

State Street Global Advisors SPDR[®] ETFs Chart Pack

March 2019 Edition

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

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SPDR[®]

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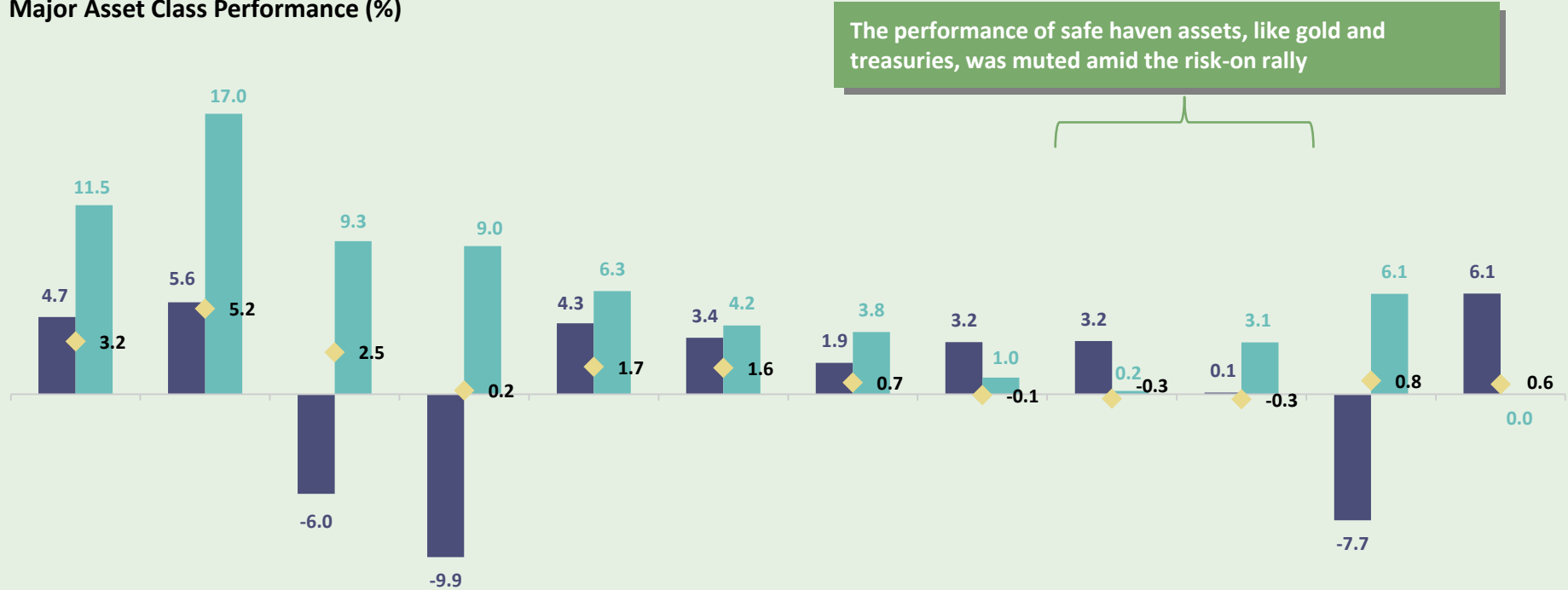
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Market Environment

Asset Class Performance — US equities saw double digit returns, led by small caps, while High Yield took charge in fixed income markets

Major Asset Class Performance (%)



The performance of safe haven assets, like gold and treasuries, was muted amid the risk-on rally

US LARGE CAP	US SMALL CAP	DEVELOPED	EMERGING	HIGH YIELD	SENIOR LOAN	EM HARD CURRENCY DEBT	AGG	TREASURIES	GOLD	BROAD COMMODITIES	US DOLLAR
S&P 500 Index	Russell 2000 Index	MSCI EAFE Index	MSCI Emerging Markets Index	Bloomberg Barclays US Corporate High Yield Index	S&P/LSTA Leveraged Loan Index	Bloomberg Barclays EM Hard Currency Index	Bloomberg Barclays US Aggregate Index	Bloomberg Barclays US Treasury Index	LBMA Gold Price	Bloomberg Commodity Index	DXY Dollar Index

■ Trailing 12 Months
 ■ YTD
 ◆ Prior Month

Source: Bloomberg Finance, L.P. As of February 28, 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.

Technicals — The rally has lifted many equity segments above their 200-day moving averages, but no major area has witnessed a golden cross (50 day > 200 day)

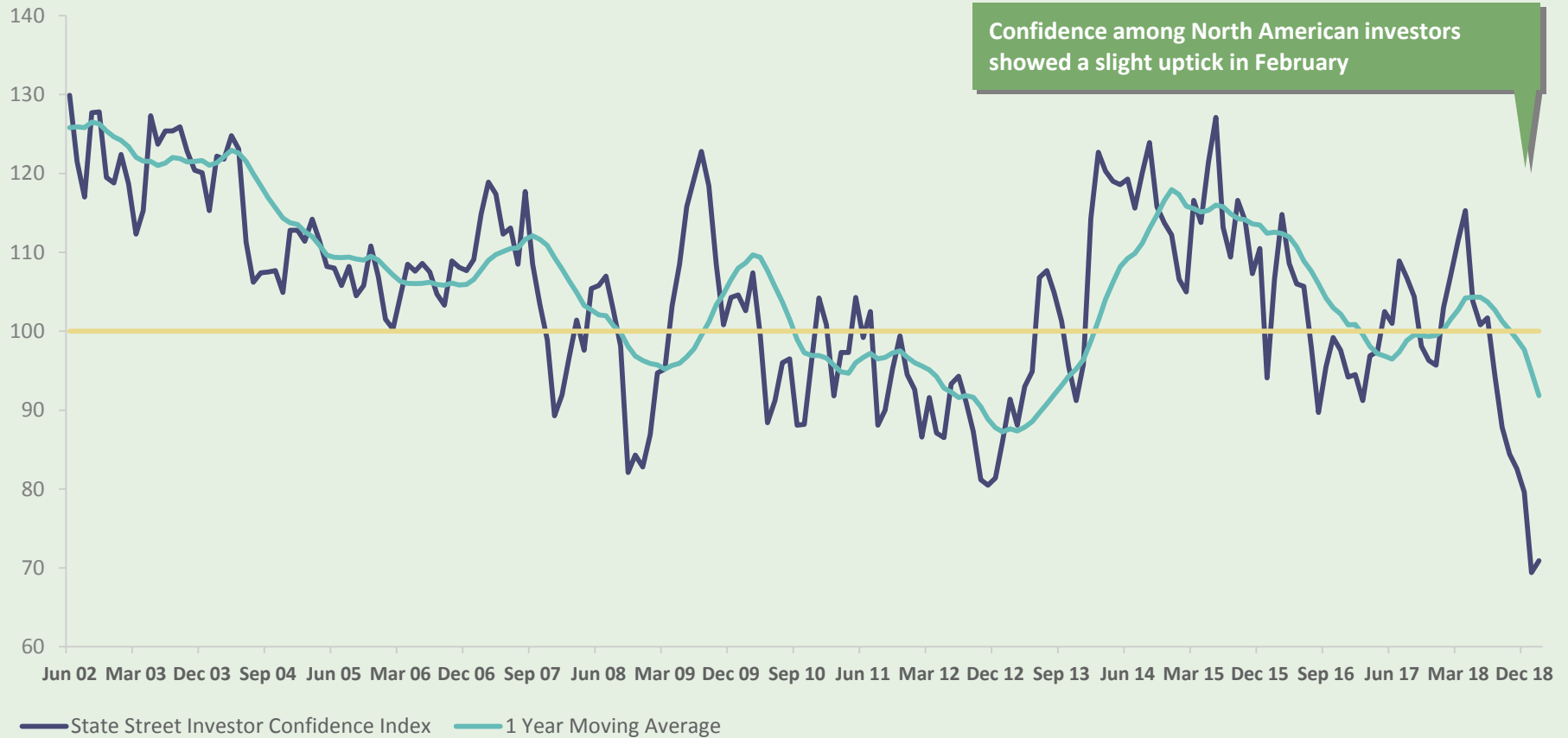
Major Asset Class % Difference to Moving Averages



Source: Bloomberg Finance, L.P. As of February 28, 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 — Investor confidence ticked up, but remains extremely risk-averse amid lingering growth concerns and trade policy uncertainty

State Street Investor Confidence Index

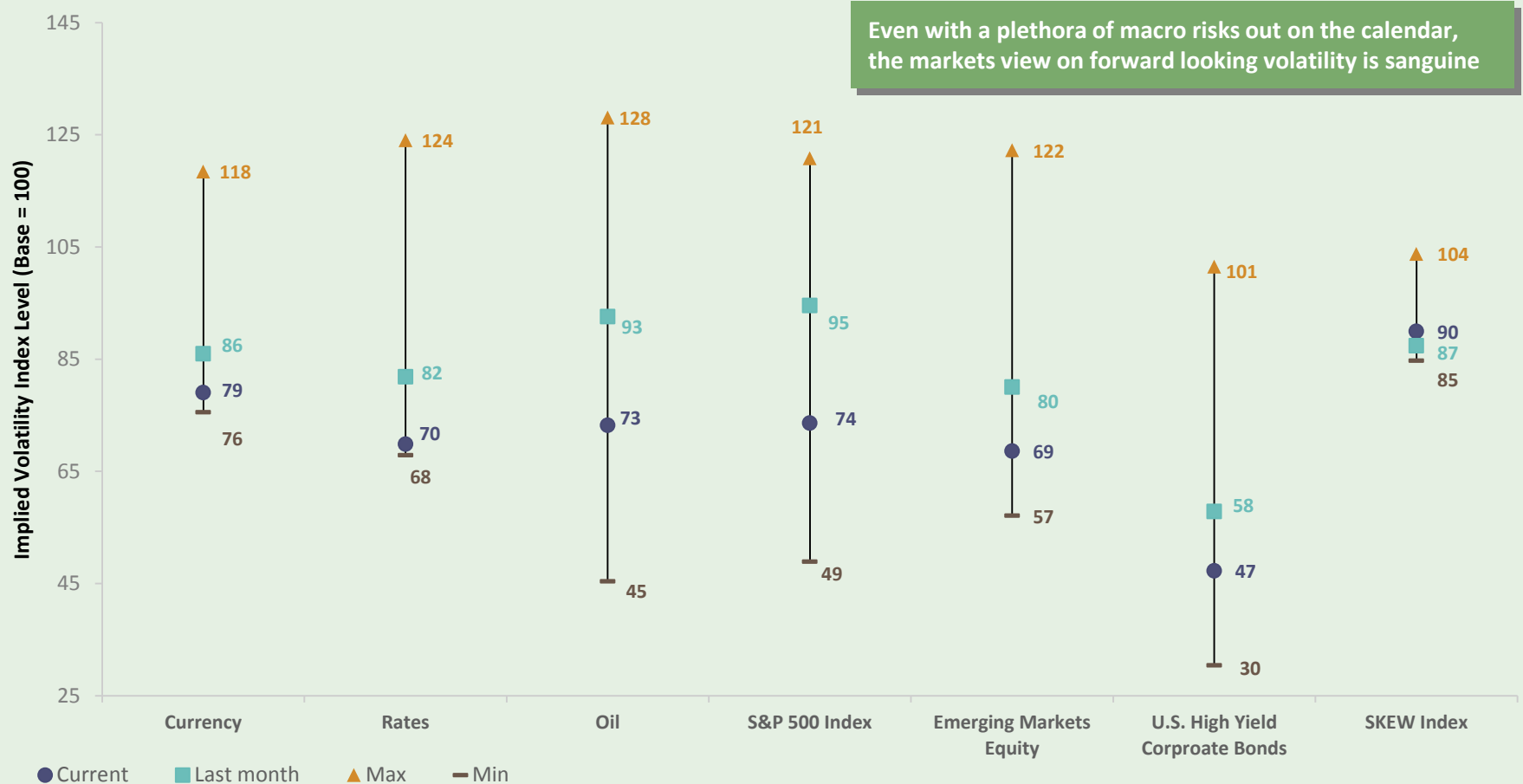


Source: Bloomberg Finance, L.P. As of February 28, 2019.

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 — Implied volatility moved lower across all asset classes, with rates and currency volatility near their lowest level since 2016

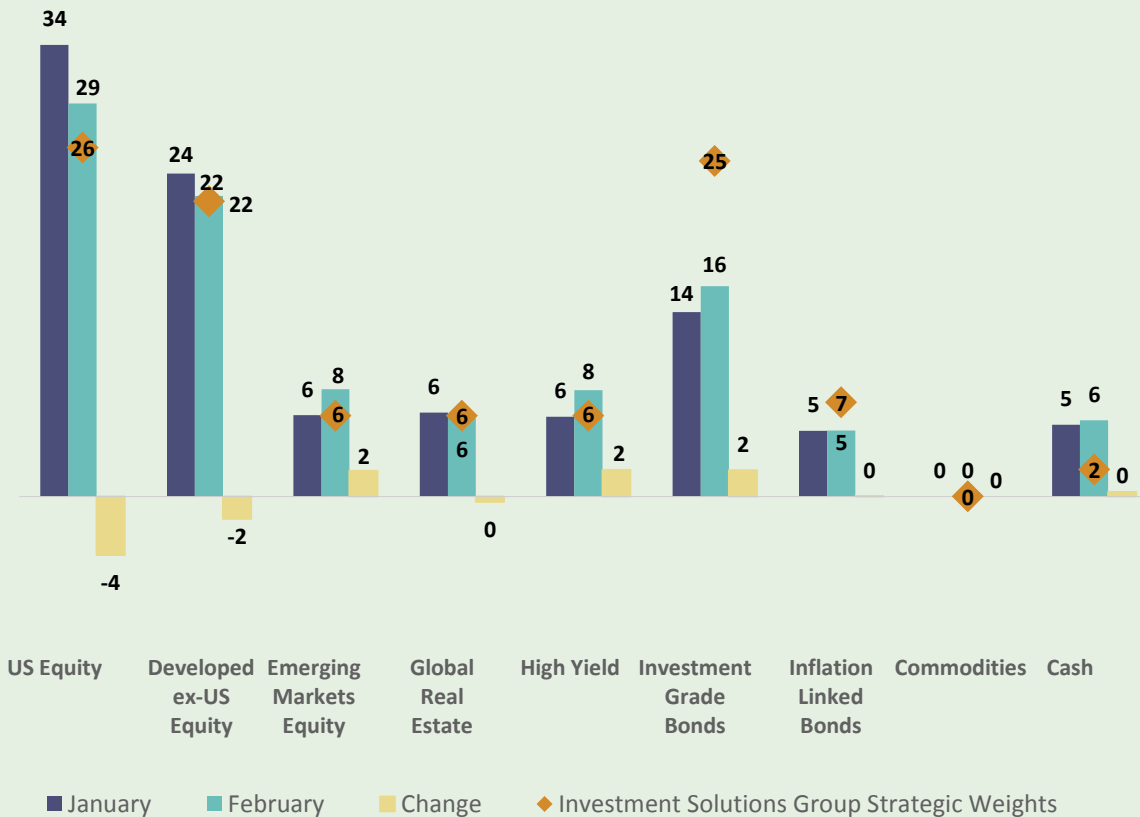
Cross-Asset Implied Volatility (Daily Average, Since January 2016)



Source: Bloomberg Finance, L.P. As of February 28, 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. Standard deviation is a historical measure of the volatility of returns. If a portfolio has a high standard deviation, its returns have been volatile; a low standard deviation indicates returns have been less volatile. 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.

State Street Current Positioning — Given concerns about stretched valuations in the US and growth deceleration in Europe, State Street reduced equity exposures and added bonds

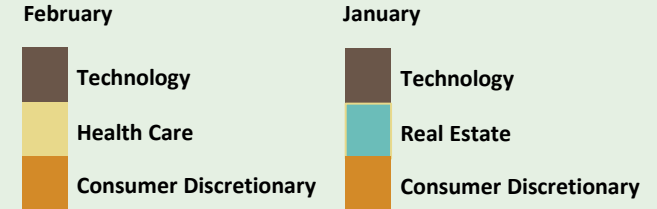
SPDR SSGA Global Allocation ETF [GAL] Current and Strategic Exposures (%)



February Tactical Rebalance Trades:

- Sold US Equities**
- Sold Developed ex-US Equities**
- Bought EM Equities**
- Bought High Yield**
- Bought Investment Grade Bonds**

Sector Rotation Trades:



Positions are 2% Each for 6% of US Equity Allocation

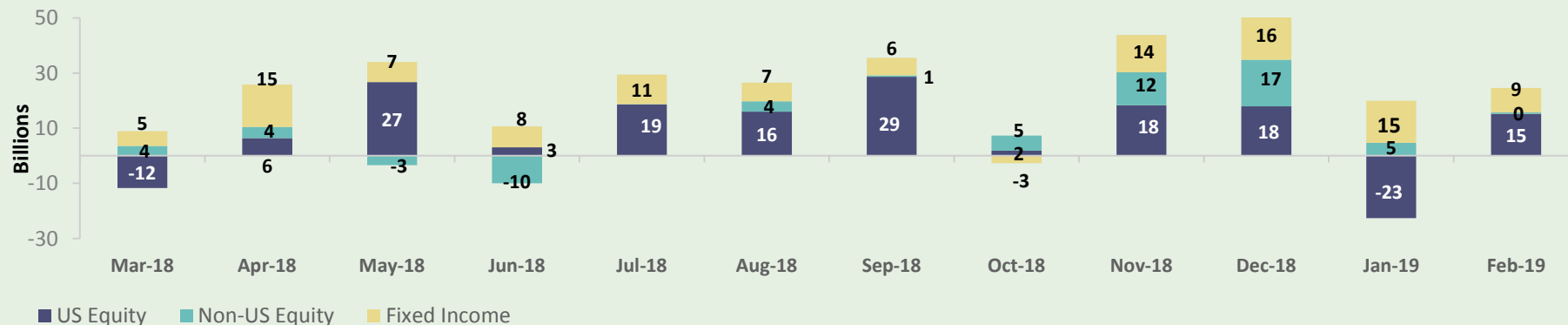
Sectors are included based on their relative valuation, momentum and earnings sentiment

Source: State Street Global Advisors. As of February 28, 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.

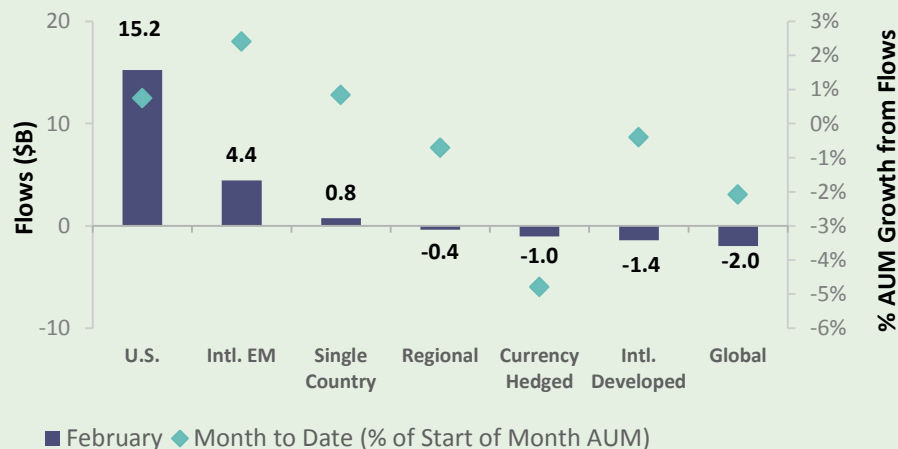
Global Flows & Fundamentals, US Factors

Flow Trends — Equity funds reversed course, taking in over \$15B of inflows last month, while fixed income flows still outpace equity on a year-to-date basis

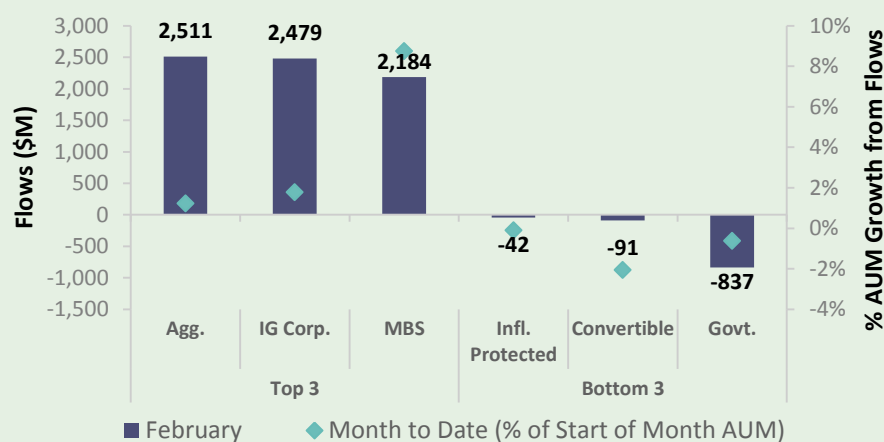
Flows by Asset Class



Flows by Equity Regions



Fixed Income Top and Bottom 3 Sectors by Flows



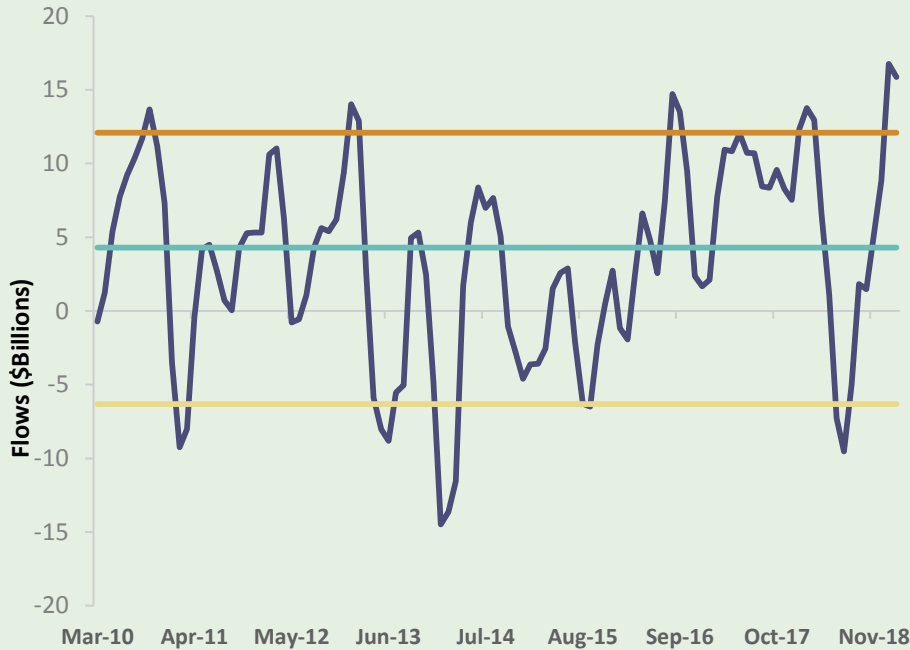
US equity ETFs took in the most flows, but EM equity funds attracted the most flows relative to its asset size

Net outflows from government bond ETFs indicated renewed risk-taking sentiment

Source: State Street Global Advisors, Bloomberg Finance, L.P. As of February 28, 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 — Investors piled into EM equity exposures and showed renewed interest in sector rotation strategies amid the snapback rally

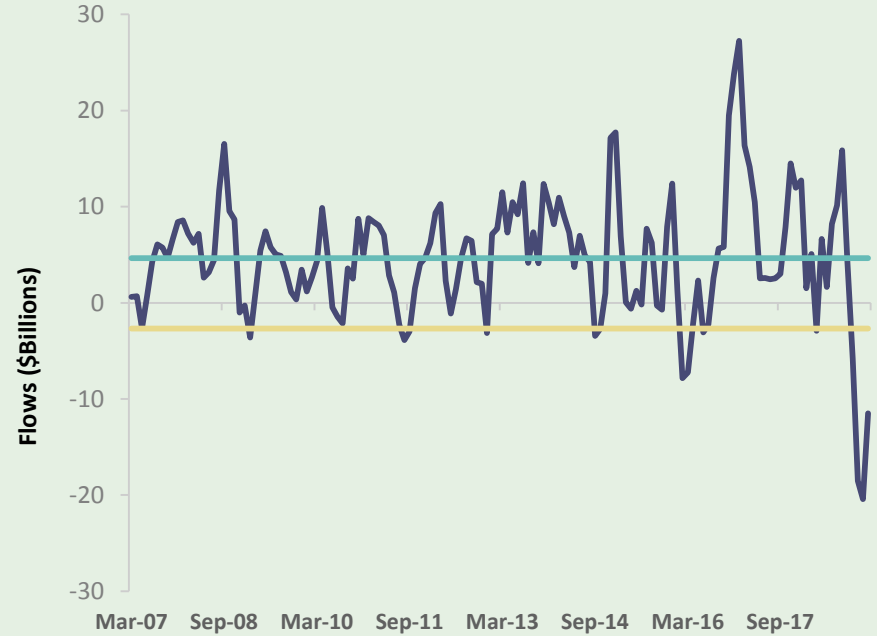
Rolling 3 Month EM Equity ETF Flows



- Rolling 3 Month EM Equity ETF Flows
- Median
- 10th Percentile
- 90th Percentile

EM equity flows are well above their historical 90th percentile

Rolling 3 Month US Sector Equity ETF Flows



- Rolling 3 Month US Sector Equity ETF Flows
- Median
- 10th Percentile

The sector flow trends reversed last month, breaking a streak of four consecutive months of outflows

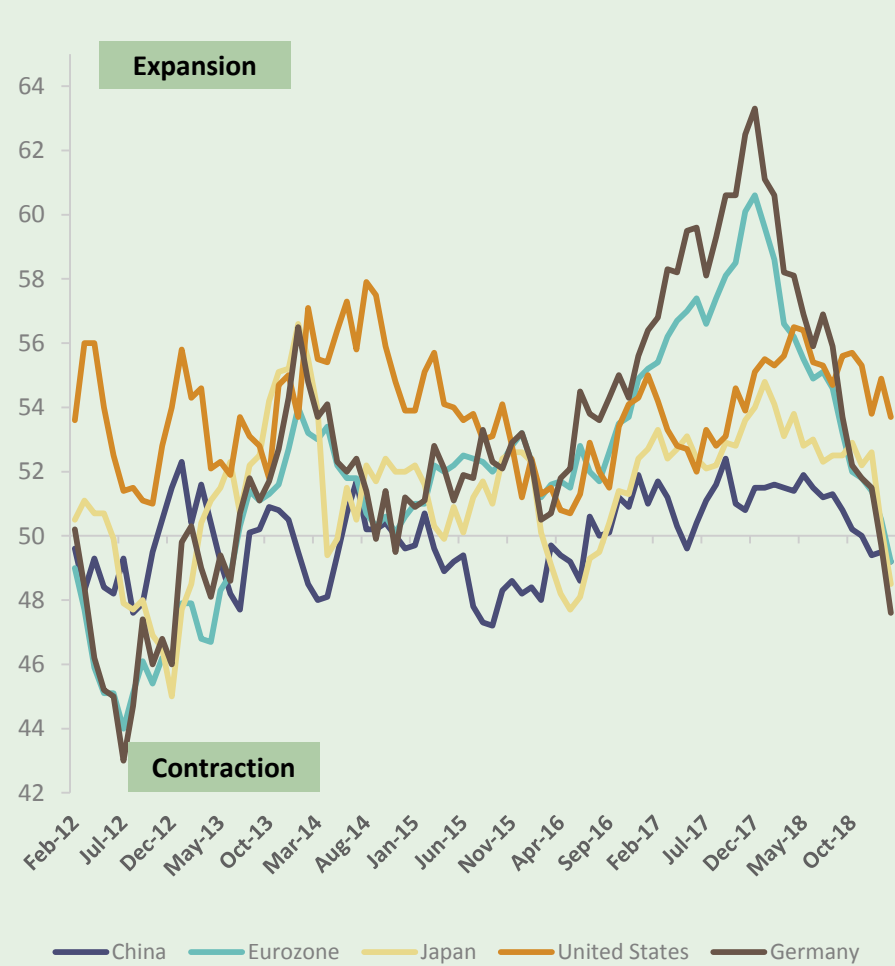
Source: State Street Global Advisors, Bloomberg Finance, L.P. As of February 28, 2019. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

Global Economy — US economic sentiment weakened sharply in February, while global manufacturing activity fell into contraction, except for in the U.S.

Citigroup Economic Surprise Indices



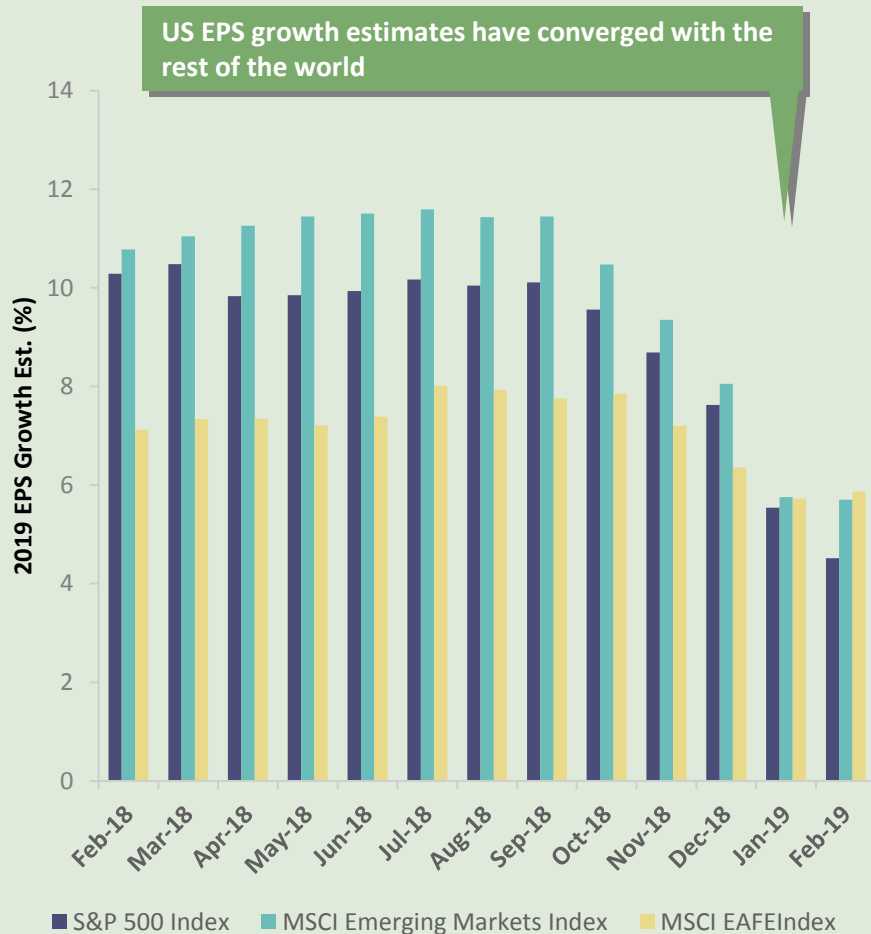
Manufacturing PMI Indices



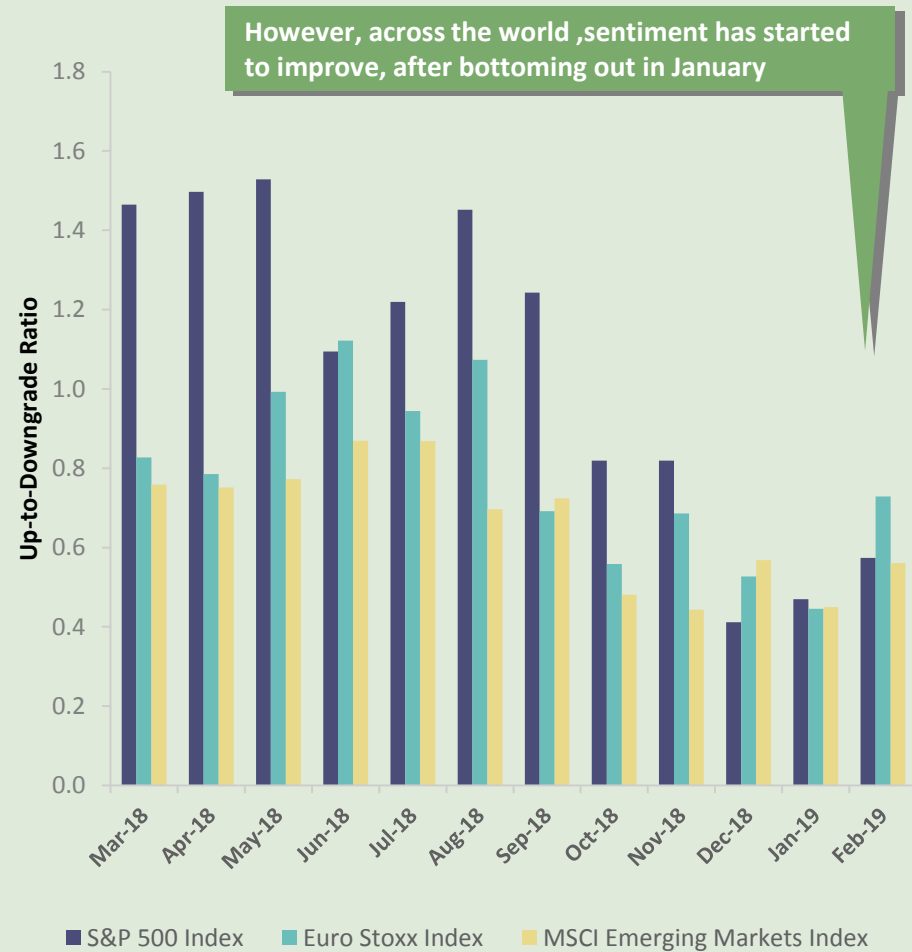
Source: Bloomberg Finance L.P., as of 02/28/2019.

Global Earnings — Analysts downgraded US earnings growth for 2019 further, but earnings sentiment (upgrade to downgrade) has stabilized across regions

2019 EPS Growth Est.



2019 Earnings Up-to-Downgrade Ratios



Source: FactSet, as of February 28, 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.

Global Valuation — The recent rally stretched US valuations, but EM stocks remain below or near historical medians

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

	Valuation to Region History (Percentile)				Absolute Valuation Composite Z-Score	Valuation Relative to the S&P 500 (Percentile)				Valuation Relative to the S&P 500 Composite Z-Score
	P/E	NTM P/E	P/B	P/S		P/E	NTM P/E	P/B	P/S	
S&P 500 Index	27%	20%	3%	8%	-1.37	N/A	N/A	N/A	N/A	N/A
S&P MidCap 400 Index	64%	56%	55%	26%	0.29	83%	97%	98%	100%	0.54
Russell 2000 Index	52%	32%	42%	32%	-0.18	71%	86%	87%	98%	0.18
Russell 3000 Value	34%	46%	13%	16%	-0.74	72%	100%	79%	98%	0.20
Russell 3000 Growth	13%	3%	10%	3%	-1.75	0%	1%	32%	1%	-2.93
MSCI World ex-US	75%	61%	65%	24%	0.54	86%	97%	98%	93%	0.52
Euro Stoxx Index	66%	41%	52%	15%	-0.08	81%	78%	100%	74%	0.15
MSCI EM Index	54%	55%	62%	42%	0.47	71%	86%	97%	90%	0.21
MSCI Japan Index	93%	88%	60%	35%	1.20	91%	98%	98%	91%	0.57
MSCI UK Index	73%	42%	91%	60%	1.09	87%	95%	99%	99%	0.58
MSCI Germany Index	68%	51%	71%	17%	0.30	87%	95%	99%	88%	0.47
MSCI China Index	45%	45%	48%	50%	0.23	55%	64%	77%	81%	-0.48

EM equities are trading near historical medians across multiple valuation ratios

Higher percentile ranking indicates more attractive valuations

Top 3
Attractive Valuation

Bottom 3
Expensive Valuation

Source: State Street Global Advisors, FactSet, as of February 28, 2019.

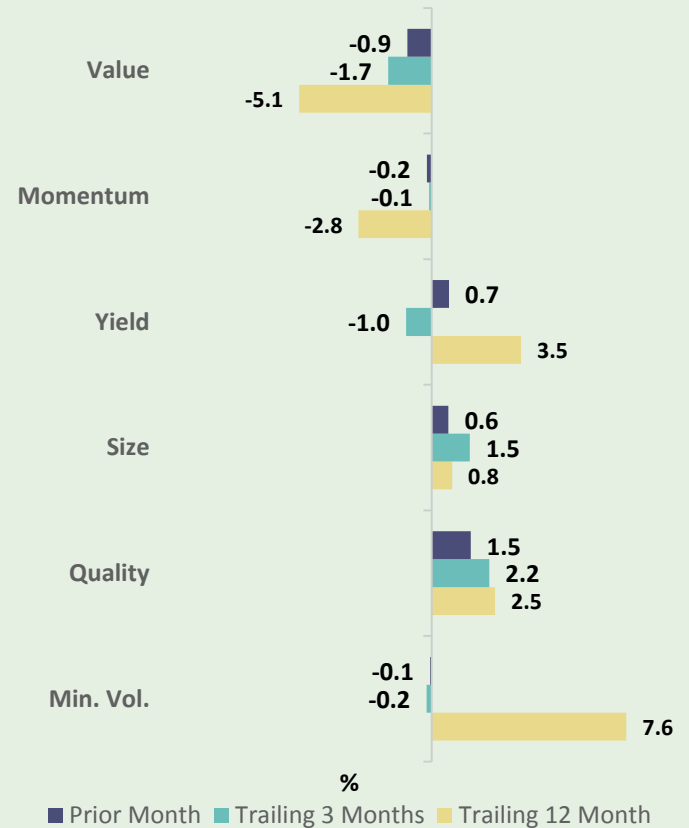
*The z-score is calculated as the average z-score of percentile ranking of P/B, P/E, NTM P/E and P/S valuations last 15 years and valuations relative to the S&P 500 last 15 years. Z-score indicates how many standard deviations an element is from the mean. A z-score can be calculated from the following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

US Factor Trends — Quality took the lead last month and has been the best performing factor over the last three months, while small-caps continued rallying

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



Period Excess Returns versus MSCI USA Index

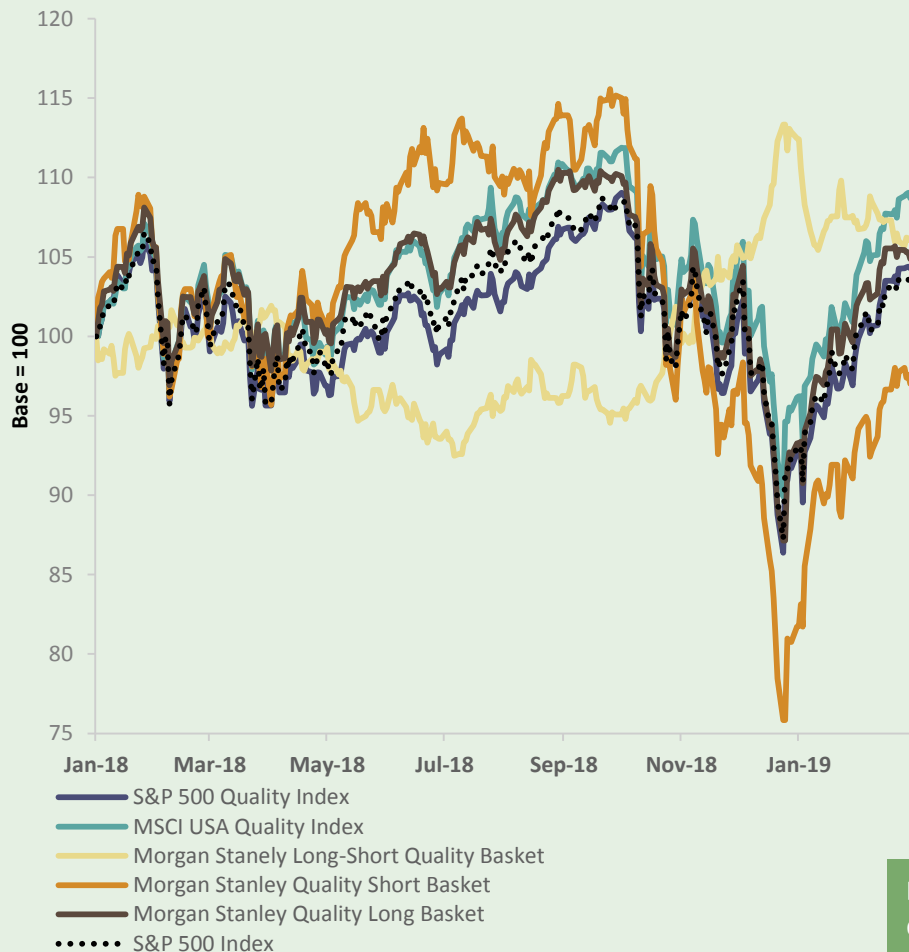


Source: Bloomberg Finance, L.P. As of February 28, 2019.

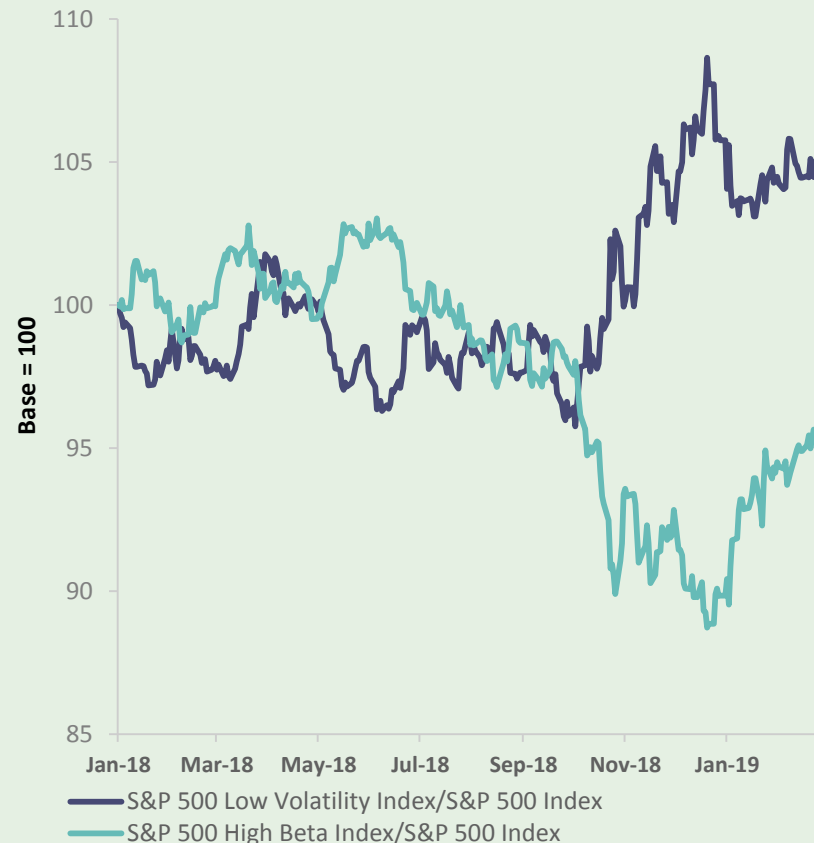
Past performance is not a guarantee of future results. MSCI USA Minimum Volatility Index, MSCI USA Enhanced Value Index, MSCI USA Quality Index, MSCI USA Equal Weighted Index, MSCI USA High Dividend Yield Index, and MSCI USA Momentum Index were used above compared to the MSCI USA Index. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

US Factor Trends — While the quality factor is in favor, within pure forms of quality exposures it was side stepping low quality stocks that powered returns

Quality Factor Return Trends vs. S&P 500 Index



Low Volatility versus High Beta Performance Trends



High beta stocks have rallied as the market recovered, but the divergence between low volatility and high beta stocks remains wide

Source: Bloomberg Finance, L.P. As of February 28, 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.

Sectors

Sector Flow and Returns Heat Map — Cyclical sectors continued rallying, but defensive sectors have attracted the most inflows

	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	81	(2,021)	10.2%	9.7%	0.78	1.85	6.18
Consumer Staples	197	478	6.5%	7.5%	2.29	-2.20	5.21
Energy	(551)	(2,706)	10.5%	11.9%	2.62	-0.43	0.87
Financial	(1,278)	(7,819)	7.6%	8.1%	2.42	-1.11	-6.35
Health Care	668	(430)	10.9%	10.8%	1.17	-3.06	10.82
Industrials	(170)	(2,877)	8.4%	9.9%	6.40	5.83	1.59
Materials	(164)	(1,352)	6.3%	6.9%	3.28	1.44	-5.81
Real Estate	3,123	2,720	4.0%	3.7%	1.11	3.72	19.67
Technology	1,086	(2,750)	7.3%	9.7%	6.89	4.67	5.83
Communication	504	1,419	2.3%	2.0%	0.82	3.16	N/A
Utilities	488	1,074	15.9%	22.9%	4.16	3.39	20.35

The net outflows from Financials topped \$7.8bn over the last 3 months and the short interest stayed near the top 10th percentile in one year

Best Performing Sector
Most Flows in Period

Worst Performing Sector
Least Flows in Period



Source: State Street Global Advisors, Bloomberg Finance, L.P., as of February 28, 2019. Past performance is not a guarantee of future results.

Sector Trends — The recent outperformance of cyclical sectors has led the return spreads between cyclical and defensive sectors to cross over its long-term moving average

Cyclical vs. Defensive Performance



Sector Technicals

Even with the rally, only two sectors are not trading in a “death cross” (50 Day < 200 day)

	Last Px % Diff to 50 Day MVA	Last Px % Diff to 200 Day MVA	% Diff Between 50 and 200 Day MVA
Cons. Disc.	4.8%	0.3%	-4.3%
Cons. Staples	3.9%	2.7%	-1.2%
Energy	4.7%	-7.5%	-11.7%
Financials	5.3%	-1.2%	-6.2%
Health Care	3.3%	2.8%	-0.6%
Industrials	9.4%	4.1%	-4.9%
Tech.	8.4%	1.5%	-6.4%
Materials	4.7%	-2.1%	-6.5%
Comm Svs.	4.0%	-2.0%	-5.7%
Real Estate	5.1%	6.3%	1.1%
Utilities	4.7%	6.8%	2.0%

Source: Bloomberg Finance L.P. As of 02/29/2019. Past performance is not a guarantee of future results.

Sector Scorecard — Real Estate ranks first on an aggregate basis due to its strong momentum, while Financials moved up to the top 3 thanks to its attractive valuations

Sector Composite Z-Score*

	Valuation Composite Score	Momentum Composite Score	Earnings Sentiment Composite Score	Aggregate Score	Volatility Composite Score
Consumer Discretionary	-1.14	0.58	0.55	-0.05	1.11
Consumer Staples	0.28	-0.33	-0.21	-0.43	-0.33
Energy	0.53	-1.71	-0.53	-1.55	0.52
Financials	1.24	-0.73	-0.11	0.74	-0.55
Health Care	-0.12	0.71	0.36	0.79	0.62
Industrials	0.07	-0.19	0.18	0.05	0.26
Information Technology	-0.59	-0.04	0.43	-0.53	-1.41
Materials	0.31	-0.74	-1.01	-1.14	0.77
Communication	0.41	0.00	0.98	0.55	N/A
Real Estate	0.04	1.49	-0.96	1.14	-0.26
Utilities	-1.03	0.97	0.31	0.44	-0.72

Valuations of Financials appear attractive relative to its own history and the broad market

Defensive and rates sensitive sectors still dominate on momentum

Source: State Street Global Advisors, FactSet, as of February 28, 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. μ is the mean of the eleven sectors. σ 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 — Most sector earnings are expected to improve after a dip in Q1. Positive earnings revisions for 2019 support improving sentiment in Health Care

Analyst Consensus S&P 500 Sector Earnings Growth in 2019

	CY 2019	Q1 '19	Q2 '19	Q3 '19	Q4 '19	
Comm. Svs.	3.54	-3.28	0.72	0.27	3.37	
Cons. Disc.	8.37	-5.45	4.70	9.23	13.76	
Cons. Staples	1.51	-4.14	0.17	2.13	4.20	
Energy	-13.05	-17.74	-6.66	-19.37	-12.52	
Financials	8.44	-1.28	3.82	5.56	17.71	
Health Care	5.45	5.11	2.32	6.07	9.66	
Industrials	10.41	3.12	7.85	10.58	15.08	
Tech	2.73	-10.18	-7.50	-4.26	6.42	
Materials	-1.80	-10.47	-3.28	5.50	7.92	
Real Estate	1.85	1.78	2.04	4.24	2.34	
Utilities	4.50	3.61	1.37	3.51	15.94	
S&P 500	4.32	-3.15	0.53	2.13	8.67	

Cyclical sectors, like Industrials, Financials and Cons. Disc. are expected to lead EPS growth in 2019

2019 Earnings Sentiment

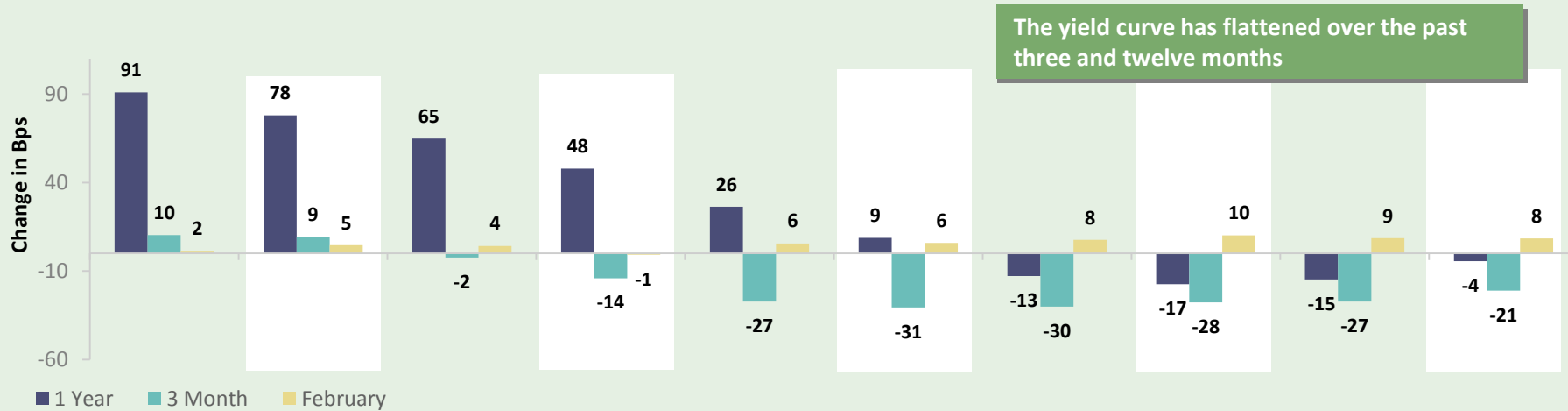
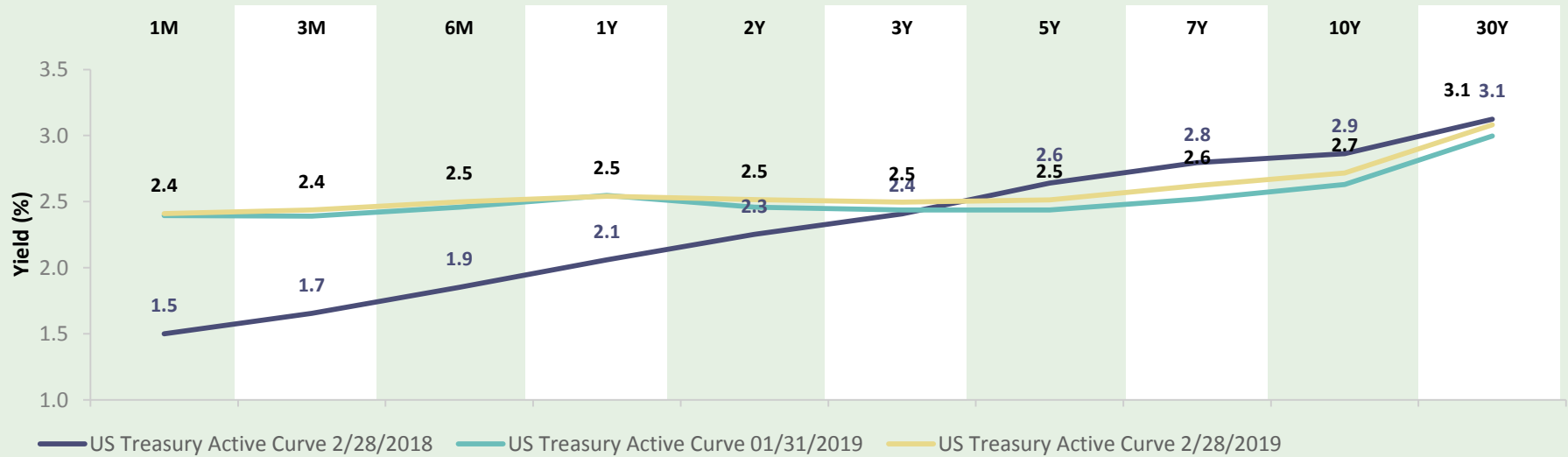
	Changes to 2019 EPS Est. in 3-Month	2019 EPS Est. Upgrade to Downgrade Ratio	2019 Earnings Sentiment Ranking*
Industrials	-0.95	1.00	1
Health Care	1.10	0.90	2
Cons. Disc.	-0.88	0.69	3
Comm. Svs.	-1.70	0.63	4
Financials	-2.34	0.53	5
Tech.	-5.77	0.57	6
Real Estate	-1.62	0.44	7
Consumer Staples	-1.86	0.40	8
Utilities	0.84	0.31	9
Materials	-7.09	0.28	10
Energy	-28.80	0.47	11
S&P 500	-4.0	0.60	

Source: FactSet. As of 02/28/2019. 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. * Rankings are based on sectors' EPS revision and upgrade-to-downgrade ratios.

Fixed Income

Yield Curve — Long-term yields moved higher on the hope of a US-China trade agreement, while the short end of the curve barely moved given a “patient” Fed

US Treasury Curve



The yield curve has flattened over the past three and twelve months

Source: Bloomberg Finance, L.P. As of February 28, 2019. Past performance is not a guarantee of future results.

Yield Curve — Yield curve flattening halted as the Fed showed more patience on rate hikes, while negative term premiums have kept long-term yields in check

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

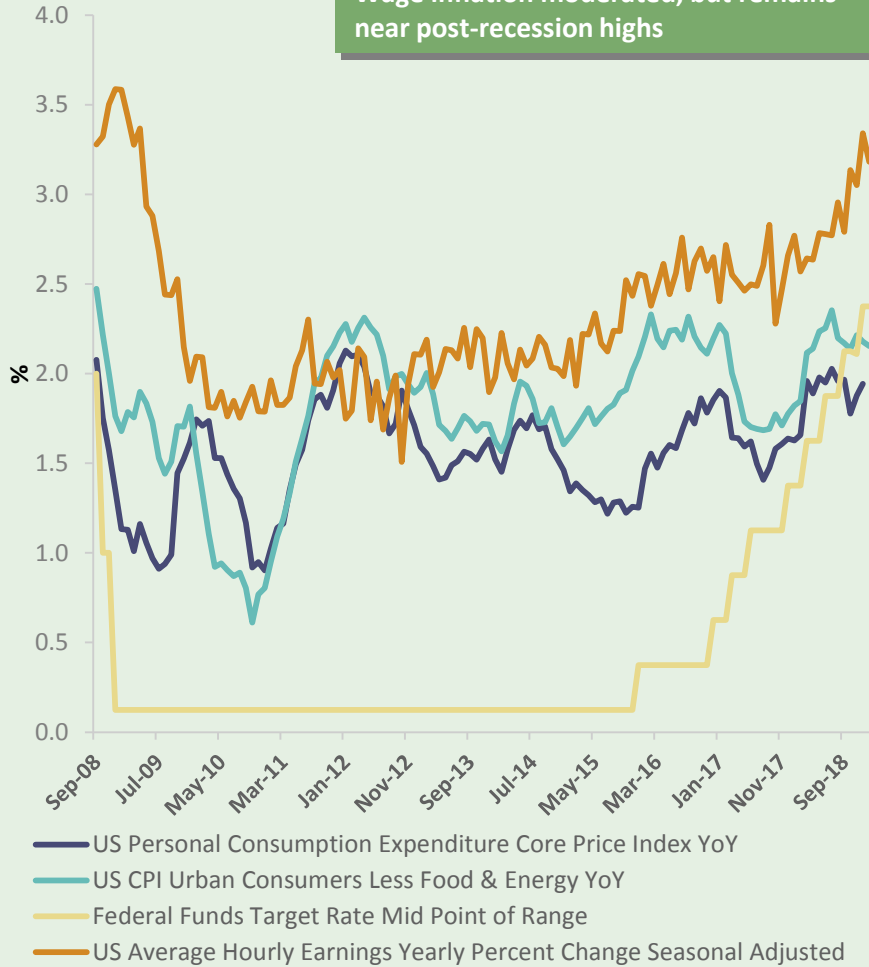


Source: Bloomberg Finance, L.P. As of February 28, 2019. Past performance is not a guarantee of future results. The term premium is the excess yield that investors require to commit to holding a long-term bond instead of a series of shorter-term bonds.

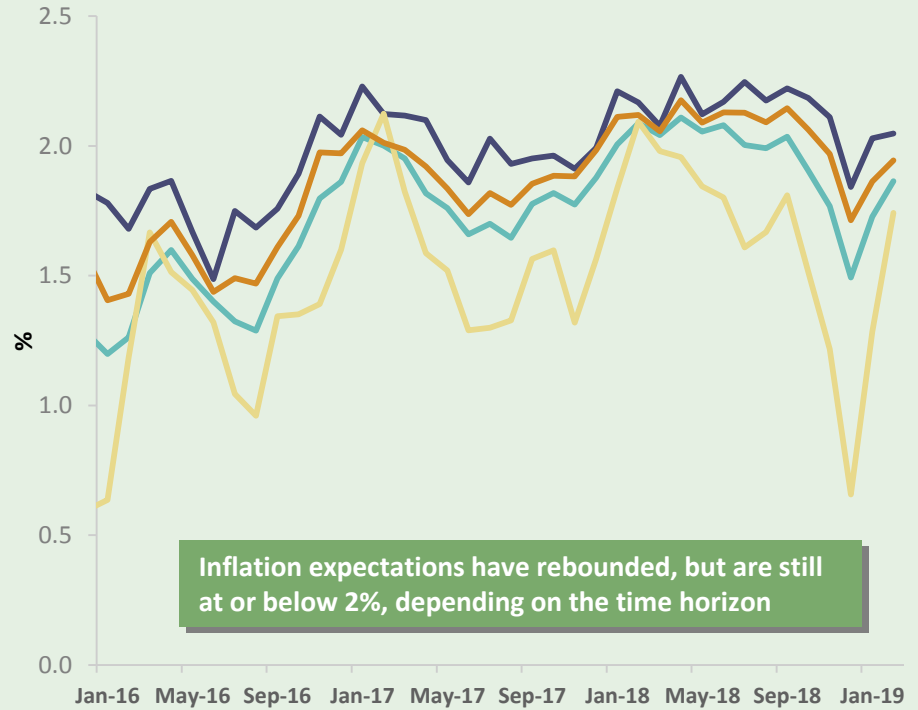
Inflation — Despite a tight labor market, core inflation continued hovering around the Fed's 2% target, relieving pressure on the Fed to raise rates in the near term

Inflation Measurements and the Fed Fund Rate

Wage inflation moderated, but remains near post-recession highs



Inflation Expectations

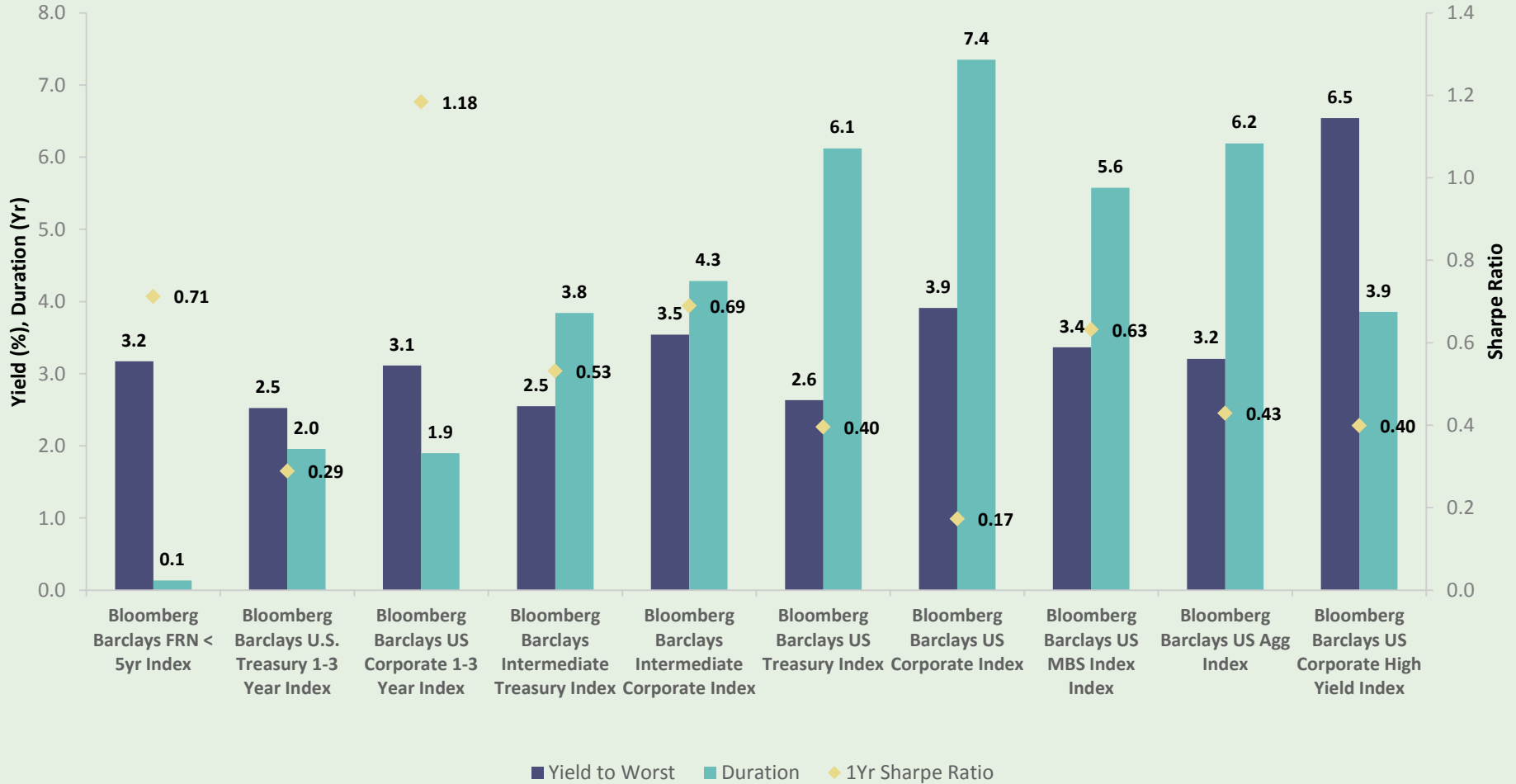


Inflation expectations have rebounded, but are still at or below 2%, depending on the time horizon

Source: Bloomberg Finance, L.P. As of January 31, 2019. January PCE Core Price Index YoY change is not available due to partial government shutdown. Inflation expectations are as of 02/29/2018.

Bond Market — Due to the flatter yield curve, shorter duration bond segments may provide more sufficient income with limited duration risks than other areas

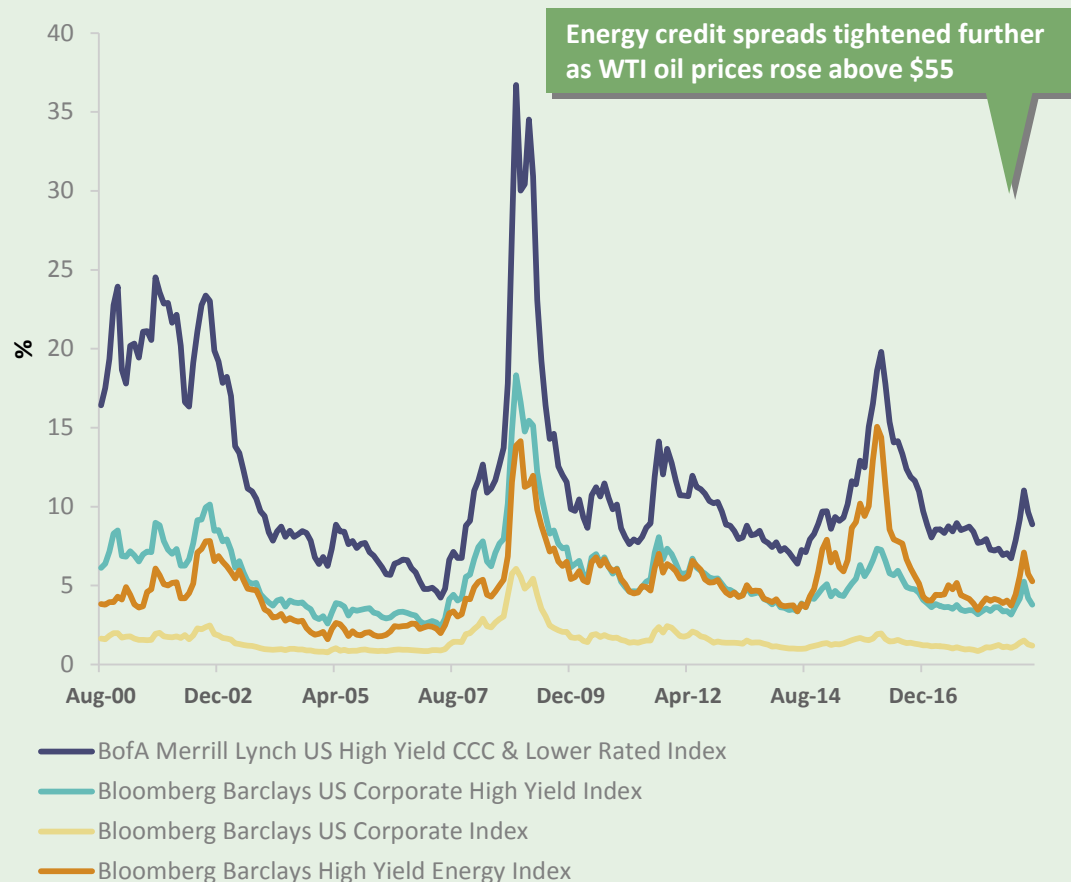
Bond Market Segments



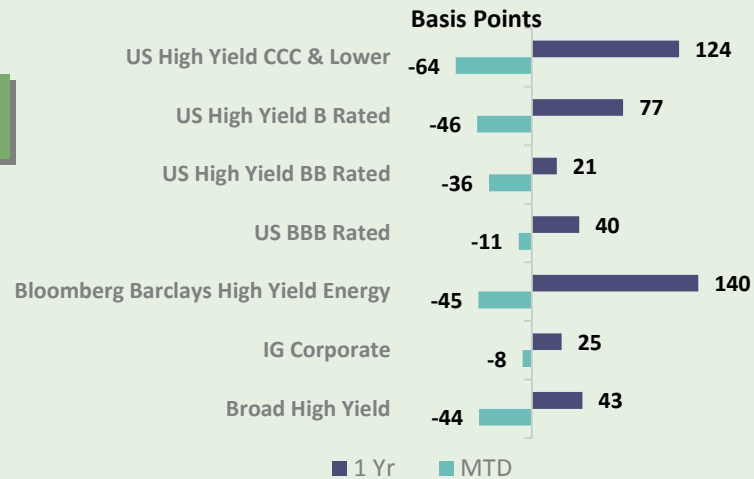
Source: Bloomberg Finance, L.P. As of February 28, 2019. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

Credit Trends — High yield continued to rally with a more “patient” Fed, but spreads are now 30% tighter than their 20-year averages

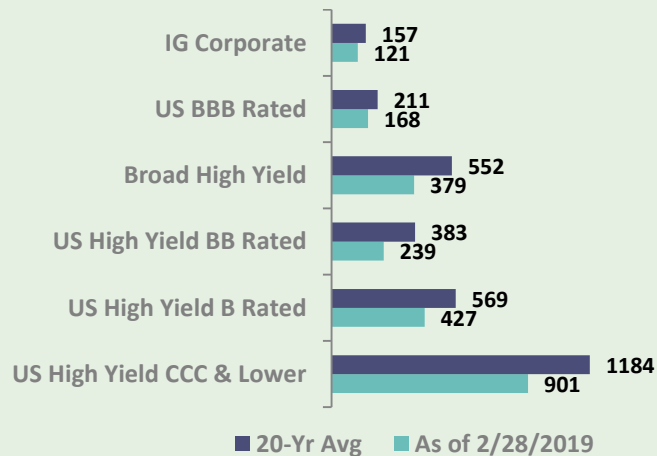
Credit Spreads



Credit Spread Changes in Basis Points



Credit Spreads Current vs. 20-Yr Averages

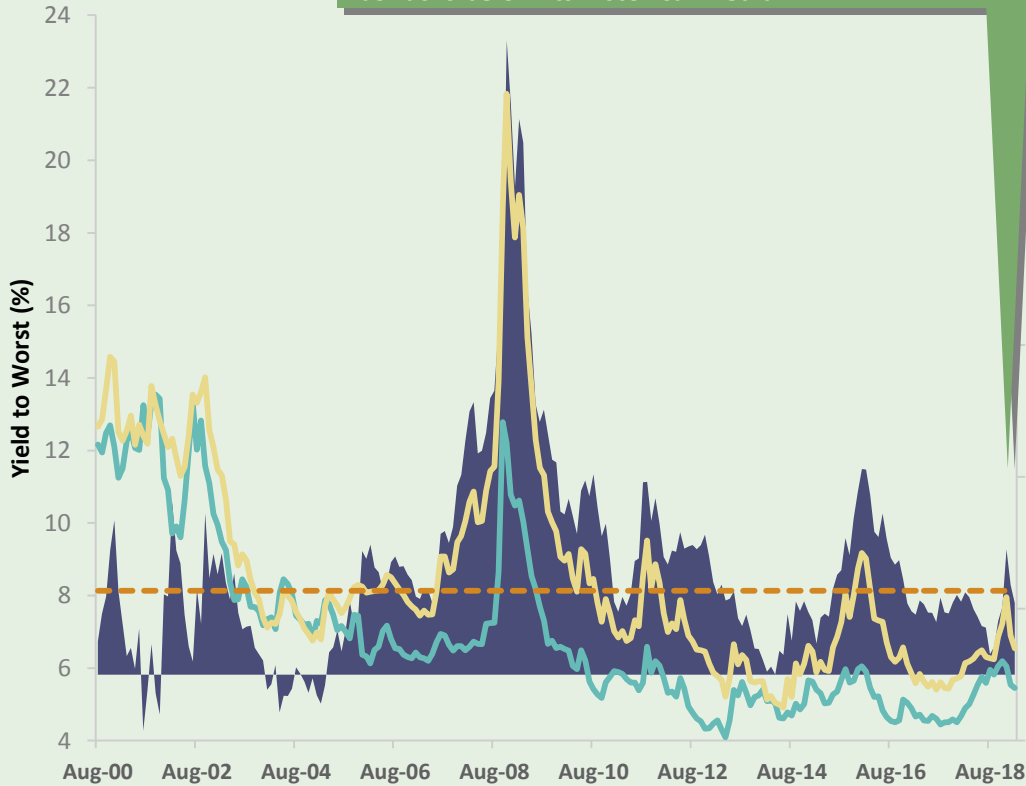


Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of February 28, 2019. US High Yield CCC & Lower = BofA ML US High Yield CCC & Lower Rated Index. US High Yield B Rated = BofAML US High Yield B Rated Index. BBB Rated = BofA ML US Investment Grade BBB Rated Index. Broad high yield = Bloomberg Barclays US Corporate High Yield Index. IG Corporate = Bloomberg Barclays US Corporate Index.

EM Debt — Yield differentials between EMD and high yield bonds are below their historical median, indicating relative attractiveness of EM debt for income

Yield Differential: High Yield vs. EM Debt

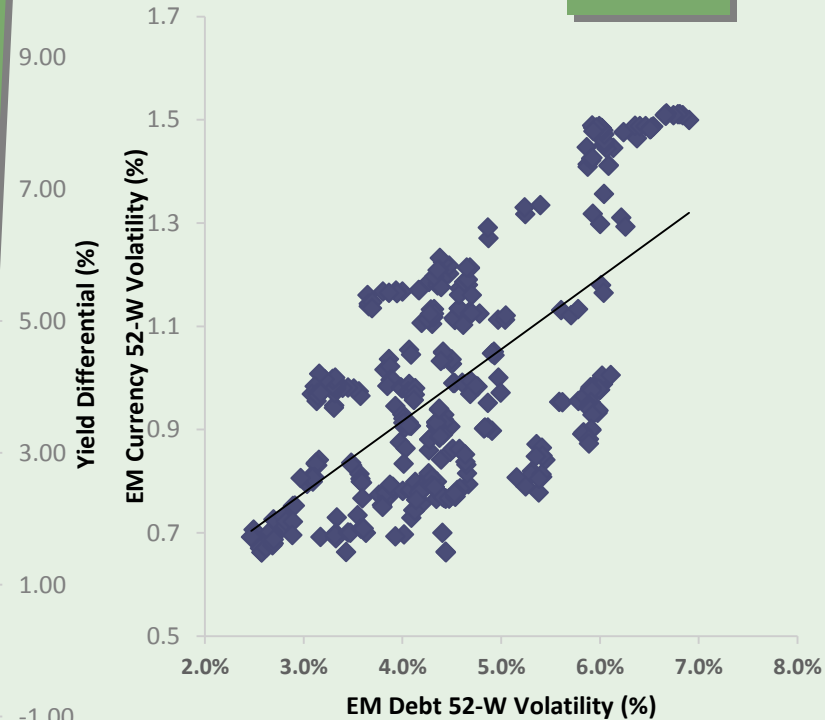
The yield differential between EMD and high yield bonds is below its historical median



- HY Yield to Worst minus EM Debt Yield to Worst
- EM Debt Yield to Worst
- HY Yield to Worst
- - - Median Differential Since Aug 2000

EM Hard Currency Debt and EM Currency Volatility Since July 2011

R2 = 0.41



Investors should be aware of the currency risk that has driven volatility in the EMD market – even with hard currency debt

Source: Bloomberg Finance, L.P. as of February 28, 2019. The High Yield market is represented by the Bloomberg Barclays US High Yield Index. The EM Debt market is represented by the Bloomberg Barclays EM USD Aggregate Bond Index. EM Currency is represented by the JPMorgan EM Currency Index. Volatility is measured by the standard deviation of 12 month returns. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

Appendix A: Flow Summary

Fund Flow Summary

Asset Category

Equity Region	Prior Month (\$M)	Trailing 3 Months (\$M)	Trailing 12 Month (\$M)
US	15,223	5,043	115,772
Global	-1,974	-97	8,146
International-Developed	-1,396	8,663	34,057
International-Emerging Markets	4,449	16,187	17,268
International-Region	-356	-933	-13,676
International-Single Country	758	3,451	5,497
Currency Hedged	-1,035	-4,474	-13,645

US Size and Style

Broad Market	2,058	8,945	30,492
Large-Cap	7,474	5,549	51,698
Mid-Cap	1,487	4,147	14,013
Small-Cap	-496	-312	22,402
Growth	1,876	-3,970	12,297
Value	222	5,724	27,949

Fixed Income Sectors

Aggregate	2,511	8,812	24,636
Government	-837	19,164	51,667
Inflation Protected	-42	-1,280	976
Mortgage-Backed	2,184	5,218	8,373
IG Corporate	2,479	7,430	17,961
High Yield Corp.	1,106	1,997	-33
Bank Loans	616	-1,549	-1,721
EM Bond	909	1,277	4,297
Preferred	7	-1,526	-2,299
Convertible	-91	-451	22
Municipals	66	1,899	5,946

Government ETF Maturity Focus

Ultra Short	-2,630	3,068	17,330
Short Term	-10	8,512	21,085
Intermediate	901	4,325	8,724
Long Term (>10 yr)	1,073	3,842	5,972

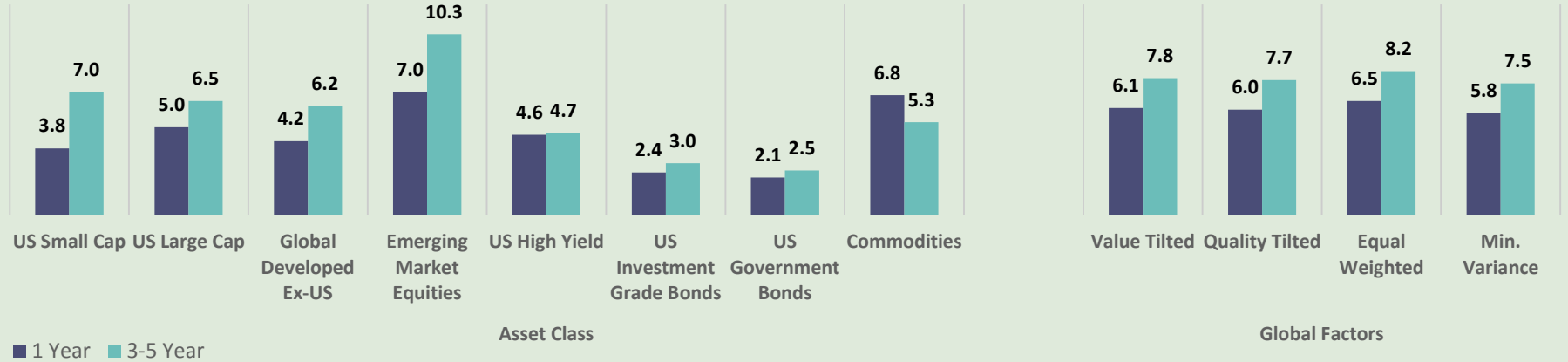
Source: State Street Global Advisors, Bloomberg Finance, L.P. As of February 28, 2019

Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

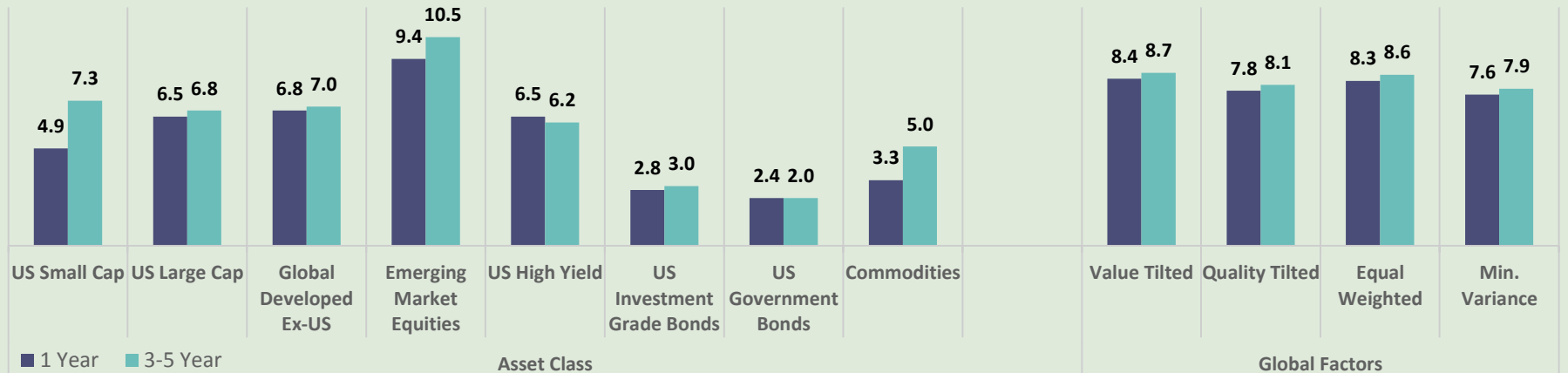
Appendix B: Asset Class Forecast

SSGA Asset Class Forecasts

Forecasted Return (%) as of September 30, 2018



Forecasted Return (%) as of December 31, 2018



Source: State Street Global Advisors (SSGA) Investment Solutions Group. The forecasted returns are based on SSGA's Investment Solutions Group's December 31, 2018 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 for the assumptions used by SSGA Investment Solutions Group to create asset class forecasts.

Asset Class Forecast Assumptions

Forecast Assumptions

For Fixed Income:

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.

For Equities:

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.

For Factor Returns:

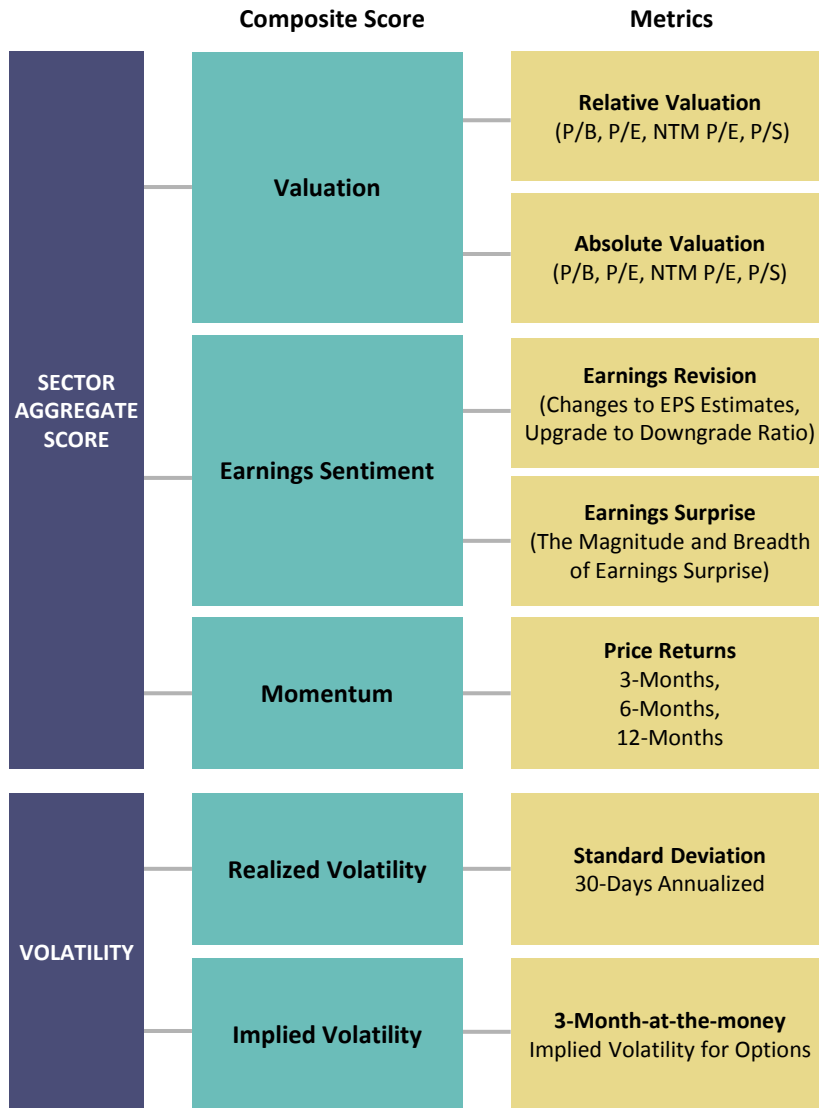
Over a one to three-year forecast horizon, we look to see how cheap each factor is relative to its own history. Specifically, we focus on book/price spreads for each factor and relate that to their subsequent returns. We find that valuation ratios are useful for forecasting market returns.

For Commodities:

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.

Appendix C: SPDR Sector Scorecard

SPDR Sector Scorecard



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

Definitions

S&P500 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.

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.

Implied Volatility: A way of estimating volatility of a security's price based on a number of predictive variables. Implied volatility rises when the market is falling when investors believe that the asset's price will decline over time, and it falls when the market is rising when investors believe that the security's price will rise over time. This is due to the common belief that bearish markets are riskier than bullish markets.

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.

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

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.

Bloomberg U.S. 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 U.S. 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 U.S. 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 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.

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.

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.

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

Bloomberg Dollar Spot Index: The Bloomberg Dollar Spot Index tracks the performance of a basket of ten leading global currencies versus the US Dollar. Each currency in the basket and their weight is determined annually based on their share of international trade and FX liquidity.

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.

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.

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.

The **S&P 500 Quality 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.

The **S&P 500 High Beta Index** measures the performance of 100 constituents in the S&P 500 that are most sensitive to changes in market returns.

The **S&P 500 Low Volatility Index** measures performance of the 100 least volatile stocks in the S&P 500.

Death Cross: The death cross is a technical chart pattern indicating the potential for a major selloff. The death cross appears on a chart when a stock's short-term moving average crosses below its long-term moving average

Definitions

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.

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 Quality Index: The MSCI USA Quality Index is based on MSCI USA, its parent index. The index aims to capture the performance of quality growth stocks by identifying stocks with high quality scores based on three main fundamental variables: high return on equity (ROE), stable year-over-year earnings growth and low financial leverage.

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.

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.

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.

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 1000 Defensive Index and Russell 1000 Dynamic Index: The index measures a portion of the market based on the sensitivity to economic cycles, credit cycles, and market volatility, referred to as stability. Stability is measured at the company level in terms of volatility (price and earnings), leverage, and return on assets. The more stable half of the index is called the Defensive Index® and the less stable half is called the Dynamic Index®.

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, μ is the mean of the eleven sector relative performance, and σ is the standard deviation of sectors' relative performance.

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.

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.

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

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.

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.

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.

Snapback Rally: When the market recovers quickly from a downturn.

Risk on: is used to describe investment sentiment when investors' risk tolerance increases.

Definitions

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.

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

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

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

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

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.

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

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

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 U.S. 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, supnationals and local authorities.

The 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.

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.

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

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.

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.

Definitions

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.

Bloomberg Economics China Credit Impulse: New credit as a percentage of GDP (Credit Impulse), provides a gauge of the boost that lending is providing to growth.

MSCI USA Cyclical Sector Index: The MSCI USA Cyclical Sectors Index is based on MSCI USA Index, its parent index and captures large and mid-cap segments of the US market. The index is designed to reflect the performance of the opportunity set of global cyclical companies across various GICS® sectors. All constituent securities from Consumer Discretionary, Financials, Industrials, Information Technology and Materials are included in the Index

MSCI USA Defensive Sector Index: The MSCI USA Defensive Sectors Index is based on MSCI USA Index, its parent index and captures large and mid-cap segments of the US market. The index is designed to reflect the performance of the opportunity set of global defensive companies across various GICS® sectors. All constituent securities from Consumer Staples, Energy, Healthcare, Telecommunication Services and Utilities are included in the Index.

The Cyclical Sectors-Defensive Sectors Return Spread Index aims to represent the performance of a strategy based on the return spread between a long position on constituents of one underlying component Index (MSCI USA Cyclical Sectors Index) while taking a short position on constituents of another component Index (MSCI USA Defensive Sectors Index).

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 U.S. stock market. Constituents are weighted relative to the inverse of their corresponding volatility, with the least volatile stocks receiving the highest weights.

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

Bloomberg Barclays US FRN < 5yr Index: The Bloomberg Barclays U.S. 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.

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

Bloomberg Barclays US Corporate 1–3 Year Index: The Index includes publicly issued U.S. 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 Treasury 1–3 Year Index: The Index is designed to measure the performance of short term (1–3 years) public obligations of the U.S. Treasury.

Bloomberg Barclays U S Corporate High Yield Index: The Index measures the USD-denominated high yield, fixed-rate corporate bond market.

Bloomberg Barclays US Aggregate Bond Index: The Bloomberg Barclays U.S. Aggregate Bond Index (the "Index") is designed to measure the performance of the U.S. dollar denominated investment grade bond market, which includes investment government bonds, investment grade corporate bonds, mortgage pass through securities, commercial mortgage backed securities and other asset backed securities that are publicly for sale in the United States.

Bloomberg Barclays EM USD Aggregate Index: The index includes fixed and floating –rate US dollar0-denominated debt issued from sovereign, quasi-sovereign, and corporate EM issuers.

Bloomberg Barclays US Corporate Index: The index is designed to measure the performance of the investment grade corporate bond market. The Index includes publicly issued, investment grade, fixed-rate, taxable, U.S. dollar-denominated corporate bonds issued by U.S. and non-U.S. industrial, utility, and financial institutions.

Put/Call ratio: The put-call ratio is calculated by dividing the number of traded put options by the number of traded call options.

Short Interest: Short interest is the number of shares that have been sold short but have not yet covered or closed out.

Bloomberg Barclays EM Local Currency Sovereign Index: The index is designed to measure the performance of the fixed-rate local currency sovereign debt of emerging market countries.

The **Morgan Stanley US Quality Short Basket** selects the bottom 15% of the most liquid stocks from the Russell 3000 index based on standard measures of Quality. The basket is designed to be highly liquid and is rebalanced quarterly.

The **Morgan Stanley US Quality Long Basket** selects the top 15% of the most liquid stocks from the Russell 3000 index based on standard measures of Quality. The basket is designed to be highly liquid and is rebalanced quarterly.

The **Morgan Stanley US Quality Long-Short Basket** is a custom index that represents an equal notional pair trade of going long the US Quality Long and Short the US Quality Short basket. Performance reflects each side rebalanced back to equal notional at the close of each trading day.

Appendix E: Important Disclosures

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.

Important Disclosures (continued)

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