



## Quarterly Market Review

April 2018

MACROVIEW

INVESTMENT MANAGEMENT LLC



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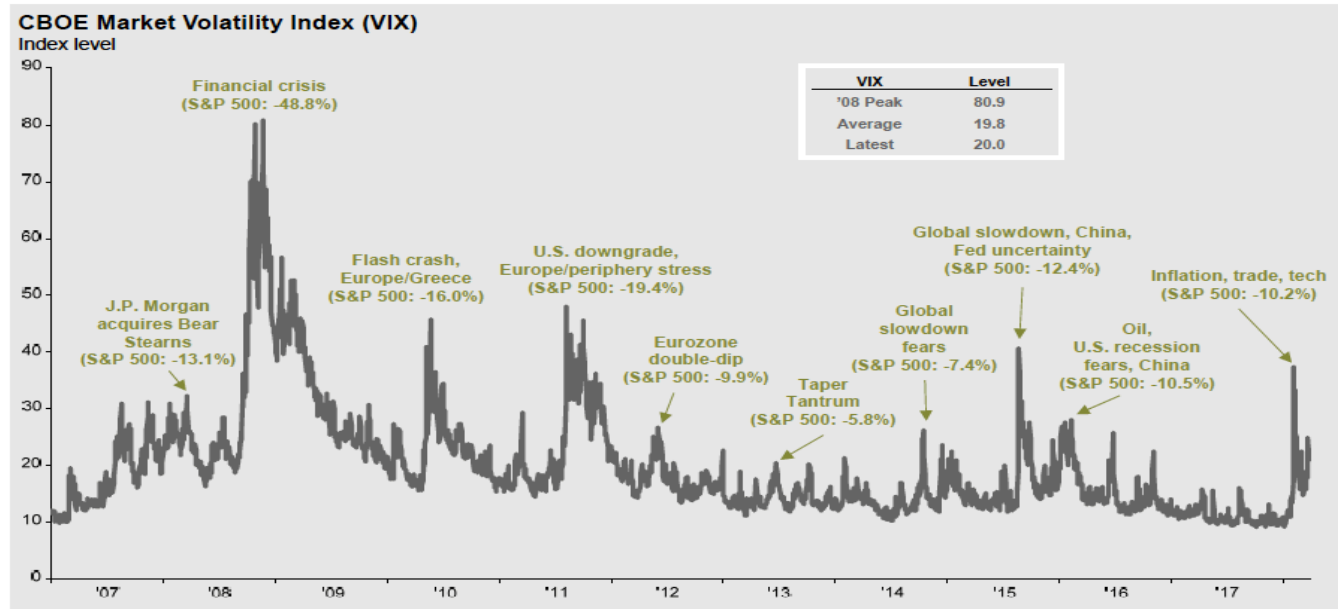
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# Introduction: A Return To Normalcy?

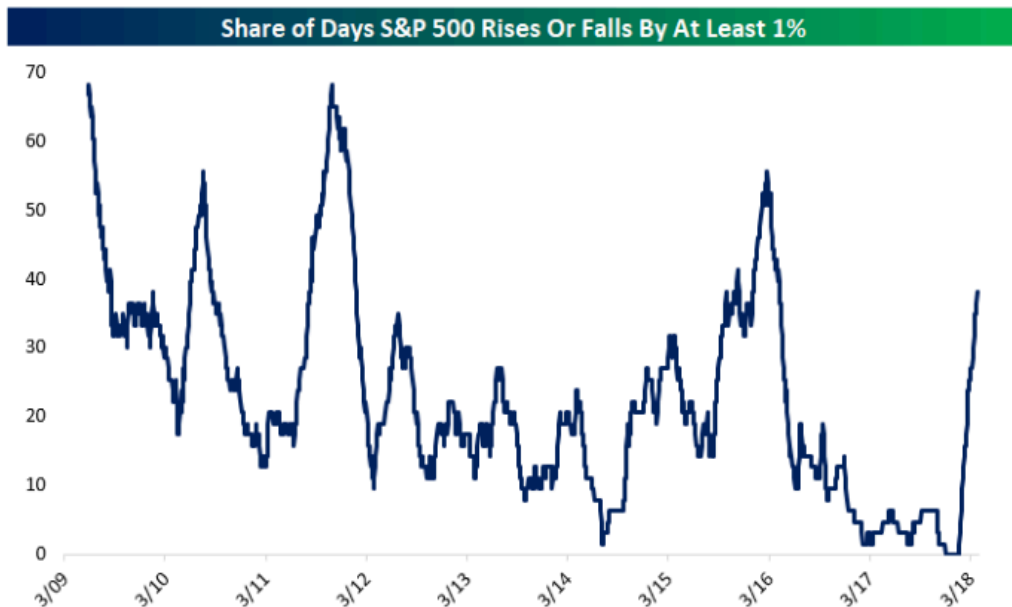
- Prior to 2017, the CBOE Volatility Index (the VIX) had never closed below 10 more than four times in any single calendar year. In 2017, the index discovered an **abnormal** level of calm and closed below 10 a ridiculous 52 times!
- While investors likely got quite comfortable with 2017's serene conditions they would have been mistaken to accept them as **normal**. The wild daily swings of Q1 2018 featured a VIX spike above 37 in early February and the index finished the quarter right on its long-term historical average of 20.



Sources: CBOE, FactSet, J.P. Morgan Asset Management.

# Quiet No More

- In 2017, the S&P 500 did not have a single up or down 2% day and only 8 sessions total produced a rise or fall of at least 1%.
- In the first quarter of 2018 alone, the S&P experienced one 4% day, two 3% days, six 2% days and 23 days where the index moved at least 1%. Said another way, nearly 40% of days in Q1 saw at least a 1% move in the S&P (the chart below portrays the share of days the S&P moved 1% or more over the prior 3 months).



# Equity Market Update

- Global equity markets burst out of the gates to start 2018 as investors continued to cheer improving economic conditions, freshly passed tax legislation and expanding corporate earnings/revenue growth. As a result, the S&P 500 (+5.6%), NASDAQ (+7.4%), Russell 2000 (+2.6%) and MSCI EAFE (+5.0%) all logged strong January's and the 1<sup>st</sup> quarter of 2018 looked set to be a continuation of 2017's low volatility, steady gains investing climate.
- We now know that the appearances of January turned out to be quite deceiving as equity markets had reached their peak before the end of the month and spent the remainder of the first quarter swinging wildly back and forth and serving up a fresh reminder of what volatility looked and felt like. The S&P 500 ultimately finished Q1 down -0.80%, the Russell 2000 slipped -0.10% and international stocks (MSCI EAFE) had lost -1.50%.
- What started as an overdue sentiment driven pullback, where the market was extremely overbought on a number of metrics, turned into something more pronounced as a number of structured volatility hedging strategies blew up and exacerbated the late-January/early-February sell-off. From its peak on January 26<sup>th</sup>, the S&P fell 12% in just 9 trading days.
- At the same time that investors were trying to catch their breath from the sentiment and volatility unwind, the market started to show real concern over the potential for rising inflation and interests rates after an unexpectedly strong labor report in February. This caused a mid-quarter surge in 10-year Treasury yields prompting bond and stock prices to teeter further on edge.
- In the beginning of March, the Trump administration began down a path of imposing tariffs on certain imports and flaming trade war fears, particularly with China. As a result, we saw a continuation of the massive daily price swings and bouts of volatility that besieged the market in February. All told, nearly 40% of the trading days in Q1 produced a rise or fall of at least 1% in the S&P 500. This compared to just 8 days total in all of 2017.

# Equity Market Update

Year-to-Date Performance

As of March 31, 2018



Source: Standards & Poor's (S&P 500); MSCI benchmarks (country returns). All performance is measured in USD. See important disclosures and definitions included with this publication.

Source: RW Baird & Co

# U.S. Equity Market Performance

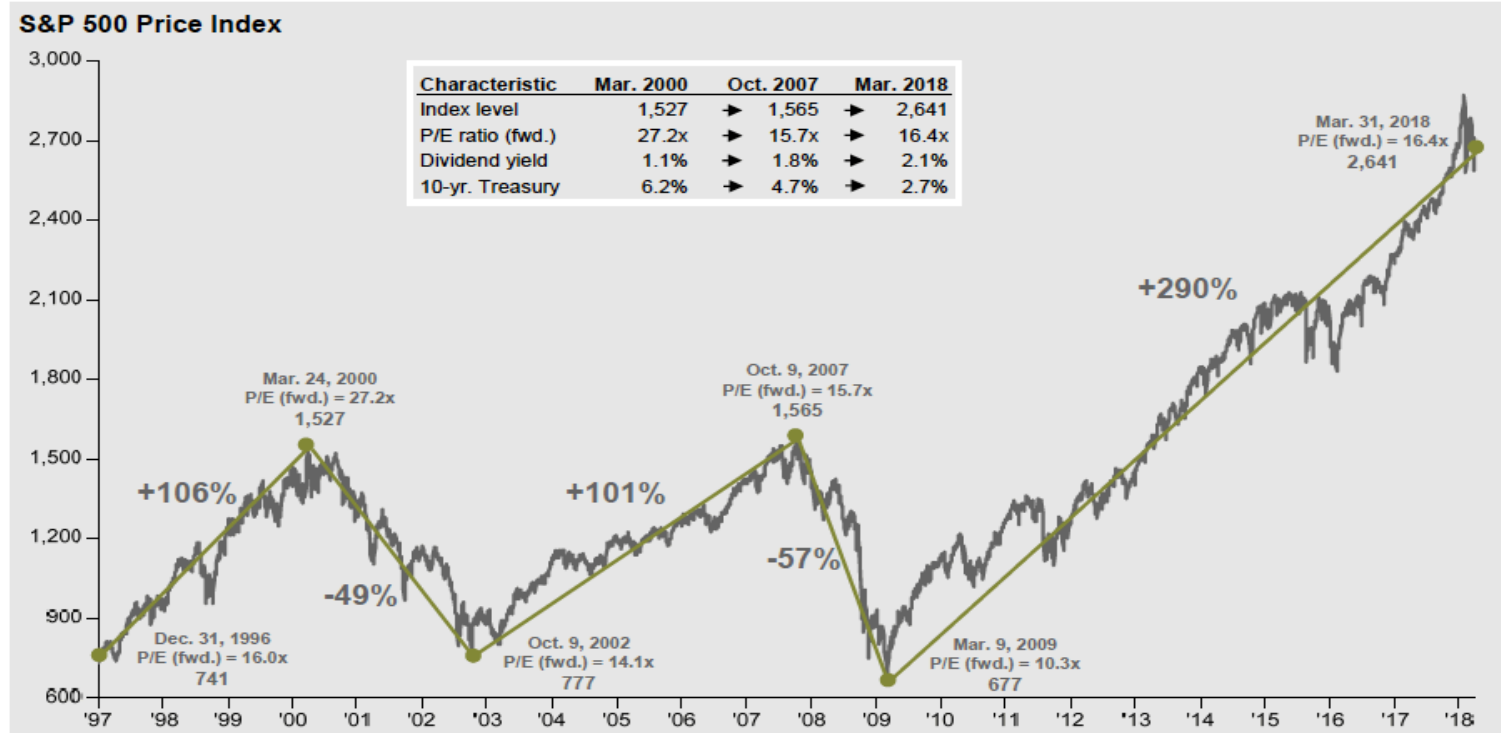
As of 03/31/2018

	Trailing Returns (%)						5-Year Risk Stats		Other Metrics			Representative Benchmark
	Last Qtr	YTD	1-Year	3-Year	5-Year	10-Year	Std. Dev.	Max. Loss	P/E	EPS Gr.	Div. Yld.	
Bellwethers												
S&P 500	(0.8)	(0.8)	14.0	10.8	13.3	9.5	9.5	(8.4)	17.4	11.8	2.0	S&P 500
DJIA	(2.0)	(2.0)	19.4	13.5	13.3	9.9	10.2	(9.0)	17.0	12.5	2.3	Dow Jones Industrial Avg.
Market Cap												
Mega	(1.9)	(1.9)	13.1	11.7	13.0	8.9	10.3	(8.4)	17.5	11.3	2.1	Russell Top 50
Large	(0.8)	(0.8)	14.7	11.4	13.6	9.4	10.0	(8.6)	17.5	11.6	2.0	Russell Top 200
Mid	(0.5)	(0.5)	12.2	8.0	12.1	10.2	10.3	(12.8)	17.7	12.5	1.7	Russell Midcap
Small	(0.1)	(0.1)	11.8	8.4	11.5	9.8	13.8	(16.8)	17.3	12.3	1.5	Russell 2000
Micro	0.7	0.7	13.5	8.0	11.8	9.2	15.0	(21.0)	15.5	13.4	1.2	Russell Micro Cap
Style												
Value	(2.8)	(2.8)	6.8	7.9	10.7	7.8	10.2	(10.4)	15.0	10.6	2.5	Russell 3000 Value
Core	(0.6)	(0.6)	13.8	10.2	13.0	9.6	10.0	(8.8)	17.5	11.9	1.9	Russell 3000
Growth	1.5	1.5	21.1	12.6	15.3	11.3	10.5	(8.8)	20.8	13.4	1.3	Russell 3000 Growth
S&P 500 Sectors												
Consumer Discretionary	3.1	3.1	16.9	12.2	15.7	14.6	11.6	(8.0)	21.1	14.4	1.3	S&P 500/Cons. Disc.
Consumer Staples	(7.1)	(7.1)	(0.9)	5.4	8.6	9.5	10.4	(8.6)	16.5	9.4	3.0	S&P 500/Cons. Staples
Energy	(5.9)	(5.9)	(0.2)	(1.2)	(0.4)	1.3	16.6	(38.7)	19.2	31.0	3.0	S&P 500/Energy
Financials	(1.0)	(1.0)	18.0	14.3	15.5	5.2	13.5	(15.2)	13.9	10.4	1.8	S&P 500/Financials
Health Care	(1.2)	(1.2)	11.3	5.6	13.9	12.2	11.8	(13.1)	15.9	10.8	1.7	S&P 500/Health Care
Industrials	(1.6)	(1.6)	14.0	11.7	14.0	8.9	11.3	(11.3)	18.0	11.9	2.0	S&P 500/Industrials
Information Technology	3.5	3.5	27.7	19.9	20.6	14.2	12.5	(8.2)	19.4	12.7	1.2	S&P 500/Info. Tech.
Materials	(5.5)	(5.5)	10.5	7.4	9.9	5.9	14.3	(22.7)	17.3	12.0	2.0	S&P 500/Materials
Telecomm	(7.5)	(7.5)	(4.9)	4.7	4.1	5.8	14.6	(13.8)	10.6	4.3	5.6	S&P 500/Telecomm
Utilities	(3.3)	(3.3)	1.9	8.2	9.2	7.1	13.8	(12.7)	16.0	6.1	3.9	S&P 500/Utilities

Source: Morningstar Direct. Performance greater than one year is annualized. Performance is represented by the benchmark listed in the "representative benchmark" column. See important disclosures and definitions included with this publication.

# US Equity Markets

- The S&P 500 is now up 290% since its March 2009 bear market bottom and trades at reasonable 16.4x forward price to earnings ratio.

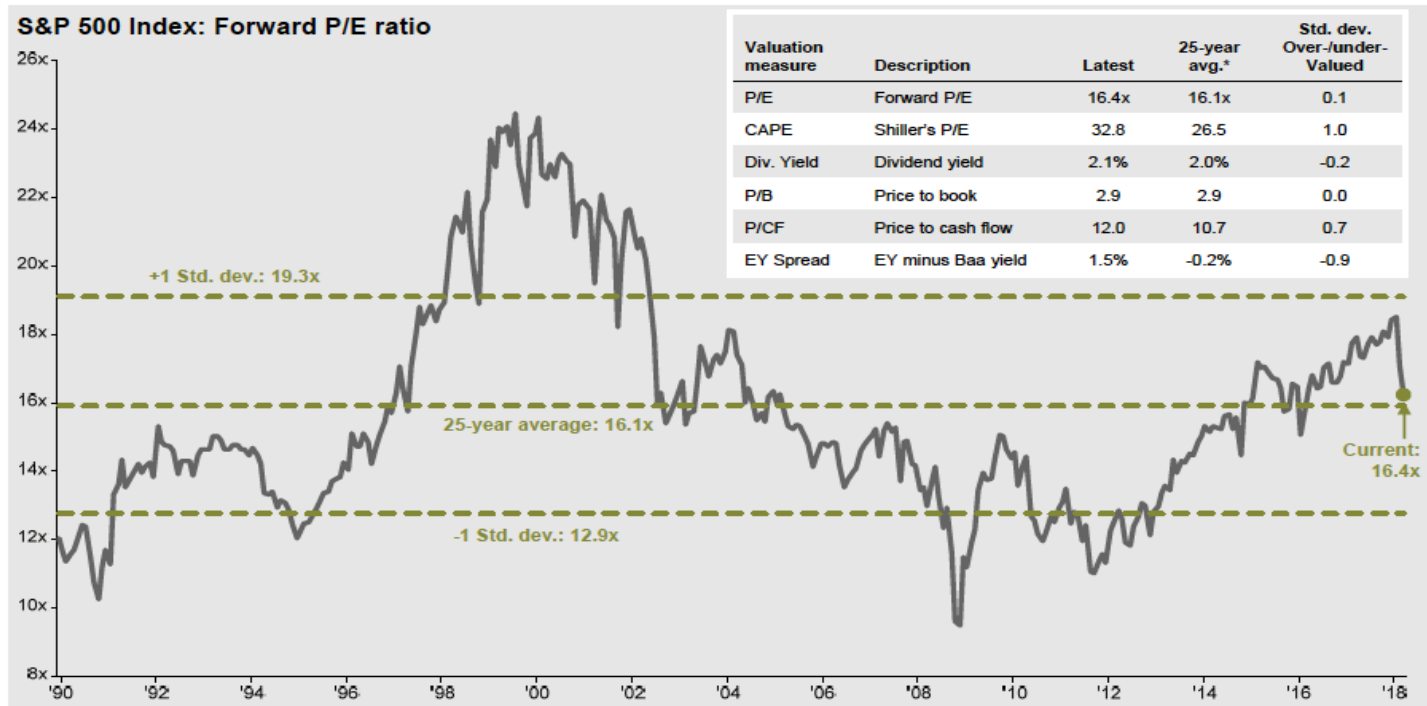


Source: Compustat, FactSet, Federal Reserve, Standard & Poor's, Thomson Reuters, J.P. Morgan Asset Management.



# Forward P/E Ratio

- The market correction in Q1 combined with the healthy leap in corporate earnings estimates brought the S&P 500's forward p/e ratio back to its long-term (25-year) average, helping to soothe concerns of an expensive market.



JP Morgan

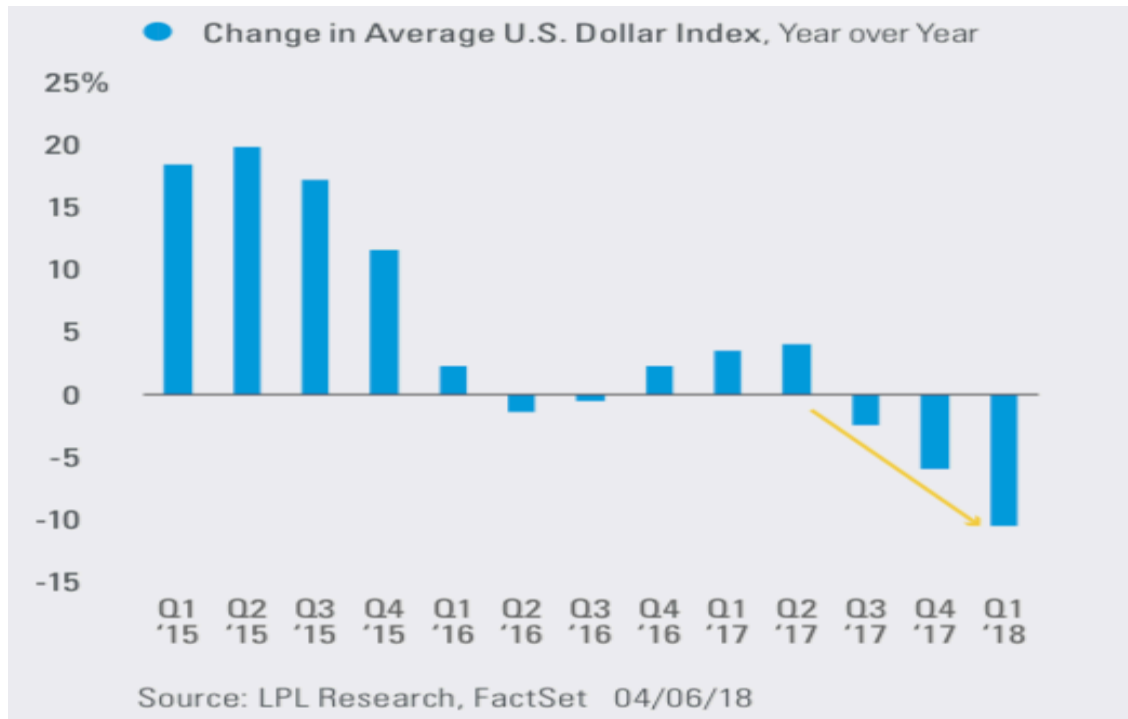
# Tax Reform Boosts Earnings Estimates

- As Congress' tax reform package progressed from an outline to a reality, we saw a dramatic jump in consensus estimates for the S&P's 2018 earnings. Estimates for Q1 2018 jumped by about 6% which marks the biggest increase ever according to data compiled by Ned Davis Research.



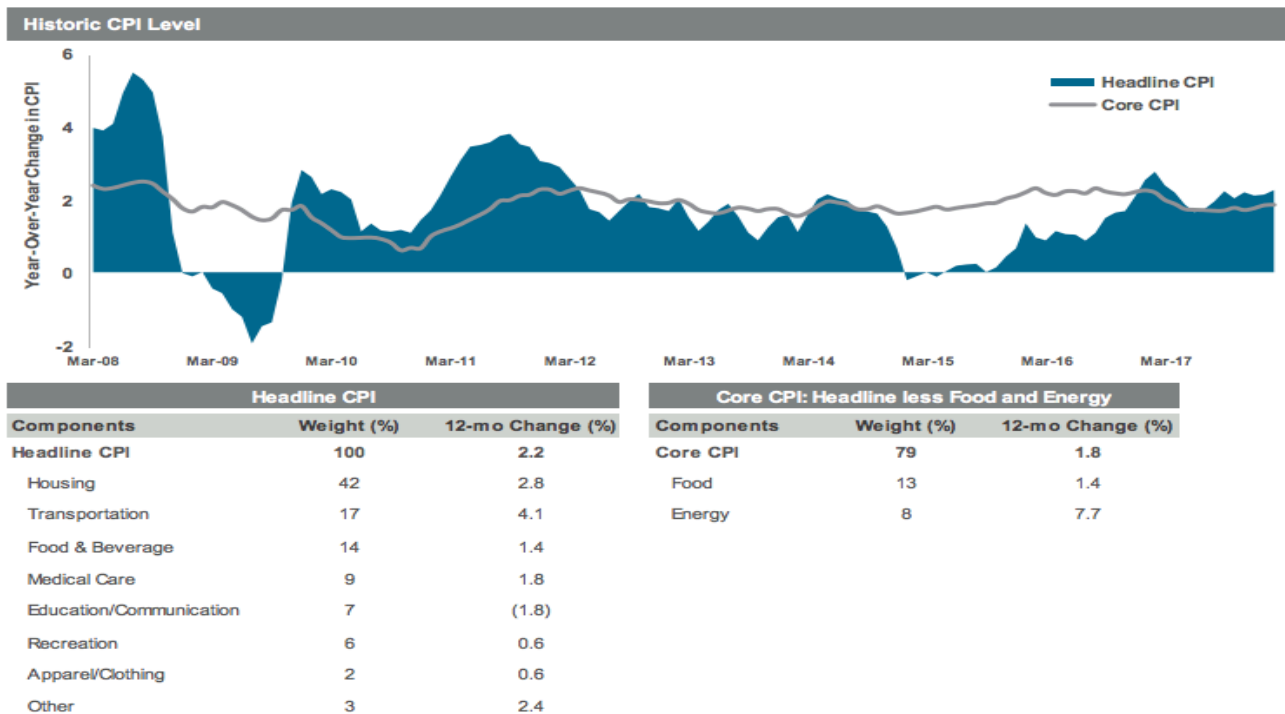
# Weakened Dollar: A Tailwind For Earnings?

- The U.S. Dollar Index has fallen about 10% from its year ago level. Such dollar weakness (making U.S. goods relatively cheaper overseas) could serve as an earnings boon for U.S. multinational corporations as roughly one third of the S&P 500's revenue is earned outside of the United States.



# A Look At Inflation & Employment

- Recent Headline and Core (excludes food and energy) CPI measures are below where they stood a year ago continue to print well within the Federal Reserve's comfort zone.

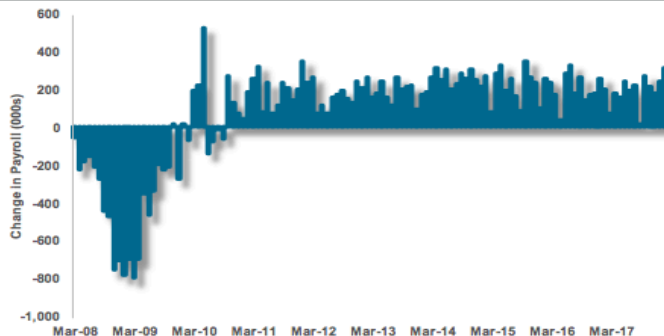


Source: Bureau of Labor Statistics; Baird Analysis. CPI figures lag one month.

# A Look At Inflation & Employment (cont.)

- The US labor market continues to be robust, adding an average of 242,000 jobs for the trailing three months through February. Recent jumps in wage growth and average hourly earnings have caught the market's attention but things remain in check for now.

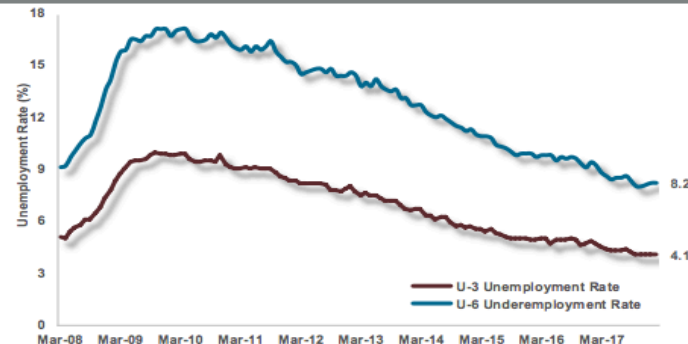
Jobs Gained/Lost



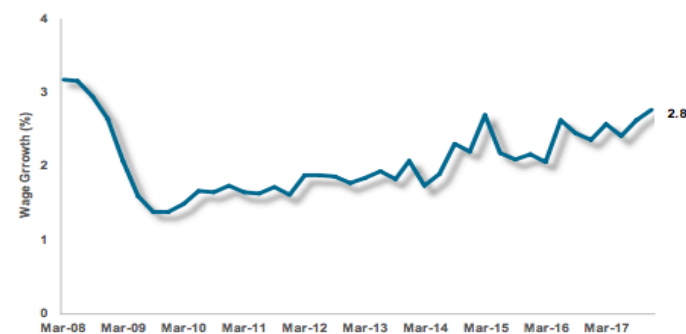
Labor Force Participation



Unemployment and Underemployment Rates



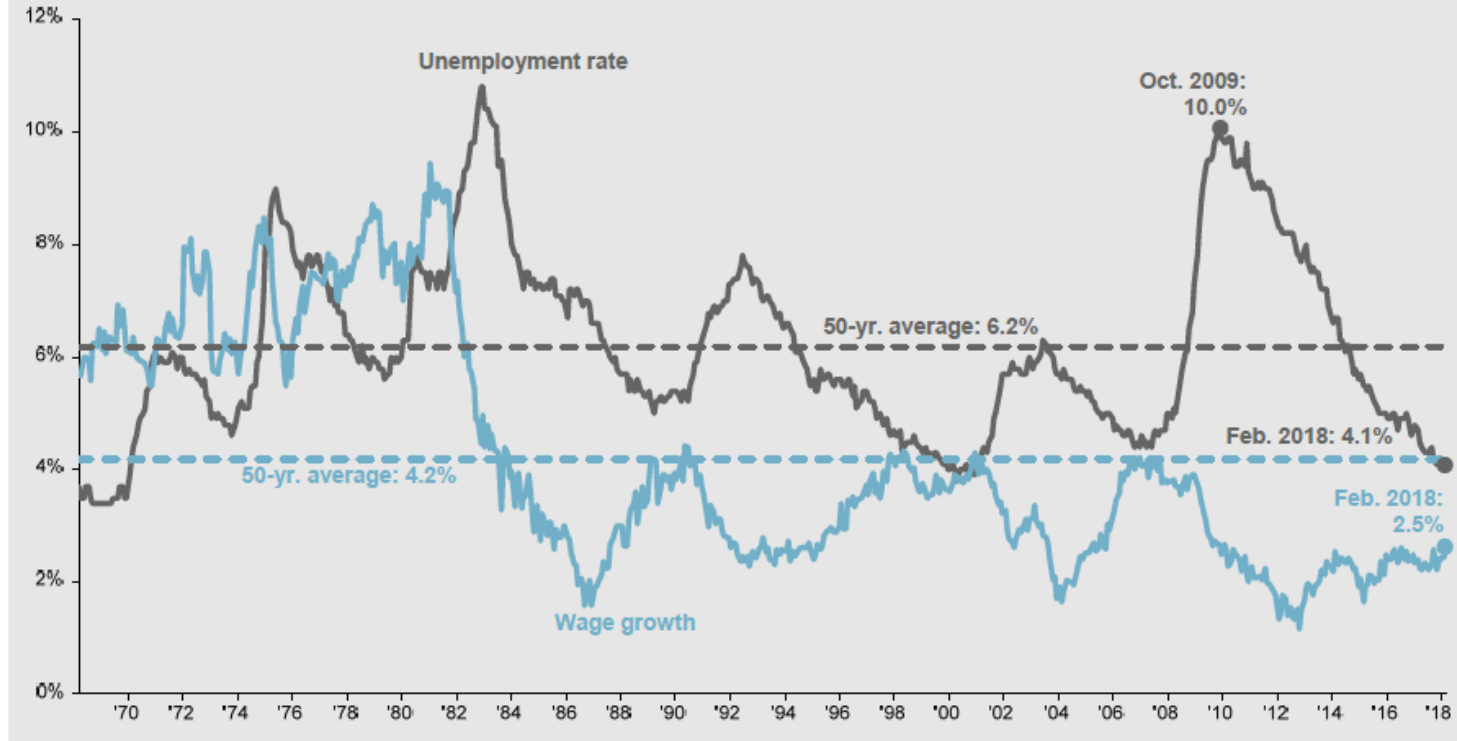
Wage Growth (y/o/y%)



Source: US Department of Labor: Bureau of Labor Statistics. Data will lag one month and is subject to revision. Wage growth is calculated quarterly and will lag one quarter.

# A Look At Inflation & Employment (cont.)

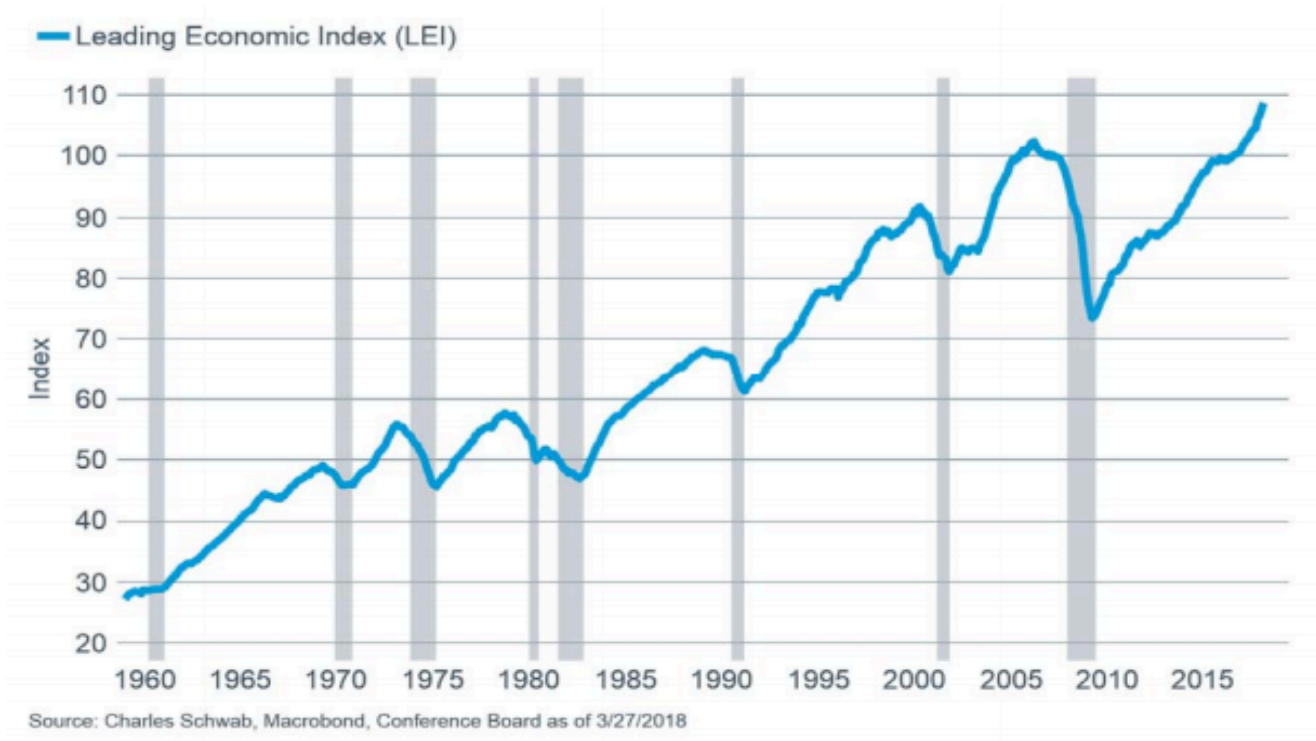
**Civilian unemployment rate and year-over-year wage growth for private production and non-supervisory workers**  
Seasonally adjusted, percent



Source: BLS, FactSet, J.P. Morgan Asset Management. Past performance is not a reliable indicator of current and future results.  
Guide to the Markets – U.S. Data are as of March 31, 2018.

# Recession On The Horizon?

- While the 1<sup>st</sup> quarter was a bumpy ride for stocks, the majority of economic data continues to suggest that we aren't anywhere near a recession, which have historically accompanied "bear" markets. The Index of Leading Economic Indicators remains in a sustained uptrend.



# US Equity Performance By Sector

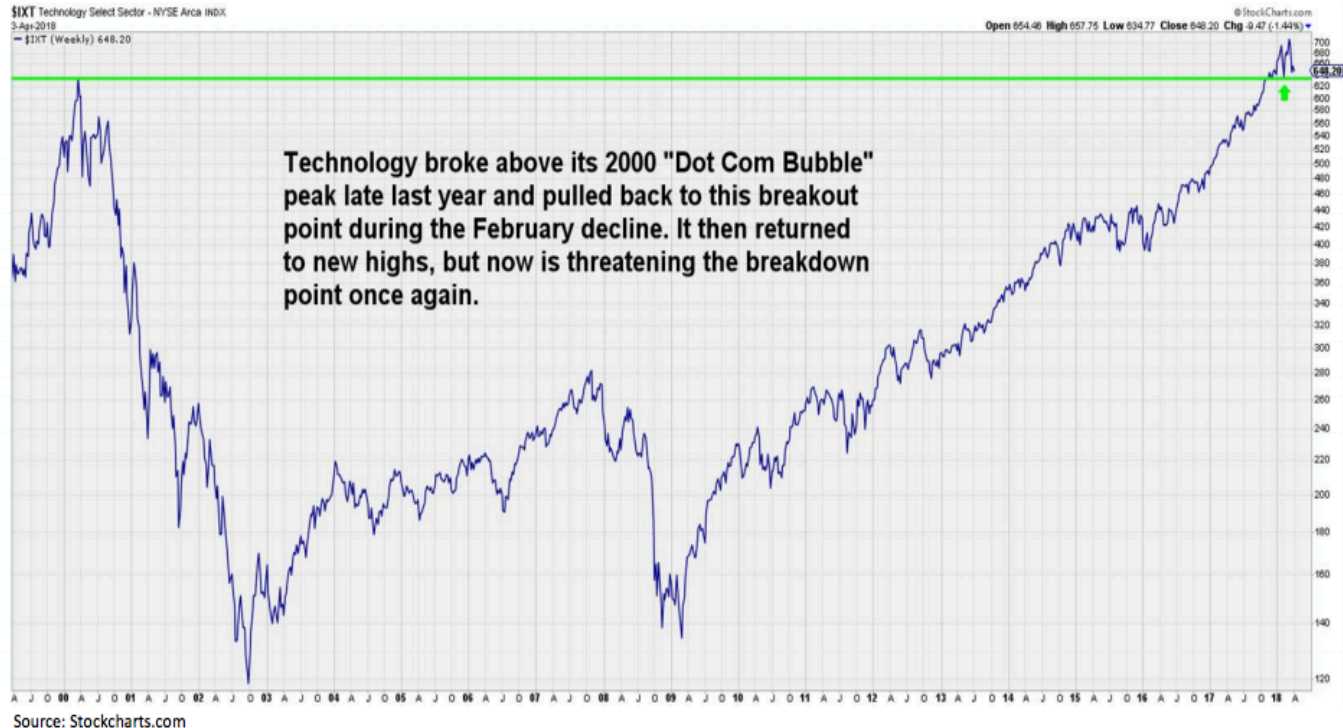
- Technology stocks mounted a furious rally to start the year but started to show cracks in the back half of the quarter as fears of increased regulation over privacy concerns weighed on sentiment. The tech sector has been on a strong multi-year run (up nearly 40% in 2017 alone) and as a result had become a “crowded trade.” That trade started to unwind in early March when Facebook and others found themselves in the crosshairs of Congress because of privacy breaches.
- Even with Tech’s late-quarter stumble, it was one of just two (Consumer Discretionary being the other) S&P sectors to post positive performance in Q1.

	Financials	Materials	Real Estate	Industrials	Cons. Discr.	Technology	Energy	Health Care	Cons. Staples	Telecom	Utilities	S&P 500 Index
<b>S&amp;P weight</b>	14.7%	2.9%	2.8%	10.2%	12.7%	24.9%	5.7%	13.7%	7.7%	1.9%	2.9%	100.0%
<b>Russell Growth weight</b>	3.5%	3.5%	2.4%	12.7%	18.6%	38.7%	0.8%	12.5%	6.4%	0.9%	0.0%	100.0%
<b>Russell Value weight</b>	27.1%	2.9%	4.6%	8.2%	6.8%	9.3%	10.7%	13.6%	8.1%	2.9%	5.9%	100.0%
<b>QTD</b>	-1.0	-5.5	-5.0	-1.6	3.1	3.5	-5.9	-1.2	-7.1	-7.5	-3.3	-0.8
<b>YTD</b>	-1.0	-5.5	-5.0	-1.6	3.1	3.5	-5.9	-1.2	-7.1	-7.5	-3.3	-0.8



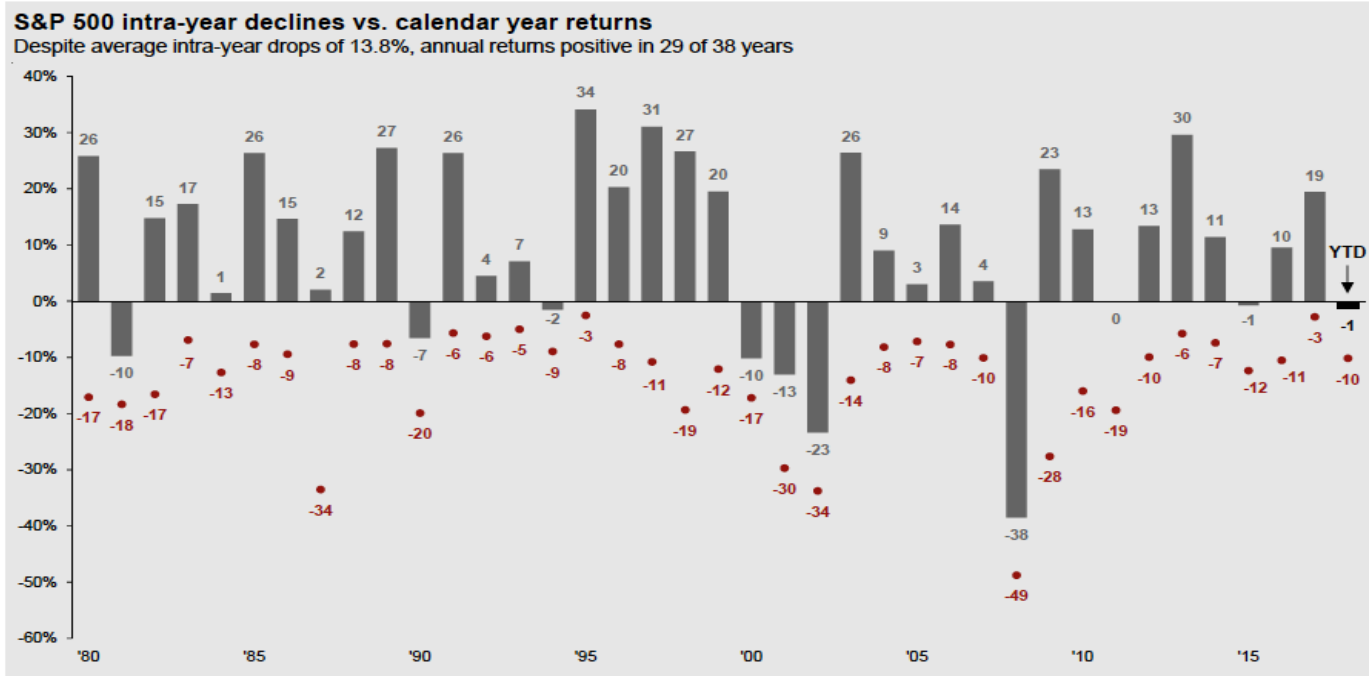
# Keep An Eye On Tech

- Speaking of Tech, we'll be closely watching the sector in Q2 2018. Tech stocks have been a reliable stalwart for much of this near decade-long bull market but only recently broke above their 2000 "dot com bubble" peak (green line). The sector is currently struggling to hold that level and whichever way it breaks will factor into overall investor confidence.



# Pullbacks Do In Fact Still Exist

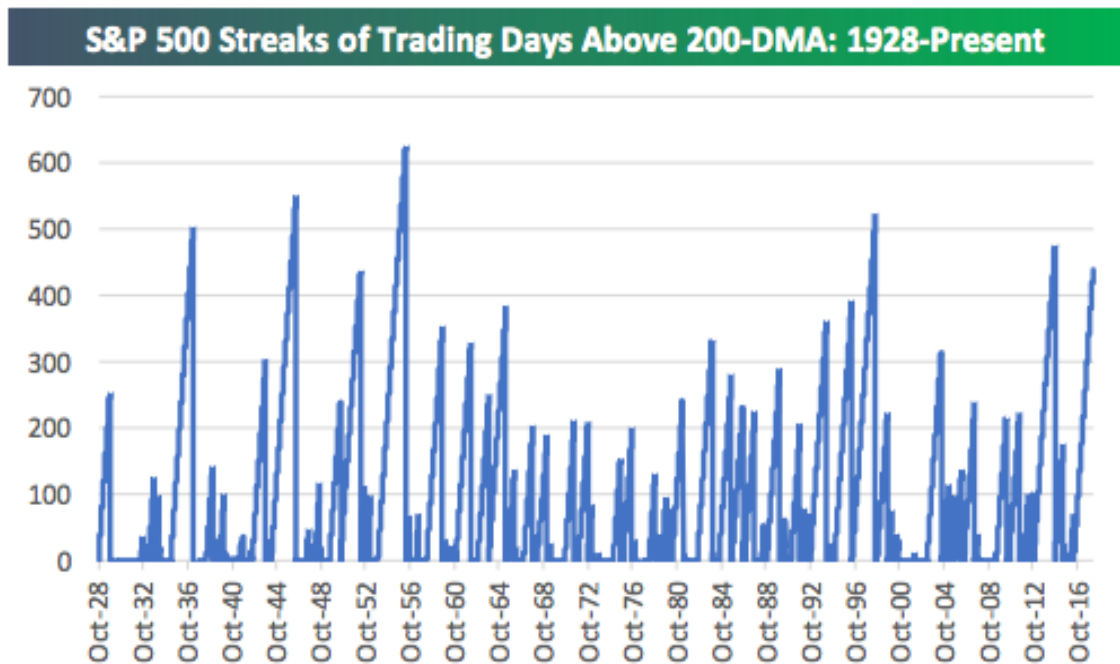
- Only once (1995) in the last 37 years had the market offered the calm conditions we saw in 2017. Quite the outlier.
- Q1 2018 featured a 10% pullback for the S&P 500 which is a little more in line historical norms (the average year features a max pullback of more than 13%).



Source: FactSet, Standard & Poor's, J.P. Morgan Asset Management.

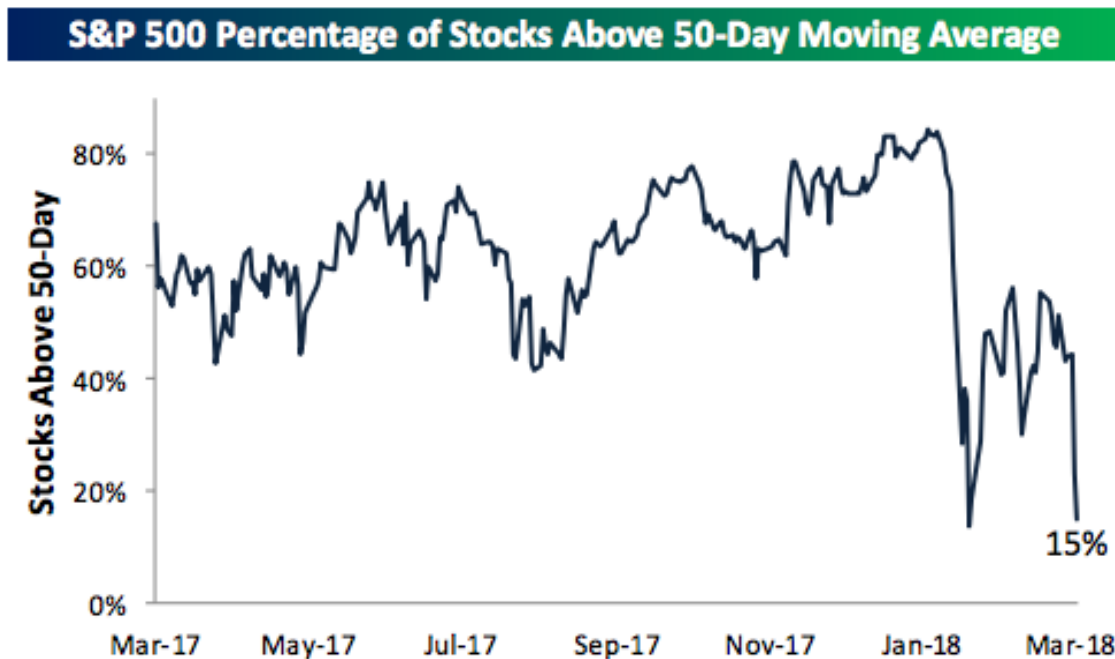
# A Look At The Technicals

- At the end of Q1, the S&P had gone more than 440 days straight without closing below its 200-day moving average (an important measure of technical “support”). There had been just six other 400+ day streaks since 1928.



## A Look At The Technicals (cont.)

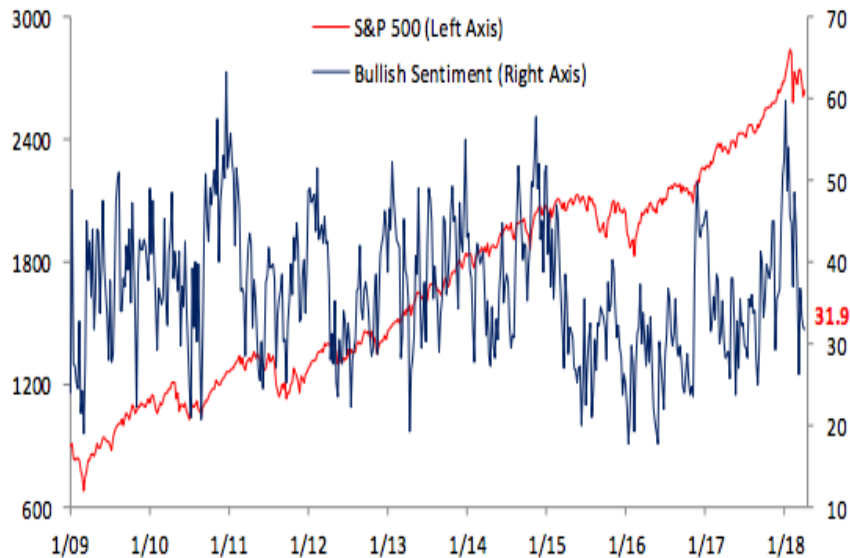
- At the end of the quarter, just 15% of stocks in the S&P 500 were trading above their 50-day moving average (like the 200-day, an oft cited measure of technical “support”). The market rarely gets this “oversold” on this specific metric and implies that a buying opportunity may be at hand. Further, not a single S&P industry group index was trading above its 50-day moving average, also very rare.



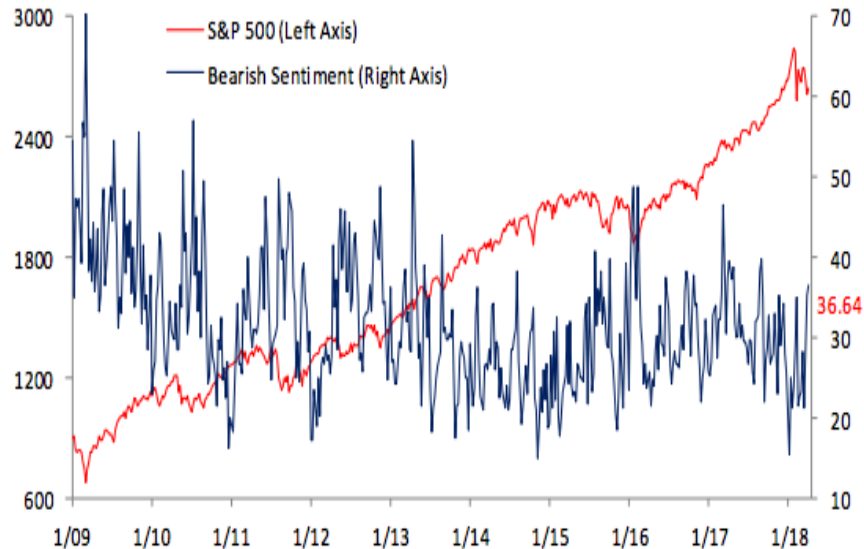
# Investors Got Bullish, It Didn't Last Long

- Investor “bullish” sentiment spiked up to near 60 early in the quarter. We’ve only seen this measure reach such heights a few times since the 2009 market bottom. The mid-quarter flush quickly reset investor optimism and brought things back to the more guarded stance that has been common throughout the last several years.

**AAll Bullish Sentiment: 2009 - 2018**

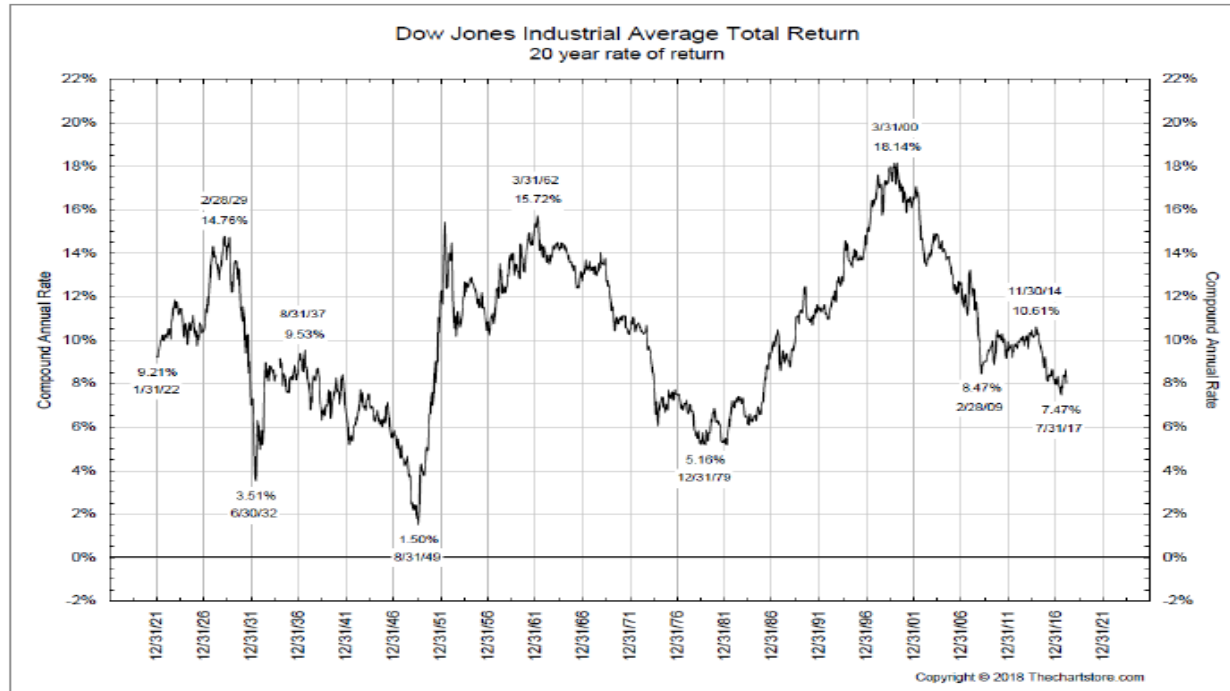


**AAll Bearish Sentiment: 2009 - 2018**



# Rolling 20-Year Returns

- When using rolling 20-year returns as our measure, we see that the last 20-years have not returned anywhere near what we'd expect at the end of a long-term secular bull market. For comparison, the chart below shows that the period covering the last major bull market (1982-2000) returned 18.14% annualized for 20 years. In the 2<sup>nd</sup> half of last year, the prior 20 years had returned just 7.5% on an annual basis. If you're a believer that we're in a long-term secular bull, this annualized return number will be much higher by the time it ends.



Source: Thechartstore.com.

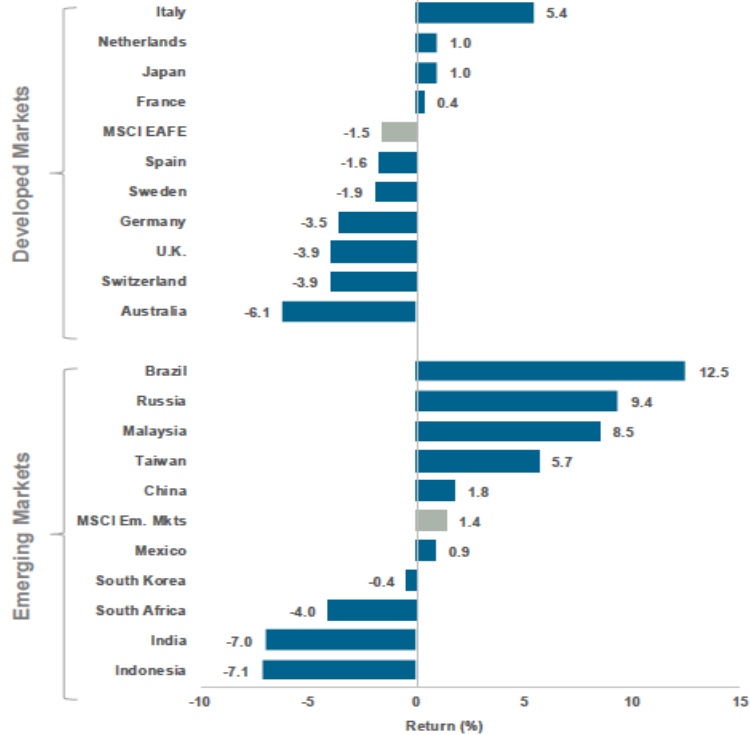
# International Equities

As of 03/31/2018

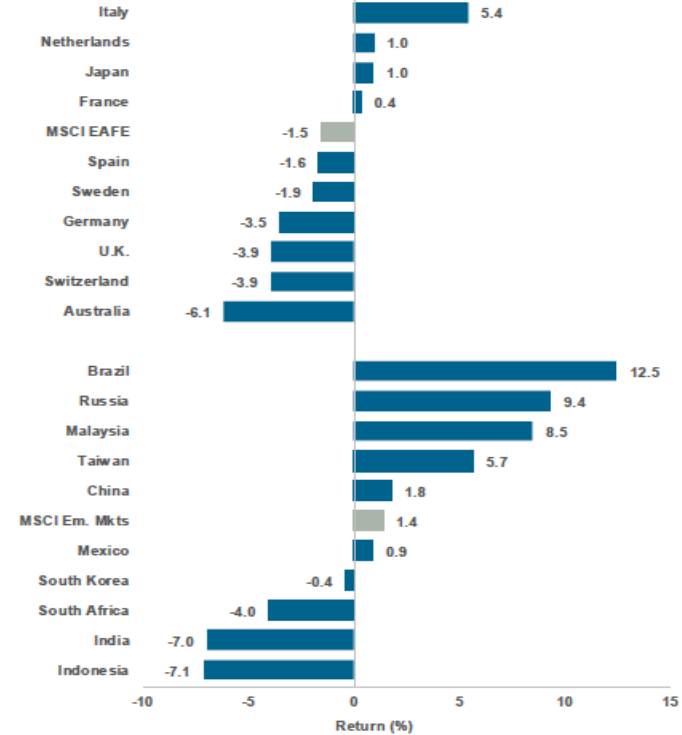
Asset Class/Region	Trailing Returns (%)						Annual Returns (%)			Benchmark
	Last Qtr	YTD	1-Year	3-Year	5-Year	10-Year	2017	2016	2015	
Broad Developed Markets										
Developed Markets (USD)	(1.5)	(1.5)	14.8	5.6	6.5	2.7	25.0	1.0	(0.8)	MSCI EAFE (Net) USD
Developed Markets (Local Currency)	(4.3)	(4.3)	5.3	3.4	8.5	4.5	15.2	5.3	5.3	MSCI EAFE (Net) Local
Currency Effect (USD - Local Returns)	2.7	2.7	9.5	2.2	(2.0)	(1.8)	9.8	(4.3)	(6.1)	
Broad Emerging Markets										
Emerging Markets	1.4	1.4	24.9	8.8	5.0	3.0	37.3	11.2	(14.9)	MSCI Emerging Markets (Net)
BRIC	2.2	2.2	30.1	11.0	6.6	2.1	42.0	12.4	(13.3)	MSCI BRIC
Returns by Style										
Value	(2.0)	(2.0)	12.2	4.3	5.8	2.0	21.4	5.0	(5.7)	MSCI EAFE Value
Growth	(1.0)	(1.0)	17.5	6.7	7.1	3.4	28.9	(3.0)	4.1	MSCI EAFE Growth
Large Cap	(1.6)	(1.6)	13.9	4.9	5.9	2.4	24.0	1.1	(2.1)	MSCI EAFE Large Cap
Mid Cap	(1.4)	(1.4)	18.1	8.2	9.0	4.1	29.0	0.7	4.4	MSCI EAFE Mid Cap
Small Cap	0.2	0.2	23.5	12.3	11.1	6.5	33.0	2.2	9.6	MSCI EAFE Small Cap
Returns by Region										
Europe	(1.9)	(1.9)	15.1	5.4	7.0	2.7	26.2	0.2	(2.3)	MSCI Europe
Japan	1.0	1.0	20.0	8.7	9.3	4.3	24.4	2.7	9.9	MSCI Japan
Pacific (ex Japan)	(3.7)	(3.7)	8.6	5.2	3.4	4.8	26.0	8.0	(8.4)	MSCI Pacific ex Japan

# International Equities

Selected Country Performance (Latest Quarter)



Selected Country Performance (Year to Date)

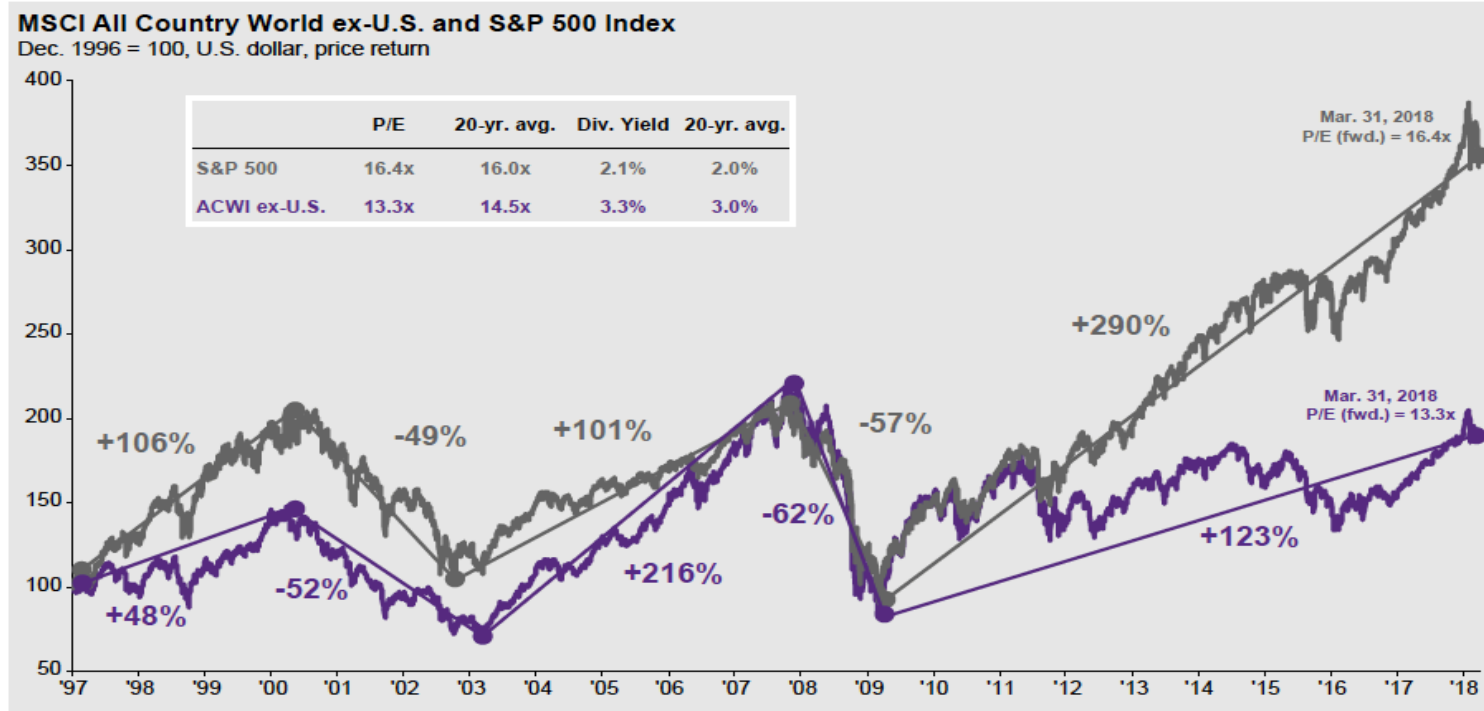


Source: Morningstar Direct; MSCI Indios; Baird Analysis. All returns are reported in USD. MSCI EAFE (Developed markets) and MSCI EM (Emerging markets) are broad benchmarks representing many countries. Includes the 10 largest countries by weighting in the benchmark. See important disclosures and definitions included with this publication.



# Some Catching Up To Do

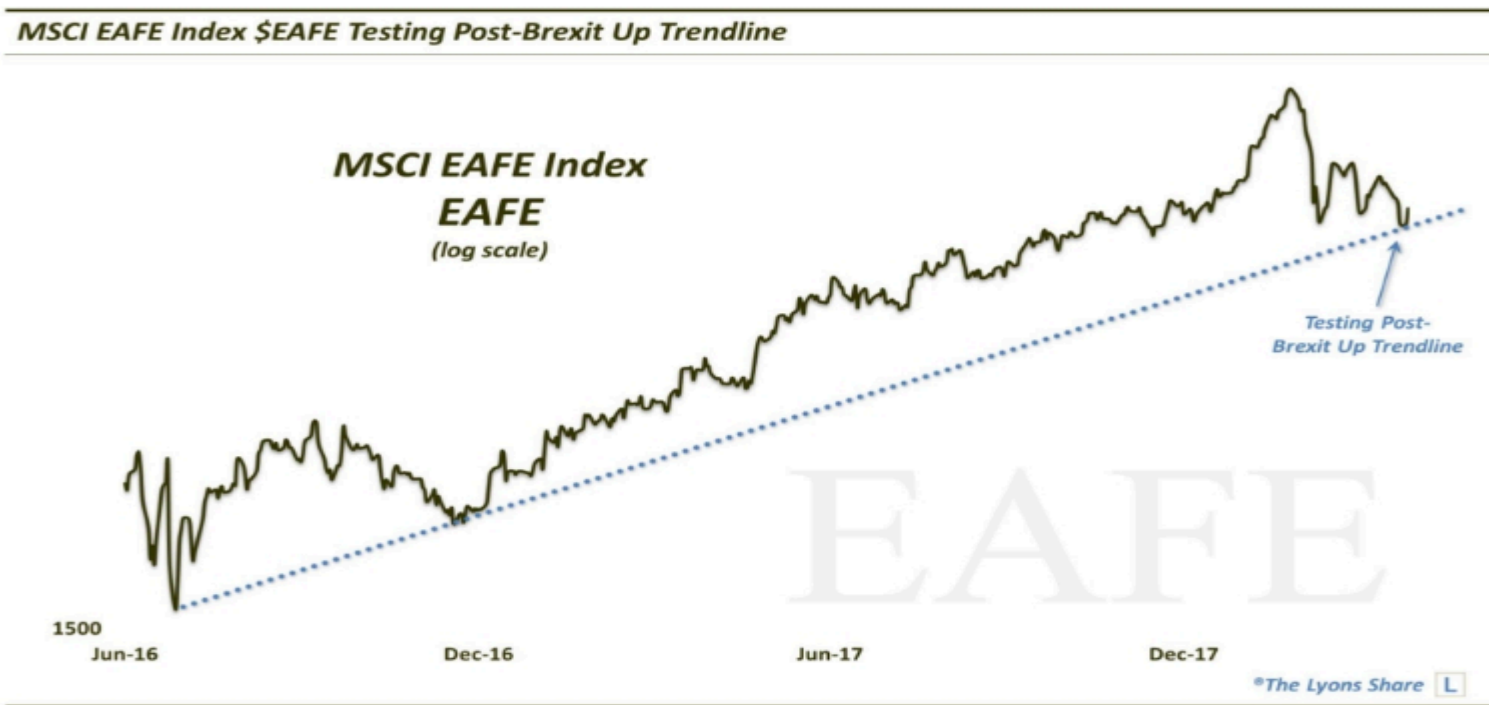
- International Stocks have dramatically underperformed the S&P since the March 2009 bottom and remain much cheaper on a valuation basis. As economic recoveries take hold in regions around the world, there will be opportunities for outperformance in foreign equities.



Source: FactSet, MSCI, Standard & Poor's, J.P. Morgan Asset Management.

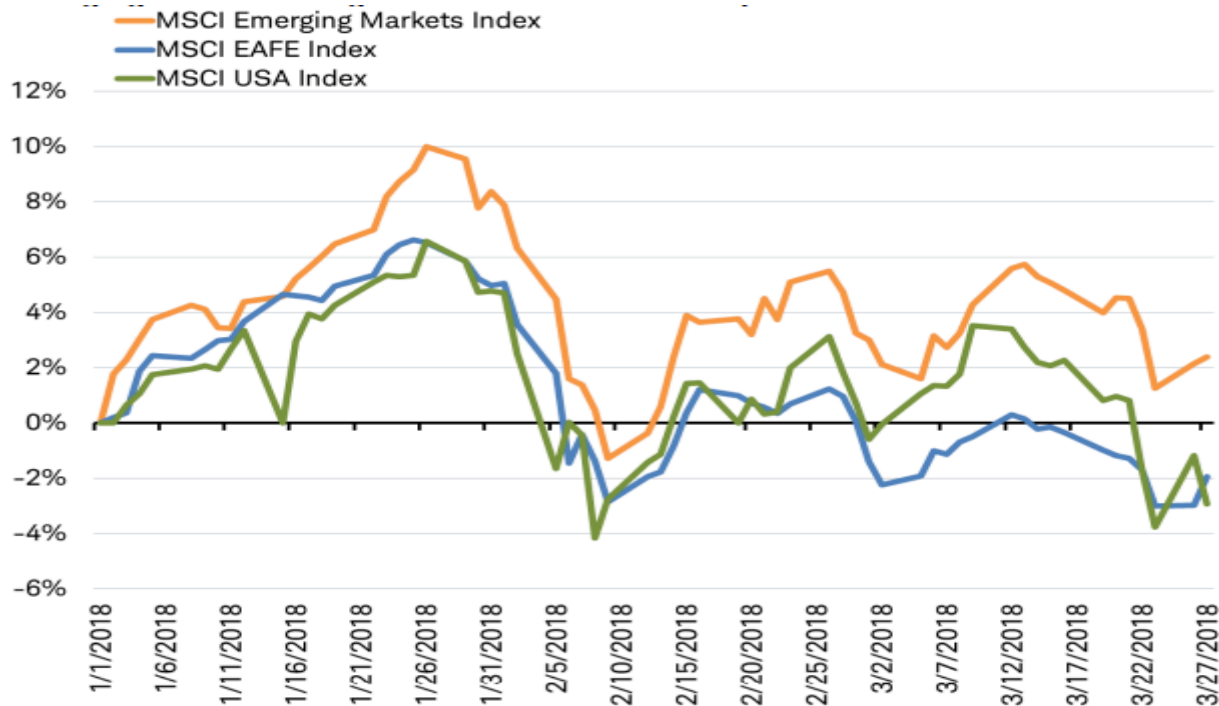
# Bend Don't Break

- While international stocks appear to be an attractive longer-term opportunity relative to US stocks, in the near-term we would like to see the MSCI EAFE index maintain its post-Brexit trendline and stay on a constructive trajectory.



# Emerging Markets Outperform In Q1

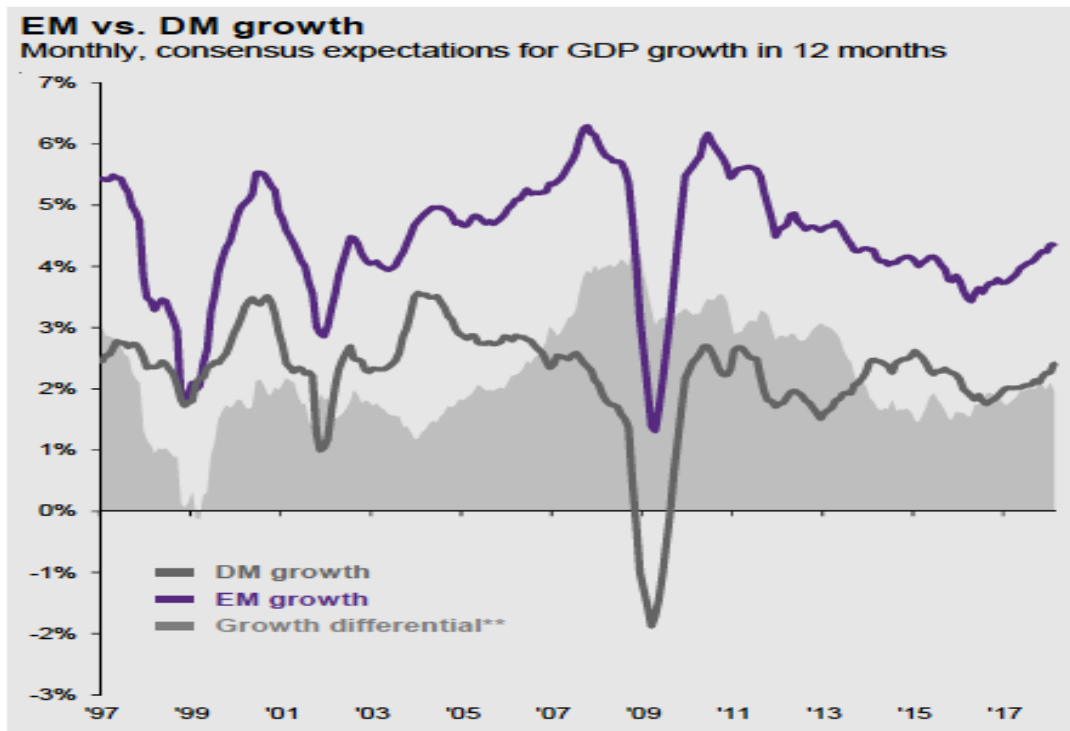
- Emerging market stocks were up nearly 10% in January before the big pullback. They were able to recover enough by quarter-end to finish up more than 2% while US stocks and Developed International markets ended the quarter in the red.



Source: Charles Schwab, Bloomberg data as of 3/28/2018. Past performance is no indication of future results.

# Emerging Market Vs Developed Market Growth

- After a persistent downtrend for several years after the financial crisis, Emerging Market GDP growth expectations appear to have rounded out a bottom and look to grow at a quicker pace than Developed Markets.



Source: Consensus Economics, FactSet, MSCI, J.P. Morgan Asset Management.

# Fixed Income Update

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- Fixed income yields experienced significant movement upwards in Q1 2018. During the first part of Q1 2018, positive employment, inflation and wage data steepened the yield curve and provided underlying signs of improving economic growth prospects. However, this gave way to wild swings in the equity markets, where bonds served as an important safe haven during sharp drawdowns experienced in February and March. All in all, fixed income performance was negative across all types of bonds, with municipal bonds holding up better than corporates.
- The short-end of the yield curve continues to move right in line with Federal Reserve actions. The long end of the curve moved up in Q1 2018 after falling in 2017. However, the initial long end yield bump provided by data in January was mitigated by concerns from US tariffs imposed on China and growth concerns. The yield curve continues to flatten, as the difference between 2-year treasuries and 10 year treasuries decreased, reaching a new low since the 2008 financial crisis of below 0.5%.
- The Federal Reserve raised rates at their March meeting, a move that was widely telegraphed and expected. Currently, the futures market projects two more hikes for the rest of 2018. The Fed is expected to maintain a data driven approach, specifically focusing on wage growth and inflation. These data points saw a slight uptick in January and February, before receding during March.

# 10-Year Treasury: The Bellweather

- The 10-year treasury finished the first quarter at approximately 2.74%, up over 30 basis points from the 2017 close. Strong inflation and wage data in January and February caused an initial spike during the first half of the quarter. During the second half, the 10-year yield stabilized as pockets of stock market volatility due to trade war concerns sparked haven demand for bonds.

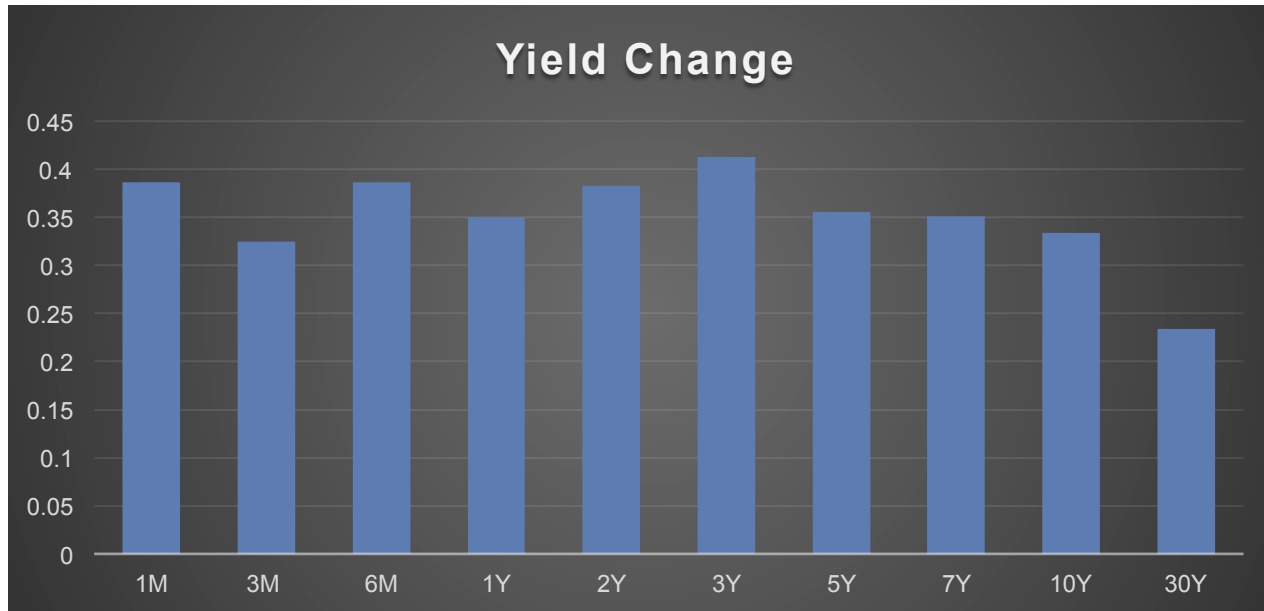
## 10-Year Treasury Q1 2018



# Yield Curve Overview

- The chart below breaks down the yield change at various maturities across the Treasury curve. The short end continues to move in lockstep with Fed activity. While strong inflation data and wage growth did propel the longer end of the curve higher during Q1, due to both growth concerns stemming from US tariffs imposed on China in addition to the equity's market adverse reaction to higher rates, a ceiling seems to be in place for longer term bonds. To put in perspective, the 30 year treasury yield has not budged since the Fed began raising rates in December 2015.

## Q1 2018 Yield Curve Overview



# Treasury Spread Update

- A common tool we use to measure how much the yield curve has flattened is the difference between the 2-year and 10-year treasuries. The spread continues to make new lows since the financial crisis, reaching a difference of less than 0.5% in Q1 2018. Inverted yield curves (where the 2-year yields are greater than 10-year yields) have historically been a good leading indicator of a recessionary environment.

**Treasury 10/2 Spread**





# Muni Market Pulse

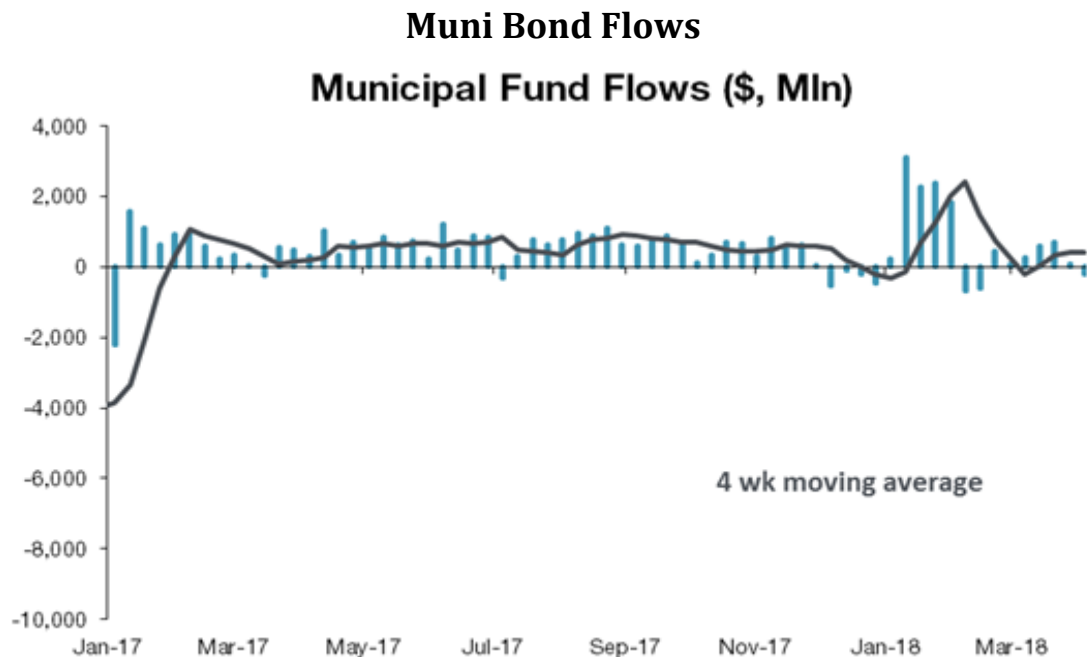
- 10-year municipal yields followed the lead of Treasuries, rising sharply in Q1 2018 and putting a dent in municipal performance after a strong 2017. Performance of municipals during the first quarter marked the worst Q1 since 1996, and only the 5th negative first quarter in that 23 year span. Supply and demand dynamics remain favorable for municipals, a market which, more so than any other sector of the fixed income market takes its lead from these two market forces. If treasury yields remain range bound, we expect municipals to outperform.

## 10-Year Municipal Q1 2018



# Fund Flows

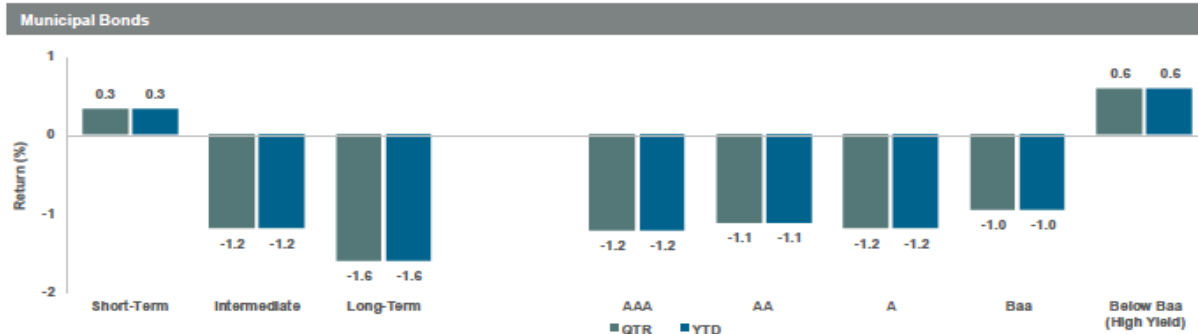
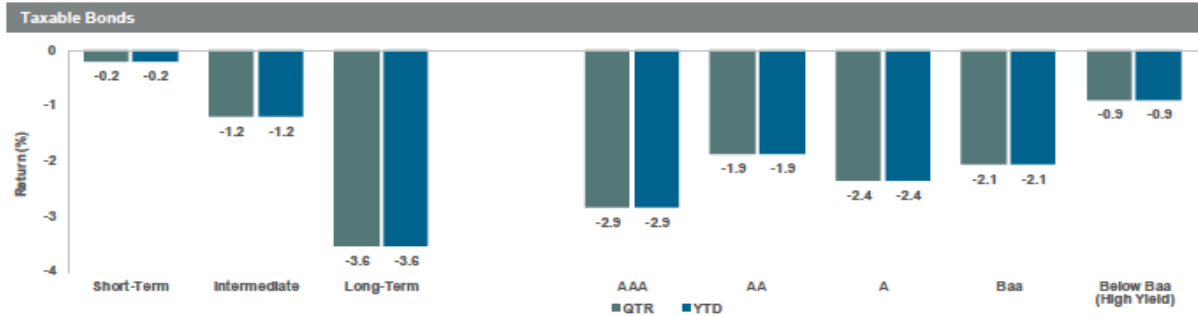
- This chart shows strong demand for municipals in 2017 carried over into Q1 2018. Year to date, 11 of the 13 weeks saw inflows, with a net inflow of over \$10.5 billion.



# Performance Check

- During Q1 2018, municipals as a whole outperformed other types of bonds including treasuries and corporates. This outperformance was specifically noticed in high-yield credits, as well as short-term and long-term instruments, while intermediate performance was comparable.

Security	Currency	Price Change	Total Return
MUB US Equity	USD	-1.63%	-1.26%
IEF US Equity	USD	-2.25%	-1.94%
AGG US Equity	USD	-1.90%	-1.47%
LQD US Equity	USD	-3.43%	-2.90%



# How Many Rate Hikes In 2018?

- Predictably, the Federal Reserve raised the target Fed Funds rate at their March meeting to 1.5-1.75%. The chart below, which shows implied probabilities for future hikes, indicates that the market expects two more hikes for the rest of 2018. Past Fed chairs often raised rates at meetings that held press conferences, so they could answer questions about their policy decision and assessments. June, September and December are all meetings that will hold press conferences so we expect that two of those meetings will include a rate hike.

## Federal Reserve Action

Meeting	Hike Prob	Cut Prob	1.5-1.75	1.75-2	2-2.25	2.25-2.5	2.5-2.75	2.75-3	3-3.25	Fwd Rate
05/02/2018	25.7%	0.0%	74.3%	25.7%	0.0%	0.0%	0.0%	0.0%	0.0%	1.69
06/13/2018	83.9%	0.0%	16.1%	63.8%	20.1%	0.0%	0.0%	0.0%	0.0%	1.89
08/01/2018	84.9%	0.0%	15.1%	60.8%	22.8%	1.2%	0.0%	0.0%	0.0%	1.90
09/26/2018	93.0%	0.0%	7.0%	36.2%	43.3%	12.8%	0.7%	0.0%	0.0%	2.04
11/08/2018	93.6%	0.0%	6.4%	33.8%	42.7%	15.3%	1.7%	0.1%	0.0%	2.06
12/19/2018	95.8%	0.0%	4.2%	24.6%	39.7%	24.6%	6.3%	0.6%	0.0%	2.14

# Treasury Yield Breakout?

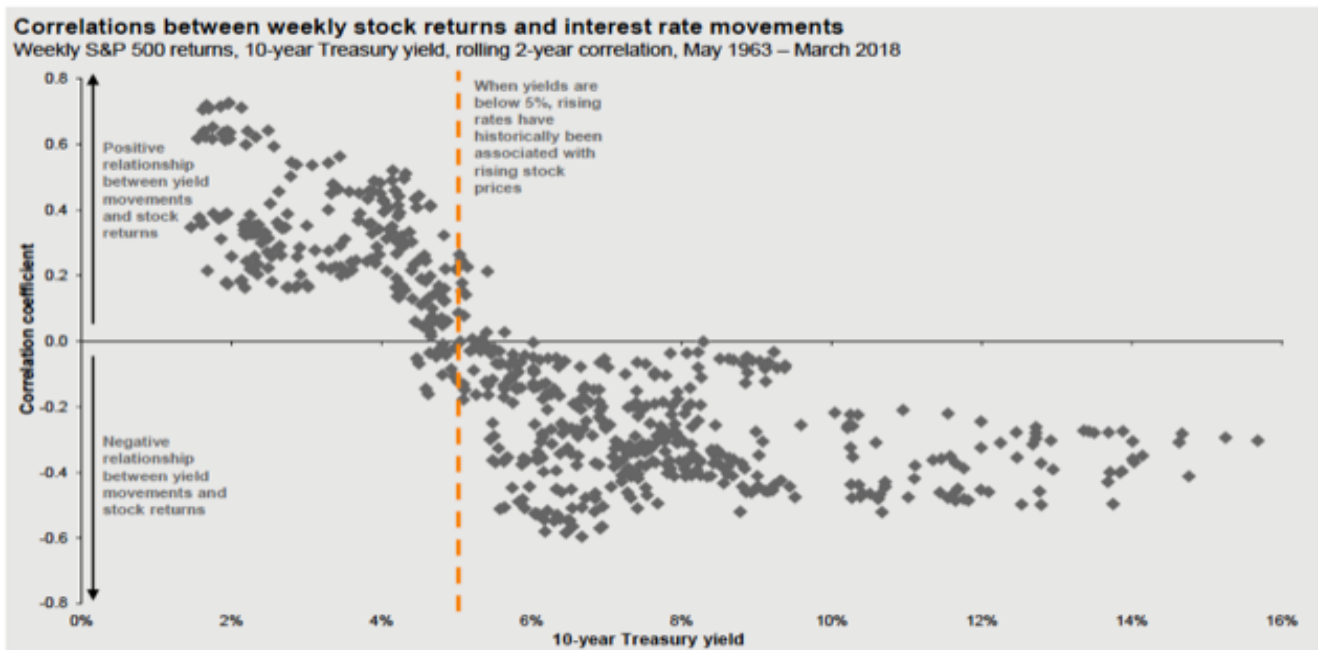
- US Treasury bonds have been in a bull market since the late 1980s, as indicated by the chart. The 10-year treasury yield continues to hover around a key trend line level (white line). However, each time the yield flirted with 3% during Q1 2018, stock market concerns about higher rates led to volatility and the flight to quality pushed the yield back down temporarily. 3% is an important psychological level for the 10-year treasury (green line), and a sustained rise above 3% could lead us to the next technical level around 4% over the coming months and years (red line).

## Historical Treasury Yields



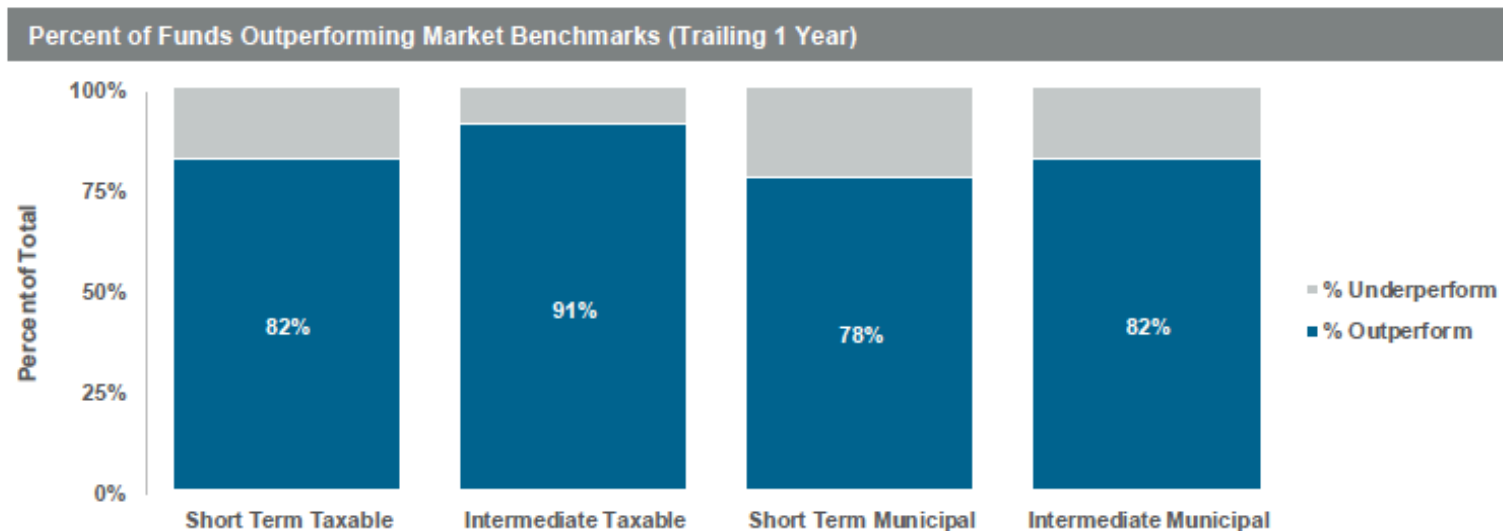
# Stock Vs Bond Correlation

- This chart shows historical correlations between stock returns and interest rate movements. When the 10-year treasury is below 5%, there tends to be a higher correlation between yields and stock returns. This means there tends to be an inverse correlation between stock prices and bond prices (bond prices move inversely with yields). This pattern has reemerged thus far in 2018 after an unusual 2017, where both equities and fixed income investments performed well, often moving positively in lockstep. More specifically, that correlation has emerged during the volatility of February and March, with wild swings in equity markets both up and down. In fact, during those two months, there were 21 days where the S&P 500 moved up or down more than 1%. On 15 of those 21 days, treasury yields moved the same direction. In sum, bonds consistently acted as an effective dampener of portfolio volatility in both directions during Q1 2018.



# Active Management Outperforms

- We often tout the benefits of active fixed income management. The chart below shows how active managers performed versus their benchmarks over the last year across the four main fixed income asset classes. In each category, a significant majority of active fund managers outperformed their benchmarks, even topping 90% in the intermediate taxable space. We feel that the last year is a fair and representative sample size, as there were significant yield movements both up and down in 2017, which have continued into 2018.

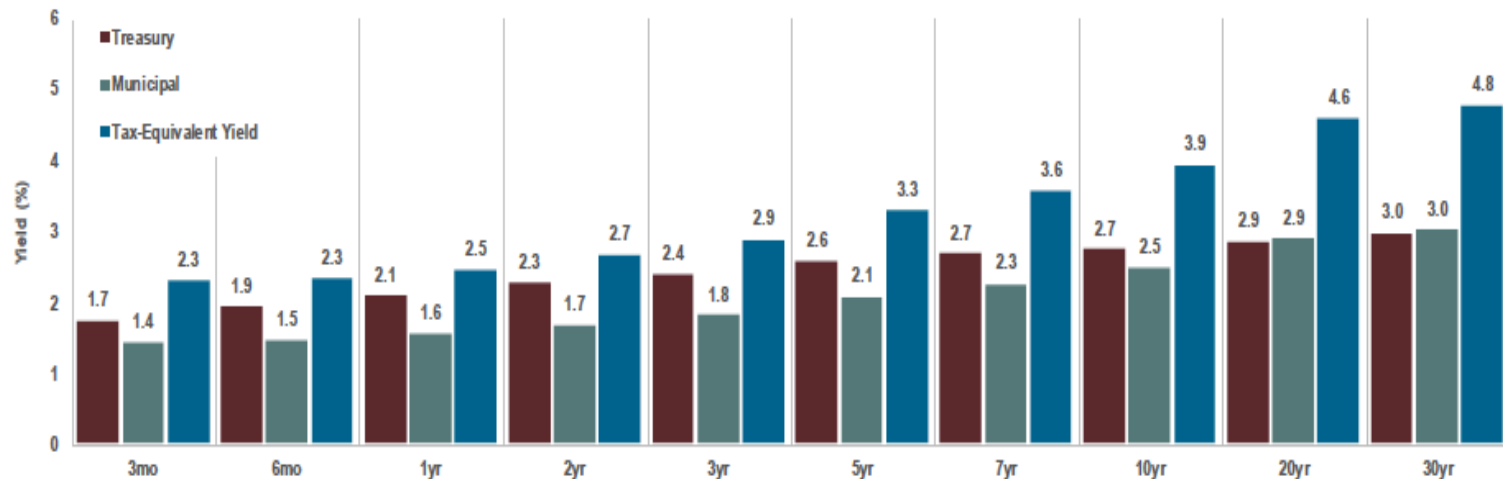


# Tax Equivalent Yields

- Intermediate to long-term municipals continue to look attractive. Specifically, 10-30 year municipals currently outpace treasuries of equivalent maturities by at least 100 basis points on a tax equivalent basis.

## Tax Equivalent Yield Comparison

Yield Comparisons of Treasury and Municipal Bonds



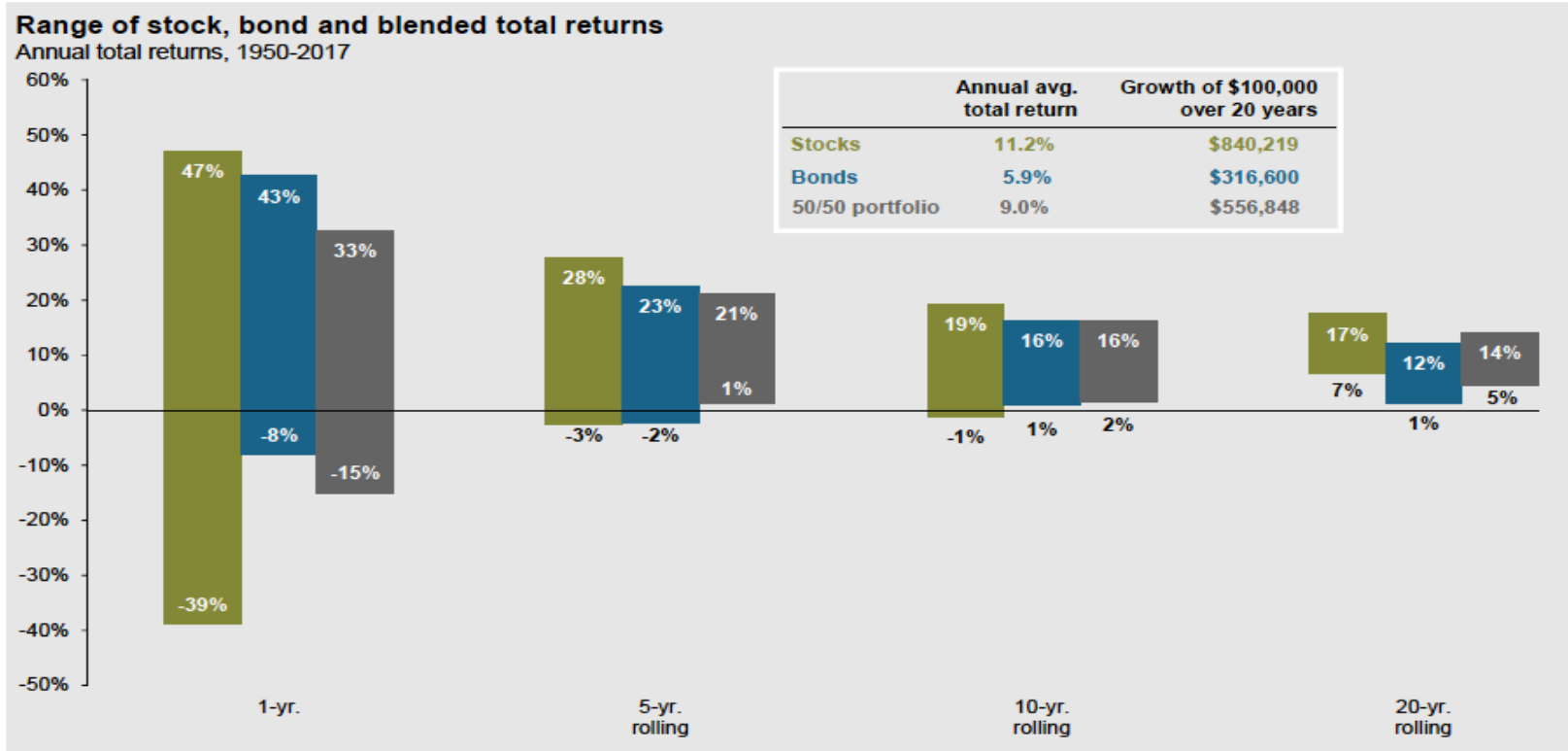


# Benefits of Asset Allocation

2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	YTD	2003 - 2017	
																Ann.	Vol.
EM Equity 56.3%	REITs 31.6%	EM Equity 34.5%	REITs 35.1%	EM Equity 39.8%	Fixed Income 5.2%	EM Equity 79.0%	REITs 27.9%	REITs 8.3%	REITs 19.7%	Small Cap 38.8%	REITs 28.0%	REITs 2.8%	Small Cap 21.3%	EM Equity 37.8%	EM Equity 1.5%	EM Equity 12.7%	EM Equity 23.0%
Small Cap 47.3%	EM Equity 26.0%	Comdty. 21.4%	EM Equity 32.6%	Comdty. 16.2%	Cash 1.8%	High Yield 59.4%	Small Cap 26.9%	Fixed Income 7.8%	High Yield 19.6%	Large Cap 32.4%	Large Cap 13.7%	Large Cap 1.4%	High Yield 14.3%	DM Equity 25.6%	Cash 0.3%	Small Cap 11.2%	REITs 22.3%
DM Equity 39.2%	DM Equity 20.7%	DM Equity 14.0%	DM Equity 26.9%	DM Equity 11.6%	Asset Alloc. 25.4%	DM Equity 32.5%	EM Equity 19.2%	High Yield 3.1%	EM Equity 18.6%	DM Equity 23.3%	Fixed Income 6.0%	Fixed Income 0.5%	Large Cap 12.0%	Large Cap 21.8%	Small Cap -0.1%	REITs 11.1%	Small Cap 18.8%
REITs 37.1%	Small Cap 18.3%	REITs 12.2%	Small Cap 18.4%	Asset Alloc. 7.1%	High Yield -26.9%	REITs 28.0%	Comdty. 16.8%	Large Cap 2.1%	DM Equity 17.9%	Asset Alloc. 14.9%	Asset Alloc. 5.2%	Cash 0.0%	Comdty. 11.8%	Small Cap 14.6%	High Yield -0.4%	Large Cap 9.9%	Comdty. 18.8%
High Yield 32.4%	High Yield 13.2%	Asset Alloc. 8.1%	Large Cap 15.8%	Fixed Income 7.0%	Small Cap -33.8%	Small Cap 27.2%	Large Cap 15.1%	Cash 0.1%	Small Cap 16.3%	High Yield 7.3%	Small Cap 4.9%	DM Equity -0.4%	EM Equity 11.6%	Asset Alloc. 14.6%	Comdty. -0.4%	High Yield 9.6%	DM Equity 18.4%
Large Cap 28.7%	Asset Alloc. 12.8%	Large Cap 4.9%	Asset Alloc. 15.3%	Large Cap 5.5%	Comdty. -35.6%	Large Cap 26.5%	High Yield 14.8%	Asset Alloc. -0.7%	Large Cap 16.0%	REITs 2.9%	Cash 0.0%	Asset Alloc. -2.0%	REITs 8.6%	High Yield 10.4%	Large Cap -0.8%	DM Equity 8.6%	Large Cap 14.5%
Asset Alloc. 26.3%	Large Cap 10.9%	Small Cap 4.6%	High Yield 13.7%	Cash 4.8%	Large Cap -37.0%	Asset Alloc. 25.0%	Asset Alloc. 13.3%	Small Cap -4.2%	Asset Alloc. 12.2%	Cash 0.0%	High Yield 0.0%	High Yield -2.7%	Asset Alloc. 8.3%	REITs 8.7%	Asset Alloc. -1.1%	Asset Alloc. 8.3%	High Yield 11.3%
Comdty. 23.9%	Comdty. 9.1%	High Yield 3.6%	Cash 4.8%	High Yield 3.2%	REITs -37.7%	Comdty. 18.9%	DM Equity 8.2%	DM Equity -11.7%	Fixed Income 4.2%	Fixed Income -2.0%	EM Equity -1.8%	Small Cap -4.4%	Fixed Income 2.6%	Fixed Income 3.5%	DM Equity -1.4%	Fixed Income 4.1%	Asset Alloc. 11.0%
Fixed Income 4.1%	Fixed Income 4.3%	Cash 3.0%	Fixed Income 4.3%	Small Cap -1.6%	DM Equity -43.1%	Fixed Income 5.9%	Fixed Income 6.5%	Comdty. -13.3%	Cash 0.1%	EM Equity -2.3%	DM Equity -4.5%	EM Equity -14.6%	DM Equity 1.5%	Comdty. 1.7%	Fixed Income -1.5%	Cash 1.2%	Fixed Income 3.3%
Cash 1.0%	Cash 1.2%	Fixed Income 2.4%	Comdty. 2.1%	REITs -15.7%	EM Equity -53.2%	Cash 0.1%	Cash 0.1%	EM Equity -18.2%	Comdty. -1.1%	Comdty. -9.5%	Comdty. -17.0%	Comdty. -24.7%	Cash 0.3%	Cash 0.8%	REITs -6.7%	Comdty. -0.3%	Cash 0.8%

Source: Barclays, Bloomberg, FactSet, MSCI, NAREIT, Russell, Standard & Poor's, J.P. Morgan Asset Management.

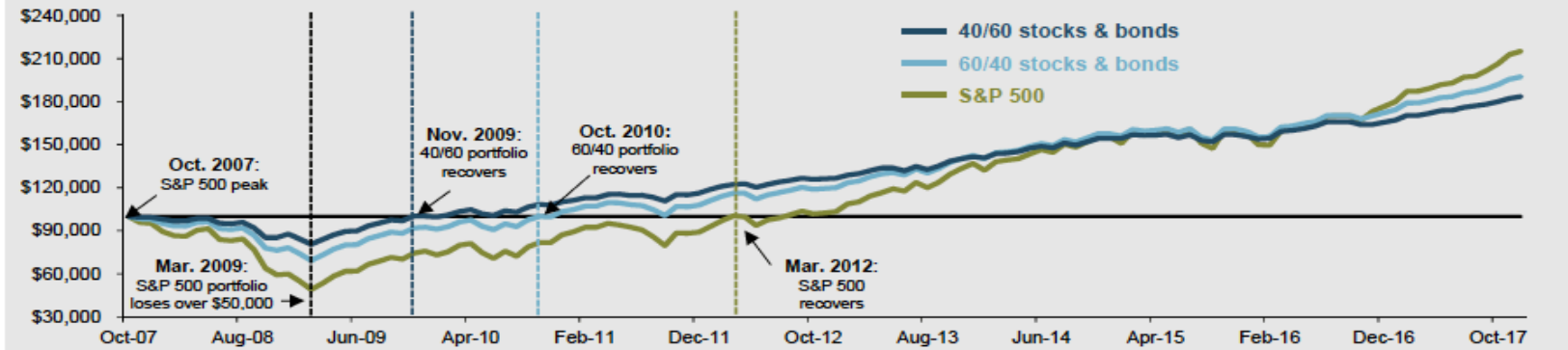
# Benefits of Asset Allocation



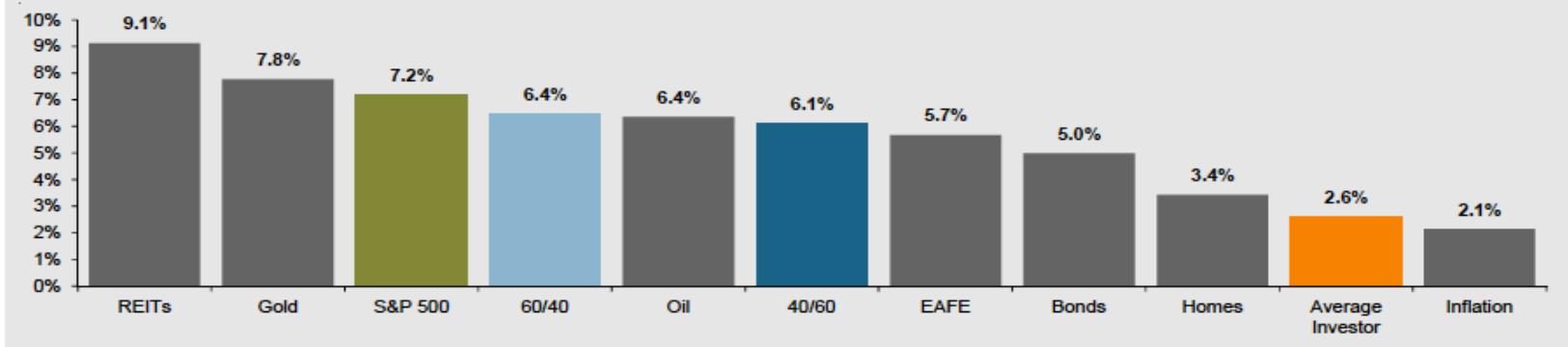
Source: Barclays, Bloomberg, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management.

# Benefits of Asset Allocation

Portfolio returns: Equities vs. equity and fixed income blend



20-year annualized returns by asset class (1998 – 2017)



Source: J.P. Morgan Asset Management; (Top) Barclays, Bloomberg, FactSet, Standard & Poor's; (Bottom) Dalbar Inc.

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