

# Economic Outlook

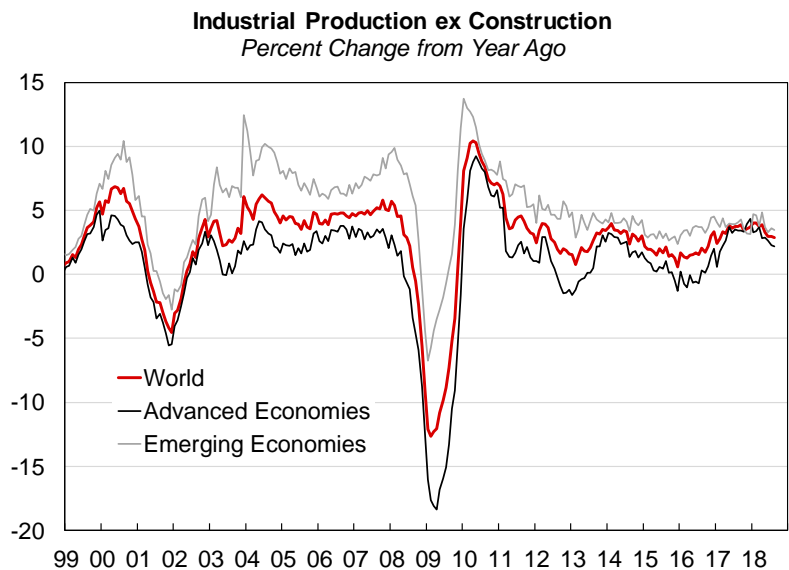
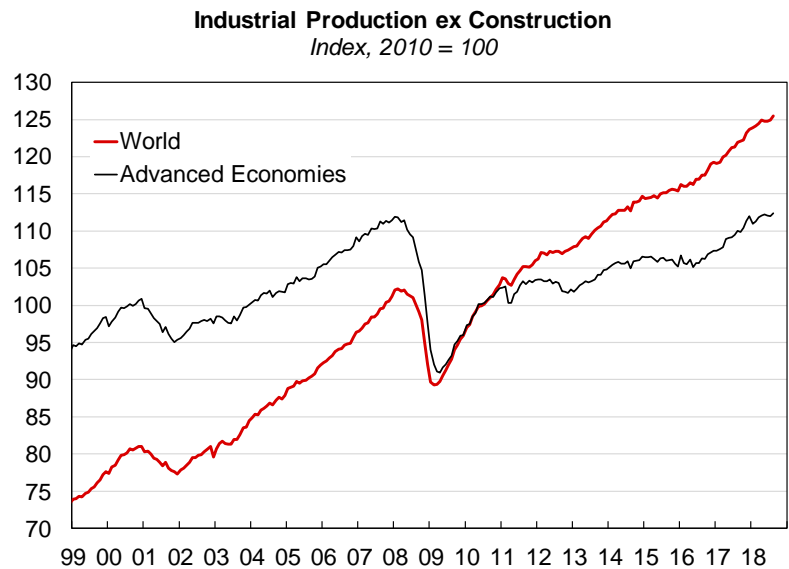
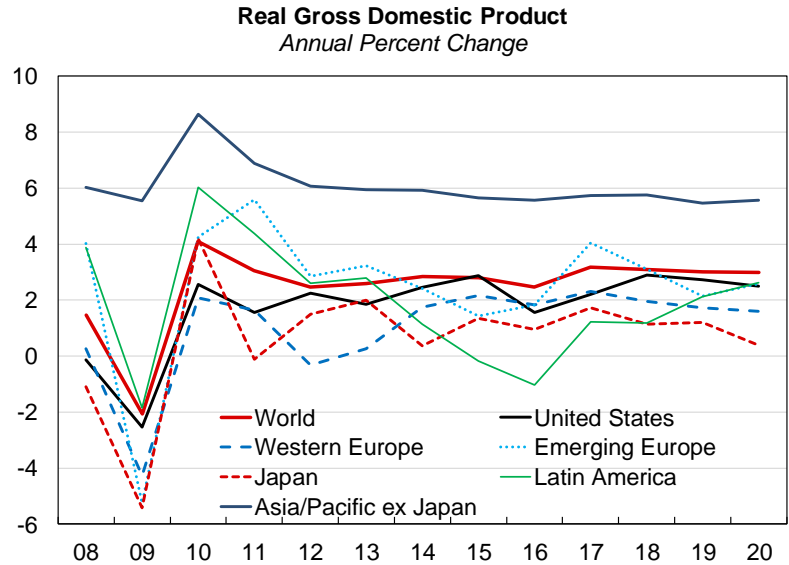
Robert C. Fry, Jr., Ph.D.

November 2, 2018

- The global economy has slowed this year as accelerating growth in the United States has been more than offset by slower growth in the rest of the world. Annual growth in global Gross Domestic Product peaked in 2017. Year-over-year growth in global industrial production peaked at around 4% at the beginning of 2018; by August, it had fallen below 3%. Weakness in most of the world and offsetting strength in the United States suggest that production has been shifted geographically by U.S. tax reform.
- More concerning than a mild slowdown in current growth is increased uncertainty about future growth. This uncertainty has arisen primarily because of U.S. tariffs on steel, aluminum, and most goods from China and retaliatory tariffs imposed by other countries, particularly China, on exports from the United States.
- Real Gross Domestic Product in the United States rose at a 3.5% annual rate in the third quarter after rising at a 4.2% rate in the second quarter. Year-over-year growth rose to 3.0%, a 13-quarter high. While third-quarter growth looked strong on the surface, details were disturbing. Most of the growth was due to consumer spending, government spending, and a big inventory build. Business investment in equipment was flat, and investment in structures (residential and nonresidential) was down. This could simply reflect a lull between the initial burst in investment in equipment that can be purchased “off the shelf” and the slower boost to investment projects that take time to plan and build, but it could also indicate that tariffs are causing companies to delay/cancel investment projects in the United States. Because inventory investment was strong and fixed investment weak in the third quarter, I have revised down my forecast for U.S. real GDP growth in the fourth quarter of 2018 and all of 2019. Despite the weaker fourth quarter, annual growth is expected to reach 2.9% this year, matching the best since 2005. Growth is expected to slow to 2.7% next year. If the United States and China reach an agreement that prevents tariffs from rising to 25% or if U.S. business investment reaccelerates, I will revise my forecast upward.
- Growth has slowed in Europe. Real GDP for the European Union rose 0.3% (1.3% annual rate) in the third quarter after rising 0.5% in the second quarter and 0.6% in the third quarter. Year-over-year growth slipped to 1.9%, down from 2.8% in the third quarter of 2017. Industrial production hit a record high in January but has failed to reach that level since. Year-over-year growth fell to 1.3% in August; it was over 5% in January.
- Growth in China, which was boosted by fiscal stimulus before last fall’s Communist Party Congress, has slowed since then. Value Added of Industry, China’s official measure of industrial production, was up 5.8% year-over-year in September. That was the slowest growth rate since early 2016. My preferred measure of growth in industrial production, the median growth rate of 100 industrial products, fell below 1% in September, down from 5.8% in the first two months of 2017 and 4.6% as recently as September 2017. Reported growth in China is likely to decline gradually. Actual growth has downshifted much less gradually.
- The GDP growth rate in India (8% year-over-year in the second quarter) now exceeds the growth rate in China. Going forward, growth is expected to be faster in India than in China, largely for demographic reasons.
- Year-over-year growth in industrial production in Japanese manufacturing fell to -0.9% in September.
- Global real Gross Domestic Product (based on market exchange rates, not purchasing power parity) is expected to grow 3.1% in 2018, down from 3.2% in 2017. Growth is expected to slow to 3.0% in 2019. Global industrial production is expected to grow 3.2% in 2018, down from 3.4% in 2017. Global industrial production is expected to grow 3.0% in 2019. Resolution/escalation of the trade dispute between the United States and China would push my growth forecast up/down.

## Global Macroeconomic Overview

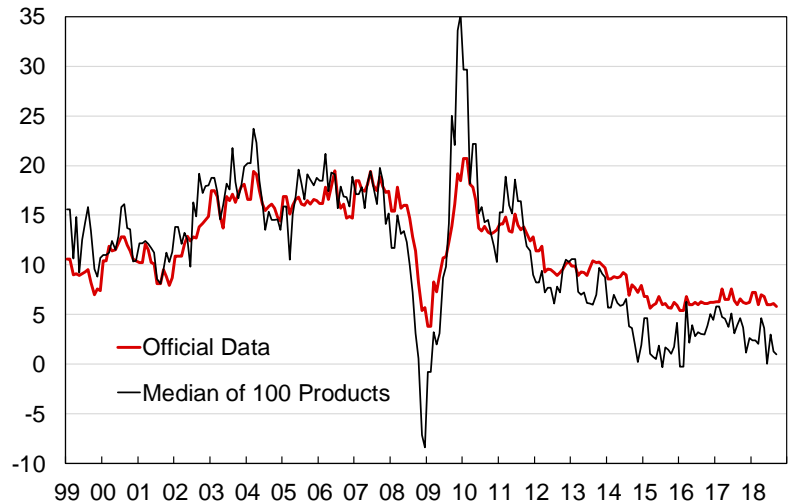
- Global Gross Domestic Product (based on market exchange rates, not purchasing power parity) is expected to grow 3.1% in 2018, down from 3.2% in 2017. Faster growth in the United States is being more than offset by slower growth in the rest of the world.
- Annual global growth peaked in 2017. It is expected to slow in 2018 and 2019 but is not expected to slow sharply unless global trade disputes escalate.
- Global industrial production, as measured by the CPB Netherlands Bureau for Economic Policy Analysis, has lost upward momentum this year.
- Industrial production in the Advanced Economies grew very little over the first eight months of this year after growing strongly in 2016 and 2017.
- Year-over-year growth in global industrial production declined from 4% in January and February to below 3% in August.
- Historically, economic growth has generally been faster in Emerging Economies than in Advanced Economies, but the gap narrowed in 2016 and 2017 and has remained relatively narrow in 2018.
- Many emerging economies have been hurt by the strength of the U.S. dollar in 2018.



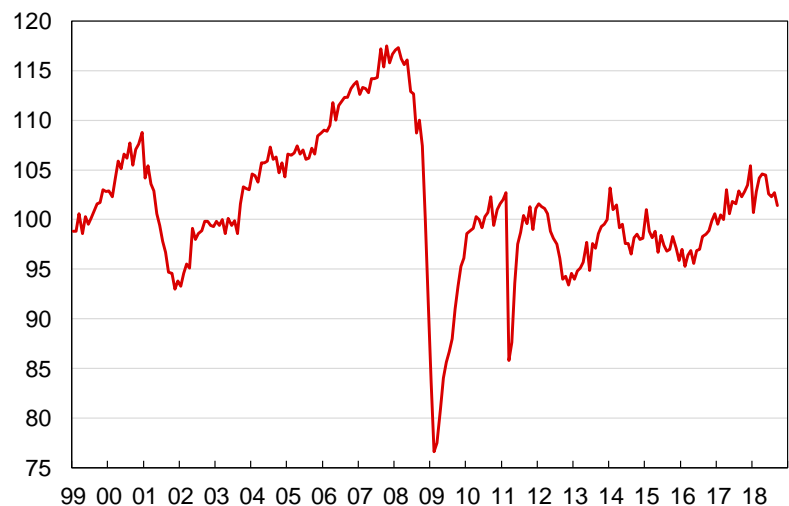
## Asia

- Value Added of Industry, China's official measure of industrial production, was up 5.8% year-over-year in September. This was the slowest growth since early 2016.
- My preferred measure of growth in industrial production, the median growth rate of 100 industrial products, fell below 1% in September, down from 5.8% in the first two months of 2017 and 4.6% as recently as last September.
- Reported growth is likely to decline gradually in coming years. Actual growth has downshifted much less gradually.
- Industrial production in Japanese manufacturing rose to a nine-year high in December 2017 in anticipation of U.S. tax reform, then fell sharply in January 2018.
- Production rebounded in February and March but has faded since. This reflects the slowdown in China and disruptions to production caused by floods in July and September and an earthquake in September.
- Year-over-year growth went negative in August and fell to -0.9% in September.
- Year-over-year growth in industrial production in Indian manufacturing, which surged in late 2017, has slowed in 2018, but growth is still faster than in most of the world.
- Real Gross Domestic Product for India was up 8% year-over-year in the second quarter.
- The GDP growth rate in India has surpassed the growth rate in China. Growth is expected to remain faster in India than in China, largely for demographic reasons. India's population will surpass China's in the next decade.

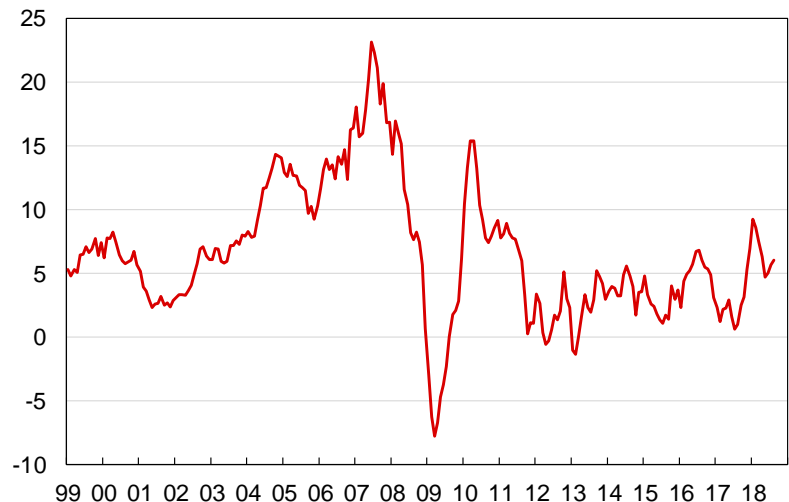
**Value Added of Industry (Industrial Production): China**  
Percent Change from Year Ago



**Industrial Production, Manufacturing: Japan**  
Index, 2010 = 100



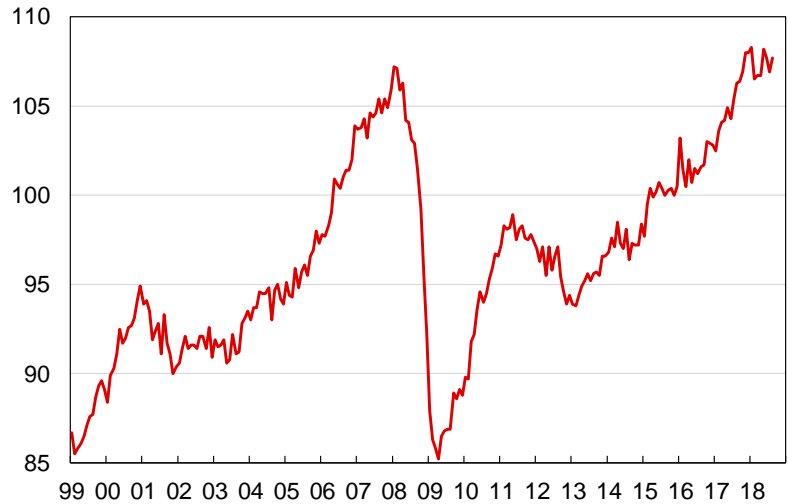
**Industrial Production, Manufacturing: India**  
Percent Change from Year Ago, Smoothed



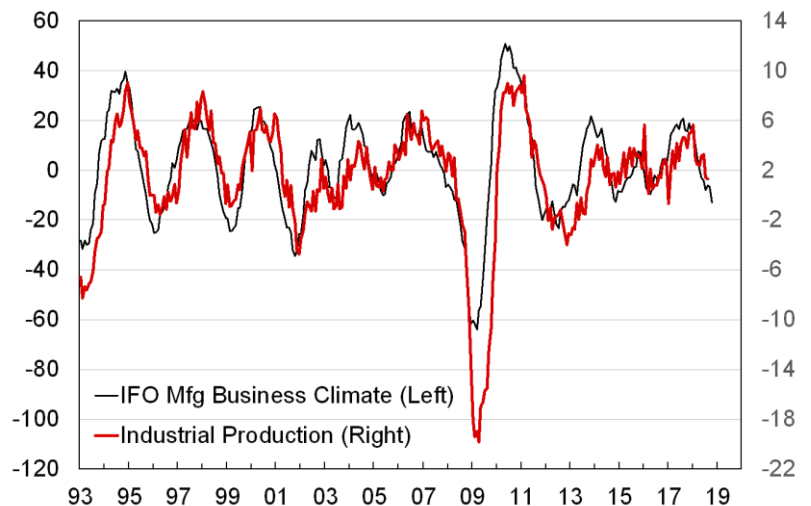
## Europe

- Industrial production in European Union manufacturing hit a record high in January after nearly five years of solid growth but has failed to reach that level since. Year-over-year growth fell to 1.3% in August; it was over 5% in January.
- Production rose in anticipation, then fell in response, to U.S. tax reform.
- Real GDP rose 0.3% (1.3% annual rate) in the third quarter after rising 0.5% in the second quarter and 0.6% in the first quarter. Year-over-year growth slipped to 1.9%, down from 2.8% a year earlier.
- The 12-month change in the German IFO manufacturing business climate index has historically led year-over-year growth in European Union manufacturing production by three months and is reported in a timelier manner.
- The IFO index and its 12-month change have fallen sharply since late 2017. This is consistent with stagnating industrial production.
- Industrial production in manufacturing hit record highs in Poland and Hungary in August. From a manufacturing standpoint, these have been among the best-performing economies in the world over the last several years.
- Production was up 5.4% year-over-year in Poland in August. It was up 4.6% in Hungary but up on 1.9% in the Czech Republic.

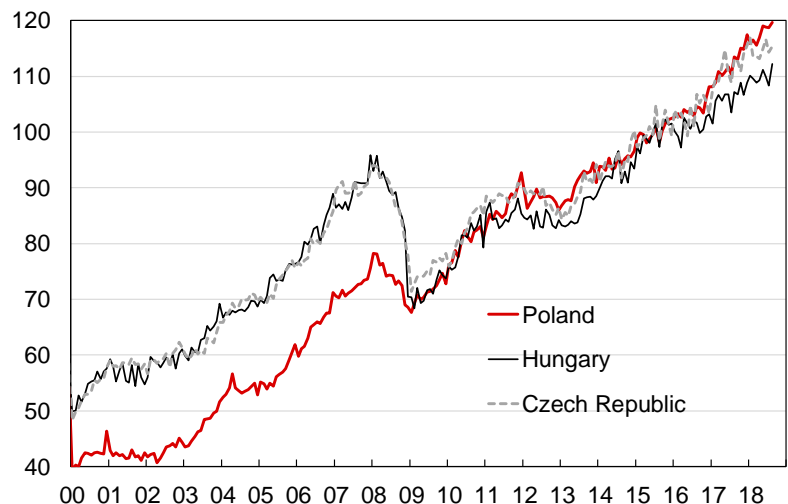
**Industrial Production, Manufacturing: European Union**  
Index, 2015 = 100



**Industrial Production, Manufacturing: European Union**  
Change/Percent Change from Year Ago



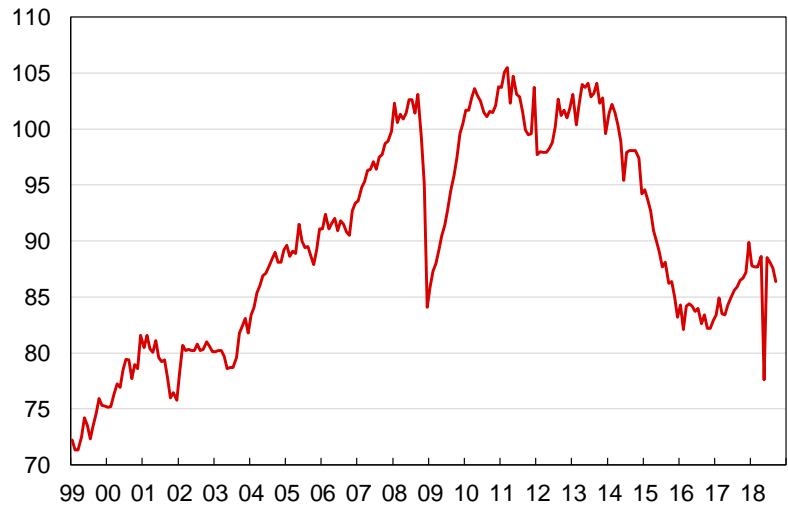
**Industrial Production, Manufacturing: Central Europe**  
Index, 2015 = 100



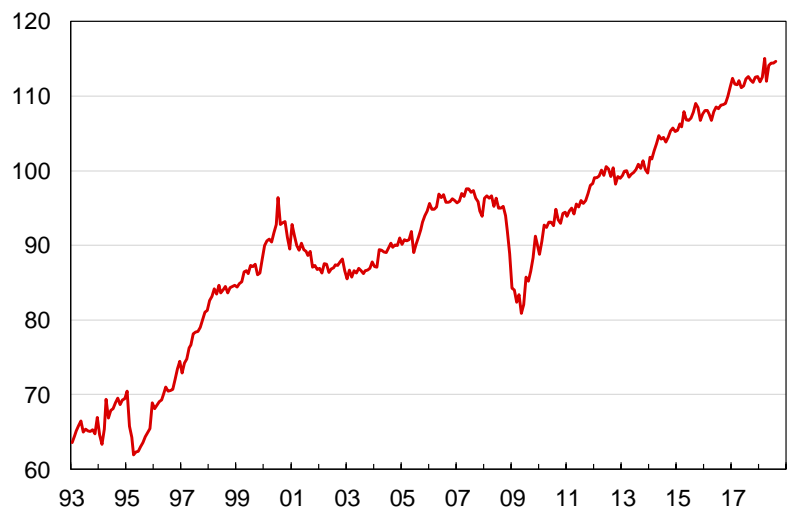
## Americas

- Brazil's economic recovery from its 2014-2015 collapse has stalled.
- Industrial production in Brazilian manufacturing fell slightly below its year-earlier level in September.
- The large, but temporary, decline in May reflects a truckers' strike.
- Right-wing candidate Jair Bolsonaro was elected President of Brazil on October 28. From a purely economic standpoint, this is a positive development.
- Industrial production in Mexican manufacturing hit a record high in May and has remained near record levels. (The big increase in March and big decline in April obscure a slow upward trend.)
- Production was up 1.8% year-over-year in August.
- It is debatable whether the new U.S.-Mexico-Canada Agreement (USMCA) is an improvement over the North American Free Trade Agreement it replaces, but it is much better than no agreement at all and takes the worst-case scenario off the table.
- Industrial production in U.S. manufacturing rose 0.2% in September after rising 0.3% in each of the prior two months.
- Production turned up in June 2016 after a 2.7% decline over the prior 18 months. It has grown at just a 1.9% annual rate since.
- Production was up 3.5% year-over-year in September, the best since 2012, but this was from hurricane-depressed levels.
- Continued strong growth in production will rely mostly on business investment in plant and equipment and on taking market share from foreign competitors.

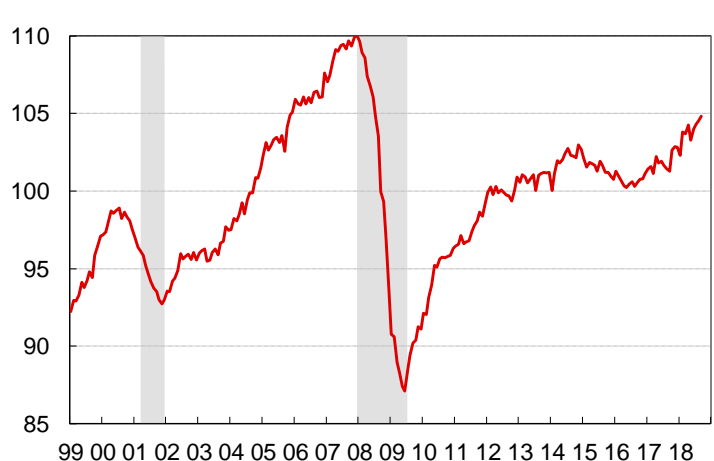
**Industrial Production, Manufacturing: Brazil**  
Index, 2012 = 100



**Industrial Production, Manufacturing: Mexico**  
Index, 2008 = 100



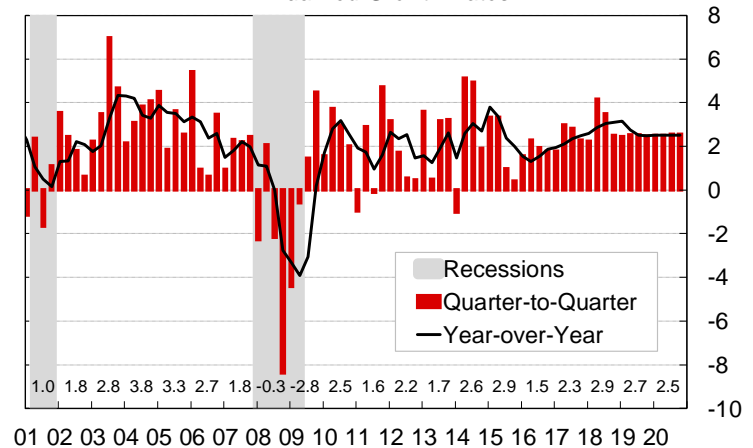
**US Industrial Production: Manufacturing**  
Index, 2012=100



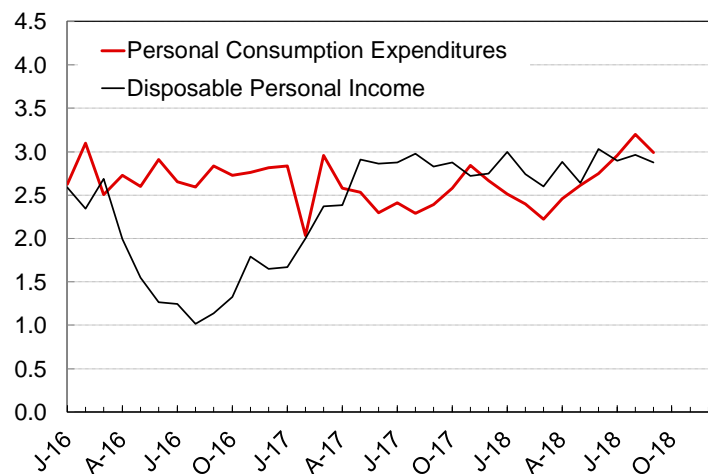
## US Macroeconomic Overview

- Real Gross Domestic Product in the United States rose at a 3.5% annual rate in the third quarter after rising at a 4.2% rate in the second quarter. Year-over-year growth rose to 3.0%, a 13-quarter high.
- Third-quarter growth was due primarily to consumer spending, government spending, and inventory accumulation. Business investment in plant and equipment was notably weak, perhaps held down by concerns about trade policy. The large inventory build and the weakness in business investment have caused me to reduce my growth forecast for 2019.
- Real personal consumption expenditures rose 0.3% in September and have risen at a 4.3% annual rate since February.
- Real disposable personal income rose just 0.1% in June but has grown at a 3.1% annual rate since December 2017.
- Income and consumption have accelerated in response to the individual tax cuts in the Tax Cuts and Jobs Act. This is a short-term Keynesian stimulus that will soon fade. For the TCJA to have a positive long-term impact, business investment needs to increase sharply and/or persistently.
- Light vehicles sales rose in September and October as motorists replaced vehicles destroyed by hurricanes, just as they did a year earlier. Sales for the year are likely to come in near last year's 17.14 million.
- With employment growth expected to slow and some consumers waiting for next-generation technology (electric, self-driving) before buying their next car, sales are likely to trend downward from current levels. However, given the advanced age of the current vehicle fleet, strong replacement demand will keep vehicle sales from declining significantly until the economic expansion nears its end.

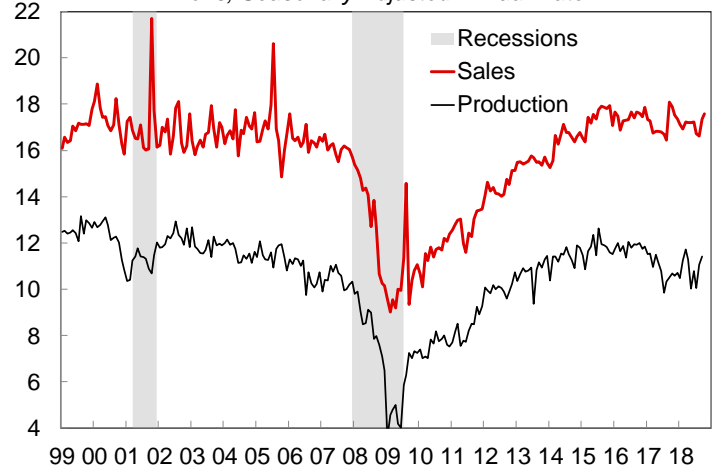
**US Real Gross Domestic Product**  
Annualized Growth Rates



**US Real Consumer Spending & Disposable Income**  
Percent Change from Year Ago, Chained 2012 Dollars



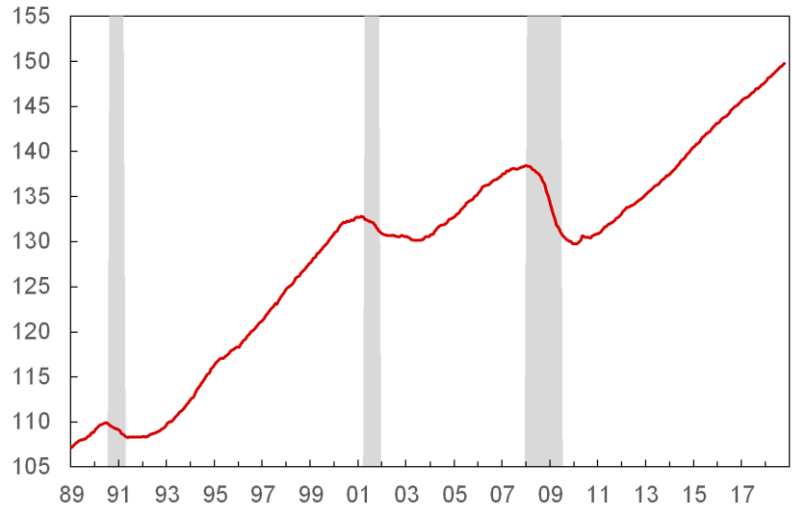
**US Light Vehicle Sales & Production**  
Millions, Seasonally Adjusted Annual Rate



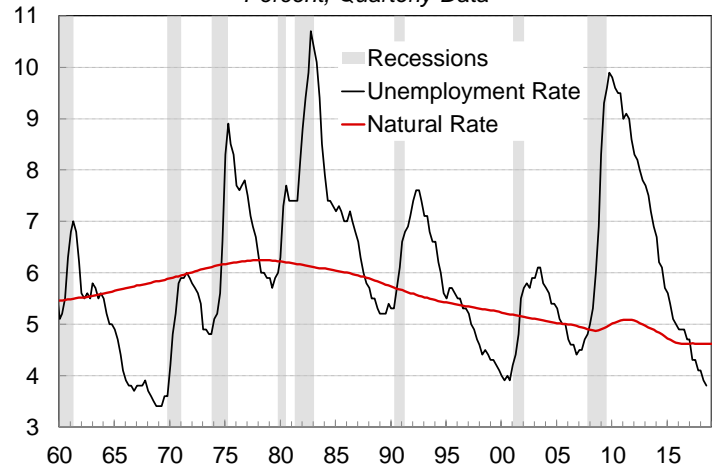
## US Labor Market

- Employment growth has not slowed this year despite a low unemployment rate. Nonfarm payrolls increased by 250,000 in October after a hurricane-depressed 118,000 increase in September. Payrolls have grown by an average of 212,500 per month so far this year. Only 80,000-100,000 new jobs per month are required to absorb growth in the adult population.
- Barring the return of discouraged and retired workers to the labor force or an increase in immigration, growth in payroll employment will have to slow to less than 100,000 within the next few years.
- The civilian unemployment rate remained unchanged at 3.7% in October. This is the lowest unemployment rate since 1969 and is well below the Congressional Budget Office's 4.6% estimate for the natural rate of unemployment.
- According to the Phillips Curve theory used by many economists, inflation accelerates when the unemployment rate is below the natural rate. I believe that higher inflation requires tight markets for goods and services; tight labor markets cause labor costs to rise. Without tight product markets, higher labor costs are more likely to squeeze margins than to boost inflation.
- Growth in Average Hourly Earnings for production and nonsupervisory workers has accelerated this year; AHEs were up 3.2% year-over-year in October.
- The Employment Cost Index, which is not affected by changes in the age or job composition of the workforce, has accelerated slowly since 2015. The ECI was up 2.8% year-over-year in the third quarter; that's the highest since 2008.
- The Employment/Population ratio (ages 15-64) shows more slack in the labor market than does the unemployment rate.

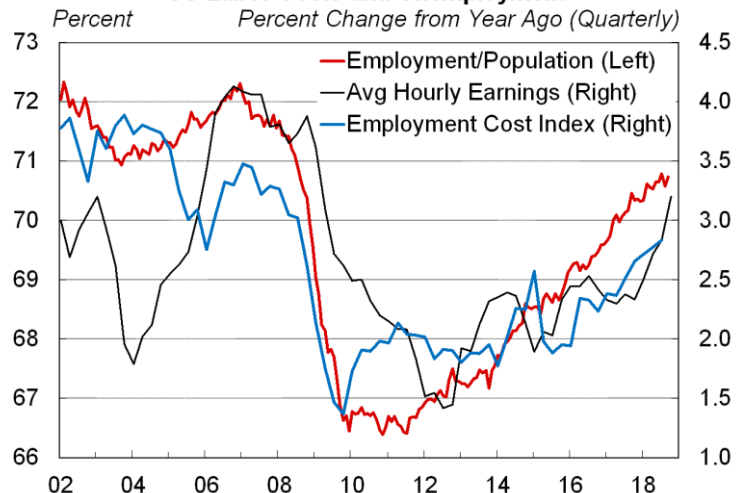
**US Payroll Employment**  
*Millions*



**US Civilian Unemployment Rate**  
*Percent, Quarterly Data*



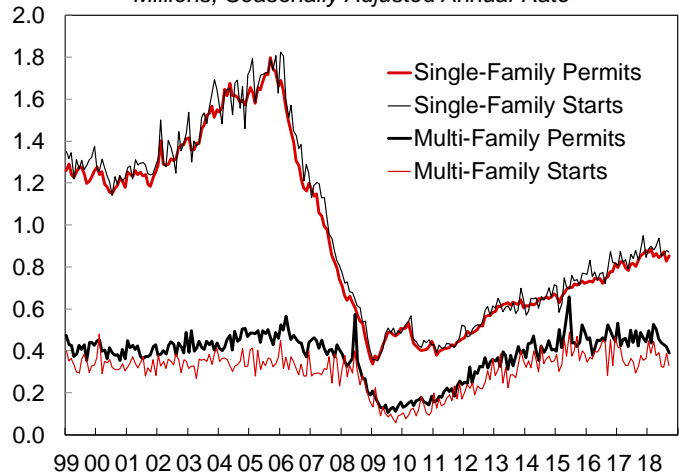
**US Labor Costs and Unemployment**



## US Housing

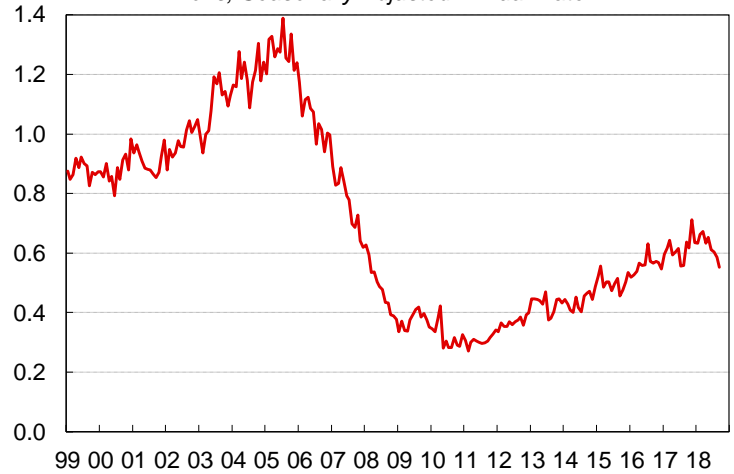
- The slow recovery in construction of single-family homes is one of the two biggest reasons this economic expansion has been so much weaker than previous expansions.
- Single-family housing starts and building permits (a better indicator of housing market conditions than starts because they are less sensitive to weather) have declined since the beginning of the year despite an acceleration in the overall economy.
- Despite this decline, total housing starts for the year will be higher than in 2017. Growth is expected to resume in 2019.
- New home sales fell in September to their lowest seasonally adjusted level since December 2016. While supply constraints explain the weakness of the cyclical recovery in home sales, higher mortgage rates are a factor in the recent downturn.
- Existing-home sales (not shown) have declined for six straight months, taking them to their lowest seasonally adjusted level since November 2015.

**US Housing Starts & Building Permits**  
Millions, Seasonally Adjusted Annual Rate



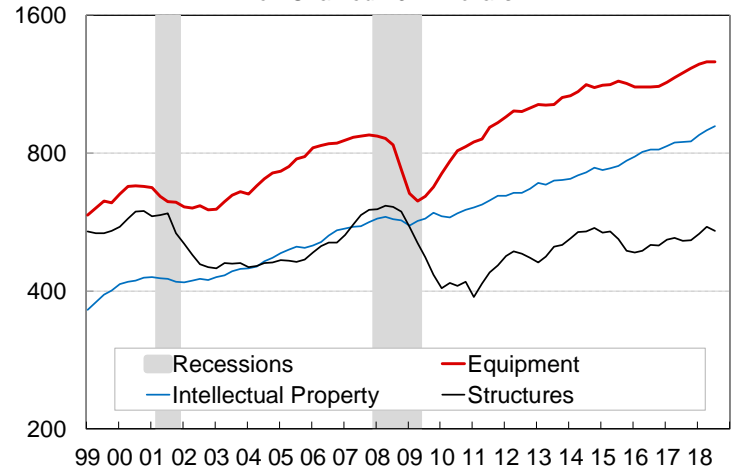
**US New Home Sales**

Millions, Seasonally Adjusted Annual Rate



- The second key reason for the weakness of this economic expansion is the anemic recovery in business investment. Business investment grew strongly in the first half of 2018 but stagnated in the third quarter.
- Tax reform will boost potential growth in the U.S. economy if and only if it causes businesses to boost investment in plant and equipment and intellectual property products (e.g., software).
- Business investment boosts productivity (output per hour worked). Productivity growth is the only sustainable source of higher living standards.

**US Nonresidential Fixed Investment**  
Billion Chained 2012 Dollars

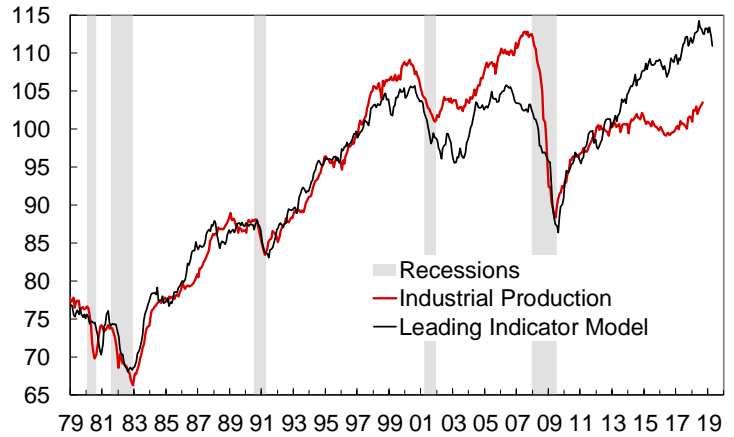




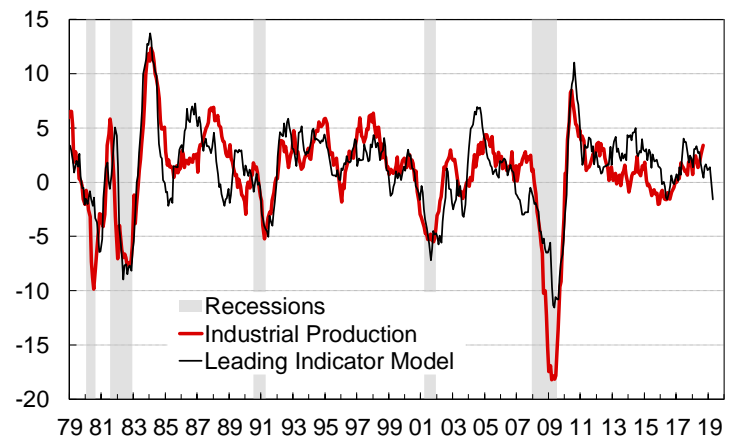
## Industrial Production & Leading Indicators

- Industrial production in U.S. manufacturing (excluding computers, communication equipment, and semiconductors) has risen 4.4% since May 2016.
- After a year of stagnation (except for an abnormally strong reading in December 2017), my leading index fell sharply in October, pulled down by a decline in stock prices and some softening in orders. Despite this decline, I expect production to keep growing, due to tax reform and to strong growth in chemical production as new facilities (e.g., ethane crackers) come online in response to cheap feedstocks.
- Industrial production for manufacturing (excluding the high-tech sectors) was up 3.4% year-over-year in September, albeit from hurricane-depressed levels.
- My leading indicator model for industrial production suggests that year-over-year growth will turn negative within the next six months. I expect growth to slow, but I don't expect it to turn negative because of strong growth in chemical production.
- If stock prices rebound quickly, so will my leading index.
- The Organization for Economic Cooperation and Development (OECD) publishes leading indicators for OECD members and six non-member developing countries. Their broadest leading indicator is highly correlated with year-over-year growth in global industrial production.
- The OECD "leading" indicator doesn't lead by very much, if at all, but because it doesn't change direction very often, it can confirm whether an apparent turning point in growth in industrial production is a true turning point or just "noise" in the data. The indicator peaked in August 2017. It is consistent with slowing, below trend, but still positive, growth.

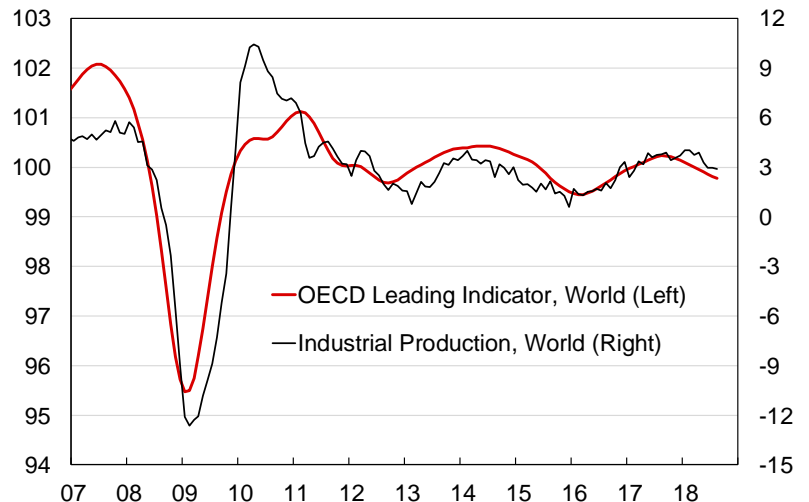
**US Industrial Production: Manufacturing ex high-tech**  
*Index 2012 = 100*



**US Industrial Production: Manufacturing ex high-tech**  
*Percent Change from Year Ago*



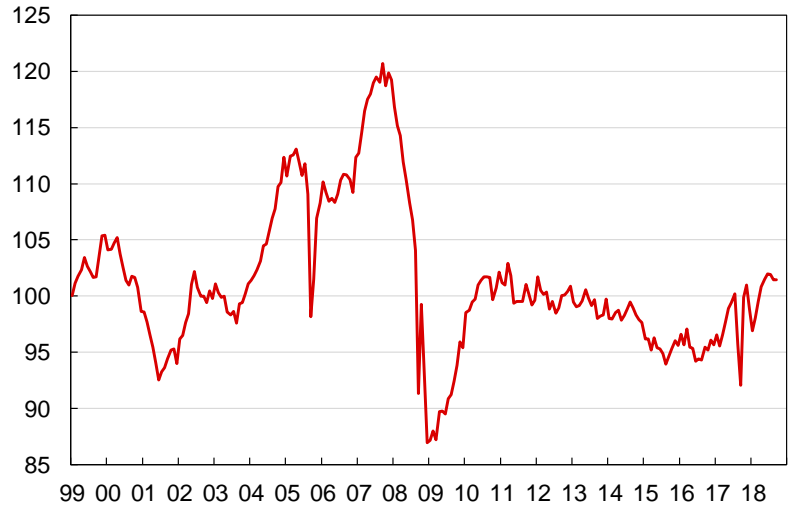
**OECD Leading Indicator & Global Industrial Production**  
*Trend = 100*      *Percent Change from Year Ago*



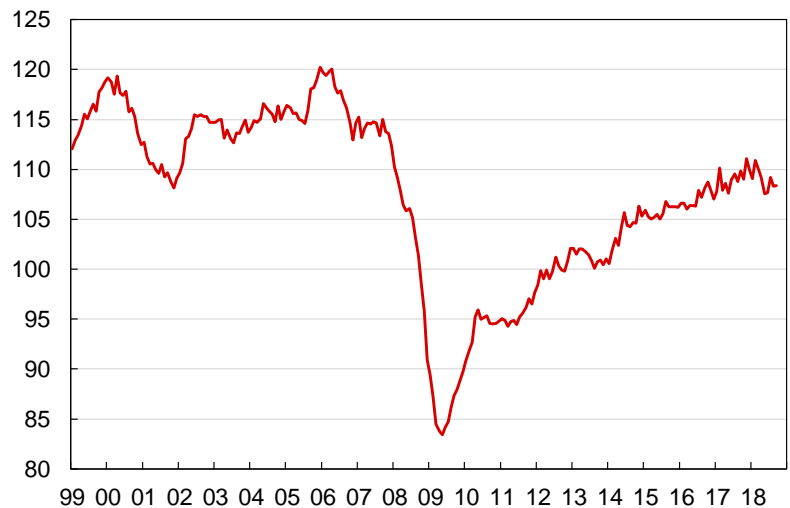
## US Industrial Production

- Industrial production of chemicals (excluding pharmaceuticals) turned up in 2015 as cheap natural gas liquids from shale formations boosted the competitive of North American chemical production.
- Growth was interrupted by a general manufacturing slowdown in early 2016 and Hurricane Harvey in 2017.
- Chemical industry capacity in the United States will continue to expand as new facilities built in response to the shale boom come online. Strong growth in production is likely over the rest of the decade.
- U.S. industrial production of plastic and rubber products has declined since the end of 2017 and was down 1.4% year-over-year in September.
- Plastic and rubber production was boosted by the strong recovery in motor vehicle sales and production from 2009 to 2015. With the peak in motor vehicle production likely behind us, future growth in plastic and rubber products will have to depend on other sources of demand. As in the case of chemicals, production is likely to be boosted in the future by the abundance of cheap natural gas liquids.
- Even though natural gas liquids are the primary feedstock for the North American chemical industry, industrial chemical prices are more highly correlated with global oil prices than with natural gas prices because oil-based imports are the marginal source of supply.
- The Producer Price Index for industrial chemicals has risen since oil prices hit bottom in early 2016. With oil prices turning down in recent weeks, prices of industrial chemicals may be nearing a near-term peak.

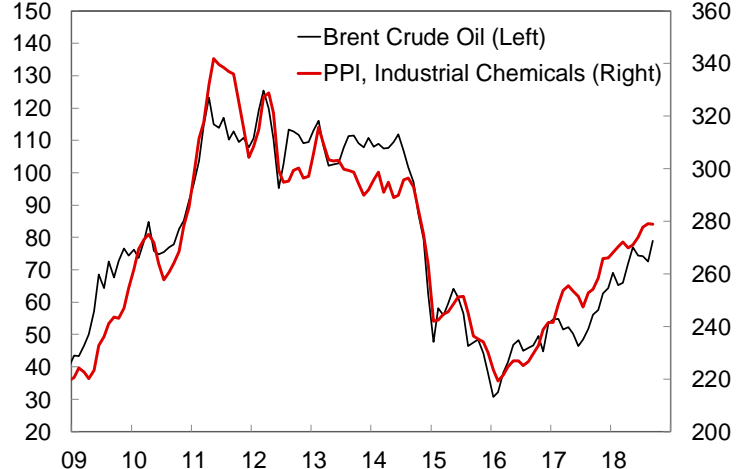
**US Industrial Production: Chemicals ex pharmaceuticals**  
Index, 2012=100



**US Industrial Production: Plastic & Rubber Products**  
Index, 2012=100

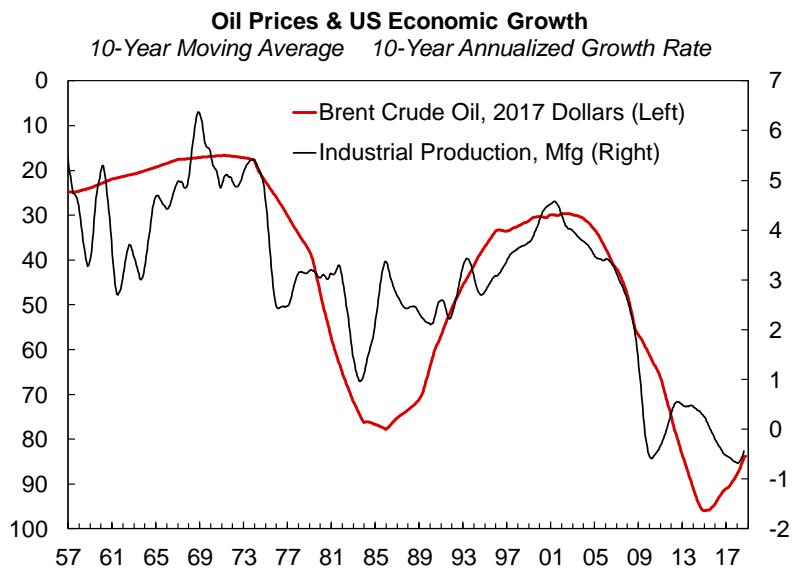
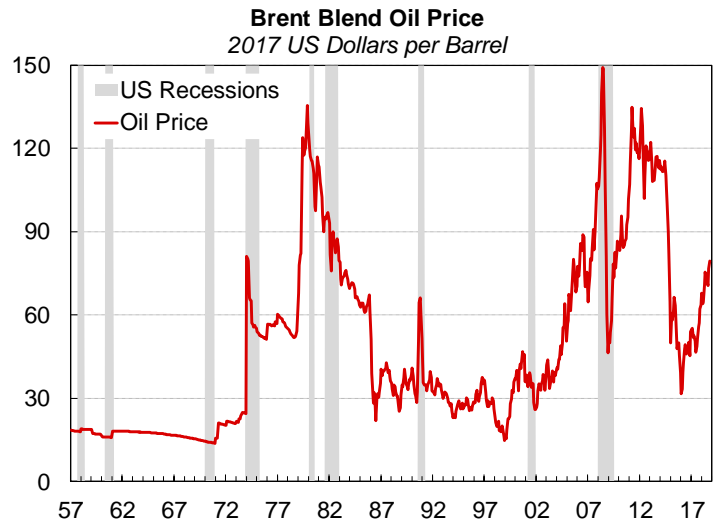
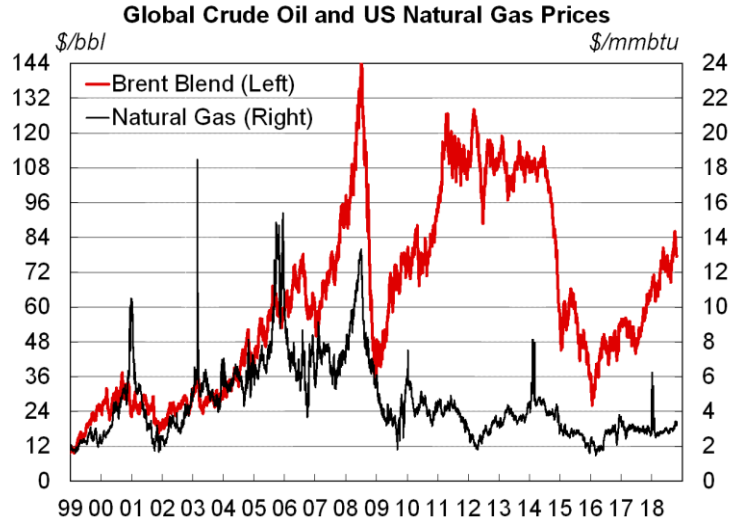


**Brent Oil Price vs Industrial Chemical Prices**  
\$/Barrel (Left)      Index, 1982 = 100 (Right)



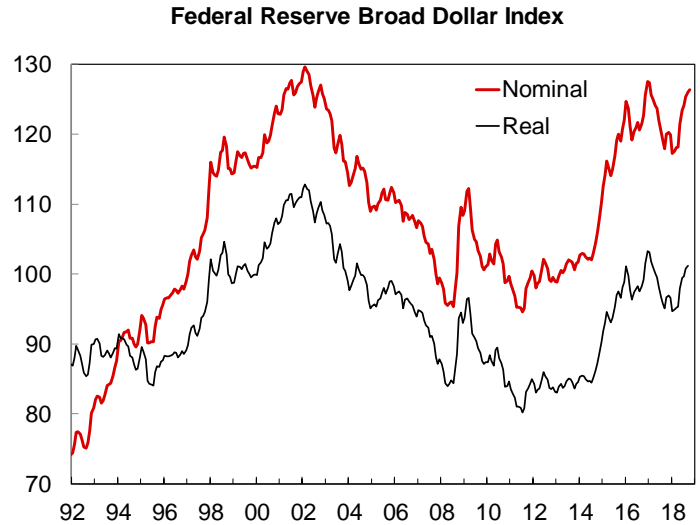
## Oil & Gas Prices

- Oil prices rose to four-year highs in October but have turned down in recent weeks. Long-dated futures prices suggest that prices will continue to retreat from recent elevated levels.
- Gasoline prices did not rise with crude prices, giving consumers a break.
- Natural gas prices have risen this year but remain low relative to oil prices and relative to their own 2003-2011 history.
- Low prices for natural gas and natural gas liquids boost the competitiveness of North American chemical producers, which use natural gas liquids as their primary feedstock while foreign competitors rely on naphtha, a crude oil derivative. The feedstock-cost advantage of North American producers shrank when oil prices collapsed in late 2014 but has grown as oil prices have rebounded.
- The real (inflation-adjusted) price of Brent Blend crude oil peaked in November 1979 and did not set another new high until May 2008. Because of surging U.S. production from shale formations, real oil prices could remain below their 2008 highs for decades.
- Economic growth, particularly growth in U.S. industrial production in manufacturing, has been significantly stronger during periods of low real oil prices than during periods of high prices.
- Although real oil prices peaked in 2008 and have fallen sharply since mid-2014, the 10-year moving average of real oil prices did not begin to decline until 2015.
- Oil prices may have recently reached the level where the negative impact of high oil prices on the non-oil economy exceeds their positive impact on drilling activity.

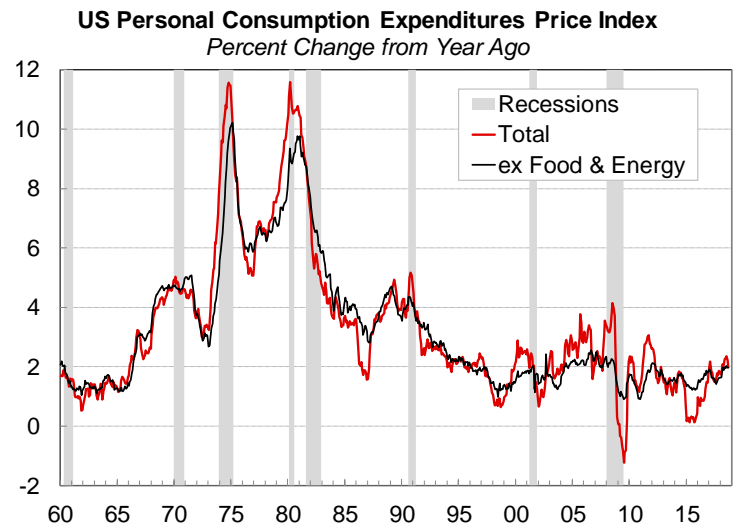


## Exchange Rates, Inflation, and Interest Rates

- The U.S. dollar has strengthened in recent months and is nearing the 14-year high reached in January 2017.
- A strong dollar reduces the competitiveness of U.S.-produced goods and services, especially in the agriculture, mining, and manufacturing sectors.
- For all but a few industries (i.e., steel and aluminum), the negative impact of the strong dollar on competitiveness will exceed any benefits from tariffs.

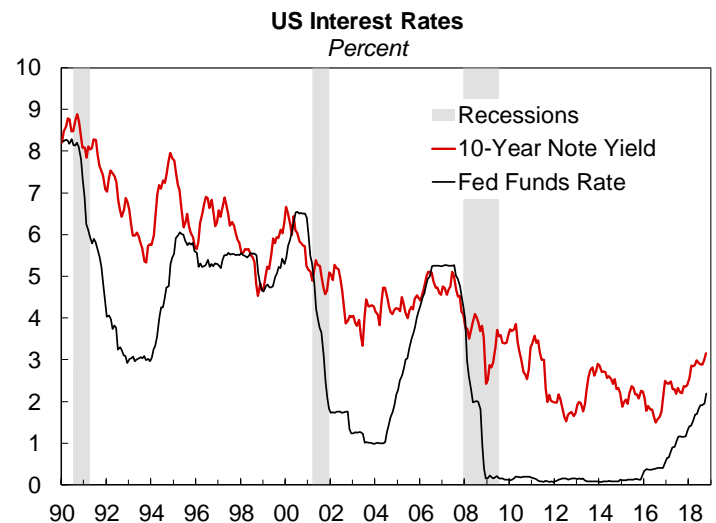


- The U.S. Federal Reserve seeks to keep inflation, as measured by the year-over-year change in the Personal Consumption Expenditure Price Index, near 2%.
- The total PCE Price Index was up 2% year-over-year in September. The “core” (ex food and energy) index was also up 2%.
- The future path of short-term interest rates will (or at least should) depend on whether the inflation rate rises back above 2%.



- Inflation has slowed in recent months, but tariffs could soon reverse that trend.

- The Federal Reserve raised its federal funds rate target by a quarter point (to 2.0 to 2.25%) at its September meeting. It has signaled that it expects another quarter-point hike in December and three in 2019.



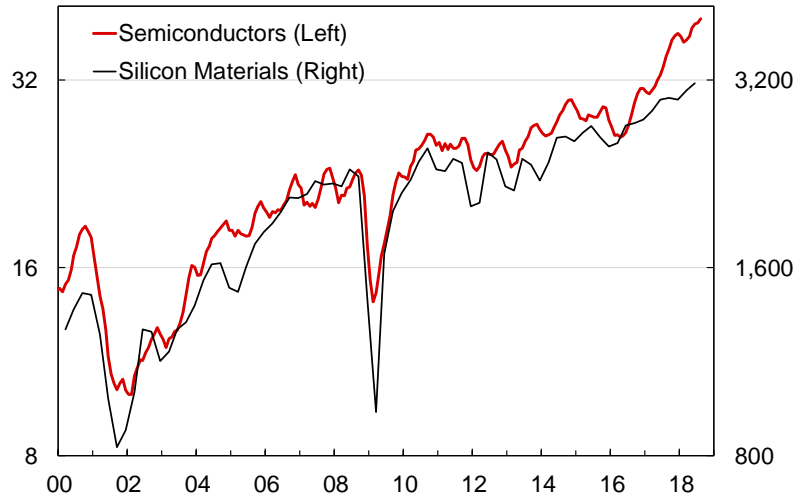
- The yield on 10-year Treasury notes rose above 3.25% in October and is currently at 3.19%. It is expected to rise **slowly** as the Federal Reserve shrinks its holdings of Treasury and mortgage-backed securities.

- If 10-year Treasury yields were to remain at current levels (possible but unlikely), four quarter-point rate hikes would invert the yield curve and signal a recession.

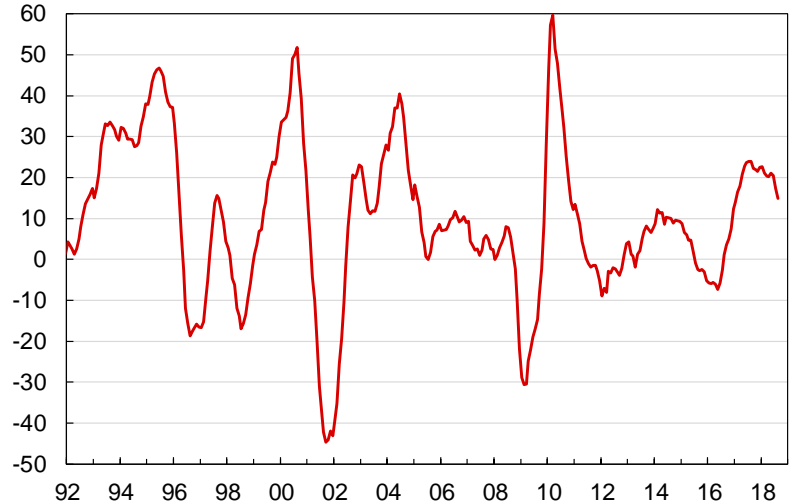
## Electronics & Communication

- Shipments of silicon materials are a good indicator of global demand for products going into the electronics industry. Shipments rose to a new record high in the second quarter. They were up 6.1% year-over-year.
- The data (from SEMI®) are only reported quarterly back to 2000, but silicon wafer area (in square inches) has been strongly correlated with semiconductor shipments (in dollars), which are reported monthly back to 1976.
- Worldwide semiconductor shipments, reported by the Semiconductor Industry Association, reached a record high in the three months ending September.
- Worldwide semiconductor shipments were up 13.8% year-over-year. Year-over-year growth has slowed but remains strongly positive.
- Industrial production of wire and cable used in communication and energy applications fell by two-thirds from its 2000 dot.com bubble peak to its 2009 trough. The recovery since then, while significant in percentage terms, has erased little of the 2001-2009 decline.
- Wire and cable production hit a 10-year high in July before declining slightly in August and September. Production was up 4.7% year-over-year in September.

**Worldwide Semiconductor & Silicon Material Shipments**  
*Million\$, 3-Month Moving Average      Million Square Inches*



**Worldwide Semiconductor Shipments**  
*Percent Change from Year Ago, 3-Month Moving Average*



**US Industrial Production: Wire & Cable**  
*Index, 2012=100*



# Global GDP Growth

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>
<b>World</b>	<b>2.8</b>	<b>2.5</b>	<b>3.2</b>	<b>3.1</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>	<b>3.0</b>
<b>North America</b>	<b>2.7</b>	<b>1.6</b>	<b>2.3</b>	<b>2.8</b>	<b>2.7</b>	<b>2.4</b>	<b>2.5</b>	<b>2.4</b>	<b>2.4</b>
United States	2.9	1.6	2.2	2.9	2.7	2.5	2.5	2.5	2.5
Canada	1.0	1.4	3.0	2.1	2.0	1.8	1.7	1.8	1.9
Mexico	3.3	2.9	2.0	2.2	2.1	2.7	2.9	3.0	3.0
<b>Western Europe</b>	<b>2.2</b>	<b>1.8</b>	<b>2.3</b>	<b>2.0</b>	<b>1.7</b>	<b>1.6</b>	<b>1.5</b>	<b>1.5</b>	<b>1.4</b>
France	1.0	1.1	2.3	1.6	1.6	1.6	1.5	1.5	1.4
Germany	1.5	2.2	2.5	1.9	1.7	1.6	1.3	1.3	1.2
Italy	1.0	0.9	1.5	1.2	1.0	0.9	0.9	0.9	0.9
Spain	3.6	3.2	3.0	2.7	2.2	1.9	1.8	1.6	1.5
U.K.	2.3	1.8	1.7	1.3	1.5	1.5	1.7	1.7	1.8
<b>C &amp; E Europe</b>	<b>1.4</b>	<b>1.8</b>	<b>4.0</b>	<b>3.1</b>	<b>2.2</b>	<b>2.6</b>	<b>2.4</b>	<b>2.3</b>	<b>2.4</b>
<b>Middle East &amp; Africa</b>	<b>2.5</b>	<b>3.2</b>	<b>1.7</b>	<b>2.2</b>	<b>2.9</b>	<b>3.1</b>	<b>3.1</b>	<b>3.1</b>	<b>3.2</b>
<b>Asia/Pacific</b>	<b>4.6</b>	<b>4.4</b>	<b>4.8</b>	<b>4.7</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>	<b>4.5</b>
Japan	1.4	1.0	1.7	1.1	1.2	0.4	0.7	1.0	0.9
ex Japan	5.7	5.6	5.7	5.8	5.5	5.6	5.5	5.4	5.3
Australia	2.5	2.6	2.2	3.2	2.8	2.7	2.6	2.6	2.6
China	6.9	6.7	6.9	6.6	6.2	6.2	6.0	5.8	5.6
India	8.2	7.1	6.7	7.3	7.4	7.7	7.7	7.7	7.7
Indonesia	4.9	5.0	5.1	5.1	5.1	5.2	5.3	5.3	5.4
Korea (South)	2.8	2.9	3.1	2.8	2.6	2.8	2.8	2.7	2.6
Malaysia	5.1	4.2	5.9	4.7	4.6	4.8	4.8	4.8	4.8
Philippines	6.1	6.9	6.7	6.5	6.6	6.6	6.8	6.8	6.9
Singapore	2.2	2.4	3.6	2.9	2.5	2.7	2.7	2.7	2.6
Taiwan	0.8	1.4	2.9	2.7	2.2	2.3	1.9	1.9	1.9
Thailand	3.0	3.3	3.9	4.6	3.9	3.7	3.5	3.5	3.6
Vietnam	6.7	6.2	6.8	6.6	6.5	6.5	6.5	6.5	6.5
<b>Latin America</b>	<b>-1.0</b>	<b>-2.0</b>	<b>1.0</b>	<b>0.9</b>	<b>2.1</b>	<b>2.6</b>	<b>2.6</b>	<b>2.7</b>	<b>2.7</b>
Argentina	2.7	-1.8	2.9	-2.6	-1.6	2.2	2.5	3.1	3.2
Brazil	-3.5	-3.5	1.0	1.4	2.4	2.3	2.2	2.2	2.2
Colombia	3.0	2.0	1.8	2.8	3.6	3.7	3.7	3.6	3.6
Venezuela	-6.2	-16.5	-14.0	-18.0	-5.0	-2.0	-1.5	-1.5	-1.5

# Global Industrial Production Growth

	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>
<b>World</b>	<b>1.6</b>	<b>1.8</b>	<b>3.4</b>	<b>3.2</b>	<b>3.0</b>	<b>2.6</b>	<b>2.6</b>	<b>2.4</b>
<b>Advanced economies</b>	<b>0.4</b>	<b>0.1</b>	<b>3.0</b>	<b>2.9</b>	<b>2.5</b>	<b>1.8</b>	<b>1.7</b>	<b>1.4</b>
United States	-1.0	-1.9	1.6	3.7	2.8	2.5	2.2	1.9
Japan	-1.3	-0.4	4.3	2.0	2.0	0.5	0.5	0.5
Euro Area	1.9	1.7	3.1	2.0	2.0	1.5	1.5	1.2
Other advanced	1.6	1.4	4.2	3.5	3.0	2.0	2.0	1.5
<b>Emerging economies</b>	<b>2.9</b>	<b>3.7</b>	<b>3.8</b>	<b>3.5</b>	<b>3.5</b>	<b>3.6</b>	<b>3.6</b>	<b>3.5</b>
Emerging Asia	4.6	5.4	5.6	6.0	5.0	4.5	4.5	4.0
C & E Europe	-1.6	1.9	2.9	3.0	2.0	2.0	2.0	2.0
Latin America	-2.3	-3.5	-0.8	-1.5	1.0	2.0	2.0	2.5
Middle East & Africa	3.1	3.6	0.7	1.0	2.0	3.0	3.0	3.5

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