

Bianco Research L.L.C.

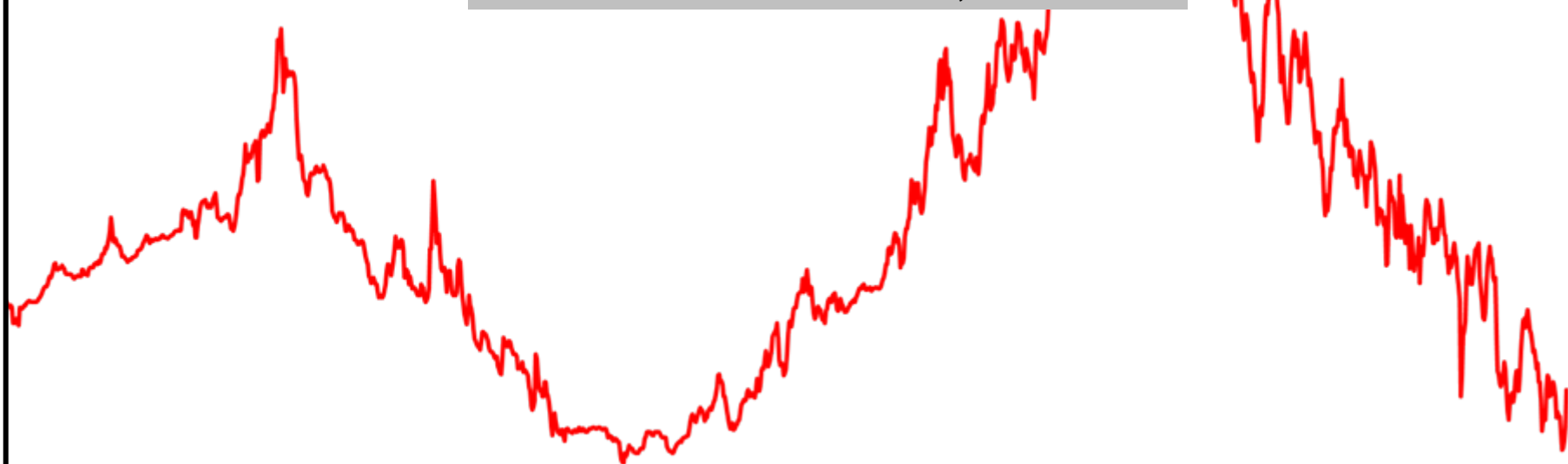
An Arbor Research & Trading Affiliated Company

Independent · Objective · Original

Charts Of The Week

Updated Pictures of Current Interest

For the week of March 8, 2017



Long-Term Interest Rates - 1900 to 2016

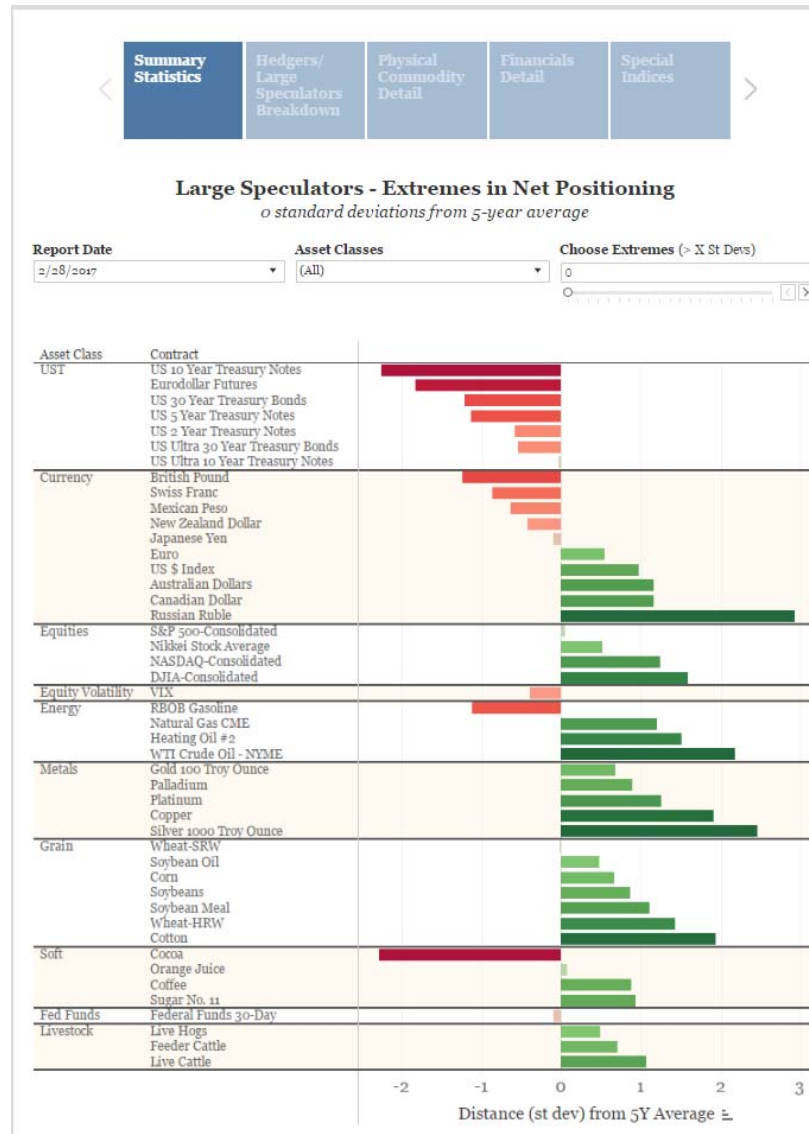
Commitments of Traders Update – New Format Now Available!

From Our Latest [Commitment Of Traders Update](#)

We recently [released version 1.0](#) of our new CoT interactive report. It allows users to change parameters, markets, dates, and measures. Note that this report has six tabs along the top in blue.

We believe it to be the most comprehensive interactive report on this data available anywhere. Please give us feedback on this format. The goal is to replace our existing report with this version over the next few weeks.

[Click here](#) to explore our new interactive CoT report.



Time To Start Watching ADP?

From Our [Newsclips/Daily Commentary](#)

The large positive surprise for today's ADP employment report bodes well for Friday's nonfarm payroll number. This is due to recent changes that has improved the accuracy of the ADP report.

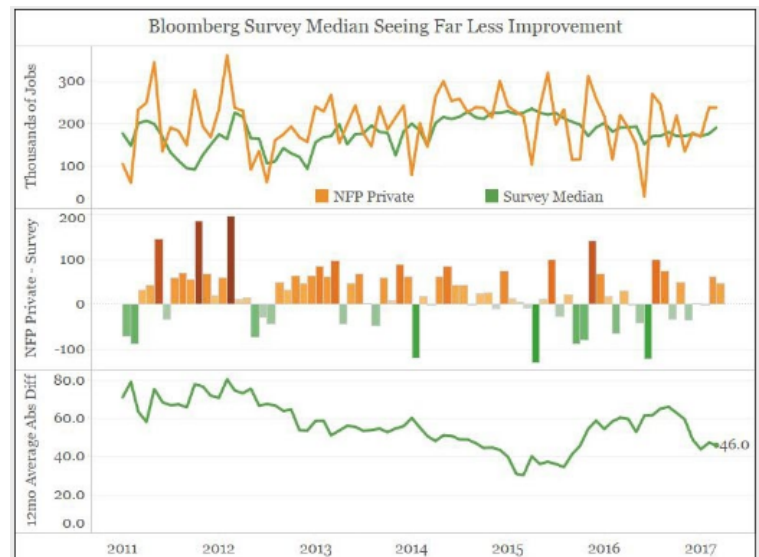
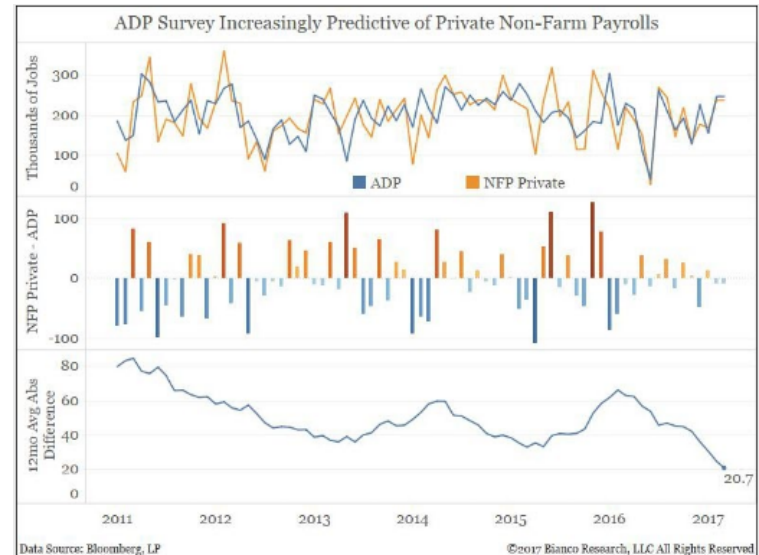
Since 2006, the [ADP National Employment Report](#) has offered another measure of private payrolls in the U.S. Since it is released on the Wednesday prior to the nonfarm payroll release, it is widely viewed as a potential early read on the BLS report. ADP has changed their methodology several times over the years. Despite many iterations, the report was no more useful than the Bloomberg survey median at predicting the change in private payrolls as calculated by the BLS.

That appears to have changed. The [latest change in their methodology in November 2016](#) coincided with a significant improvement in the accuracy relative to the first release of private nonfarm payrolls. Over the past four months, the ADP report has been clearly superior to the Bloomberg survey as a predictor of the BLS private payroll estimate.

Details on the changes can be found [here](#) (PDF) and an FAQ can be found [here](#) (PDF).

The top panel in the top right chart shows the change in private payrolls from the ADP National Employment Report (blue) and the change in Private Payrolls from the BLS (orange). The middle panel shows the difference between the two. These errors, the difference between the two measures, have been shrinking for the past year. The bottom panel shows the 12-month average of the absolute value of these differences. This *mean absolute error* has fallen to new lows at less than 21,000 jobs.

The bottom right chart shows the same series of measures for the Bloomberg Survey Median (green). The BLS private payrolls are still in orange. The differences are smaller over the past year, but not to the same degree as seen in the ADP number. The bottom panel shows the mean absolute error holding steady over the past several months.



Time To Start Watching ADP? - 2

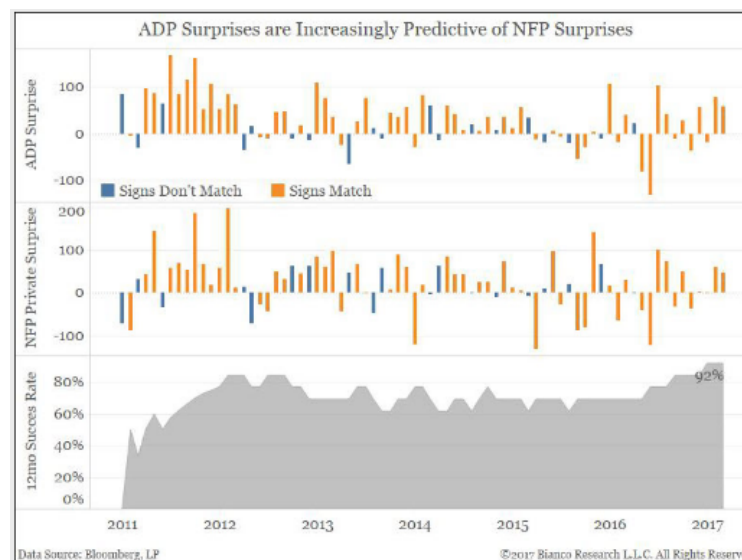
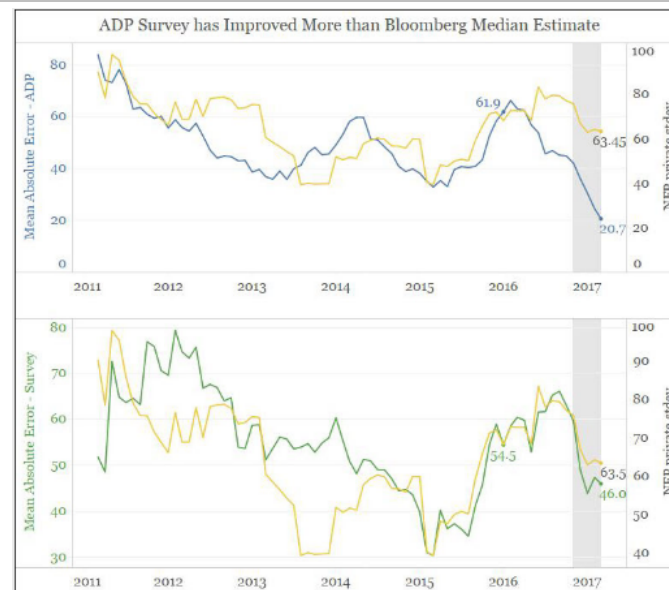
From Our [Newsclips/Daily Commentary](#)

The top right chart shows the *mean absolute errors* for the ADP estimate (top panel, blue) and the Bloomberg survey (bottom panel, green). Since January 2016, the mean absolute error for the ADP survey fell from 61.9 to a new low of 20.7, a drop of 67%. The mean absolute error for the Bloomberg survey median fell only 16%. To help put this in context, the 12-month standard deviation of the NFP private release is shown in both charts in yellow. The volatility of the private payroll release has fallen about 7% since January 2016. The bottom panel below suggests this accounts for most of the variability in the accuracy of the Bloomberg survey.

In addition to being more accurate in terms of this mean absolute error measure, the direction of surprises in the ADP release are increasingly predictive of the direction of surprise for the nonfarm payroll private release. In other words, ADP surprises with an estimate above expectations have been followed by positive surprises for the BLS private payroll release. The top panel of the next chart shows the ADP surprise for each month. The middle panel shows the surprise for the BLS private payroll release. They are shaded orange when the signs match, meaning both saw a surprise in the same direction. The signs have matched in 11 out of the past 12 months, 92% of the time.

Conclusion:

Recent changes in ADP's methodology resulted in a dramatic improvement in the report's accuracy as a predictor of Friday's private payroll estimate. Today's big positive surprise suggests a strong private payroll gain, well above expectations. The Bloomberg survey median for the private payrolls is currently 190k and will likely rise after today's ADP number.



A Look At The Upcoming FOMC Meeting

From Our [Newsclips/Daily Commentary](#)

Jim Bianco was on CNBC [last week](#) discussing the upcoming FOMC meeting, detailing how the Fed is finally dictating policy to the market.

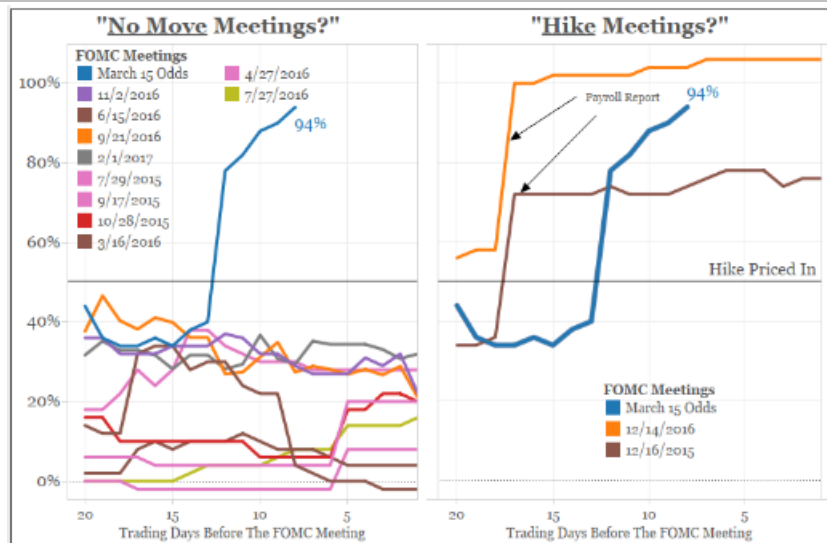
The blue line on the top right chart shows fed funds pricing on the odds of a hike at the March 15 meeting. One week ago, this market was not pricing in a hike. After all the Fed speeches last week, the market priced in a 94% chance of a hike.

... So why was last week's Fedpeak more effective than usual? The bottom right chart searches the text of every Fed speech back to the end of the Great Recession. It shows the number of "confidence words" used. In other words, it shows a word count for derivations of the words strength, growth and confidence.

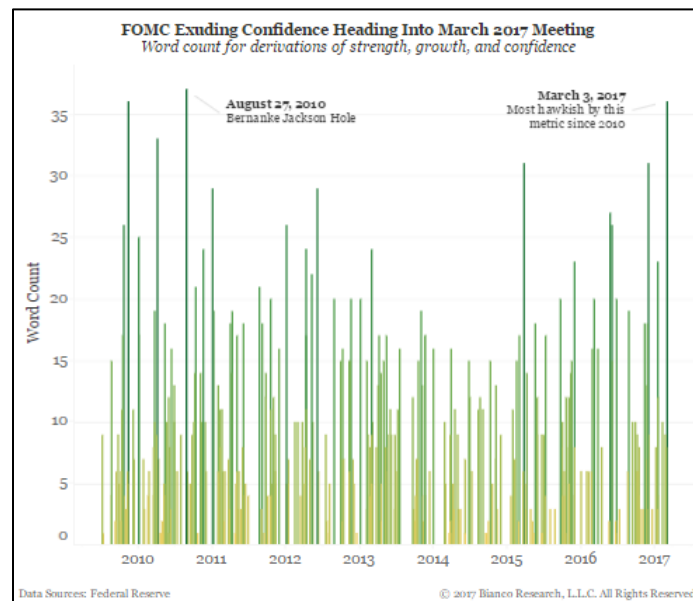
Yellen's speech on Friday (March 3) generated more confidence words than any speech since Bernanke's August 27, 2010 Jackson Hole speech. We have called that 2010 speech the most important during Bernanke's tenure. At the time, QE1 had ended and the Fed was out of the market manipulation game. Bernanke was considered a hero by many for his moves during the financial crisis, and we agreed. During the speech he used many "confidence words" in describing the economy and markets. As a side note, he also opened the door for QE2 during this speech.

We would argue Friday's speech was the most important in Yellen's tenure. She broke the relationship that had long existed between the Fed and the markets and began dictating policy rather than reacting to the markets' demands.

If the Fed continues dictating policy in this manner, it will mark the beginning of a new regime.



Data Source: Bloomberg © 2017 Bianco Research, L.L.C. All Rights Reserved



Data Source: Federal Reserve © 2017 Bianco Research, L.L.C. All Rights Reserved

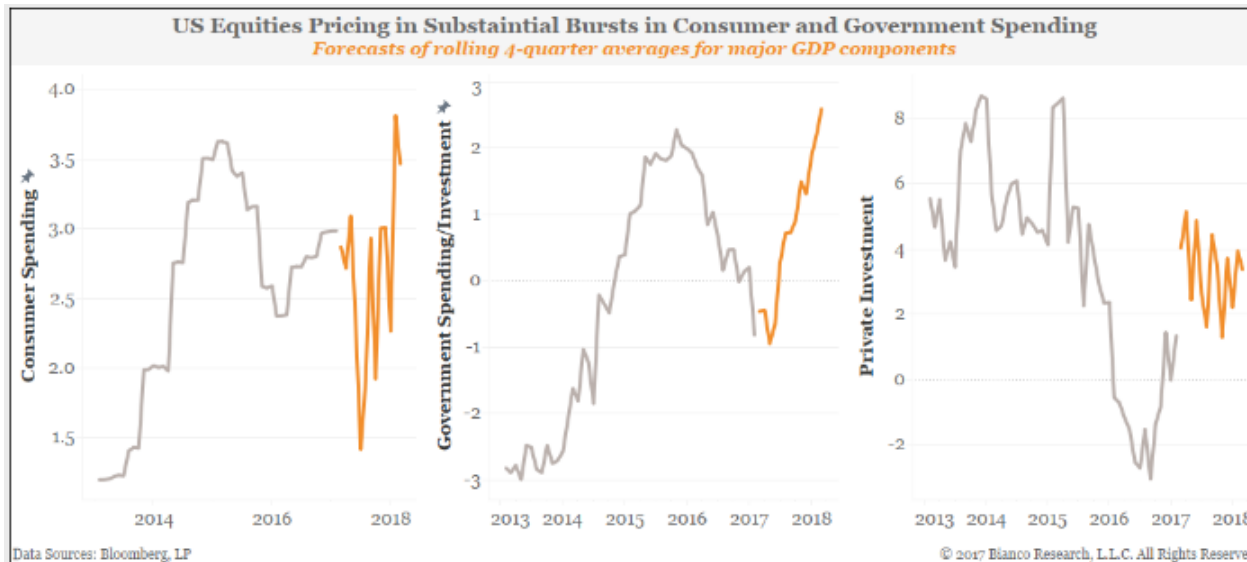
Equities Pricing In Strong Consumer And Govt Spending

U.S. equities are a discount mechanism for growth rates in the economy (at least that is the theory!). The S&P 500's year-over-year return of +18.8% suggests good times are indeed on their way.

We have built models training on returns for 23 of the S&P 500 industry classes ranging from energy to utilities. These models essentially find those industry groups with a strong relationship to each GDP component and then uses these same industry groups to generate forecasts for the year ahead. We are attempting to answer just how much growth equities are expecting.

The chart below shows four quarter averages for three major components of US GDP: 1) consumer spending, 2) government spending/investment, and 3) private investment. Gray lines represent realized average growth rates for the past four quarters, while orange lines highlight our forecasts for the year ahead.

Bursts in consumer and business confidence post-Trump win have equities pricing in substantial improvements in consumer and government spending. The panel on the left shows consumer spending averaging 3.5% quarter-over-quarter into 2018, its highest since late 2014. The panel in the middle shows government spending and investment rising to its highest since 2009 at 2.6%. Equities are buying into Trump's impending fiscal stimulus.



A Final Look At Q4 2016 Earnings

From Our [Newsclips/Daily Commentary](#)

Fact Set – [Earning Insight For March 3, 2017](#)

- **Earnings Scorecard:** As of today (with 98% of the companies in the S&P 500 reporting actual results for Q4 2016), 65% of S&P 500 companies have beat the mean EPS estimate and 53% of S&P 500 companies have beat the mean sales estimate.

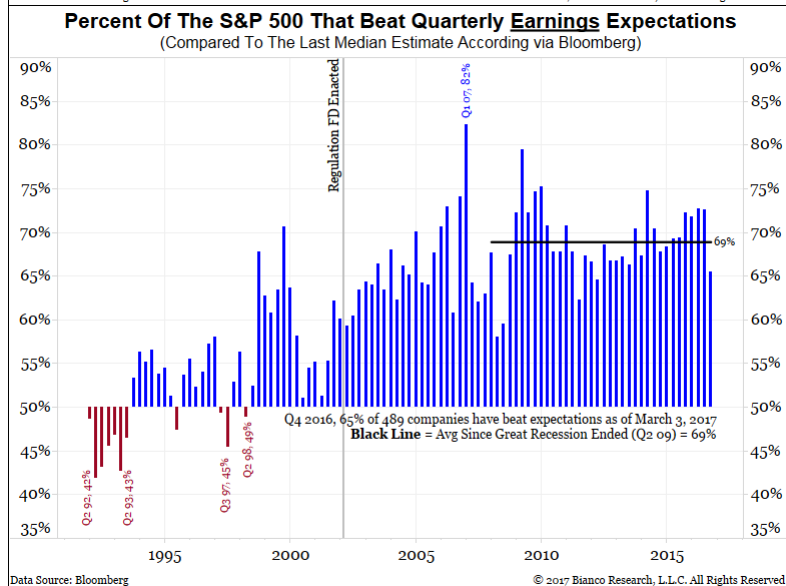
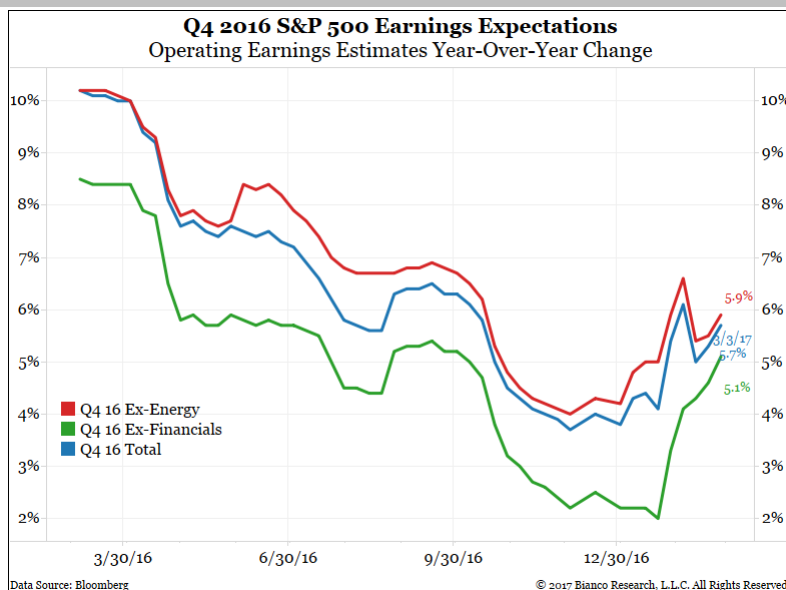
- **Earnings Growth:** For Q4 2016, the blended earnings growth rate for the S&P 500 is 4.9%. The fourth quarter will mark the first time the index has seen year-over-year growth in earnings for two consecutive quarters since Q4 2014 and Q1 2015.

- **Earnings Revisions:** On December 31, the estimated earnings growth rate for Q4 2016 was 3.1%. Eight of the eleven sectors have higher growth rates today (compared to December 31) due to upside earnings surprises and upward revisions to earnings estimates, led by the Real Estate sector.

- **Earnings Guidance:** For Q1 2017, 75 S&P 500 companies have issued negative EPS guidance and 30 S&P 500 companies have issued positive EPS guidance.

- **Valuation:** The forward 12-month P/E ratio for the S&P 500 is 17.9. This P/E ratio is based on Wednesday's closing price (2395.96) and forward 12-month EPS estimate (\$133.78).

Through Friday 489 (98%) of S&P 500 companies have reported. As the blue line in the top right chart shows, S&P 500 operating earnings grew 5.7% versus a year ago. As the bottom right chart shows, 65% of companies beat estimates. This is below the post-crisis average of 69% (black line).

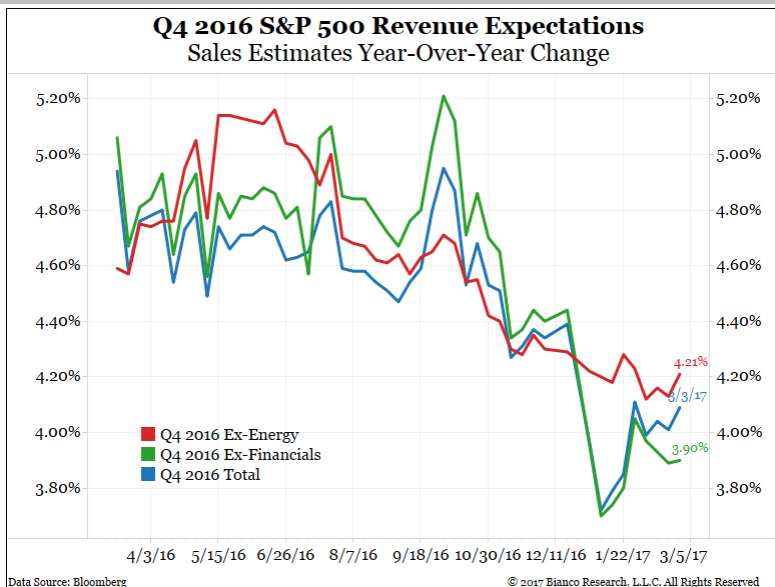


A Final Look At Q4 2016 Revenue Growth

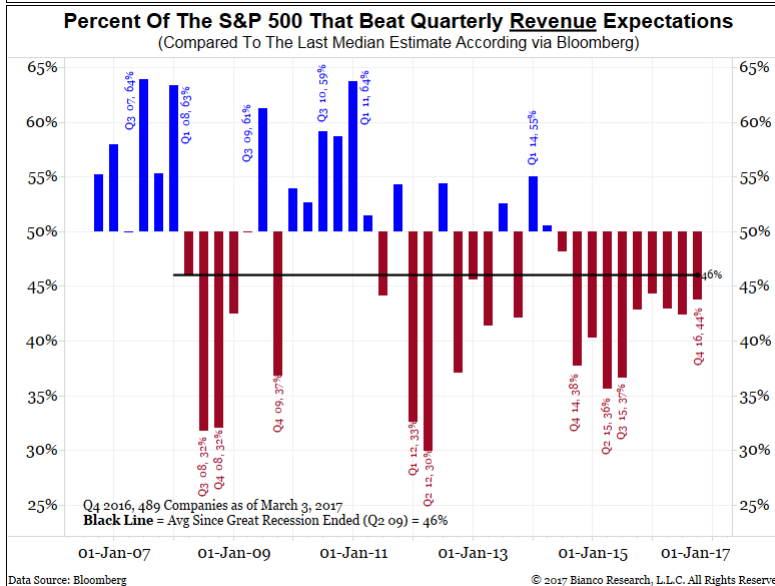
From Our [Newsclips/Daily Commentary](#)

The top right chart shows revenue growth estimates for Q4 2016. They have been falling all reporting season.

The bottom right chart shows the revenues beat rate. This marks the 10th consecutive quarter that less than 50% of companies beat Wall Street estimates.



Data Source: Bloomberg © 2017 Bianco Research, L.L.C. All Rights Reserved



Data Source: Bloomberg © 2017 Bianco Research, L.L.C. All Rights Reserved

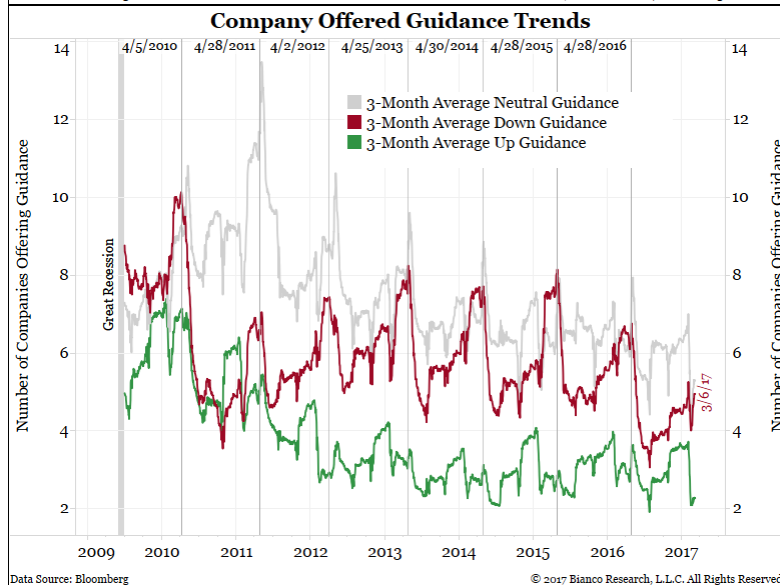
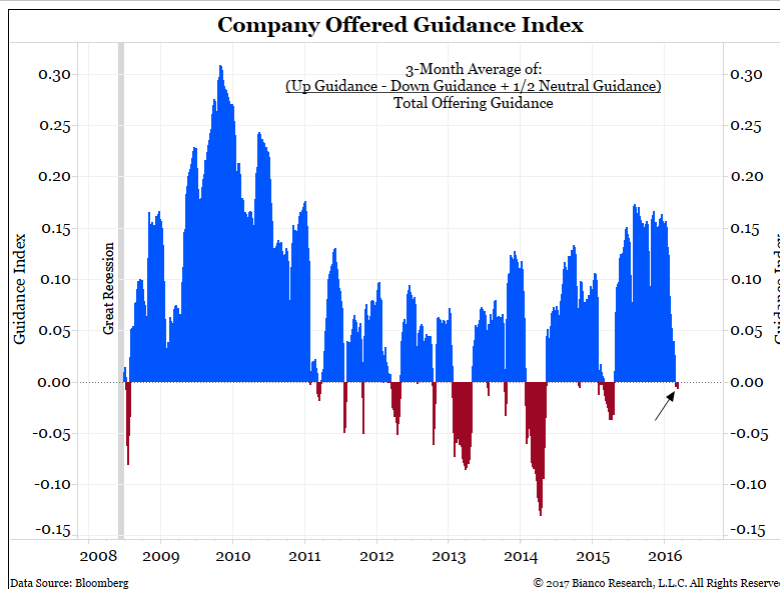
Company Guidance Is Now Negative

From Our [Newsclips/Daily Commentary](#)

Why are earnings estimates falling? See the next two charts.

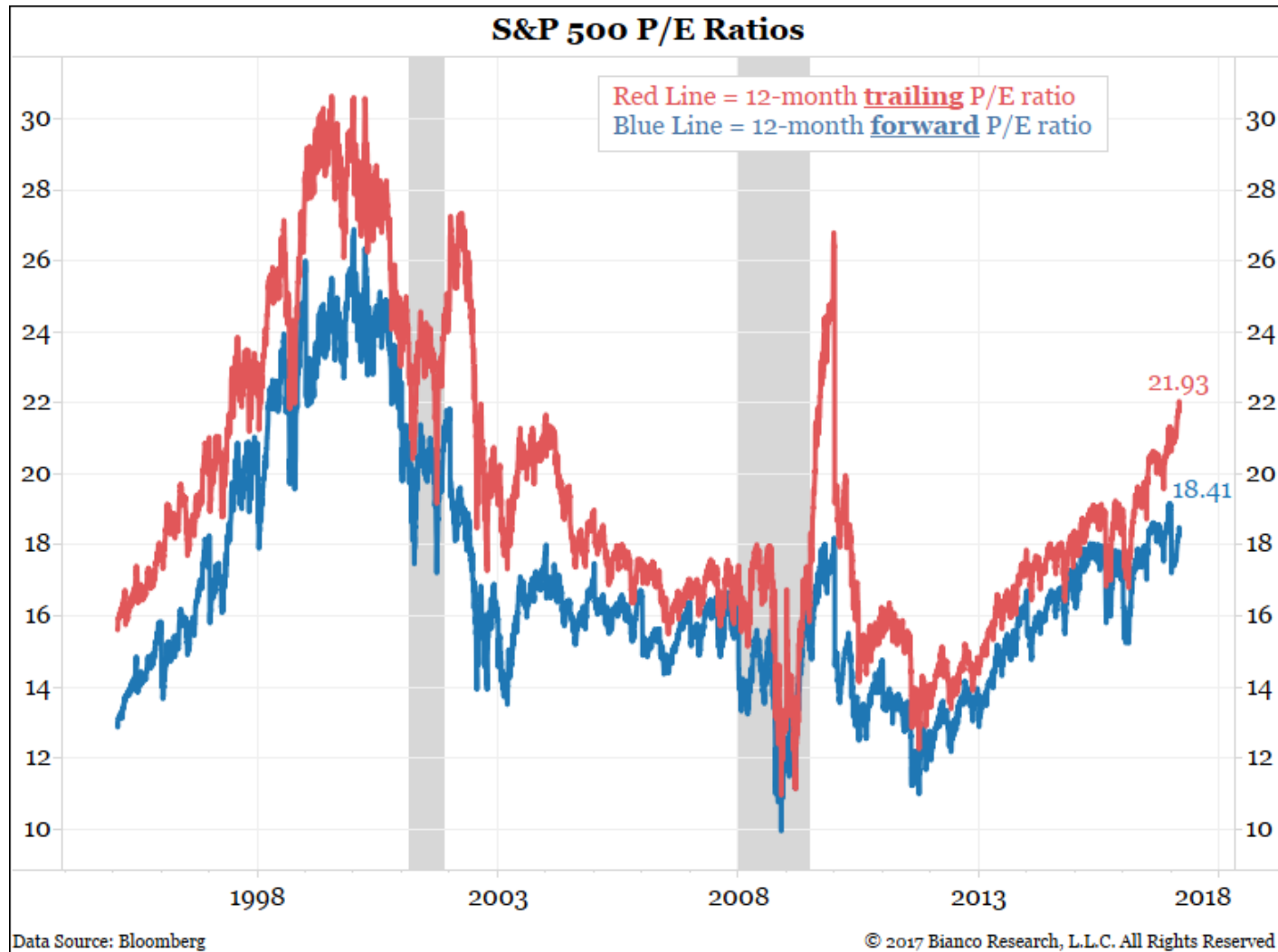
When a company reports, it also gives guidance about its future. The next chart shows the trend in company guidance. The red line shows the 3-month average of down guidance, the green line shows the 3-month average of up guidance and the gray line shows 3-month neutral guidance. A 3-month average is used because most companies give guidance once a quarter.

As the arrow shows, guidance is now negative.

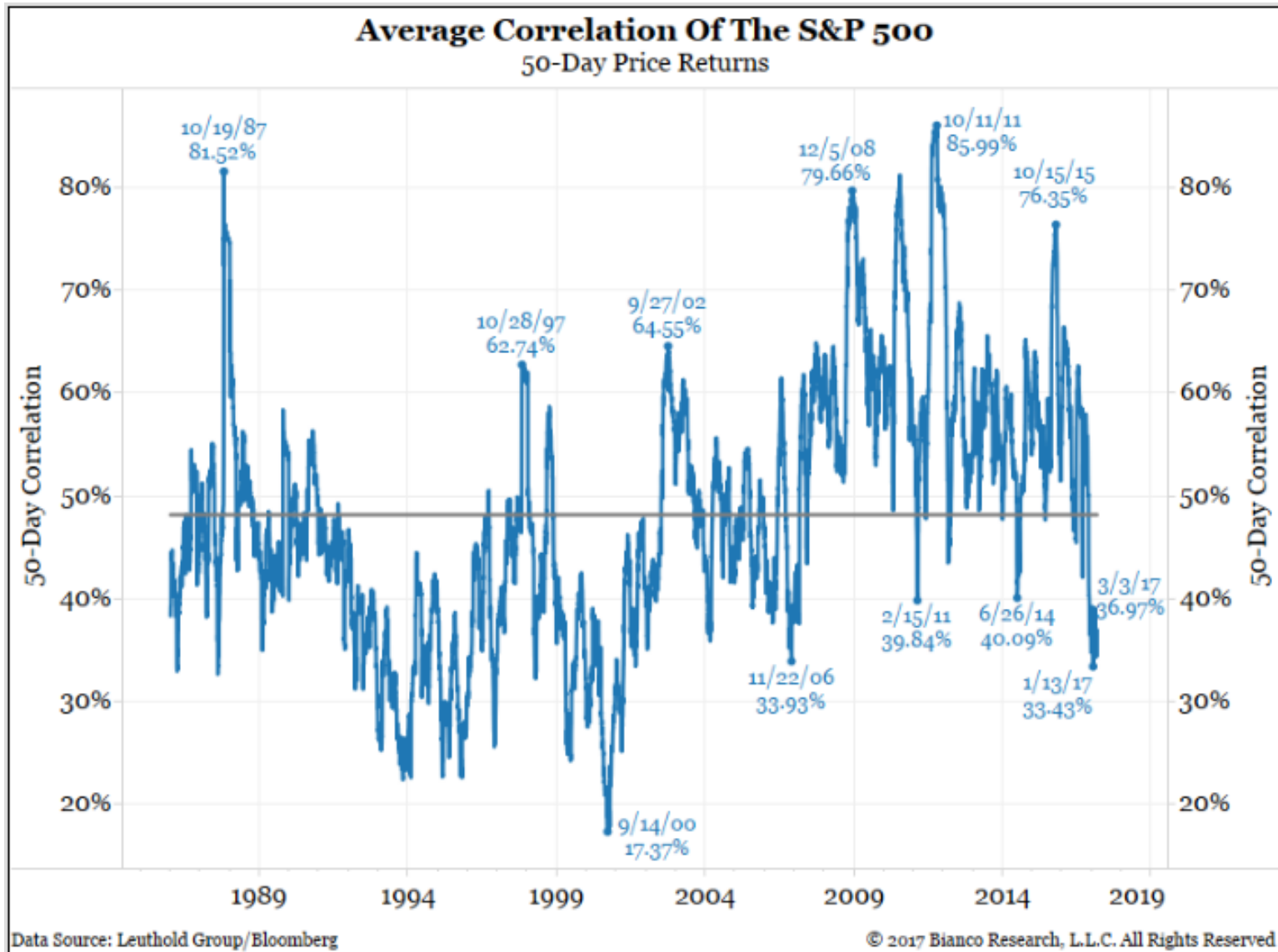


S&P 500 P/E Ratios

From Our [Newsclips/Daily Commentary](#)



Stocks Are No Longer Correlated To One Another



Crude Oil And Energy ETF Flows Diverge

From Our [Newsclips/Daily Commentary](#)

[ETF Daily News – Futures Market Offers A Glimmer Of Hope For Higher Oil Prices](#)

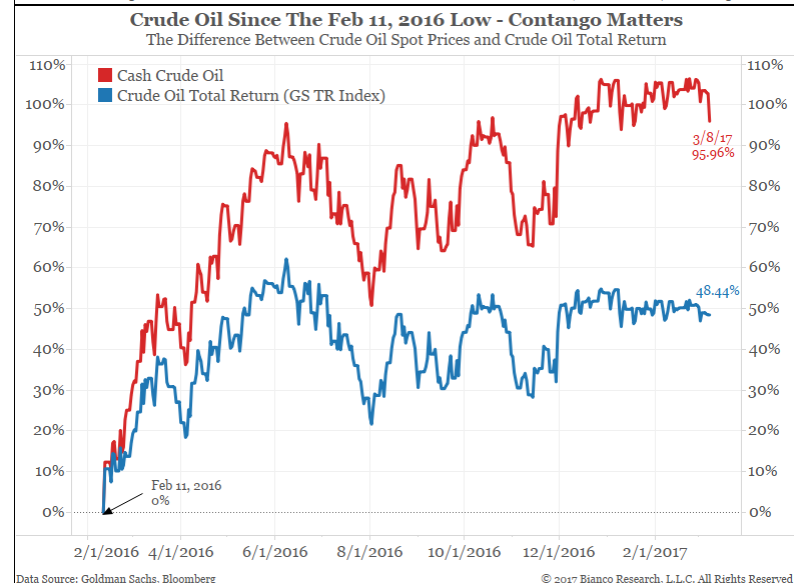
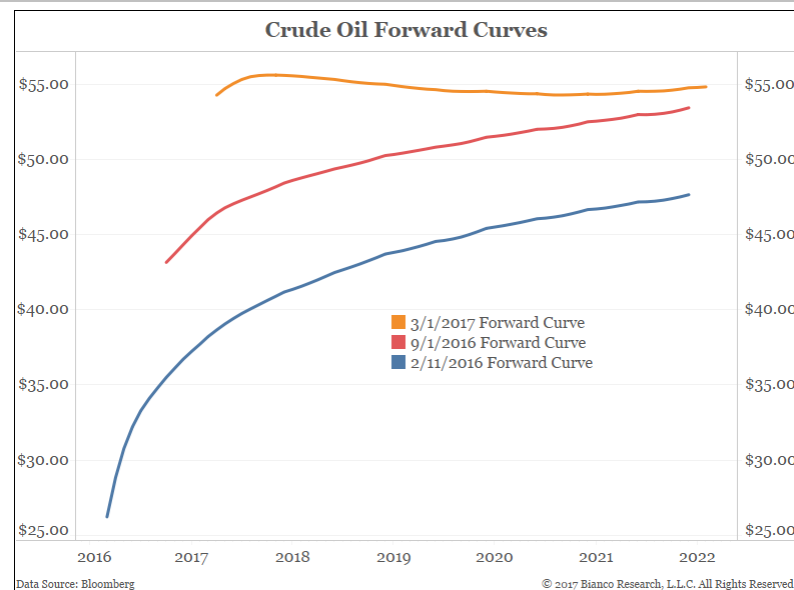
Storing crude oil for sale at a later date is no longer profitable, as the futures curve has flattened out in recent weeks, depriving traders of a strategy that has served them well over the past few years. The market “contango,” in which front-month oil contracts trade at a discount to oil futures six months or a year out, has all but vanished. The differential must be large enough to cover the cost of storage, and for many time spreads that is no longer the case. After three years of a steep contango, storing oil simply to take advantage of the time spreads is increasingly uneconomical.

Comment

The top right chart shows the forward curve for crude oil derived from the futures market. It shows three points in time – the Feb 11, 2016 low in blue, September 1, 2016 in red and today’s curve in orange. While the Feb 11 and Sep 1 curves expected much higher prices in the future, the current curve is fairly flat.

Contango hurts owners of deferred futures contract. There is a negative carry associated with rolling contracts. This can be seen in the next chart. It starts on Feb 11, 2016, the \$26 low in crude oil. The red line shows the spot return and the blue line shows the total return. No one can buy the spot rate. You can only buy variations of the total return.

While the spot rate is up 106.07% since Feb 11, 2016, the total return is only up 50.85%. Clearly the shape of the forward curve affects returns. And, as the story above points out, the fact that the curve is now rather flat should provide a boost to crude oil total returns. Investors are not suffering from the contango seen in the past.



Betting On Commodities

The Wall Street Journal – [Bullish Commodity Bets Hit Record Highs, as Investors Seize on Signs of Growth](#)

Rising interest in commodities reflects a sharp turnaround from a year ago

... Booming commodity prices had attracted new producers, flooding markets for everything from oil and gas to aluminum and wheat. Now, as signs of inflation and improving global demand have returned, investors are beginning to pile back into commodities. Commodity assets under management globally rose 7% in January from the previous month to \$391 billion, up more than 50% compared with the previous year, according to Citigroup. Long positions at actively managed funds rose to the highest level since 2014, the bank said.

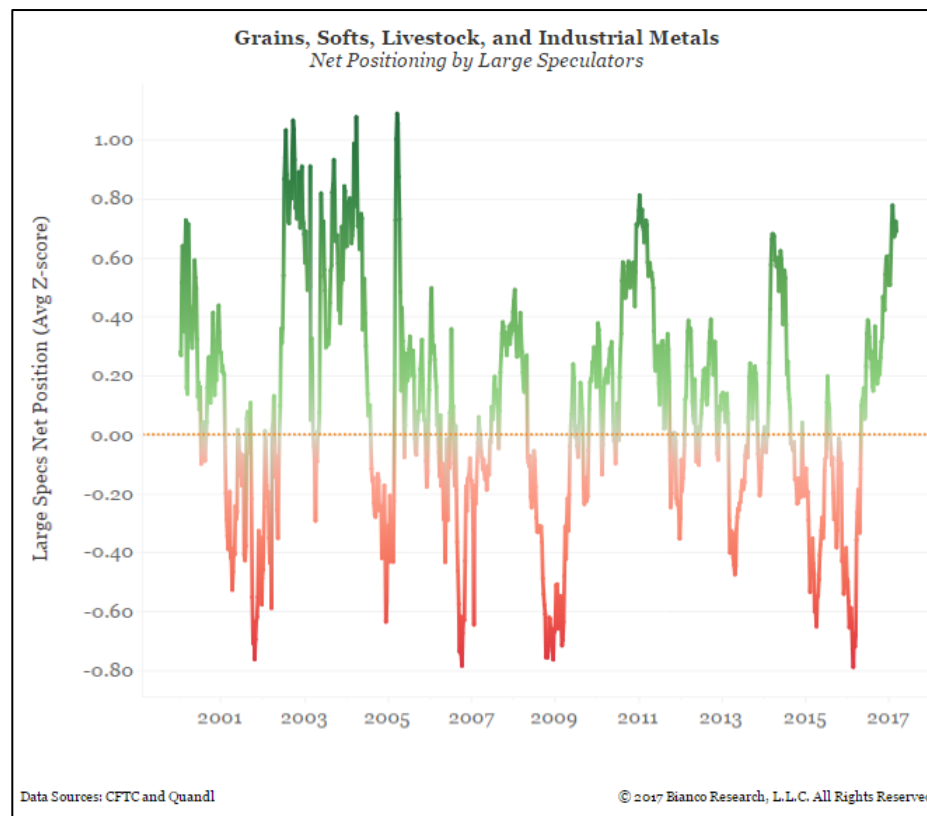
Comment

This chart aggregates large speculators' positions in grains, softs, livestock and industrial metals. To put them all on the same footing, these positions were all converted to a z-score representing a number of standard deviations from a 5-year average.

In aggregate, speculators hold their longest position since 2011. Prior to that, speculators had not been this long since 2005. Recall that large speculators typically get caught with extreme positions just as the market begins to move against them.

Essentially *The Wall Street Journal* is arguing the speculator extreme is bullish when history tells us the opposite.

From Our [Newsclips/Daily Commentary](#)



U.S. Interest Rates – Uncertainty & Ultra-tight Trading Ranges

From Our [Newsclips/Daily Commentary](#)

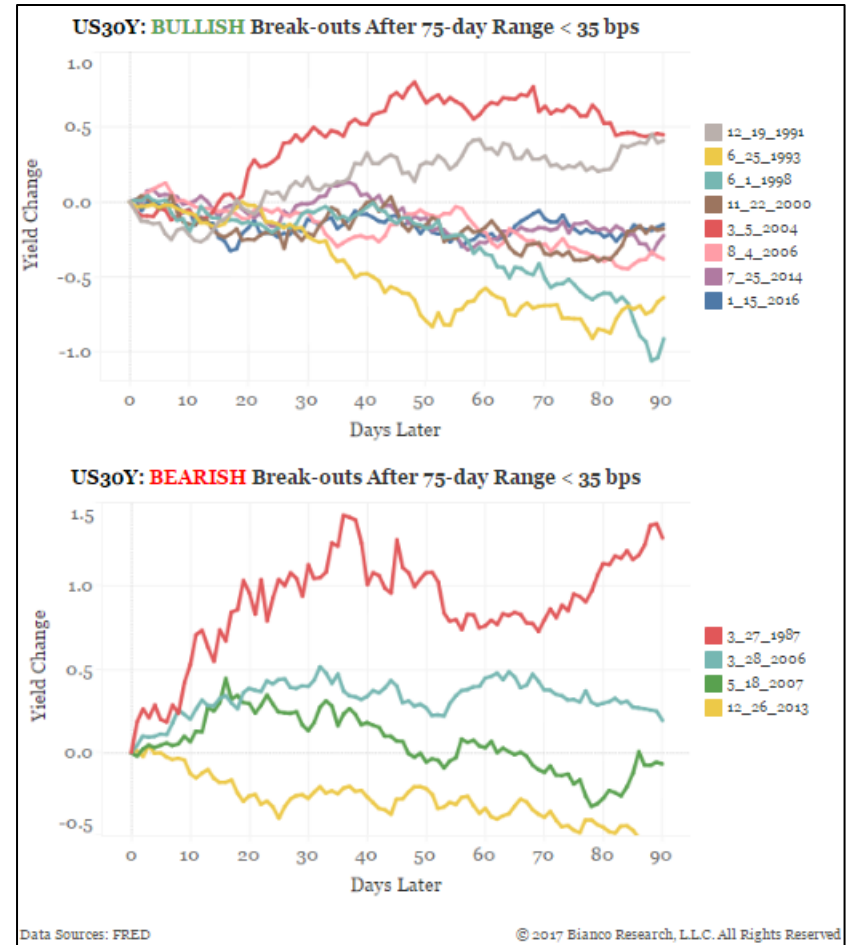
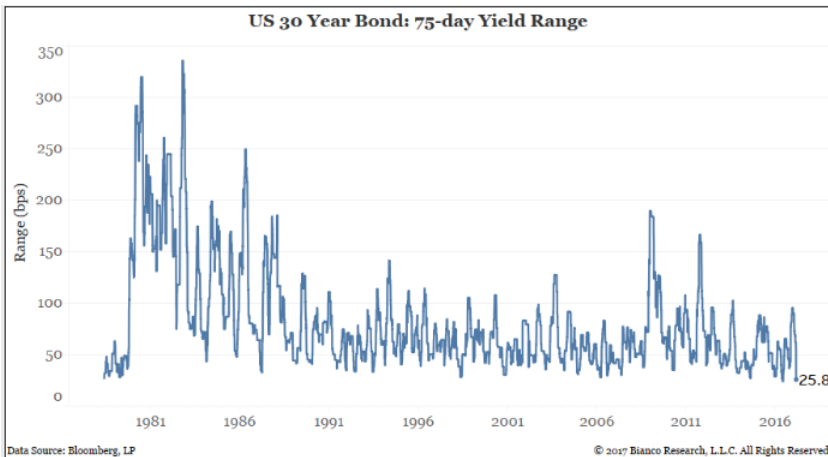
The chart below shows the U.S. 30-year bond's trading range (max – min yield) over rolling 75-trading day periods.

After reading the first story above, would you believe the U.S. 30-year bond's yield has been stuck in its second tightest trading range since 1980?! The bond's tightest 75-trading day range occurred just recently, in June 2016 (23.9 bps).

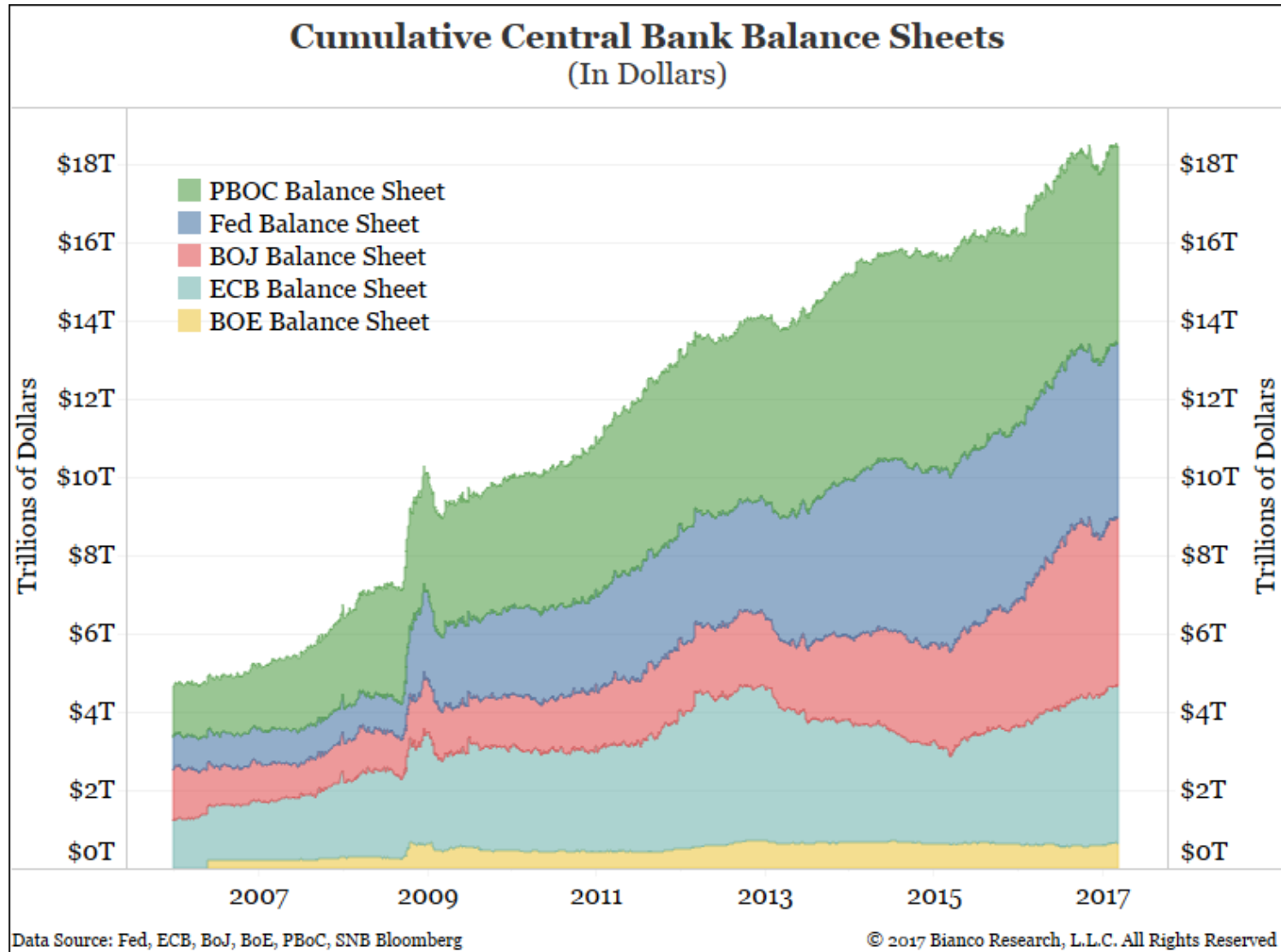
More distant expectations beyond 2017 for the fed funds rate and U.S. Treasury yields have yet to move appreciably higher. The U.S. 5-year less 30-year spread (last: 103.9 bps) is threatening its flattest levels since before the financial crisis.

The chart to the right shows changes in U.S. 30-year bond yields days after bullish (top panel) and bearish (bottom panel) breakouts from similar trading ranges.

Direction may be difficult to predict, however amplified volatility looks very likely.



Central Bank Balance Sheets



Bond Market Sentiment Update

From Our [Newsclips/Daily Commentary](#)

Barrons – Could Interest Rates Actually Move Lower?

Interest rates on the long end of the curve haven't really moved since November. The current sideways action seems to be a pause in a new rising trend, but recent action in both the bond market and interest-rate-sensitive stocks paints a different picture. It is now possible that long-term rates could move back down — despite increases in short-term rates by the Federal Reserve. To be sure, the weight of the evidence on the charts still makes a move toward higher rates the greater possibility. However, given the market's inability to get moving in that direction after months of waffling, there is now a viable argument that it may not happen at all.

Comment

This table shows the results from Bloomberg's survey of interest rate forecasts six months forward. The latest survey shows economists' 10-year forecasts for June 30, 2017. Since September 2011, economists have only predicted falling rates once – in the wake of the Trump election. Even then, the consensus only expected a fall of 4 basis points in 10-year yields. However, it should be noted that the majority of economists (59%) still expected higher yields on that date.

On average, 90% of the respondents expect higher yields on any given month. In fact, it is not uncommon for 99% or 100% of economists to expect higher rates. In reality, interest rates only rose 43% of the time in the six months following each survey.

Given the structural bearishness among economists, it is difficult to lend them much credence when it comes to forecasting interest rates.

Bearishness Always And Everywhere

Results From Bloomberg's Monthly Economist Survey For The 10-Year Treasury Yield

Survey Date	10-Year Yield	Median Forecast 6 Months Forward (7 Qns)		Number of Econ. Surveyed	% Expecting		Six Months Later		Was the Forecast Directionally Correct?		
		Level	Change		Higher Rates	Lower Rates	Actual Level	Change			
5-Sep-11	1.52%	2.81%	0.89%	62	97%	3%	4.50%	1.64%	2.00%	-0.14%	Yes
12-Oct-11	2.21%	2.40%	0.19%	72	79%	21%	6.00%	1.50%	2.00%	-0.16%	No
10-Nov-11	2.05%	2.41%	0.36%	56	53%	7%	3.80%	1.50%	1.86%	-0.15%	No
9-Dec-11	2.06%	2.35%	0.29%	66	86%	14%	3.00%	1.50%	1.61%	-0.41%	No
11-Jan-12	1.50%	2.34%	0.44%	67	99%	1%	3.35%	1.50%	1.50%	-0.40%	No
10-Feb-12	1.99%	2.28%	0.29%	78	92%	8%	3.45%	1.50%	1.68%	-0.31%	No
14-Mar-12	2.06%	2.30%	0.24%	71	85%	14%	3.45%	1.50%	1.72%	-0.34%	No
12-Apr-12	2.05%	2.50%	0.45%	79	97%	3%	3.80%	2.00%	1.67%	-0.30%	No
10-May-12	1.86%	2.40%	0.54%	64	100%	0%	3.30%	1.90%	1.59%	-0.27%	No
4-Jun-12	1.65%	2.39%	0.48%	59	97%	3%	3.80%	2.00%	1.72%	-0.07%	Yes
10-Jul-12	1.50%	2.30%	0.50%	65	97%	3%	3.25%	1.30%	1.90%	-0.40%	Yes
9-Aug-12	1.69%	1.81%	-0.13%	72	86%	14%	3.70%	1.30%	1.99%	-0.51%	Yes
13-Sep-12	1.72%	1.85%	-0.13%	69	80%	20%	3.70%	1.30%	2.02%	-0.30%	Yes
11-Oct-12	1.67%	1.90%	0.23%	61	88%	12%	4.03%	1.40%	1.75%	-0.08%	Yes
14-Nov-12	1.59%	1.93%	0.34%	67	94%	6%	2.75%	1.30%	1.77%	-0.10%	Yes
13-Dec-12	1.72%	1.90%	0.18%	78	78%	22%	2.50%	1.40%	2.14%	-0.42%	Yes
10-Jan-13	1.90%	2.05%	0.16%	75	76%	24%	3.60%	1.50%	2.62%	-0.72%	Yes
14-Feb-13	1.99%	2.20%	0.21%	66	80%	20%	3.50%	1.60%	2.64%	-0.65%	Yes
14-Mar-13	2.02%	2.10%	0.08%	76	76%	24%	3.50%	1.70%	2.91%	-0.09%	Yes
9-Apr-13	1.75%	2.00%	0.25%	66	83%	17%	5.60%	1.30%	2.68%	-0.93%	Yes
9-May-13	1.77%	2.20%	0.42%	71	94%	6%	4.11%	1.50%	2.69%	-0.92%	Yes
13-Jun-13	2.14%	2.33%	0.19%	78	78%	22%	3.70%	1.50%	2.81%	-0.74%	Yes
11-Jul-13	2.02%	2.80%	0.10%	63	67%	33%	3.40%	2.20%	2.84%	-0.22%	Yes
7-Aug-13	2.64%	2.80%	0.16%	57	75%	25%	3.93%	2.20%	2.72%	-0.00%	Yes
12-Sep-13	2.91%	3.00%	0.09%	74	59%	41%	3.93%	2.20%	2.94%	-0.27%	No
10-Oct-13	2.68%	3.07%	0.39%	63	94%	6%	4.21%	2.30%	2.69%	-0.03%	No
14-Nov-13	2.09%	3.08%	0.39%	65	97%	3%	3.90%	2.30%	2.66%	-0.69%	No
12-Dec-13	2.09%	3.00%	0.20%	66	69%	11%	3.70%	2.30%	2.62%	-0.26%	No
16-Jan-14	2.84%	3.20%	0.46%	65	97%	3%	3.75%	2.45%	2.55%	-0.25%	No
13-Feb-14	2.72%	3.20%	0.48%	75	95%	5%	3.81%	2.45%	2.43%	-0.29%	No
13-Mar-14	2.64%	3.20%	0.56%	71	97%	3%	3.75%	1.95%	2.54%	-0.10%	No
10-Apr-14	2.65%	3.33%	0.68%	67	100%	0%	4.00%	2.79%	2.32%	-0.33%	No
8-May-14	2.60%	3.25%	0.65%	71	99%	1%	4.00%	2.50%	2.33%	-0.25%	No
12-Jun-14	2.62%	3.07%	0.45%	75	99%	1%	4.00%	2.50%	2.16%	-0.40%	No
10-Jul-14	2.59%	3.15%	0.56%	67	100%	0%	3.94%	2.54%	1.71%	-0.88%	No
14-Aug-14	2.43%	3.11%	0.68%	67	100%	0%	3.63%	2.45%	1.99%	-0.44%	No
11-Sep-14	2.54%	3.00%	0.46%	68	96%	4%	3.63%	2.39%	2.06%	-0.48%	No
8-Oct-14	2.32%	3.05%	0.78%	73	100%	0%	3.80%	2.50%	1.95%	-0.37%	No
13-Nov-14	2.25%	2.90%	0.59%	62	99%	1%	3.75%	2.23%	2.29%	-0.06%	No
11-Dec-14	2.16%	2.80%	0.64%	71	100%	0%	3.60%	2.23%	2.48%	-0.32%	Yes
15-Jan-15	1.71%	2.40%	0.69%	67	99%	1%	3.20%	1.70%	2.10%	-0.48%	Yes
12-Feb-15	1.99%	2.40%	0.41%	66	91%	9%	3.50%	1.80%	2.15%	-0.16%	Yes
12-Mar-15	2.06%	2.40%	0.34%	68	90%	10%	3.50%	1.80%	2.22%	-0.16%	Yes
9-Apr-15	1.95%	2.50%	0.55%	68	99%	1%	3.70%	1.90%	2.07%	-0.12%	Yes
14-May-15	2.29%	2.50%	0.21%	67	90%	10%	3.30%	1.90%	2.31%	-0.02%	Yes
11-Jun-15	2.41%	2.50%	0.10%	70	86%	14%	3.60%	2.10%	2.23%	-0.25%	No
9-Jul-15	2.19%	2.60%	0.41%	66	95%	5%	3.30%	1.50%	2.01%	-0.10%	No
13-Aug-15	2.15%	2.70%	0.55%	67	97%	3%	3.75%	1.90%	1.66%	-0.49%	No
10-Sep-15	2.22%	2.65%	0.42%	64	97%	3%	3.40%	1.90%	1.87%	-0.35%	No
8-Oct-15	2.07%	2.50%	0.43%	60	98%	2%	3.20%	2.00%	1.73%	-0.32%	No
13-Nov-15	2.31%	2.58%	0.27%	70	91%	9%	3.50%	1.70%	1.93%	-0.56%	No
10-Dec-15	2.23%	2.55%	0.32%	62	98%	2%	3.40%	1.90%	1.83%	-0.40%	No
14-Jan-16	2.09%	2.50%	0.41%	69	96%	4%	3.50%	1.90%	1.54%	-0.55%	No
11-Feb-16	1.66%	2.30%	0.64%	69	94%	6%	3.60%	1.90%	1.56%	-0.10%	No
10-Mar-16	1.87%	2.30%	0.33%	61	86%	15%	3.00%	1.50%	1.61%	-0.27%	No
7-Apr-16	1.75%	2.28%	0.53%	67	91%	9%	3.00%	1.37%	1.74%	-0.61%	No
12-May-16	1.75%	2.22%	0.47%	69	93%	7%	3.53%	1.58%	2.30%	-0.55%	Yes
9-Jun-16	1.83%	2.81%	0.98%	67	93%	7%	2.75%	1.68%	2.48%	-0.57%	Yes
14-Jul-16	1.54%	1.85%	0.31%	64	89%	11%	2.77%	1.20%	2.36%	-0.82%	Yes
11-Aug-16	1.56%	1.83%	0.27%	61	85%	15%	2.50%	1.00%	2.39%	-0.83%	Yes
8-Sep-16	1.60%	1.83%	0.23%	62	87%	13%	2.40%	1.20%	???	???	???
13-Oct-16	1.74%	1.85%	0.11%	66	88%	12%	2.40%	1.20%	???	???	???
17-Nov-16	2.30%	2.26%	-0.04%	49	59%	41%	3.05%	1.40%	???	???	???
8-Dec-16	2.40%	2.50%	0.10%	63	70%	30%	3.16%	2.00%	???	???	???
12-Jan-17	2.36%	2.56%	0.20%	66	85%	15%	3.25%	2.00%	???	???	???
9-Feb-17	2.39%	2.67%	0.19%	68	81%	19%	3.26%	2.00%	???	???	???
					Average	90%	10%			Completed Forecasts	68
					More Than 50%	66	0			Correct Forecasts	26
					Less Than 50%	0	66			Percentage Correct	43%

Bond Market Sentiment Update - 2

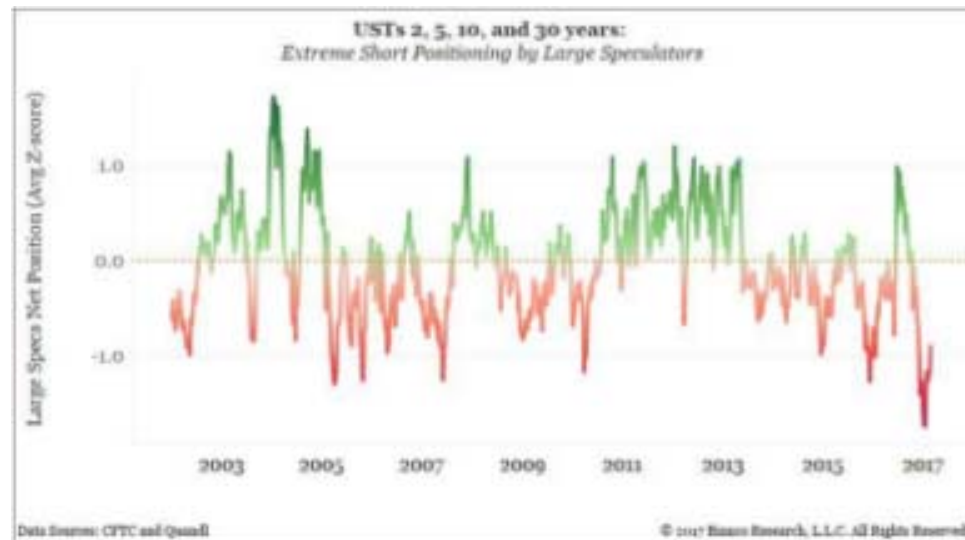
From Our [Newsclips/Daily Commentary](#)

... The chart on the right shows large speculators' net position across these tenors has retreated a bit from the largest net short in the history of the data set. It is, however, still one of the larger net short positions on record. Again, this group should be seen as a contrarian indicator, so their expectation of higher rates should be looked at with some skepticism.

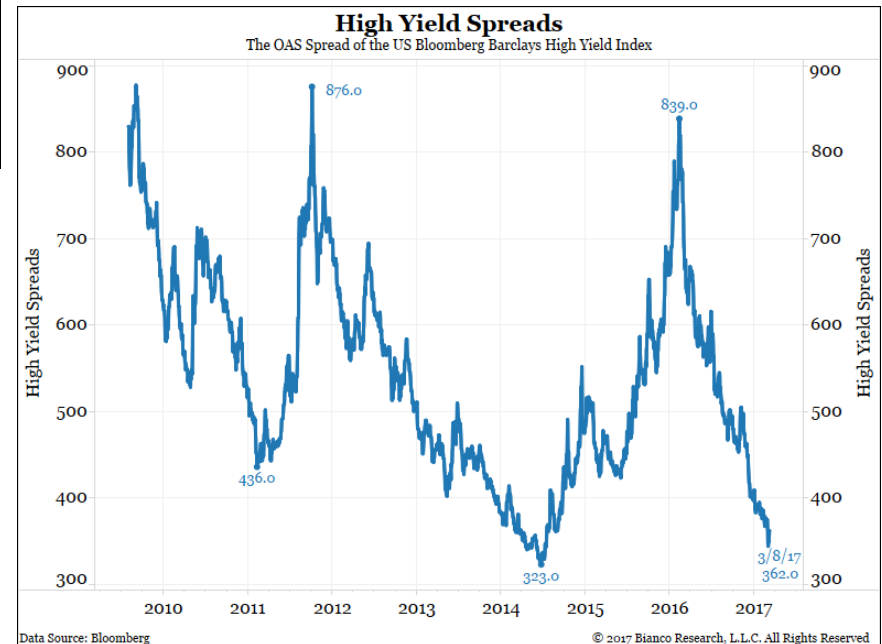
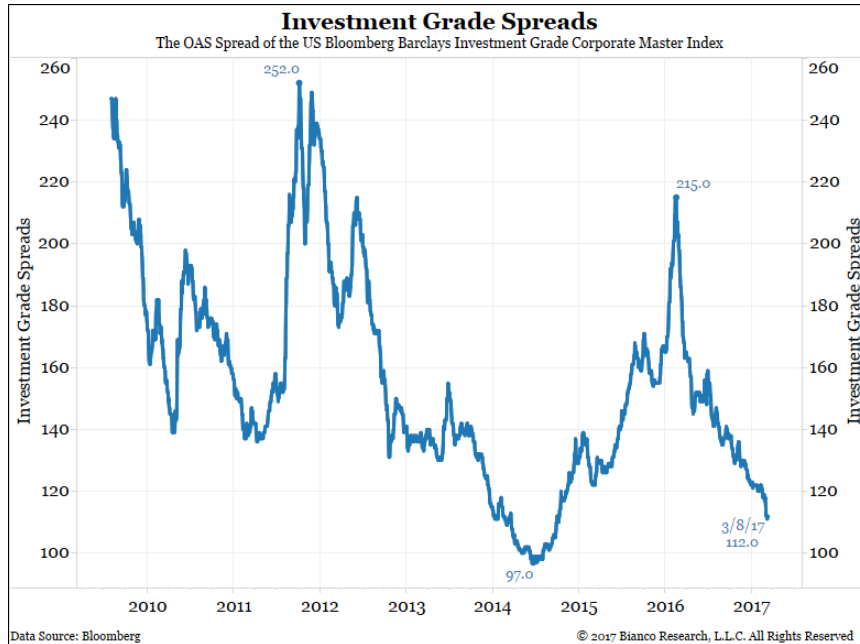
Conclusion

- Economists are very bearish, but they always are.
- Fixed income managers, as surveyed by JP Morgan, are bearish, but they are not at extreme positions.
- Asset levels in long and short Treasury ETFs are neutral but rapidly moving toward a bearish stance.
- Large speculators in 10-year futures currently hold a near-record bearish net position.
- Large speculators in Eurodollar futures currently hold a record bearish net position.
- A normalized measure of large speculators' aggregate net position in 2-year, 5-year, 10-year and 30-year futures contracts are also near a record bearish level.

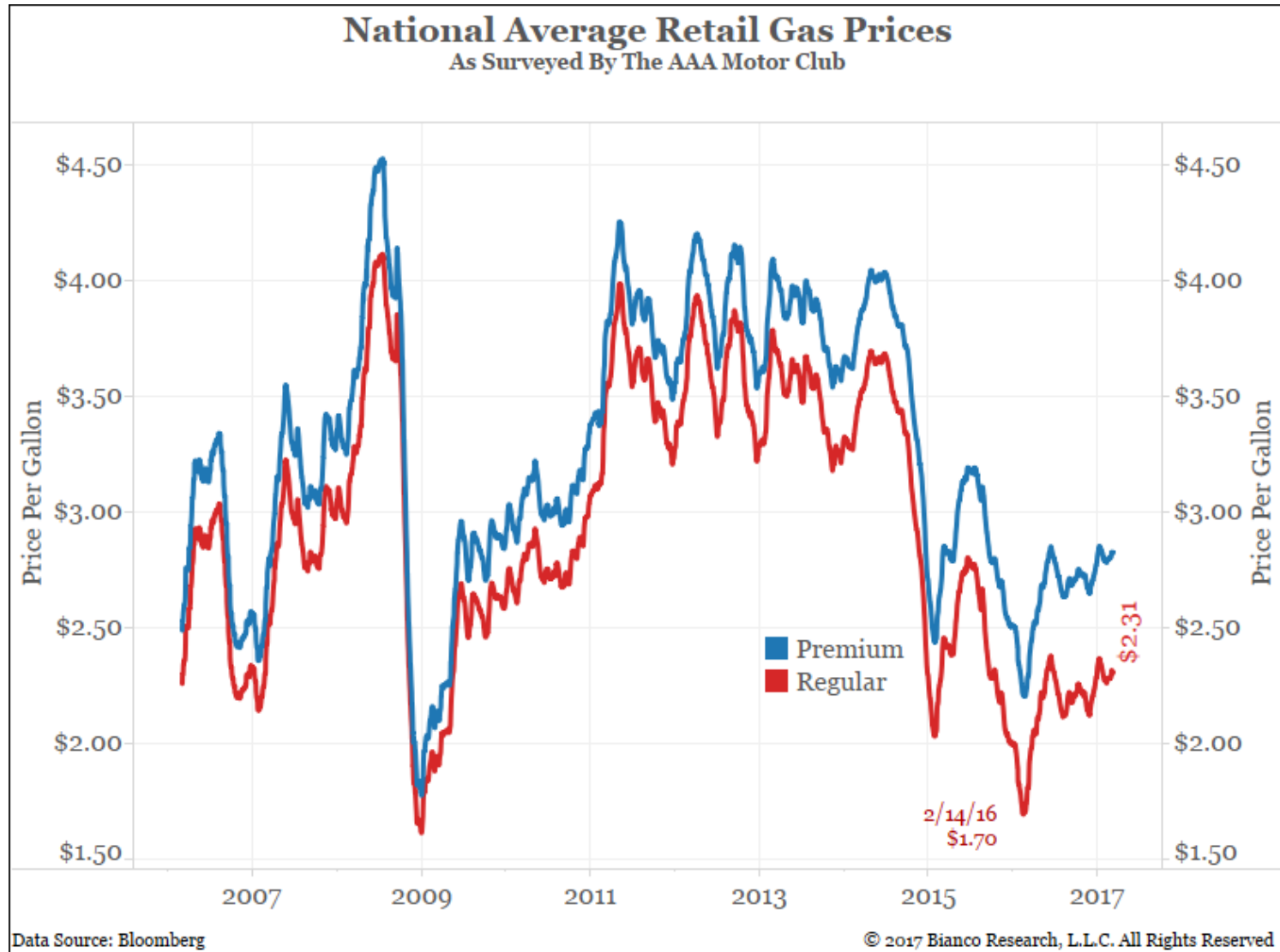
Regardless of which group is being examined or how the data is broken down, there seems to be a nearly universal bearish opinion in the bond market. All these measures are considered contrarian in nature, so the data above suggests the bond market should rally and rates will turn lower.



An Updated Look At Credit Spreads

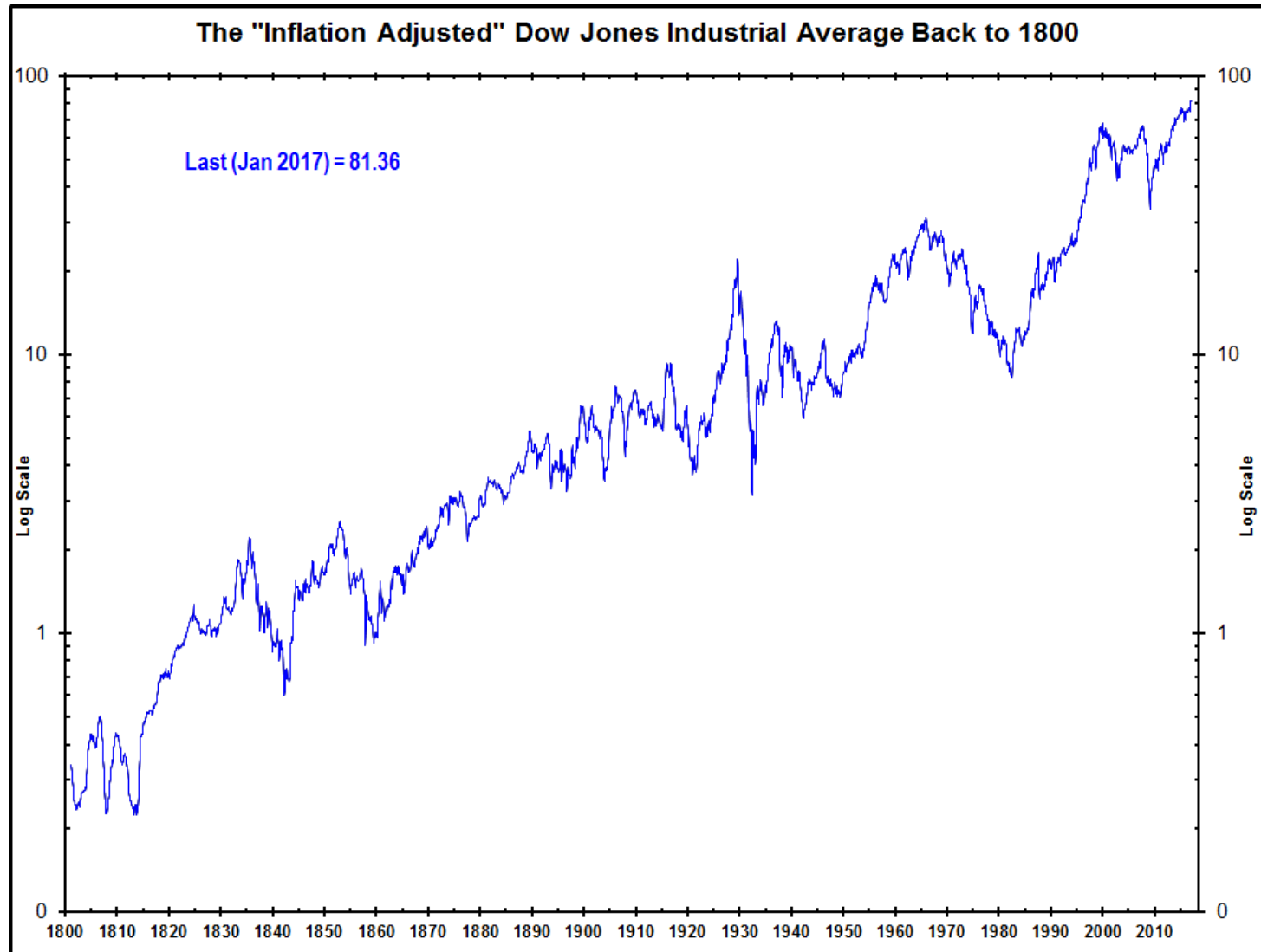


An Updated Look At Gas Prices



LT Outlook: The “Inflation Adjusted” DJIA Back to 1800

From Our Collection of [Long-Term Charts](#)



Bianco Research L.L.C.

Clybourn Galleria
1731 N. Marcey Street
Suite 500
Chicago IL 60614

Phone: (847) 304-1511
Fax: (847) 304-1749
e-mail: research@biancoresearch.com
<http://www.biancoresearch.com>

For more information about the contents/ opinions contained in these reports:

President (847) 756-3599
James A. Bianco jbianco@biancoresearch.com

Analysts (847) 304-1511
Greg Blaha gblaha@biancoresearch.com
Ben Breitholtz ben.breitholtz@biancoresearch.com
Peter Forbes peter.forbes@biancoresearch.com
Ryan Malo rmalo@biancoresearch.com

For subscription/service Information:

Arbor Research & Trading, Inc.
Director of Sales & Marketing (800) 606-1872
Max Konzelman Max.Konzelman@arborresearch.com

Arbor Research & Trading, L.L.C

1000 Hart Road, Suite 260
Barrington IL 60010

Phone: (847) 304-1550 Fax: (847) 304-1595
e-mail: inforequest@arborresearch.com
<http://www.arborresearch.com>

Domestic - For more information about Arbor Research & Trading and its services:

New York Sales Office

The Chrysler Building
405 Lexington Ave
New York, NY 10174
Edward T. McElwreath ed.mcelwreath@arborresearch.com
Phone (212) 867-5326 Fax (212) 370-1218

International - For more information about Arbor Research & Trading and its services:

London Sales Office

Room 303
New Broad Street House
35 New Broad Street
London
EC2M 1NH
Phone 44-207-100-1051
Neil Tritton neil.tritton@arborresearch.com
Ben Gibson ben.gibson@arborresearch.com

Chicago Sales Office

James L. Perry james.perry@arborresearch.com
Phone (847) 304-1560 Fax (847) 304-1595

Geneva Sales Office

Rich Kleinbauer rich.kleinbauer@arborresearch.com
Phone (41) 22 565-2480

Far East Sales

Robert Reynolds robert.reynolds@arborresearch.com
Phone (847) 756-3680 Fax (435) 647-3073

Copyright © 2017 Bianco Research, L.L.C.

This message is intended only for the personal and confidential use of the designated recipients named above. If you are not the intended recipient of this message you are hereby notified that any review, dissemination, distribution or copying of this message is strictly prohibited. This communication is for information purposes only and should not be regarded as an offer to sell or as a solicitation of an offer to buy any financial product, an official confirmation of any transaction, or as an official statement of Bianco Research LLC. Email transmission cannot be guaranteed to be secure or error-free. Therefore, we do not represent that this information is complete or accurate and it should not be relied upon as such. All information is subject to change without notice.