Yardeni Research

MORNING BRIEFING
May 15, 2018

Revisiting the Phillips Curve

See the collection of the individual charts linked below.

(1) Commercial break. (2) Yellen was a fan of Phillips Curve Model while she was Fed chair. Powell not so much. (3) When is a flat curve not a curve? (4) Phillips curve not totally dead, but with jobless rate at 3.9%, wage inflation should be closer to 4.0% than to 2.5%. (5) Wage inflation showing more lift in goods than in services. (6) Price inflation showing more lift in services than in goods. (7) Rent inflation boosting services inflation. (8) Low price inflation (resulting from disinflationary structural forces) may be driving, and keeping a lid on wage inflation.

My New Book. If you have read my new book and have the time and inclination, please write a review on the book's Amazon page. I'm pleased with the initial reception. Now I am working on convincing teachers of economics to assign the book in their courses. I am open to suggestions. As I note on the book's website: "One of my aims with this book is to show how economics is vitally important to all of us, because we all are affected by the theories of professors and the decisions of policymakers. Everyone can benefit from a better understanding of the forces that shape our financial lives."

I've had several requests for bulk discount pricing. You can get a 25% discount when you order five or more copies through our shopping cart. Help keep the inflation rate down by ordering in bulk for your family, friends, and colleagues!

Phillips Curve I: Wages & Unemployment. Speaking of inflation, Chapter 4 of my book is titled "Predicting Inflation." I observe: "Accurately predicting price inflation is one of the most important prerequisites for predicting the outlook for the stock and bond markets. A bad inflation forecast almost certainly will result in bad investment choices in all the major financial markets."

During the reign of Fed Chair Janet Yellen from 2014-2017, she and most of her colleagues expected that their ultra-easy monetary policies would push the unemployment rate downward, which would push wage inflation higher, into the range of 3.0%-4.0%. Their favored measure of wage inflation was the yearly percent change in average hourly earnings (AHE), which had been below 3.0% since June 2009 through April of this year (*Fig. 1*). They were relying on the Phillips Curve Model, which posits an inverse relationship between wage inflation and the unemployment rate. They also expected that higher wage inflation would be marked up into higher price inflation, closer to their 2.0% target (*Fig. 2*). Their favored measure of price inflation is the yearly percent change in the core PCED, i.e., excluding food and energy prices. This inflation rate has been below 2.0% ever since they publicly made it their official target at the start of 2012.

Jerome Powell, in his first press conference as Fed chairman on March 21, commented on "the flatness of the Phillips curve." He said that "the relationship between changes in slack and inflation is not so tight." A flat Phillips curve is a dead Phillips curve. Nevertheless, Melissa and I continue to monitor the Phillips curve for signs of life, i.e., mounting inflation in wages and prices, and want to share with you our latest findings. Let's start by examining the relationship between unemployment and wage inflation.

Then in the next section, let's do the same for the jobless rate and price inflation. Let's wrap it up with an examination of the relationship between price and wage inflation. Here goes:

(1) *Average hourly earnings*. After soaring from around 4.0% during the mid-1960s to roughly 9.0% during the early 1980s, the wage inflation rate—i.e., the rate of inflation in average hourly earnings (AHE)—plummeted just below 2.0% by the mid-1980s. It has been fluctuating in a range approximately spanning 1.0%-4.0% since 1982 through now. There was a noticeable inverse correlation between the AHE inflation rate and the jobless rate during most of this period until the past few years when the Phillips curve flattened, as Powell said. In other words, wage inflation has remained remarkably subdued.

The Phillips curve isn't totally dead. There still is a weak inverse relationship between the unemployment rate and wage inflation. As the unemployment rate soared from a cyclical low of 4.4% during March 2007 to a peak of 10.0% during October 2009, AHE inflation dropped from a cyclical peak of 4.2% during June 2007 to 1.2% during October 2012. Then the unemployment rate dropped, falling to 3.9% last month, the lowest since December 2000. Wage inflation rose erratically and slowly to 2.6% last month. The last time that the unemployment rate was this low, wage inflation was 4.3%. (We are using the AHE for production and nonsupervisory workers, because this series starts in January 1964 while the series for all workers starts in March 2006.)

(2) *Goods vs services.* Comparing wage inflation in goods-producing industries vs services-producing ones, we see that both have stuck to the script of the measure that includes them both until recently (*Fig. 3*). What's different this time is that while goods-producing wage inflation is showing signs of lifting as the labor market tightens, the same cannot be said of services-producing. The former rose to 3.4% during April, while the latter was 2.3% during the same month and has been flat-lining around this pace for three and a half years.

For some perspective, keep in mind that production and nonsupervisory workers have accounted for more than 80% of total payroll employment in the private sector (*Fig. 4*). Such workers in goods accounted for 14% of all production and nonsupervisory workers during April, down from 38% during January 1964. Over the same period, the comparable share of services workers rose to 86% from 62% (*Fig. 5*).

Phillips Curve II: Prices & Unemployment. While the Phillips curve relationship between the unemployment rate and wage inflation has lost its fizz (i.e., gone flat) only in recent years, there's precious little evidence that there has been much if any tradeoff between the jobless rate and the price inflation rate using the CPI inflation rate excluding food and energy (*Fig. 6*). On the contrary, during the 1980s and 1990s, the two mostly trended lower in tandem. Since the mid-1990s, the core CPI inflation rate has ranged between 0.6% and 2.9%, while the jobless-rate cycle has been far more volatile. The Phillips curve for price inflation isn't dead because it's a myth!

Why is that so? The simplistic notion that the unemployment rate drives wage inflation, which is marked up into price inflation, is simply too simple. The mark-up theory is flawed, to say the least. In competitive markets, companies may have to absorb rising wage costs, thus reducing their profit margins. Or they can offset rising wage costs by boosting productivity. In other words, price inflation isn't determined solely by "cost-push" wage inflation. Competition and technological innovations are integral to the price inflation process. Let's slice and dice the CPI inflation rate to see whether the Phillips curve shows up at a more granular level:

(1) *Goods.* There's no discernable tradeoff between the unemployment rate and the CPI for durable goods (*Fig. 7*). That's not surprising, since durable goods prices have been on a downtrend everywhere

around the world for many years (*Fig. 8*). Since 1996, the durables components of the CPIs for the seven countries that provide these data are down as follows: Japan (-51.7%, through Mar.), Sweden (-31.9 Mar.), Taiwan (-29.3, Apr.), Switzerland (-28.7, Mar.), the UK (-23.6%, Mar.), US (-19.3, Apr.), and the Eurozone (-1.2, Mar.).

Global competition and technological innovation have been powerful forces of deflation among durable-goods-producing industries. The monetary policies of the various central banks have not discernibly slowed, let alone halted, the fall in durable goods prices. On the other hand, nondurable goods prices have been trending higher in all these countries since 1996 with the exception of Switzerland (*Fig. 9*). We don't have a plausible explanation for this development, since food, fuel, and other nondurable goods also are traded globally and are open to technological innovation.

(2) *Services.* Then there are the CPI services components, which all have been trending higher since 1996 for the seven countries (*Fig. 10*). Leading the pack is the UK (up 105.6%, Mar.) followed by the US (83.6%, Apr.), the Eurozone (52.4%, Apr,), Sweden (51.1, Mar.), Taiwan (23.4, Apr.), Switzerland (8.2, Mar.), and Japan (5.8, Mar.). This makes sense since services are not as readily traded globally as durables, and services tend to be more labor intensive and less susceptible to technological innovation, though that may be changing rapidly.

Now let's focus on the CPI services component in the US. There, we see signs of a Phillips curve tradeoff (*Fig. 11*). That seems odd given that wage inflation isn't showing such a tradeoff in services, as noted above. The solution to the puzzle is that rent of shelter, which currently accounts for a whopping 31.4% of the CPI, has actually had a strong inverse relationship with the unemployment rate since the early 1990s (*Fig. 12*). This component includes both tenant rent and "owner-occupied rent," which means what homeowners would have to pay themselves as landlords to rent their own homes (an odd notion, isn't it?).

Phillips Curve III: Prices & Wages. So our findings are that comparing the unemployment rate to wage inflation reveals a hint of a Phillips curve tradeoff in goods, but not in services. When we compare the unemployment rate to CPI goods inflation, we can't find any tradeoff—unlike when we compare it to the CPI services inflation rate. There is some tradeoff there, mostly attributable to rent inflation, which has shown a strong inverse relationship with unemployment since the early 1990s.

We can find precious little evidence that wage inflation drives price inflation. The available evidence is sketchy at best (*Fig. 13*). In fact, it can be argued that wage inflation is driven by price inflation, which is determined by secular forces including global competition, technological innovation, and aging demographics. It's certainly debatable whether monetary policy has much of an impact on either price inflation or wage inflation given that both remain low and subdued despite 10 years of the major central banks' ultra-easy monetary policies!

CALENDARS

US. Tues: Retail Sales Total, Total Ex Autos, Total Ex Autos & Gas, and Control Group 0.3%/0.5%/0.4%/0.4%, Business Inventories 0.3%, Empire State Manufacturing Index 15.5, Housing Market Index 70, Treasury International Capital, Williams. **Wed:** Headline & Manufacturing Industrial Production 0.6%/0.3%, Capacity Utilization 78.3%, Housing Starts & Building Permits 1.324mu/1.350mu, MBA Mortgage Applications, Atlanta Fed Business Inflation Expectations, EIA Petroleum Status Report, Bostic, Bullard. (*Wall Street Journal* estimates)

Global. Tues: Eurozone GDP 0.4%q/q/2.5%y/y, Eurozone Industrial Production 0.7%m/m/3.7%y/y, Germany GDP 0.4%q/q./2.4%(wda)y/y, Germany ZEW Survey Current Situation & Expectations 85.2/-

8.2, UK ILO Unemployment Rate (3-month) 4.2%, Japan GDP 0.0%q/q, China Retail Sales 10.0% y/y, China Industrial Production 6.4% y/y, China Fixed Assets Ex Rural (ytd) 7.4% y/y, China Jobless Rate, RBA May Meeting Minutes. **Wed:** Eurozone CPI 1.2%/0.7% y/y, Germany CPI 0.0%m/m/1.6%y/y, Japan Machine Orders 0.6% y/y, Draghi, Jordan. (DailyFX estimates)

STRATEGY INDICATORS

YRI Weekly Leading Index (*link*): Our Weekly Leading Index (WLI)—a good coincident indicator that can confirm or raise doubts about stock market swings—has climbed to another new record high. Our WLI rebounded 3.7% during the three weeks ending May 5, more than reversing the five-week slide from the previous record high posted during the week of March 10. Our WLI is the average of our Boom-Bust Barometer (BBB) and Bloomberg's Weekly Consumer Comfort Index (WCCI). Our BBB rebounded 7.1% over the three-week period, also to a new record high, as jobless claims, one of the components of our BBB, fell from 231,500 to 216,000 over the three-week span—the lowest reading since December 20, 1969. The CRB raw industrial spot price index, another BBB component, has moved lower over the past few weeks. Meanwhile, the WCCI slipped for the third week after reaching a cyclical high in mid-April.

S&P 500/400/600 Forward Earnings (*link*): Forward earnings rose to record highs last week for all three indexes. LargeCap's forward earnings has been up in 41 of the past 42 weeks, MidCap's was higher last week for a 37th straight week (which now exceeds its prior record streak in mid-2002), and SmallCap's has been up in 35 of the past 38 weeks. Earnings momentum remains healthy, as the yearly change in forward earnings is up from six-year lows in early 2016 and should remain strong in 2018. In the latest week, the rate of change in LargeCap's forward earnings remained steady at a seven-year high of 20.9% y/y, which compares to a six-year low of -1.8% in October 2015; MidCap's rose to 23.4% from 23.0%, which compares to a seven-year high of 24.0% in mid-March and a six-year low of -1.3% in December 2015; and SmallCap's surged to a seven-year high of 29.8% from 27.4%, which compares to a six-year low of 0.3% in December 2015. Here are the latest consensus earnings growth rates for 2018 and 2019: LargeCap 21.5% and 9.6%, MidCap 20.1% and 12.0%, and SmallCap 25.3% and 16.8%.

S&P 500/400/600 Forward Valuation (*link*): Last week saw forward P/E ratios rise for these three indexes, and put more breathing room above their recent post-election lows. LargeCap's weekly forward P/E rose to 16.4 from 16.1 in the prior week, but is down from 18.6 on January 26—the highest since May 2002. These recent levels are up from a post-election low of 16.0 in late March and the post-Lehman-meltdown P/E of 9.3 in October 2008, but remain well below the tech-bubble record high of 25.7 in July 1999. MidCap's forward P/E improved w/w to 16.6 from 16.3 and remains above its 25-month low of 16.1 in early April. MidCap's P/E is down from a 15-year high of 19.2 in February 2017 and compares to the record high of 20.6 in January 2002; however, it is up from a three-year low of 15.0 in January 2016. MidCap's P/E has mostly been at or below LargeCap's P/E since August for the first time since 2009. SmallCap's P/E increased to 17.6 from 17.3, which compares to a post-election low of 17.0 in mid-March. That's well below its 51-week high of 20.2 in December (which wasn't much below the 15-year high of 20.5 in December 2016, when Energy's earnings were depressed), but is comfortably above its three-year low of 15.5 in February 2016. Looking at their daily forward price/sales (P/S) ratios, they were higher w/w for all three indexes at levels well below January highs: LargeCap's P/S of 2.02 is down from a record high of 2.19 on January 26; MidCap's 1.30 compares to its record high of 1.40, also on January 26; and SmallCap's 1.00 is down from 1.05 then, which compares to its record high of 1.17 in November 2013, when Energy revenues were depressed.

S&P 500 Sectors Quarterly Earnings Outlook (*link*): With less than 10% of the Q1 earnings reporting season remaining, analysts have become less busy adjusting their forecasts. In what appears to be a

return to the normal pattern of declining forecasts following the earnings season honeymoon, the S&P 500's Q2-2018 EPS forecast dropped 6 cents w/w to $38.92. That's down 0.2% since the end of Q1, but is up 7.1% ytd and 7.8% since the passage of the TCJA. The $38.92 estimate represents a forecasted pro forma earnings gain for Q2-2018 of 19.7%, down from 19.8% a week earlier. That compares to Q1-2018's blended 26.1% (which is the strongest since Q4-2010), Q4-2017's 14.8%, Q3-2017's 8.5%, Q2-2017's 12.3%, and Q1-2017's 15.3%. Since the end of Q1, Q2-2018 estimates are higher for six sectors and down for five. Energy's Q2 forecast has risen 7.6%, followed by the forecasts for Real Estate (up 3.3%), Materials (1.5), Utilities (0.3), Health Care (0.2), and Tech (0.1). Consumer Staples is the biggest decliner, with its Q2-2018 forecast down 3.9% since the end of Q1, followed by Financials (-1.6), Telecom (-1.6), Industrials (-1.4), and Consumer Discretionary (-0.8). The S&P 500's Q2-2018 forecasted earnings gain of 19.8% y/y would be its eighth straight gain after four declines. Ten of the 11 sectors are expected to record positive y/y earnings growth in Q2-2018—with nine rising at a double- or triple-digit percentage rate—and four are expected to beat the S&P 500's forecasted y/y earnings gain of 19.8%. That compares to all 11 sectors rising y/y during Q1-2018, when ten rose at a double-digit pace and four outpaced the S&P 500. Analysts expect Energy to report another large profit jump in Q2 relative to very low earnings a year ago, with the pace improving from Q1. The latest forecasted Q2-2018 earnings growth rates vs their blended Q1-2018 growth rates: Energy (127.9% in Q2-2018 vs 86.2% in Q1-2018), Materials (29.1, 30.0), Tech (23.5, 35.4), Financials (21.3, 30.7), S&P 500 (19.7, 26.1), Consumer Discretionary (16.6, 18.6), Industrials (15.1, 24.6), Telecom (12.9, 14.7), Consumer Staples (10.5, 12.6), Health Care (10.1, 16.2), Real Estate (2.3, 3.0), and Utilities (-0.6, 16.7). On an ex-Energy basis, S&P 500 earnings are expected to rise 16.4% y/y in Q2, down from a blended 24.0% in Q1, and compares to 12.7% in Q4-2017 and 6.1% in Q3-2017 (which was the slowest growth since ex-Energy earnings rose just 2.2% in Q2-2016).

S&P 500 Q1 Earnings Season Monitor (*link*): With nearly 91% of S&P 500 companies finished reporting earnings and revenues for Q1-2018, the earnings metrics are stronger compared to the same point during the Q4 season and the best in seven years, but revenues are a tad weaker than during Q4. Of the 454 companies in the S&P 500 that have reported, 79% exceeded industry analysts' earnings estimates by an average of 7.3%; they have averaged a y/y earnings gain of 24.9%. At the same point during the Q4-2017 reporting period, a lower percentage of companies (76%) in the S&P 500 had beaten consensus earnings estimates by a lower 4.8%, and earnings were up a lower 16.3% y/y. On the revenue side, 76% beat sales estimates so far, with results coming in 1.1% above forecast and 8.4% higher than a year earlier. At this point in the Q4 season, a higher 79% had exceeded revenue forecasts by a higher 1.3%, and sales rose a tad higher 8.5% y/y. Q1 earnings results are higher y/y for 86% of companies vs a lower 79% at the same point in Q4, and Q1 revenues are higher y/y for 87% vs 88% a quarter ago. These figures will likely change little as the rest of the Q1-2018 results are reported in the coming weeks. With the season now winding down as investors await retailers' results, it looks like Q1-2018 will mark the seventh straight quarter of positive y/y earnings growth and the strongest since Q4-2010 in part due to lower tax rates.

GLOBAL ECONOMIC INDICATORS

Global Leading Indicators (*link*): In March, the OECD's composite leading indicators (CLIs)—designed to anticipate turning points in economic activity relative to trend six to nine months ahead—once again pointed to stable growth momentum in the OECD (100.0) as a whole. CLIs for Italy (100.5), France (100.0), and the Eurozone (100.2), as a whole, confirm the signs of easing growth momentum flagged in February's report, while Germany's (100.5) is now showing signs of easing growth momentum. Signs of easing growth momentum are also emerging in Japan (99.9) and Canada (100.1) CLIs, while continued weakening of growth momentum is anticipated in the UK (99.2). Stable growth momentum remains the US (100.2) assessment as well as the assessment for most other OECD economies. Looking at the major emerging economies, growth is gaining momentum according to CLIs

for Brazil (103.9) and India (100.9), while similar signs are now emerging in China's (99.0) industrial sector. Meanwhile, Russia's (100.9) CLI indicates stabilizing growth momentum.

UK Industrial Production (*link*): UK industrial output was subdued again in March, edging up 0.1% for the second month, after rebounding 1.2% in January from December's 1.2% drop—which reflected a temporary shutdown of a North Sea oil pipeline. While heavy snow storms swept through Britain in early March, the Office for National Statistics stuck with its earlier judgment that the economy was very sluggish last quarter, with little impact overall from the bad weather. Before the recent slowing, output had increased 2.8% in the eight months through November. Meanwhile, manufacturing production hasn't posted an increase so far this year, falling 0.1% and 0.2% during March and February, respectively, after no change in January. Factory output had increased 3.1% during the final eight months of 2017. Year to date, intermediate (-2.3%), capital (-2.0), and consumer nondurable (-0.8) goods production all contracted, while consumer durable (3.9) goods output was the outlier. Looking ahead, April's M-PMI fell to a 17-month low of 53.9 as rates of expansion eased for output, new orders and employment, in part reflecting a weakening in the pace of expansion of new work from abroad.

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