

Economics Group

MONTHLY OUTLOOK

U.S. Overview

The U.S. Had Strong Momentum Ahead of the Storms

The U.S. economy had strong momentum prior to the devastating back-to-back hurricanes, which impacted parts of Texas and most of Florida in late August and September. Damages from the hurricanes will likely total around \$150 billion, with an unusually large portion of that coming from business interruption to refineries, petrochemical plants, restaurants and residential construction.

Damages to property impact the stock wealth but damages from lost sales and production will impact real GDP. After expanding at a 3.1 percent pace in the second quarter, we expect real GDP growth to slow to a 2.1 percent pace in the third quarter, with the hurricanes shaving about 0.9 percentage points off Q3 growth. We look for output to bounce back relatively quickly, with real GDP expected to rise at a 2.5 percent pace in Q4 and expand 2.4 percent in 2018.

We are still expecting to see some sort of tax cut enacted but the magnitude will be less than has been proposed and the timing will likely be a bit later. We have shifted impact of the tax cuts into the second quarter of 2018, assuming passage of a \$1.6 trillion cut over ten years in early spring of next year.

At this stage of the business cycle, tax cuts would largely play a supporting role. Consumer spending and business fixed investment would be stronger than otherwise. Without the cuts, 2018 growth would be closer to 2 percent.

We are holding onto our expectation that the Fed will raise the federal funds rate by a quarter percentage point in December.

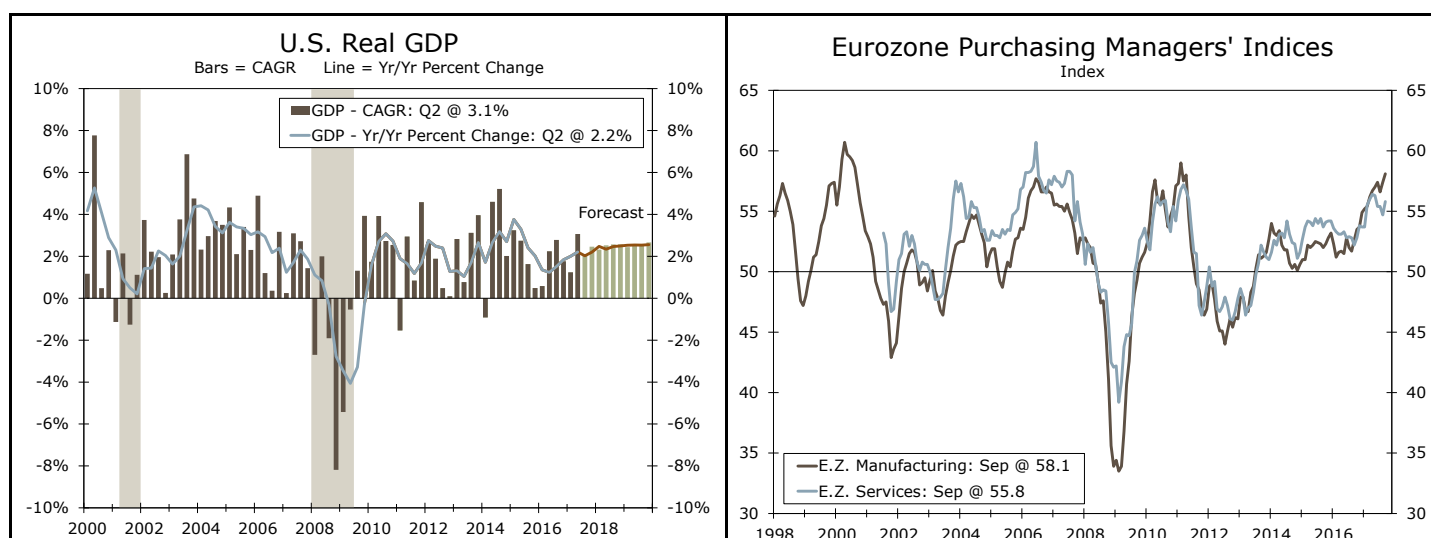
International Overview

More Balanced Growth from the Global Economy

Although economic growth in the global economy remains well off the pace registered during the first decade and a half of this century, it has been solid enough to push central banks of large developed countries outside of the U.S. to start considering their own response to years of extremely expansionary monetary policies. The recovery seems especially significant in the all-important manufacturing sector, with manufacturing PMIs hitting heights not seen in many years. In the United States, the ISM manufacturing index hit 60.8 in September, the highest reading since May 2004 when it was 61.4 and was the highest reading of that cycle. Meanwhile, the Eurozone PMI reading for September was the highest since late 2011, at 58.1. That is, the manufacturing PMI in the Eurozone shows further improvement in the region's manufacturing sector.

Interestingly, what makes this strengthening in the manufacturing sentiment in the U.S. as well as in the Eurozone is that the recovery has not been accompanied by a strong manufacturing PMI in China.

Thus, although economic growth in this environment will be weaker than what the global economy experienced since the emergence of China as a global growth engine, the economic environment seems to be more balanced and potentially more sustainable than the environment that existed when China was pulling the strings of economic growth across the global economy.



Source: U.S. Department of Commerce, IHS Global Insight and Wells Fargo Securities



Short-term Weather Distortions Should Quickly Fade

Back-to-back major hurricanes inflicted significant damages on the U.S. economy and wreaked havoc with many of the monthly economic indicators. Nonfarm employment declined by 33,000 in September, with losses at restaurants and chemical plants accounting for most of the decline. The drop *apparently* ends the longest ever string of monthly gains in nonfarm employment. We say *apparently* because the initial estimates are often revised significantly.

The hurricanes had the opposite effect on the ISM surveys, where longer delivery times caused both the manufacturing and non-manufacturing surveys to surge in September. Longer delivery times are usually a sign that supply chains are getting overwhelmed and are typically a sign of a strong economy. In this case the lengthening of supply chains is due to temporary disruptions at ports, refineries, rail lines and trucking firms. Industrial production plummeted in August, due almost entirely to weakness in petroleum refining and petrochemicals. The U.S. economy had strong momentum prior to the storms. Second quarter real GDP growth was revised modestly higher to a 3.1 percent pace, reflecting stronger growth in services outlays. Average hourly wages were also revised higher and show much more strength than previously reported. Moreover, the unemployment rate has fallen to 4.2 percent and appears to have been little impacted by the storm. The drop in the unemployment rate reflects a catch up in household employment growth and stronger labor force growth. The lower jobless rate is consistent with other survey data, indicating a tightening labor force.

Stronger wage growth and lower unemployment should go a long way toward allaying any fears at the Fed that inflation is too low. The year-to-year change in the core PCE deflator slowed to just 1.4 percent in August, which is a long way from the Fed's preferred pace of around 2 percent. The inflation data likely will get a bit of a boost from higher gasoline prices and other storm related price hikes in coming months, which may make the Fed's decision a little easier.

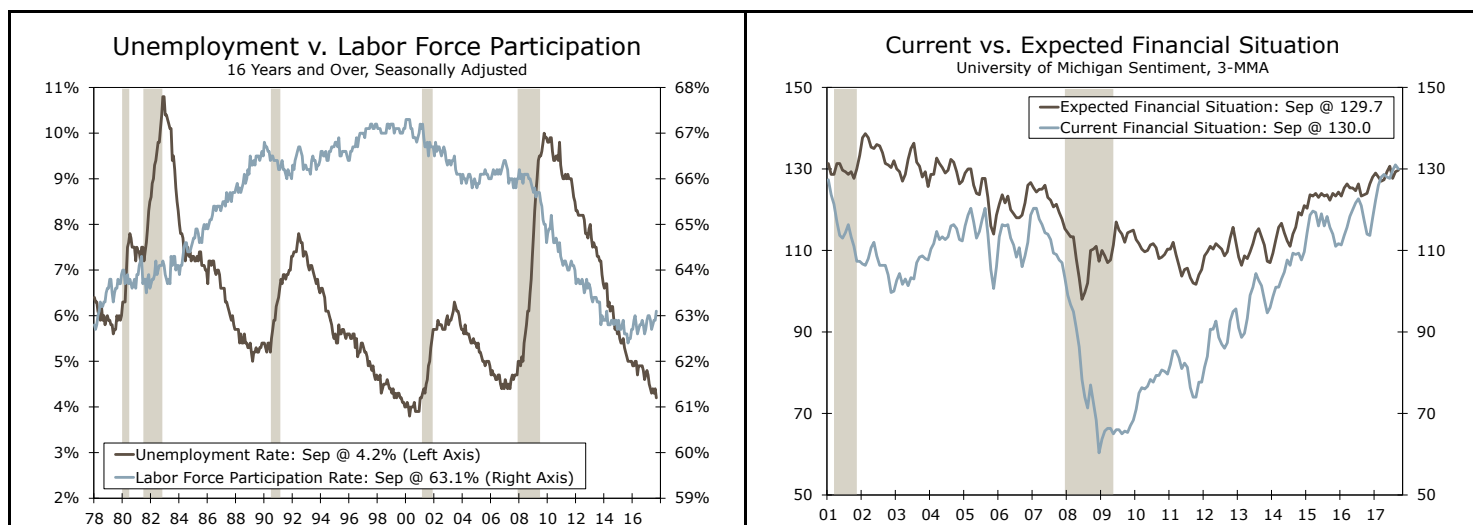
Our forecast assumes that monetary policy continues to move along the path of normalization. We expect the Fed to raise the federal funds rate by a quarter percentage point in December and look for two more quarter-point hikes in 2018. After preparing the markets for about a year, the Fed has largely put the unwind of QE on autopilot, which should avoid a return of the taper-tantrum.

Consumer Finances Are in Solid Shape

By all accounts, the drop in nonfarm payrolls appears to be isolated to a few industries impacted most severely by the hurricanes. While overall employment fell, most of the drop was at restaurants, which lost 104,000 jobs. The BLS also noted that 1.5 million workers stated that they could not work at some point in September due to bad weather. Payrolls increased in 55.7 percent of the industries surveyed in September. Nonfarm payrolls should bounce back in October.

While the jobs data received most of the attention, the upward revision to previous months' data on average hourly earnings may be more telling. Average hourly earnings are now up 2.9 percent year-to-year, up from 2.6 percent six months earlier. The improvement matches up well with consumer sentiment, which had noted a substantial improvement in household finances. After rising at an anticipated 2.0 percent pace in Q3, we look for consumer spending to rebound to a 2.5 percent pace later this year, which we believe will be maintained in 2018 and 2019. Spending could get a boost from insurance settlements, which should lift motor vehicle sales.

We have lowered our 2017 forecast for homebuilding and slightly raised our forecast for 2018. Time will be needed to settle with insurance companies, government regulators and construction firms before repairs and new home construction meaningfully rebound. Supply constraints surrounding labor and materials will also limit the timing and extent of recovery. The outlook for business investment has improved, even though energy exploration is pulling back. Rising orders for nondefense capital goods suggest equipment outlays will grow solidly. Structures should also eke out modest gains.



Source: U.S. Department of Labor, University of Michigan and Wells Fargo Securities

Wells Fargo U.S. Economic Forecast

	Actual				Forecast												Actual		Forecast		
	2016				2017				2018				2019				2015	2016	2017	2018	2019
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q					
Real Gross Domestic Product (a)	0.6	2.2	2.8	1.8	1.2	3.1	2.1	2.5	2.3	2.5	2.6	2.6	2.4	2.6	2.5	2.7	2.9	1.5	2.1	2.4	2.5
Personal Consumption	1.8	3.8	2.8	2.9	1.9	3.3	2.0	2.5	2.5	2.6	2.6	2.6	2.3	2.5	2.4	2.4	3.6	2.7	2.6	2.5	2.5
Business Fixed Investment	-4.0	3.3	3.4	0.2	7.1	6.7	5.2	6.2	4.8	4.1	4.0	3.7	3.6	3.5	3.5	3.6	2.3	-0.6	4.7	4.9	3.7
Equipment	-13.1	-0.6	-2.1	1.8	4.4	8.8	6.9	8.7	5.4	4.3	4.2	3.7	3.7	3.3	3.5	3.7	3.5	-3.4	4.1	5.9	3.7
Intellectual Property Products	6.3	11.1	4.2	-0.4	5.8	3.7	4.5	5.0	5.2	4.8	4.7	4.5	4.6	4.6	4.6	4.6	3.8	6.3	4.1	4.8	4.6
Structures	2.3	0.5	14.3	-2.2	14.8	7.0	3.0	2.5	3.0	2.4	2.4	2.2	2.0	1.9	1.9	1.9	-1.8	-4.1	6.7	2.9	2.1
Residential Construction	13.4	-4.8	-4.5	7.1	11.1	-7.3	-6.0	-2.0	5.0	8.0	7.5	7.0	5.0	4.5	4.5	4.0	10.2	5.5	0.7	2.4	5.6
Government Purchases	1.8	-0.9	0.5	0.2	-0.6	-0.2	-0.8	0.4	0.2	0.8	0.8	0.8	0.7	0.7	0.7	0.7	1.4	0.8	-0.2	0.3	0.7
Net Exports	-584.2	-572.4	-557.3	-631.1	-622.2	-613.6	-609.4	-622.9	-633.5	-642.7	-647.8	-649.8	-646.4	-641.4	-632.7	-622.1	-545.3	-586.3	-617.0	-643.5	-635.6
Pct. Point Contribution to GDP	-0.3	0.3	0.4	-1.6	0.2	0.2	0.1	-0.3	-0.2	-0.2	-0.1	0.0	0.1	0.1	0.2	0.2	-0.7	-0.2	-0.2	-0.2	0.0
Inventory Change	40.6	12.2	17.6	63.1	1.2	5.5	40.0	50.0	50.0	50.0	48.0	45.0	44.0	43.0	40.0	40.0	100.6	33.4	24.2	48.3	41.8
Pct. Point Contribution to GDP	-0.6	-0.7	0.2	1.1	-1.5	0.1	0.8	0.2	0.0	0.0	0.0	-0.1	0.0	0.0	-0.1	0.0	0.2	-0.4	-0.1	0.1	0.0
Nominal GDP (a)	0.8	4.7	4.2	3.8	3.3	4.1	3.8	4.6	3.9	4.3	4.4	3.9	4.5	4.7	4.8	4.2	4.0	2.8	3.9	4.2	4.4
Real Final Sales	1.2	2.9	2.6	0.7	2.7	2.9	1.7	2.2	2.3	2.5	2.6	2.6	2.5	2.6	2.6	2.7	2.6	1.9	2.2	2.4	2.6
Retail Sales (b)	2.9	2.7	2.6	3.9	5.1	3.9	3.6	3.7	3.8	4.9	5.8	5.7	5.7	5.4	5.0	4.7	2.6	3.0	4.0	5.1	5.2
Inflation Indicators (b)																					
PCE Deflator	1.0	1.0	1.2	1.6	2.0	1.6	1.5	1.5	1.4	1.7	1.8	1.6	1.7	1.8	1.9	2.0	0.3	1.2	1.7	1.6	1.8
"Core" PCE Deflator	1.6	1.7	1.8	1.9	1.8	1.5	1.3	1.4	1.4	1.6	1.7	1.8	1.8	1.8	1.8	1.9	1.3	1.8	1.5	1.6	1.8
Consumer Price Index	1.1	1.1	1.1	1.8	2.6	1.9	2.0	1.9	1.6	2.2	2.3	1.9	2.0	2.1	2.2	2.2	0.1	1.3	2.1	2.0	2.1
"Core" Consumer Price Index	2.2	2.2	2.2	2.2	2.2	1.8	1.7	1.7	1.7	2.1	2.1	2.1	2.1	2.0	2.1	2.1	1.8	2.2	1.8	2.0	2.1
Producer Price Index (Final Demand)	0.0	0.1	0.2	1.4	2.0	2.3	2.3	2.3	2.0	1.9	2.2	2.1	2.3	2.3	2.4	2.4	-0.9	0.4	2.2	2.0	2.3
Employment Cost Index	1.9	2.3	2.3	2.2	2.4	2.4	2.5	2.7	2.7	3.0	3.1	3.2	3.3	3.3	3.3	3.3	2.1	2.2	2.5	3.0	3.3
Real Disposable Income (a)	0.2	1.9	0.7	-1.8	2.9	3.3	2.2	2.1	2.5	3.5	2.7	2.6	2.5	2.5	2.5	2.5	4.2	1.4	1.6	2.7	2.6
Nominal Personal Income (b)	2.9	2.5	2.6	1.6	3.1	2.9	2.8	3.7	3.5	3.9	4.3	4.7	4.7	4.8	4.6	4.4	5.0	2.4	3.1	4.1	4.6
Industrial Production (a)	-1.3	-0.7	0.8	0.7	1.5	5.7	-0.1	0.8	2.4	2.2	2.3	2.1	2.5	2.3	2.3	2.3	-0.7	-1.2	1.7	1.9	2.3
Capacity Utilization	75.8	75.7	75.8	75.8	75.8	76.6	76.6	76.8	77.0	77.2	77.4	77.5	77.7	77.8	78.0	78.0	76.8	75.7	76.5	77.3	77.9
Corporate Profits Before Taxes (b)	-6.2	-8.2	-1.6	8.7	3.3	6.4	3.0	3.2	3.1	3.0	3.0	2.9	2.9	2.8	2.7	2.7	-1.1	-2.1	3.9	3.0	2.8
Corporate Profits After Taxes	-4.2	-8.0	-2.2	14.1	3.7	7.8	2.3	3.0	3.0	4.4	4.4	4.4	4.4	4.4	4.4	4.4	-1.5	-0.5	4.1	4.1	4.4
Federal Budget Balance (c)	-245	60	-186	-210	-317	4	-145	-366	-246	52	-190	-365	-300	-35	-200	-375	-439	-586	-668	-750	-900
Current Account Balance (d)	-119.2	-108.2	-110.3	-114.0	-113.5	-123.1	-115.0	-120.0	-125.0	-130.0	-135.0	-140.0	-140.0	-140.0	-140.0	-140.0	-434.6	-451.7	-471.7	-530.0	-560.0
Trade Weighted Dollar Index (e)	89.8	90.6	90.0	95.8	94.0	90.5	88.1	87.5	86.5	85.3	84.0	82.8	81.8	80.8	79.8	78.8	91.1	91.6	90.0	84.6	80.3
Nonfarm Payroll Change (f)	196	164	239	148	166	187	91	175	170	160	160	155	150	150	145	145	226	187	155	161	148
Unemployment Rate	4.9	4.9	4.9	4.7	4.7	4.4	4.3	4.3	4.2	4.1	4.0	4.0	3.9	3.8	3.9	3.8	5.3	4.9	4.4	4.1	3.9
Housing Starts (g)	1.15	1.16	1.15	1.25	1.24	1.17	1.21	1.27	1.27	1.29	1.29	1.30	1.35	1.37	1.37	1.38	1.11	1.17	1.22	1.29	1.37
Light Vehicle Sales (h)	17.3	17.2	17.5	17.8	17.1	16.8	17.1	16.8	16.8	16.8	16.7	16.7	16.6	16.6	16.5	16.5	17.4	17.5	16.9	16.8	16.5
Crude Oil - Brent - Front Contract (i)	35.2	47.0	47.0	51.0	54.6	50.8	52.2	54.5	52.0	54.0	52.5	55.5	56.0	56.0	56.0	56.0	54.0	45.1	53.0	53.5	56.0
Quarter-End Interest Rates (j)																					
Federal Funds Target Rate	0.50	0.50	0.50	0.75	1.00	1.25	1.25	1.50	1.50	1.75	1.75	2.00	2.00	2.25	2.25	2.50	0.27	0.52	1.25	1.75	2.25
3 Month LIBOR	0.63	0.65	0.85	1.00	1.15	1.30	1.33	1.65	1.65	1.90	1.90	2.15	2.15	2.40	2.40	2.65	0.32	0.74	1.36	1.90	2.40
Prime Rate	3.50	3.50	3.50	3.75	4.00	4.25	4.25	4.50	4.50	4.75	4.75	5.00	5.00	5.25	5.25	5.50	3.27	3.52	4.25	4.75	5.25
Conventional Mortgage Rate	3.69	3.57	3.46	4.20	4.20	3.90	3.81	3.89	3.95	4.02	4.05	4.10	4.12	4.16	4.17	4.24	3.85	3.65	3.95	4.03	4.17
3 Month Bill	0.21	0.26	0.29	0.51	0.76	1.03	1.06	1.30	1.45	1.60	1.67	1.85	1.95	2.10	2.15	2.30	0.05	0.32	1.04	1.64	2.13
6 Month Bill	0.39	0.36	0.45	0.62	0.91	1.14	1.20	1.40	1.55	1.70	1.77	1.95	2.05	2.20	2.25	2.40	0.17	0.46	1.16	1.74	2.23
1 Year Bill	0.59	0.45	0.59	0.85	1.03	1.24	1.31	1.55	1.68	1.80	1.87	2.05	2.15	2.25	2.30	2.45	0.32	0.61	1.28	1.85	2.29
2 Year Note	0.73	0.58	0.77	1.20	1.27	1.38	1.47	1.72	1.83	1.93	2.00	2.15	2.23	2.33	2.38	2.50	0.69	0.83	1.46	1.98	2.36
5 Year Note	1.21	1.01	1.14	1.93	1.93	1.89	1.92	2.20	2.29	2.39	2.45	2.58	2.65	2.75	2.80	2.90	1.53	1.33	1.99	2.43	2.78
10 Year Note	1.78	1.49	1.60	2.45	2.40	2.31	2.33	2.49	2.57	2.66	2.71	2.78	2.82	2.88	2.91	3.00	2.14	1.84	2.38	2.68	2.90
30 Year Bond	2.61	2.30	2.32	3.06	3.02	2.84	2.86	3.19	3.29	3.41	3.49	3.58	3.62	3.68	3.71	3.80	2.84	2.59	2.98	3.44	3.70

Forecast as of: October 11, 2017

Notes: (a) Compound Annual Growth Rate Quarter-over-Quarter

(b) Year-over-Year Percentage Change

(c) Quarterly Sum - Billions USD; Annual Data Represents Fiscal Yr.

(d) Quarterly Sum - Billions USD

(e) Federal Reserve Major Currency Index, 1973=100 - Quarter End

(f) Average Monthly Change

(g) Millions of Units - Annual Data - Not Seasonally Adjusted

(h) Quarterly Data - Average Monthly SAAR; Annual Data - Actual Total Vehicles Sold

(i) Quarterly Average of Daily Close

(j) Annual Numbers Represent Averages

Source: U.S. Department of Commerce, U.S. Department of Labor, Federal Reserve Board, IHS Global Insight and Wells Fargo Securities

More Balanced Growth from the Global Economy

Although economic growth in the global economy remains well off the pace registered during the first decade and a half of this century, it has been solid enough to push central banks of large developed countries outside the U.S. to start considering their own response to years of extremely expansionary monetary policies. The recovery seems especially significant in the all-important manufacturing sector, with manufacturing PMIs hitting heights not seen in many years. In the United States, the ISM manufacturing index hit 60.8 in September, the highest reading since May 2004 when it was 61.4 and was the highest reading of that cycle.

Meanwhile, the Eurozone PMI reading for September was the highest since late 2011, at 58.1. That is, the manufacturing PMI in the Eurozone shows further improvement in the region's manufacturing sector. Interestingly, what makes this strengthening in manufacturing sentiment in the U.S. as well as in the Eurozone is that the recovery has not been accompanied by a strong manufacturing PMI in China. The manufacturing PMIs in China have moved above the 50 demarcation level since about mid-2016 but have remained relatively weak compared to the levels exhibited during the years of overcharged economic growth earlier in the century.

Thus, it is clear that this global economic cycle is very different than what the global economy has been used to since the beginning of this century. That is, China is arguably no longer the most important driving force for the global economy as it was since the turn of the century. Rather, the current characteristics of global economic growth is, perhaps, more typical of what the global economy used to experience before the turn of the century and before the strong emergence of China as an economic engine.

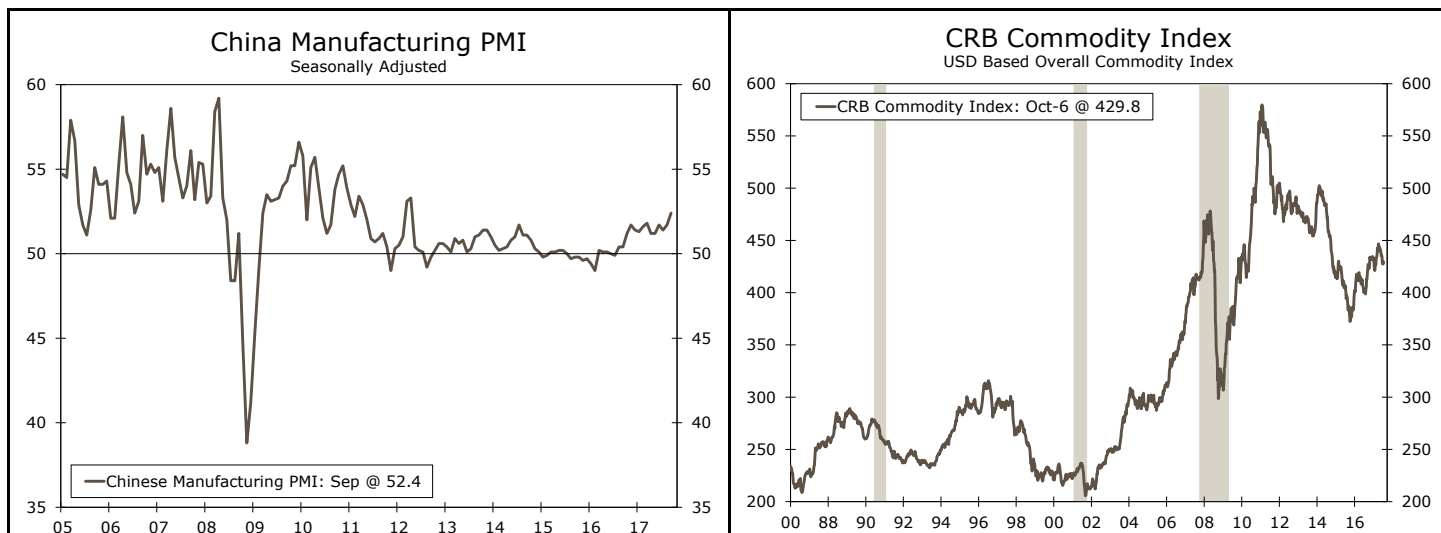
As a consequence of this new global environment, the recovery in global economic activity has not been accompanied by a

recovery in commodity prices to levels seen during the first decade and a half of this century, when the driving economic force for global growth was China's "voracious" appetite for commodities. However, a slower growth performance for the Chinese economy plus the current recovery in economic growth in the developed economies has been sufficient, for now, to keep overall commodity prices relatively strong compared to the depressed levels that existed before the turn of the century.

Furthermore, there is a risk of commodity prices experiencing some further weakening as the new global environment takes a hold during the next several years.

Of course, commodity exporters continue to miss those high commodity prices and strong export growth years and continue to hope for a comeback. However, since we do not expect China's economic growth to go back to double digit growth in the future, then commodity exporters will have to get used to the current environment where commodity prices remain relatively high but with the risks tilted to the downside. Furthermore, the strategy from these exporters should be oriented more to an increase in quantities exported rather than counting on an improvement of prices of such commodities. This, on the other hand, has implications for fiscal policies across the developing world as these countries will not have access to excess revenues from high commodity prices to finance government expenditures and redistribute incomes as was the case during the first decade and a half.

Thus, although economic growth in this environment will be weaker than what the global economy experienced since China's years of double digit growth, the economic environment seems to be more balanced and potentially more sustainable than the environment that existed when China was pulling the strings of economic growth across the global economy.



Source: IHS Global Insight, Bloomberg LP and Wells Fargo Securities

Wells Fargo International Economic Forecast

(Year-over-Year Percent Change)

	GDP			CPI		
	2017	2018	2019	2017	2018	2019
Global (PPP Weights)	3.5%	3.4%	3.3%	3.1%	3.4%	3.4%
Global (Market Exchange Rates)	3.2%	3.2%	3.1%	3.1%	3.4%	3.4%
Advanced Economies ¹	2.3%	2.3%	2.2%	1.8%	1.8%	1.9%
United States	2.1%	2.4%	2.5%	2.1%	2.0%	2.1%
Eurozone	2.2%	2.1%	1.7%	1.5%	1.7%	1.9%
United Kingdom	1.6%	1.8%	1.6%	2.6%	2.2%	2.0%
Japan	1.9%	1.1%	0.7%	0.4%	0.8%	0.3%
Korea	2.8%	2.8%	2.7%	2.1%	2.0%	2.4%
Canada	3.0%	2.0%	1.9%	1.6%	1.9%	2.0%
Developing Economies ¹	4.6%	4.4%	4.4%	4.4%	5.0%	5.0%
China	6.7%	6.3%	5.9%	1.6%	2.4%	2.2%
India ²	7.1%	6.6%	7.2%	3.2%	4.2%	4.3%
Mexico	2.1%	2.3%	2.4%	6.0%	5.0%	5.1%
Brazil	0.6%	2.0%	2.2%	3.5%	3.4%	3.7%
Russia	1.9%	2.0%	2.2%	4.0%	4.2%	4.5%

Forecast as of: October 11, 2017

¹Aggregated Using PPP Weights²Forecast Refers to Fiscal Year

Wells Fargo International Interest Rate Forecast

(End of Quarter Rates)

	3-Month LIBOR						10-Year Bond					
	2017	2018				2019	2017	2018				2019
	Q4	Q1	Q2	Q3	Q4	Q1	Q4	Q1	Q2	Q3	Q4	Q1
U.S.	1.65%	1.65%	1.90%	1.90%	2.15%	2.15%	2.49%	2.57%	2.66%	2.71%	2.78%	2.82%
Japan	-0.03%	-0.02%	-0.01%	0.00%	0.01%	0.02%	0.03%	0.05%	0.07%	0.09%	0.12%	0.14%
Euroland ¹	-0.37%	-0.30%	-0.20%	0.05%	0.20%	0.40%	0.45%	0.60%	0.75%	0.85%	1.00%	1.10%
U.K.	0.40%	0.60%	0.70%	0.85%	0.95%	1.10%	1.40%	1.50%	1.65%	1.80%	1.90%	2.00%
Canada ²	1.50%	1.65%	1.75%	1.90%	2.00%	2.15%	2.10%	2.25%	2.40%	2.50%	2.55%	2.60%

Forecast as of: October 11, 2017

¹ 10-year German Government Bond Yield ² 3-Month Canada Bankers' Acceptances

Source: International Monetary Fund and Wells Fargo Securities

Wells Fargo Securities Economics Group

Diane Schumaker-Krieg	Global Head of Research, Economics & Strategy	(704) 410-1801 (212) 214-5070	diane.schumaker@wellsfargo.com
John E. Silvia, Ph.D.	Chief Economist	(704) 410-3275	john.silvia@wellsfargo.com
Mark Vitner	Senior Economist	(704) 410-3277	mark.vitner@wellsfargo.com
Jay H. Bryson, Ph.D.	Global Economist	(704) 410-3274	jay.bryson@wellsfargo.com
Sam Bullard	Senior Economist	(704) 410-3280	sam.bullard@wellsfargo.com
Nick Bennenbroek	Currency Strategist	(212) 214-5636	nicholas.bennenbroek@wellsfargo.com
Eugenio J. Alemán, Ph.D.	Senior Economist	(704) 410-3273	eugenio.j.aleman@wellsfargo.com
Azhar Iqbal	Econometrician	(704) 410-3270	azhar.iqbal@wellsfargo.com
Tim Quinlan	Senior Economist	(704) 410-3283	tim.quinlan@wellsfargo.com
Eric Viloría, CFA	Currency Strategist	(212) 214-5637	eric.viloria@wellsfargo.com
Sarah House	Economist	(704) 410-3282	sarah.house@wellsfargo.com
Michael A. Brown	Economist	(704) 410-3278	michael.a.brown@wellsfargo.com
Jamie Feik	Economist	(704) 410-3291	jamie.feik@wellsfargo.com
Erik Nelson	Currency Strategist	(212) 214-5652	erik.f.nelson@wellsfargo.com
Michael Pugliese	Economic Analyst	(704) 410-3156	michael.d.pugliese@wellsfargo.com
E. Harry Pershing	Economic Analyst	(704) 410-3034	edward.h.pershing@wellsfargo.com
Hank Carmichael	Economic Analyst	(704) 410-3059	john.h.carmichael@wellsfargo.com
Ariana Vaisey	Economic Analyst	(704) 410-1309	ariana.b.vaisey@wellsfargo.com
Abigail Kinnaman	Economic Analyst	(704) 410-1570	abigail.kinnaman@wellsfargo.com
Shannon Seery	Economic Analyst	(704) 410-1681	shannon.seery@wellsfargo.com
Donna LaFleur	Executive Assistant	(704) 410-3279	donna.lafleur@wellsfargo.com
Dawne Howes	Administrative Assistant	(704) 410-3272	dawne.howes@wellsfargo.com

Wells Fargo Securities Economics Group publications are produced by Wells Fargo Securities, LLC, a U.S. broker-dealer registered with the U.S. Securities and Exchange Commission, the Financial Industry Regulatory Authority, and the Securities Investor Protection Corp. Wells Fargo Securities, LLC, distributes these publications directly and through subsidiaries including, but not limited to, Wells Fargo & Company, Wells Fargo Bank N.A., Wells Fargo Clearing Services, LLC, Wells Fargo Securities International Limited, Wells Fargo Securities Asia Limited and Wells Fargo Securities (Japan) Co. Limited. Wells Fargo Securities, LLC is registered with the Commodities Futures Trading Commission as a futures commission merchant and is a member in good standing of the National Futures Association. Wells Fargo Bank, N.A. is registered with the Commodities Futures Trading Commission as a swap dealer and is a member in good standing of the National Futures Association. Wells Fargo Securities, LLC and Wells Fargo Bank, N.A. are generally engaged in the trading of futures and derivative products, any of which may be discussed within this publication. Wells Fargo Securities, LLC does not compensate its research analysts based on specific investment banking transactions. Wells Fargo Securities, LLC's research analysts receive compensation that is based upon and impacted by the overall profitability and revenue of the firm which includes, but is not limited to investment banking revenue. The information and opinions herein are for general information use only. Wells Fargo Securities, LLC does not guarantee their accuracy or completeness, nor does Wells Fargo Securities, LLC assume any liability for any loss that may result from the reliance by any person upon any such information or opinions. Such information and opinions are subject to change without notice, are for general information only and are not intended as an offer or solicitation with respect to the purchase or sales of any security or as personalized investment advice. Wells Fargo Securities, LLC is a separate legal entity and distinct from affiliated banks and is a wholly owned subsidiary of Wells Fargo & Company © 2017 Wells Fargo Securities, LLC.

Important Information for Non-U.S. Recipients

For recipients in the EEA, this report is distributed by Wells Fargo Securities International Limited ("WFSIL"). WFSIL is a U.K. incorporated investment firm authorized and regulated by the Financial Conduct Authority. The content of this report has been approved by WFSIL a regulated person under the Act. For purposes of the U.K. Financial Conduct Authority's rules, this report constitutes impartial investment research. WFSIL does not deal with retail clients as defined in the Markets in Financial Instruments Directive 2007. The FCA rules made under the Financial Services and Markets Act 2000 for the protection of retail clients will therefore not apply, nor will the Financial Services Compensation Scheme be available. This report is not intended for, and should not be relied upon by, retail clients. This document and any other materials accompanying this document (collectively, the "Materials") are provided for general informational purposes only.

SECURITIES: NOT FDIC-INSURED/NOT BANK-GUARANTEED/MAY LOSE VALUE

