

Date	Indicator	For	Estimate	Consensus*	Previous Period
15-Oct-2018	Empire Manufacturing	Oct	18.0	20.0	19.0
15-Oct-2018	Retail Sales Advance MoM	Sep	0.6%	0.7%	0.1%
15-Oct-2018	Retail Sales Ex Auto MoM	Sep	0.4%	0.4%	0.3%
15-Oct-2018	Business Inventories	Aug	0.5%	0.5%	0.6%
16-Oct-2018	Industrial Production MoM	Sep	0.2%	0.2%	0.4%
16-Oct-2018	Capacity Utilization	Sep	78.2%	78.2%	78.1%
16-Oct-2018	NAHB Housing Market Index	Oct	66.0	67.0	67.0
16-Oct-2018	JOLTS Job Openings	Aug	NA	6900	6939
16-Oct-2018	Net Long-term TIC Flows	Aug	NA	NA	\$74.8b
17-Oct-2018	Housing Starts	Sep	1250k	1215k	1282k
17-Oct-2018	Building Permits	Sep	1275k	1280k	1249k
18-Oct-2018	Philadelphia Fed Business Outlook	Oct	20.0	21.0	22.9
18-Oct-2018	Initial Jobless Claims	13-Oct	216k	NA	214k
18-Oct-2018	Leading Index	Sep	0.5%	0.5%	0.4%
19-Oct-2018	Existing Home Sales	Sep	5.29m	5.32m	5.34m

\*Consensus from Bloomberg

### What's Causing Long-Term U.S. Bond Yields to Rise?

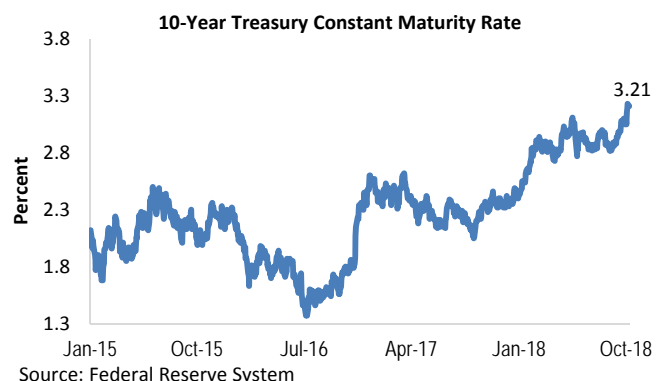
Fluctuations in long-term Treasury bond yields are largely influenced by future growth and inflationary expectations and to some extent by the current level and expected changes in short-term interest rates that are controlled by the Federal Reserve.

Yields on 10-Yr Treasury bonds began to rise sharply last week on Tuesday, October 2nd and peaked on Friday October 5<sup>th</sup> at 3.23% (17 basis points higher) after better than expected U.S. economic data, including upward revisions to past employment data, and hawkish comments from Federal Reserve officials on the future path of short-term interest rates.

So were bond investors last week pricing in higher inflation expectations ahead or higher real interest rates from stronger economic growth and a more hawkish Fed. Looking at the yield behavior of 10-Yr Treasury Inflation Protected Securities (TIPS) over the same time period, the answer appears to be that the entire move in nominal long-term Treasury yields last week was driven by an upward shift in bond investors real interest rate

expectations, which points to stronger real economic growth and a tighter Fed, rather than an upward shift in bond investor inflation expectations.

### Long-Term Treasury Yields Spiked Last Week



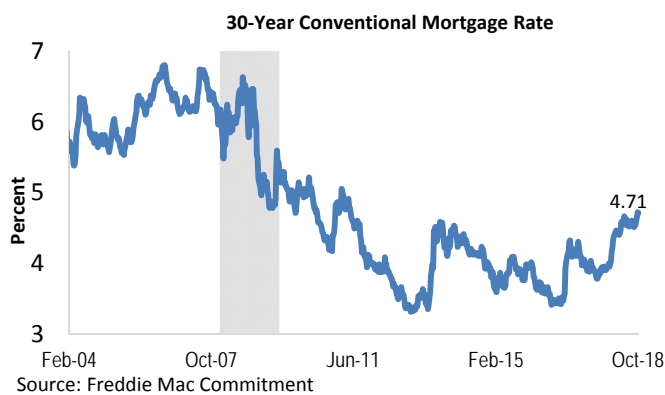
### Higher Long-Term Yields and the Housing Market

Although higher real long-term interest rates can negatively impact the economy through numerous channels, our report focuses on the current state and the outlook for the U.S. housing market in this report. This is primarily because the 10-year Treasury yield is the

benchmark rate used to determine the interest rate on 30-Year fixed rate mortgages. Because the average mortgage is paid off or refinanced within 10 years, the 10-year Treasury bond yield is a reliable indicator of the direction of mortgage interest rates.

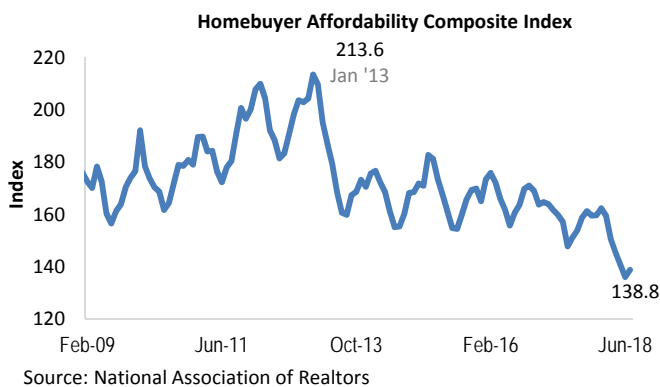
Based on the relationship between the 10-year yield and mortgage rates, it's not surprising that rates on 30-year fixed mortgages have also climbed by about three-quarters of a percentage point in nominal terms since the beginning of the year.

**30-Yr Mortgage Rates Are Linked To 10-Year Treasury Yield**



The sharp rise in mortgage rates in 2018 combined with rapidly rising median home prices is weighing on affordability and reducing the number of individuals who can qualify for a mortgage, thereby limiting demand. According to Zillow, a 1 percentage point increase in mortgage rates reduces affordability by 10%. Therefore, the three-quarter point increase in mortgage rates so far this year has lowered affordability by about 7.5%.

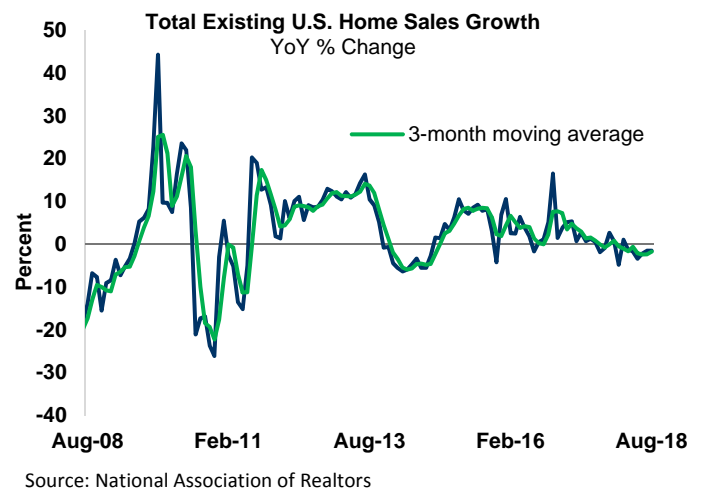
**Affordability Has Been Eroding With Higher Mortgage Rates**



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Declining affordability – the result of higher mortgage rates and rising home prices – is also depressing home sales this year. Total existing home sales declined 1.5% year-over-year in August (the latest available data point) and sales have been negative on a year-ago basis every month this year except for February.

**Declining Affordability Is Slowing Home Sales Growth**



**The Revised Interest Rate and Housing Outlook**

Because of the current momentum in the U.S. economy – partly stemming from the tax cut stimulus – Bank of the West Economics is now expecting the Fed to lift the Fed funds rate three more times before pausing, including twice next year, each time in quarter-point increments. Moreover, the 10-year Treasury yield is projected to rise to 3.48% in Q3 2019 and then moderate to about 3.0% on average in 2020, as economic growth slows on tighter financial conditions and the impact from the tax cuts fade.

Rising real and nominal interest rates will weigh on total existing home sales, which are projected to fall 0.9% this year. As a result of the weakness in home sales, home price growth as measured by the Case-Shiller 20-City Index, is expected to moderate from 6.3% this year to 4.3% in 2019 and 3.5% in 2020. Flat home sales and decelerating home price growth is yet another sign that the economy has entered a later stage of the expansion.

Major Economic Indicators

Economic Data	History								Forecast				Yr/Yr % chg or Annual Avg.			
	2017.1	2017.2	2017.3	2017.4	2018.1	2018.2	2018.3	2018.4	2019.1	2019.2	2019.3	2019.4	2016	2017	2018	2019
Real GDP*	1.8	3.0	2.8	2.3	2.2	4.2	3.4	2.4	2.2	2.1	1.9	1.8	1.5	2.2	2.9	2.4
Personal Consumption Expenditures*	1.8	2.9	2.2	3.9	0.5	3.8	3.5	2.6	2.3	2.3	2.1	1.9	2.7	2.5	2.6	2.6
Non-residential Fixed Investment*	9.6	7.3	3.4	4.8	11.5	8.7	2.8	4.8	3.8	4.1	3.7	3.4	-0.6	5.3	6.9	4.2
Private Housing Starts (000s units)	1,231	1,171	1,172	1,259	1,317	1,261	1,270	1,280	1,290	1,280	1,277	1,275	1,176	1,208	1,282	1,281
Vehicle Sales (mill. Units, annualized)	17.1	16.8	17.1	17.7	17.1	17.1	17.1	16.9	16.5	16.5	16.4	16.3	17.5	17.2	17.1	16.4
Industrial Production*	1.0	5.0	-1.5	7.7	2.5	5.1	3.0	2.6	2.2	2.0	1.7	1.5	-1.2	1.6	3.7	2.4
Nonfarm Payroll Employment (mil.)	145.9	146.3	146.9	147.4	148.1	148.7	149.3	149.9	150.4	150.9	151.3	151.7	144.3	146.6	149.0	151.1
Unemployment rate	4.7	4.3	4.3	4.1	4.1	3.9	3.8	3.7	3.6	3.6	3.7	3.8	4.9	4.4	3.9	3.7
Consumer Price Index* (percent)	3.0	0.1	2.1	3.3	3.5	1.7	2.2	3.0	2.5	2.0	2.1	2.1	1.3	2.1	2.5	2.4
"Core" CPI* (percent)	2.2	0.8	1.8	2.2	3.0	1.8	2.1	2.3	2.4	2.2	2.1	2.1	2.2	1.8	2.2	2.2
PPI (finished goods)* (percent)	5.7	1.0	1.6	5.7	3.6	2.7	2.5	4.1	1.9	1.8	1.7	1.7	-1.0	3.2	3.3	2.4
Trade Weighted Dollar (Fed BOG, major)	94.4	93.0	88.3	88.9	86.2	88.2	90.2	91.1	90.8	90.4	89.6	88.5	91.6	91.1	88.9	89.8
Crude Oil Prices -WTI (\$ per barrel)	52	48	48	55	63	68	69	71	68	67	67	63	43	51	68	66

\*Quarterly Data Percent Change At Annual Rate; Annual Data Year-on-Year % Chg, or Annual Average.

Financial Data	History								Forecast				Annual Average			
	2017.1	2017.2	2017.3	2017.4	2018.1	2018.2	2018.3	2018.4	2019.1	2019.2	2019.3	2019.4	2016	2017	2018	2019
S & P 500	2,326	2,398	2,467	2,603	2,733	2,703	2,850						2,093	2,449		
Dow Jones Industrial Average	20,406	20,994	21,891	23,689	25,127	24,556	25,595						17,916	21,745		
Federal Funds Rate (effective)	0.70	0.94	1.15	1.20	1.45	1.74	1.92	2.21	2.46	2.71	2.88	2.88	0.39	1.00	1.83	2.73
Treasury-3 Month Bills (yield)	0.61	0.91	1.05	1.23	1.58	1.87	2.07	2.22	2.48	2.73	2.90	2.89	0.32	0.95	1.94	2.75
Treasury-2 Year Notes (yield)	1.24	1.30	1.36	1.69	2.16	2.48	2.67	2.90	2.96	3.06	3.07	3.06	0.84	1.40	2.55	3.04
Treasury-5 Year Notes (yield)	1.95	1.81	1.81	2.07	2.53	2.77	2.81	3.03	3.15	3.25	3.27	3.21	1.34	1.91	2.78	3.22
Treasury-10 Year Notes (yield)	2.45	2.26	2.24	2.37	2.76	2.92	2.92	3.15	3.29	3.42	3.48	3.41	1.84	2.33	2.94	3.40
Treasury-30 Year Notes (yield)	3.05	2.90	2.82	2.82	3.03	3.09	3.06	3.31	3.51	3.65	3.64	3.57	2.60	2.90	3.12	3.59
Prime Rate	3.80	4.05	4.25	4.29	4.53	4.80	5.01	5.25	5.50	5.75	6.00	6.00	3.51	4.10	4.90	5.81
Libor 3-Mo. U.S. Dollar	1.07	1.21	1.31	1.46	1.93	2.34	2.34	2.43	2.66	2.91	3.02	3.03	0.74	1.26	2.26	2.91
Mortgage-30 Year (yield)	4.17	3.98	3.88	3.92	4.28	4.54	4.57	4.80	4.97	5.08	5.13	5.05	3.66	3.99	4.55	5.06
BAA Corporate (yield)	4.66	4.49	4.33	4.27	4.47	4.78	4.81	5.08	5.40	5.60	5.80	6.10	4.71	4.44	4.78	5.73

Source: Bank of the West Economics, Bloomberg, Federal Reserve