US NOMINAL GDP ACCELERATION: PAY MORE ATTENTION TO IT

When the U.S. Bureau of Economic Analysis (BEA) released its Report on Gross Domestic Product for the second quarter of 2018, all of the media headlines, and Wall Street analysis and commentary focused on the 4.1% annualized growth of real GDP and its components, with many a mention of nominal GDP. Of course inflation-adjusted GDP is the most comprehensive measure of the real economy, but nominal GDP, the broadest measure of current dollar domestic production that includes both real activity and inflation, also conveys important information and has implications that should not be overlooked.

*Nominal GDP jumped 7.4% q/q annualized in Q2, lifting its yr/yr growth to 5.4%, its fastest pace of the elongated expansion and a dramatic pickup from the 3.8% average pace in 2012-2016 (Chart 1).

*Nominal GDP is the broadest measure of aggregate product demand and production, and its recent acceleration underlies the increases in corporate top-line revenues and profits. Not surprisingly, of the 80% of S&P500 companies that have reported Q2 earnings, 85% have exceeded profit expectations and an impressive 73% have exceeded revenue expectations.

*The BEA derives its estimate of real GDP by starting with its basic collection of nominal production data and adjusts them for changes in prices and quality of the different categories of goods and services that comprise GDP. Measuring product prices is fairly straightforward, while estimating quality adjustment amid rapid technological innovations and new product development is very complex. Higher estimated quality adjustments reduce measured inflation and raise real GDP.

* The Fed’s preferred measure of inflation, the PCE index, the quality-adjusted price changes of consumer expenditures, has risen 2.2% year-over-year. The PCE index

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for services has risen to 2.6%, while the PCE price index of durable goods has fallen 1.8%, continuing a decline that began in the mid-1990s. The broader chain-weighted GDP price index has been increasing faster (2.4% yr/yr) reflecting higher inflation in business investment, exports and government purchases.

*Inflation rises to the extent that nominal spending exceeds real productive capacity. Nominal GDP growth is significantly above estimates of potential real GDP growth, which is currently estimated by the Federal Reserve and Congressional Budget Office to be below 2%, reflecting their estimates of growth in the labor force and labor and total factor productivity. If nominal growth continues anywhere close to its recent pace, production and distribution bottlenecks will likely mount, and inflation will rise.

*Monetary and fiscal policies are implemented in nominal terms and affect nominal variables in the economy. Workers are paid in nominal terms and consumers and businesses conduct commerce in nominal terms. We believe the Fed should focus more on nominal GDP and include it in its quarterly Summary of Economic Projections (SEPs).

*Nominal GDP growth historically has influenced bond yields and has significant implications for financial markets. Financial market participants should pay more attention to nominal variables, in our view.

Despite the Fed’s efforts to stimulate faster growth through QEIII and artificially low rates and forward guidance, nominal GDP failed to accelerate during 2012-2016, averaging 3.8% growth. During that period, real GDP growth averaged 2.2% and inflation of 1.2% (PCE) and 1.5% on the GDP chain price index. A host of factors, including the Fed’s own financial regulations and IOER gummed up the monetary channels and business concerns about taxes and the growing web of regulations inhibited product demand and production and investment. The period of disappointing growth culminated in an industrial slump in 2015-2016, following the collapse in oil prices when industrial production and capital spending declined. During these two years, nominal GDP rose an average of 3.3%.

Since then, nominal GDP has accelerated significantly: it rose 4.5% in the year ending 2017Q4 and 4.8% annualized in the first half of 2018, with a soft Q1 followed by a robust Q2. While consumption has been solid, the sharp acceleration in product demand and production in H1 has been driven by strength in business fixed investment, exports and government purchases (consumption and investment). Underlying the strength in capital spending has been the shift toward deregulation and elevated confidence and corporate tax reform (see “US: soft’ data and ‘hard’ outcomes”, March 9, 2017). Corporate profits have also rebounded from their slump in 2015-2016, and wage increases and inflation have tilted up.

This acceleration in nominal GDP has involved a combination of faster real growth and higher inflation. Measured from 2016Q3, when year-over-year nominal growth was 2.6%, it has picked up 2.8 percentage points to 5.4% in 2018Q2. During this period, real GDP has picked up by 1.3 percentage points. The PCE price index has risen 1.2 percentage points to 2.2%, while the chained GDP price index has risen 1.4pp to 2.4%, reflecting particularly the faster increases in the price indexes for residential investment (home building and improvements, up 6% in the last year) and government consumption and investment (up 2.9%).

Inflation occurs when nominal product demand and production exceed real productive capacity—potential growth. Nominal GDP is the broadest measure of product demand, while potential growth is an estimate that reflects estimated trends in the labor force, and labor and total factor productivity. Chart 2 shows the historic spread between nominal GDP growth and estimates of real potential growth from the Congressional Budget Office. The sizable excess nominal demand relative to productive capacity during the 1970s underlies the high inflation of the period, and the narrower spread in this expansion explains the sustained lower inflation.
It is surprising to us that the Fed’s macroeconomic model and mainstream economists continue to forecast inflation based on souped-up Phillips Curve models that rely on the tradeoff between inflation and the unemployment rate, even though those models haven’t been reliable predictors in the last 50 years! Remember, inflation reflects the supply-demand dynamics of all goods and services in the economy, which we believe is best captured by nominal spending and production trends, while wages reflect the supply-demand characteristics of labor markets.

When there is excess demand relative to productive capacity, bottlenecks in production and distribution contribute to rising costs of production, while rising demand for labor relative to supply generates higher wages, and product prices rise. **The trend in nominal GDP growth affects both wage and price-setting behavior, and wages and prices are jointly determined and tend to rise simultaneously:** businesses adjust product prices to changes in nominal product demand; when demand is accelerating, they have more flexibility to raise product prices (without losing market share), and are in a better position to grant higher wages. The opposite holds when nominal growth is weak. **In addition to measures of labor market tightness, we have found that nominal GDP growth is statistically correlated with wage gains** (see “**How much can US wages rise?**” October, 26, 2016).

The recent acceleration of product demand and production—nominal GDP—is generating clear signs of production and distribution bottlenecks, and a number of companies in different industries are announcing increases in product prices. We expect that trend to continue.

Note that, in our view, the Phillips Curve which correctly posits that lower unemployment raises wages, incorrectly presumes that wages always leads to higher product prices without considering the impact of productivity on production costs, or how nominal aggregate demand influences businesses flexibility to raise product prices. In the 1990s, strong productivity gains were associated with strong gains in real wages, while constraining unit labor costs; that is the stronger productivity raised the share of nominal GDP that was real. In this expansion, the moderate growth in nominal GDP has constrained wage gains and inflation despite very low unemployment. Not surprisingly, the Phillips Curve did not capture either of these dominant trends.

Longer-run potential growth is now estimated to be 1.8% by the Federal Reserve and 1.0% by the Congressional Budget Office. Based on the shifts in regulatory and tax regimes and the rapid pace of technological innovation and implementation into commerce, we estimate potential to be closer to 2.3%-2.5%. Recently, reflecting the stronger growth of real GDP and capital spending, productivity gains have picked up, a trend we anticipate will be sustained. We expect the Fed will eventually (and gradually) revise up its estimates...
of potential, and revise down its estimate of the natural rate of unemployment, so-called “full employment.” Those revisions will realign the Fed’s macroeconomic model with actual inflation trends. Such ex post adjustments of potential growth are not uncommon.

But even if potential is closer to 2.5% that the dismal estimates of the Fed and CBO, the recent strengthening of nominal GDP growth is expected to raise inflation pressures. That is, even if nominal GDP continues to grow at 5%, as we project, a rising share of the excess demand will add to inflation, while real growth simmers down toward potential growth. We expect these pressures on production costs and product prices will raise inflation firmly above the Fed’s 2% target.

Nominal GDP and bond yields. Bond yields embody a real rate related to the real economy, inflation and inflationary expectations and a risk premia, so their historic relationship to nominal GDP is not surprising. Overtime, U.S. Treasury bond yields have adjusted down as inflation pressures have abated and inflation-adjusted yields have generally tracked real GDP growth (Charts 3 and 4). However, during this expansion, bond yields have remained well below nominal GDP and since late 2016 have stayed surprisingly low as real growth and inflation have picked up. Presently, there is an inconsistency between the acceleration of nominal GDP and bond yields. Some of the explanations of the low bond yields make sense (the Fed’s QE and still-massive Treasury holdings, low central bank policy rates globally and very low—or negative—yields overseas) and some that don’t make sense (“demand for safe assets”).

We forecast bond yields to rise to reflect the stronger pace of real growth and higher inflationary expectations. The gap between nominal GDP growth and Treasury bond yields should narrow.

The BEA’s estimates of inflation. The BEA plays a critical role in estimating real growth and inflation. It sets the standards and protocols for collecting and modifying the data. The BEA 1) starts with compiling data on the nominal (current dollar) value of domestic production, careful to correct for any double-counting in production processes; 2) collects data on nominal price changes of all of the components of GDP—consumption, business fixed and residential investment, changes in inventories, exports and imports and government purchases (consumption and investment), broken down into their many subcomponents; and 3) adjusts these price changes for estimated changes in quality adjustment that are designed to capture the change in quality of different goods and services, particularly when new products replace old ones. Its nominal GDP calculations are then adjusted for estimated quality-adjusted price changes. The BEA’s estimates of quality adjustment are very important, but often overlooked by financial markets, the media and the Fed.

Chart 3: 10-Year Treasury Yield and PCE Inflation

Source: Monthly data. Source: Bureau of Economic Analysis, Federal Reserve Board and Haver Analytics
The BEA's quality adjustments rely on hedonic regression analyses that estimate the revealed preference (value) of the new and/or improved good or service by estimating the contributory value of their new and/or improved characteristics. For example, the quality-adjustment for motor vehicle sales and parts reflects the estimated value of new efficiency safety features; for computers, the quality adjustment estimates reflect new capabilities and applications.

If you have a hard time reconciling the fact that the prices of many things you buy keep going up and the government's official measures of inflation remaining modest, for many products the difference is the BEA's estimates of quality adjustment (it may also reflect the different basket of goods and services you consume compared to the average U.S. consumer). For example, the sticker price of the average auto has roughly tripled from the mid-1990s, from $13,000 to $35,000, but the BEA's official measure of the PCE price index for autos is up only 5% cumulatively over the entire period. The magnitude of quality adjustment of computers and consumer electronics is even larger. On the other hand, the estimated quality adjustment of many services that people buy are much more modest.

The BEA's estimates of quality adjustments have a significant impact on measured inflation, particularly for durable goods like computers and consumer electronics. Consider the broader components of the PCE index, which covers nearly 70% of GDP: even as sales prices have risen nearly persistently over the decades, the PCE index for durable goods (autos, computers, etc.) has fallen nearly consistently since the mid-1990s and is now down 38% cumulatively, reflecting innovations and technological advances (Chart 5). The PCE index for nondurable goods has been much more volatile, reflecting energy prices. The PCE index for services, which constitute 69% of total consumption, tends to be much less affected by estimates of quality adjustment, is up 78% cumulatively, and has risen 2.6% in the last year.

Higher estimates of quality adjustment reduce the official measure of inflation and raise the official estimate of real growth. Obviously, amidst rapid innovations, the BEA faces a very difficult task and the margin of error in estimating quality adjustment is wide. In general, the Fed, government officials and financial markets take the BEA's official estimates at face value.

Concluding remarks. Real GDP, the best comprehensive measure of the real economy, is derived from nominal GDP, the broadest measure of the current dollar value of domestic production. Workers are paid in nominal terms, consumers buy goods and services in
nominal terms, businesses conduct commerce and report profits in nominal terms. Monetary and fiscal policies are implemented in nominal terms. Inflation, the difference between nominal and real growth, is generated when there is persistent excess nominal spending relative to productive capacity. In light of the critical role of nominal GDP and its implications for inflation and real economic and financial market performance, we believe it deserves close scrutiny.

Chart 5: PCE Price Index for Services, Nondurable and Durable Goods (1995 = 100)

Source: Bureau of Economic Analysis/Haver Analytics

Source: Monthly data. Source: Bureau of Economic Analysis and Haver Analytics
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