Inflation Trends and the Federal Reserve

Mickey D. Levy
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Inflation has completed a virtual 4-decade "roundtrip", receding to levels not seen since the early-1960s. Based on measures favored by the Federal Reserve, it is well within the Fed's long-run objective. But now is not the time to be complacent about inflation. Recent data suggest that core measures of inflation have troughed, and inflationary expectations have edged up. Monetary stimulus is generating a significant acceleration in aggregate demand that points toward eventual inflation pressures, even as lower global production costs and heightened efficiencies have lifted potential productive capacity. With the economic expansion on sound footing, the Federal Reserve must clearly reaffirm its long-run objective of stable low inflation, and temper its monetary accommodation. Pre-emptive rate hikes that constrain inflation and inflationary expectations are in the best interests of desired economic and financial market behavior.

From 1960-1965, inflation averaged 1.2 percent and expectations of future inflation were muted, based on historic trends (see Chart 1). The ratcheting up of inflation to double-digit levels between 1965-1980 and the long deceleration back to early-1960s levels during 1980-2003 involved mirror images in the rise and fall of excess demand relative to productive capacity. The 1965-1980 period was characterized by stimulative monetary and fiscal policies that generated accelerating nominal spending growth (see Chart 2: nominal GDP growth accelerated beginning in the late-1960s and rose to an average 11.2 percent annually from 1976-1980), while misguided tax and regulatory policies suppressed productive capacity. Prior to 1980, the highest marginal tax rate on personal income was 70 percent, and rising inflation increased real effective tax rates by pushing taxpayers into progressively higher tax brackets. Inflation also drove up the real costs of capital, suppressing business investment and productive capacity. The two oil price shocks of the 1970s also constrained potential, and the Fed's attempt to mitigate their short-run contractionary impacts through monetary accommodation accentuated the build up of excess demand and allowed the oil price spikes to become embedded into core inflation. The mounting excess demand—reflected as the widening gap between the growth of nominal spending and real potential—generated rising inflation and the 1970s wage-price spiral.

The two-decade long successful effort to reduce inflation involved squeezing excess demand relative to productive capacity. Generally restrictive monetary policy slowed aggregate demand growth, while pro-growth fiscal and regulatory policies contributed to higher productive capacity. Nominal GDP growth slowed markedly in response to the Fed's generally disinflationary policies, averaging 7.3 percent annually from 1983-1990, and 5.3 percent in the 1990s. The sustained expansion of the 1990s stands out as the only modern, cyclical upswing in which nominal GDP did not accelerate. The constrained aggregate demand growth induced production efficiencies and contributed to the capital spending

boom that stimulated growth and lifted sustainable potential growth, and also helped to limit compensation increases (see Chart 3). As a result, as the 1990s proceeded, a larger share of the nominal GDP growth was real, while inflation was squeezed. Importantly, the Fed's aggressive pre-emptive tightening in 1994 reinforced its inflation-fighting credibility at a crucial juncture of the cycle, contributing to subsequent disinflation and creating a favorable foundation for sustained expansion.

GDP Gap and NAIRU Models Are Unreliable

It is noteworthy that Phillips Curve-type NAIRU frameworks and GDP-gap models, unvarnished by *ex post* revisions of estimates of the natural rate and potential growth, failed to accurately predict either the sharp acceleration of inflation in the 1970s or the disinflationary trend of the 1980s-1990s. Inflation rose in the 1970s despite rising unemployment, and it receded in the 1990s amid strong economic growth and declining unemployment (see Chart 4). NAIRU and Phillips Curve-type models have glaring analytical flaws: they fail to distinguish between changes in the unemployment rate that result from shifts in demand and those due to shifts in supply and accordingly do not consider the impact of productivity on unit labor costs, and they generally assume that rising wages and production costs translate into higher inflation. GDP-gap models are based on the measured gap between real GDP and an estimate of real potential as the measure of excess demand. This comparison of two *real* variables—one actual and the other an unobservable measure of potential—fails to capture the implications of current dollar spending growth on supply-demand determinations of prices, and it does not appropriately reflect the Fed's monetary policy as an aggregate demand tool that influences nominal, not real variables. In this light, explanations of recent reductions in inflation as reflections of "opportunistic disinflation", implying that Fed success has relied on the deliberate exploitation of economic slack for the purposes of reducing inflation, are similarly unconvincing in the face of the evidence.

In light of these flaws, it's not surprising that these models failed to predict the rise to double-digit inflation in the late-1970s, even though runaway nominal GDP growth was multiples higher than reasonable estimates of potential growth, and they failed to forecast the falling inflation in the 1990s, despite the Fed's success in constraining nominal spending growth to 5.3 percent and the endogenously-driven productivity gains. The evolution of inflation forecasts during this period suggests that when GDP-gap models have persistently misestimated inflation, *ex post* adjustments to estimates of potential growth are made to "improve" the backward-looking inflation fit of the model; similarly, NAIRU estimates are adjusted to better align the "model" with actual inflation outcomes. While policymakers and others seem to take comfort in such *ad hoc ex post* re-estimates that provide seemingly close statistical correlations, in reality, the reliability of their inflation-predicting powers remains overstated.

Recent Inflation Conditions

During 2000-2003, key indicators of inflation declined: measured Q4/Q4, the CPI and PCE deflators drifted down to 1.9 percent and 1.5 percent in 2003, and their "core" measures excluding food and energy receded to 1.2 percent and 1.0 percent, respectively, while the GDP deflator fell from 2.2 percent in 2000 to 1.6 percent in 2003 (see Table 1). These trends resulted from the slump in aggregate demand generated by monetary tightness in 1999-2000, significant adjustments to the excesses of the 1990s that contributed to constrained spending and a stronger US dollar that suppressed import prices. Nominal GDP growth slowed sharply to a 3.2 percent annualized pace from 2000Q2-2002Q4, compared to a 6.1 percent annualized pace from 1996-1999 and a peak year-over-year rise of 7.1 percent in 2000Q2, while productivity gains continued, even during the 2001 recession. The insufficient demand exerted downward pressure on prices.

As inflation has receded, significant changes in relative prices have added confusion about the inflation outlook. In particular, prices of goods have been falling, while prices of services have continued to rise at a moderate pace. The PCE deflator for durable goods fell at an accelerating pace, reaching a year-over-year decline of 4.1 percent in 2003Q4. This trend reflects heightened efficiencies and declining production costs and the benefits of enhanced capabilities of global production and trade. In manufacturing, robust productivity gains (3.8 percent in 2001, 6.4 percent in 2002 and 5.8 percent in 2003) exceeded compensation increases, generating lower unit labor costs. Surging imports of goods from low cost producing nations such as China (imports from China rose from $100 billion in 2000 to $152 billion in 2003) and India contributed to declining prices of nonpetroleum imports, and heightened reliance on low-cost labor from those nations likely contributed to declining prices of tradable goods and heightened efficiencies in domestic production. Meanwhile, the PCE deflator for nondurable goods continued to rise at a moderate pace (with the exception of a temporary energy-related sharp decline following 9/11/01), and the PCE deflator for services decelerated but rose persistently, up 2.6 percent in 2003. Prices of medical services continued to rise faster than 4 percent annually, while the shelter component of the price of homeownership has decelerated modestly to approximately 2.3 percent.

These diverging relative prices for tradable goods and services, amid growing concerns about low and declining overseas production costs, a weak domestic job market and anecdotal evidence about accelerating overseas outsourcing of jobs, have led some observers to express concerns about deflation while others looked at rising prices of services (and even assets like stocks and real estate) as signs of inflation.

The macroeconomic fundamentals had changed decidedly by Spring 2003 when Federal Reserve Chairman Greenspan expressed concern about deflation and other Fed members publicly debated the conduct of monetary policy amid the specter of a zero bound on nominal interest rates. While real GDP growth remained modest (it averaged 2.5 percent in the first half of 2003), nominal GDP had accelerated to a 4.5 percent growth pace, comfortably above most estimates of potential, and aggressively stimulative monetary and fiscal policies were expected to generate further acceleration of aggregate demand. Financial asset prices, particularly stocks and real estate, were appreciating. The U.S. dollar

was falling, suggesting that import prices would be rising. All of these factors pointed toward an eventual rise in inflation, not a slip into deflation.

Chairman Greenspan referred to deflation as a low probability but a high cost outcome. His low probability assessment, which extrapolated the recent disinflationary trend into a decline in the general price level, presumably was driven in part by GDP gap and NAIRU type models that indicated significant slack in the economy and labor markets. Moreover, surging labor productivity was suppressing unit labor costs and easing price pressures.

In Spring 2003, concerns about possible deflation may have reflected appropriate caution in light of the relatively lackluster economic response to the monetary and fiscal stimulus, but the inference that even mild deflation necessarily would be destabilizing to economic performance seemingly was inappropriate. Robust productivity gains and technological innovations are positive for economic performance, even if they put downward pressure on costs and prices. The combination of healthy accelerating aggregate demand and surprisingly strong advances in productivity may elicit certain concerns, but a destabilizing deflation should not be among them. In fact, the U.S. has experienced several other periods of deflation and near-deflation that accompanied healthy, even robust productivity-driven growth. Recently, from 1960-1965, when CPI inflation averaged 1.2 percent while real GDP growth averaged 5.0 percent annualized, policymakers did not express similar concerns about potentially destabilizing deflation.

In light of the 9 quarters of rebound from the 2001Q4 recession trough and significant acceleration of real and nominal GDP, the continued decline in inflation through 2003 elicits a critical question: has inflation been subdued because the lags (between monetary accommodation, economic growth and accelerating prices) are longer than in the past, or has there been a dramatic outward shift in aggregate supply associated with declining production costs of tradable goods (read China, India, et al.) and more efficiency of domestic production? The issue of lags must be put into context: through 2003Q2, the first 6 quarters of recovery were very moderate, and real and nominal growth accelerated above potential only in the second half of 2003. Aggressive monetary stimulus failed to generate a pick up in nominal spending growth through mid-2003, as velocity declined precipitously; while the velocity declines were attributable largely to falling interest rates, other factors, including the large declines in household wealth and the enhanced uncertainty engendered by 9-11, the buildup to the Iraq conflict, and the corporate scandals, also contributed. Accordingly, traditional lags between economic acceleration and inflation are just now being tested. Subdued inflationary expectations have contributed to constrained wage increases and have influenced other pricing behavior, and may lead to longer-than-normal lags.

At the same time, the sustained robust gains in productivity, declining prices of tradable goods and anecdotal evidence of increasing outsourcing and production efficiencies support some outward shift in productive capacity. If in fact supply innovations have lifted potential growth to 4 percent, price pressures initially may remain subdued as demand and production ramp up to the faster pace of potential growth. However, current dollar spending growth persistently exceeding potential eventually will involve excess demand that will generate higher inflation.

With 2004Q1's strong expansion, year-over-year nominal GDP growth has accelerated to well above 6.5 percent. If sustained, such growth in aggregate demand provides businesses flexibility to raise prices and offset higher production costs. Prices of commodities and semi-finished goods are rising in response to strong global production. As businesses increase employment and hours worked to meet production schedules, labor productivity gains will slow, likely generating modest upward pressure on unit labor costs. Moreover, prices of imports have begun to rise in lagged response to the lower U.S. dollar: in the last year, prices of imported petroleum products have risen 21 percent, while prices of nonpetroleum imports have risen 1.1 percent after declining 1.9 percent annually in 2001-2002.

So even if a positive productivity shock has lifted potential growth, the most likely outcome of currently accelerating nominal spending is higher inflation. In recent months, data indicate that inflation has troughed and begun to edge up. While energy prices have risen in the last year but have been very volatile, the "core" CPI and PCE deflator (excluding food and energy) have accelerated 1.8 percent and 1.6 percent annualized in the last 3 months, lifting their year-over-year increases to 1.6 percent and 1.1 percent, respectively, up from their recent troughs of 1.1 percent and 0.8 percent (see Charts 5 and 6).

Monetary policy remains very stimulative, as reflected by the negative real federal funds rate, the steep yield curve and money growth, and points toward sustained rapid nominal spending growth. The money stock, which declined slightly during August-December 2003, presumably associated with the sharp fall-off in mortgage refinancing activity, has reaccelerated. In the first 15 weeks of 2004, M2 has resumed its prior growth pace of just above 8 percent annualized, while MZM and the monetary base have also resumed their earlier growth rates. A negative real federal funds rate should generate continued money growth, while money velocity has begun to rise in response to the recent backup in interest rates, the rebound in household wealth and a reduction in the uncertainty that had previously inhibited spending (see Chart 7). According to the Taylor rule, based on a 2 percent inflation target the federal funds rate consistent with current conditions is nearly 3.0 percent [inflation + 2% real rate + 0.5(inflation minus 2%) + 0.5(GDP gap)]. According to the McCallum monetary base rule [implied base growth = inflation + 10-year average real GDP growth - 4-year average annual percent change in base velocity], based on a 2 percent inflation target, the monetary base should grow at a 6.7 percent pace. Monetary base growth has been only 4.5 percent in the past 12 months but has accelerated to 7 percent annualized since year-end 2003; base velocity also began rising in 2003Q2 following its 1.3 percent annualized decline in the last four years (that had raised McCallum's estimated base growth necessary to achieve the 2 percent inflation target).

Based on historic relations, the acceleration of nominal GDP eventually would push inflation above 2 percent, with upside risks in light of rising import prices. In the context of the inflation experience in recent decades, such inflation would be modest and well within the recent relatively narrow range. However, it would reverse the recent declining trend, and would lift inflation above the Fed's central tendency forecast of a 1 - 1.25 percent rise in the PCE deflator (see Table 2). It would also likely generate a rise in inflationary expectations. The consequences of even moderate increases in inflation and inflationary

expectations may be significant. Rising interest rates would constrain growth in investment, consumption and housing activity, and would adversely affect prices of financial assets.

It is the risks of a more significant eventual rise in inflation, rather than concerns of a modest near-term rise, that underline the Fed's need to temper monetary stimulus. With strong economic growth and the economic expansion on sound footing, the Fed must now begin the process of raising interest rates. Nobody knows reliably the level of the real federal funds rate consistent with a "neutral" monetary policy—that is, one that generates sufficient growth in money and aggregate demand to meet productive capacity without generating excess demand. Such a neutral funds rate is a moving target, depending on the rate of money growth and velocity, and credit conditions. But, that natural rate is clearly well above the current 1 percent.

Federal Reserve Behavior During Presidential Election Years

Many argue that the Fed is constrained by the politics of the Presidential election from hiking rates and tightening monetary policy. Not so. History indicates that with the exception of the 1972 Presidential election year, the Fed has conducted monetary policy and adjusted its federal funds rate target in response to economic and inflation conditions during election years in a manner similar to non-election years.

During the last 11 Presidential election years, from 1960 to 2000, the Fed raised the funds rate 6 times and lowered it 5 (see Table 3). During Presidential election years in which economic growth was strong and/or accelerating and inflation concerns were mounting (for example 1968, 1972, 1980, 1988 and 2000), the Fed tightened policy, and it eased when the economy was weak and it perceived inflation pressures were abating. Since 1980, the Fed's central tendency forecasts provide a rough benchmark for evaluating the general consistency of the Fed's monetary policy. Similar to off-election years, the Fed tended to raise its funds rate target when growth and inflation exceeded the central tendency forecasts and it tended to lower the funds rate when growth and inflation were below the forecasts. In several years (1960, 1984, 2000) economic growth was strong in the first half of the year but softened significantly in the second half. During these Presidential election years, the Fed lowered rates or remained on hold as the November election approached, giving the impression that the Fed was "playing politics". To the contrary, considering Fed behavior within the economic context suggests strongly that it tends to pursue an even-handed monetary policy during Presidential election years, and generally does not allow politics to materially affect its decisions.

The exception year was 1972, when Federal Reserve Chairman Arthur Burns seemingly maintained a more accommodative monetary policy than economic and inflation conditions required presumably in an attempt to aid President Nixon's re-election bid (White House transcripts confirm President Nixon's request to Burns that the Fed remain accommodative, but they do not include Burns's response). Real GDP growth accelerated to 7.1 percent from 1971Q4-1972Q4—by far the fastest of any recent Presidential election year—and the unemployment rate receded—as aggressive monetary and fiscal stimulus policies stimulated robust aggregate demand growth (11.75 percent in 1972, while wage and price controls imposed by President Nixon in August 1971 constrained measured inflation to 3.5 percent.

The Burns-led Fed raised the funds rate during 1972, but not nearly as much as the surging economic activity and artificially-suppressed inflation pressures merited. In the year following the November 1972 Presidential election, the funds rate doubled, from 5 percent to 10 percent, and in the two years following the election, inflation more than tripled as the wage and price controls were eased.

Such election year fireworks are not in the cards this year, and there is no reason to expect the Fed to alter its conduct of monetary policy in response to election year politics.