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# SPDR<sup>®</sup> ETFs

# Chart Pack

**Key Charts to Help Navigate the Market**  
**October 2019 Edition**

Please see Appendix D for more information on investment terms used in this Chart Pack.

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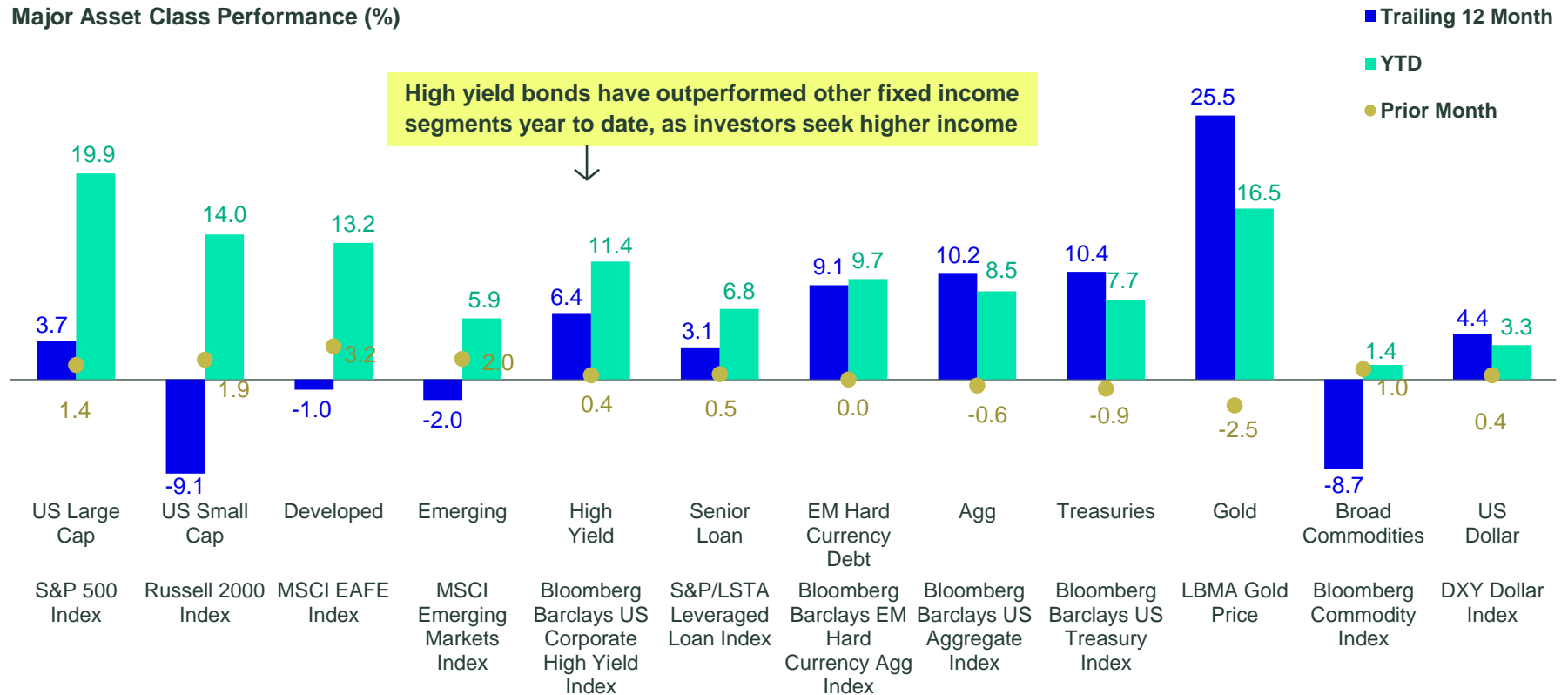
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# 1. Market Environment

# Asset Class Performance

International equities outperformed the US, while gold fell back below US\$1,500 after reaching its six-year high in early September

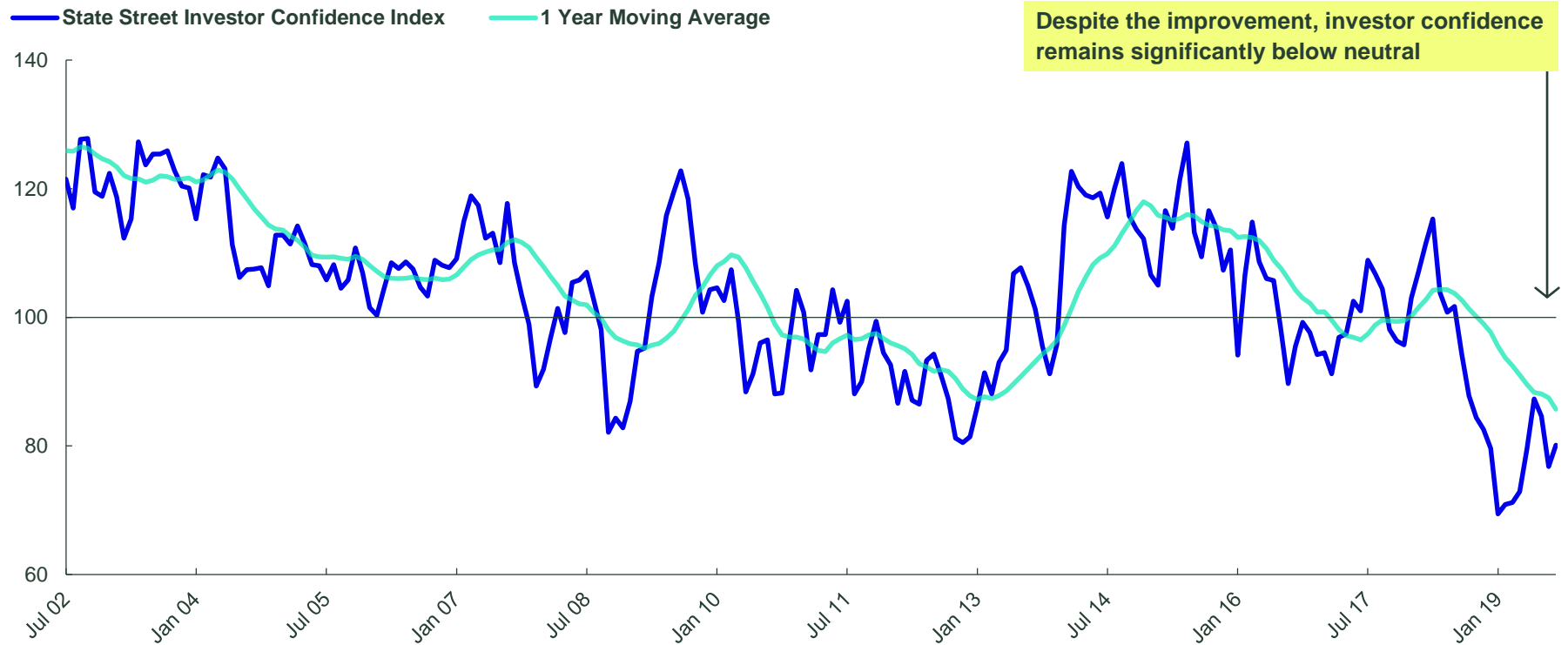
Major Asset Class Performance (%)



Source: Bloomberg Finance, L.P. As of September 30, 2019. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income. Performance returns for periods of less than one year are not annualized.

# Investor Confidence

Global investor confidence rebounded modestly as major central banks stepped up their efforts to provide accommodations and hopes of a trade truce rose again



Source: Bloomberg Finance, L.P. As of September 30, 2019. State Street Confidence Indexes Measures investor confidence or risk appetite quantitatively by analyzing the actual buying and selling patterns of institutional investors. The index assigns a precise meaning to changes in investor risk appetite: the greater the percentage allocation to equities, the higher risk appetite or confidence. A reading of 100 is neutral; it is the level at which investors are neither increasing nor decreasing their long-term allocations to risky assets. The results shown represent current results generated by State Street Investor Confidence Index. The results shown were achieved by means of a mathematical formula in addition to transactional market data, and are not indicative of actual future results which could differ substantially.

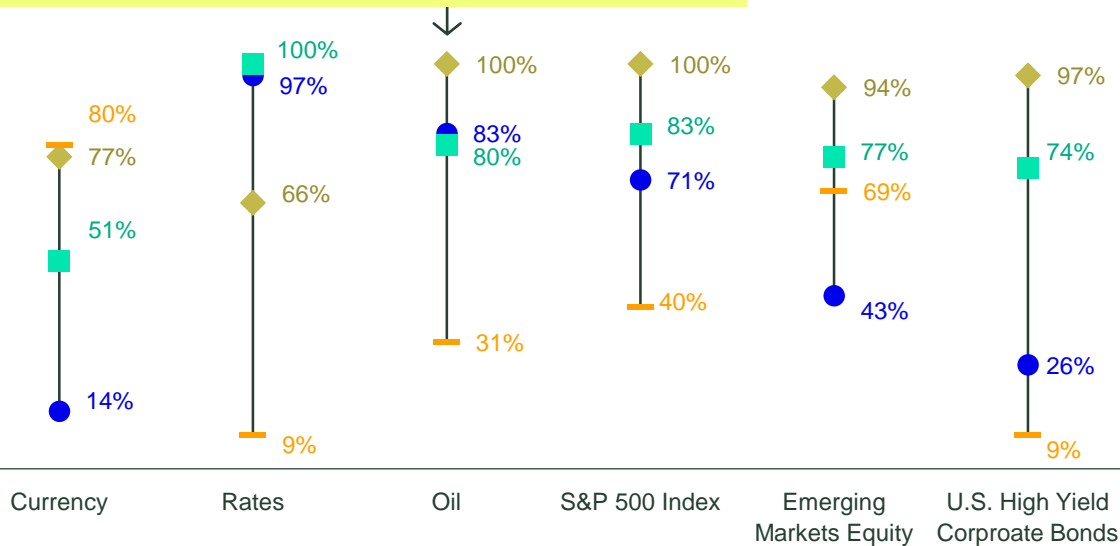
# Cross-Asset Volatility

While implied volatility of risky assets has decreased, the rates market remains volatile with investors re-adjusting expectations for Fed actions through the rest of 2019

## Cross-Asset Implied Volatility

Percentile Rank of Daily Average, 3-Year

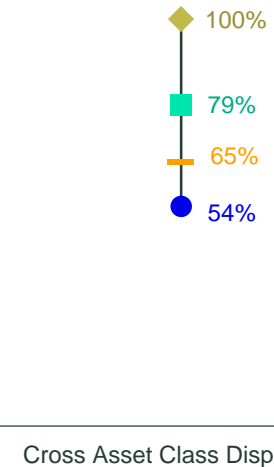
The spike of oil implied volatility due to the attack on oil facilities in Saudi Arabia receded quickly in September



## Cross-Asset Dispersion

Percentile Rank, 3-Year

- Sep-19
- Aug-19
- ◆ Dec-18
- 1Yr Ago

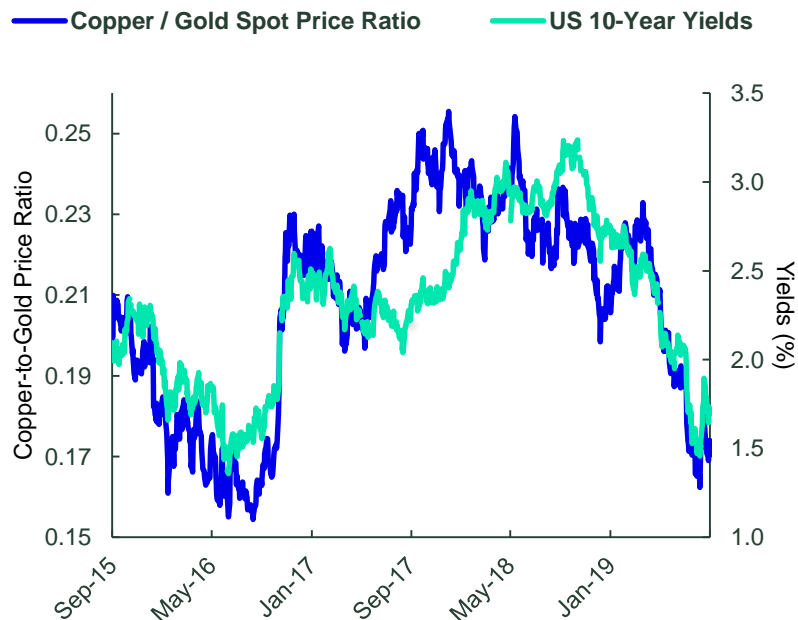


Source: Bloomberg Finance, L.P. As of September 30, 2019. **Past performance is not a guarantee of future results.** Currency implied volatility is measured by the J.P. Morgan Global FX Volatility Index. Rates implied volatility is measured by the MOVE Index. Oil implied volatility is derived from oil future contracts. Emerging markets implied volatility is measured by the CBOE Emerging Markets ETF Volatility Index. High Yield bond implied volatility is measured by the CBOE High Yield Corporate Bond ETF Volatility Index. Cross asset dispersion is measured by standard deviation of monthly returns of S&P 500, Russell 2000, Russell 3000 Growth, Russell 3000 Value, MSCI Emerging Markets, MSCI World ex-USA, Bloomberg Barclays US Aggregate, US Corporate High Yield, EM USD Aggregate, EM Local Currency Government, S&P/LSTA US Leveraged Loan 100, Bloomberg Commodity Indices, LBMA Gold Price PM.

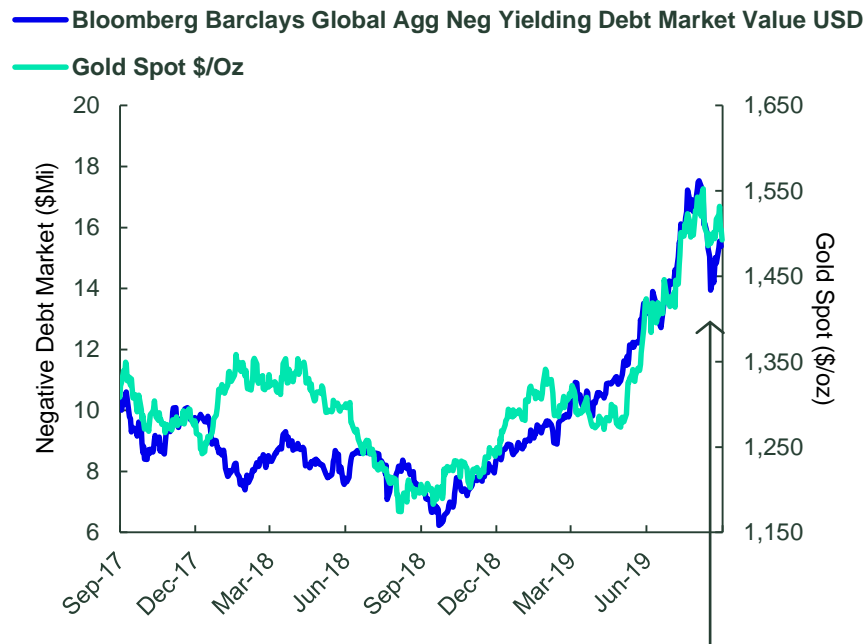
# Gold

A falling copper-to-gold ratio and declining 10-year yields both point to sluggish growth economic prospects

Copper-to-Gold Ratio vs. 10-Yr Yields



Gold Price vs. Negative Yielding Debt



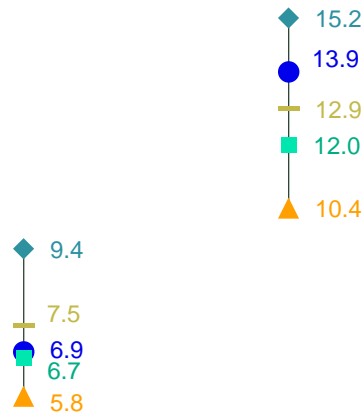
Increasing global negative yielding debt has supported gold prices

Source: Bloomberg Financial L.P. and State Street Global Advisors, date as of September 30, 2019. Past performance is not a guarantee of future results. Performance above does not reflect charges and expenses associated with the fund or brokerage commissions associated with buying and selling exchange traded funds. Performance above is not meant to represent the performance of any investment product.

# Active Environment Barometer

More small-cap managers have outperformed their benchmarks than large-cap, as wide dispersions among small cap stocks created more alpha opportunities

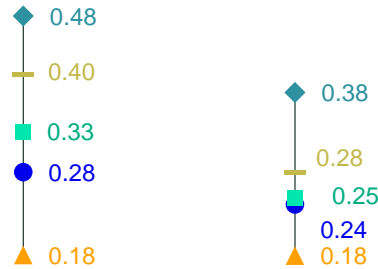
## Cross-Sectional Dispersion (%)



S&P 500 Index Dispersion

Russell 2000 Index Dispersion

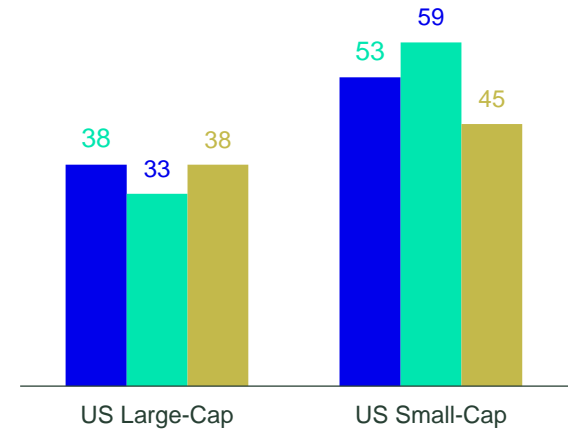
## Average Stock Correlation



S&P 500 Index Correlation

Russell 2000 Index Correlation

## Active Funds Outperforming Their Respective Benchmark (%)\*



■ Q3 2019 ■ YTD 2019 ■ 2018

Small-cap managers' performance has significantly improved this year

Source: FactSet, Morningstar, as of 09/30/2019. \* The universe is based on Morningstar Category, including Blend, Value and Growth styles. The Cross-Sectional Dispersion is calculated as the standard deviation of daily returns of index constituents for one month. Average stock correlation is calculated as the average correlation of each pair of constituents in the index over one month. Characteristics are as of the date indicated and should not be relied upon as current thereafter.

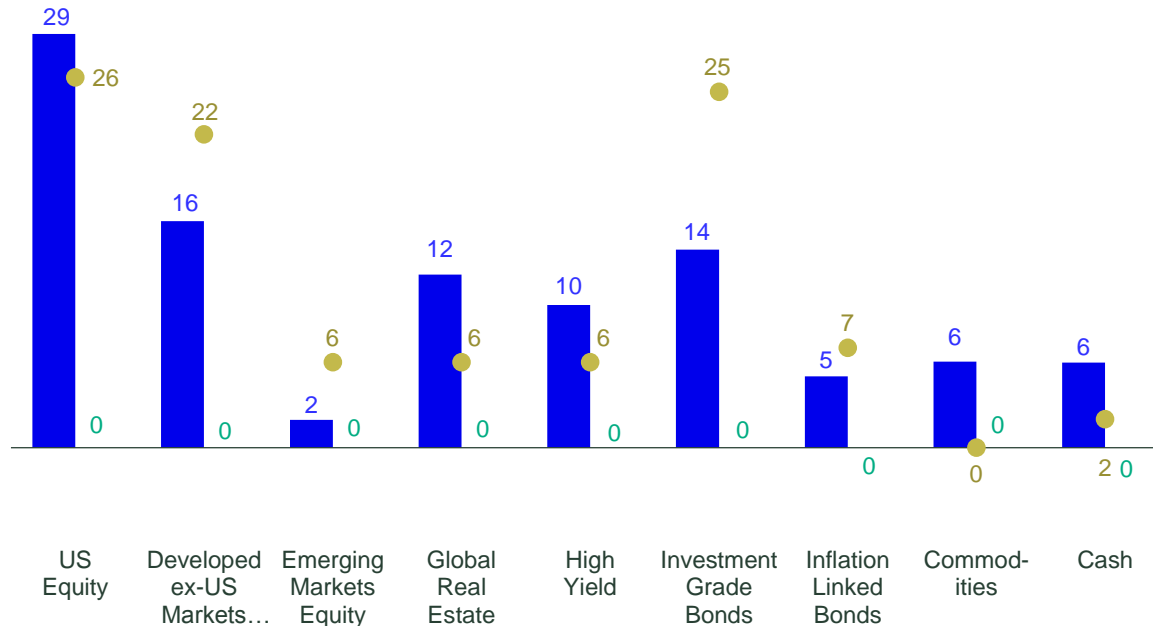


# State Street Current Positioning

State Street made no tactical changes to the portfolio, remaining modestly underweight equities with an overweight of defensive assets like gold and cash

## SPDR SSGA Global Allocation ETF [GAL] Current & Strategic Exposures (%)

■ 9/30/20119   ■ Change   ● Investment Solutions Group Strategic Weights



## Tactical Rebalance Trades: September

**Sold** • None

**Bought** • None

## Sector Rotation Trades

US Equity Allocation Total: 6%

Sectors are included based on their relative valuation, momentum and earnings sentiment

Aug.	Real Estate 2%	Tech 2%	Industrials. 2%

Sep.	Real Estate 2%	Tech. 2%	Comm. Svs. 2%

Source: State Street Global Advisors. As of September 30, 2019. Exposures are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. This information should not be considered a recommendation to invest in a particular sector. It is not known whether the sectors shown will be profitable in the future. The information above is rounded to the nearest whole number.

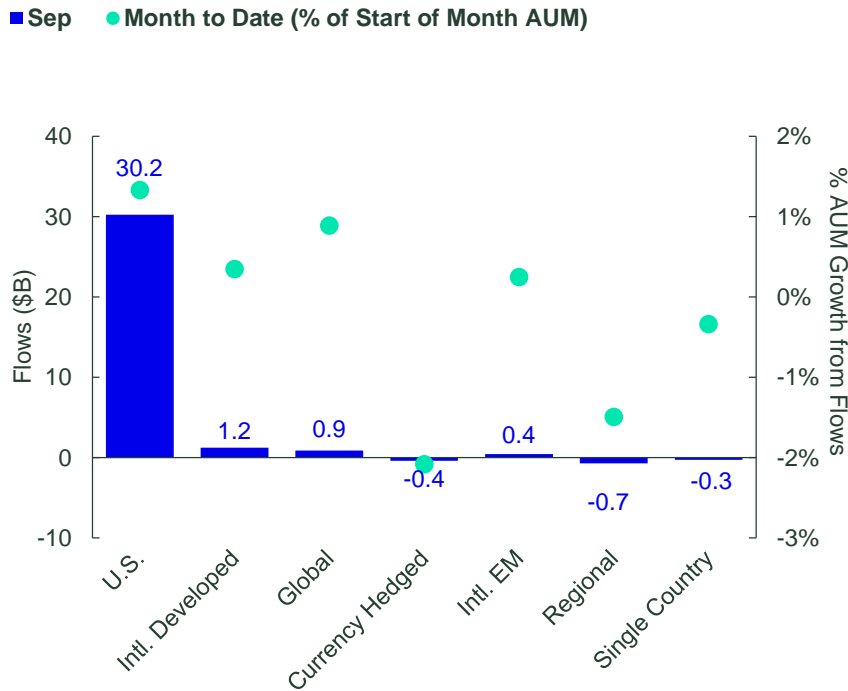
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# 2. Flows, Fundamentals & Factors

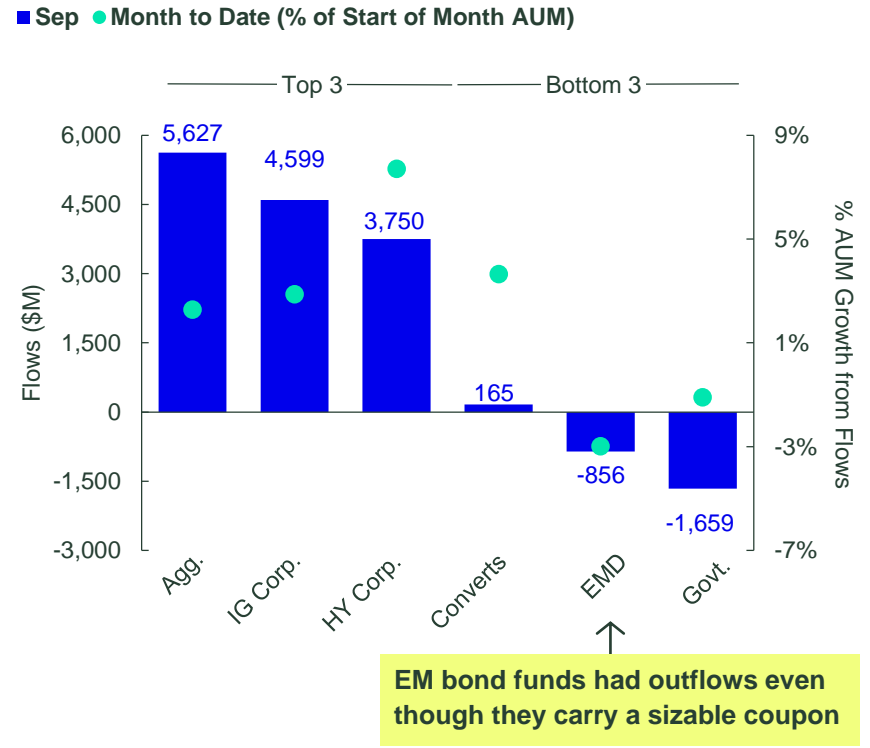
# Flow Trends

US equity ETFs took in 96% of all equity flows in September, while investors sought income from credit oriented segments, like investment grade and high yield bonds

Flows by Equity Regions



Fixed Income Top and Bottom 3 Sectors by Flows



Source: State Street Global Advisors, Bloomberg Finance, L.P. As of September 30, 2019. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

# Flow Trends (continued)

In a bit of a contradictory risk oriented trade, ETF investors piled into gold-backed and high yield bond ETFs as rates are likely to stay low

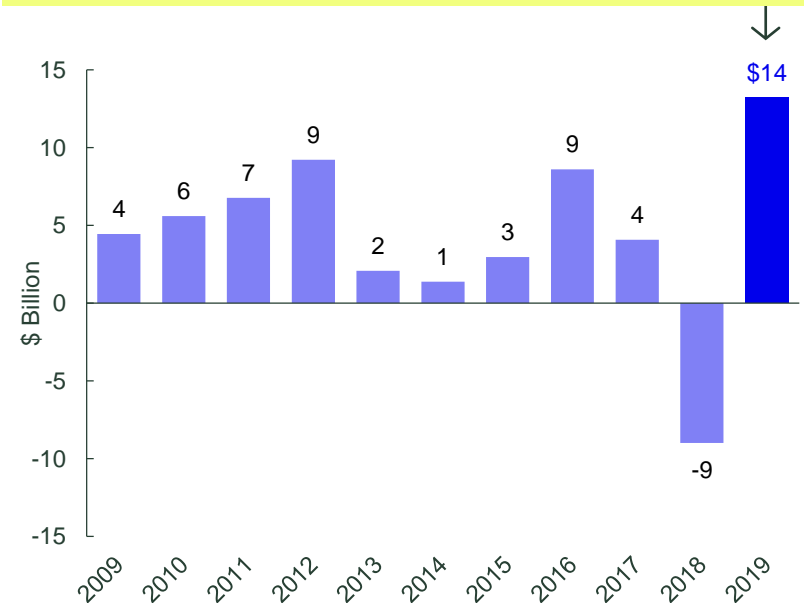
Gold Quarterly Flows Since 2005

Q3 net inflows to gold-backed ETFs ranks second all time, as low rates have supported gold prices



High Yield Yearly Flows

Given investors' need for yield, high yield ETFs, have taken in a record amount of assets in 2019



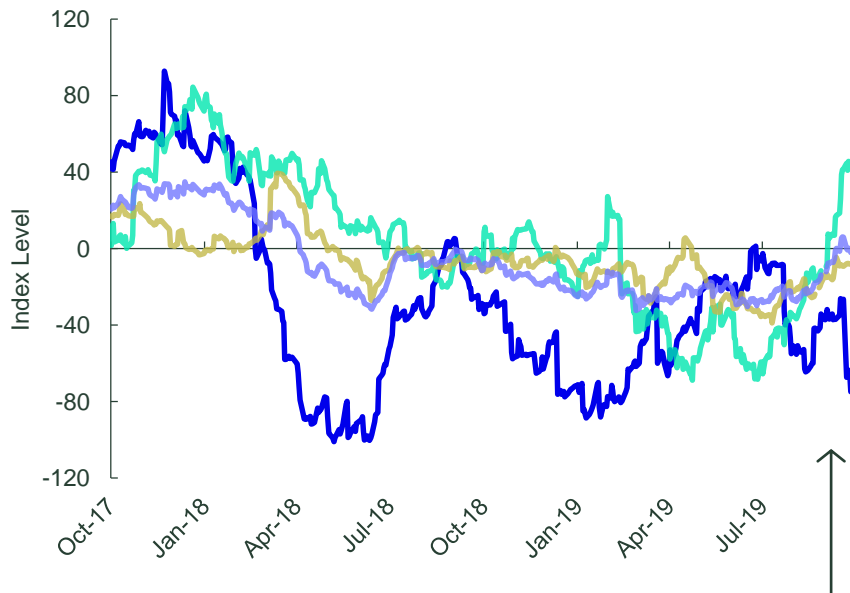
Source: State Street Global Advisors, Bloomberg Finance, L.P. As of September 30, 2019. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. **Past performance is not a guarantee of future results.** \*Based on reclassification of regional, single country, and currency hedged ETFs according to their market of focus.

# Global Economy

US economic sentiment improved significantly in Q3. China has increased their stimulus recently, which historically has resulted in positive future returns for global equities

Citigroup Economic Surprise Indices

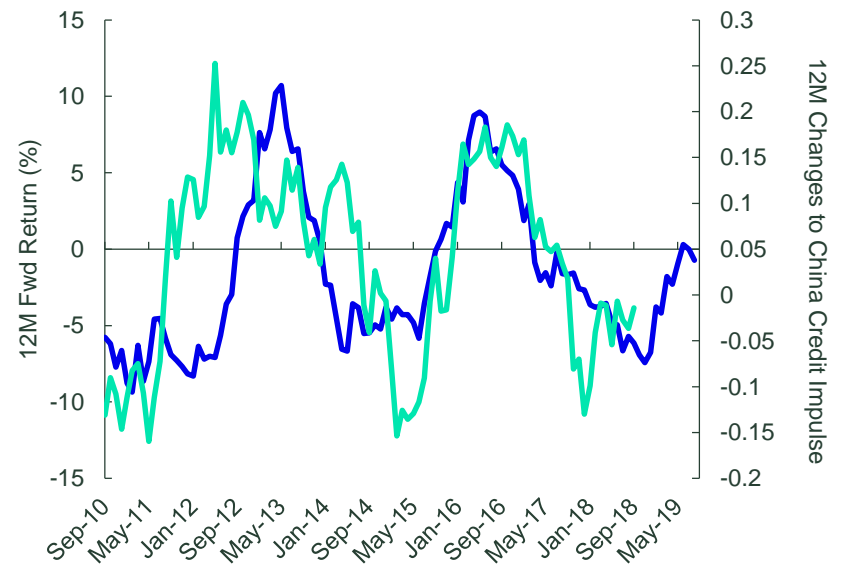
— Eurozone — US — EM — Global



Eurozone economic sentiment weakened amid increasing hard Brexit uncertainty and increasing recession risk in Germany

China Credit Easing

— Bloomberg Economics China Credit Impulse 12 Month Change — MSCI ACWI ex US Fwd 12M Return



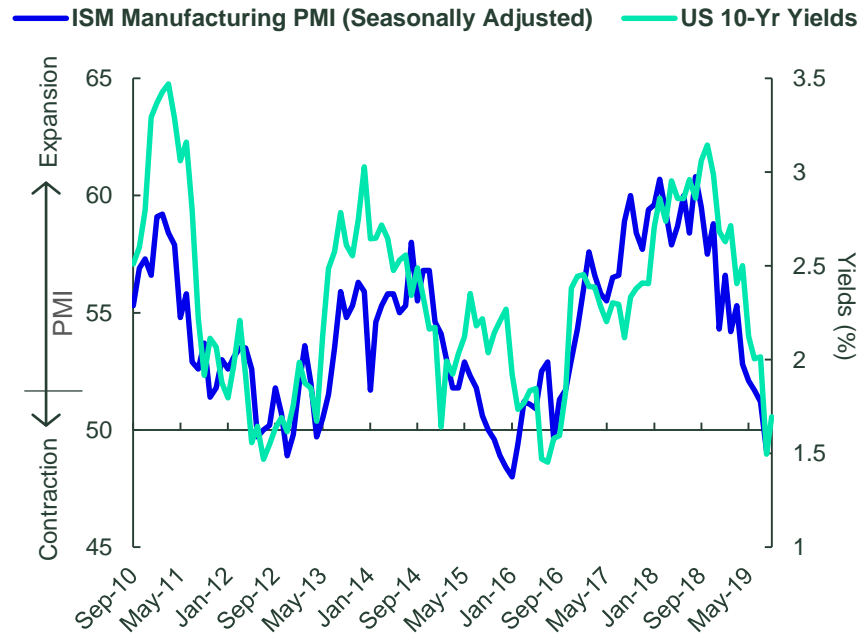
However, the current credit easing may be less aggressive than in 2015, given the government's focus on deleveraging

Source: Bloomberg Finance L.P., as of 09/30/2019. Past performance is not a guarantee of future results.

# US Manufacturing

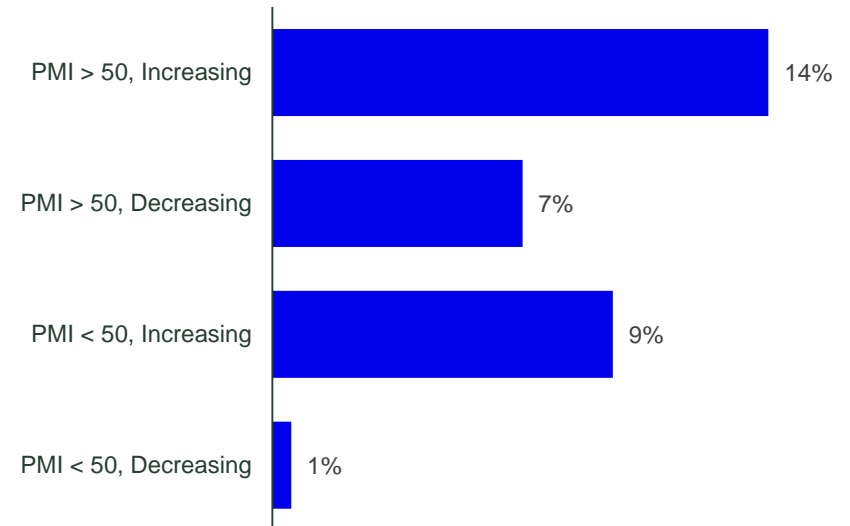
Even with more positive economic surprises, manufacturing has been weak, and weaker PMIs do not bode well for stock market returns going forward

## PMI vs. Yields



September manufacturing PMI declined for the sixth straight month to further below 50 — the lowest level in a decade

## S&P 500 1Yr Return Based on Preceding 1Yr PMI Changes\* (Since September 1970)



When the PMI was below 50 and in a downward trend, The S&P 500 historically advanced by only 1% on average over the next twelve month

Source: Bloomberg Finance L.P., as of 09/30/2019. Past performance is not a guarantee of future results.

# Global Valuation

Valuations of Japanese equities are the most attractive among all regions on both absolute and relative terms. But may be cheap for a reason as the economy struggles

Absolute & Relative Valuation Z-Score\* and 15-Year Percentile Ranking

Bottom 3 Expensive Valuation

Top 3 Attractive Valuation

	Valuation to Region History (Percentile)				Absolute Valuation Composite Z-Score	Valuation Relative to S&P 500 (Percentile)				Valuation Relative to S&P 500 Composite
	P/E	NTM P/E	P/B	P/S		P/E	NTM P/E	P/B	P/S	
S&P 500 Index	19%	11%	2%	6%	-1.31	N/A	N/A	N/A	N/A	N/A
S&P MidCap 400 Index	65%	52%	64%	25%	0.58	91%	96%	100%	97%	0.61
Russell 2000 Index	14%	29%	66%	59%	0.13	20%	93%	100%	100%	-0.04
S&P 500 Value Index	38%	29%	10%	14%	-0.70	89%	95%	78%	96%	0.31
S&P 500 Growth Index	11%	3%	9%	4%	-1.46	11%	5%	34%	3%	-2.73
MSCI World ex-US Index	67%	42%	62%	30%	0.51	87%	94%	98%	99%	0.56
MSCI UK Index	34%	42%	79%	55%	0.60	72%	97%	97%	100%	0.44
MSCI EM Index	55%	25%	77%	53%	0.59	89%	64%	100%	100%	0.33
MSCI Japan Index	84%	75%	64%	38%	1.25	88%	91%	98%	96%	0.52
Euro Stoxx Index	46%	22%	40%	7%	-0.47	76%	64%	95%	69%	-0.14
MSCI Germany Index	28%	22%	62%	17%	-0.36	56%	75%	97%	90%	0.00
MSCI China Index	40%	54%	59%	55%	0.63	60%	81%	99%	92%	0.13

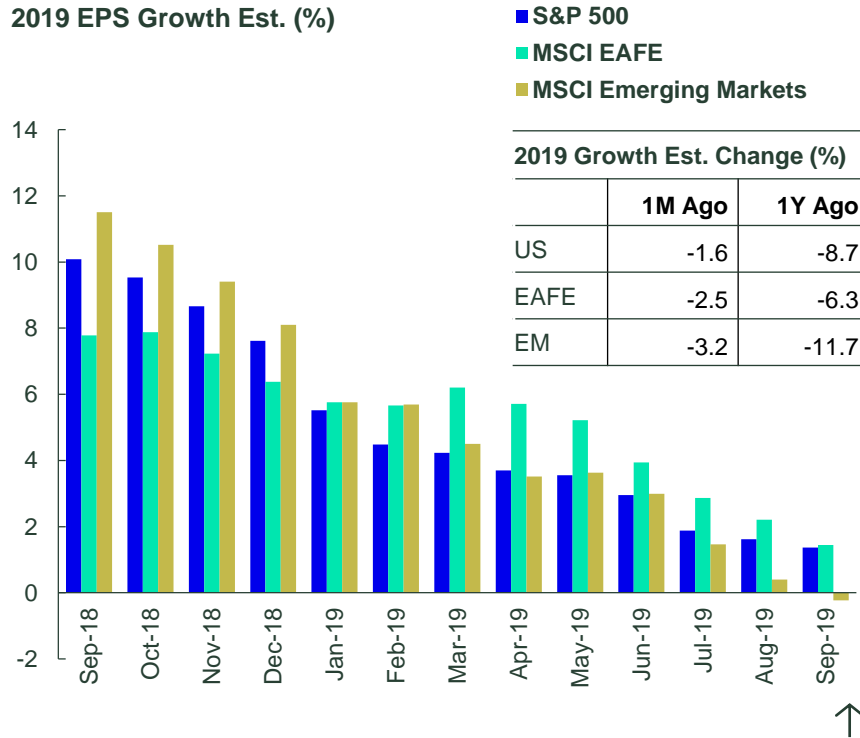
Higher percentile ranking indicates more attractive valuations

Source: State Street Global Advisors, FactSet, as of September 30, 2019. \* The z-score is calculated as the average z-score of percentile ranking of P/B, P/E, NTM P/E and P/S valuations last 15 years and valuations relative to the S&P 500 last 15 years. Z-score indicates how many standard deviations an element is from the mean. A z-score can be calculated from the following formula.  $z = (X - \mu) / \sigma$  where z is the z-score, X is the segment valuation percentile,  $\mu$  is the mean of valuation percentile, and  $\sigma$  is the standard deviation of sectors' valuation percentile.

# Global Earnings

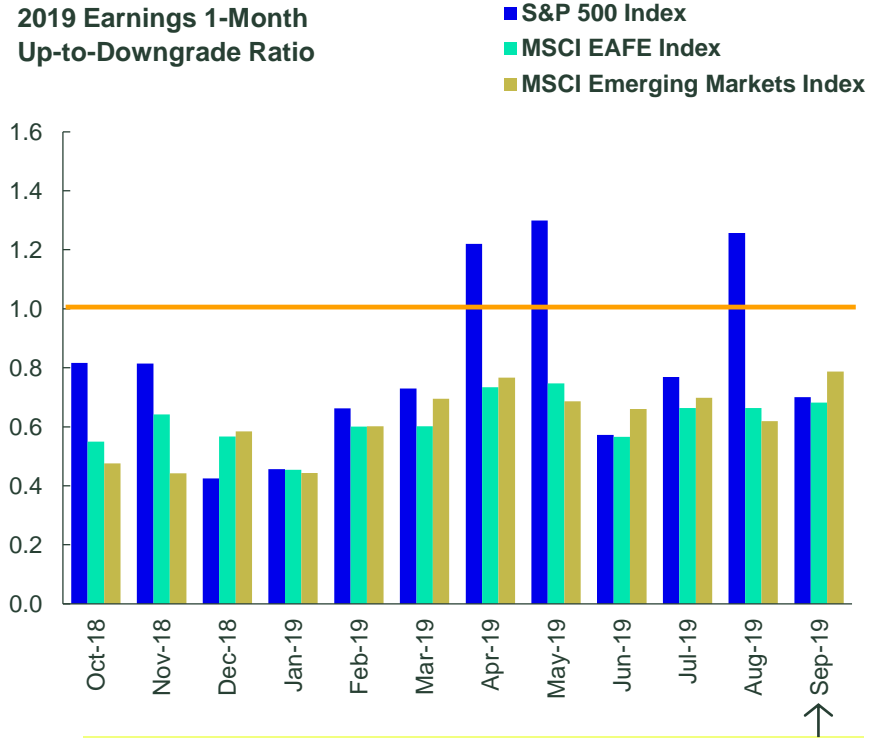
While downgrades and guidance are weak, analysts are more optimistic about US earnings growth for this year than any other regions

2019 EPS Growth Est. (%)



2019 EM earnings growth is now forecasted to be negative

2019 Earnings 1-Month Up-to-Downgrade Ratio



US earnings revisions are back to similar levels as other regions ahead of the Q3 earnings season

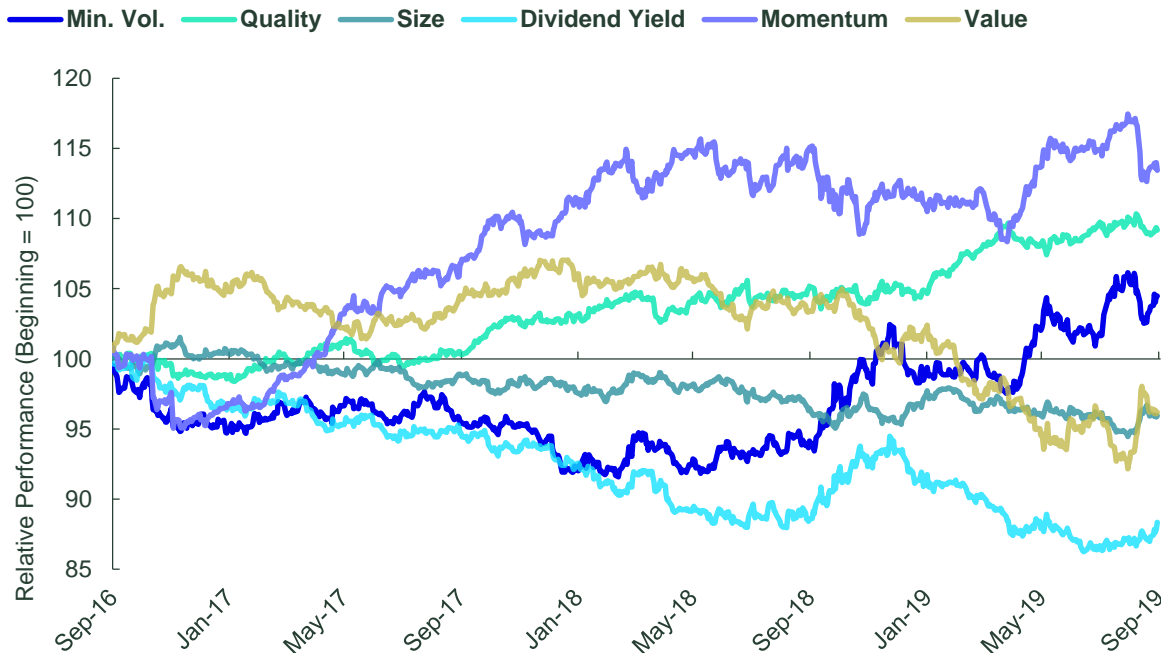
Source: Bloomberg Finance L.P., FactSet, as of September 30, 2019. Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. EPS growth estimates are based on Consensus Analyst Estimates compiled by FactSet.



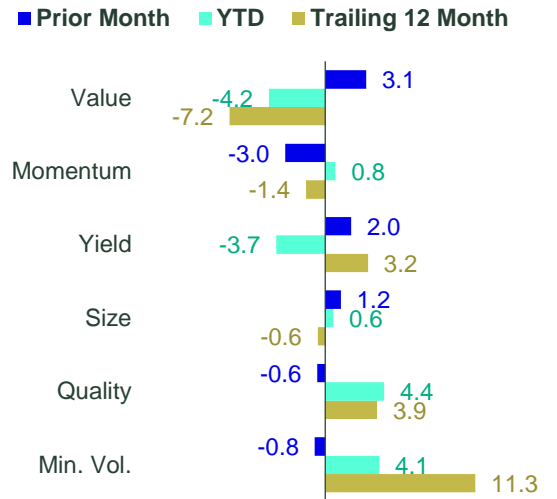
# US Factor Trends

The sharp intra-month reversal from Momentum to Value started to fade near the end of the month, while Quality and Min. Vol. remain the top factors year to date

MSCI USA Factor Index versus MSCI USA Index (3 Years)



Period Excess Returns versus MSCI USA Index (%)



Despite the reversal in September, Value still is significantly underperforming on a YTD and 1-Year basis

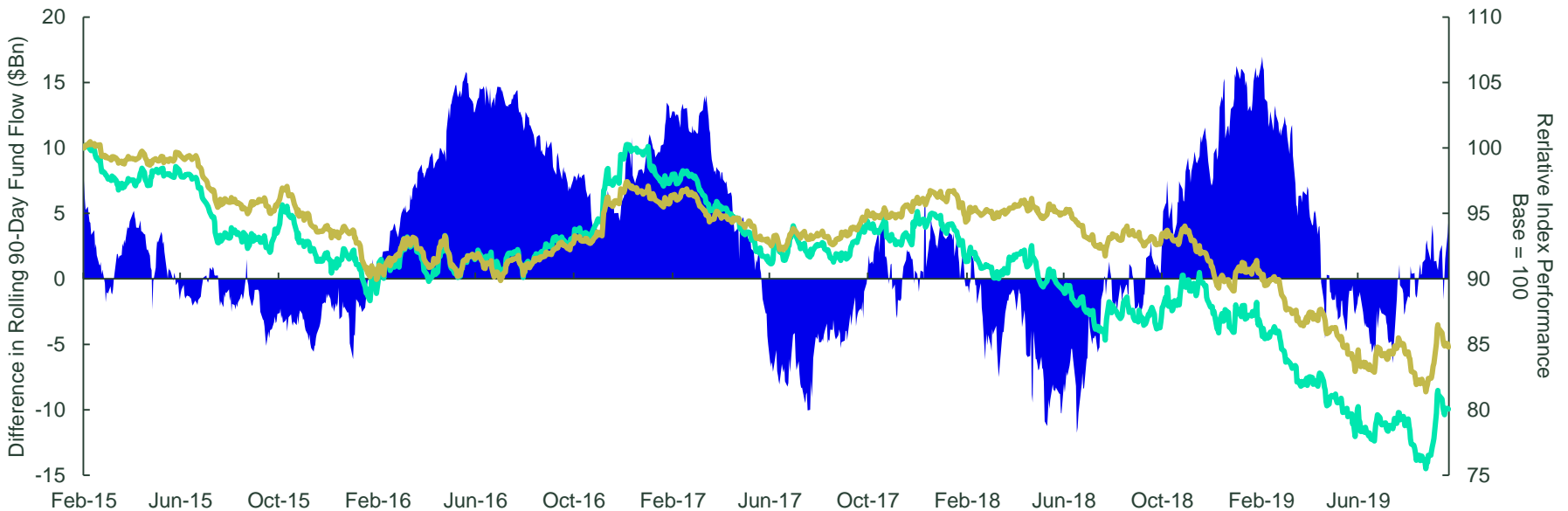
Source: Bloomberg Finance, L.P. As of September 30, 2019. **Past performance is not a guarantee of future results.** MSCI USA Minimum Volatility Index, MSCI USA Enhanced Value Index, MSCI USA Quality Index, MSCI USA Equal Weighted Index, MSCI USA High Dividend Yield Index and MSCI USA Momentum Index were used to represent Min. Vol., Value, Quality, Size, Dividend, Momentum. Index were used above compared to the MSCI USA Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

# Value vs. Growth

Value stocks have underperformed over the last few years despite taking in majority of fund flows. However, Value returns outpaced growth dramatically last month

## Value vs. Growth Performance and Flows

Over this time period, value-focused ETFs have attracted \$33 billion more flows than growth, while value underperformed growth by 33% on a cumulative basis



Source: Bloomberg Finance, L.P., FactSet as of 9/24/2019. **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

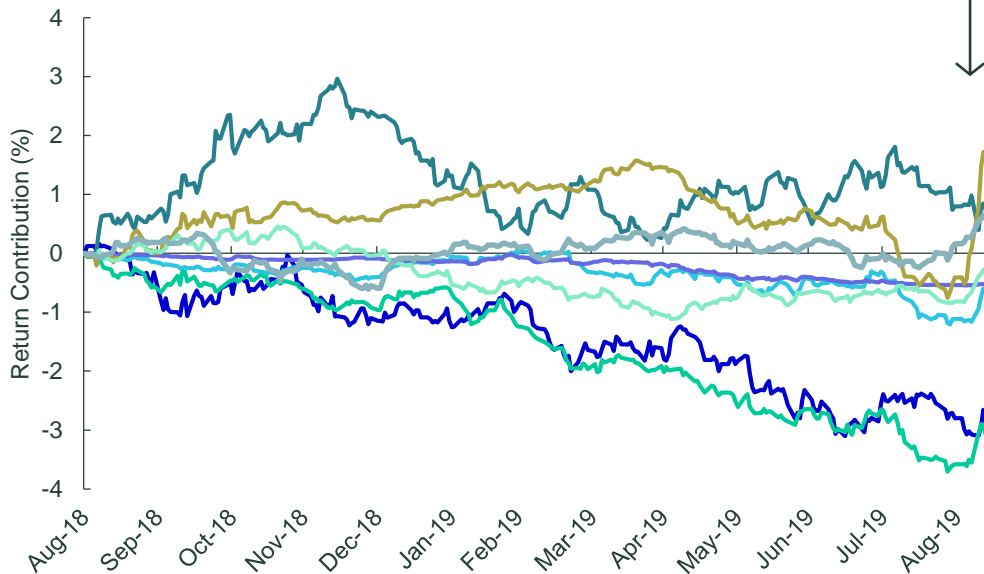
# Dividend Yield

The September rebound in high dividend payers was less driven by changes to bond yields but more by its negative exposure to the recent underperforming momentum factor

S&P 500 High Dividend Index Cumulative Factor Return Contribution

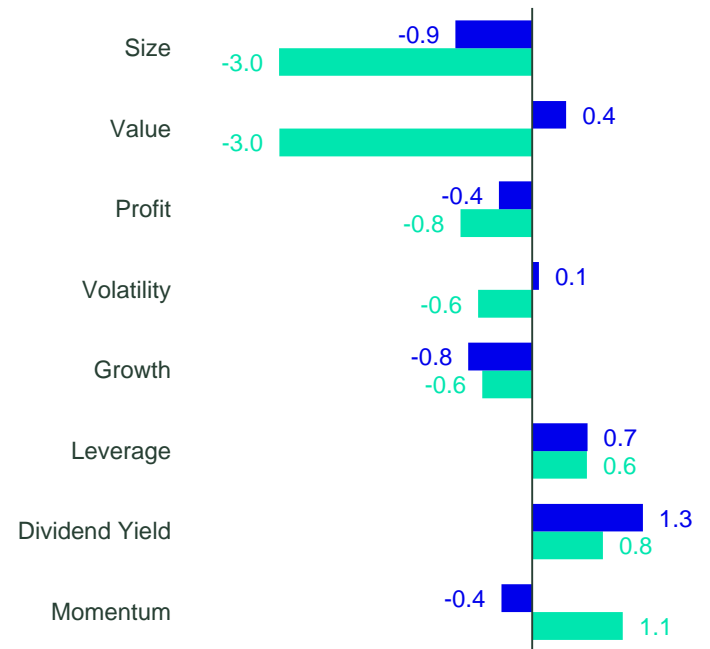
— Size      — Value      — Dividend Yield      — Profit  
— Volatility      — Momentum      — Growth      — Leverage

Momentum sold off, and dividend payers have negative momentum exposure



S&P 500 High Dividend Index Factor Exposures and Return Contribution

■ Factor Exposure      ■ 1Yr Return Contribution by Style



Source: Bloomberg Finance, L.P., as of 9/30/2019. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

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# 3. Sectors

# Sector Flows & Returns

Sector flows followed price momentum, as the top four sectors in price momentum took in the most flows in Q3

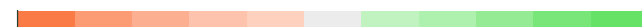
	Positioning				Returns		
	Prior Month Flow (\$M)	Trailing 3-Month Flow (\$M)	Current Short Interest (%)	1M Prior Short Interest (%)	Prior Month Return (%)	3-Month Return (%)	12-Month Return (%)
Consumer Discretionary	(80)	(173)	8.4	9.1	0.9	0.5	2.4
Consumer Staples	219	1,745	5.8	7.2	1.7	6.1	16.8
Energy	(514)	(1,545)	10.7	9.5	3.8	-6.3	-19.2
Financial	207	(3,700)	10.2	7.2	4.6	2.0	3.9
Health Care	(1,011)	(2,809)	13.1	12.6	-0.2	-2.2	-3.6
Industrials	140	(602)	10.7	10.4	3.0	1.0	1.4
Materials	727	115	9.5	8.3	3.2	-0.1	2.7
Real Estate	1,327	1,823	5.0	5.4	1.0	7.7	24.7
Technology	837	1,662	4.3	4.6	1.5	3.3	8.6
Communication	583	533	1.8	1.5	0.4	2.2	5.7
Utilities	223	993	14.9	17.6	4.3	9.3	27.1



With interest rates falling, investors have sought out the bond-proxy sectors for both returns and yield

Worst Performing Sector  
Least Flows in Period

Best Performing Sector  
Most Flows in Period



Source: State Street Global Advisors, Bloomberg Finance, L.P., as of September 30, 2019. Past performance is not a guarantee of future results.

# Sector Scorecard

Valuations of defensive sectors, like Cons. Staples and Utilities, appear stretched, while Health Care leads earnings sentiment

	Sector Composite Z-Score*			
	Valuation Composite Score	Momentum Composite Score	Earnings Sentiment Composite Score	Volatility Composite Score
Consumer Discretionary	-0.94	0.25	-0.42	0.21
Consumer Staples	-0.57	0.91	-0.05	-0.63
Energy	0.93	-2.37	-0.37	0.60
Financial	1.07	-0.62	0.15	-0.40
Health Care	0.85	-0.61	1.36	-0.22
Industrials	0.09	-0.44	-0.20	1.07
Information Technology	-0.87	1.01	0.42	0.07
Materials	0.42	-0.13	-0.52	-0.81
Communication	0.18	0.17	-0.18	-0.17
Real Estate	-0.02	0.98	0.64	0.81
Utilities	-1.15	0.84	-0.82	-0.52

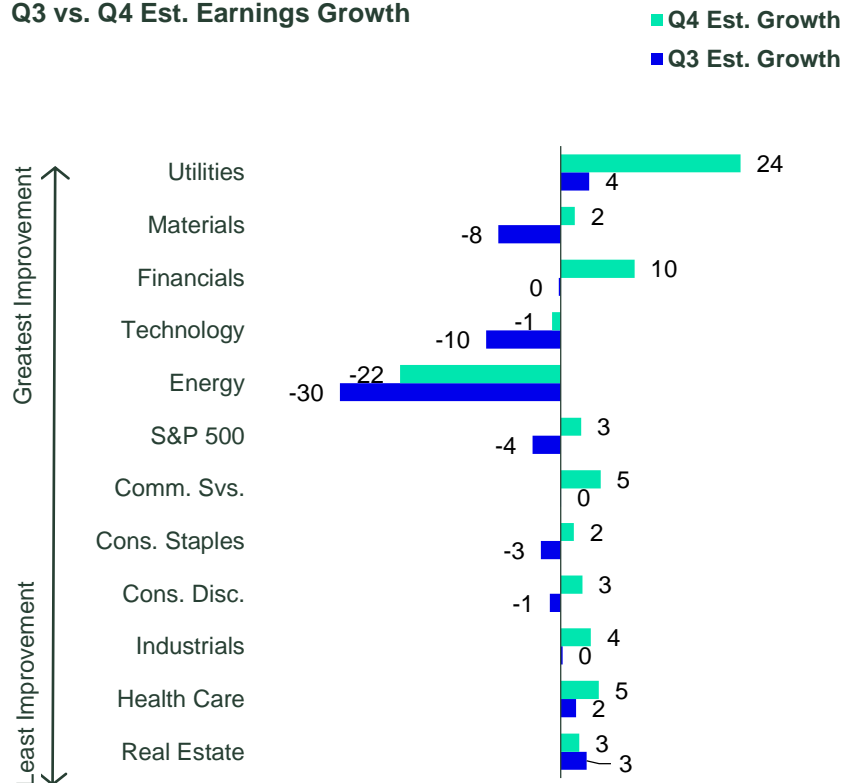
Health Care has ranked among the top 3 in terms of earning sentiment since February with attractive valuations

Source: State Street Global Advisors, FactSet, Bloomberg Finance, L.P. as of September 30, 2019. Green shading is top 3, red shading is bottom 3. \* The scorecard uses z-score for each metric to standardize numbers across sectors and show relativeness among sectors. Composite score is calculated by equally weighting each metric in the same category. Z-score indicates how many standard deviations an element is from the mean. A z-score can be calculated from the following formula.  $z = (X - \mu) / \sigma$  where X is the value of the sector.  $\mu$  is the mean of the eleven sectors.  $\sigma$  is the standard deviation of eleven sectors. S&P 500 sector indices are used to calculate sector scores. Please refer to Appendix C for the metrics used to measure valuation, momentum and earnings sentiment. Volatility score is not available for the communication services sector due to data availability.

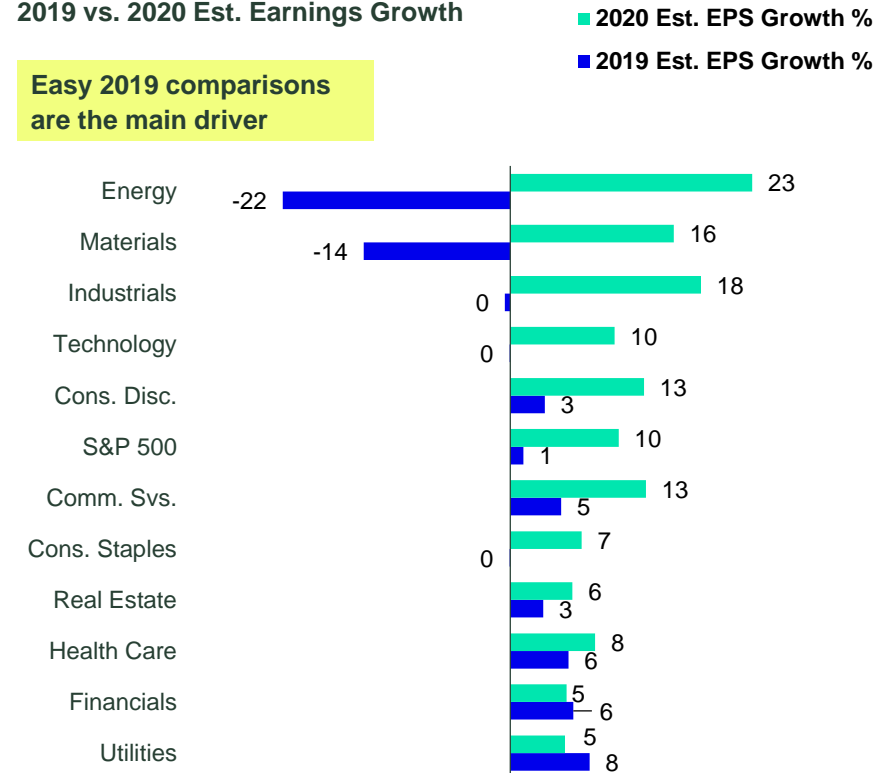
# Sector Earnings

Analyst consensus shows a strong rebound in 2020 earnings growth, led by this year's beaten-down cyclical sectors, like Materials, Industrials and Tech

Q3 vs. Q4 Est. Earnings Growth



2019 vs. 2020 Est. Earnings Growth



Source: FactSet, as of 9/30/2019. Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. EPS growth estimates are based on Consensus Analyst Estimates compiled by FactSet. This information should not be considered a recommendation to invest in a particular sector. It is not known whether the sectors shown will be profitable in the future.

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# 4. Fixed Income

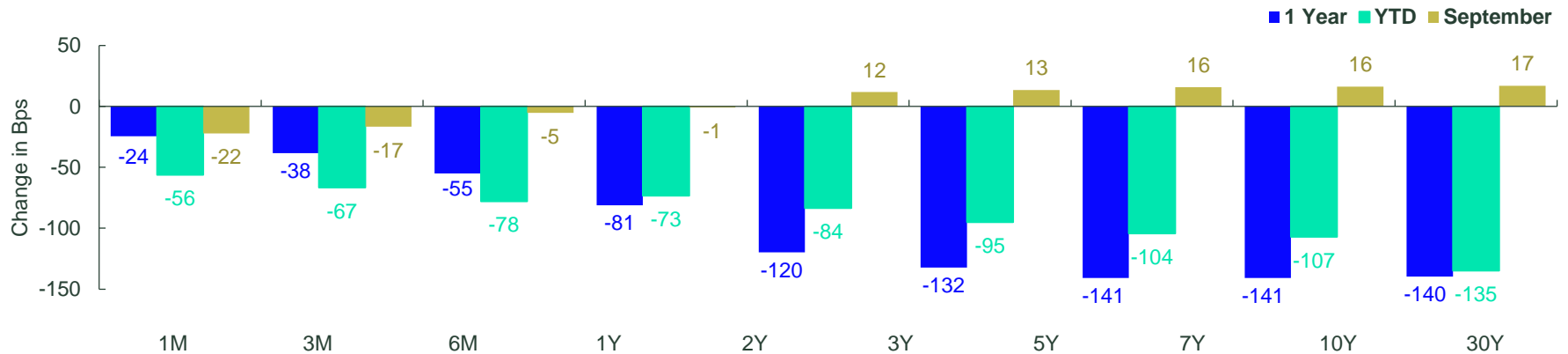
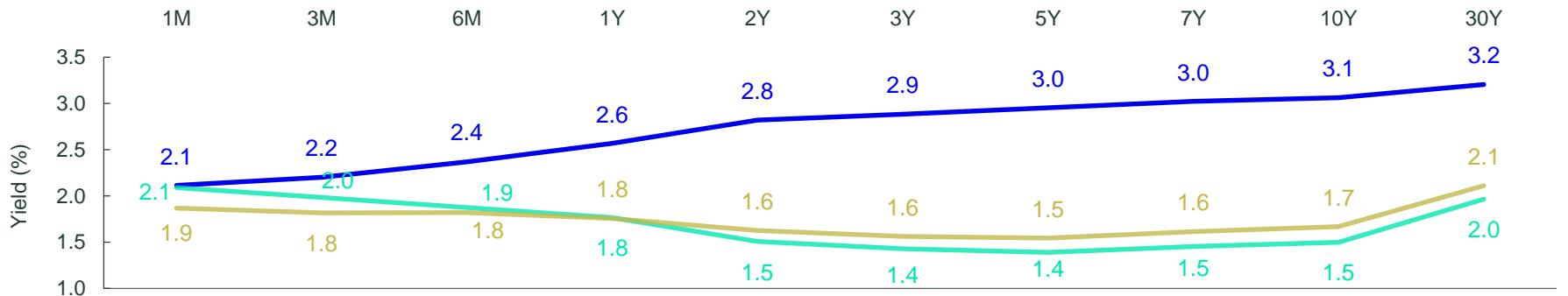


# Yield Curve

The yield curve steepened in September, as the Fed pulled down the short-end of the curve and long-term yields rebounded on slightly better-than-expected economic data

US Treasury Curve

US Treasury Active: 9/30/2018 8/30/2019 9/30/2019

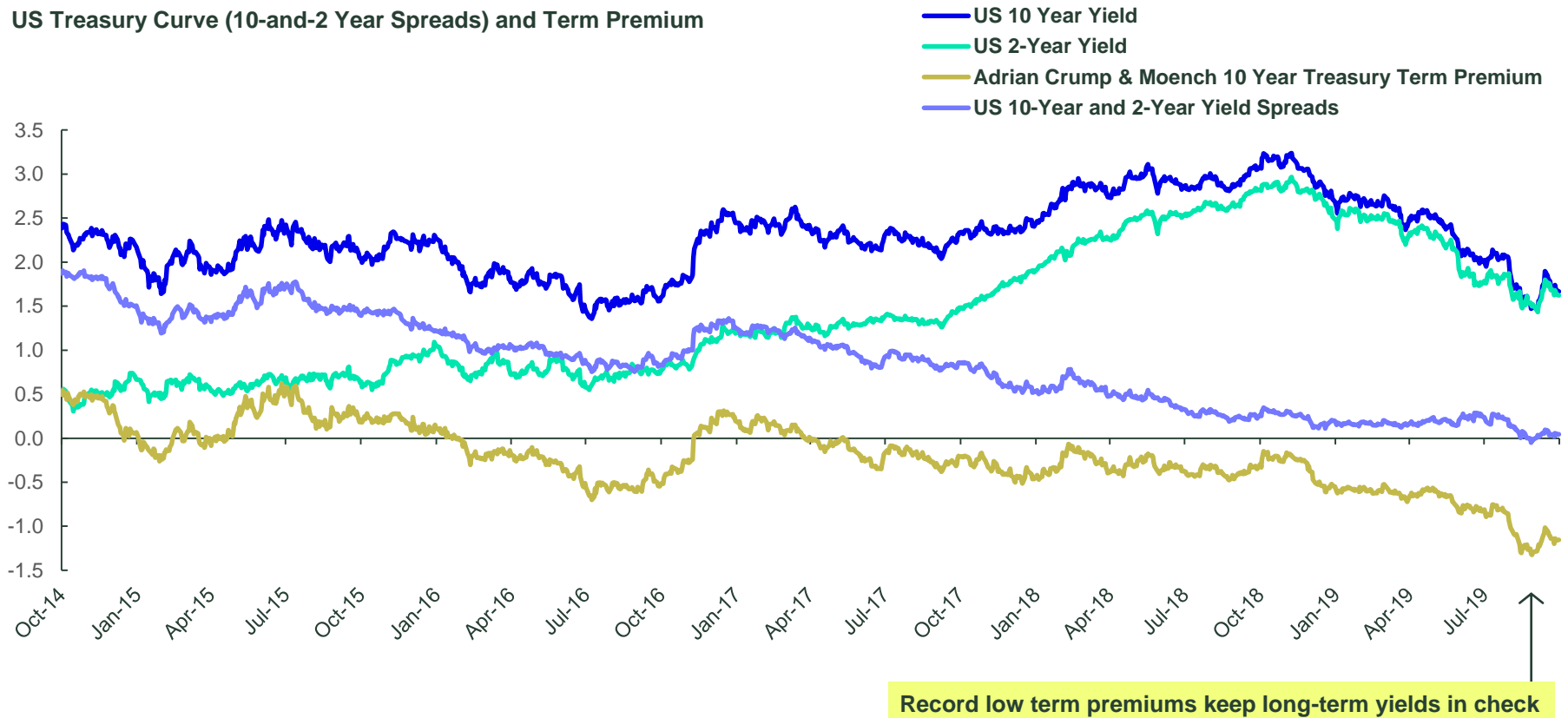


Source: Bloomberg Finance, L.P. As of September 30, 2019. Past performance is not a guarantee of future results.

# Yield Curve (continued)

The rebound in 10-and-2-year yield spreads in early September turned out to be short-lived, as spreads hovered a few basis points above zero most of September

US Treasury Curve (10-and-2 Year Spreads) and Term Premium

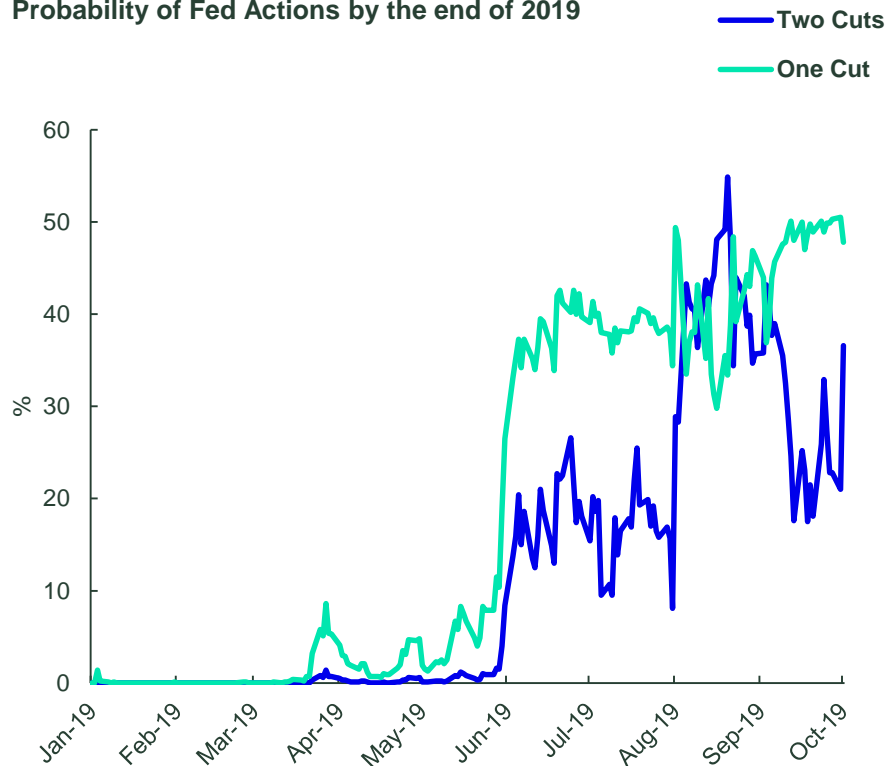


Source: Bloomberg Finance, L.P. As of September 30, 2019. **Past performance is not a guarantee of future results.** The term premium is the excess yield that investors require to commit to holding a long-term bond instead of a series of shorter-term bonds.

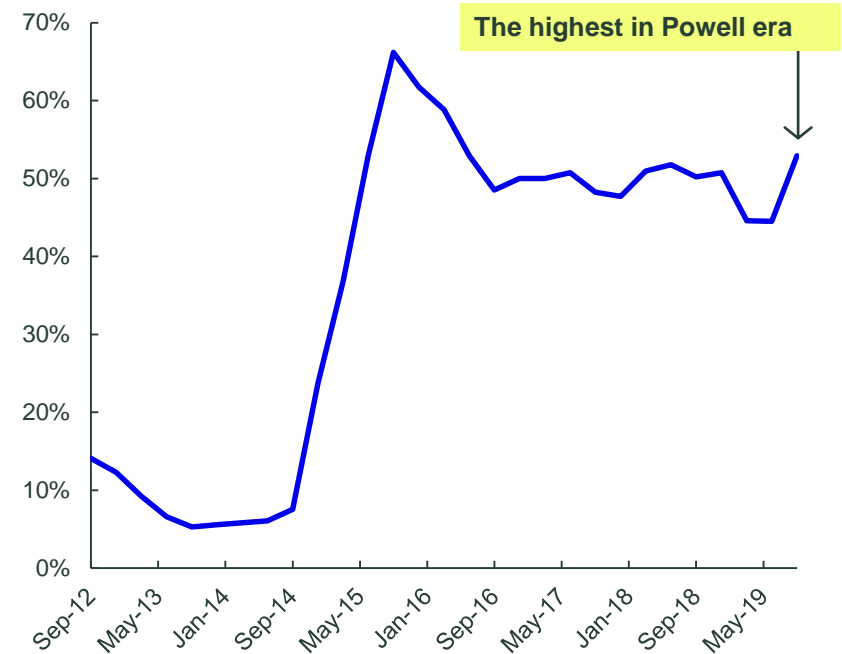
# Rate Path Uncertainty

The market and the Fed board members are not in agreement about the rate path for this year

Probability of Fed Actions by the end of 2019



% of Fed Members with Different 2019 Policy Rate Projections than the Majority

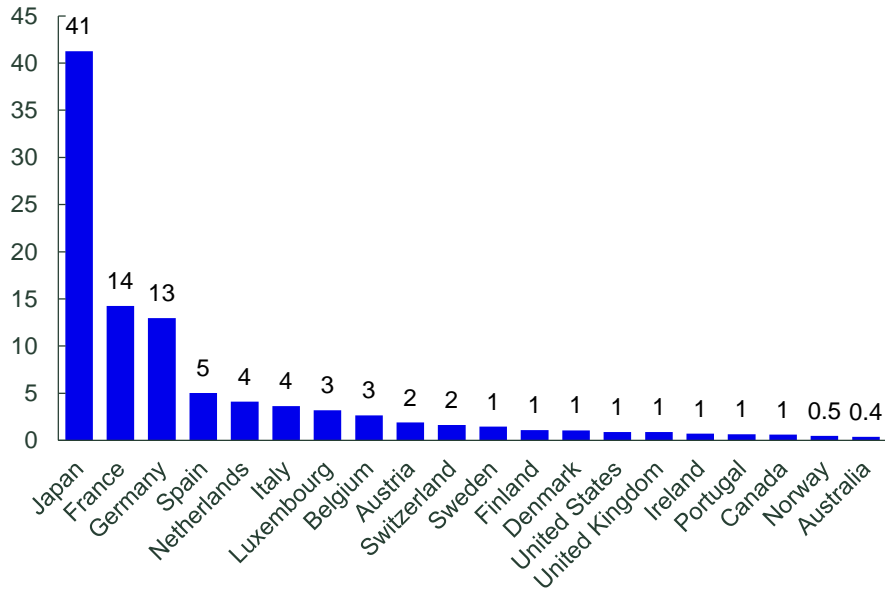


Source: Bloomberg Finance, as of 09/30/2019.

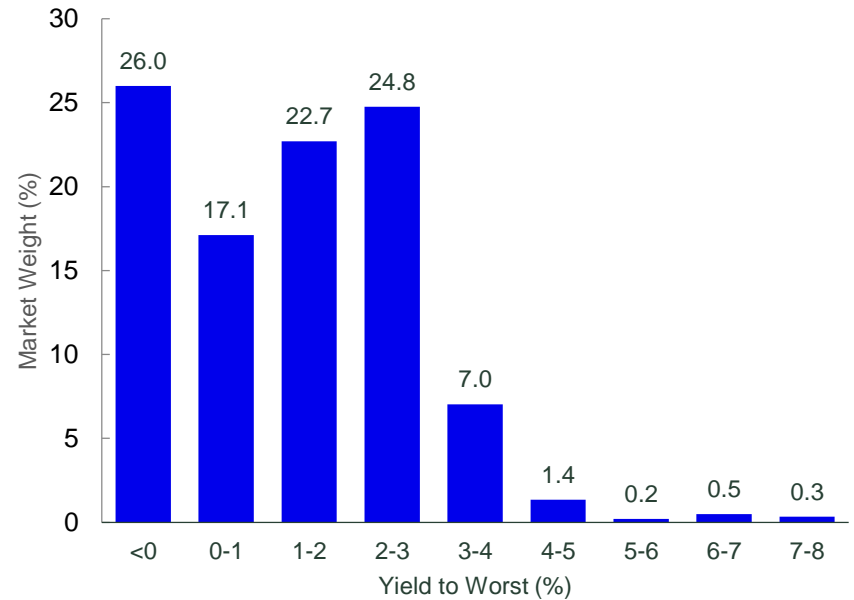
# Global Negative Yields

Global bonds with negative yields account 26% of the Global Agg, with another 17% slightly above zero, yielding less than 1%

Negative Yielding Country Weights (%)



Bloomberg Barclays Global Agg Index Allocation by Yield (%)



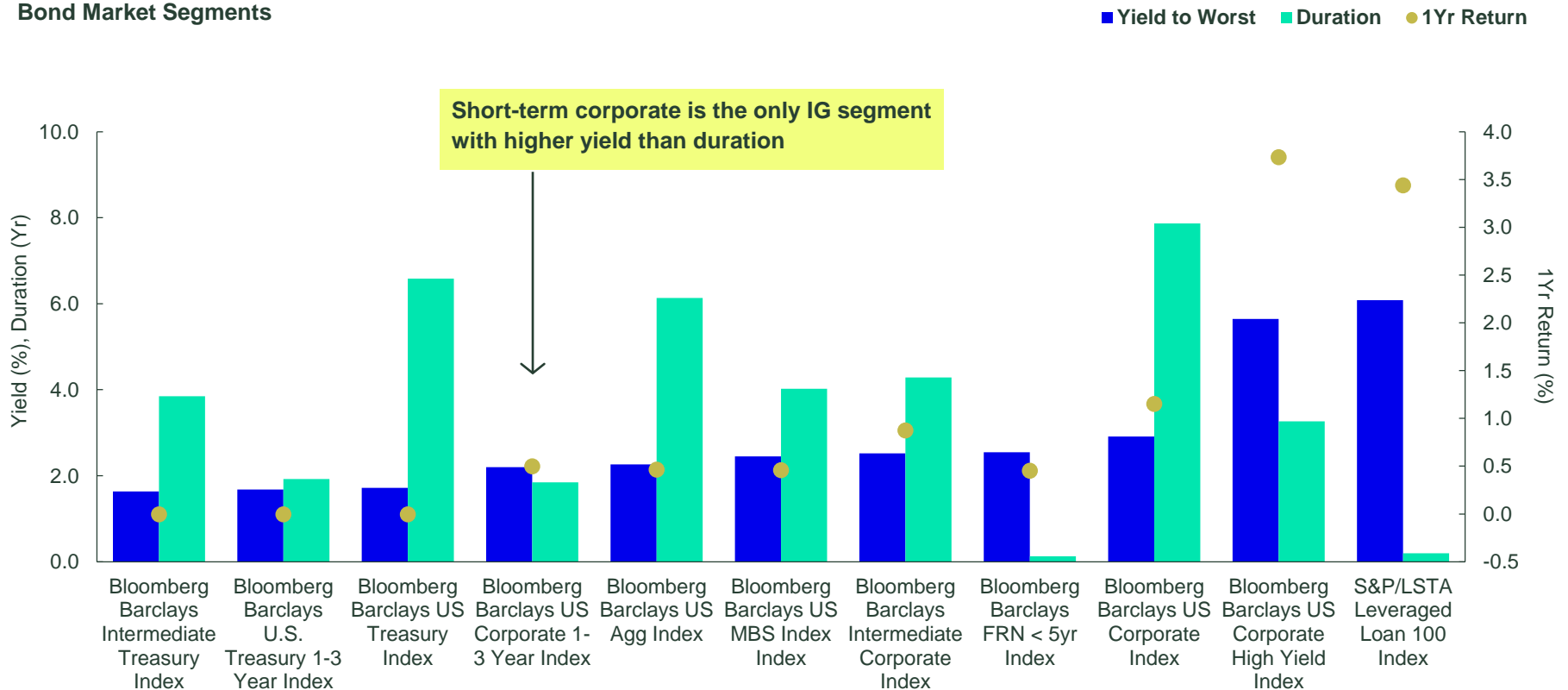
Further rate cuts by ECB may increase the amount of negative yields in Eurozone

Source: Bloomberg Finance, as of 09/30/2019.

# Bond Market

While long-duration segments have led on performance over the last year, their yield per duration profile has become less attractive

Bond Market Segments



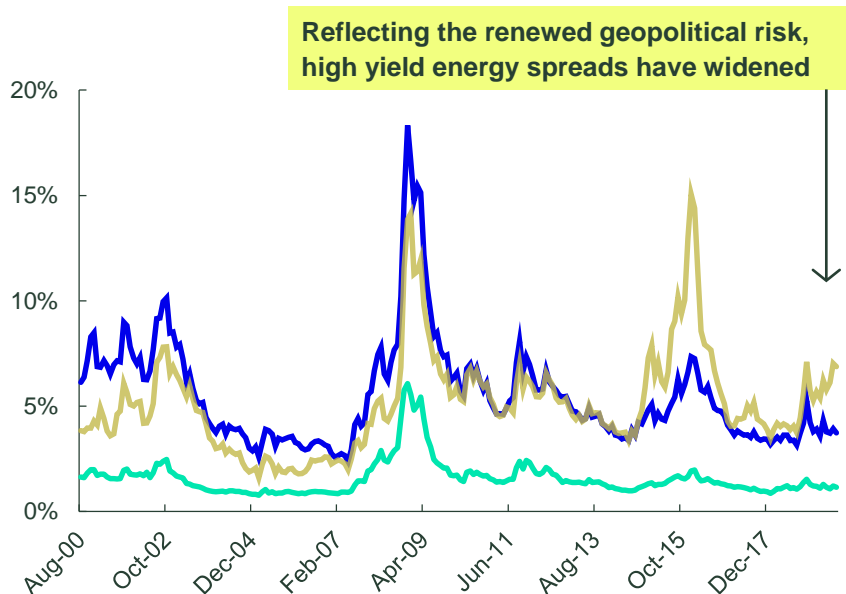
Source: Bloomberg Finance, L.P. As of September 30, 2019. **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

# Credit Trends

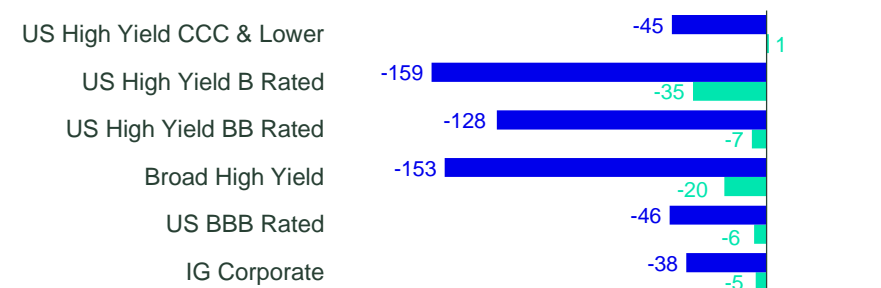
The dovish tone among global central banks drove the risk-on sentiment in credit markets, with high yield spreads tightening further below long-term averages

## Credit Spreads

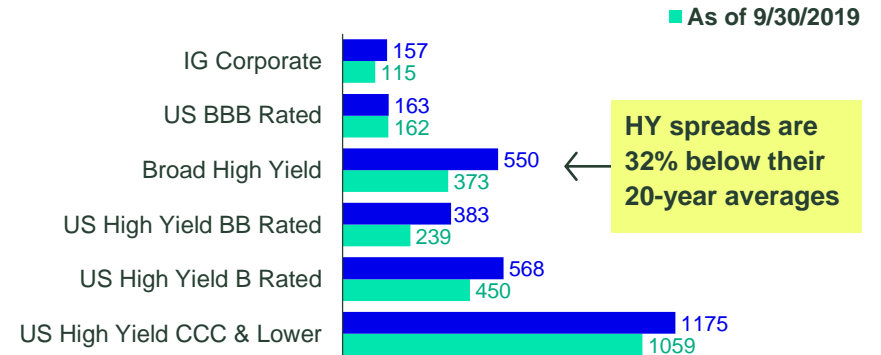
- Bloomberg Barclays US Corporate High Yield Index
- Bloomberg Barclays US Corporate Index
- Bloomberg Barclays High Yield Energy Index



## Credit Spread Changes in Basis Points



## Credit Spread Current vs. 20-Yr Averages



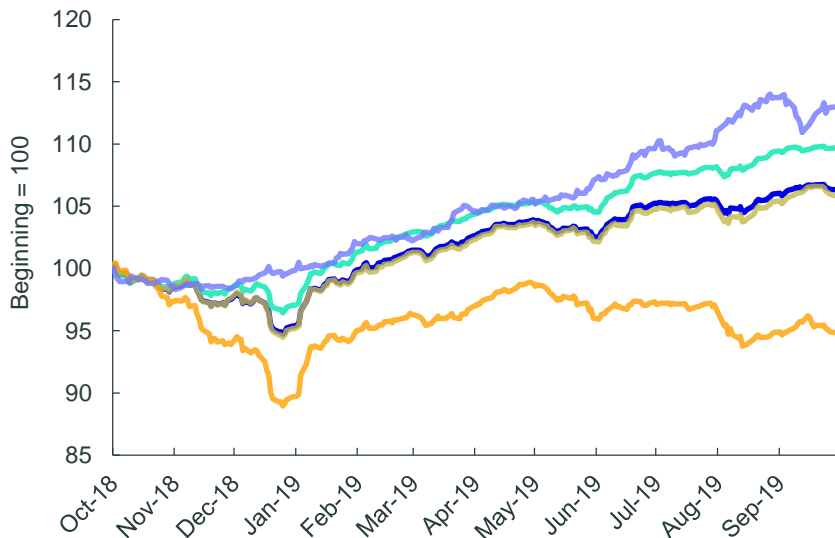
Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of September 30, 2019. US High Yield CCC & Lower = BofA ML US High Yield CCC & Lower Rated Index. US High Yield B Rated = BofAML US High Yield B Rated Index. BBB Rated = BofA ML US Investment Grade BBB Rated Index. Broad high yield = Bloomberg Barclays US Corporate High Yield Index. IG Corporate = Bloomberg Barclays US Corporate Index. **Past performance is not a guarantee of future results. Performance of an index is not illustrative of any particular investment. It is not possible to invest directly in an index. Performance of an index is not illustrative of any particular investment. It is not possible to invest directly in an index.**

# Credit Trends

This year's credit rally has been driven by strong performance from higher quality bonds in the high yield and investment grade space, as well as BBB-rated bonds

## Credit Segment Performance (1 Year)

- ICE BofAML US High Yield Index
- ICE BofAML US High Yield (BB) Index
- ICE BofAML US High Yield (Single-B) Index
- ICE BofAML US High Yield Constrained (CCC & Lower) Index
- Bloomberg Barclays US Corporate Bond Index



## IG and HY Performance by Credit Rating

- 1-Month Return
- YTD Return
- 1-Year Return



Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of September 30, 2019. Past performance is not a guarantee of future results. Performance of an index is not illustrative of any particular investment. It is not possible to invest directly in an index.

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# Appendix

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A [Fund Flow Summary](#)

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B [Asset Class Forecast](#)

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C [SPDR Sector Scorecard](#)

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D [Definitions](#)

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E [Important Disclosures](#)

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## Appendix A

# Fund Flow Summary

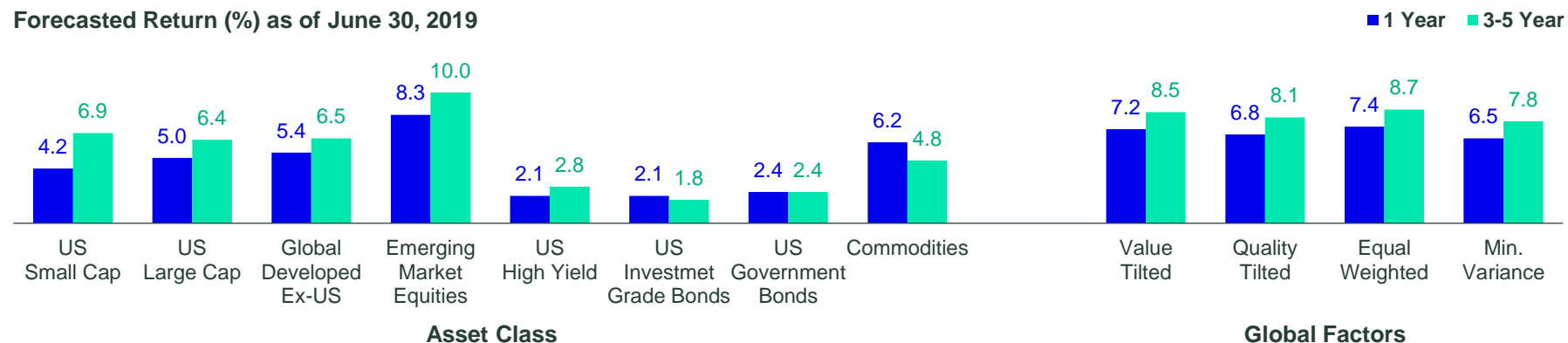
Asset Category		Prior Month (\$M)	Year to Date	Trailing 3 Months (\$M)	Trailing 12 Months (\$M)
Equity Region	US	30,242	79,206	48,234	116,420
	Global	879	-1,484	422	2,581
	International-Developed	1,234	10,287	3,929	29,542
	International-Emerging Markets	432	3,900	-7,594	12,829
	International-Region	-699	-4,001	-2,777	-4,816
	International-Single Country	-275	-6,565	-4,650	361
	Currency Hedged	-381	-5,627	-1,141	-9,194
US Size & Style	Broad Market	5,718	24,123	10,149	37,820
	Large-Cap	17,428	53,913	34,311	94,547
	Mid-Cap	721	5,535	1,320	8,306
	Small-Cap	4,551	3,094	3,919	3,412
	Growth	-4	2,325	-154	4,135
	Value	3,728	5,980	4,940	22,079
Fixed Income Sectors	Aggregate	5,627	29,222	15,315	44,035
	Government	-1,659	24,358	3,202	50,413
	Inflation Protected	851	708	2,140	-1,107
	Mortgage-Backed	649	10,485	3,331	11,444
	IG Corporate	4,599	23,833	3,843	20,220
	High Yield Corp.	3,750	13,708	3,729	7,948
	Bank Loans	847	-812	721	-3,854
	EM Bond	-856	-21	-837	131
	Preferred	602	4,289	2,236	1,223
	Convertible	165	-89	299	-410
	Municipals	681	6,761	3,125	9,986
Government ETF Maturity Focus	Ultra Short	-2,957	1,001	-3,702	13,468
	Short Term	-604	5,329	1,535	17,196
	Intermediate	648	10,129	2,934	12,825
	Long Term (>10 yr)	1,256	8,325	2,534	7,947

Source: State Street Global Advisors, Bloomberg Finance, L.P. As of September 30, 2019. Segments with top 2 inflows in each category are shaded in green. Segments with bottom 2 flows in each category are shaded in orange. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

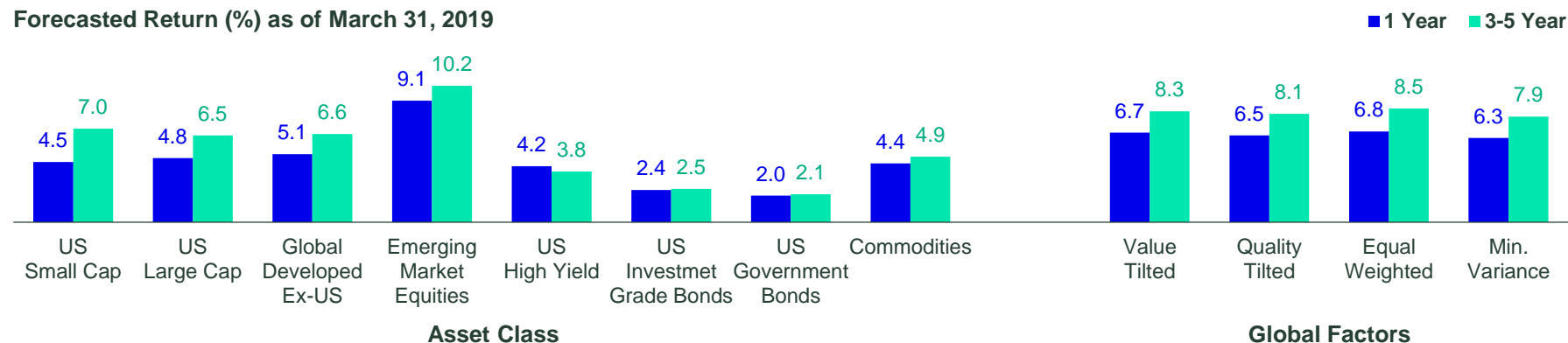
## Appendix B

# Asset Class Forecast

Forecasted Return (%) as of June 30, 2019



Forecasted Return (%) as of March 31, 2019



Source: State Street Global Advisors Investment Solutions Group. The forecasted returns are based on SSGA's Investment Solutions Group's June 30, 2019 forecasted returns and long-term standard deviations. The forecasted performance data is reported on a gross of fees basis. Additional fees, such as the advisory fee, would reduce the return. For example, if an annualized gross return of 10% was achieved over a 5-year period and a management fee of 1% per year was charged and deducted annually, then the resulting return would be reduced from 61% to 54%. The performance includes the reinvestment of dividends and other corporate earnings and is calculated in the local (or regional) currency presented. It does not take into consideration currency effects. **The forecasted performance is not necessarily indicative of future performance, which could differ substantially.** Please reference Appendix B (continued) for the assumptions used by SSGA Investment Solutions Group to create asset class forecasts.

# Asset Class Forecast: Assumptions

<b>Fixed Income</b>	Our return forecasts for fixed income derive from current yield conditions together with expectations as to how real and nominal yield curves could evolve relative to historical averages. For corporate bonds, we also analyze credit spreads and their term structures, with separate assessments of investment-grade and high-yield bonds
<b>Equities</b>	Our long-term equity forecasts begin with expectations for developed market large capitalization stocks. The foundation for these forecasts are estimates of real return potential, derived from current dividend yields, forecast real earnings growth rates, and potential for expansion or contraction of valuation multiples. Our forecasting method incorporates long run estimates of potential economic growth based on forecast labor and capital inputs to estimate real earning growth.
<b>Factor Returns</b>	Over a one to three-year forecast horizon, we look to see how cheap each factor is relative to its own history. Specifically, we focus on book/price spreads for each factor and relate that to their subsequent returns. We find that valuation ratios are useful for forecasting market returns.
<b>Commodities</b>	Our long-term commodity forecast is based on the level of world GDP, as a proxy for consumption demand, as well as on our inflation outlook. Additional factors affecting the returns to a commodities investor include how commodities are held (e.g., physically, synthetically, or via futures) and the various construction methodologies of different commodity benchmarks.

All assumptions are based upon current market conditions as of the date of this presentation and are subject to change. **Past performance is no guarantee of future results.** All investments involve risk including the loss of principal. All material presented herein are obtained from sources believed to be reliable, but accuracy cannot be guaranteed.

# SPDR Sector Scorecard

	Composite Score	Metrics
	Validation	<b>Relative Valuation</b> (P/B, P/E, NTM P/E, P/S)
		<b>Absolute Valuation</b> (P/B, P/E, NTM P/E, P/S)
	Earnings Sentiment	<b>Earnings Revision</b> (Changes to EPS Estimates, Upgrade to Downgrade Ratio)
		<b>Earnings Surprise</b> (The Magnitude and Breadth of Earnings Surprise)
Momentum	<b>Price Returns</b> 3-Months, 6-Months, 12-Months	
Volatility	<b>Realized Volatility</b>	<b>Standard Deviation</b> 30-Days Annualized
	<b>Implied Volatility</b>	<b>3-Month-at-the-money</b> Implied Volatility for Options

The metrics shown are z-scores, which are calculated using the mean and standard deviation of the relevant metrics within S&P 500 sectors. Using Z-scores to standardize results across all sectors allows for easier relative assessment. Sectors with cheaper valuation, higher price momentum, higher sentiment and higher volatility will have higher z-scores.

We calculate a composite score by equally weighting each metric z-score in the same category.

The scorecard does not represent the investment views of State Street. Metrics used in the scorecard have not been backtested for any sector strategies by State Street. These are for illustrative and educational purposes as we seek to bring greater transparency to the sector investing landscape and the due diligence required to build sophisticated portfolios to meet specific client objectives.

Source: SPDR America Research.

## Appendix D

# Definitions

**Basis Point:** One hundredth of one percent, or 0.01%.

**Bloomberg Barclays EM USD Aggregate Index:** The index is a hard currency emerging markets debt benchmark that includes US dollar-denominated debt from sovereign, quasi-sovereign, and corporate issuers in the developing markets.

**Bloomberg Barclays Global Aggregate Bond Index:** A benchmark that provides a broad-based measure of the global investment-grade fixed income markets. The three major components of this index are the US Aggregate, the Pan-European Aggregate, and the Asian-Pacific Aggregate Indices. The index also includes Eurodollar and Euro-Yen corporate bonds, Canadian government, agency and corporate securities, and USD investment-grade 144A securities.

**Bloomberg Barclays Global Aggregate Bond Index:** The Bloomberg Barclays Global Aggregate Index is a flagship measure of global investment grade debt from twenty-four local currency markets. This multi-currency benchmark includes treasury, government-related, corporate and securitized fixed-rate bonds from both developed and emerging markets issuers.

**Bloomberg Barclays US Aggregate Index:** A benchmark that provides a measure of the performance of the US dollar denominated investment grade bond market, which includes investment grade government bonds, investment grade corporate bonds, mortgage pass through securities, commercial mortgage backed securities and asset backed securities that are publicly for sale in the US.

**Bloomberg Barclays US Corporate 1–3 Year Index:** The Index includes publicly issued US dollar denominated corporate issues that have a remaining maturity of greater than or equal to 1 year and less than 3 years, are rated investment grade.

**Bloomberg Barclays US Corporate Bond Index:** The Bloomberg Barclays US Corporate Bond Index measures the investment grade, US dollar-denominated, fixed-rate, taxable corporate and government related bond markets. It is composed of the US Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals and local authorities.

**Bloomberg Barclays US Corporate High Yield Index:** The index consists of fixed rate, high yield, USD-denominated, taxable securities issued by US corporate issuers.

**Bloomberg Barclays US Treasury 1–3 Year Index:** The Index is designed to measure the performance of short term (1–3 years) public obligations of the US Treasury.

**Bloomberg Barclays US Treasury Bill 1–3 Months Index:** The Bloomberg Barclays

1–3 Month US Treasury Bill Index (the "Index") is designed to measure the performance of public obligations of the US Treasury that have a remaining maturity of greater than or equal to 1 month and less than 3 months.

**Bloomberg Commodity Index:** Bloomberg Commodity Index (BCOM) is calculated on an excess return basis and reflects commodity futures price movements. The index rebalances annually weighted 2/3 by trading volume and 1/3 by world production and weight-caps are applied at the commodity, sector and group level for diversification.

**Breakeven Inflation Rate:** It is a market based measure of expected inflation. It is the difference between the yield of a nominal bond and an inflation linked bond of the same maturity.

**Bloomberg Barclays US High Yield Index:** The Bloomberg USD High Yield Corporate Bond Index is a rules-based, market-value weighted index engineered to measure publicly issued non-investment grade USD fixed-rate, taxable, corporate bonds. To be included in the index a security must have a minimum par amount of 250MM.

**Bloomberg Barclays US Treasury Index:** The Bloomberg US Treasury Bond Index is a rules-based, market-value weighted index engineered to measure the performance and characteristics of fixed rate coupon US Treasuries which have a maturity greater than 12 months. To be included in the index a security must have a minimum par amount of 1,000MM.

**Bloomberg China Credit Impulse Index:** Credit Impulse measure the impact of new lending increments, or acceleration of credits, to GDP growth.

**CBOE VIX Index:** The Chicago Board Options Exchange (CBOE) Volatility Index shows the market's expectation of 30-day volatility. It is constructed using the implied volatilities of a wide range of S&P 500 index options.

**Citigroup Economic Surprise Index:** The Citi Economic Surprise Indices measure data surprises relative to market expectations. A positive reading means that data releases have been stronger than expected and a negative reading means that data releases have been worse than expected.

**Credit Spread:** A credit spread is the difference in yield between a US Treasury bond and a debt security with the same maturity but of lesser quality.

**Current Short Interest (%):** The percentage of tradable outstanding shares which have been shorted. Used as a measure of investor sentiment.

## Appendix D (continued)

# Definitions

**Convexity:** Convexity is a measure of the curvature in the relationship between bond prices and bond yields. Bond with negative convexity, prices decrease as interest rate fall. Since many high yields bonds are callable, the price of the callable bonds might drop in the event of falling yields because the bond could be called.

**DXY Dollar Index:** The DXY Dollar Index tracks the performance of a basket of foreign currencies issued by US major trade partners, including Eurozone, Japan, U.K. Canada, Sweden and Switzerland, versus the US Dollar.

**Euro STOXX 50 Index:** Europe's leading blue-chip index for the Eurozone, provides a blue-chip representation of super-sector leaders in the Eurozone. The index covers 50 stocks from 12 Eurozone countries.

**Excess Returns:** A security's return minus the return from another security in the same time period.

**Global Industry Classification Standard (GICS):** An industry taxonomy developed in 1999 by MSCI and Standard & Poor's (S&P) for use by the global financial community. The GICS structure consists of 10 sectors, 24 industry groups, 67 industries and 156 sub-industries [1] into which S&P has categorized all major public companies.

**Implied Volatility:** The estimated volatility of a security's price. In general, implied volatility increases when the market is bearish and decreases when the market is bullish. This is due to the common belief that bearish markets are more risky than bullish markets.

**Minimum Volatility Factor:** A category of stocks that are characterized by relatively less movement in share price than many other equities.

**Momentum Factor:** The tendency for a security to maintain a certain direction of price trajectory. This tendency is well documented in academic research, which has made "momentum" one of the six smart beta factors that are systematically being isolated in new-generation strategic indexes.

**MSCI EAFE Index:** An equities benchmark that captures large- and mid-cap representation across developed market countries around the world, excluding the US and Canada.

**MSCI Emerging Market Index:** The MSCI Emerging Markets Index captures large and mid-cap representation across 23 emerging markets countries. With 834 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in each country.

**MSCI Europe Index:** The MSCI Europe Index is a free-float weighted equity index

designed to measure the equity market performance of the developed markets in Europe.

**MSCI Japan Index:** The MSCI Europe Index is a free-float weighted equity index designed to measure the equity market performance of the developed markets in Japan.

**MSCI USA Enhanced Value Weighted Index:** The MSCI USA Enhanced Value Weighted Index captures large and mid-cap representation across the US equity markets exhibiting overall value style characteristics. The index is designed to represent the performance of securities that exhibit higher value characteristics relative to their peers within the corresponding GICS® sector.

**MSCI USA Equal Weighted Index:** The MSCI USA Equal Weighted Index represents an alternative weighting scheme to its market cap weighted parent index, the MSCI USA Index. At each quarterly rebalance date, all index constituents are weighted equally, effectively removing the influence of each constituent's current price (high or low).

**MSCI USA High Dividend Yield Index:** The MSCI World High Dividend Yield Index is based on the MSCI USA Index, its parent index, and includes large and mid cap stocks. The index is designed to reflect the performance of equities in the parent index (excluding REITs) with higher dividend income and quality characteristics than average dividend yields that are both sustainable and persistent. The index also applies quality screens and reviews 12-month past performance to omit stocks with potentially deteriorating fundamentals that could force them to cut or reduce dividends.

**MSCI USA Index:** The MSCI World Index, which is part of The Modern Index Strategy, is a broad global equity benchmark that represents large and mid-cap equity performance across 23 developed markets countries. It covers approximately 85% of the free float-adjusted market capitalization in each country and MSCI World benchmark does not offer exposure to emerging markets.

**MSCI USA Minimum Volatility Index:** The MSCI USA Minimum Volatility (USD) Index aims to reflect the performance characteristics of a minimum variance strategy applied to the MSCI large and mid cap equity universe. The index is calculated by optimizing the MSCI USA Index, its parent index, for the lowest absolute risk (within a given set of constraints). Historically, the index has shown lower beta and volatility characteristics relative to the MSCI World Index.

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## Appendix D (continued)

# Definitions

**Price-earnings ratio (P/E Ratio):** The price-earnings ratio (P/E Ratio) is the ratio for valuing a company that measures its current share price relative to its per-share earnings. The price-earnings ratio can be calculated as: Market Value per Share/Earnings per Share.

**Price-to-book ratio (P/B Ratio):** The price-to-book ratio (P/B Ratio) is a ratio used to compare a stock's market value to its book value. It is calculated by dividing the current closing price of the stock by the latest quarter's book value per share. Also known as the "price-equity ratio."

**Quality Factor:** One of the six widely recognized, research-based smart beta factors that refers to "quality" equities. Companies whose stocks qualify exhibit consistent profitability, stability of earnings, low financial leverage and other characteristics consistent with long-term reliability such as ethical corporate governance.

**Risk on:** Used to describe investment sentiment when investors' risk tolerance increases.

**Russell 1000 Growth Index:** The index is a style index designed to track the performance of stocks that exhibit the strongest growth characteristics by using a style-attractiveness-weighting scheme.

**Russell 1000 Value Index:** The index is a style-concentrated index designed to track the performance of stocks that exhibit the strongest value characteristics by using a style-attractiveness-weighting scheme.

**Russell 2000 Index:** A benchmark that measures the performance of the small-cap segment of the US equity universe.

**S&P/LSTA US Leveraged Loan 100 Index:** The S&P/LSTA US Leveraged Loan 100 Index is designed to reflect the largest facilities in the leveraged loan market.

**S&P 500 Communication Services Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® Communication Services sector.

**S&P 500 Consumer Discretionary Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® consumer discretionary sector.

**S&P 500 Consumer Staples Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® consumer staples sector.

**S&P 500 Financial Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® financial sector.

**S&P 500 Health Care Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® health care sector.

**S&P 500 High Dividend Index** is designed to measure the performance of the top 80 high dividend-yielding companies within the S&P 500® Index, based on dividend yield.

**S&P 500 Index:** A popular benchmark for US large-cap equities that includes 500 companies from leading industries and captures approximately 80% coverage of available market capitalization.

**S&P 500 Industrial Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® industrial sector.

**S&P500 Information Technology Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® information technology sector.

**S&P 500 Low Volatility Index:** The S&P 500® Low Volatility Index measures performance of the 100 least volatile stocks in the S&P 500. The index benchmarks low volatility or low variance strategies for the US stock market. Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

**S&P 500 Materials Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® materials sector.

**S&P 500 Quality Index:** The index is designed to track high quality stocks in the S&P 500 by quality score, which is calculated based on return on equity, accruals ratio and financial leverage ratio.

**S&P 500 Real Estate Sector Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® real estate sector.

## Appendix D (continued)

# Definitions

**S&P 500 Utilities Index:** The Index comprises of those companies included in the S&P 500 that are classified as members of the GICS® utilities sector.

**Size Factor:** A smart beta factor based on the tendency of small-cap stocks to outperform their large-cap peers over long time periods.

**Spread Changes:** Changes in the spread between Treasury securities and non-Treasury securities that are identical in all respects except for quality rating.

**Standard Deviation:** Measures the historical dispersion of a security, fund or index around an average. Investors use standard deviation to measure expected risk or volatility, and a higher standard deviation means the security has tended to show higher volatility or price swings in the past.

**State Street Confidence Indexes:** Measures investor confidence or risk appetite quantitatively by analyzing the actual buying and selling patterns of institutional investors. The index assigns a precise meaning to changes in investor risk appetite: the greater the percentage allocation to equities, the higher risk appetite or confidence. A reading of 100 is neutral; it is the level at which investors are neither increasing nor decreasing their long-term allocations to risky assets. The results shown represent current results generated by State Street Investor Confidence Index. The results shown were achieved by means of a mathematical formula in addition to transactional market data, and are not indicative of actual future results which could differ substantially.

**Value Factor:** One of the basic elements of “style”-focused investing that focuses on companies that may be priced below intrinsic value. The most commonly used methodology to assess value is by examining price-to-book (P/B) ratios, which compare a company’s total market value with its assessed book value.

**Yield:** The income produced by an investment, typically calculated as the interest received annually divided by the investment’s price.

**Yield Curve:** A graph or line that plots the interest rates or yields of bonds with similar credit quality but different durations, typically from shortest to longest duration. When the yield curve is said to be flat, it means the difference in yields between bonds with shorter and longer durations is relatively narrow. When the yield curve is said to be steepened, it means the difference in yields between short term and long term bonds increases.

**Yield Factor:** A factor which screens for companies with a higher than average dividend yield relative to the broad market, and which have demonstrated dividend sustainability and persistence.

**Yield to Worst:** Yield to worst is an estimate of the lowest yield that you can expect to earn from a bond when holding to maturity, absent a default. It is a measure that is used in place of yield to maturity with callable bonds.

**Z-score:** It indicates how many standard deviations an element is from the mean. A z-score can be calculated from the following formula.  $z = (X - \mu) / \sigma$  where z is the z-score, X is the sector relative performance.  $\mu$  is the mean of the eleven sector relative performance, and  $\sigma$  is the standard deviation of sectors’ relative performance.

**Bloomberg Barclays US FRN < 5yr Index:** The Bloomberg Barclays US Dollar Floating Rate Note < 5 Years Index consists of debt instruments that pay a variable coupon rate, a majority of which are based on the 3-month LIBOR, with a fixed spread.

**Bloomberg Barclays U.S. MBS Index** (the “MBS Index”) measures the performance of the U.S. agency mortgage pass-through segment of the U.S. investment grade bond market.



## Appendix E

# Important Disclosures

The views expressed in this material are the views of SPDR Americas Research Team and are subject to change based on market and other conditions. This document contains certain statements that may be deemed forward-looking statements. Please note that any such statements are not guarantees of any future performance and actual results or developments may differ materially from those projected.

The information provided does not constitute investment advice and it should not be relied on as such. It should not be considered a solicitation to buy or an offer to sell a security. It does not take into account any investor's particular investment objectives, strategies, tax status or investment horizon. You should consult your tax and financial advisor.

All material has been obtained from sources believed to be reliable. There is no representation or warranty as to the accuracy of the information and State Street shall have no liability for decisions based on such information.

All the index performance results referred to are provided exclusively for comparison purposes only. It should not be assumed that they represent the performance of any particular investment.

**Bonds** generally present less short-term risk and volatility than stocks, but contain interest rate risk (as interest rates rise, bond prices usually fall); issuer default risk; issuer credit risk; liquidity risk; and inflation risk. These effects are usually pronounced for longer-term securities. Any fixed income security sold or redeemed prior to maturity may be subject to a substantial gain or loss.

The values of **debt securities** may decrease as a result of many factors, including, by way of example, general market fluctuations; increases in interest rates; actual or perceived inability or unwillingness of issuers, guarantors or liquidity providers to make scheduled principal or interest payments; illiquidity in debt securities markets; and prepayments of principal, which often must be reinvested in obligations paying interest at lower rates.

**Equity securities** may fluctuate in value in response to the activities of individual companies and general market and economic conditions.

Investments in **small-sized companies** may involve greater risks than in those of larger, better known companies.

Investments in **mid-sized companies** may involve greater risks than in those of larger, better known companies, but may be less volatile than investments in smaller companies.

Companies with **large market capitalizations** go in and out of favor based on market and economic conditions. Larger companies tend to be less volatile than companies with smaller market capitalizations. In exchange for this potentially lower risk, the value of the security may not rise as much as companies with smaller market capitalizations.

**Value stocks** can perform differently from the market as a whole. They can remain undervalued by the market for long periods of time.

**Foreign investments** involve greater risks than US investments, including political and economic risks and the risk of currency fluctuations, all of which may be magnified in emerging markets.

Because of their narrow focus, **sector funds** tend to be more volatile.

**Commodities** investing entail significant risk as commodity prices can be extremely volatile due to wide range of factors Bond funds contain interest rate risk (as interest rates rise bond prices usually fall); the risk of issuer default; issuer credit risk; liquidity risk; and inflation risk.

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Expiration Date: January 31, 2020

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