educational attainment and skill levels. According to the BLS, 85 million people of the working age population (25 years and older) have a high school degree or less, of whom only 44 million have jobs. The rest do not hold jobs, whether or not they are counted in the official labor force. The combination of technological innovation and internationalization has reduced the demand for their labor.

Of note, the largest share of the 12 million net new production and nonsupervisory jobs created so far this expansion has occurred in lower-paying industries (leisure and hospitality, retail and administrative and waste industries) that on average are associated with lower productivity gains. While this composition of net new jobs has lowered the average wage per job, wage increases in these lower paying industries have risen faster than wages in the higher paying industries, so this compositional change does not explain the pace of overall wage gains that are measured to reflect interindustry shifts.

The moderate growth in aggregate demand as measured by nominal GDP has also been a significant overriding factor that has influenced wage and price setting behavior, constraining wages and keeping a lid on inflation and inflationary expectations (Chart 3). Soft product demand has constrained the flexibility of businesses to raise prices and weighed on their willingness to grant faster wage increases. Along with the unemployment rate and productivity, nominal GDP is statistically significant in explaining fluctuations in nominal wages.

Obviously, if nominal GDP had accelerated in response to the Fed's aggressive easing as planned, both wages and inflation would have risen faster, and inflationary expectations would be higher. In its explanations of slow wage gains, the Fed has paid little attention to aggregate demand, and how current dollar spending relative to productive capacity influences wage and price setting behavior.

Economic implications of sub-2 percent inflation. The lower inflation is positive for economic performance in key ways. It helps maintains real purchasing power. It reduces the amount of price mis-signaling that occurs when inflation is higher. Technological innovations seem to be spawning new products, reducing operating and distribution costs and improving the quality of goods and services at a quickening pace. This raises real economic performance and lifts standards of living and constrains measured inflation. This is far different than a fall in inflation due to a slump in aggregate demand.

As long as inflationary expectations remain anchored and signs of deflationary expectations are absent, the low inflation is positive for the economy. Expectations of lower prices of select goods and services may be leading people to delay spending on those items, but there is no indication that such expectations are affecting aggregate demand.

What should the Fed do? The Fed faces a dilemma. While it understands that the factors that have lowered inflation are positive for economic performance, the Fed takes its 2 percent inflation target seriously and generally sees the need to treat its target symmetrically. Moreover, Chair Yellen and some other Fed members perceive that higher inflation necessarily involves higher wages and stronger economic growth and provides a "policy buffer" against the next recession. These arguments downplay the historical inconsistency between higher inflation and healthy economic expansion, and the Fed's policy options when faced with the zero bound—either QE and/or negative interest rates.

The Fed should maintain its 2 percent target and push back on any initiative to change it. Raising it in an attempt to raise inflationary expectations and stimulate growth would not work and would also send the wrong signal about its intention. Based on recent years' experience, the Fed and markets have come to learn the limitations of monetary policy.

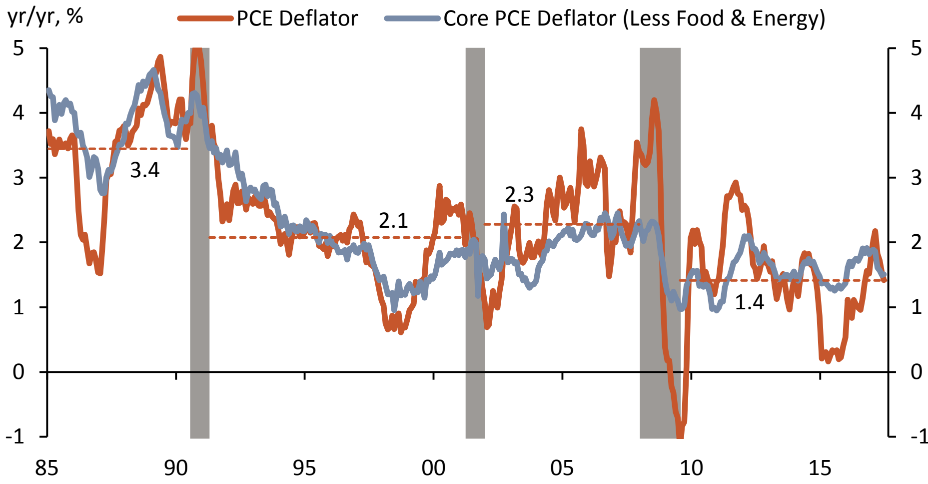
Nor should the Fed lower its target. This would involve fine-tuning and would damage the Fed's credibility, which is what happened when it changed its goals on the unemployment rate. Economic performance and financial markets are better served when the Fed sticks with a target.

Maintaining a longer-run inflation target but tolerating a range is a rational strategy. It allows for normal fluctuations reflecting temporary influences of supply and demand on prices and changes in quality adjustment estimates. Inflation measures involve a lot of moving parts and small changes should not be over-interpreted. As long as inflation expectations remain anchored and the Fed continues to forecast that inflation will rise to 2 percent, the Fed should not respond to sub-2 percent inflation.

Under current economic and inflation conditions, the Fed should continue to normalize monetary policy. The Fed should raise the Fed funds rate target above inflation and gradually toward estimates of its natural rate, and gradually unwind its bloated balance sheet. It should modify its current balance sheet strategy to completely unwind its MBS holdings and go back to an all-Treasuries portfolio. With the mortgage and housing markets healthy and normally functioning, there is no reason for the Fed to be involved in credit allocation policy that favors one sector over others.

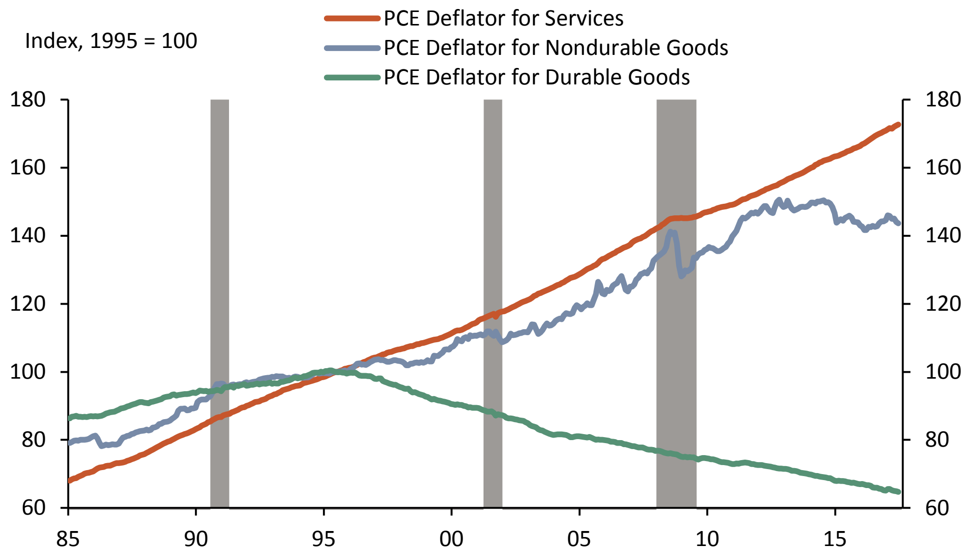
Continuing toward monetary policy normalization would improve economic and financial market performance. In every recent economic expansion, the Fed's rate increases to normalize monetary policy following a period of monetary ease did not harm economic growth and in key cases led to improvement. Note that the Fed's four rate increases since December 2015 have had no ill effect on the economy. A further gradual increase in rates would unclog the channels through which monetary policy affects economic activity, and unwinding its balance sheet and reducing excessive reserves would not dampen bank lending, while dramatically reducing risks.

Chart 1. PCE Deflator and Core PCE Deflator



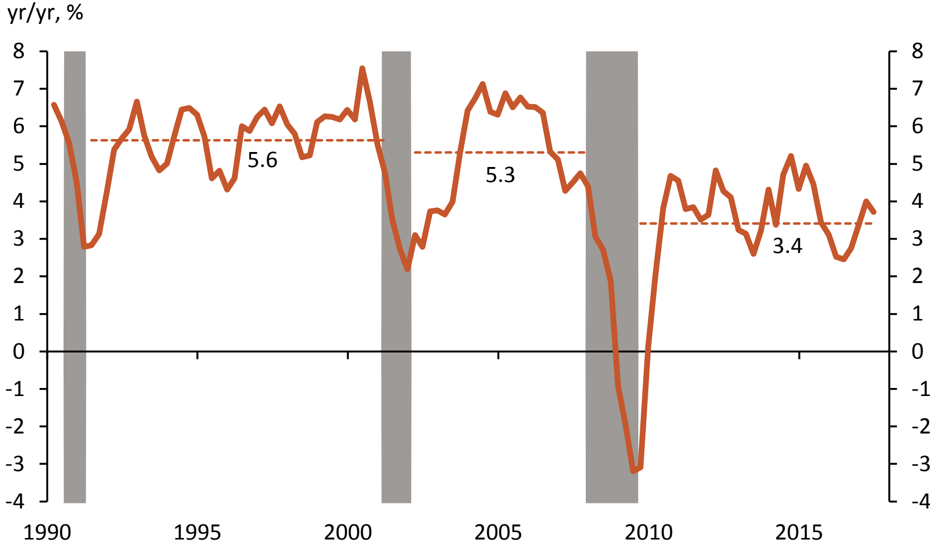
Source: Bureau of Economic Analysis and Berenberg Capital Markets

Chart 2. PCE Deflator for Services, Nondurable and Durable Goods



Source: Bureau of Economic Analysis and Berenberg Capital Markets

Chart 3. Nominal GDP Growth



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