NEUBERGER BERMAN

THANOS BARDAS
Senior Portfolio Manager—Investment Grade

JON JONSSON
Senior Portfolio Manager—Investment Grade

Inflation: Slain Dragon or Sleeping Giant?

A lot of people are concerned that inflation has gone missing-in-action across the world. Since 2009, unemployment in the Organisation for Economic Co-Operation and Development (OECD) economies has declined from 8.5% to less than 6%, and yet International Monetary Fund data suggests that global wage growth has remained stuck around 2% per annum, and consumer price inflation has actually fallen, from a peak of 5% in 2011 to around 1.5% in 2015–16. In this paper we address these concerns, as well as the disinflationary expectations priced into financial markets, by challenging the idea that current inflation is abnormally low or suppressed by new structural economic forces, and identifying signs of an underlying and incipient rise in key prices.

Executive Summary

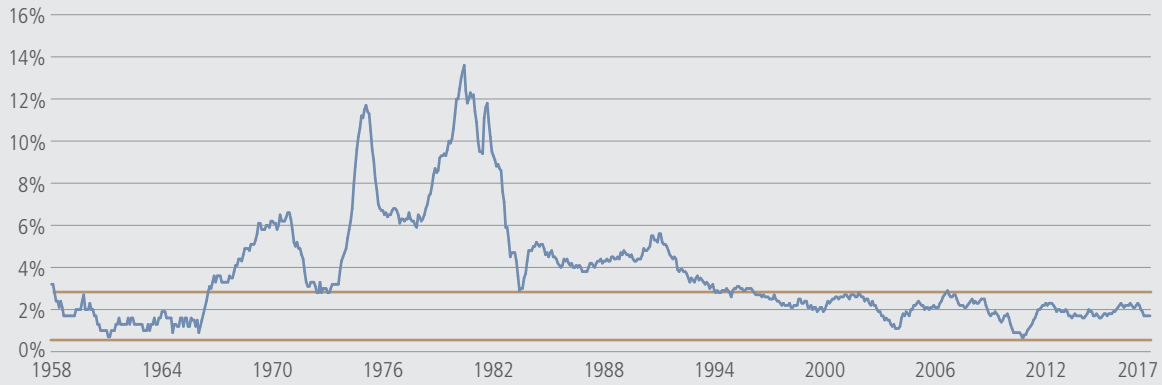
- Since 2009, unemployment in the OECD economies has declined from 8.5% to less than 6%, and yet International Monetary Fund data suggests that global wage growth has remained stuck around 2% per annum, and core consumer price inflation has actually fallen, from a peak of 5% in 2011 to around 1.5% in 2015–16.
- In the meantime, central bankers are pressing ahead with normalization of monetary policy, influencing financial markets' expectations for and pricing of future inflation.

In this paper we ask:

Is inflation really abnormally low?

- Inflation looks stronger in Europe than in the U.S. or Japan
- U.S. inflation has merely returned to the range it exhibited before the high-inflation period between 1970 and 1995
- Recent weakness can be attributed to the U.S. dollar and oil…
- … and to temporary disinflation in certain core goods and services

U.S. CORE CPI HAS RETURNED TO THE RANGE IT EXHIBITED BEFORE THE INFLATION SHOCKS OF THE 1960S AND 70S.



Source: Bureau of Labor Statistics.

Are structural developments exerting disinflationary pressure?

- Advances in globalization, technology and the "sharing economy", as well as lower productivity and wages, have been cited as structural reasons why inflation has remained low while unemployment has declined
- However, we need to consider the data cyclically, as, historically, unemployment has affected inflation only at extreme highs or lows
- Some structural forces are overstated, and recent inflation is not significantly different enough from historical inflation to require such structural explanations

Are there any signs of rising inflation?

- The wages of lower earners have started to grow faster during 2017
- The U.S. output gap has closed completely
- China's Producer Price Index, a key leading indicator for U.S. inflation, has been rising fast
- Broader measures of inflation than CPI show a longer, smoother upward trend

How might investors position for a rise in inflation?

- Multi-asset inflation portfolios may have some compelling value opportunities available to them
- In bond portfolios, U.S. dollar investors can find value in U.S. Treasury Inflation Protected Securities (TIPS)…
- … but high currency-hedging costs make this less compelling for non-U.S. dollar investors
- Shortening portfolio duration and favoring may dampen downside exposure to an inflation surprise

A lot of people are worried about inflation—or at least convinced that it has gone missing-in-action across the world. That concern came to a head during 2017, expressed in different ways by economists, central bankers, policymakers and financial markets.

In particular, many commentators point to the Phillips Curve—an economic model that is supposed to describe the inverse relationship between the rate of unemployment and the rate of inflation—and suggest that it no longer captures the reality.

Since 2009, unemployment in the OECD economies has declined from 8.5% to less than 6%. Japan's rate has collapsed from 5.5% to less than 3%, a level unseen since the early 1990s. In the U.S., unemployment peaked at 10% and is now closing on the 4% threshold. Even in the Eurozone, where a second crisis pushed unemployment up beyond 12% in 2013, it has already fallen by a third. For all that, International Monetary Fund data suggests that global wage growth has remained stuck around 2% per annum, and consumer price inflation has actually fallen, from a peak of 5% in 2011 to around 1.5% in 2015–16. In the U.S., Core CPI has struggled to stay above 1.5%, and plunged again in the months following March 2017.

Janet Yellen, the current Chair of the U.S. Federal Reserve, is not alone among central bankers in worrying about this "mystery". "Our framework for understanding inflation dynamics could be mis-specified in some fundamental way," she said in September 2017. Around the same time, at the Official Monetary and Financial Institutions Forum, Claudio Borio, Chief Economist at the Bank for International Settlements, asked his audience: "How much do we really know about the inflation process?"

In the meantime, central bankers have decided to press ahead with normalization of monetary policy, beginning with the gradual reduction of the $13 trillion worth of assets sitting on the balance sheets of the Fed, the European Central Bank and the Bank of Japan. That appears to have influenced the financial markets' inflation expectations, from the low yields on nominal bonds and low or even negative yields on inflation-linked bonds, to the elevated price-to-earnings ratios prevalent in equity markets. At best, markets now consider the 2% level to be a ceiling for central bank inflation targeting. At worst, they suspect that a steady rate of inflation is no longer a central bank target at all.

In this paper we examine a number of questions that are raised by these observations:

- Is inflation really as abnormally low as all the commentary suggests?
- Are there structural developments in the global economy that might be disinflationary?
- Has the Phillips Curve really changed shape over recent years?
- Where might we look for leading indicators of incipient rising inflation?
- How might investors position if they expect a return to rising inflation?

Is inflation really abnormally low?

The first thing to note is that it is important to look beyond the U.S., whose inflation dynamics understandably loom largest for investors around the world because they feed into some of the most important prices in financial markets.

In Europe the dynamic is surprisingly positive. After slipping into deflation three years ago, the Eurozone's Headline CPI has climbed to 1.5%, as at the end of the third quarter of 2017. Inflation in the U.K. was actually running ahead of the Bank of England's target, following the drop in sterling since the referendum on E.U. membership in June 2016. Goods inflation, which has high import content, is particularly strong. Even in Japan, it is worth pointing out that Core Inflation Ex-Food has risen from -0.2% last year to +0.7% in 2017, as at the end of the third quarter. Having just posted its seventh consecutive quarter of positive GDP growth, the longest run of unbroken expansion for 16 years, Japan looks set for more inflation in 2018.

FIGURE 1. INFLATION DYNAMICS IN JAPAN AND EUROPE

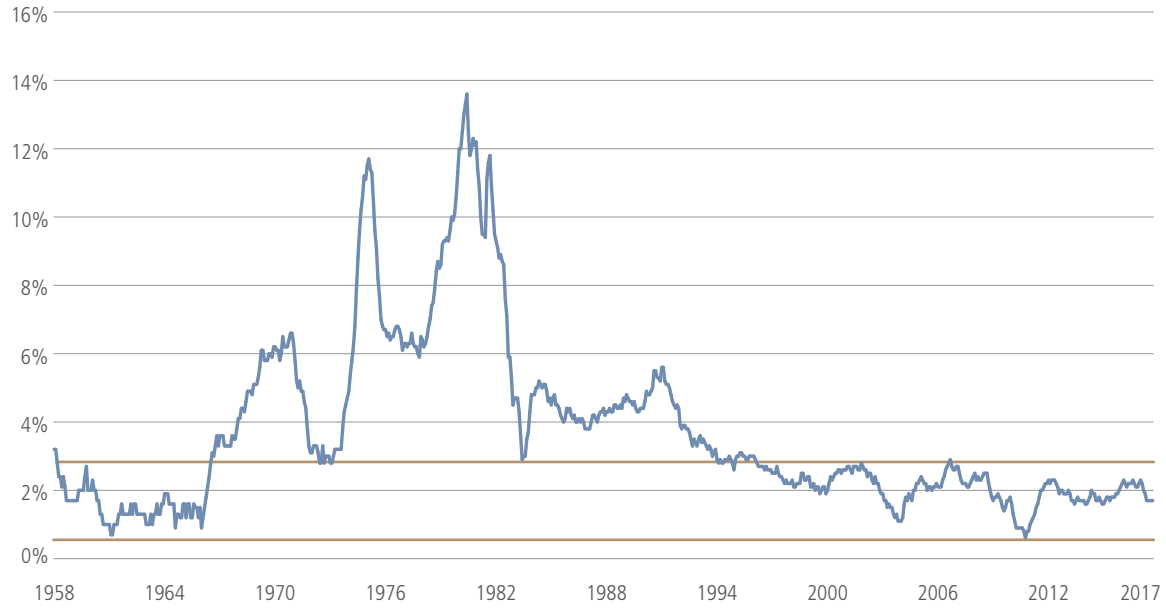
Japan	Current Weight	Current YoY Inflation	Dec 2016 YoY	Dec 2015 YoY	Dec 2014 YoY
Headline CPI NSA	100.0	0.7%	0.3%	0.2%	2.4%
Food	26.2	0.9%	2.5%	2.4%	3.1%
Energy	7.8	7.0%	-4.4%	-11.0%	2.8%
Housing	20.9	-0.2%	-0.2%	-0.1%	0.2%
Rent	17.8	-0.3%	-0.4%	-0.2%	-0.3%
Core (ex fresh food)	95.9	0.7%	-0.2%	0.1%	2.5%
Euro-Zone					
Headline CPI NSA	100.0	1.5%	1.1%	0.2%	-0.2%
Food	14.2	1.9%	1.2%	1.1%	-0.7%
Energy	9.5	3.9%	2.6%	-5.8%	-6.3%
Housing, Water, Electricity, Gas and Other Fuels	15.8	1.7%	0.8%	-0.8%	-0.1%
Actual Rentals for Housing	6.5	1.2%	1.3%	1.0%	1.4%
Core (ex energy, food, alcohol and tobacco)	70.9	1.1%	0.9%	0.9%	0.7%
Services	44.6	1.5%	1.3%	1.1%	1.2%
Goods	55.4	1.6%	1.0%	-0.5%	-1.2%
United Kingdom					
Headline CPI NSA	100.0	3.0%	1.6%	0.2%	0.5%
Food	9.1	3.4%	-1.0%	-3.2%	-1.9%
Energy		5.8%	4.3%	-7.3%	-5.8%
Housing, Water, Electricity, Gas and Other Fuels	11.8	2.1%	0.4%	0.3%	1.0%
Actual Rentals for Housing	7.1	0.8%	1.0%	3.0%	2.7%
Core (ex energy, food, alcohol and tobacco)		2.7%	1.6%	1.4%	1.3%
Services	47.5	2.7%	2.5%	2.9%	2.3%
Goods	52.5	3.2%	0.7%	-2.1%	-1.0%

Source: Bloomberg. Data as of September 30, 2017.

In the U.S., too, Headline CPI has been higher in 2017 than in 2016 thanks mostly to a recovery in energy prices. It is the sudden dip in Core CPI over the spring and summer months of 2017 that has caught investors' attention.

Even after that dip, however, it is important to note that U.S. Core CPI remains close to the mid-point of the range that has been normal, historically, outside of the inflation shocks of the late 1960s and 1970s. That range has certainly been in place for 20 years, since the mid-1990s. The index favored by the Federal Reserve, Personal Consumption Expenditures (PCE) Excluding Food and Energy, has not been above 3% since the early 1990s.

FIGURE 2. U.S. CORE CPI HAS RETURNED TO THE RANGE IT EXHIBITED BEFORE THE INFLATION SHOCKS OF THE 1960S AND 70S.



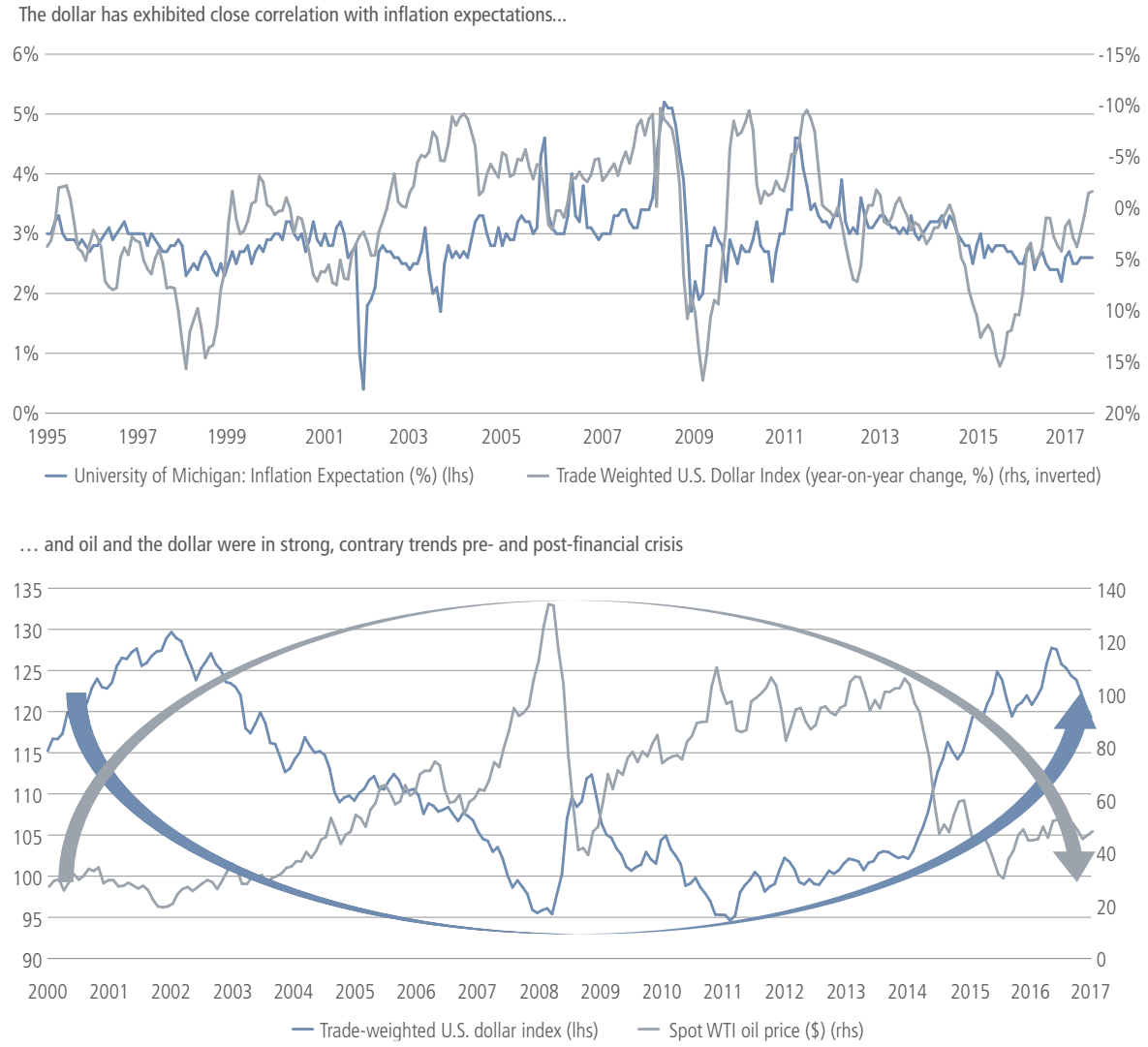
Source: Bureau of Labor Statistics.

While it is true that the average value for year-on-year growth in U.S. Core CPI was 2.2% between 2000 and 2007, and just 1.8% between 2008 and today, a number of studies have suggested that perhaps as much as 90% of the difference can be explained by two factors: oil prices and the strength of the U.S. dollar.[1] The dollar, in particular, has shown a strong correlation with measures of inflation expectations over the past 20 years.

Between 2000 and 2008, the price of oil quadrupled and the dollar lost a quarter of its value. Both phenomena support higher realized U.S. inflation. Since 2008, by contrast, we have experienced precisely the opposite: the dollar is up 30% and the oil price has more than halved. Once we take oil and the dollar into account, current levels of inflation do not appear abnormally low.

[1] See, for example: BCA Research, "Did Amazon Kill the Phillips Curve?" (September 1, 2017); Deutsche Bank, "Six Myths About Inflation" (October 19, 2017).

FIGURE 3. THE OIL AND DOLLAR IMPACT



Source: Federal Reserve Economic Data.

When we look at what has happened in Core CPI in more detail, we are inclined to agree with Federal Reserve Chair Janet Yellen that "these soft readings will not persist" because they are caused by "idiosyncratic shifts in the prices of some items."

Part of the dip this year was a continuation of the disinflation in Core Goods that has been evident since 2013. As we explain later in this paper, we believe this could be about to reverse as higher Producer Price Inflation in China begins to feed through into U.S. core goods, and the weakening we have seen in the dollar since the end of 2016 begins to take effect.

In Core Services inflation, the drop in Shelter has been moderate, considering that rents have risen nearly 33% since the bottom of the market in 2009, and had been accelerating above-trend in 2014 and 2015, not least because Millennials tend to rent rather than buy their accommodations. The past two years have seen a welcome period of cooling.

The bigger moves came in Medical Care Services and Education & Communications Services. The table in figure 4 shows how these normally low-volatility variables have made outsized contributions to the drop in Headline CPI between 2016 and 2017.

The persistent disinflation we see in the former is indeed due to structural, demographic developments: as the baby-boomer cohort retires, an increasing number of Americans are moving from (relatively expensive) private healthcare to the (relatively cheap) government-sponsored Medicare program. The same trend accounts for today's unusually high fiscal deficit, relative to the low level of unemployment in the U.S.

By contrast, this year's outright deflation in Education & Communication Services was due to the one-off arrival of unlimited data plans for smartphones—the price shift explicitly picked out by Yellen to illustrate the "idiosyncratic" and temporary nature of the disinflation seen in 2017.

Unless we see comparable downward movements in goods prices in the future, big one-off movements like these will eventually fall out of the indices as they re-base.

FIGURE 4. U.S. INFLATION DYNAMICS, 2016–2017

	Current Weight	Annualized Volatility Since 2000	Contribution to Drop in CPI, 2016–2017	Current YoY Inflation	Dec 2016 YoY
CPI NSA	100.0	1.3%		2.23%	2.07%
Food	13.6	0.7%	+20bps	1.24%	-0.23%
Energy	7.4	11.3%	+36bps	10.18%	5.31%
Core	79.0	0.3%	-42bps	1.69%	2.22%
Core Services	60.2	0.3%	-34bps	2.56%	3.13%
Shelter	33.8	0.5%	-14bps	3.24%	3.64%
Medical Care Services	6.7	0.6%	-15bps	1.72%	3.91%
Education & Communication Services	6.1	0.9%	-13bps	-2.04%	0.11%
Core Goods	18.8	0.6%	-9bps	-1.00%	-0.53%
Transportation Commodities Less Motor Oil	6.0	0.9%	-6bps	-1.83%	-0.91%
Medical Care Commodities	1.9	0.9%	-7bps	1.00%	4.67%

Source: Bloomberg. Data as of September 30, 2017.

Conclusions: Is inflation really abnormally low?

- Inflation looks stronger in Europe than in the U.S. or Japan
- U.S. inflation has merely returned to the range it exhibited before the high-inflation period between 1970 and 1995
- Recent weakness can be attributed mainly to trends in the U.S. dollar and oil…
- … with the rest attributable to temporary disinflation in certain core goods and services

Are structural developments exerting disinflationary pressure?

This is not to belittle a very real debate going on within the media, the investment industry and institutions such as the Federal Reserve. This debate was revealed in the minutes to the Fed's meeting of September 19–20, when several FOMC members raised the possibility that "more persistent" effects might be pushing the trend rate of inflation below the central bank's 2% target.

What might these effects be? The list of candidates is long, but here we identify four of the main ones.

Globalization, facilitated by improvements in trade relations, technology and transportation over the past 30 years, adds to individual economies' ability to exploit their Ricardian comparative advantage, which leads to lower production costs for goods overall. The most striking example has been the gradual opening of China's economy, including membership in the World Trade Organization (WTO) from 2001. That enabled a huge, underutilized and inexpensive labor force to be mobilized for electronics, textiles and apparel manufacturing.

As Claudio Borio, the Bank for International Settlements' Chief Economist, put it recently: "Is it reasonable to believe that the inflation process should have remained immune to the entry into the global economy of the former Soviet bloc and China and to the opening up of other emerging market economies?"

Supply chains have increasingly crossed borders in all parts of the world since the 1970s.

Some point to the ever-increasing utilization of **technology** in our everyday lives to explain disinflation. Online shopping, combined with smartphones, have enabled us to compare prices for the same product or service from hundreds of retailers instantaneously—and to place an order with a single click.

In theory this should push prices toward their lowest level. The Digital Price Index of online inflation maintained by customer-trends specialist Adobe Analytics appears to confirm that this is happening. The Index shows that, with rare exceptions such as toys, groceries and non-prescription drugs, online deflation is significantly outpacing deflation at large, as measured by the CPI, which, according to Adobe, collects only around 8% of its prices online. Groceries may be the next battleground for prices now that Amazon has made its first move into the sector.

FIGURE 5. ONLINE SHOPPING ACCENTUATES DEFLATIONARY TRENDS

	Digital Inflation, July 2016–2017	Offline Inflation, July 2016–2017
Apparel	-4.10%	-0.60%
Furniture & Bedding	-4.30%	-0.80%
Personal Care Products	-0.90%	-0.60%
Sporting Goods	-5.60%	-2.00%
Jewelry	-4.10%	1.50%
Televisions	-13.20%	-11.40%

Source: Adobe Analytics.

The related phenomenon of the so-called **sharing economy** has boosted the supply of goods such as hotel rooms (Airbnb) and taxicabs (Uber, Lyft) by employing underutilized spare rooms and cars, thereby driving down prices. Knock-on effects—such as the tendency for Millennials to buy fewer used cars because it is cheaper and more convenient to get around using a service like Uber or Lyft—spread that disinflation into other parts of the economy.

These three are potential causes of structurally lower cost-push inflation.

When it comes to structurally lower demand-pull inflation, some commentators point to **lower productivity and lower wage growth,** globally. The causes of this are controversial and complex, but are likely to include a rapidly aging and retiring workforce; the growth of lower-paid service jobs, which are disproportionately held by women but increasingly by men, too, as manufacturing becomes automated; the automation even of some lower-level service jobs by robotization and artificial intelligence; the disempowerment of labor unions; a lack of corporate and government investment in capital assets, due to economic uncertainty in the private sector and burdensome indebtedness in the public sector; and an increasing burden of economically significant regulation.

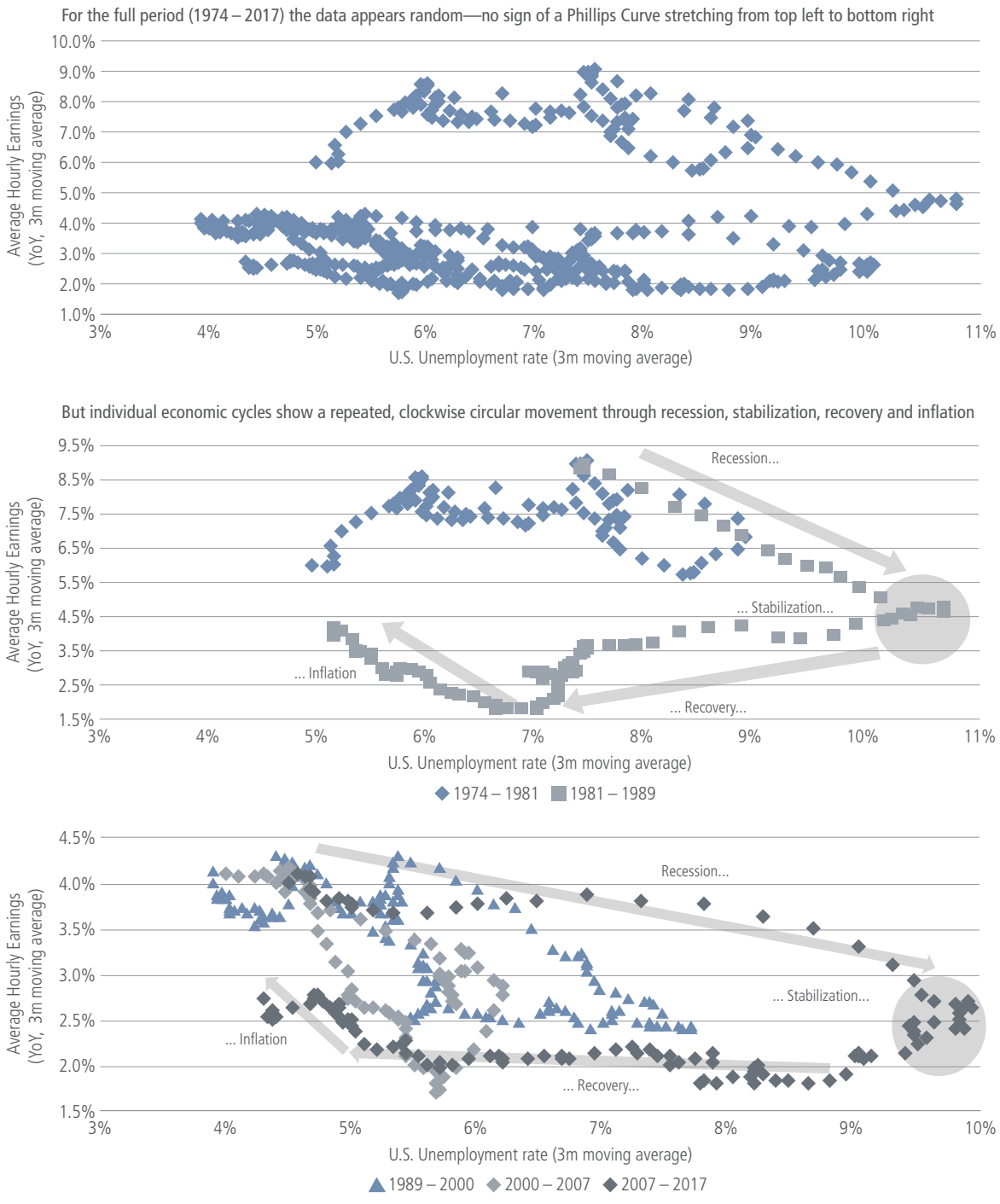
These forces are cited to explain how the U.S. unemployment rate can halve from 10% to less than 5% in seven years with barely any effect on inflation, a result that seems to raise fundamental questions about the Phillips Curve—the economic model that is supposed to describe the inverse relationship between the rate of unemployment and the rate of inflation.

We find criticism of the Phillips Curve puzzling. It has never described a clear, purely linear relationship between the rate of unemployment level and inflation or wage growth. When we plot the U.S. unemployment rate against the year-on-year growth in average hourly earnings between 1974 and the present, for instance, the data appears to be random. Far from stretching from the top-left of the plot to the bottom-right, as a theoretical Phillips Curve would, the linear regression line for this data set would be flat, or even a little inverted.

The true pattern of the Phillips Curve only becomes evident when we pick out individual economic cycles. In the charts in figure 6 we have picked out the progression from recession, through stabilization and recovery, to inflation, in the 1981–1989 and the 2000–2007 cycles. The same basic circular motion is evident in the other cycles.

What this tells us is that the Phillips Curve tends to be flat or inverted during the stabilization and recovery parts of the cycle. This is intuitive: until everyone is more certain that recession has lifted, workers remain coy about asking for a pay raise and employers remain reluctant to see labor costs go up. The 2001 recession was a short, sharp shock to wages, but in the recovery from the 1981–82 recession, wage growth remained weak for more than four years even as unemployment declined from 10% to 7%, just as it has in the years since the financial crisis.

FIGURE 6. THE PHILLIPS CURVE, 1973 – 2016



Source: Bureau of Labor Statistics. The first chart plots the three-month average of the year-on-year percentage growth in U.S. average hourly earnings against the three-month average U.S. unemployment rate. The data is monthly since January 1974. The second and third charts show the same data, picking out individual economic cycles, each beginning with the onset of major recessions (longer than six months) as defined by the National Bureau of Economic Research.

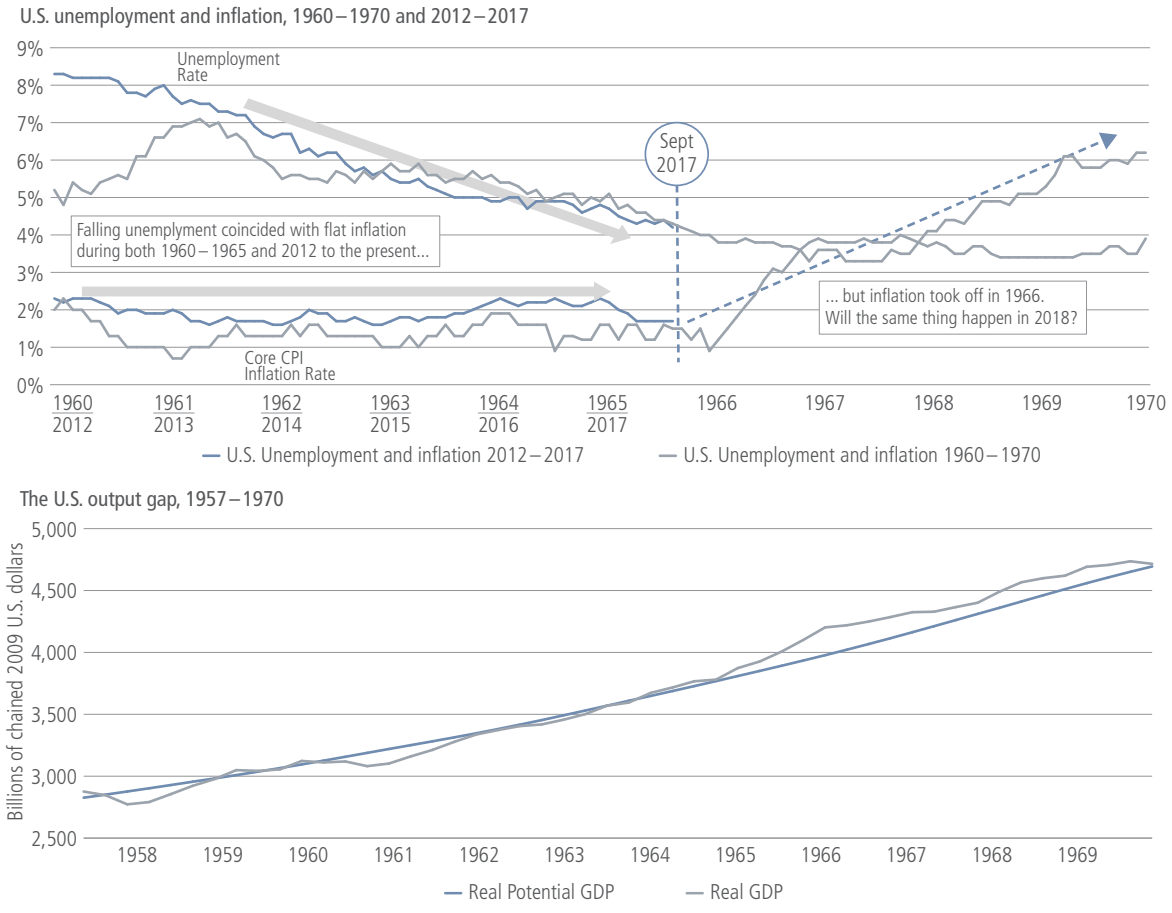
In short, the Phillips Curve is not linear, but dependent on a number of thresholds that occur in specific parts of the economic cycle, and the most important but least predictable of those thresholds is the level of unemployment under which wage inflation starts to assert itself.

Next to the recovery from the 1981–82 recession, one of the starkest examples of how long and far unemployment can fall without triggering inflation, and how sharp inflation can be once the right threshold is crossed, can be seen in the 1960s. The decade started with relatively high unemployment as the U.S. was in recession between April 1960 and February 1961, and then declined steadily. We do not have data for average hourly earnings before 1967, but the impact on Core CPI was indiscernible until 1966. After that point, the rate of inflation doubled, triggering the long period of higher inflation that lasted until the mid-1990s.

Did the unemployment rate cross some important threshold in the middle of the decade? Was the serious escalation of the U.S. involvement in the Vietnam War a factor? How important was it that the U.S. output gap—the difference between its realized GDP and the potential GDP it could have created had all of its assets been used to their full capacity—closed and turned decisively positive during 1964?

These are questions for another time. What we can say here is that, if we plotted unemployment versus Core CPI for the first six years of the 1960s, it would appear as though the Phillips Curve had been completely flattened. Once the final four years are added, we see one of the steepest Phillips Curves of the last 60 years. Today, might 4.0% or 3.5% be the unemployment threshold that matters? Might the stimulus of tax reform be our equivalent of the Vietnam War?

FIGURE 7. WE SAW THE SAME MOVIE IN THE 1960S



Source: Neuberger Berman, Bureau of Labor Statistics. The first chart shows the unemployment and inflation rates for 1960–1970, as well as the same rates between 2012 and 2017 backdated by 52 years.

We acknowledge the growing economic importance of the structural forces discussed above. We also acknowledge that some are still in their infancy and are likely to exert substantial change over the coming years—think of how artificial intelligence, in the form of autonomous vehicles, could render the job of taxi or truck driver obsolete.

It is easy to overstate their current significance, however. Online commerce still accounts for only 10% of retail sales worldwide, for example, according to 2017 data from digital-business consultant eMarketer. We would also suggest that it is difficult to attribute the current inflation environment to these forces simply because, leaving the high-inflation period between 1965 and 1995 aside, the change in inflation regime does not appear to be hugely significant. When it comes to the effect of new patterns of employment on the Phillips Curve, we would suggest that the flattening of the Curve has been overstated.

Conclusions: Are structural developments exerting disinflationary pressure?

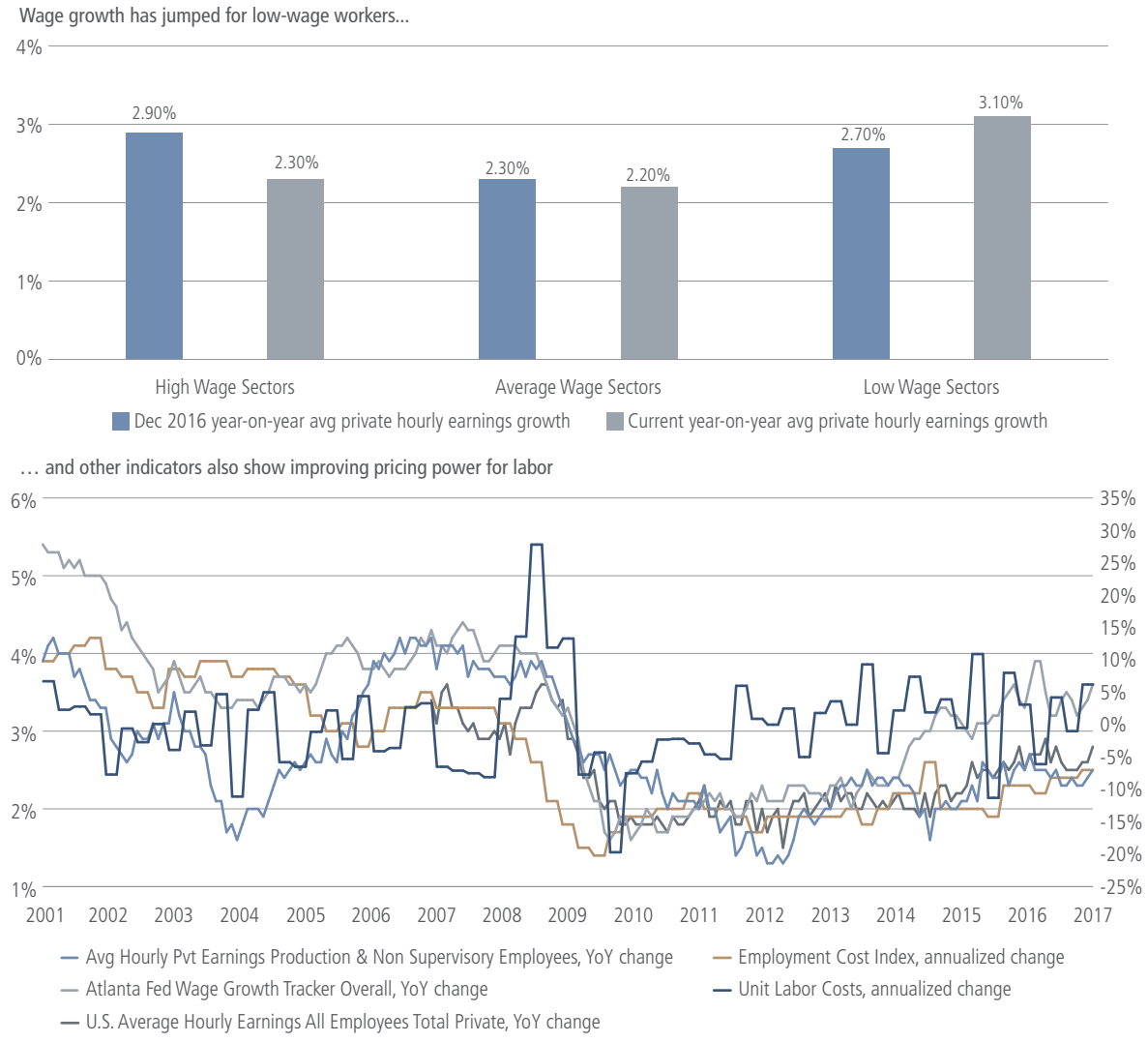
- Advances in globalization, technology and the sharing economy, as well as lower productivity and wages, have been cited as structural reasons why inflation has remained low while unemployment has declined
- However, once the economic cycle is taken into account, the relationship between unemployment and inflation appears to be following the historical pattern
- Moreover, some of these structural forces are overstated, and recent inflation is not significantly different enough from historical inflation to require such structural explanations

Where do we see signs of a rise in inflation?

It is one thing to argue that we do not regard the current inflation rate to be abnormally low, or suppressed by structural economic forces. It is another to say that we see signs of incipient rising inflation. We point to some of these signs in the following section of our paper.

Let us start with employment and wages. It is true that, since the end of 2007, Bureau of Labor Statistics data show that low-wage jobs have accounted for almost 41% of jobs growth and high-wage jobs have accounted for just 25%. It is also true that these low-wage jobs have seen below-average wage growth over that period. However, the tide appears to be turning: the low-wage sector has seen the biggest jump in year-on-year wage growth as we have moved into 2017.

FIGURE 8. RISING LABOR COSTS



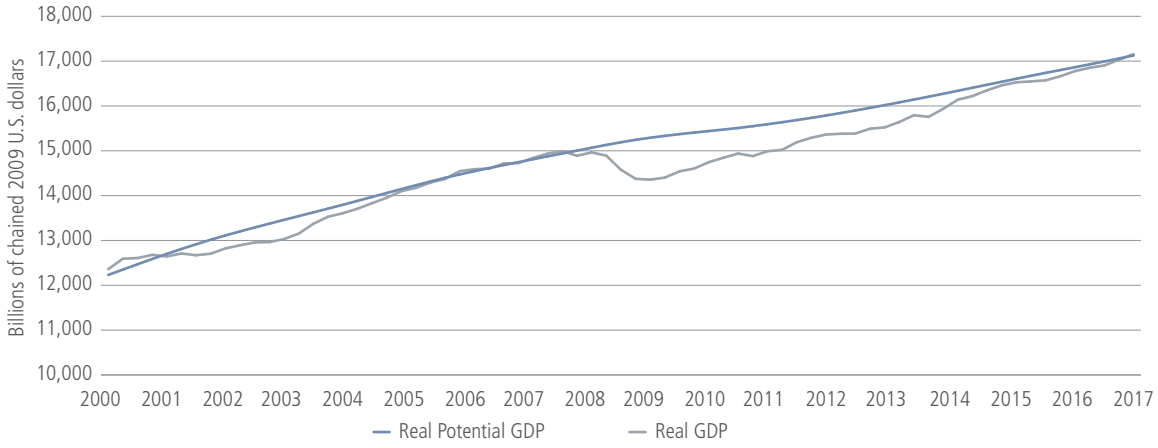
Source: Bureau of Labor Statistics, Federal Reserve Bank of Atlanta.

Other indicators, such as the Employment Cost Index and the Atlanta Fed Tracker, also show signs of a pick-up in labor's pricing power. There are also signs that officialdom is ready to offer unusually explicit support. A Conservative U.K. government recently scrapped a 1% pay raise cap for some public-sector workers, for example; for the first time, both Mario Draghi of the European Central Bank and Haruhiko Kuroda of the Bank of Japan have urged labor unions to increase their wage demands to boost inflation.

We believe their confidence that higher wages will feed into broader inflation is justified. Equity valuations are high and we have seen the market become very unforgiving of companies that miss earnings expectations. Corporate management has a big incentive to maintain its current record levels of profits and margins, which means that a big share of higher labor costs is likely to be passed through to customers rather than shareholders.

At the same time, we have now seen the U.S. output gap—the difference between its realized GDP and the potential GDP it could have created had all of its assets been used to their full capacity—close completely. That strongly suggests that many of the forces that have been suppressing productivity since the financial crisis are subsiding, which in turn is likely to increase the case for higher wages. Any resulting increase in the GDP growth rate from here is much more likely to be inflationary than a similar rise in growth would have been in previous years because it will take growth beyond its theoretical potential.

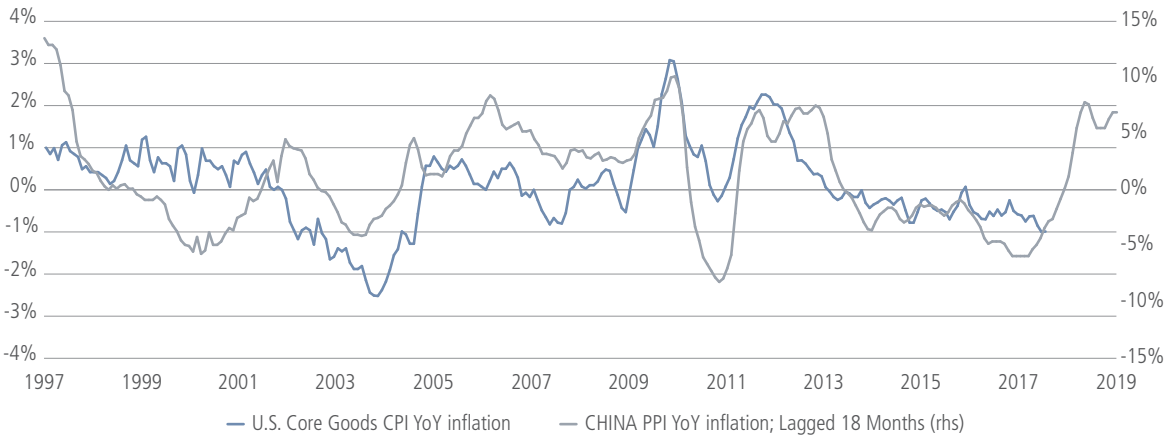
FIGURE 9. THE U.S. OUTPUT GAP HAS CLOSED



Source: Federal Reserve Economic Data.

Another place where we see a clear leading indicator of an incipient rise in inflation is China's Producer Price Index (PPI). Lagged by 18 months, this time series fits very closely with U.S. Core Goods CPI—unsurprisingly, as many finished goods bought by American consumers originate in or pass through China's manufacturing sector. After falling steadily from 2011 to the end of 2016, China's PPI has spent the last two years climbing rapidly, up 15% from the trough.

FIGURE 10. CHINA'S PRODUCER PRICE INFLATION COULD FEED INTO U.S. CPI

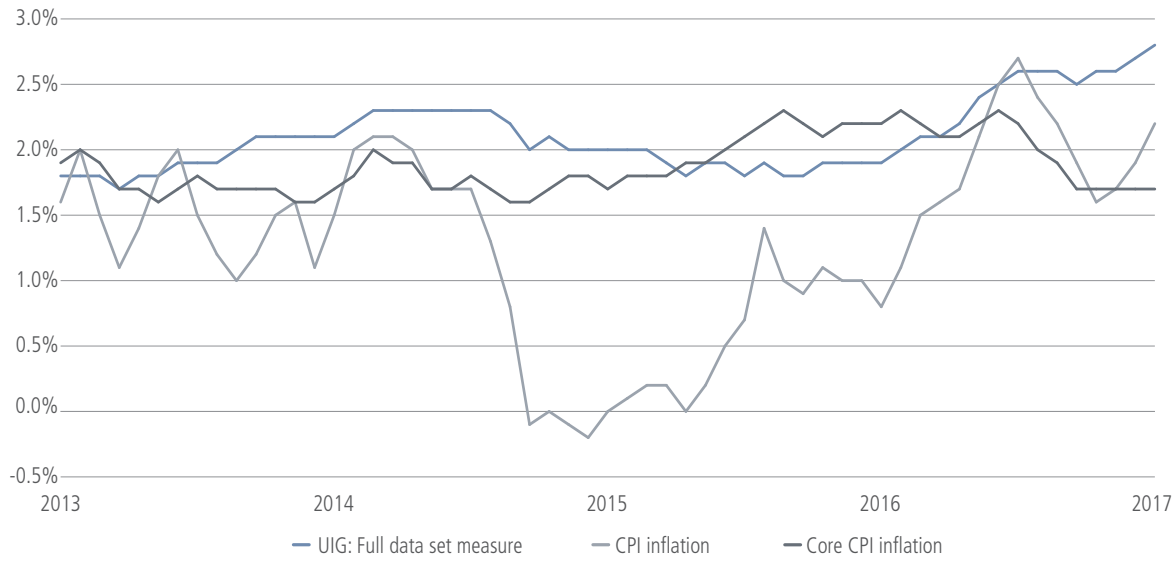


Source: Bloomberg.

Finally, if we look at a broader set of data than those picked up by traditional inflation measures, we arguably begin to see a clearer, less volatile upward trend.

The Underlying Inflation Gauge (UIG) calculated by the Federal Reserve Bank of New York combines the 223 disaggregated price-data series in the CPI with a further 123 macroeconomic and financial-data time series in such a way as to generate qualitatively similar behavior to that of CPI while extracting an estimate of trend inflation that has been shown to lead CPI readings when the two measures diverge. The full-data UIG has been showing a much smoother upward trend than Headline CPI since 2015. More interestingly, it has experienced much less of a dip than either Headline or Core CPI during 2017.

FIGURE 11. A BROADER MEASURE OF INFLATION SHOWS A CLEARER UPWARD TREND



Source: Federal Reserve Bank of New York. The chart shows U.S. Core and Headline CPI inflation, as well as the New York Fed Underlying Inflation Gauge.

Add all of this up and we are confident that we will see a higher rate of inflation, not just in the U.S. but globally, as we move through 2018. The level of uncertainty, especially around political issues such as U.S. tax reform, regulatory reform and trade policy and their multiplier effects, makes a point forecast difficult. We do believe, however, that upward pressure can take the developed world from its current 1.5–2.0% range for Core CPI up to a sustained 2.0%+. Recent experience in the U.K., for all its idiosyncrasies, shows how quickly the transition can occur.

Conclusions: Where do we see signs of a rise in inflation?

- The wages of lower earners started to grow faster during 2017
- The U.S. output gap has closed completely, suggesting that any further improvement in GDP growth will be inflationary
- China's Producer Price Index, a key leading indicator for U.S. inflation, has been rising fast
- Broader measures of inflation than CPI show a longer, smoother upward trend

How might investors position for a rise in inflation?

As we noted at the top of this paper, low bond yields and elevated price-to-earnings ratios suggest that financial markets do not see this change in inflation regime coming—or that, in the post-quantitative easing age, they expect central banks to respond quickly to any sign that inflation might drift significantly higher than 2%.

Since the waning of the Eurozone crisis in 2012, the volatility of macroeconomic indicators such as GDP and CPI, and of fixed income markets, has fallen by a quarter. The placidity of expectations for volatility in equity markets over recent years has been well documented—but implied volatility in U.S. Treasury option markets has plummeted twice as much as it has in equity option markets. Outside of the U.K., where the implications of the Brexit vote in 2016 is weighing on long-term expectations, 10-year breakeven inflation rates implied in the prices of inflation-protected securities are below 2% across the entire developed world as of mid-November 2017.

These markets appear to be dismissing even a modest increase in macroeconomic volatility, let alone the sort of spike that we saw in the late 1960s. As the Bank of Japan's Governor Haruhiko Kuroda put it with regard to his domestic economy in November 2017: "It's not easy to quickly dispel the deflationary mindset that has formed over the course of 15 years of deflation." The same may be true of the low-inflation mindset that informs investment decisions more widely.

FIGURE 12. MACROECONOMIC AND INTEREST-RATE VOLATILITY HAS PLUMMETED SINCE THE FINANCIAL CRISIS

	Nominal GDP	CPI	10-yr UST Yield	MOVE Index	VIX Index
Pre-Crisis (Jan 2003–Dec 2007)	1.11%	1.37%	0.89%	80bps	16%
Post-Crisis (Oct 2012–Sept 2017)	0.82%	1.05%	0.69%	44bps	12%
Percentage Change Pre-/Post-Crisis	**-26%**	**-24%**	**-22%**	**-46%**	**-27%**

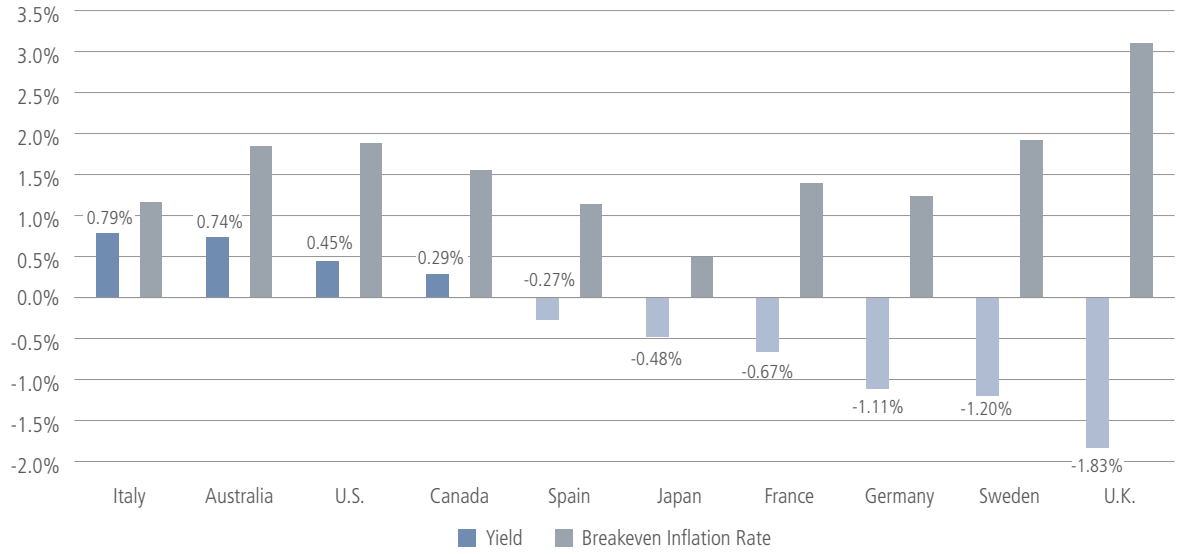
Source: Bloomberg. The table shows the average annualized volatility of each measure over the given periods. The MOVE Index is the Merrill Lynch Option Volatility Estimate Index, which measures the implied volatility of U.S. Treasury markets derived from option prices. The VIX Index is the Chicago Board Options Exchange Volatility Index, which measures the implied volatility of the S&P 500 Index derived from option prices.

Does all of this translate into a compelling investment opportunity in global inflation-linked securities? Unfortunately not.

Compelling value opportunities may be available to multi-asset portfolios seeking inflation exposure: some commodities and commodity- and energy-related stocks and corporate bonds have lagged the broader market over the past two or three years, for example.

For fixed income investors, the picture is less clear. Central bank quantitative easing programs and the duration of these assets has seen real yields tumbling along with nominal yields over recent years, which means that, even though 10-year breakeven inflation rates are below 2% in most of the developed world, the real yields on offer behind that are far from compelling.

FIGURE 13. WHILE BREAKEVEN RATES ARE LOW AROUND THE DEVELOPED WORLD, SO ARE REAL YIELDS



Source: Bloomberg. The charts shows yields in inflation-linked bond markets. Data as of November 15, 2017.

There is value to be found, however.

As of mid-November, for those prepared to take peripheral-Eurozone risk, Italy's bond market offers almost 80 basis points of real yield, for example; for those prepared to take emerging-markets risk, Mexico offers 3.5%, Brazil more than 5%.

Staying with core government issuers, long-dated Canadian Real Return Bonds offer real yields of around 30 basis points, and U.S. Treasury Inflation Protected Securities around 45 basis points. In the past, U.S. TIPS have not enjoyed the demand they might have done because investors have tended to prefer credit and equity markets when rising inflation is expected. With spreads so tight and equity valuations so stretched, however, investors who are looking to re-allocate or rebalance portfolios may choose TIPS as one destination—because for some years, now, they have been one of the worst-performing asset classes.

For investors based in currencies other than the U.S. dollar, however, even this opportunity may be less than compelling. Because of short-term interest rate differentials between U.S. dollar and other markets, the cost of hedging the dollar exposure embedded in securities like TIPS back to the investor's base currency currently wipes out the real-yield advantage. At the end of October 2017, for example, we estimated that a euro-based investor buying U.S. dollar securities and using a three-month hedge incurred an annualized cost in excess of 2%—and forward curves indicate that this cost is likely to increase over the coming months. The same applies for euro or yen investors considering Australian inflation-protected securities: the slightly higher real yield on offer would be consumed by even higher currency-hedging costs.

Nonetheless, while it might prove difficult for long-only, non-U.S. dollar investors to exploit the apparent under-pricing of global inflation expectations, it is still possible to position defensively against the potentially volatile adjustments that fixed income markets will need to make over the coming year. Duration can be shortened to reduce exposure to downside volatility at the long end of the yield curve, for example.

However they are positioned, we believe that investors are well advised to assume that global inflation is a sleeping giant rather than a slain dragon. Its comeback is unlikely to be as dramatic as it was back in the 1970s and 80s, but with fixed income valuations at their current levels it could still cause a lot of damage—and the risks associated with preparing for it are asymmetric.

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Neuberger Berman
1290 Avenue of the Americas
New York, NY 10104-0001

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