

Investors sold their positions in stocks in December on concerns that the global economy was slowing as the trade war between the U.S. and China dragged on and that overly restrictive monetary policy may dampen economic activity. Additional uncertainty related to the U.S. government shutdown, resulted in the stock market experiencing its worst December since 1931. Bond investors benefited from this flight to quality with Bloomberg Barclays U.S. Aggregate Bond Index returning 1.84% for the month as the 10-year U.S. Treasury yield fell to 2.69% by the end of December. Crude oil prices also continued to fall during the month with WTI ending December at \$45.41 per barrel, down \$5.68 per barrel for the month.

For U.S. markets, the Q4 2018 corporate earnings reporting cycle is just getting under way and Factset is reporting that companies in the S&P 500 index are forecast to grow earnings per share by 12.4% for the quarter while revenue per share is forecast to grow by 6.3%. The S&P 500 index 12 month forward price to earnings ratio is currently 14.2, which is below its 10-year average of 14.6. 2019 is expected to be another strong year for corporate earnings growth with analyst's expecting that S&P 500 companies will grow earnings per share by 7.9% and revenue per share by 5.3%.

Internationally, geopolitical tensions remain high. The trade war between the U.S. and China is costing both sides billions with little apparent hope of a near-term resolution. The terms of agreement between the European Union and London on Brexit seem to be have become less certain. Betting odds are now 30% that the Brexit decision will be put up to another vote that could result in the United Kingdom remaining a member of the European Union.

### Reports, Speeches and Market Movers:

- Tue: China Manufacturing PMI
- Wed: U.S. Manufacturing PMI, Eurozone Manufacturing PMI
- Thu: U.S. Jobless Claims, U.S. ISM Manufacturing Index, Japan Manufacturing PMI, China Services PMI
- Fri: U.S. Employment Situation, Eurozone Composite PMI, Eurozone Index of Consumer Prices
- Sun: Japan Composite PMI

Index Returns (%)						
Index Returns are as of 12/31/2018	Level	1Wk	1Mo	QTD	YTD	1Yr
S&P 500	2507	6.67%	-9.03%	-13.52%	-4.38%	-4.38%
Dow Jones Industrial Average	23327	7.04%	-8.59%	-11.31%	-3.48%	-3.48%
Russell 2000	1349	6.52%	-11.88%	-20.20%	-11.01%	-11.01%
MSCI EAFE	1720	1.03%	-4.85%	-12.54%	-13.79%	-13.79%
MSCI Emerging Markets	965.67	1.55%	-2.66%	-7.47%	-14.58%	-14.58%
BBg Barclays U.S. Agg. Bond	2047	0.28%	1.84%	1.64%	0.01%	0.01%
BBg Barclays U.S. Corporate High Yield	1909	0.59%	-2.14%	-4.53%	-2.08%	-2.08%
NASDAQ Composite	6635	7.17%	-9.40%	-17.29%	-2.84%	-2.84%

Yields (%)			
	12/31/2018	11/30/2018	1 Yr Ago
2-Yr Treasury	2.49	2.79	1.88
10-Yr Treasury	2.68	2.99	2.41
30-Yr Treasury	3.01	3.29	2.74
BBg Barclays U.S. Aggregate Bond	3.28	3.54	2.71
BBg Barclays U.S. Corp High Yield	7.95	7.22	5.72

Commodities (\$)			
	12/31/2018	11/30/2018	1 Yr Ago
U.S. Dollar Index Spot Rate	96.17	97.27	95.13
Bbg Barclay Commodity Index	76.72	82.56	85.20
WTI	47.20	50.93	72.89
Natural Gas	2.94	4.61	3.01
Copper	5965	6199	6258
Gold	1282	1221	1191

Past Performance is No Guarantee of Future Results

Investors should consider an investment option's objectives, risks, fees and expenses carefully before investing. This and other information can be found in the applicable prospectus or summary prospectuses for the products indicated, which are available from MassMutual at [www.massmutual.com/product-performance/product-performance-listing-page](http://www.massmutual.com/product-performance/product-performance-listing-page) or by calling 1-866-444-2601. Please read them carefully before investing. Past performance is no guarantee of future results.

Indexes are unmanaged, do not incur fees or expenses, do not reflect any deduction for taxes, and cannot be purchased directly by investors.

(1) Price-weighted average of 30 actively traded Blue Chip stocks, primarily industrials, but also including other service-oriented firms; may be used as a benchmark for large cap stocks. (2) Widely recognized, unmanaged index representative of common stocks of larger capitalized U.S. companies. (3) Broad-based index of over 5000 companies, which measure all domestic, and non-U.S. based common stocks listed on the NASDAQ Stock Market, Inc. (4) Unmanaged index representing the performance of small-cap U.S. stocks. (5) Unmanaged index consisting of approximately 1,200 stocks in developed market countries outside of North and South America, and represents approximately 85 percent of the total market capitalization in those countries. (6) Unmanaged index of fixed rate investment grade securities with at least one year to maturity combining the Bloomberg Barclays U.S. Treasury Bond Index, the Bloomberg Barclays U.S. Government-Related Bond Index, the Bloomberg Barclays U.S. Corporate Bond Index, and the Bloomberg Barclays U.S. Securitized Bond Index.

The Bloomberg Barclays U.S. Aggregate Bond Index is an unmanaged index of fixed-rate investment-grade securities with at least one year to maturity, combining the Bloomberg Barclays U.S. Treasury Bond Index, the Bloomberg Barclays U.S. Government-Related Bond Index, the Bloomberg Barclays U.S. Corporate Bond Index, and the Bloomberg Barclays U.S. Securitized Bond Index.

The Bloomberg Barclays U.S. Corporate High-Yield Bond Index covers the universe of fixed rate, non-investment-grade debt from corporate sectors.

The S&P 500® Index is a widely recognized, unmanaged index representative of common stocks of larger capitalized U.S. companies.

The Russell 2000 Index is a widely recognized, unmanaged index representative of common stocks of smaller capitalized U.S. companies.

The MSCI EAFE Index is a widely recognized, unmanaged index representative of equity securities in developed markets, excluding the U.S. and Canada.

The MSCI Emerging Markets (EM) Index is an unmanaged market capitalization-weighted index of equity securities of companies domiciled in various countries.

The Index is designed to represent the performance of emerging stock markets throughout the world and excludes certain market segments unavailable to U.S.-based investors.

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