

## SPRUCE INDEX RETURNS NOVEMBER 2018

Bond Market Returns		Last Date	12mo STD	MTD	QTD	YTD	Last 1- Year	Last 2- Year	Last 3- Year	Last 5- Year	Last 10 -Year
Barclays U.S. Aggregate	11/30/2018	2.47%	0.60%	-0.20%	-1.79%	-1.34%	0.91%	1.33%	2.03%	3.67%	
Barclays 1-10-Year Municipal	11/30/2018	1.54%	0.80%	0.61%	0.75%	1.29%	2.19%	1.29%	1.90%	3.04%	
Barclays High-Yield	11/30/2018	2.85%	-0.86%	-2.45%	0.06%	0.36%	4.67%	NA	NA	NA	
Citi WGBI ex-U.S. (USD)	11/30/2018	5.18%	0.09%	-0.77%	-3.55%	-3.53%	2.25%	2.91%	-0.25%	1.94%	
J.P. Morgan EMBI Global	11/30/2018	4.95%	-0.39%	-2.62%	-5.98%	-5.39%	2.11%	3.71%	4.00%	8.44%	
S&P 10 Year US Tips Index	11/30/2018	3.55%	0.68%	-0.85%	-2.59%	-1.55%	-0.07%	0.92%	1.17%	3.83%	
Equity Markets Re- turns		Last Date	12mo STD	MTD	QTD	YTD	Last 1- Year	Last 2- Year	Last 3- Year	Last 5- Year	Last 10 -Year
<b>World</b>											
MSCI All-Country World	11/30/2018	11.73%	1.46%	-6.14%	-2.55%	-0.98%	11.09%	8.57%	6.16%	10.65%	
<b>US</b>											
S&P 500	11/30/2018	12.01%	2.04%	-4.94%	5.11%	6.27%	14.27%	12.16%	11.12%	14.31%	
S&P Technology Sector	11/30/2018	15.47%	-1.96%	-9.81%	7.31%	7.90%	21.38%	17.31%	15.39%	17.22%	
S&P Financial Sector	11/30/2018	12.30%	2.63%	-2.21%	-2.17%	-0.32%	11.29%	12.40%	10.18%	11.37%	
S&P Consumer Discretionary	11/30/2018	16.65%	2.48%	-7.87%	10.36%	13.08%	16.45%	11.60%	11.34%	19.21%	
S&P Healthcare	11/30/2018	16.00%	8.08%	0.76%	17.25%	16.60%	19.92%	12.04%	12.59%	15.67%	
S&P Consumer Staples	11/30/2018	12.00%	2.27%	4.32%	0.93%	3.20%	8.37%	6.94%	7.04%	10.69%	
S&P Energy	11/30/2018	21.19%	-1.56%	-12.71%	-6.60%	-1.68%	-2.96%	1.67%	-3.73%	4.18%	
S&P Industrial	11/30/2018	17.35%	3.81%	-7.47%	-2.90%	-0.85%	9.89%	11.84%	8.73%	13.61%	
S&P Materials	11/30/2018	13.92%	3.80%	-5.73%	-8.58%	-6.64%	6.57%	7.93%	5.33%	10.51%	
S&P Real Estate	11/30/2018	12.10%	5.48%	3.80%	5.35%	4.89%	10.31%	7.10%	NA	NA	
S&P Utilities	11/30/2018	10.94%	3.54%	5.58%	8.26%	1.70%	12.80%	12.87%	11.70%	10.46%	
Consumer Price Index	10/31/2018	0.75%	0.33%	0.33%	1.98%	2.53%	2.28%	2.07%	1.59%	1.54%	
Volatility Index	11/30/2018	98.35%	-14.88%	49.09%	63.68%	60.20%	16.43%	3.86%	5.69%	-10.58%	
Russell 2000	11/30/2018	15.12%	1.59%	-9.44%	0.98%	0.57%	9.09%	10.08%	7.50%	14.04%	
Alerian MLP	11/30/2018	20.97%	-0.83%	-8.76%	-3.38%	1.21%	-2.90%	1.00%	-5.16%	10.25%	
NAREIT	11/30/2018	12.71%	4.75%	1.98%	4.17%	3.87%	8.75%	7.60%	10.24%	15.19%	
<b>International</b>											
FTSE 100 Index	11/30/2018	12.59%	-2.07%	-7.06%	-9.20%	-4.73%	1.44%	3.17%	0.97%	4.99%	
MSCI EAFE	11/30/2018	12.76%	1.01%	-7.22%	-9.77%	-7.83%	9.14%	5.84%	2.34%	8.24%	
MSCI Europe	11/30/2018	13.13%	-0.80%	-8.28%	-10.14%	-8.65%	9.26%	3.64%	1.15%	7.72%	
MSCI Japan	11/30/2018	13.02%	1.02%	-8.11%	-5.60%	-4.29%	8.28%	3.42%	7.20%	9.05%	
<b>Emerging</b>											
MSCI Emerging Market Free	11/30/2018	16.06%	4.12%	-4.95%	-12.24%	-9.09%	9.88%	9.41%	1.90%	9.13%	
MSCI Emerging Market Asia	11/30/2018	14.94%	3.71%	-6.48%	-9.87%	-7.86%	10.52%	9.49%	5.90%	11.44%	
MSCI Emerging Market Latin Amer- ica	11/30/2018	15.95%	0.25%	2.22%	5.40%	11.91%	12.98%	16.26%	7.51%	10.31%	
MSCI Argentina	11/30/2018	42.88%	5.62%	3.62%	-49.24%	-46.07%	-7.76%	-4.39%	-0.85%	4.96%	
MSCI Brazil	11/30/2018	37.80%	-2.10%	15.28%	-1.44%	2.40%	9.34%	21.93%	-3.08%	2.06%	
MSCI China	11/30/2018	21.90%	7.13%	-5.02%	-15.21%	-13.52%	11.28%	7.92%	2.97%	7.44%	
MSCI India	11/30/2018	16.78%	3.90%	-1.54%	-0.18%	3.63%	12.81%	9.20%	9.58%	13.81%	
MSCI Russia	11/30/2018	20.94%	-1.16%	-6.36%	-1.73%	0.34%	4.98%	9.38%	-5.18%	3.26%	
MSCI Turkey	11/30/2018	22.41%	5.83%	-3.59%	-17.50%	-9.53%	11.99%	6.88%	4.14%	12.59%	
<b>Global Factors</b>											
MSCI ACWI Momentum	11/30/2018	14.87%	1.96%	-8.19%	2.46%	3.03%	17.72%	12.51%	9.63%	12.76%	
MSCI ACWI Quality	11/30/2018	11.62%	0.84%	-6.79%	-0.52%	1.06%	13.84%	9.93%	8.57%	12.72%	
MSCI ACWI Dividend	11/30/2018	10.13%	2.30%	-2.67%	-1.24%	-0.02%	9.81%	8.34%	4.59%	9.81%	
MSCI ACWI Value	11/30/2018	10.54%	1.36%	-4.13%	-5.65%	-4.45%	5.49%	4.86%	2.37%	6.52%	
<b>U.S. Factors</b>											
S&P 500 Momentum	11/30/2018	15.64%	1.69%	-8.37%	9.48%	10.14%	20.40%	14.11%	12.13%	14.36%	
S&P 500 Quality	11/30/2018	12.09%	-0.05%	-7.08%	1.61%	2.93%	11.25%	9.28%	9.46%	14.87%	
S&P 500 Dividend	11/30/2018	11.67%	4.96%	-0.73%	5.67%	7.85%	14.00%	12.56%	11.40%	15.54%	
S&P 500 Value	11/30/2018	10.86%	2.54%	-2.97%	-0.14%	1.48%	8.26%	9.38%	7.87%	11.56%	

Real Asset Markets Re- turns	Last Date	MTD	QTD	YTD	Last 1- Year	Last 2- Year	Last 3- Year	Last 5- Year	Last 10- Year
DJ-UBS Commodity	11/30/2018	-0.17%	-2.15%	-2.15%	0.83%	4.77%	9.48%	-2.20%	3.81%
Gold	11/30/2018	1.55%	2.81%	-24.58%	-21.73%	-9.75%	9.39%	-7.04%	-5.20%
Natural Gas	11/30/2018	-6.42%	-18.22%	-19.90%	-19.53%	-19.29%	-6.23%	-11.91%	0.37%
Copper	11/30/2018	4.44%	-0.91%	-17.28%	-11.39%	1.56%	8.37%	-4.43%	NA
Silver	11/30/2018	-0.73%	-0.49%	-15.59%	-14.09%	-7.59%	0.37%	-6.51%	3.47%
Brent Crude Oil	11/30/2018	-22.54%	-31.06%	-10.25%	-5.68%	-0.71%	-3.06%	-13.49%	-7.17%

Global Bond Yields	Last Date	Month End	Quarter End	Year End	Year Ago	2 - Yr Ago	3 - Yr Ago	5 - Yr Ago	10 - Yr Ago
<b>US</b>									
U.S. Three-Month T-Bill	11/30/2018	2.33%	2.20%	1.38%	1.26%	0.48%	0.17%	0.06%	0.04%
U.S. 10-Year Treasury Note	11/30/2018	3.14%	3.06%	2.41%	2.41%	2.38%	2.21%	2.74%	2.92%
<b>Germany</b>									
Three-Month T-Bill	11/30/2018	-0.15%	0.01%	-0.61%	-0.64%	-0.30%	-0.14%	0.42%	2.52%
Germany 10-Year Treasury Note	11/30/2018	0.39%	0.47%	0.43%	0.37%	0.28%	0.47%	1.69%	3.26%
<b>Japan</b>									
Japan One-Month T-Bill	11/30/2018	-0.32%	-0.13%	-0.16%	-0.20%	-0.34%	-0.05%	0.05%	0.49%
Japan 10-Year Treasury Note	11/30/2018	0.13%	0.13%	0.05%	0.04%	0.03%	0.31%	0.61%	1.40%
<b>Switzerland</b>									
Switzerland 10-Year Treasury Note	11/30/2018	-0.01%	0.04%	-0.15%	-0.12%	-0.13%	-0.36%	0.90%	2.28%
<b>UK</b>									
United Kingdom Three-Month T-Bill	11/30/2018	0.77%	0.77%	0.40%	0.38%	0.31%	0.51%	0.37%	NA
United Kingdom 10-Year Treasury Note	11/30/2018	1.44%	1.57%	1.19%	1.33%	1.42%	1.83%	2.77%	3.77%

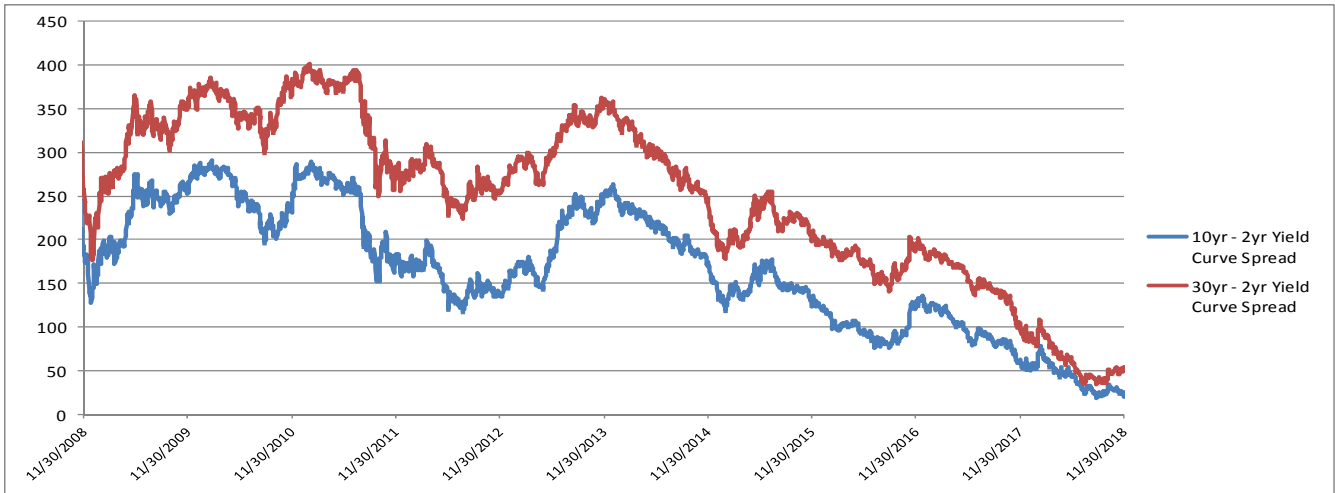
  

Credit Spreads	Last Date	Month End	Quarter End	Year End	Year Ago	2 - Yr Ago	3 - Yr Ago	5 - Yr Ago	10 - Yr Ago
Barclays AAA Credit	11/30/2018	1.44%	1.57%	1.66%	1.81%	2.67%	2.74%	2.90%	6.00%
Barclays BBB Credit	11/30/2018	2.40%	2.35%	2.27%	2.42%	3.45%	4.50%	3.69%	9.20%
Barclays CCC Credit	11/30/2018	10.51%	9.70%	10.04%	9.79%	11.16%	13.20%	5.70%	NA

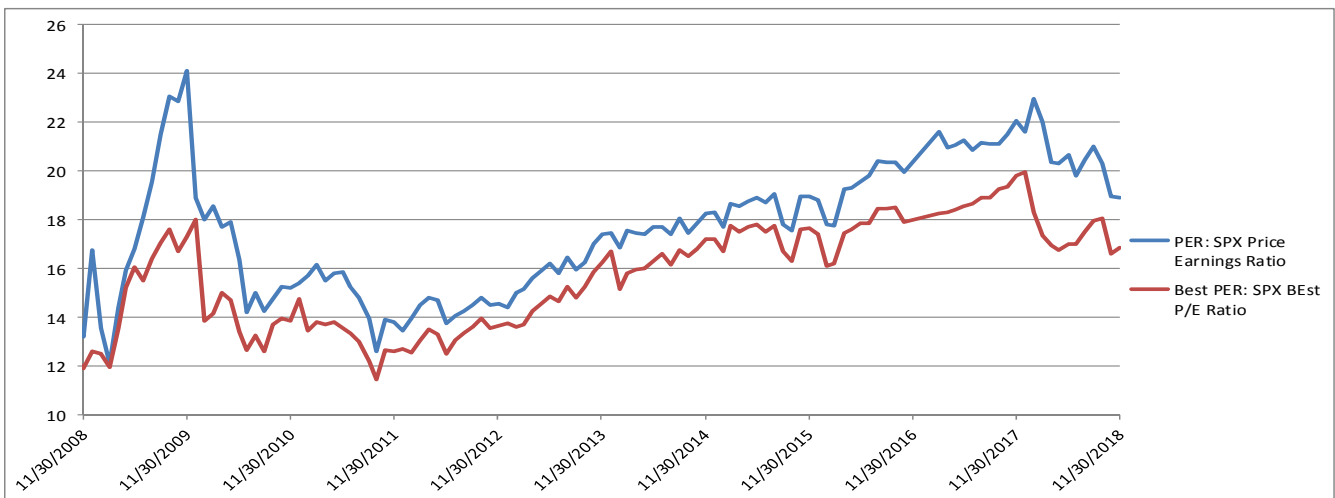
  

Currencies	Last Date	MTD	QTD	YTD	Last 1- Year	Last 2- Year	Last 3- Year	Last 5- Year	Last 10- Year
NYSE Bitcoin Index	11/30/2018	-36.17%	-40.18%	-72.54%	-57.79%	131.46%	119.99%	NA	NA
Euro (EUR)	11/30/2018	0.04%	-2.47%	-5.73%	-4.93%	3.38%	2.32%	-3.60%	-1.14%
Japanese Yen (JPY)	11/30/2018	-1.05%	1.65%	2.42%	1.45%	-0.96%	-1.02%	1.95%	-1.94%
Swiss Franc (CHF)	11/30/2018	0.56%	-0.11%	0.78%	0.92%	-0.39%	-2.65%	2.08%	1.74%

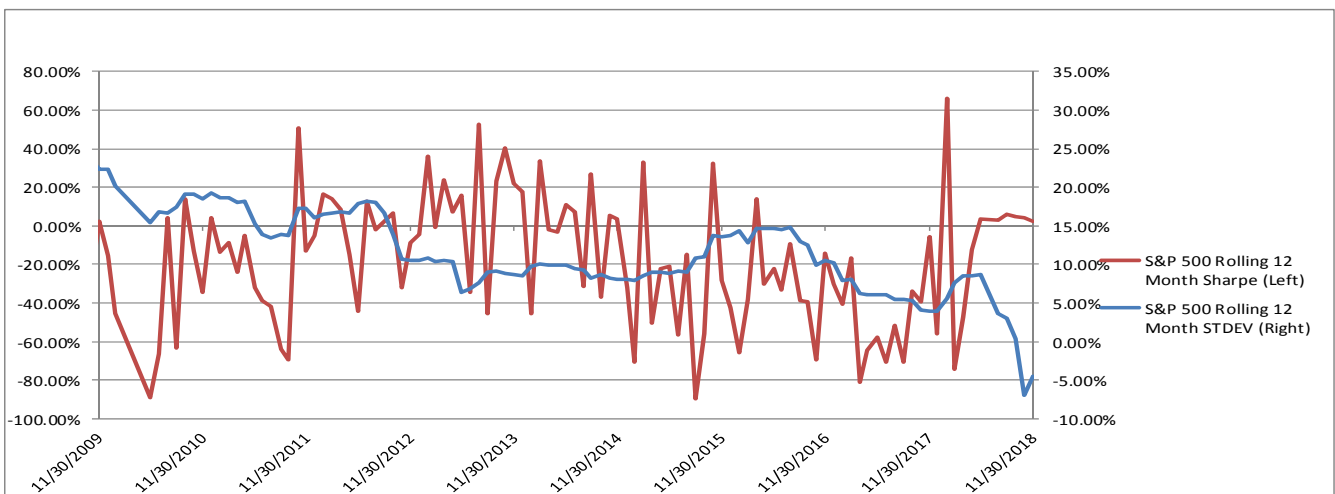
### 10yr - 2yr & 30yr - 2yr Yield Curve Spread



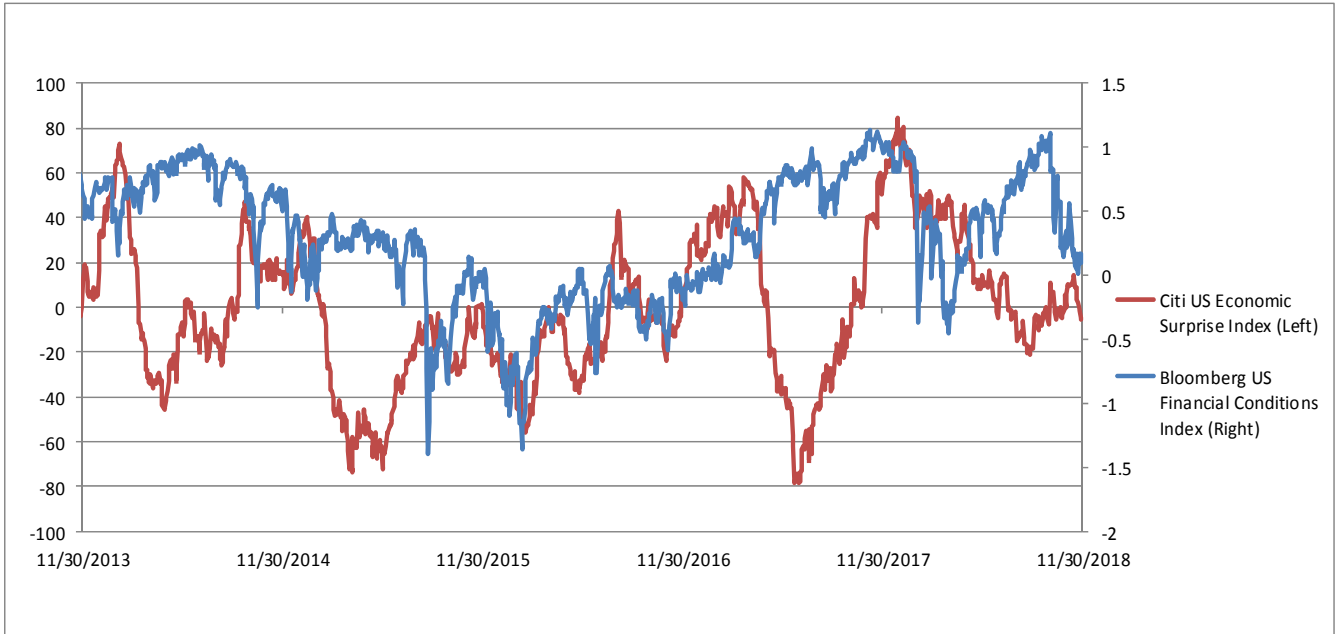
### S&P 500 PE Ratios



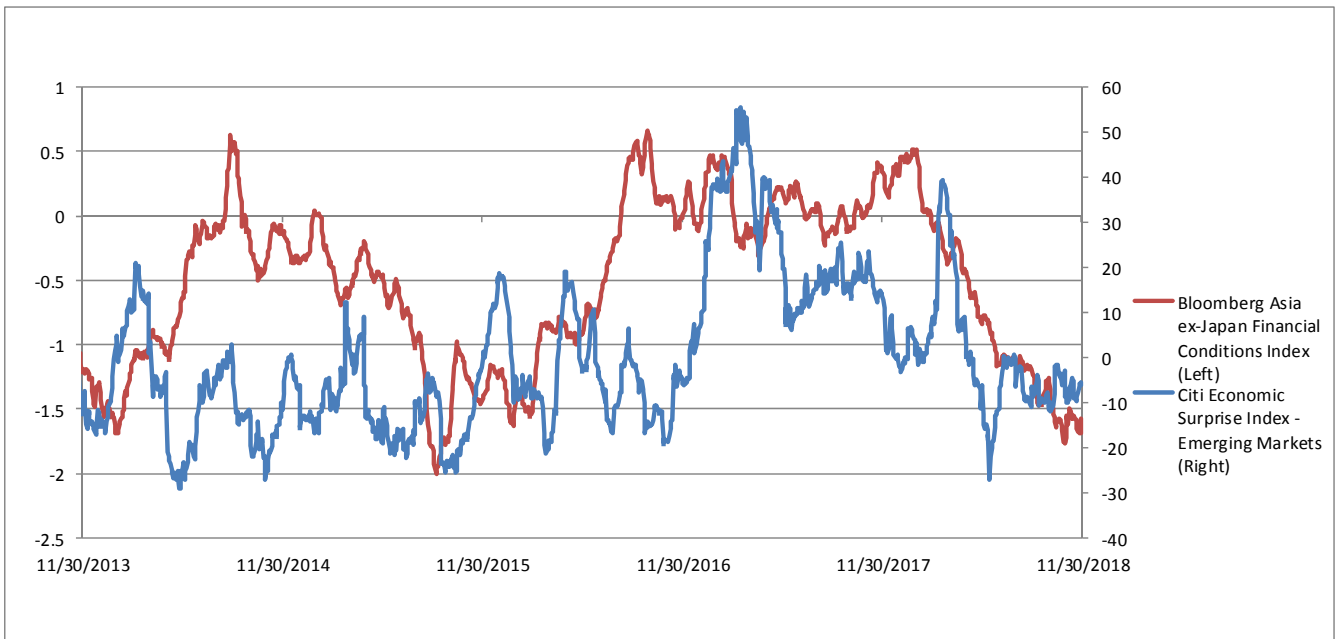
### S&P 500 Rolling 12 Mo Standard Deviation vs Sharpe Ratio



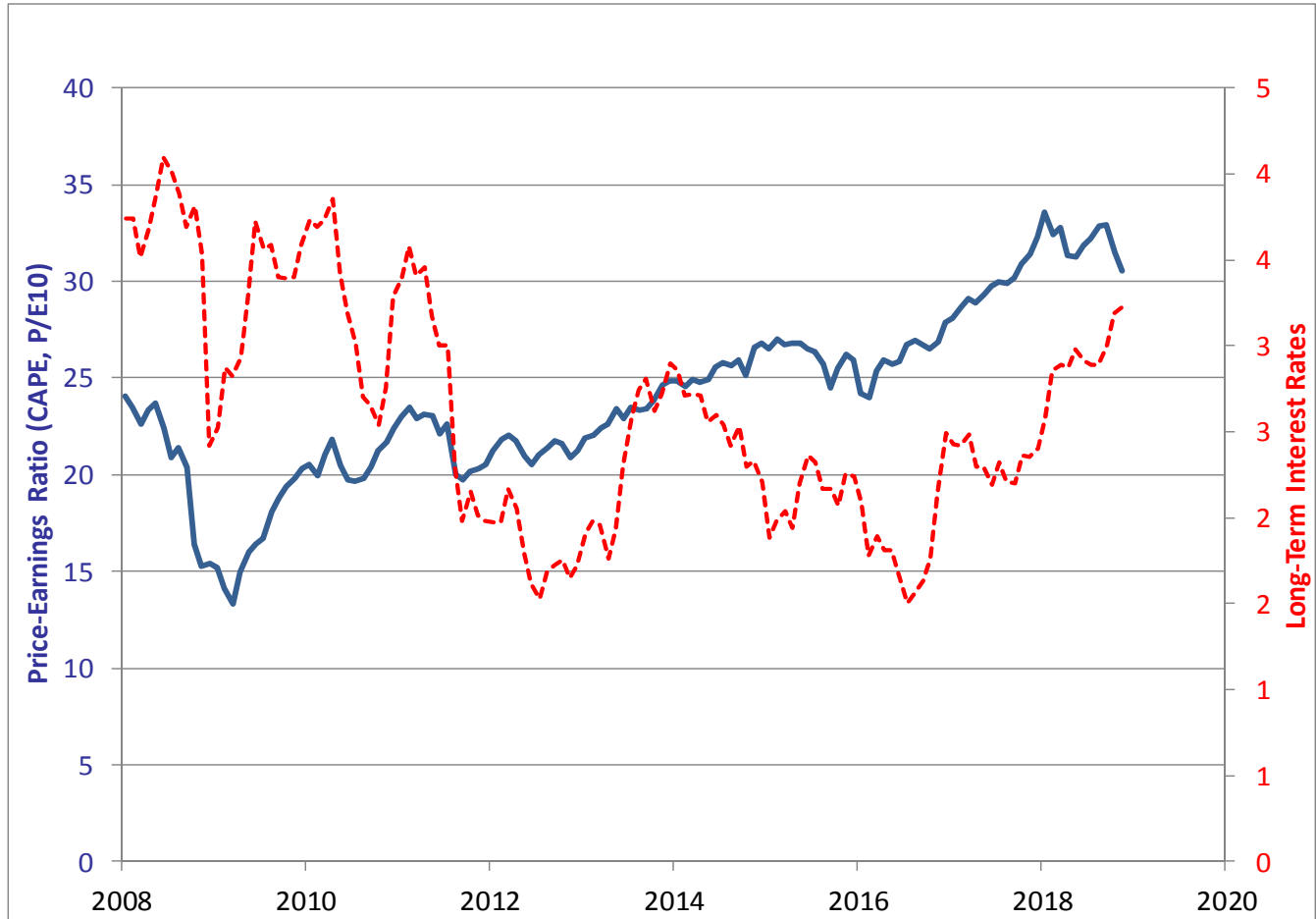
### Citi US Economic Surprise Index vs Bloomberg Financial Conditions Index



### Bloomberg Asia ex-Japan Financial Conditions Index vs Citi Economic Surprise Index—Emerging Markets



## S&P 500 10YR Cape Ratio



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