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# SPDR<sup>®</sup> ETFs Chart Pack

## Key Charts to Help Navigate the Market January 2020 Edition

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

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# Table of Contents

---

## 1. Market Environment

---

[Asset Class Performance](#)

---

[Investor Confidence](#)

---

[Cross-Asset Volatility](#)

---

[Complacency](#)

---

[Active Environment Barometer](#)

---

[State Street Current Positioning](#)

---

---

## 2. Flows, Fundamentals & Factors

---

[Flow Trends](#)

---

[Global Economy](#)

---

[Global Valuation](#)

---

[Global Momentum](#)

---

[Global Earnings](#)

---

[Global Factor Trends](#)

---

[US Factor Trends](#)

---

---

## 3. Sectors

---

[Sector Flows & Returns](#)

---

[Sector Scorecard](#)

---

[Sector Dispersion](#)

---

[Sector Earnings](#)

---

---

## 4. Fixed Income

---

[Yield Curve](#)

---

[Low Rate Environment](#)

---

[Bond Market Overview](#)

---

[Credit Trends](#)

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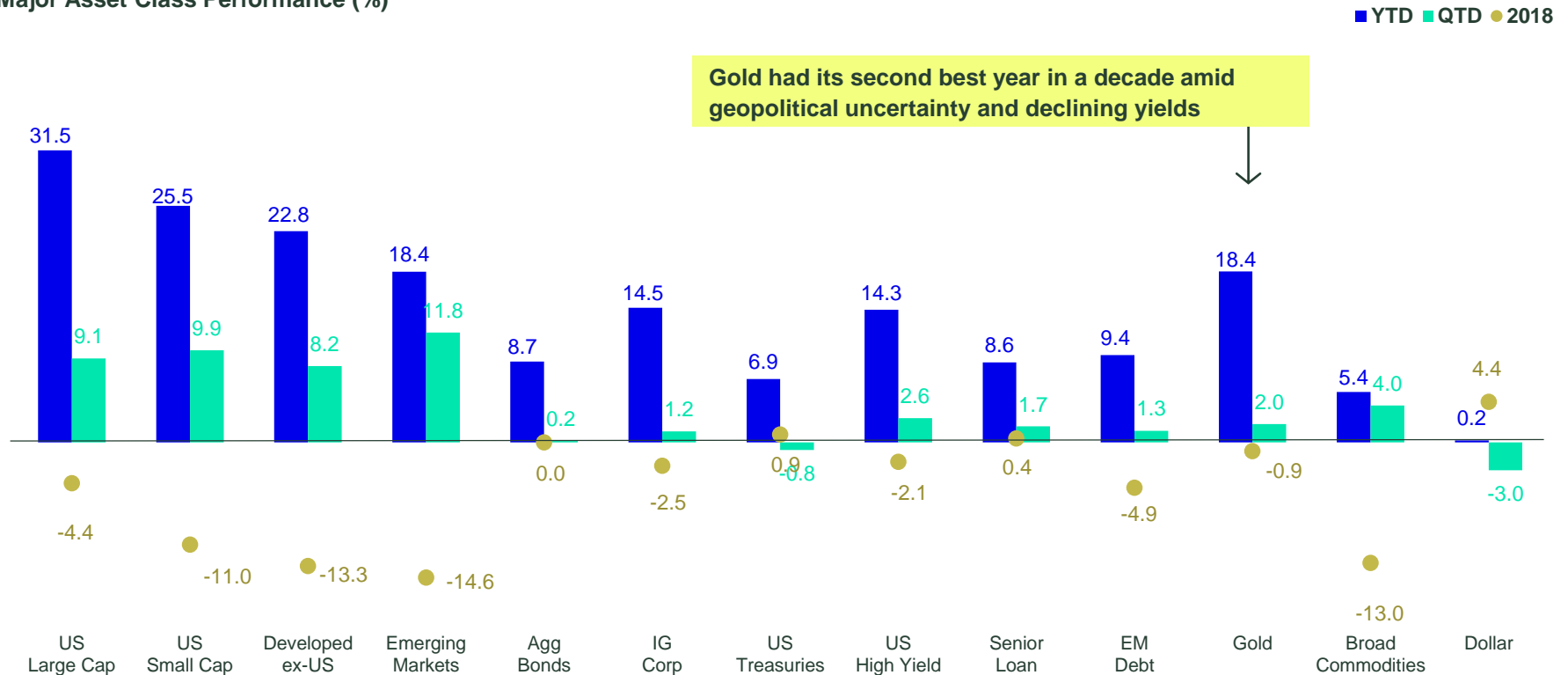
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# 1. Market Environment

# Asset Class Performance

While emerging markets led the rally of global equities in Q4, US large caps outperformed other major assets by a large margin for the year

Major Asset Class Performance (%)

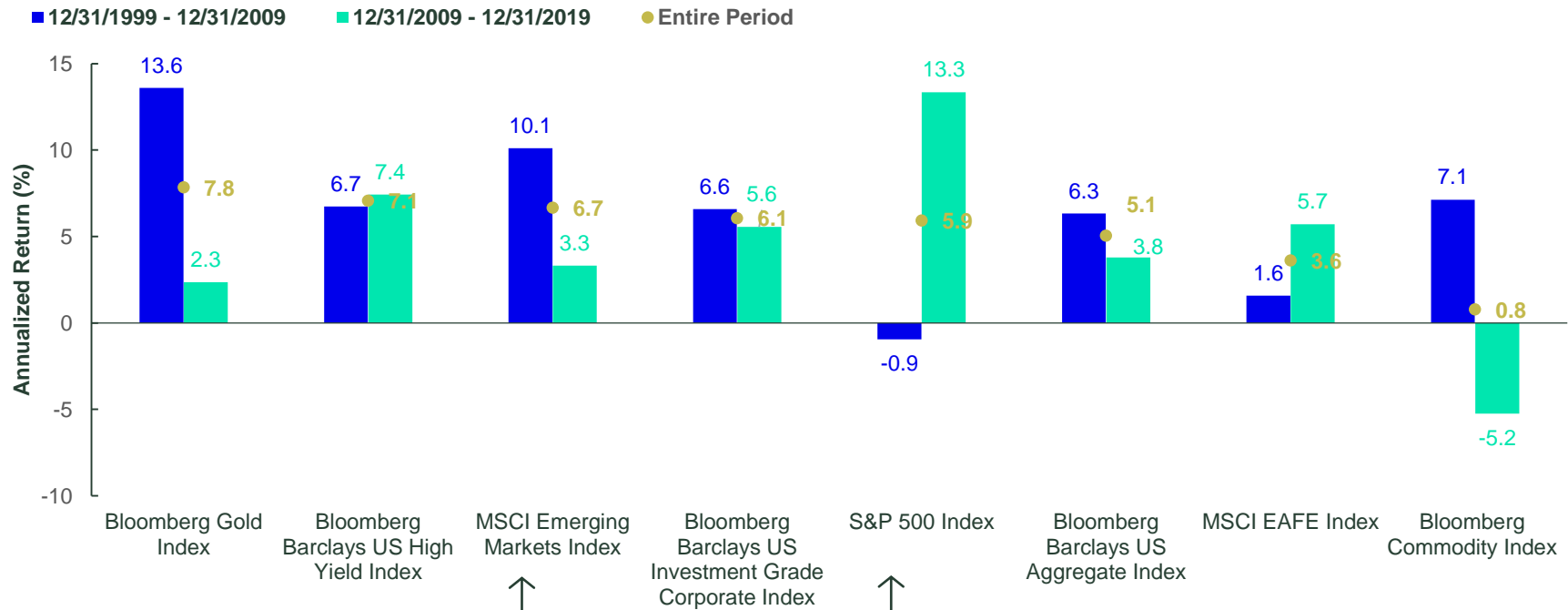


Source: Bloomberg Finance, L.P. as of December 31, 2019. **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income. Performance returns for periods of less than one year are not annualized. US Large Cap: S&P 500 Index; US Small Cap: Russell 2000 Index; Developed Ex-US: MSCI EAFE Index; Agg Bonds: Bloomberg Barclays US Aggregate Index; IG Corp: Bloomberg Barclays US Corporate Index; Treasuries: Bloomberg Barclays US Treasury Index; High Yield: Bloomberg Barclays US Corporate High Yield Index; Senior Loans: S&P LSTA Leveraged Loan Index; EM Debt: Bloomberg Barclays EM Hard Currency Debt Index; Gold: LBMA Gold Price; Broad Commodities: Bloomberg Commodity Index; US Dollar: DXY Dollar Index

# Asset Class Performance (cont'd)

Asset class leadership changed over the past two decades, with gold and high yield bonds ranked top overall

Major Asset Class Performance 1999–2019 (%)



While US equities outperformed in the last decade, EM equities were the winner earlier and since 1999

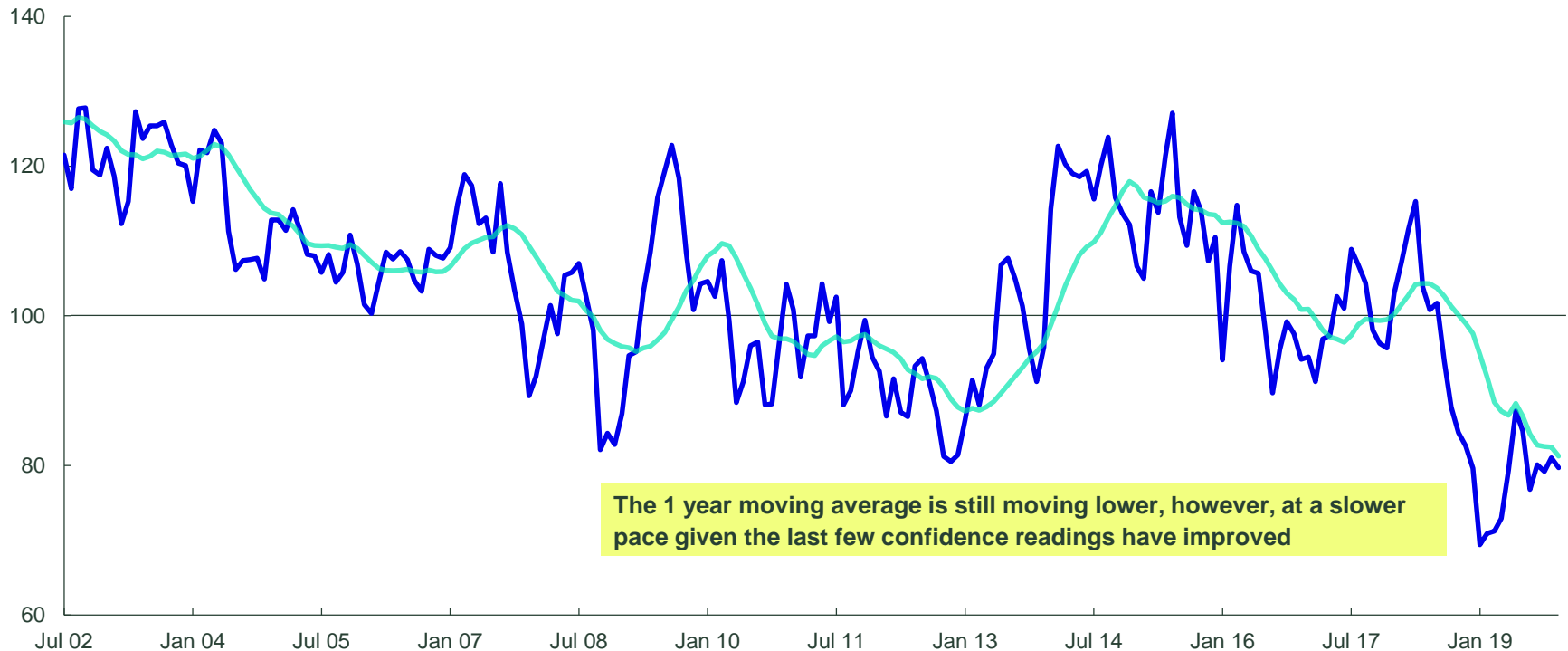
Source: FactSet, as of December 31, 2019. Past performance is not a guarantee of future results.

# Investor Confidence

Investor confidence inched downwards in December, along with its 1-Year moving average, as investors look at the new year with caution

State Street Confidence Index

— State Street Investor Confidence Index — 1 Year Moving Average



The 1 year moving average is still moving lower, however, at a slower pace given the last few confidence readings have improved

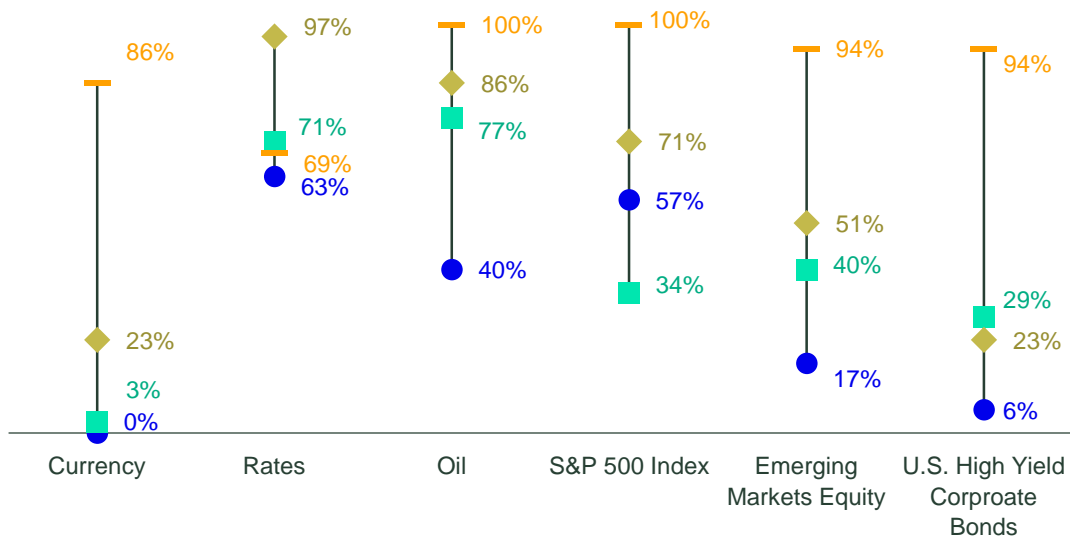
Source: Bloomberg Finance, L.P. as of December 31, 2019. State Street Confidence Indexes Measures investor confidence or risk appetite quantitatively by analyzing the actual buying and selling patterns of institutional investors. The index assigns a precise meaning to changes in investor risk appetite: 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

Although implied volatility across most asset classes was significantly lower than one year ago, rates and US equity volatility is still above their 3-year median

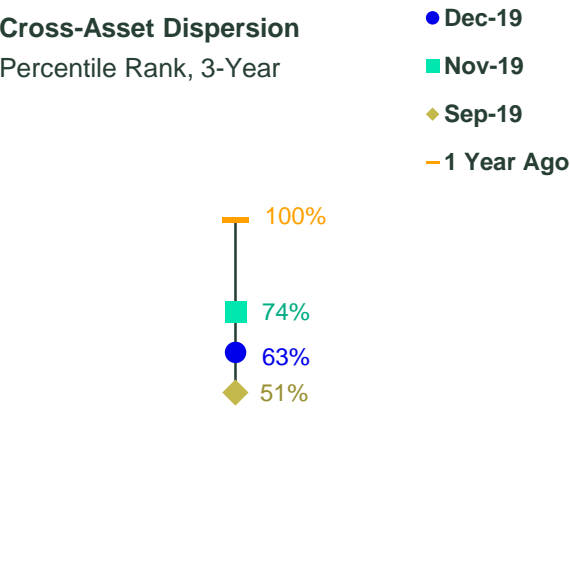
## Cross-Asset Implied Volatility

Percentile Rank of Daily Average, 3-Year



## Cross-Asset Dispersion

Percentile Rank, 3-Year



Cross Asset Class Dispersion

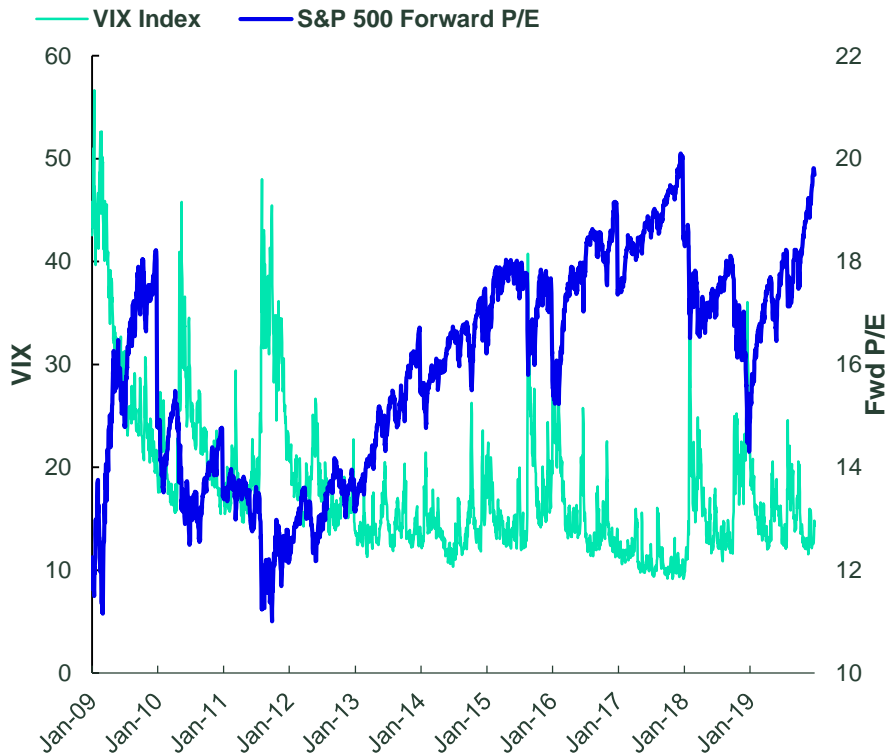
**Currency volatility plummeted to 3-year lows amid diminished geopolitical risk and stable monetary policies**

Source: Bloomberg Finance, L.P. as of December 31, 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.

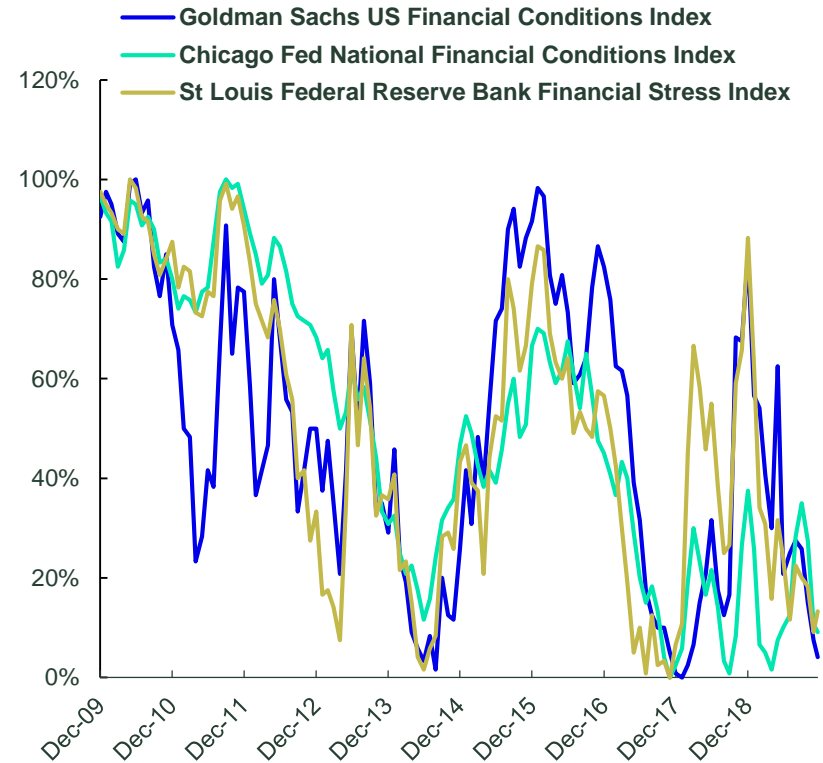
# Complacency

Easing financial conditions and risk-on sentiment lifted US stock valuations to near their highest level since late 2017

Valuations and Volatility



Easing Financial Conditions (10-Year Percentile Rank)



After three interest rate cuts in 2H 2019, financial conditions have eased to the lowest decile in a decade

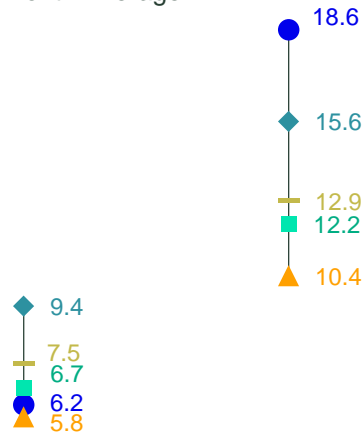
Source: Bloomberg Finance, L.P. as of December 31, 2019



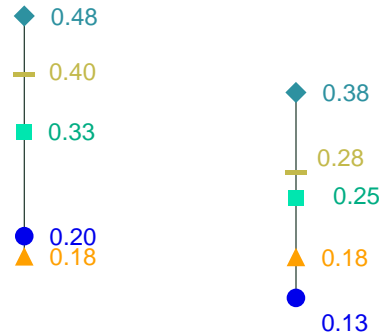
# Active Environment Barometer

Historically high dispersion and low correlation among small caps were constructive to small-cap managers' outperformance in 2019

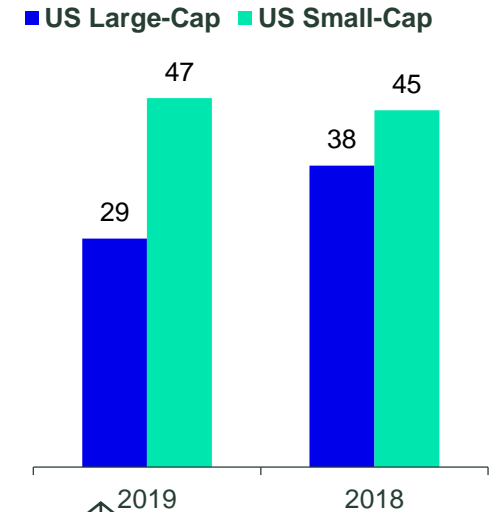
**Cross-Sectional Dispersion (%)**  
Rolling 3-Month Average



**Average Stock Correlation**  
Rolling 3-Month Average



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



Large-cap managers' performance has deteriorated compared to last year

● Current — 1-Year Ago ■ 15-yr median ▲ 10th Percentile ◆ 90th Percentile

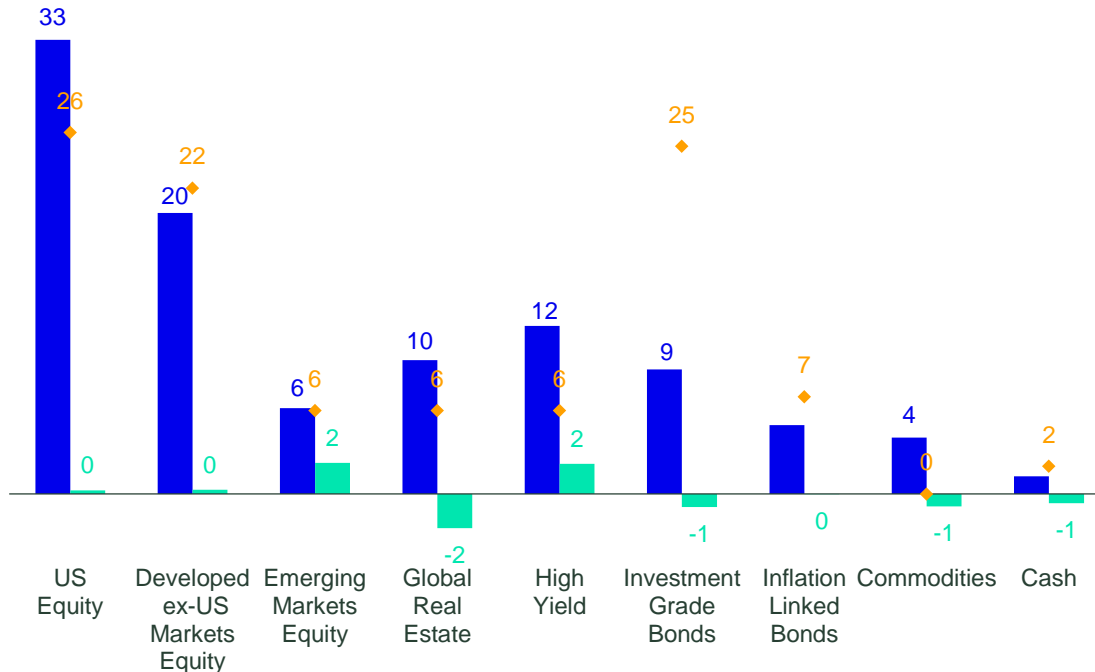
Source: FactSet, Morningstar, as of 12/31/2019. \* The universe is based on Morningstar Category, including Blend, Value and Growth styles. The Cross-Sectional Dispersion is calculated as the standard deviation of daily returns of index constituents for one month. Average stock correlation is calculated 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 increased exposure to growth assets for an upside potential by adding EM equities and high yield bonds while reducing interest rate sensitive assets

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

■ 12/31/2019 ■ Change ◆ Investment Solutions Group Strategic Weights



## Tactical Rebalance Trades: December

<b>Sold</b>	<ul style="list-style-type: none"> <li>• Real Estate</li> <li>• Investment Grade Bonds</li> <li>• Gold</li> </ul>
<b>Bought</b>	<ul style="list-style-type: none"> <li>• EM Equities</li> <li>• High Yield Bonds</li> </ul>

## Sector Rotation Trades

US Equity Allocation Total: 6%

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

Nov.	Financials	Tech	Health Care
	2%	2%	2%

Dec.	Financials	Tech.	Health Care
	2%	2%	2%

Source: State Street Global Advisors. As of December 31, 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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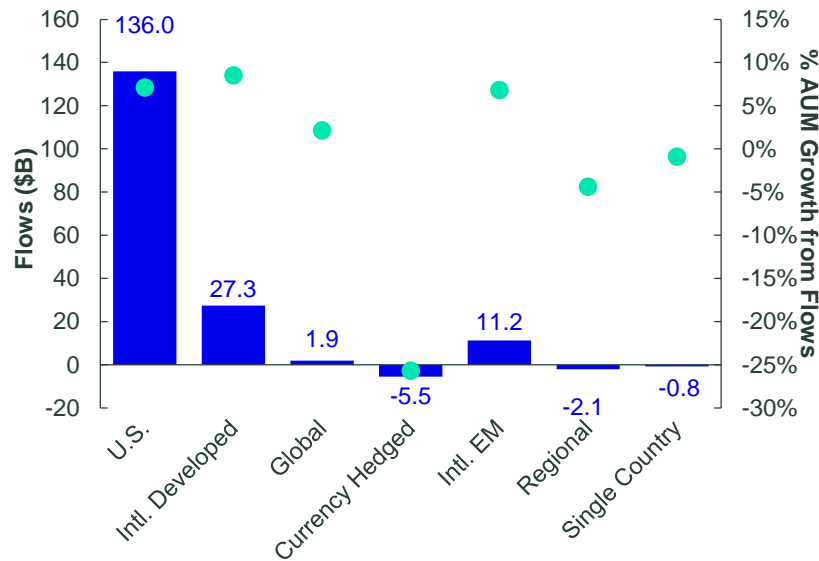
# 2. Flows, Fundamentals & Factors

# Flow Trends

US-listed ETFs registered their second-highest calendar year flow ever, with equity taking in 50% of net flows and fixed income attracting its most flows ever

## Flows by Equity Regions

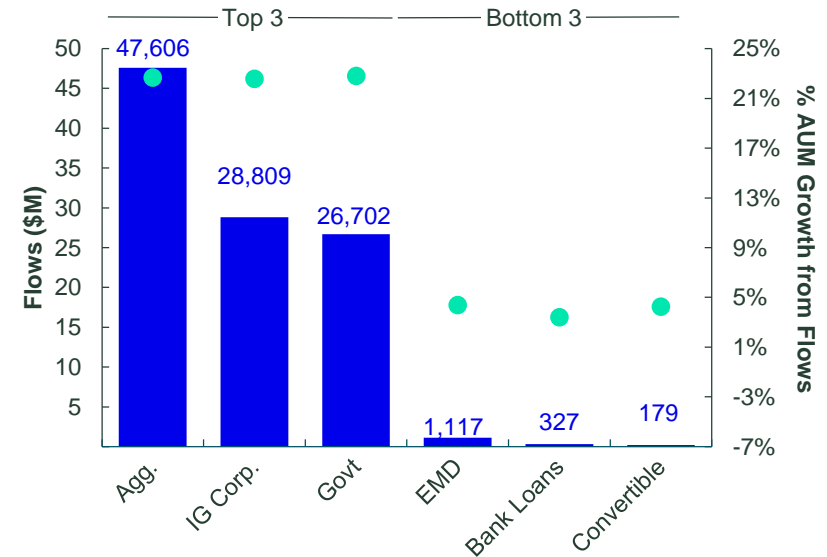
■ YTD ● Year to Date (% of AUM)



**While US-focused ETFs took in the most flows on a notional basis, international developed outpaced on a relative basis**

## Fixed Income Top and Bottom 3 Sectors by Flows

■ YTD ● Year to Date (% of AUM)



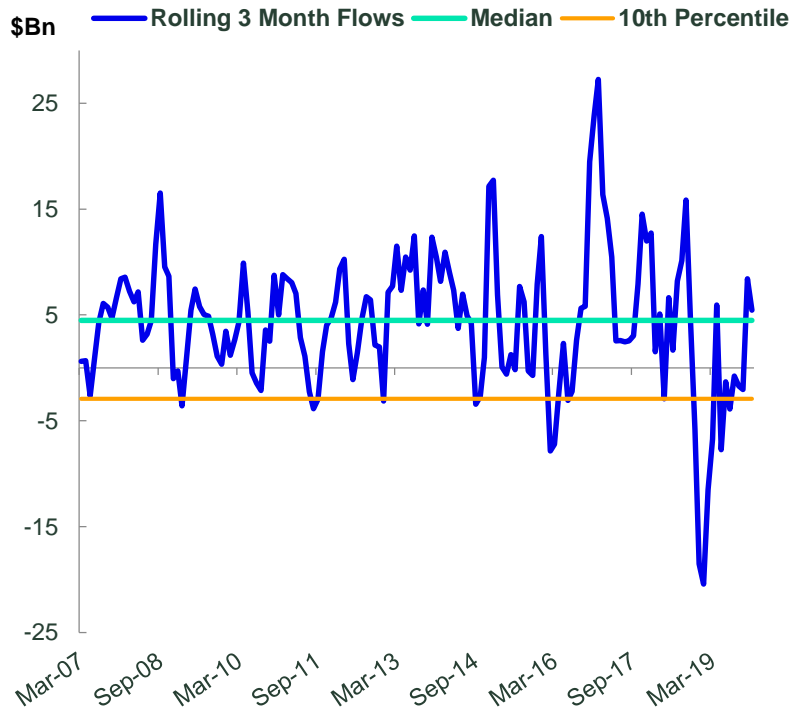
**Investors favored rates sensitive segments amidst lower rates**

Source: State Street Global Advisors, Bloomberg Finance, L.P. As of December 31, 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)

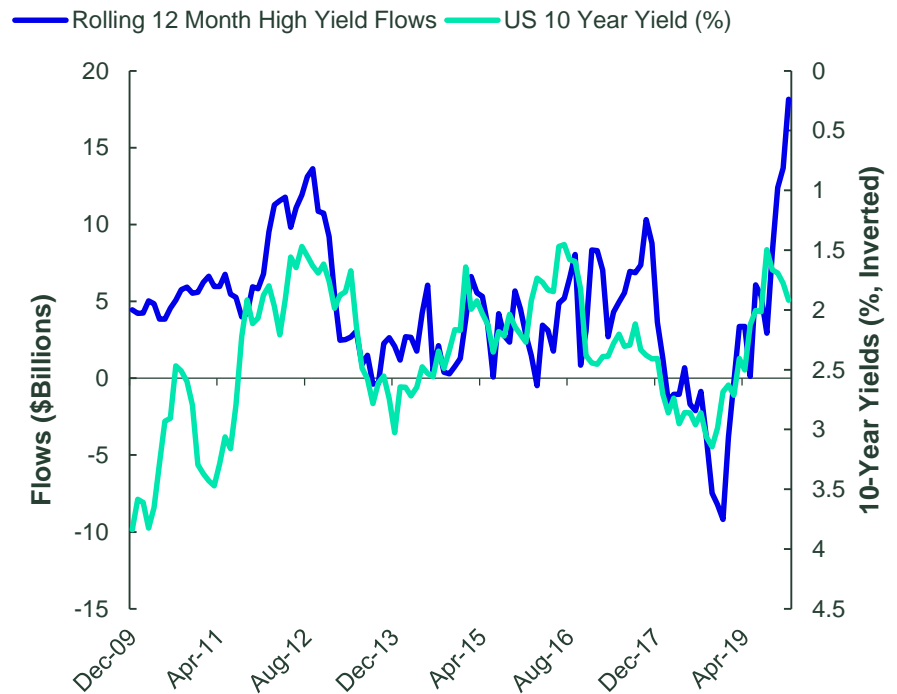
The recovery in sector flows and record breaking asset accumulation in high yield ETFs pointed to a strong risk-on sentiment in Q4

Rolling Three Month Sector Flows



**As risk-taking activities continues, the rolling 3 month figure stayed above long-term median**

High Yield Flows and US 10-Year Yields



**Strong high yield flows historically have been coincident with declining yields**

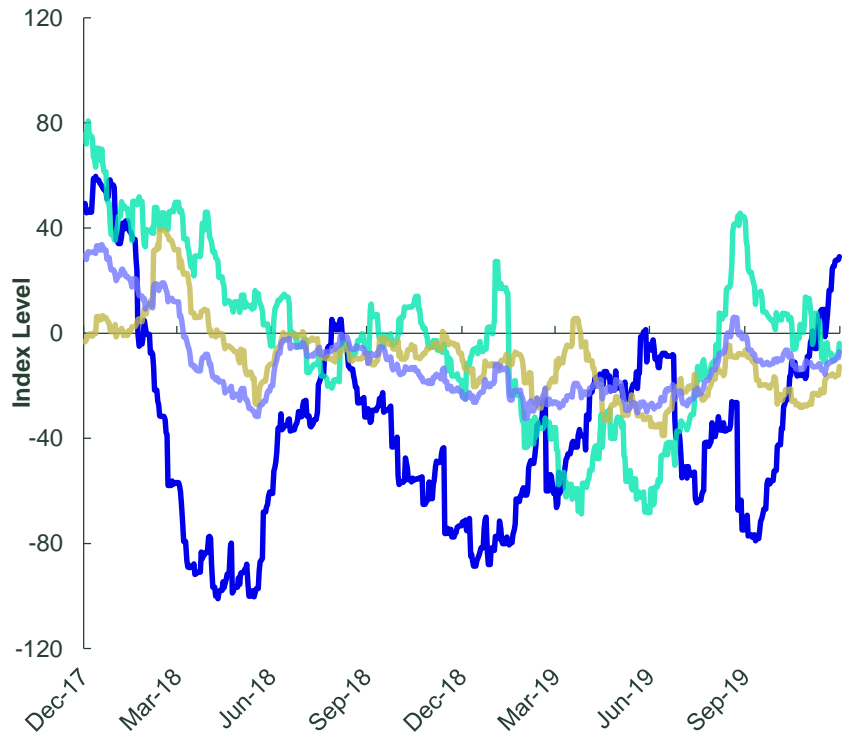
Source: State Street Global Advisors, Bloomberg Finance, L.P. As of December 31, 2019. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter.

# Global Economy

Eurozone economic sentiment improved significantly to the highest level since February 2018. However, its manufacturing activities surprised to the downside

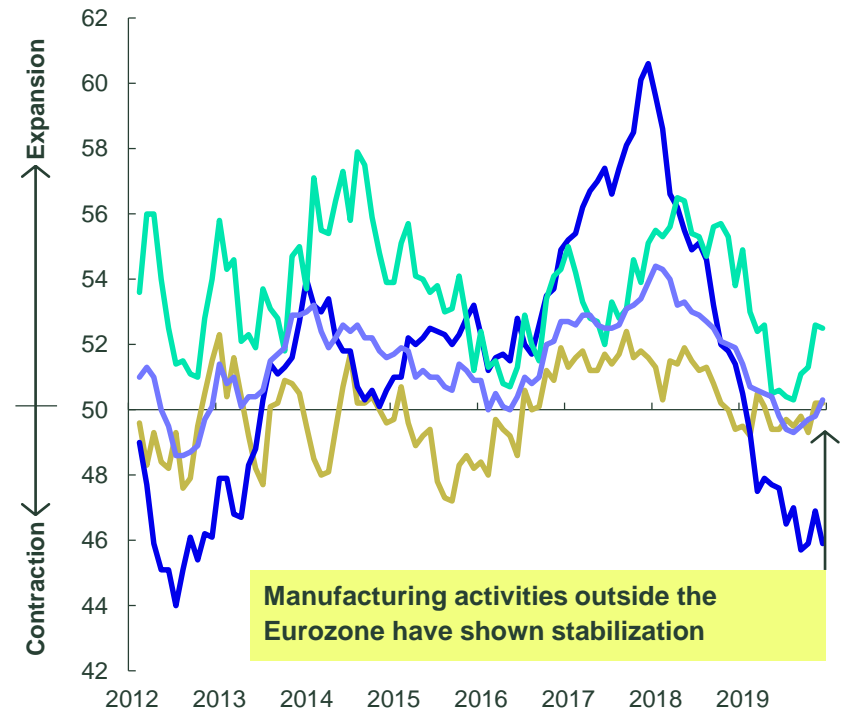
Citigroup Economic Surprise Indices

— Eurozone — US — Emerging Markets — Global



Markit Manufacturing PMI Indices

— China — Eurozone — United States — Global



Source: Bloomberg Finance, L.P. as of December 31, 2019. Past performance is not a guarantee of future results.

# Global Valuation

Developed Ex-US stocks appear more attractive than emerging markets, while Canada has the most attractive valuations in developed markets

Absolute & Relative Valuation Z-Score\* and 15-Year Percentile Ranking ■ Bottom 3 Expensive Valuation ■ Top 3 Attractive Valuation

		Valuation to Segment History (Percentile)				Absolute Valuation Composite Z-Score	Valuation Relative to S&P 500 (Percentile)				Relative Valuation Z-Score
		P/E	NTM P/E	P/B	P/S		P/E	NTM P/E	P/B	P/S	
US/Style/Regions	S&P 500	6%	1%	0%	1%	-1.31	N/A	N/A	N/A	N/A	N/A
	S&P MidCap 400	29%	19%	50%	4%	-0.05	89%	98%	100%	99%	0.66
	S&P SmallCap 600	12%	31%	66%	67%	0.67	45%	100%	100%	100%	0.19
	S&P 500 Value	19%	15%	9%	1%	-0.81	88%	96%	96%	95%	0.55
	S&P 500 Growth	5%	0%	0%	0%	-1.34	12%	5%	0%	3%	-3.12
	MSCI EAFE	35%	12%	38%	12%	-0.23	89%	93%	99%	98%	0.60
	Euro Stoxx	31%	16%	33%	5%	-0.35	87%	89%	98%	95%	0.50
	MSCI EM	15%	33%	46%	21%	0.07	65%	96%	95%	82%	0.15
Major Countries	MSCI Canada	76%	42%	65%	67%	1.63	97%	100%	100%	100%	0.80
	MSCI Japan	68%	44%	46%	27%	0.97	89%	84%	98%	95%	0.47
	MSCI Germany	31%	3%	57%	8%	-0.26	87%	78%	100%	95%	0.40
	MSCI France	21%	8%	23%	1%	-0.74	61%	75%	96%	76%	-0.18
	MSCI UK	36%	26%	79%	51%	0.87	81%	95%	100%	100%	0.55
	MSCI China	30%	31%	50%	51%	0.57	66%	72%	84%	78%	-0.24
	MSCI Russia	63%	37%	38%	41%	0.84	89%	65%	63%	72%	-0.29
	MSCI Brazil	27%	1%	16%	20%	-0.68	75%	39%	52%	62%	-0.94
	MSCI India	10%	6%	61%	67%	0.16	52%	68%	98%	97%	-0.10

Source: State Street Global Advisors, FactSet, as of December 31, 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 percentile, and  $\sigma$  is the standard deviation of sectors' valuation percentile.

# Global Momentum

US value has shown strong momentum recently, while Russian equities ranked top outside the US

## Momentum Scorecard Rankings

Bottom 3 Rank on Momentum

Top 3 Rank on Momentum

		Price Momentum			Technical Momentum			Continuous Momentum			Combined Average Rank
		3 Month	6 Month	12 Month	% above 50 Day Moving Average	% above 200 Day Moving Average	% Difference 50 to 200 Day Moving Average	# of Positive Return Days (90 Day Lookback)	# of Positive Return Days (180 Day Lookback)	# of Positive Return Days (12 Month lookback)	
US/Style/Regions	S&P 500	9	2	4	6	4	6	4	3	3	5
	S&P MidCap 400	11	7	11	9	12	12	14	11	13	11
	S&P SmallCap 600	5	3	17	10	11	10	17	17	15	12
	S&P 500 Value	3	1	5	8	3	2	3	3	2	3
	S&P 500 Growth	15	5	2	5	7	9	9	6	3	7
	MSCI EAFE	10	11	8	11	13	8	1	6	3	8
	Euro Stoxx	8	10	7	13	10	7	9	5	1	8
	MSCI EM	14	15	15	3	6	13	5	15	11	11
Major Countries	MSCI Canada	16	12	6	15	16	15	9	10	8	12
	MSCI Japan	4	4	10	16	8	3	7	15	16	9
	MSCI Germany	1	8	9	17	14	4	9	1	9	8
	MSCI France	7	6	3	14	9	5	2	2	6	6
	MSCI UK	6	14	13	7	17	17	14	13	14	13
	MSCI China	13	13	14	2	5	16	5	11	10	10
	MSCI Russia	2	9	1	4	1	1	7	8	7	4
	MSCI Brazil	17	16	12	1	2	11	9	8	12	10
	MSCI India	12	17	16	12	15	14	14	13	17	14

Canadian and Indian stock momentum deteriorated significantly in December

Source: State Street Global Advisors, FactSet, as of December 31, 2019. \* momentum is calculated by calculating the 3-month, 6-month and 12-month price performance, not including the most recent month.

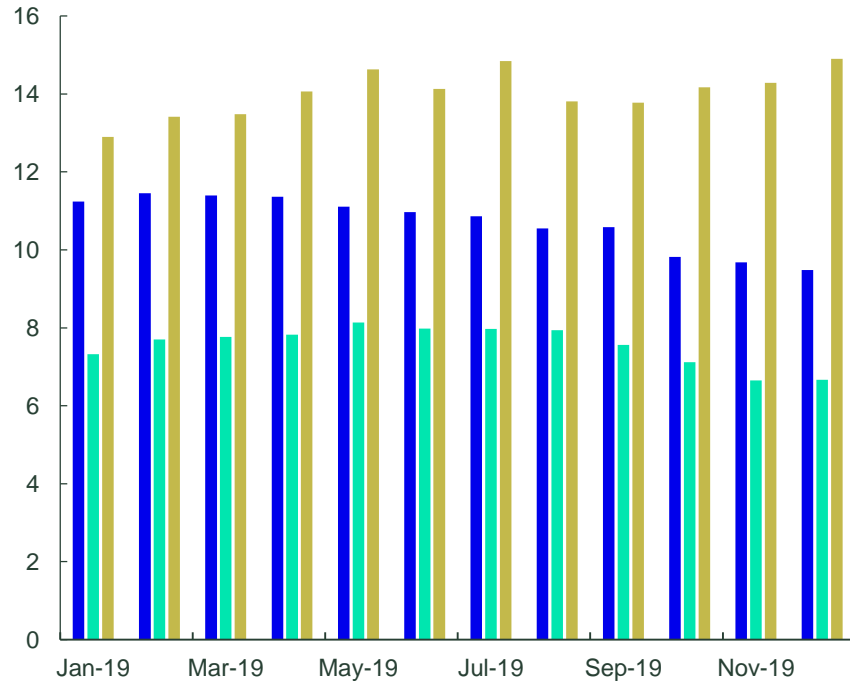


# Global Earnings

Analysts have become more optimistic about EM growth for next year, but remain cautious about US growth

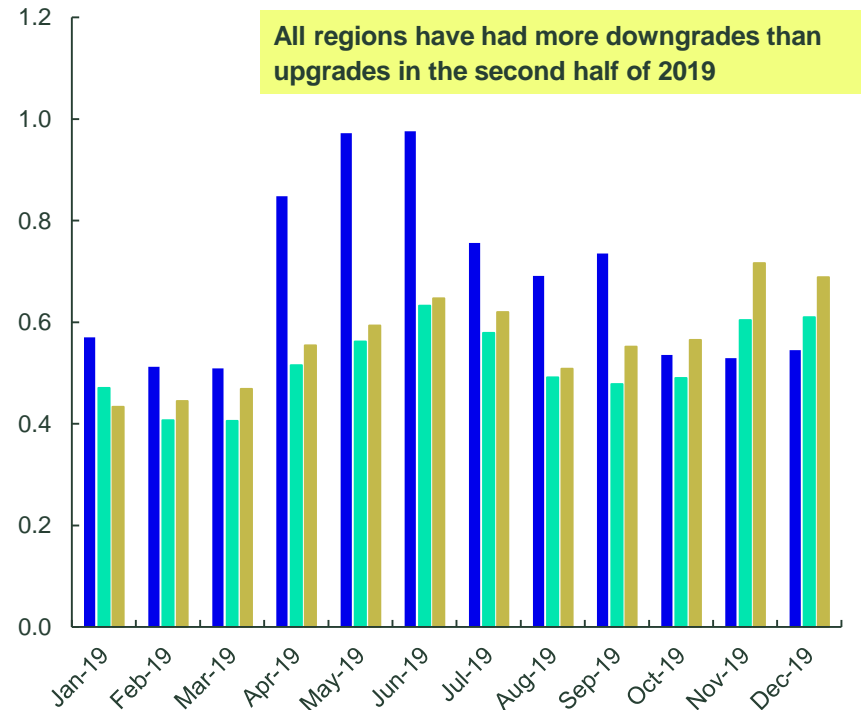
2020 EPS Growth Estimates (%)

■ S&P 500 ■ MSCI EAFE ■ MSCI Emerging Markets



2020 EPS Revision: 3-Month Up-to-downgrade Ratio

■ S&P 500 Index ■ MSCI EAFE Index ■ MSCI Emerging Markets Index



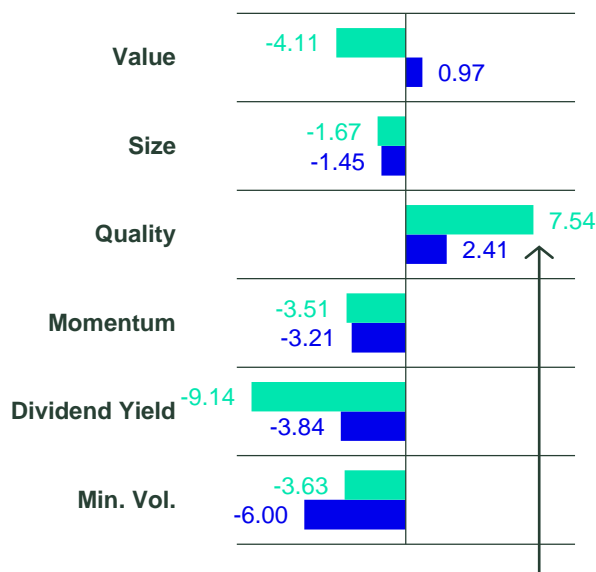
Source: Bloomberg Finance L.P. FactSet, as of December 31, 2019. Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. EPS growth estimates are based on Consensus Analyst Estimates compiled by FactSet.

# Global Factor Trends

Quality is the only factor outperforming the broad market across all regions in 2019, while Min. Vol., Value and Size underperformed

Period Excess Returns versus MSCI USA Index (%)

■ YTD ■ Q4



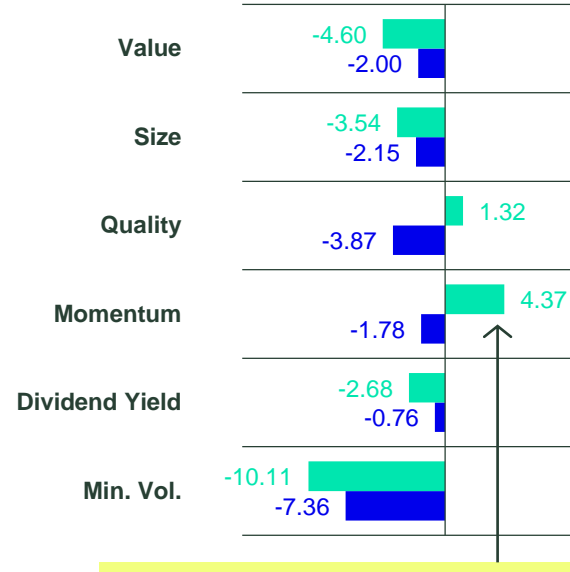
Quality was the only outperforming factor in the US last year

Period Excess Returns versus MSCI EAFE Index (%)



Dividend Yield outperformed only in developed ex-US

Period Excess Returns versus MSCI Emerging Markets Index (%)



Momentum led the charge in EM last year, followed by Quality

Source: Bloomberg Finance, L.P. As of December 31, 2019. **Past performance is not a guarantee of future results.** MSCI Minimum Volatility Index, MSCI Enhanced Value Index, MSCI Quality Index, MSCI Equal Weighted Index, MSCI High Dividend Yield Index and MSCI Momentum Index within each region are used to represent regional factor performance. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

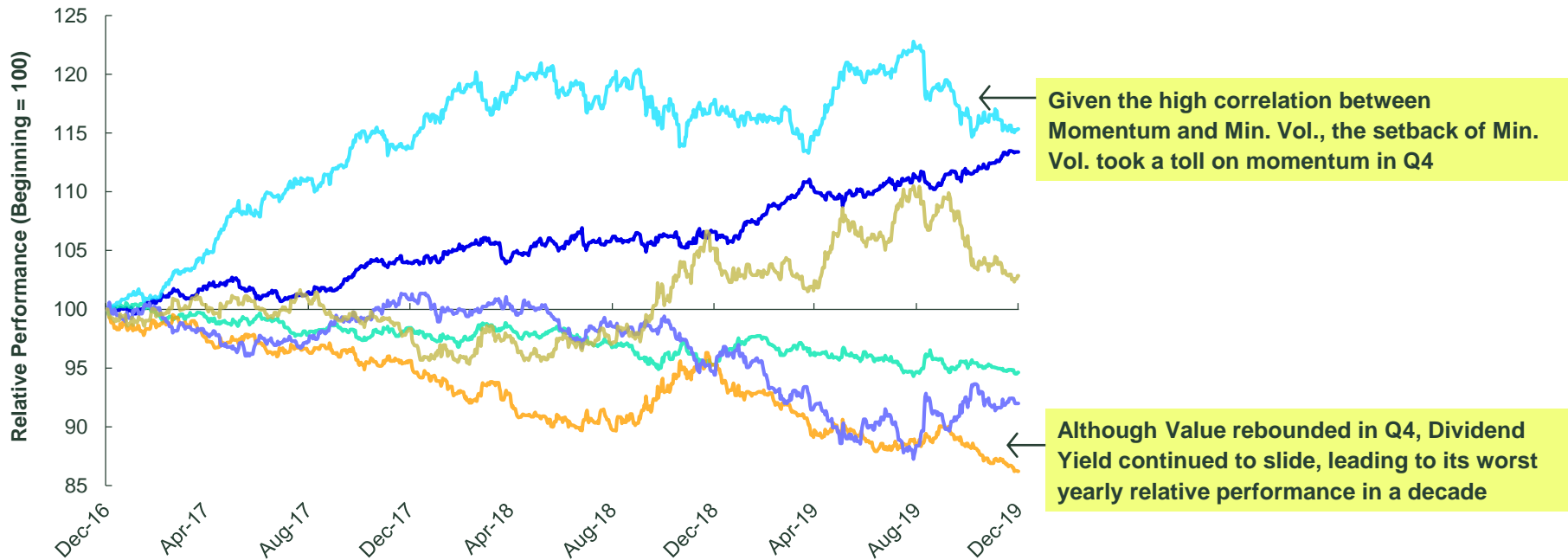
# US Factor Trends

Min. Vol. gave back most of its gains from earlier this year in Q4 as risk-on sentiment disfavored defensive stocks

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

Base = 100

Quality Size Dividend Momentum Value Min. Vol.



Source: Bloomberg Finance, L.P. As of December 31, 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.

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# 3. Sectors

# Sector Flows & Returns

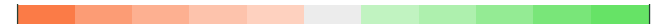
Given the low participation rally among sectors this year, sector ETFs had their second consecutive yearly outflows, led by cyclical sectors, with the exception of Technology

Sector	Positioning					Returns		
	Trailing 1M Flow (\$M)	Trailing 3M Flow (\$M)	Trailing 12M Flow (\$M)	Current Short Interest (%)	1M Prior Short Interest (%)	Prior Month Return (%)	QTD Return (%)	12-Month Return (%)
Consumer Discretionary	(711)	(567)	(1,256)	9.8	9.6	2.8	4.5	27.9
Consumer Staples	211	(1,103)	2,020	6.4	6.4	2.4	3.5	27.6
Energy	1,409	2,907	(3,204)	9.8	11.8	6.0	5.5	11.8
Financial	(2,328)	426	(8,563)	9.9	9.4	2.7	10.4	32.1
Health Care	667	296	(4,744)	16.4	16.1	3.6	14.4	20.8
Industrials	(264)	627	(2,541)	7.8	6.6	-0.1	5.5	29.3
Materials	(55)	374	(3,232)	6.7	7.6	3.1	6.4	24.6
Real Estate	(324)	1,162	6,319	4.0	3.9	1.3	-0.5	29.0
Technology	1,329	2,770	4,002	4.0	4.0	4.5	14.4	50.3
Communications	149	231	3,635	2.2	2.2	2.0	9.0	32.7
Utilities	(374)	(759)	2,416	13.2	15.0	3.4	0.8	26.4

Despite a steepening yield curve, Financials had its worst monthly outflows of the year in December

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 December 31, 2019. Past performance is not a guarantee of future results.

# Sector Scorecard

Momentum in defensive sectors deteriorated significantly, while Tech and Health Care led earnings sentiment thanks to positive 2020 earnings revisions

	Sector Composite Z-Score*		
	Valuation Composite Score	Momentum Composite Score	Earnings Sentiment Composite Score
Consumer Discretionary	-0.82	-0.35	-0.04
Consumer Staples	-0.30	-0.33	0.79
Energy	1.00	-1.76	-1.55
Financials	0.75	0.76	-0.02
Health Care	0.41	0.24	1.25
Industrials	-0.01	0.42	-0.44
Information Technology	-1.17	1.71	1.37
Materials	0.47	0.12	-1.01
Communication Services	-0.08	0.48	-0.42
Real Estate	0.49	-0.79	-0.23
Utilities	-0.75	-0.49	0.31

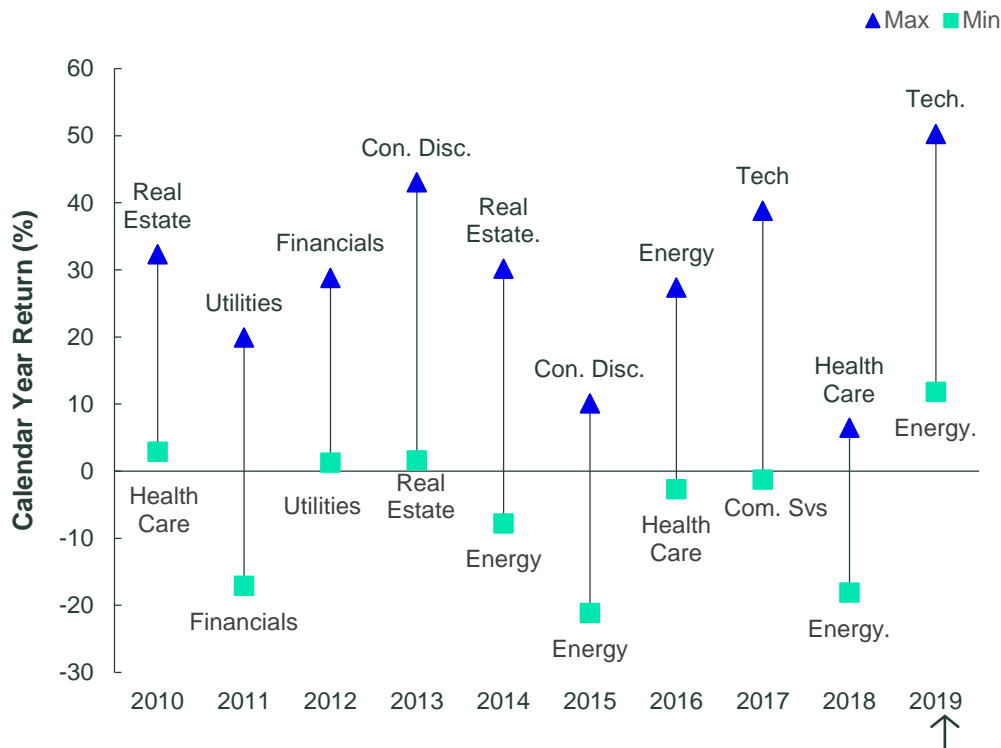
Financials have shown both attractive valuations and strong momentum

Source: State Street Global Advisors, FactSet, Bloomberg Finance, L.P. as of December 31, 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 Dispersion

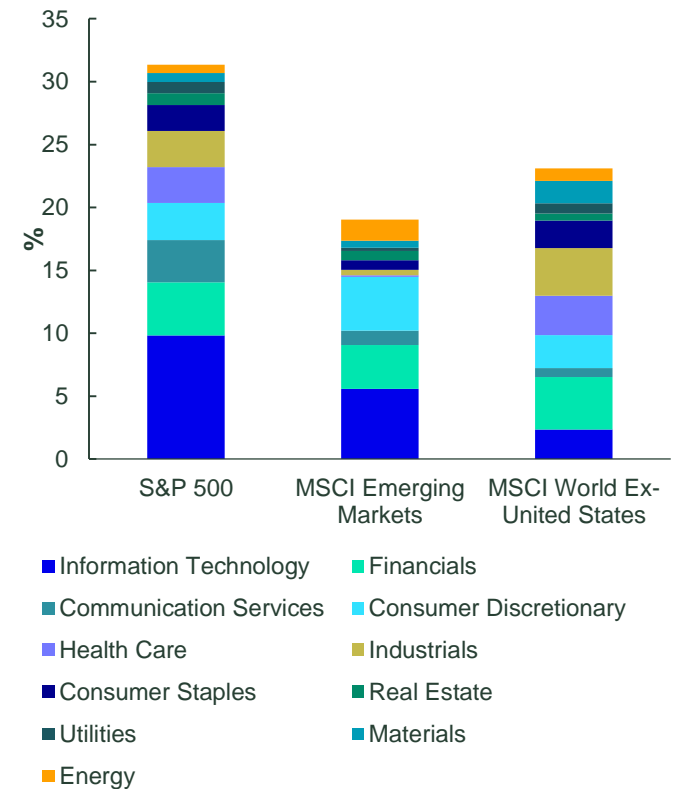
While US Tech had its best yearly gains since 2009, contributing to nearly a third of returns of the US equity, the sector's impact is less significant outside the US

Sector Dispersion (2010–2019)



**Sector dispersions reached the widest level since 2013**

Global Equity 2019 Return Contribution by Sectors



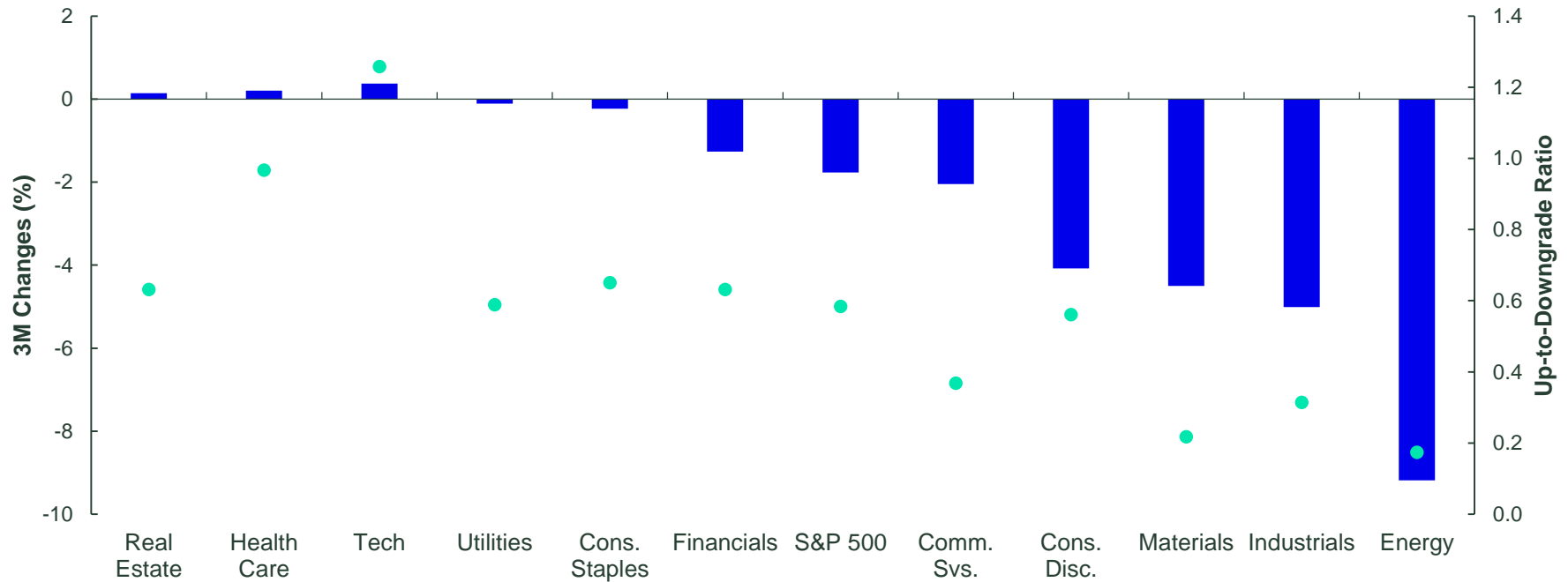
Source: FactSet, as of December 31, 2019. Past performance is not a guarantee of future results.

# Sector Earnings

2020 earnings estimates have been downgraded in most sectors since the beginning of Q4. However, Tech and Health Care have shown broader and positive earnings revisions

Sector FY 2020 Earnings Estimates Revisions (%)

■ 3-Month Changes to 2020 EPS Est. ● 2020 EPS Est. 3M Upgrade to Downgrade Ratio



Source: FactSet, as of December 31, 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.

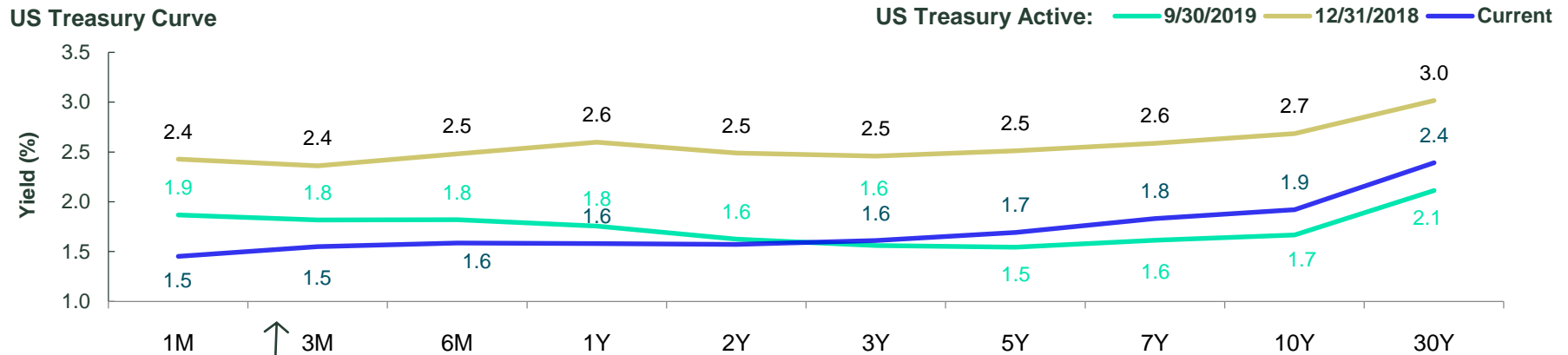


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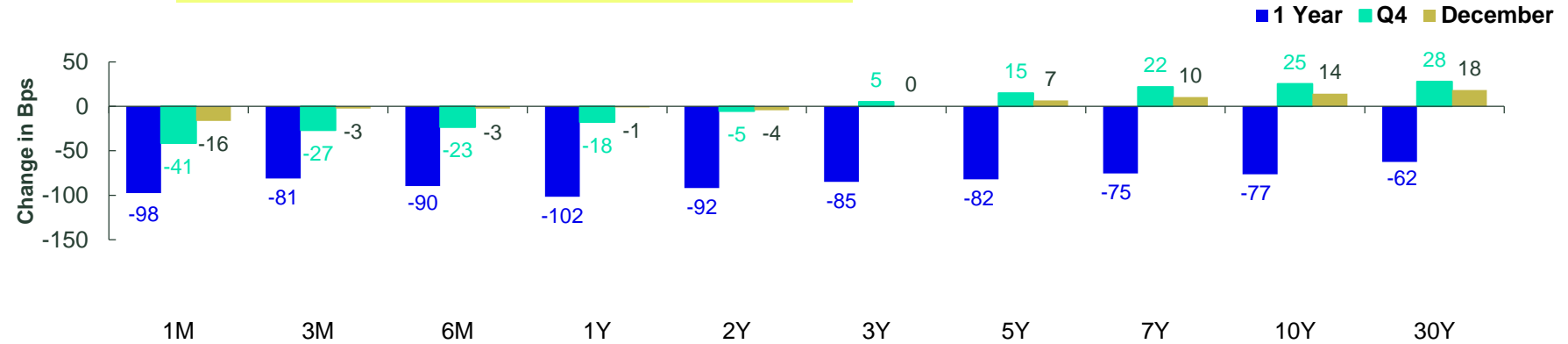
# 4. Fixed Income

# Yield Curve

The yield curve shifted lower across all tenors in 2019, as the Fed rate cuts pulled down the short end and concerns about growth slowdown weighed on the long end



The yield curve steepened in Q4, avoiding further inversion

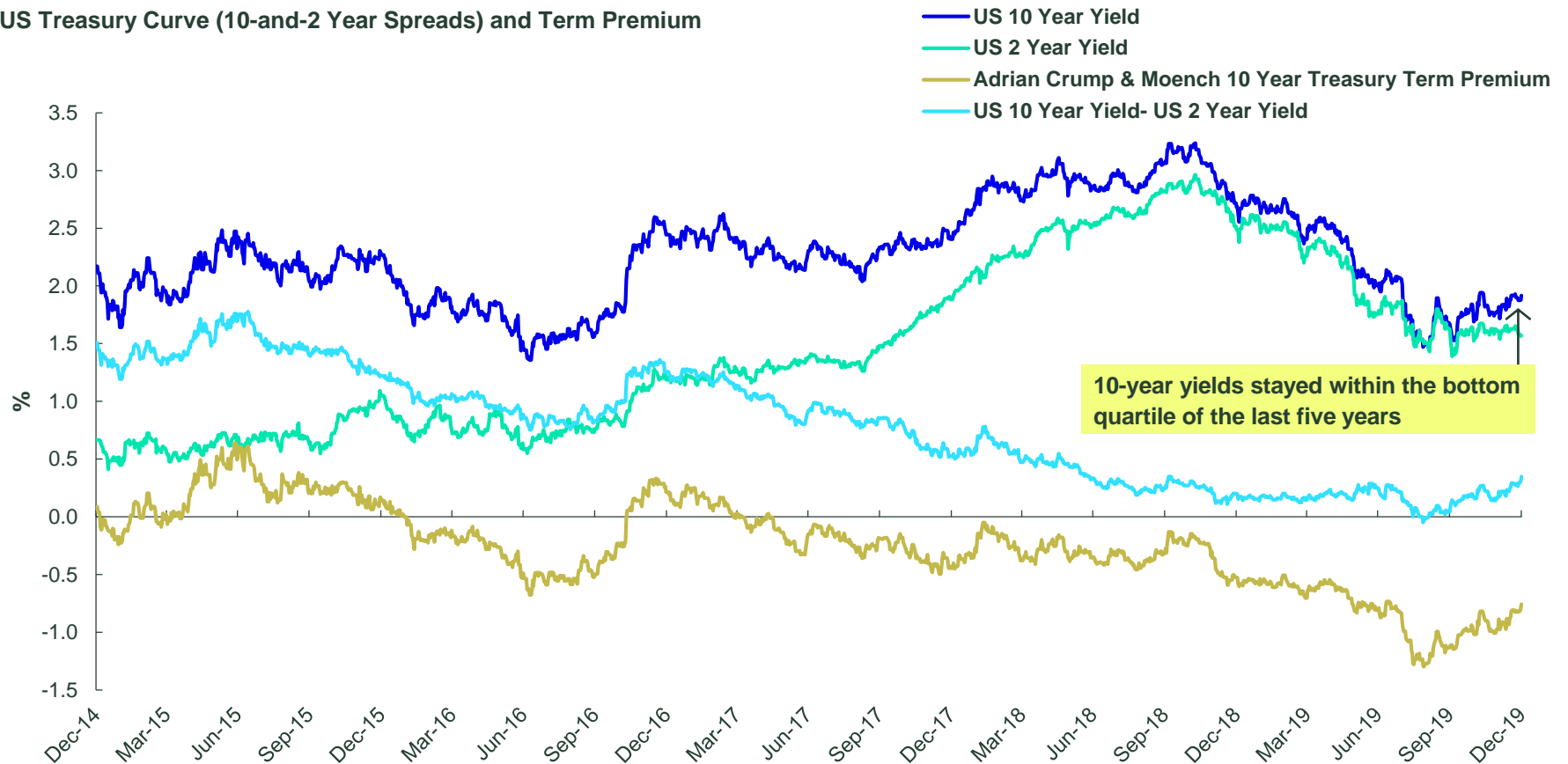


Source: Bloomberg Finance, L.P. As of December 31, 2019. Past performance is not a guarantee of future results.

# Yield Curve (continued)

While growing optimism on the US-China trade deal drove 10-and-2-year spreads to the widest level in one year, 10-year yields stay low relative to their longer history

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



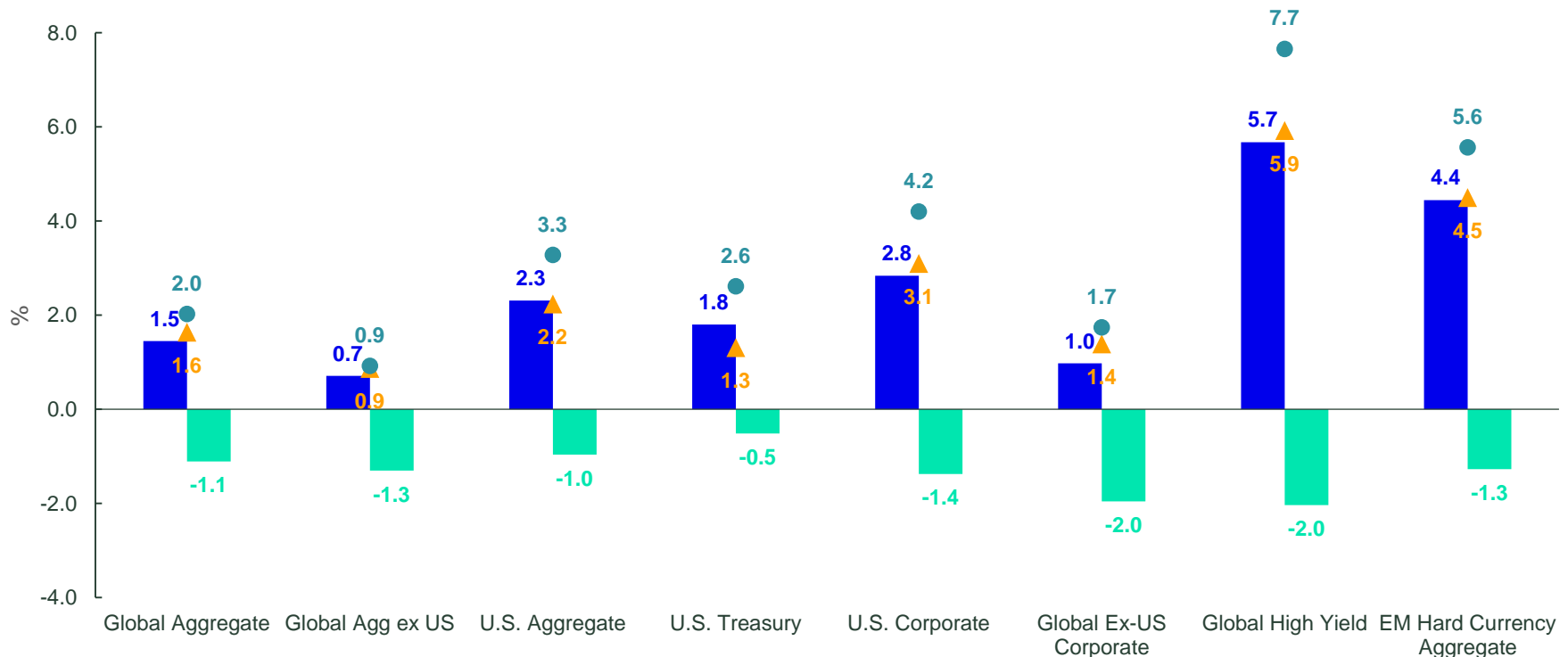
Source: Bloomberg Finance, L.P. As of December 31, 2019. **Past performance is not a guarantee of future results.** The term premium is the excess yield that investors require to commit to holding a long-term bond instead of a series of shorter-term bonds.

# Back to a Low Rate Environment

Strong bond returns have pushed interest rates below both their longer-term averages and levels from a year ago – forcing investors to look elsewhere for yield

Low Yields Across the World

■ Current Yield to Worst (%) ■ Difference to 15 Year Average ▲ Bottom 10th Percentile ● 1 Year Ago

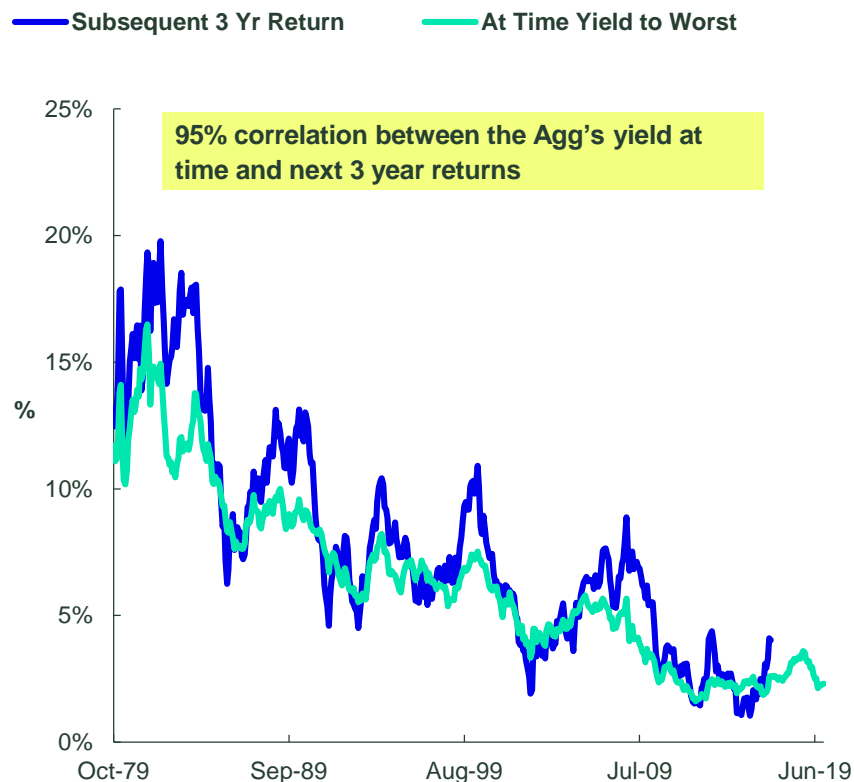


Source: Bloomberg Finance, L.P. as of December 31, 2019. Calculations by SPDR Americas Research, **Past performance is not a guarantee of future results.** Global Aggregate: Bloomberg Barclays Global Aggregate Bond Index; U.S. Aggregate: Bloomberg Barclays US Aggregate Bond Index; U.S. Corporate: Bloomberg Barclays US Corporate Bond Index; U.S. Treasury: Bloomberg Barclays US Treasury Bond Index; Global Agg ex-US: Bloomberg Barclays Global Aggregate Bond Ex-US Index; Global Corporate ex-US: Bloomberg Barclays Global Corporate Bond Ex-US Index; Global High Yield: Bloomberg Barclays Global High Yield Bond Index; EM Hard Currency Aggregate: Bloomberg Barclays EM Hard Currency Aggregate Bond Index; U.S. MBS: Bloomberg Barclays US MBS Index.

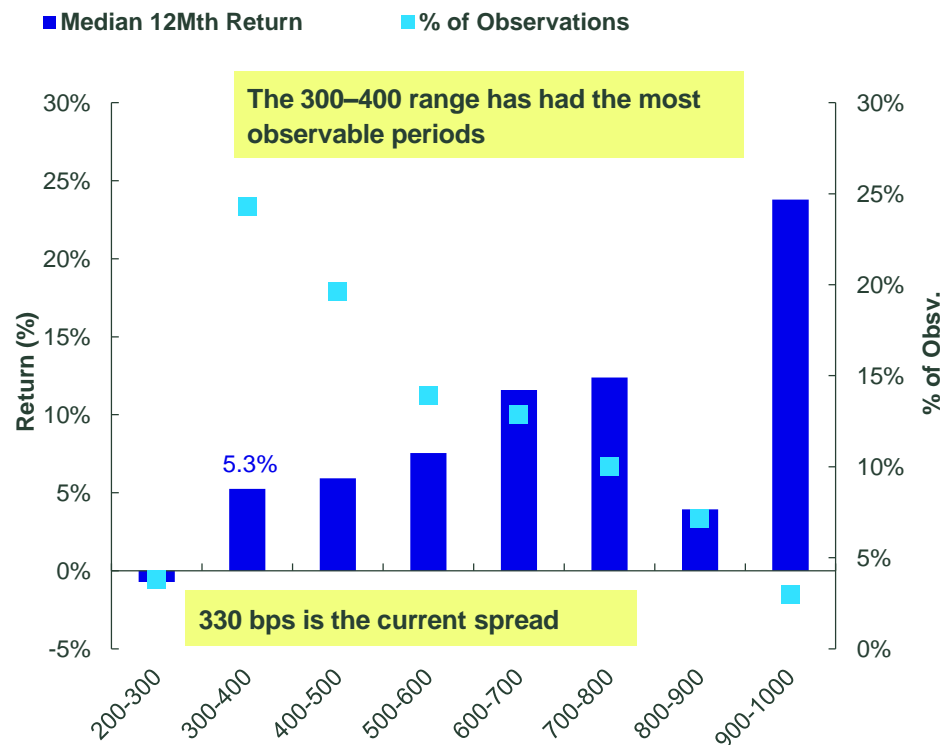
# Low Rates = Low Return Expectations

While not at extremes, spreads and current yield levels screen as expensive, indicating lower levels of returns based on historical trends

The Agg Starting Yield Level versus Subsequent 3 Year Return



US High Yield Starting Spread and Median 12 Mth Return (1999-2019)

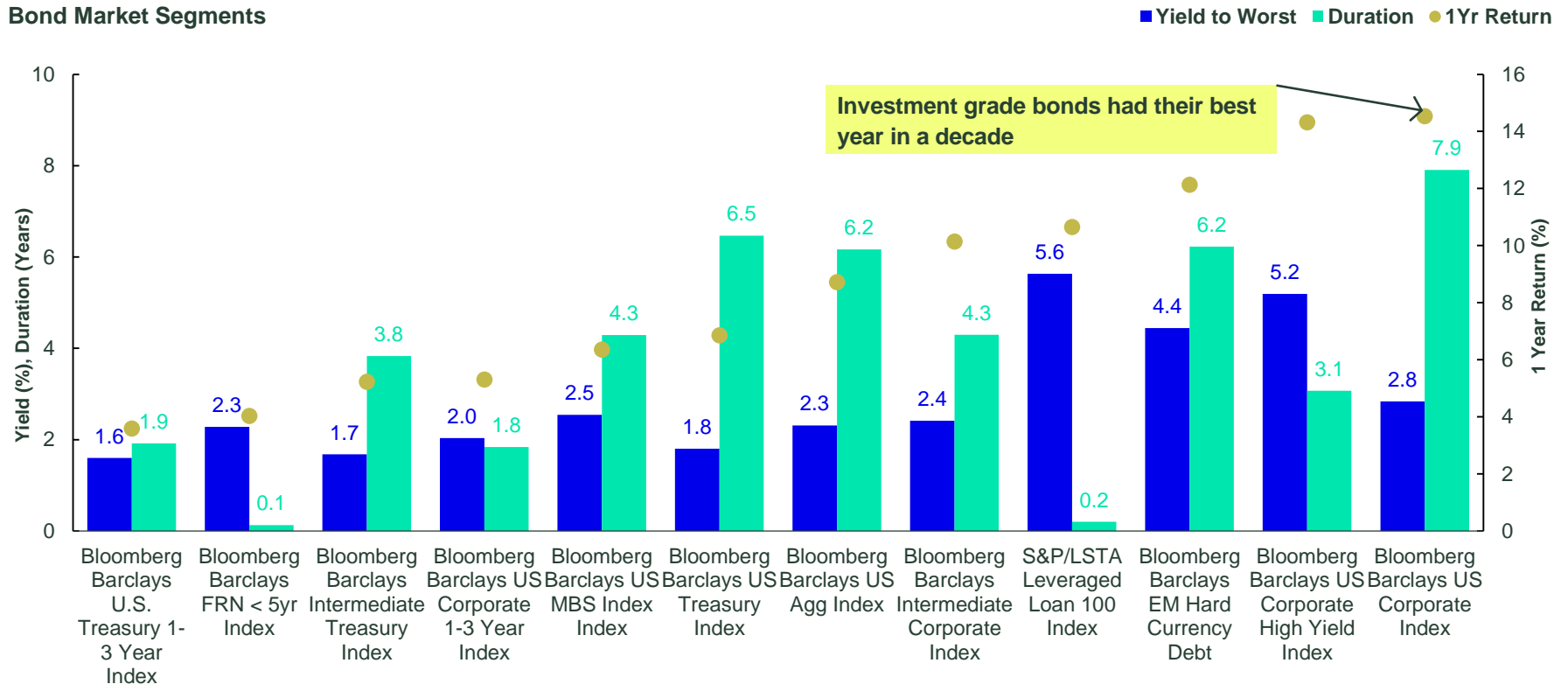


Source: Bloomberg Finance, L.P. as of December 31, 2019. Calculations by SPDR Americas Research, **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other income. Returns for periods of less than one year are not annualized.

# Bond Market Overview

Taking on duration may not be optimal as long-duration segments' strong returns over the past year have made their yield per duration profile less attractive

Bond Market Segments



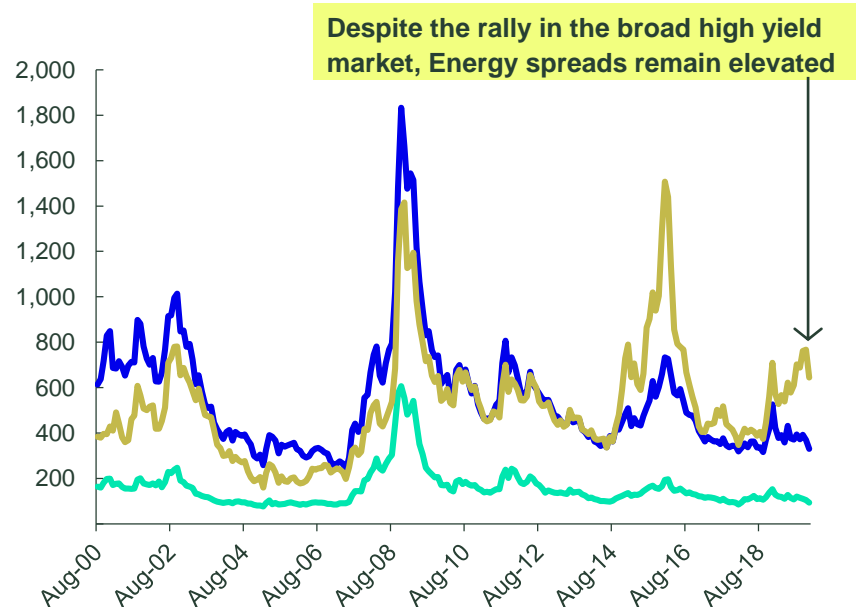
Source: Bloomberg Finance, L.P. As of December 31, 2019. Past performance is not a guarantee of future results. Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

# Credit Trends

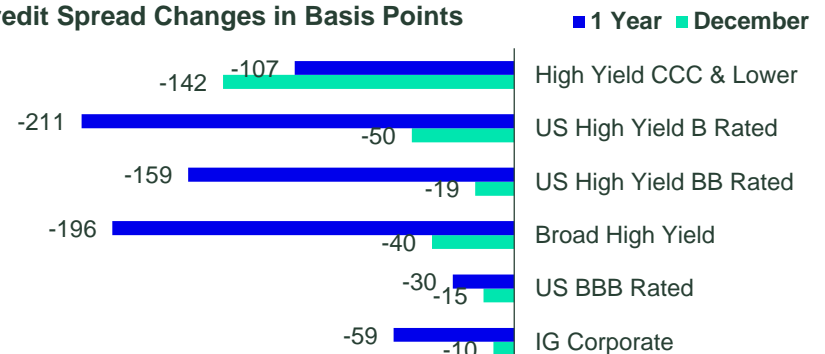
Credit spreads continued to tighten in December as investors became less concerned about an imminent recession risk and seek higher income

## Credit Spreads (Basis Points)

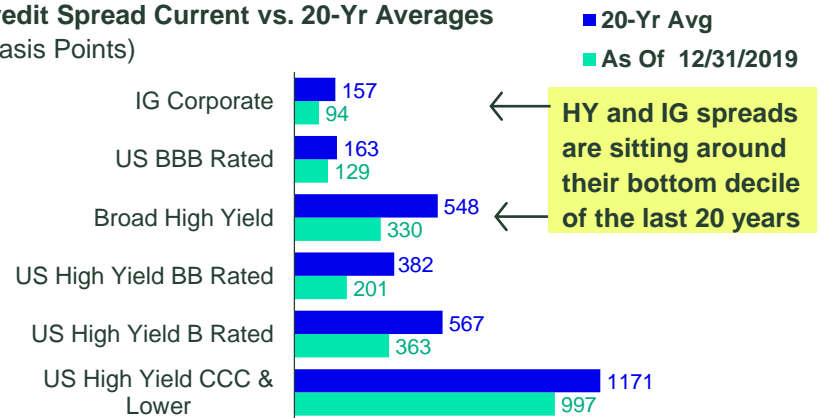
- Bloomberg Barclays US Corporate High Yield Index
- Bloomberg Barclays US Corporate Index
- Bloomberg Barclays High Yield Energy Index



## Credit Spread Changes in Basis Points



## Credit Spread Current vs. 20-Yr Averages (Basis Points)

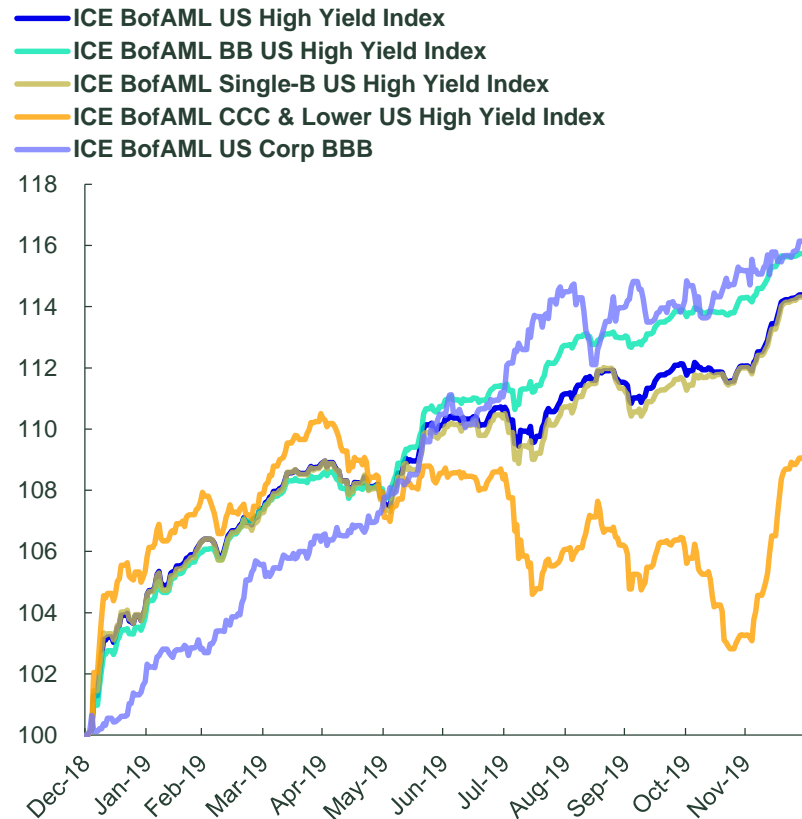


Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of December 31, 2019. US High Yield CCC & Lower = BofA ML US High Yield CCC & Lower Rated Index. US High Yield B Rated = BofAML US High Yield B Rated Index. BBB Rated = BofA ML US Investment Grade BBB Rated Index. Broad high yield = Bloomberg Barclays 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.**

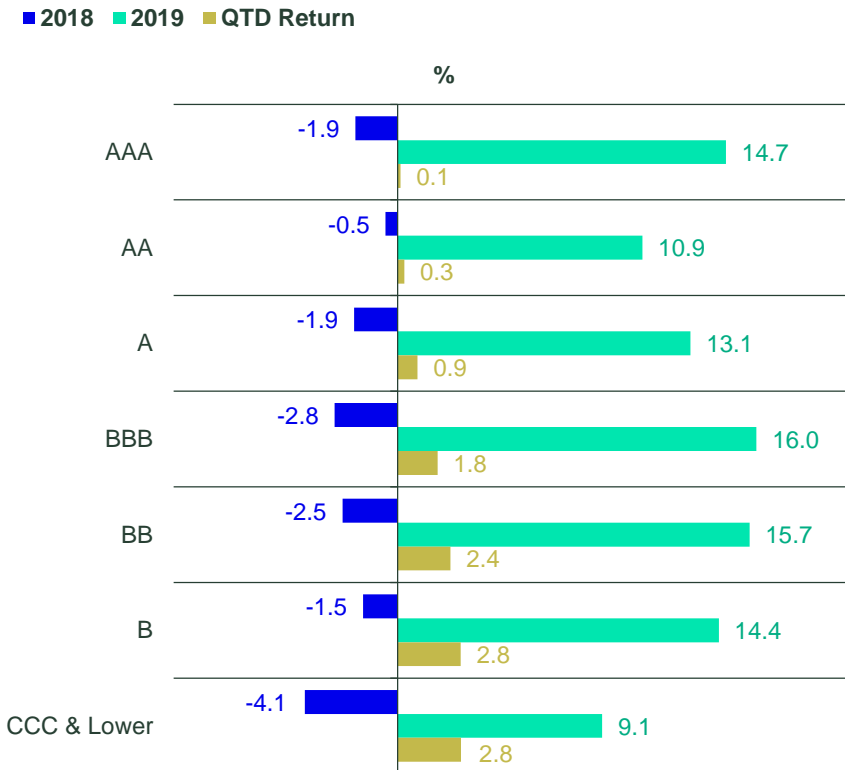
# Credit Trends (continued)

CCC-rated issues enjoyed a strong rebound amid the risk-on rally in December, but still lagged higher credit quality segments significantly for the year

Credit Segment Performance (1 Year) Base = 100



IG and HY Performance by Credit Rating



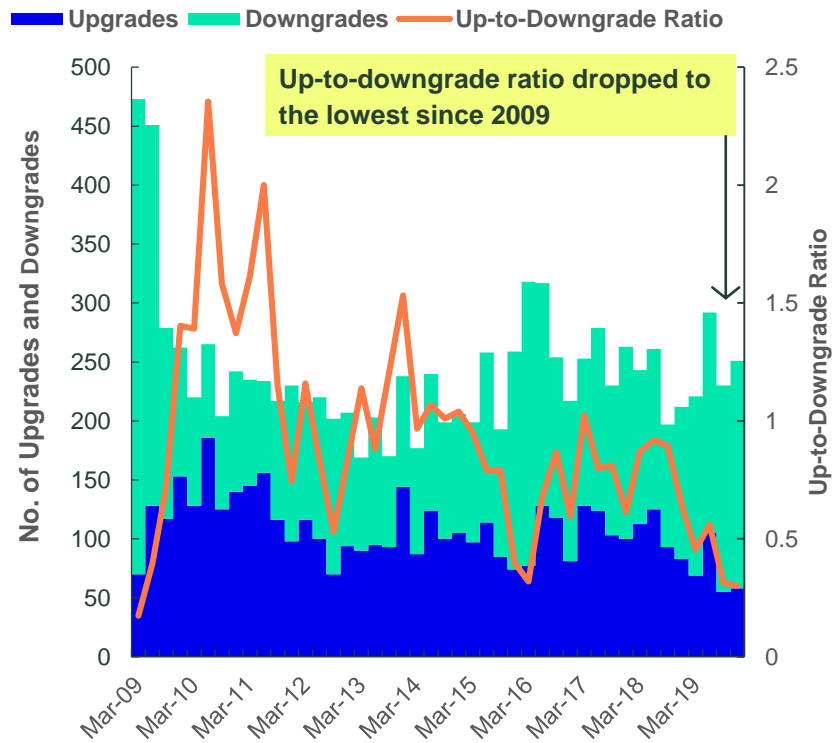
Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of December 31, 2019. Past performance is not a guarantee of future results. Performance of an index is not illustrative of any particular investment. It is not possible to invest directly in an index.



# Credit Trends (continued)

Declining up-to-downgrade ratio and a spike in short positions in high yield ETFs may pose some headwinds for high yield bonds performance in 2020

High Yield Up-to-Downgrades



High Yield ETF Short Interest\*



Source: Bloomberg Finance, L.P as of December 31, 2019. \*Include short interest of iShares iBoxx \$ High Yield Corporate Bond ETF (HYG) and SPDR Bloomberg Barclays High Yield Bond ETF (JNK)

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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

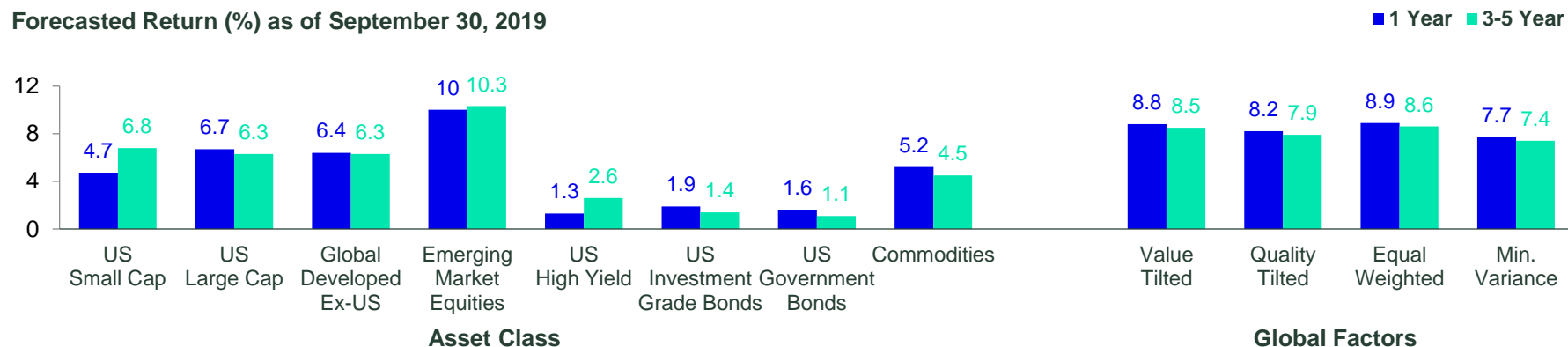
Asset Category		Prior Month (\$M)	Year to Date	Trailing 3 Months (\$M)
Equity Region	US	27,795	135,964	56,617
	Global	1,300	1,866	3,197
	International-Developed	7,888	27,344	16,895
	International-Emerging Markets	4,669	11,173	7,276
	International-Region	188	-2,071	1,932
	International-Single Country	1,046	-774	5,883
	Currency Hedged	30	-5,535	87
US Size & Style	Broad Market	4,449	36,340	11,687
	Large-Cap	20,503	89,794	34,539
	Mid-Cap	957	6,591	791
	Small-Cap	2,737	7,181	5,227
	Growth	2,388	5,553	3,280
	Value	3,300	16,471	10,175
Fixed Income Sectors	Aggregate	7,164	47,606	18,229
	Government	415	26,702	2,678
	Inflation Protected	966	1,813	1,095
	Mortgage-Backed	1,349	14,138	3,581
	IG Corporate	1,352	28,809	4,761
	High Yield Corp.	2,032	18,143	4,252
	Bank Loans	764	327	1,146
	EM Bond	717	1,117	1,510
	Preferred	113	6,013	1,679
	Convertible	149	179	269
Government ETF Maturity Focus	Municipals	1,133	10,654	3,851
	Ultra Short	634	904	-46
	Short Term	876	8,050	2,645
	Intermediate	-1,433	10,204	519
	Long Term (>10 yr)	356	8,147	-249

Source: State Street Global Advisors, Bloomberg Finance, L.P. As of December 31, 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.

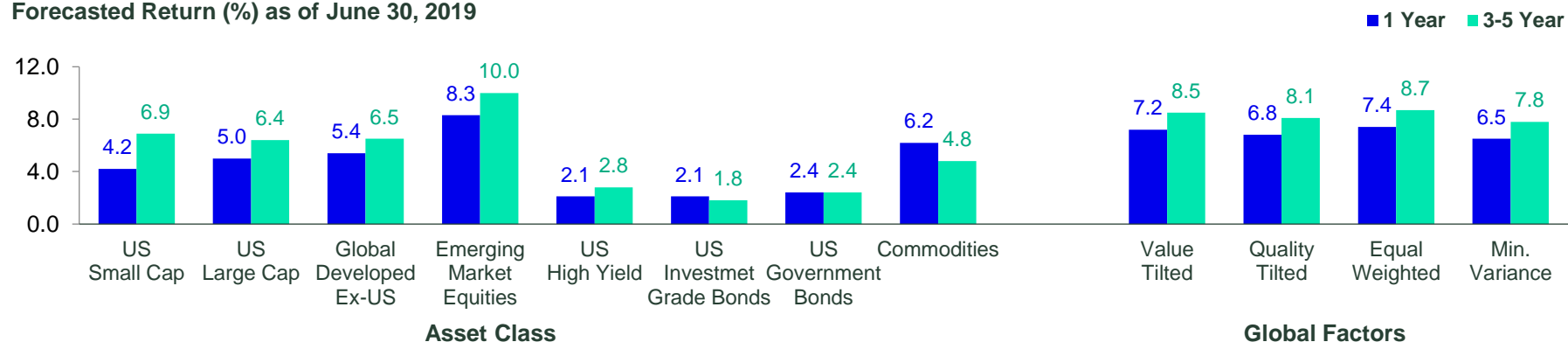
## Appendix B

# Asset Class Forecast

Forecasted Return (%) as of September 30, 2019



Forecasted Return (%) as of June 30, 2019



Source: State Street Global Advisors Investment Solutions Group. The forecasted returns are based on SSGA's Investment Solutions Group's September 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 Mortgage Backed Securities Index:** The index consists of US Mortgage Backed Securities

**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 US Pure Value Index:** The return of the top quintile less the bottom quintile value stocks.

**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.

**EBITDA:** Earnings before Interest Taxes Depreciation and Amortization

**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 Canada Index:** An equities benchmark that captures large- and mid-cap representation in Canada.

**MSCI Germany Index:** An equities benchmark that captures large- and mid-cap representation in Germany.

**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.

**RSI:** The relative strength index (RSI) is a momentum indicator that measures the magnitude of recent price changes to evaluate overbought or oversold conditions in the price of a stock or other asset.

**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.

**Quintile Spread:** The spread between the top 20% of a data set and the bottom 20% of a data set.

**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.

**MSCI France Index:** An equities benchmark that captures large- and mid-cap representation in France.

**MSCI UK Index:** An equities benchmark that captures large- and mid-cap representation in UK.

**MSCI Russia Index:** An equities benchmark that captures large- and mid-cap representation in Russia.

**MSCI Brazil Index:** An equities benchmark that captures large- and mid-cap representation in Brazil.

**MSCI India Index:** An equities benchmark that captures large- and mid-cap representation in India.

## 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.

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**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.

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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.

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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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Tracking Code: 1984314.41.1.AM.RTL

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