
SPDR[®] ETFs Chart Pack

Key Charts to Help Navigate the Market
February 2020 Edition

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

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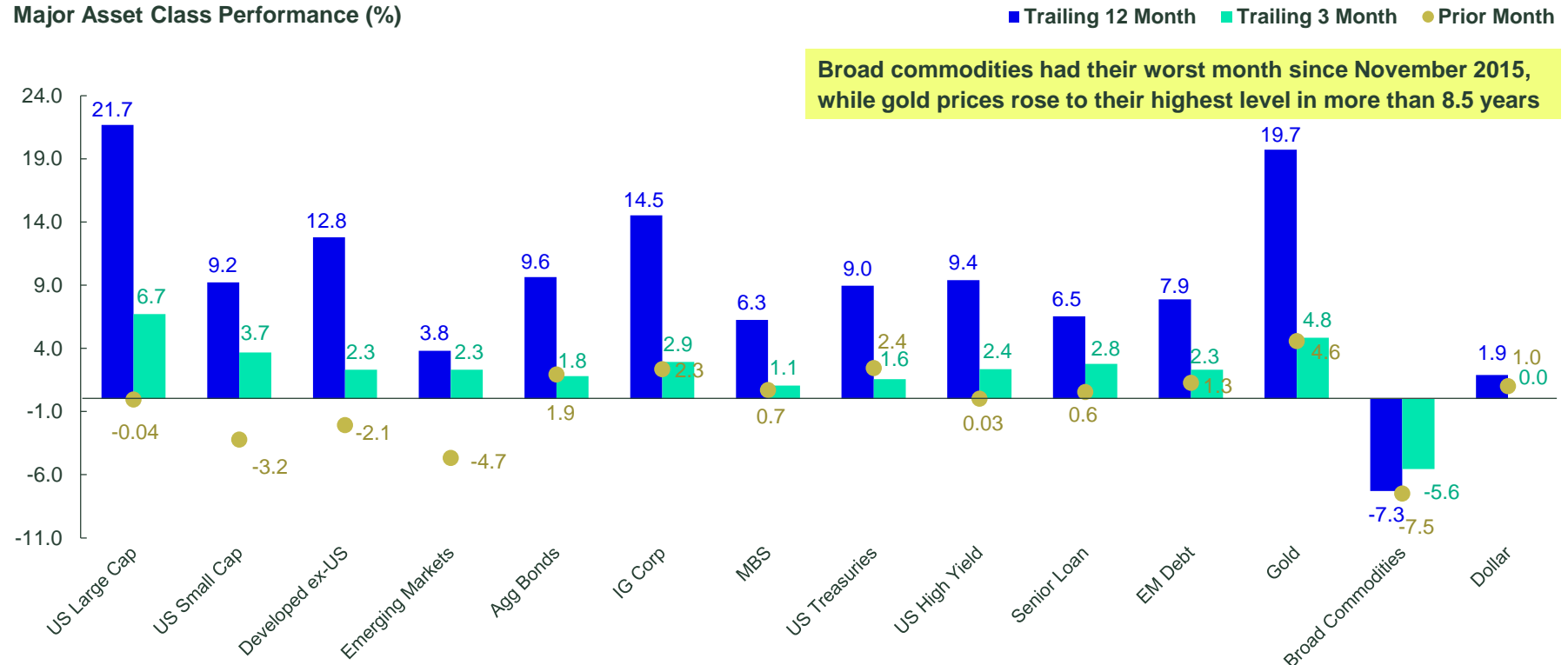
[Credit Trends](#)

1. Market Environment

Asset Class Performance

The coronavirus outbreak stalled the global equity rally, as the market took a defensive stance while evaluating its potential impacts on global growth prospects.

Major Asset Class Performance (%)



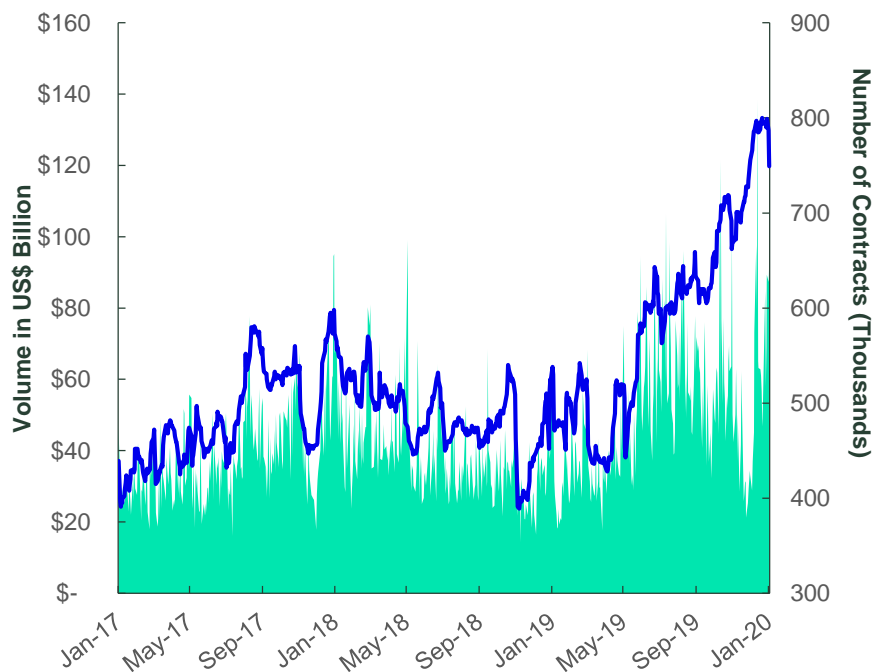
Source: Bloomberg Finance, L.P. as of January 31, 2020. **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses. Index returns reflect all items of income, gain and loss and the reinvestment of dividends and other 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; MBS: Bloomberg Barclays Mortgage US MBS 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.

Gold

As investors seek to play defense, positioning in gold has been on the rise, with the Copper-to-Gold ratio and 10-year yields flashing warning signals for the growth prospects.

Gold Positioning

Gold Front Month Contract Volume, lhs
Total Open Interest, rhs



Copper-to-Gold vs. 10-Year Yields

Copper-to-Gold Ratio
10-Year Yields



Copper gave back all of its gains since October on the heels of the Coronavirus outbreak on Chinese demand

Source: Bloomberg Finance, L.P. as of January 31, 2020. Past performance is not a guarantee of future results.

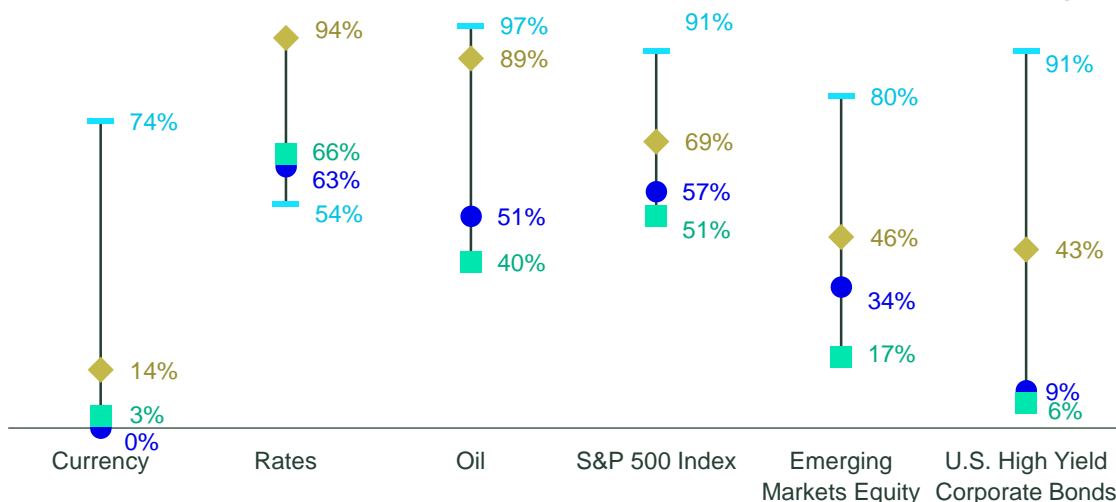
Cross-Asset Volatility

After a tranquil start to 2020, volatility increased over the last week of the month in rates and equity markets, pushing month-end levels higher than December 2019.

Cross-Asset Implied Volatility

Percentile Rank of Daily Average, 3-Year

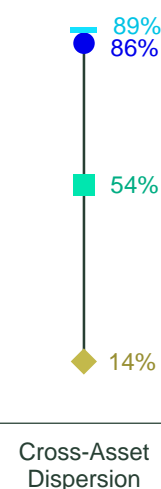
● Jan-20
■ Dec-19
◆ Trailing 3 Months
— One Year Ago



Cross-Asset Dispersion

Percentile Rank, 3-Year

● Jan-20
■ Dec-19
◆ 3-Month Ago
— 1-Year Ago



Cross-asset dispersion jumped to the top quintile in three years, driven by the slump in commodities and rally in gold

Source: Bloomberg Finance, L.P. as of January 31, 2020. **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.

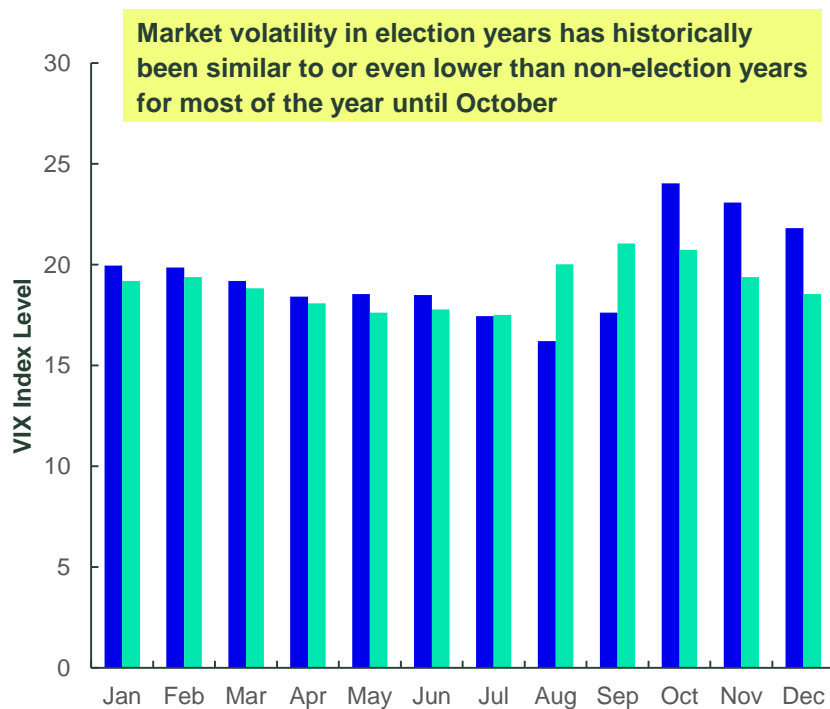
Volatility in Election Years

Given the differences between progressive and moderate Democratic candidates, options markets priced in an increase of volatility ahead of Super Tuesday.

Avg VIX Level in Election and Non-election Year

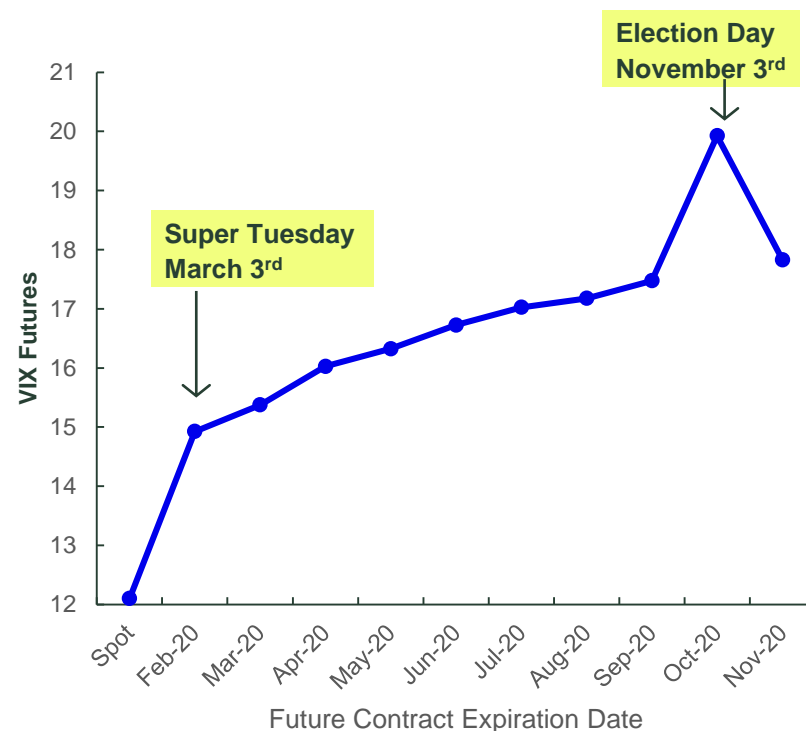
(1990 – 2019)

■ Election Year ■ Non-Election year



VIX Futures Term Structure

—●— VIX Futures as of 1/17/2020 (Before Coronavirus Breakout)



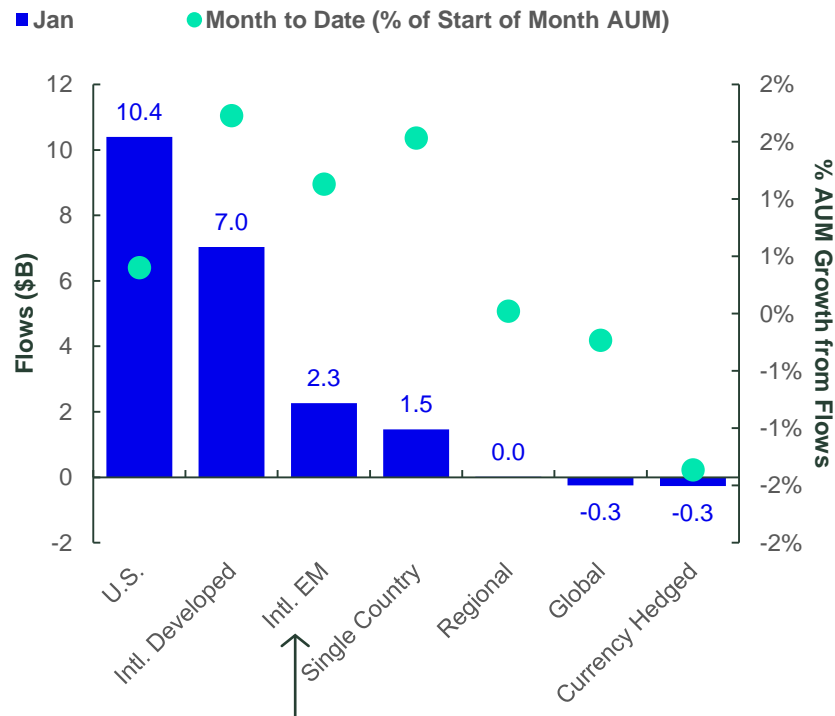
Source: Bloomberg Finance, L.P. as of January 31, 2020. Past performance is not a guarantee of future results.

2. Flows, Fundamentals & Factors

Flow Trends

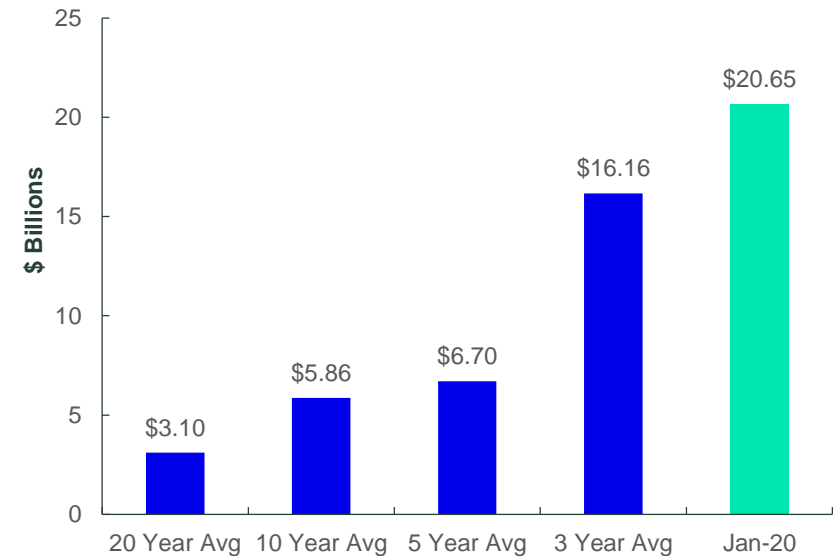
With strong equity performance to start January, flows to equity ETFs were stronger than normal, led by US and Developed ex-US equity funds.

Flows by Equity Regions



Emerging market ETFs were positive but lost \$1.5 billion in the last week of January

Equity ETF January 2020 vs. Historical Averages



Equity ETF flows in January was more than 6x greater than their 20-year January average

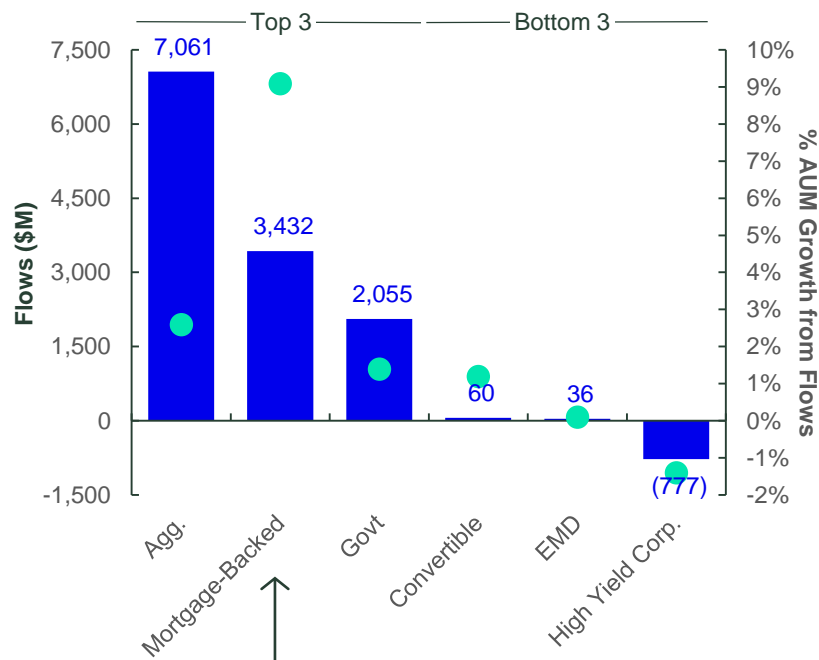
Source: State Street Global Advisors, Bloomberg Finance, L.P. as of January 31, 2020. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. All figures are in USD.

Flow Trends (continued)

With equity volatility increasing to the end of January, flows into bond funds accelerated, as investors seek to de-risk by allocating to rate-sensitive segments.

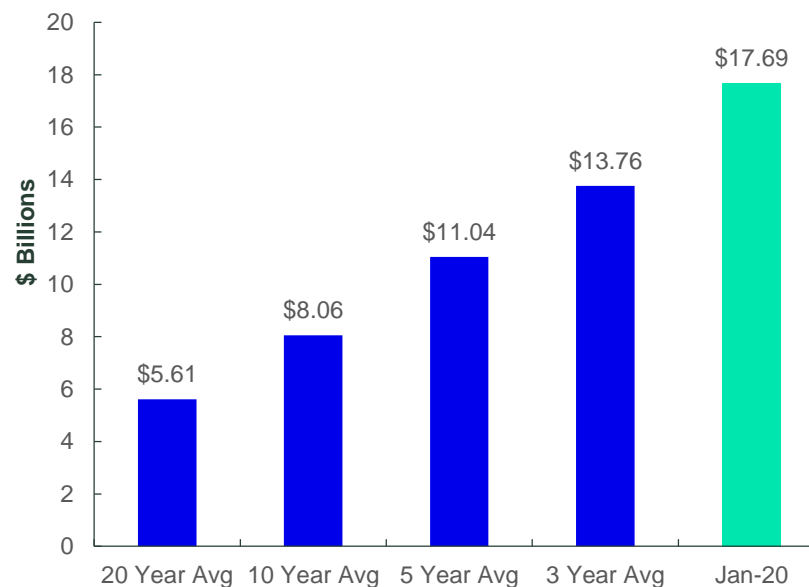
Fixed Income Top and Bottom 3 Sectors by Flows

■ Jan ● Month to Date (% of Start of Month AUM)



Mortgage-backed securities continue to attract great flows, given their attractive yields with less duration and limited credit risk

Fixed Income ETF January 2020 vs. Historical Averages



Fixed Income ETF flows in January was more than 3x greater than their 20-year January average

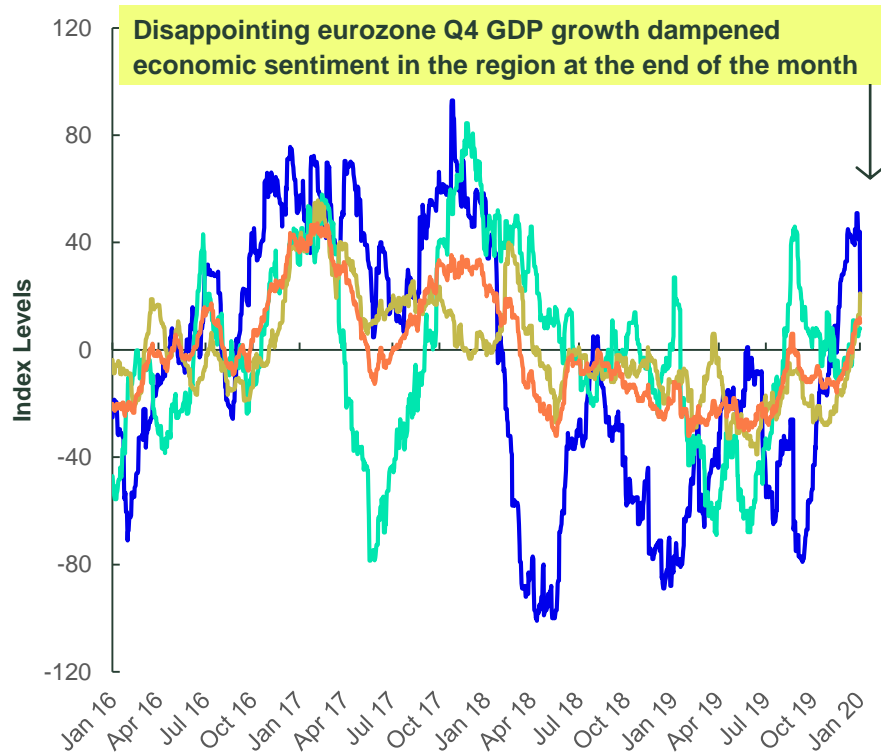
Source: State Street Global Advisors, Bloomberg Finance, L.P. as of January 31, 2020. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. All figures are in USD.

Global Economy

Aided by accommodative monetary policies, global economic sentiment continues to improve, while manufacturing activities appear to have bottomed out across regions.

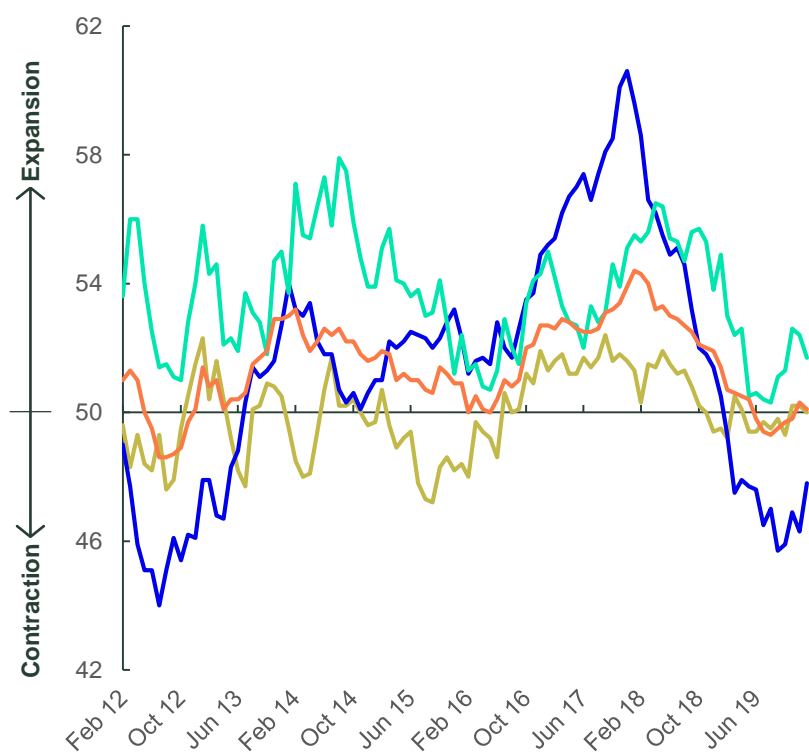
Citigroup Economic Surprise Indices

— Eurozone — US — Emerging Markets — Global



Markit Manufacturing PMI Indices

— China — Eurozone — United States — Global



Source: Bloomberg Finance, L.P. as of January 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

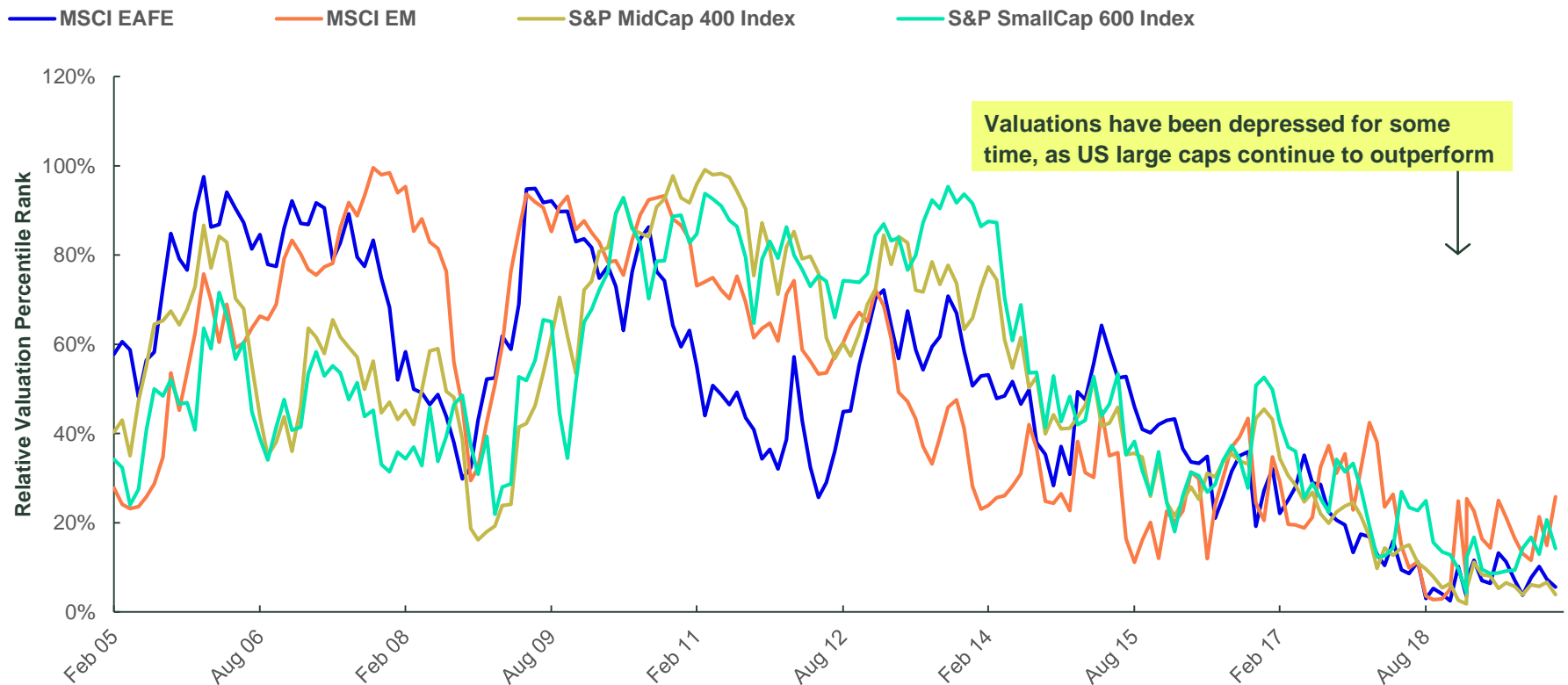
		Valuation to Segment History (Percentile)				Absolute Valuation Composite Z-Score	Valuation Relative to S&P 500 (Percentile)				Relative Valuation Z-Score
		P/E	NTM P/E	P/B	P/S		P/E	NTM P/E	P/B	P/S	
US/Style/Regions	S&P 500	6%	2%	1%	1%	-1.41	N/A	N/A	N/A	N/A	N/A
	S&P MidCap 400	43%	33%	58%	18%	0.27	95%	100%	100%	100%	0.61
	S&P SmallCap 600	29%	57%	77%	74%	1.21	84%	100%	100%	100%	0.49
	S&P 500 Value	24%	19%	15%	3%	-0.76	97%	100%	100%	100%	0.64
	S&P 500 Growth	1%	0%	0%	0%	-1.51	8%	1%	0%	0%	-3.32
	MSCI EAFE	41%	18%	43%	17%	-0.14	89%	98%	100%	100%	0.52
	Euro Stoxx	33%	20%	38%	10%	-0.34	87%	95%	100%	98%	0.45
	MSCI EM	28%	11%	49%	30%	-0.20	88%	54%	99%	96%	0.04
Major Countries	MSCI Canada	74%	39%	61%	63%	1.23	96%	98%	99%	100%	0.58
	MSCI Japan	70%	50%	50%	31%	0.92	91%	88%	98%	96%	0.40
	MSCI Germany	35%	7%	59%	14%	-0.24	88%	87%	100%	97%	0.38
	MSCI France	26%	14%	25%	3%	-0.70	65%	84%	99%	86%	-0.03
	MSCI UK	40%	31%	90%	64%	1.00	88%	99%	100%	100%	0.53
	MSCI China	35%	46%	48%	43%	0.51	69%	82%	90%	86%	-0.10
	MSCI Russia	67%	38%	39%	44%	0.71	96%	70%	69%	78%	-0.19
	MSCI Brazil	32%	2%	18%	21%	-0.69	78%	47%	57%	63%	-0.89
	MSCI India	12%	12%	63%	67%	0.14	55%	75%	98%	98%	-0.11

Source: State Street Global Advisors, FactSet, as of January 31, 2020. * 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 percentile, and σ is the standard deviation of sectors' valuation percentile.

Global Valuation (continued)

As the S&P 500 valuations approach the highest in 15 years, international equities and US small and mid caps continue to present value opportunities.

Relative Valuation vs. S&P 500 (Based on Combined Ranking of P/E, Fwd P/E, P/B and P/S, 15 Years)



Source: FactSet, as of January 31, 2020.

Global Momentum

US large-cap segments led momentum, while mid and small caps lagged. Emerging markets face technical headwinds amid the coronavirus crisis.

Momentum Scorecard Rankings

Bottom 3 Rank on Momentum

Top 3 Rank on Momentum

		Price Momentum*			Technicals			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	3	3	3	2	4	3	2	6	4
	S&P MidCap 400 Index	15	11	6	9	11	14	11	14	12	11
	S&P SmallCap 600	13	7	10	14	15	12	17	17	15	13
	S&P 500 Value	7	1	4	8	4	2	3	1	4	4
	S&P 500 Growth	11	6	2	1	1	6	1	2	1	3
	MSCI EAFE	12	12	12	6	7	13	2	4	2	8
	Euro Stoxx	8	9	11	4	6	9	11	5	2	7
	MSCI EM	4	13	15	15	14	10	15	16	13	13
Major Countries	MSCI Canada	17	16	5	2	8	16	5	5	8	9
	MSCI Japan	14	4	13	7	5	3	11	15	17	10
	MSCI Germany	5	14	14	11	10	7	15	5	7	10
	MSCI France	10	10	7	10	9	8	7	5	4	8
	MSCI UK	6	15	16	12	17	17	8	11	11	13
	MSCI China	2	5	9	16	13	5	8	11	10	9
	MSCI Russia	1	2	1	13	3	1	5	5	8	4
	MSCI Brazil	3	8	8	17	16	11	11	11	13	11
	MSCI India	16	17	17	5	12	15	8	10	15	13

Broad EM's, China's and Brazil's ranking dropped from top 3 to bottom 3 in terms of 50-Day moving averages

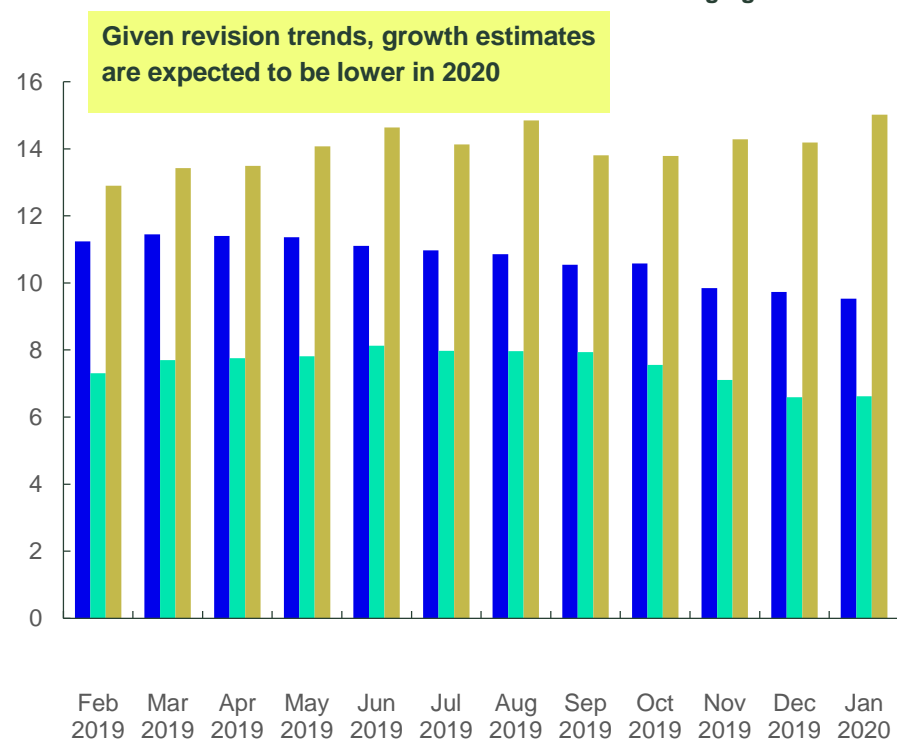
Source: State Street Global Advisors, FactSet, as of January 31, 2020. *Momentum is calculated by calculating the 3-month, 6-month and 12-month price performance, not including the most recent month.

Global Earnings

While 2020 earnings growth estimates in emerging markets have been upgraded, their earnings sentiment has slowed recently relative to the US.

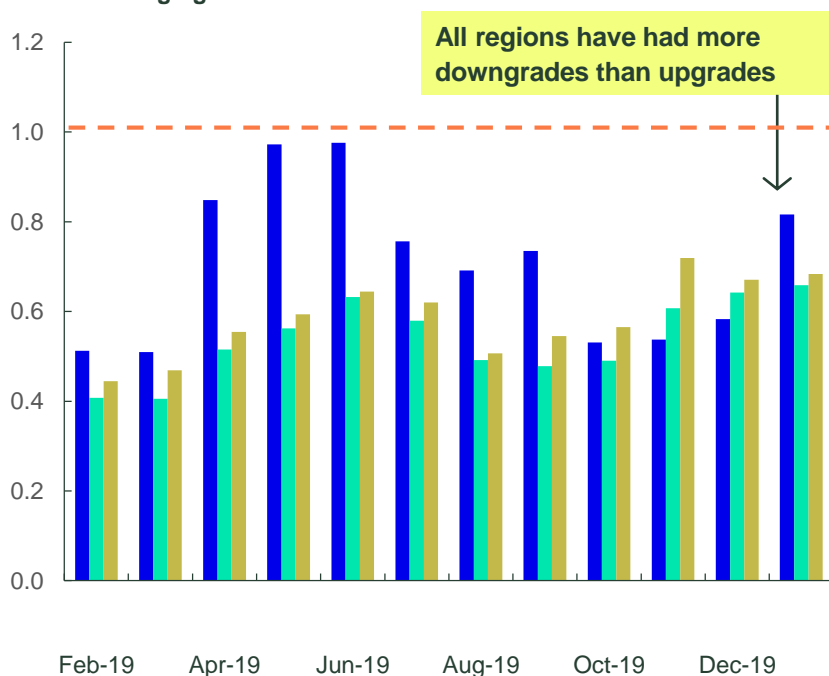
2020 EPS Growth Estimates (%)

■ 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

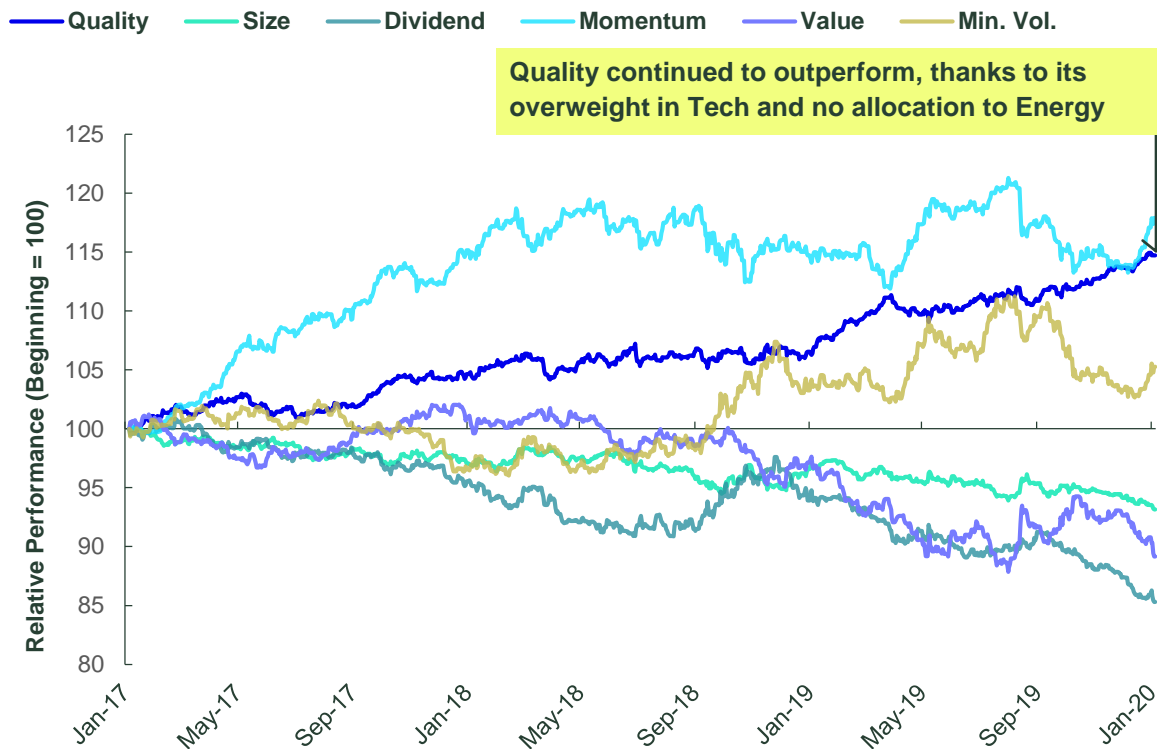


Source: FactSet, as of January 31, 2019. Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. EPS growth estimates are based on Consensus Analyst Estimates compiled by FactSet.

US Factor Trends

Momentum and Min. Vol. rebounded, while Value gave up part of its recent gains in the risk-off environment.

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



Period Excess Returns Versus MSCI USA Index (%)

Trailing 3 Month Trailing 12 Month
Prior Month



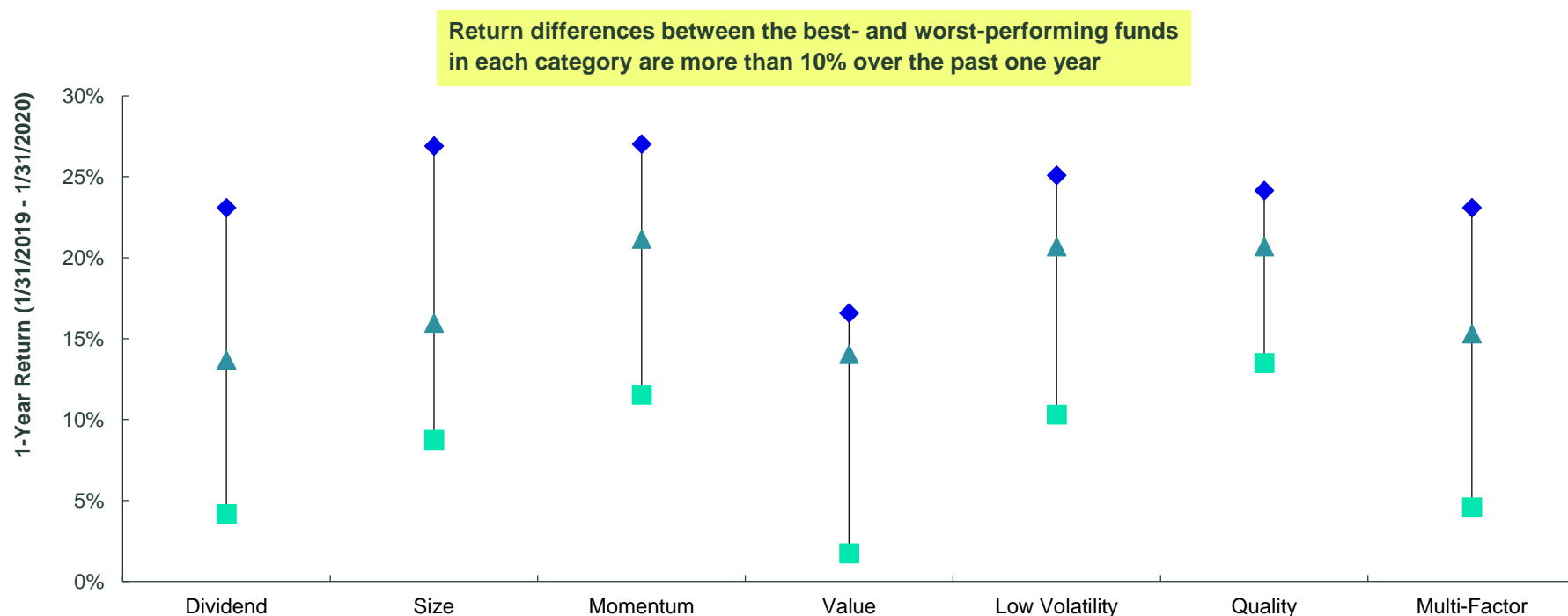
Source: Bloomberg Finance, L.P. as of January 31, 2020. **Past performance is not a guarantee of future results.** MSCI USA Minimum Volatility Index, MSCI USA Enhanced Value Index, MSCI USA Quality Index, MSCI USA Equal Weighted Index, MSCI USA High Dividend Yield Index and MSCI USA Momentum Index were 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.

Smart Beta Fund Dispersion

Given the wide dispersions among funds targeting the same factor, due diligence on the smart beta funds is extremely important.

US-Listed Smart Beta Fund 1-Year Return Dispersion

◆ Max ■ Min ▲ Median



Source: Bloomberg Finance, L.P. as of January 31, 2020. **Past performance is not a guarantee of future results.** All funds covering US Large or Broad Market segments were analyzed. Classifications of factor strategies per SPDR Americas Research

3. Sectors

Sector Flows & Returns

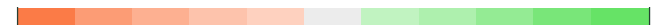
Tech. and Cons. Disc. took in the most sector flows, given their strong earnings results, while Utilities had its best monthly return in more than four years as rates fell.

Global Equity Sector Heatmap	Positioning					Returns		
	Prior Month Flow (\$M)	Trailing 3-Month Flow (\$M)	Trailing 12-Month Flow (\$M)	Current Short Interest (%)	1-Month Prior Short Interest (%)	Prior Month Return (%)	Trailing 3 Month Return (%)	12-Month Return (%)
Consumer Discretionary	1,173	271	970	17.9	18.1	0.6	4.8	16.7
Consumer Staples	(394)	(823)	1,792	7.6	7.3	0.4	4.0	21.7
Energy	(628)	990	(1,391)	7.3	7.2	-11.1	-4.0	-10.5
Financial	368	(613)	(6,438)	9.7	9.5	-2.6	5.0	18.2
Health Care	(388)	456	(5,434)	19.4	19.6	-2.7	5.8	12.1
Industrials	1,157	1,700	118	8.0	8.8	-0.4	3.9	15.6
Materials	469	1,742	(1,522)	13.1	13.4	-6.2	-0.2	10.8
Real Estate	(129)	486	6,889	3.8	3.8	1.4	1.0	18.1
Technology	1,713	4,239	7,551	6.9	7.0	4.0	14.5	46.1
Communications	253	489	2,897	1.5	1.5	0.9	6.8	21.3
Utilities	400	(152)	3,081	15.6	15.1	6.7	8.3	30.3

Industrial, Materials and Financials saw \$2 billion of outflows in total in the last week of January

Worst-Performing Sector
Least Flows in Period

Best-Performing Sector
Most Flows in Period

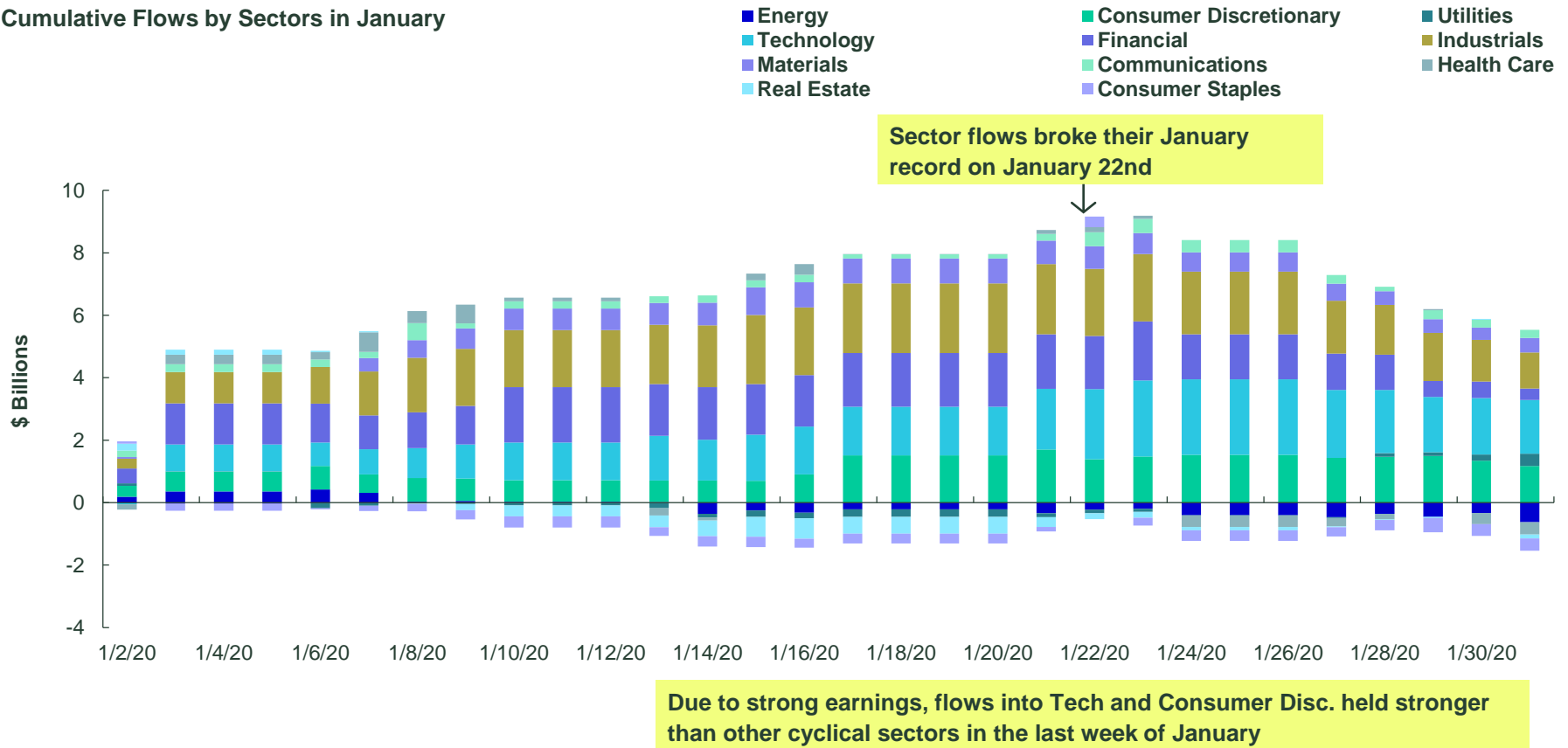


Source: State Street Global Advisors, Bloomberg Finance, L.P., as of December 31, 2019. Past performance is not a guarantee of future results.

Sector Flow Trends

Cyclical sectors, such as Industrials, Materials and Financials, saw sizable inflows until growth fears stemming from the Coronavirus spooked the market in the last week.

Cumulative Flows by Sectors in January



Source: State Street Global Advisors, Bloomberg Finance, L.P. as of January 31, 2020. Sectors, asset classes and flows are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. All figures are in USD.

Sector Scorecard

Tech. ranked the top in earnings sentiment while extending its leadership in momentum as a result of strong 2020 earnings revisions and Q4 earnings beats.

	Sector Composite Z-Score*			
	Valuation Composite Score	Momentum Composite Score	Earnings Sentiment Composite Score	Volatility Composite Score
Consumer Discretionary	-0.78	-0.34	0.81	-1.36
Consumer Staples	-0.30	-0.24	0.79	-0.02
Energy	1.26	-1.48	-0.58	0.51
Financials	0.88	0.65	0.15	-0.68
Health Care	0.48	0.50	0.45	-0.18
Industrials	-0.19	-0.17	-1.25	0.95
Information Technology	-1.20	2.01	1.27	1.88
Materials	0.64	-0.32	-0.97	0.09
Communication Services	0.01	0.56	0.33	-0.41
Real Estate	0.23	-0.68	-0.60	0.03
Utilities	-1.03	-0.49	-0.41	-0.81

Financials have shown both attractive valuations and strong momentum

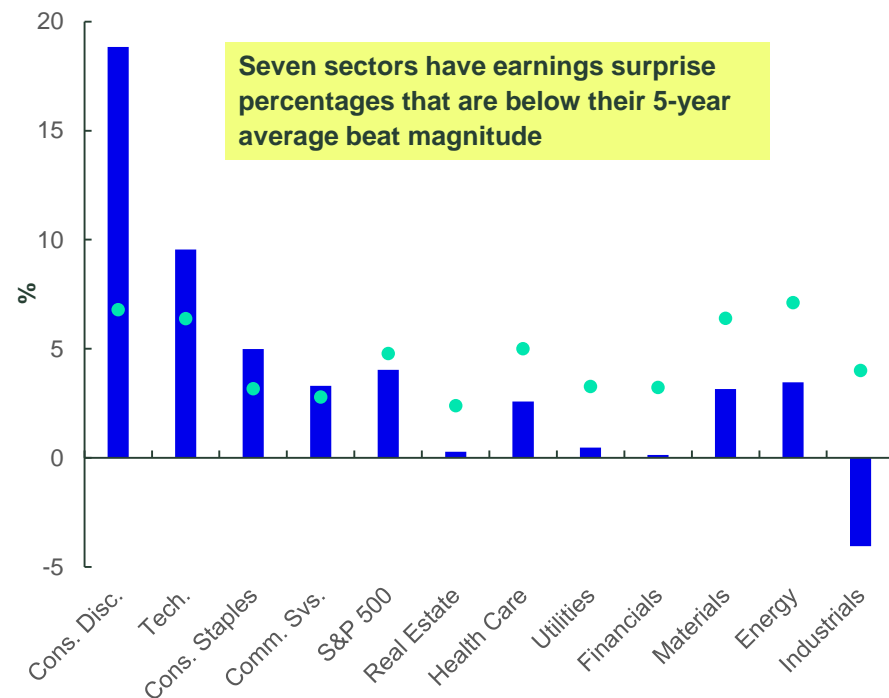
Source: State Street Global Advisors, FactSet, Bloomberg Finance, L.P. as of January 31, 2020. Green shading is top 3, red shading is bottom 3. * The scorecard uses z-score for each metric to standardize numbers across sectors and show relativeness among sectors. Composite score is calculated by equally 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

Q4 earnings season has shown weaker earnings beats than historical averages, while analysts kept downgrading 2020 earnings estimates for most sectors.

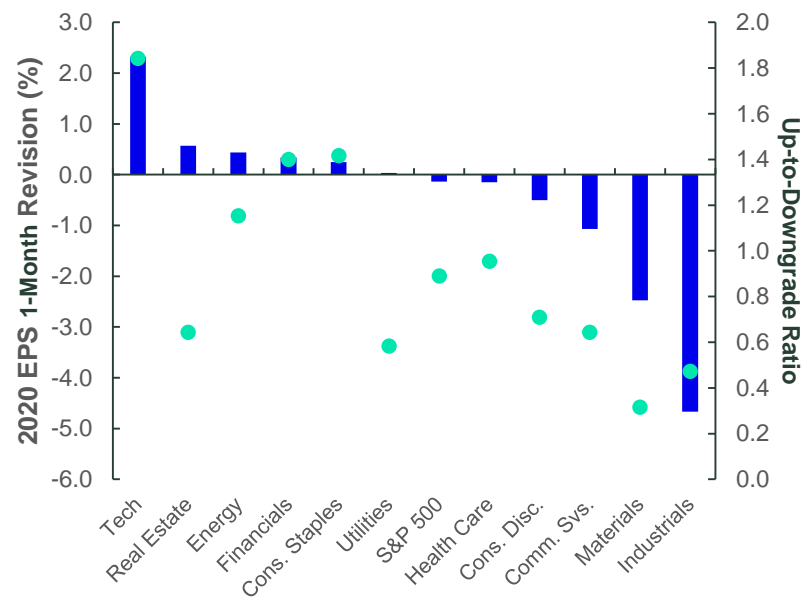
Sector Earnings Beats vs. 5-Year Averages

■ Current EPS Surprise ● 5-Year Avg EPS Surprise



2020 Sector Earnings Revisions

■ 1-Month Changes to 2020 EPS Est. (%)
● 2020 EPS Est. 1M Up-to-Downgrade Ratio



Tech. has seen broader and higher upward revisions for 2020 than other sectors

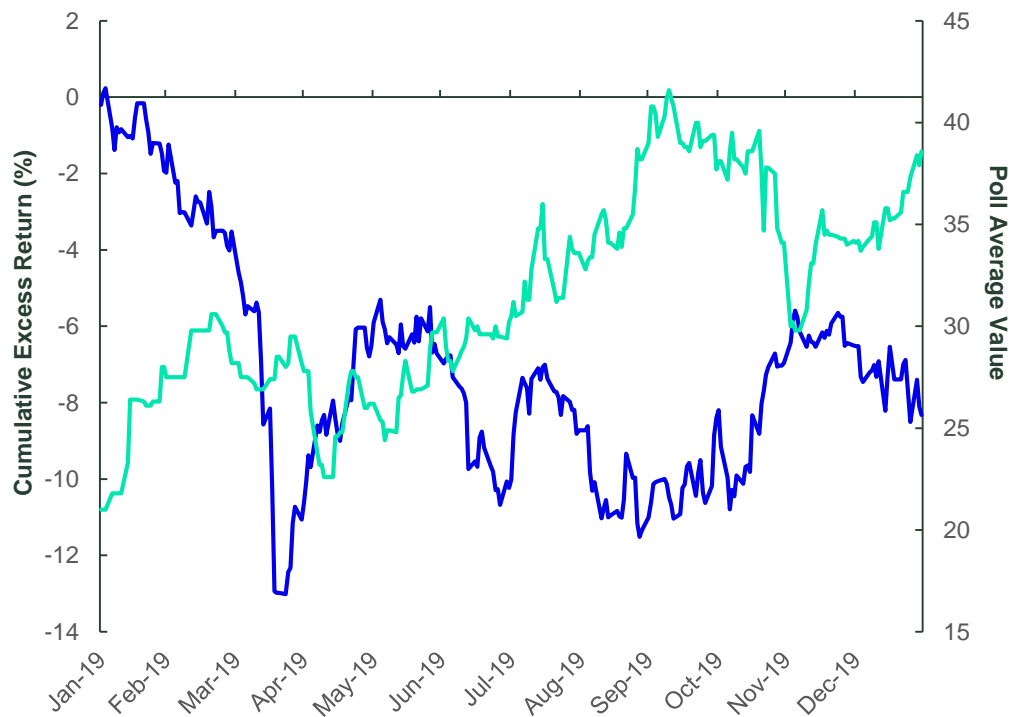
Source: FactSet, Bloomberg Finance, L.P. as of January 31, 2020. Characteristics are as of the date indicated, are subject to change, and should not be relied upon as current thereafter. EPS growth estimates are based on Consensus Analyst Estimates compiled by FactSet.

US Sector Trends

Political headline risks have been driving US health care performance, compressing the sector valuations to a level well below historical averages.

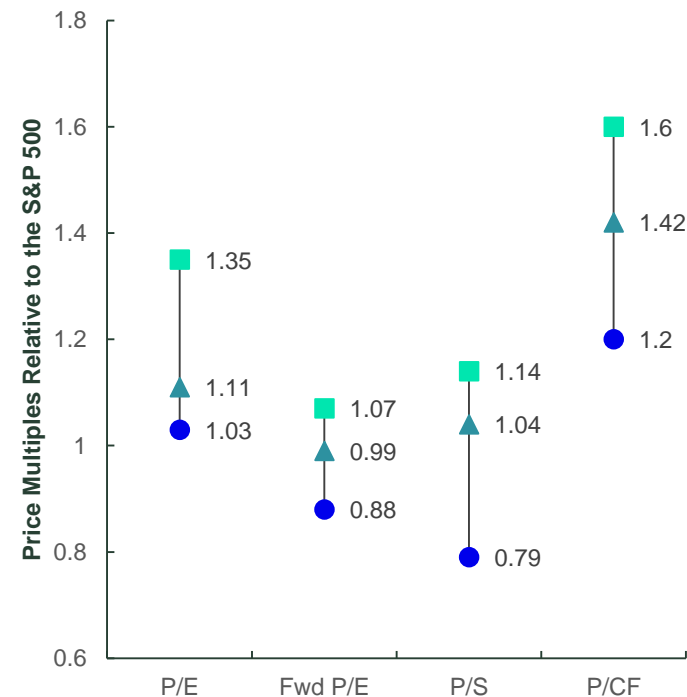
S&P 500 Health Care Relative Performance to the S&P 500

- Health Care vs. S&P 500 Relative Performance
- Real Clear Politics 2020 Democratic Nomination (Bernie and Warren)



Health Care Relative Valuations to the S&P 500

- Current
- 5-Year Ago
- 15-Year Average



Source: FactSet, Real Clear Politics. as of January 31, 2020. **Past performance is not a guarantee of future results.**

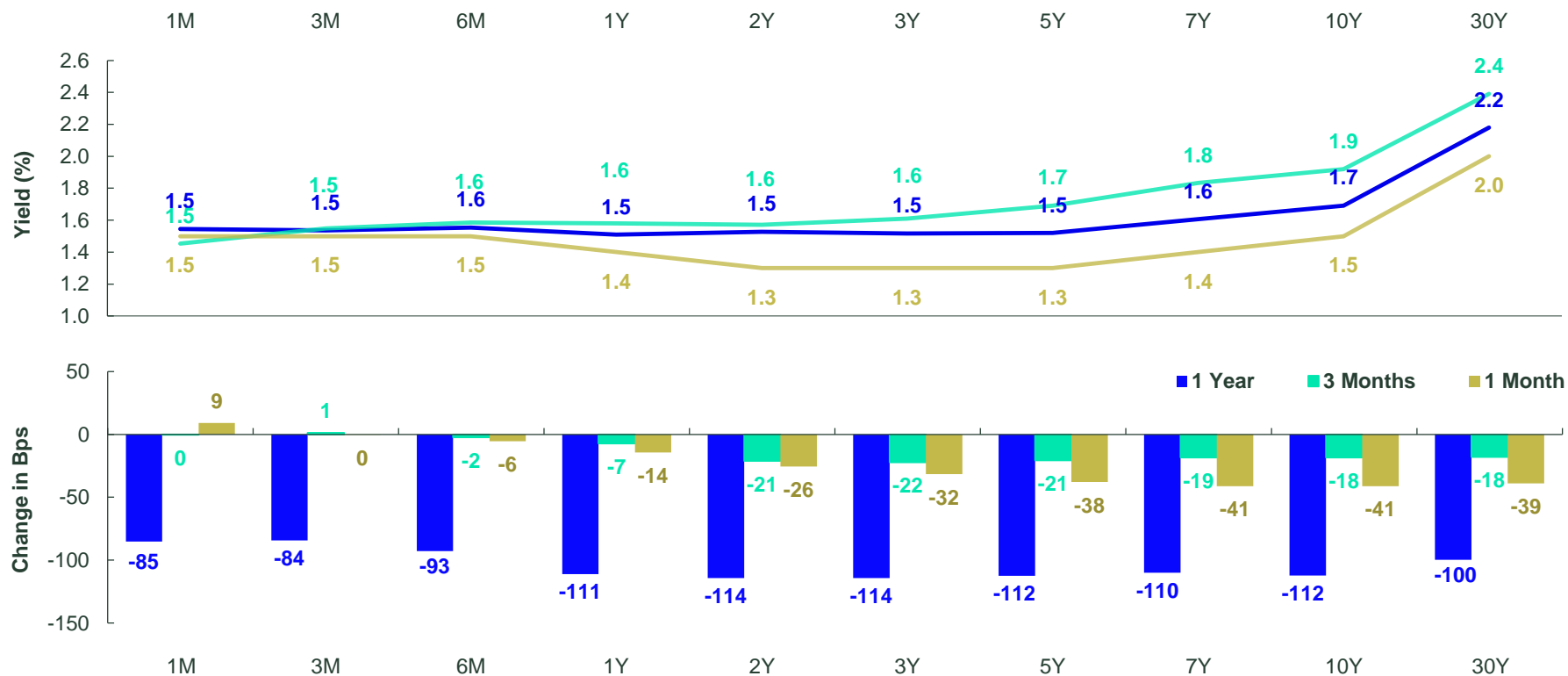
4. Fixed Income

Yield Curve

Part of the yield curve inverted, as the intensifying Coronavirus outbreak revived fears of a global growth slowdown.

US Treasury Curve

US Treasury Active: 10/31/2019 12/31/2019 1/31/2020

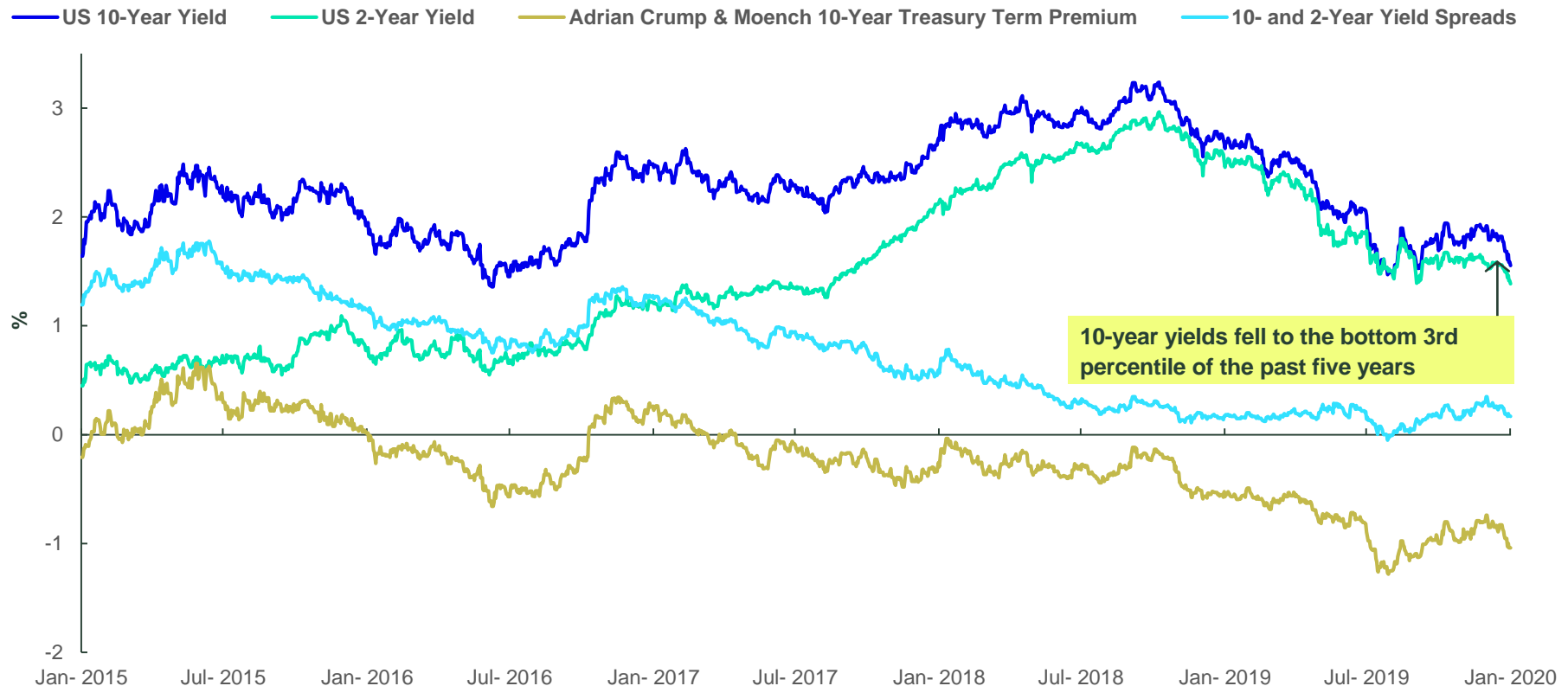


Source: Bloomberg Finance, L.P. as of January 31, 2020. Past performance is not a guarantee of future results.

Yield Curve (continued)

After peaking in late December, the 10- and 2-year spreads narrowed to the mid-teens last month, as 10-year yields dropped to their lowest level since October.

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

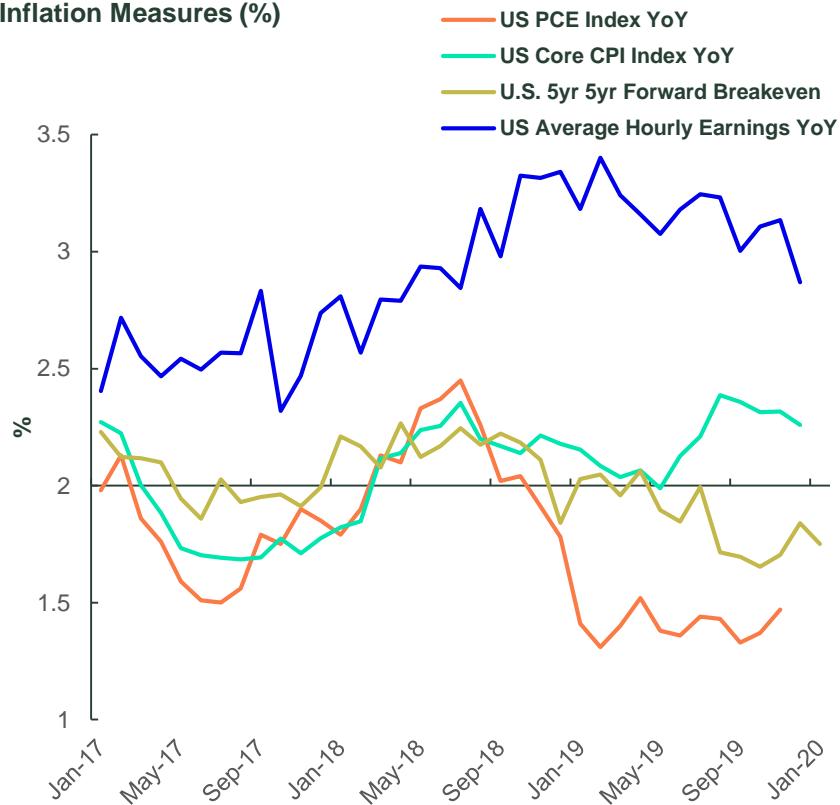


Source: Bloomberg Finance, L.P. as of January 31, 2020. **Past performance is not a guarantee of future results.** The term premium is the excess yield that investors require to commit to holding a long-term bond instead of a series of shorter-term bonds.

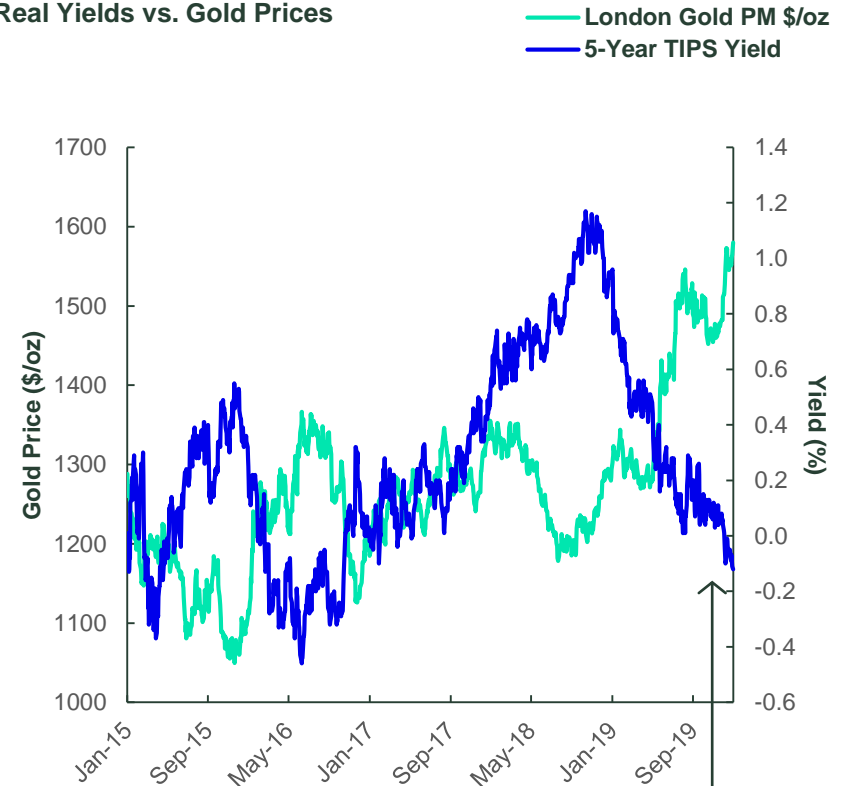
Inflation & Real Yields

Inflation remains below the Fed's 2% target, while lower nominal rates sent real yields below zero, boosting gold prices.

Inflation Measures (%)



Real Yields vs. Gold Prices



Lower real yields have contributed to the rally of gold over the past year

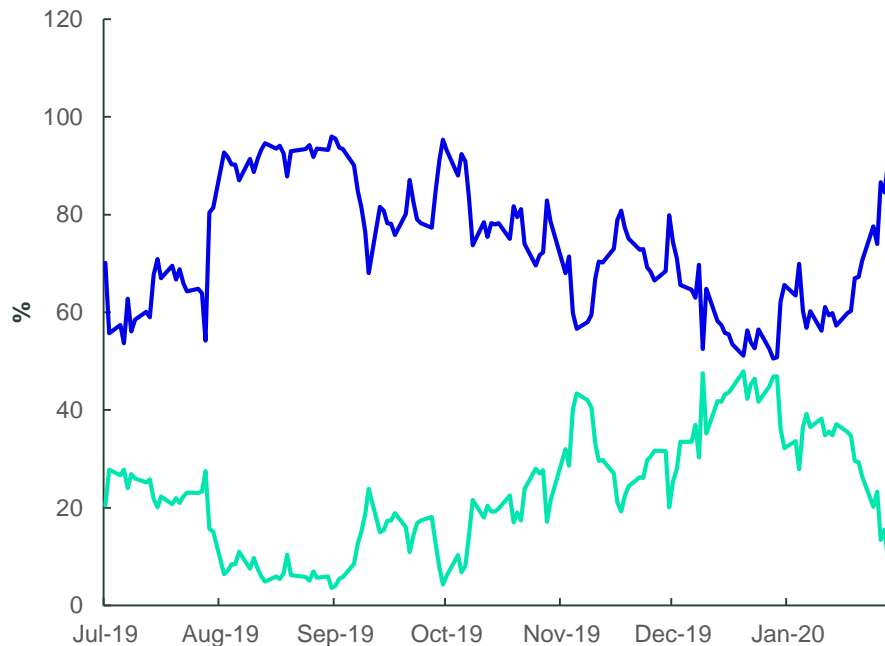
Source: Bloomberg Finance L.P., as of 1/31/2020. Past performance is not a guarantee of future results. All figures are in USD.

The Fed Actions

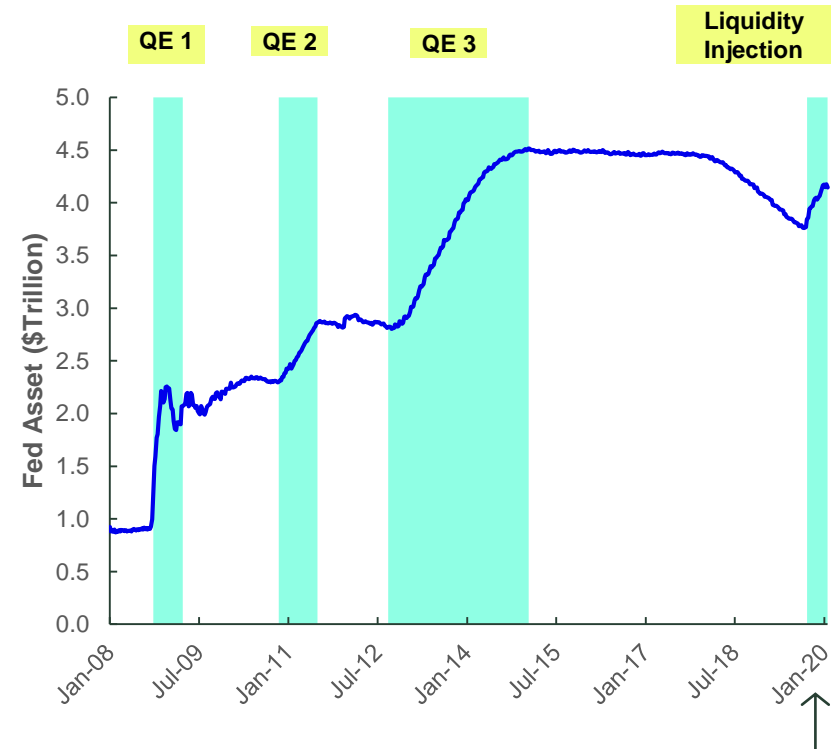
Persistent below-target inflation and downside risks to global growth have raised investor expectations of one rate cut by the end of this year.

Market-Implied Probabilities of a Cut by Dec 2020

— Probability of No Change (1.5-1.75) — Probability of Cut



The Fed's Balance Sheet



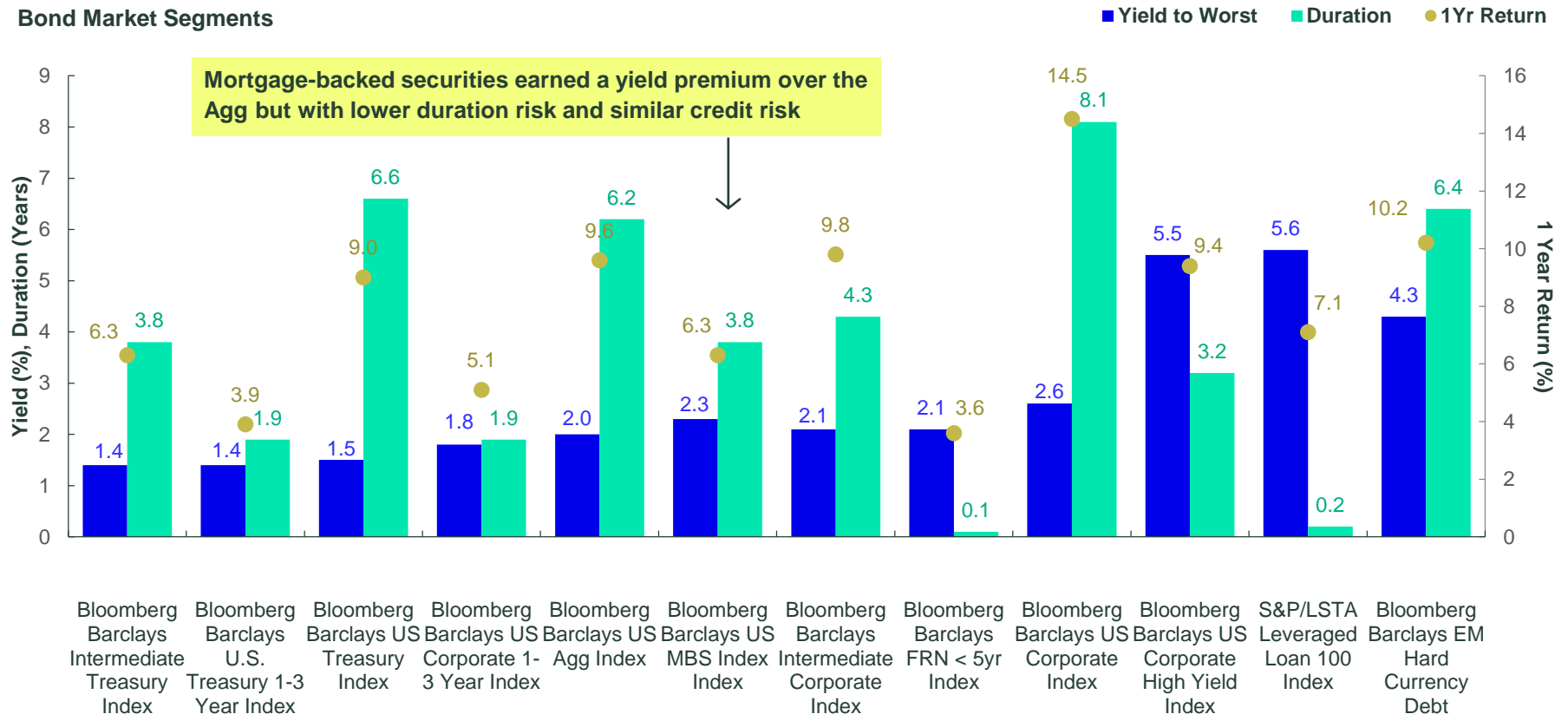
The Fed's \$60-billion-per-month purchase of T-bills have quickly expanded its balance sheet to the level seen in early 2018

Source: Bloomberg Finance, L.P., Federal Reserve Bank of St. Louis, as of January 31, 2020. All figures are in USD.

Bond Market Overview

With 10-year yields falling 40 bps over the month, extending on duration may not be optimal, as long-term bond yield per duration is less attractive.

Bond Market Segments



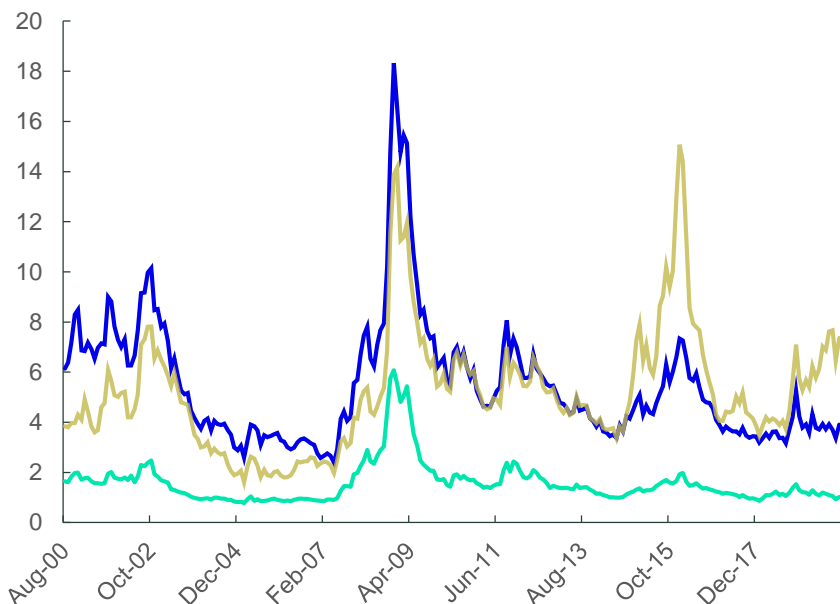
Source: Bloomberg Finance, L.P. as of January 31, 2020. **Past performance is not a guarantee of future results.** Index returns are unmanaged and do not reflect the deduction of any fees or expenses.

Credit Trends

Spreads of high yield bonds expanded to the widest level since last October but still remain tight compared with historical averages.

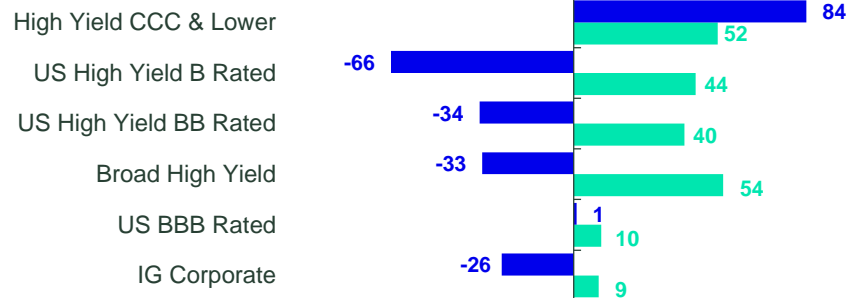
Credit Spreads (%)

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

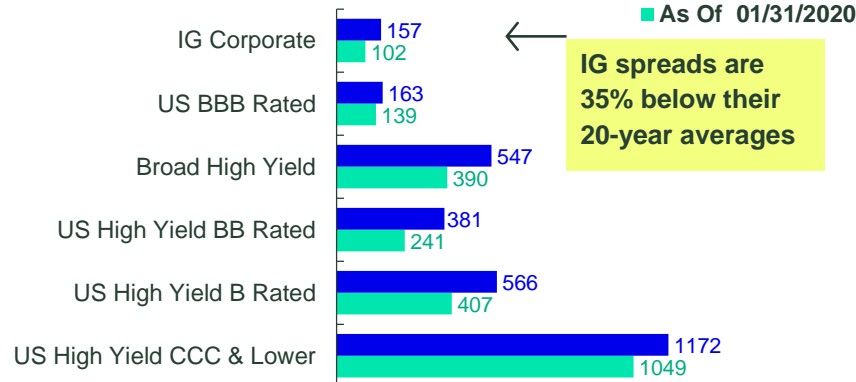


Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of January 31, 2020. US High Yield CCC & Lower = BofA ML US High Yield CCC & Lower Rated Index. US High Yield B Rated = BofAML US High Yield B Rated Index. BBB Rated = BofA ML US Investment Grade BBB Rated Index. Broad high yield = Bloomberg Barclays 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 Spread Changes in Basis Points



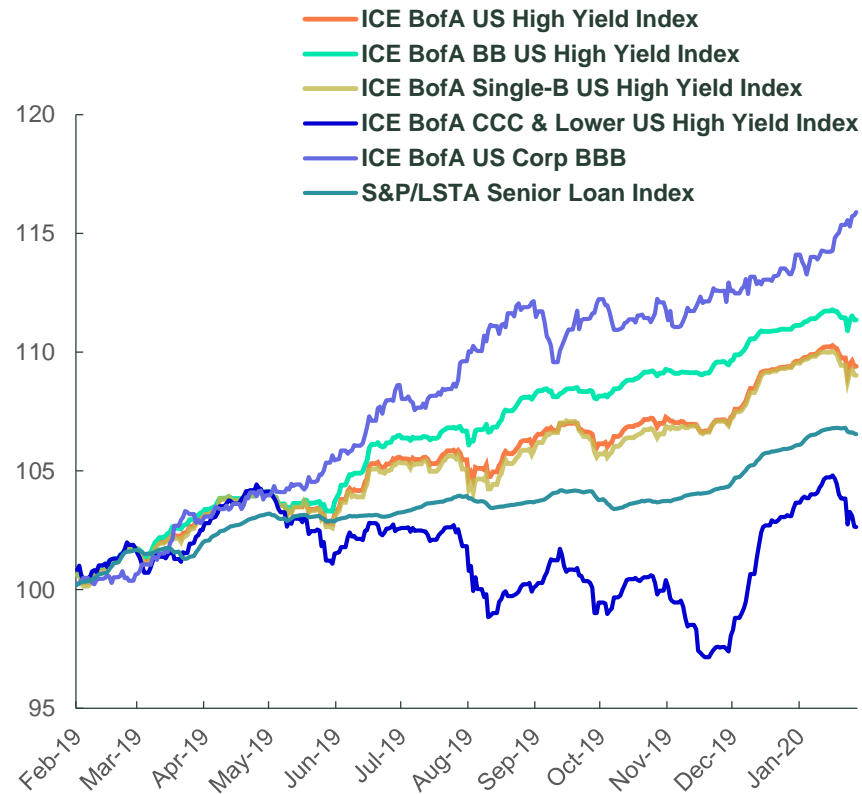
Credit Spread Current vs. 20-Yr Averages (bps)



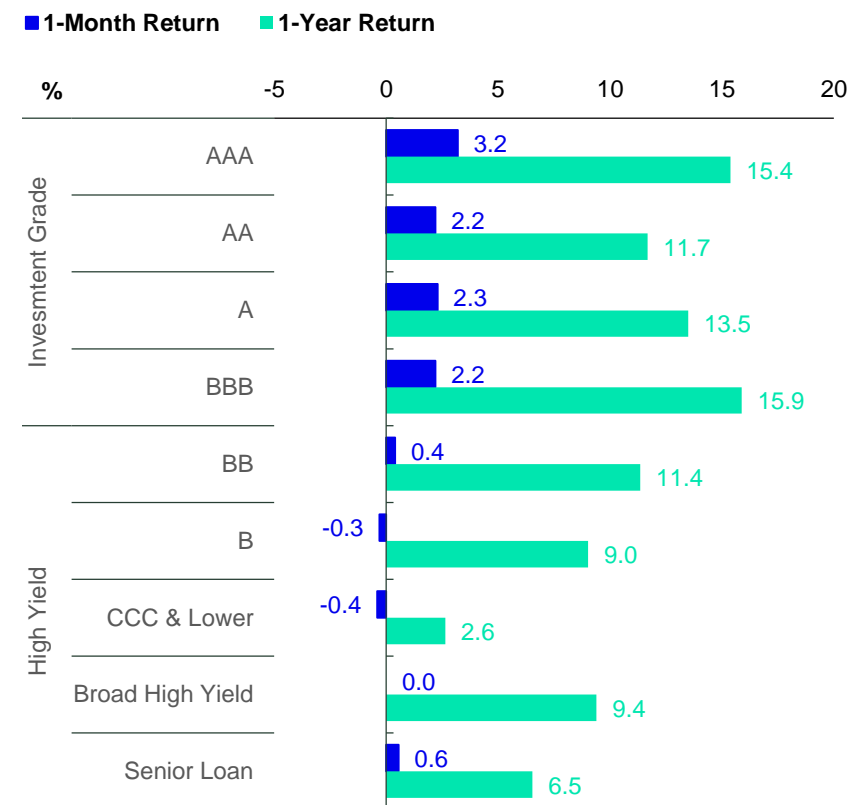
Credit Trends (continued)

The risk-off sentiment derailed the rally of lower-quality high yield bonds. However, investment grade segments continue to post positive returns, given their longer duration.

Credit Segment Performance (1 Year) Base = 100



IG and HY Performance by Credit Rating



Source: Bloomberg Finance, L.P. BofA Merrill Lynch, as of January 31, 2020. 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.

Appendix

A [Fund Flow Summary](#)

B [Asset Class Forecast](#)

C [SPDR Sector Scorecard](#)

D [Definitions](#)

E [Important Disclosures](#)

Appendix A

Fund Flow Summary

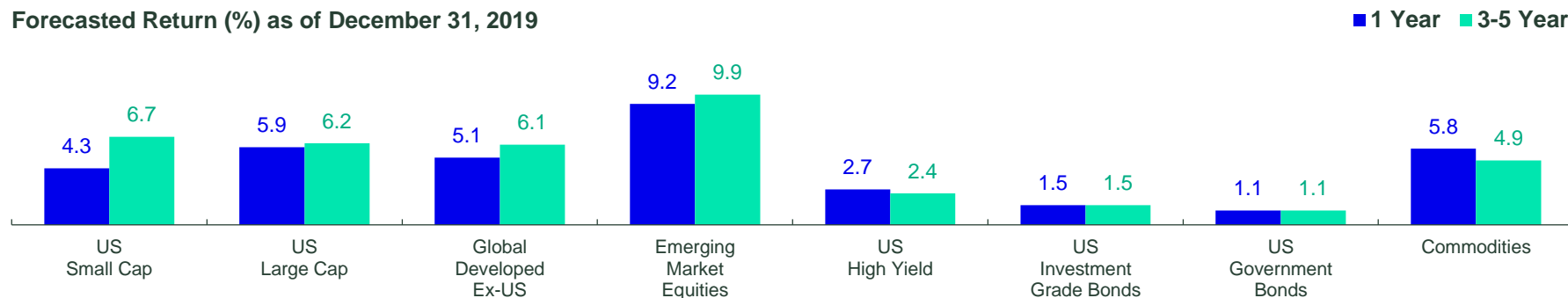
Asset Category		Prior Month (\$M)	Year to Date	Trailing 3 Months (\$M)	Trailing 12 Months (\$M)
Equity Region	US	10,403	10,403	62,644	170,032
	Global	-252	-252	3,045	2,040
	International-Developed	7,031	7,031	20,796	35,934
	International-Emerging Markets	2,264	2,264	9,082	6,012
	International-Region	12	12	1,364	-1,536
	International-Single Country	1,462	1,462	5,528	-638
	Currency Hedged	-268	-268	-273	-4,458
US Size & Style	Broad Market	4,828	4,828	12,351	41,657
	Large-Cap	3,842	3,842	40,473	108,256
	Mid-Cap	190	190	407	6,019
	Small-Cap	-1,835	-1,835	3,234	0
	Growth	1,398	1,398	5,892	10,326
	Value	-1,248	-1,248	4,854	17,268
Fixed Income Sectors	Aggregate	7,061	7,061	20,583	58,741
	Government	2,055	2,055	1,635	21,797
	Inflation Protected	284	284	1,144	1,823
	Mortgage-Backed	3,432	3,432	5,630	15,528
	IG Corporate	1,825	1,825	4,354	23,767
	High Yield Corp.	-777	-777	1,867	14,719
	Bank Loans	278	278	1,537	1,077
	EM Bond	36	36	1,416	-253
	Preferred	1,398	1,398	2,236	7,802
	Convertible	60	60	314	410
	Municipals	2,035	2,035	4,749	13,091
	Ultra Short	70	70	-292	600
Government ETF Maturity Focus	Short Term	697	697	2,130	5,959
	Intermediate	303	303	-117	8,411
	Long Term (>10 yr)	971	971	-88	7,297

Source: State Street Global Advisors, Bloomberg Finance, L.P. As of January 31, 2020. 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. All figures are in USD.

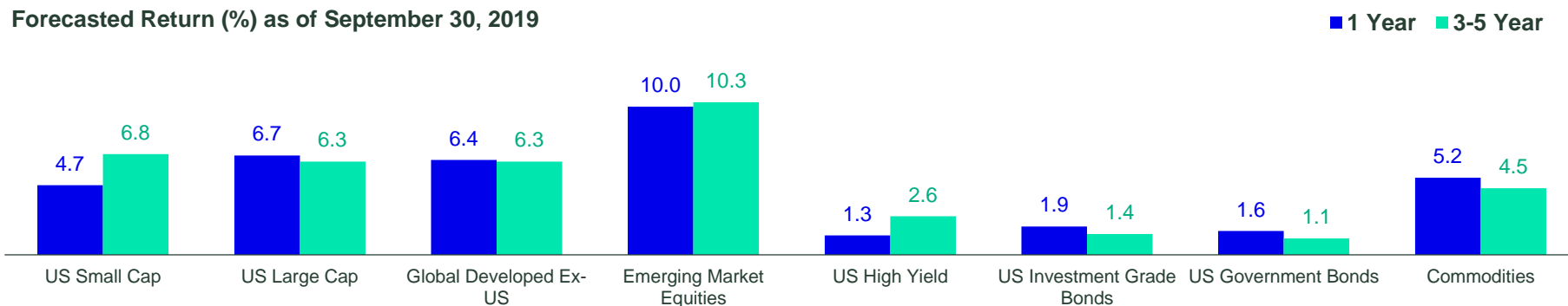
Appendix B

Asset Class Forecast

Forecasted Return (%) as of December 31, 2019



Forecasted Return (%) as of September 30, 2019



Source: State Street Global Advisors Investment Solutions Group. The forecasted returns are based on SSGA's Investment Solutions Group's December 31, 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

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.
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.
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.

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

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.

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. μ is the mean of the eleven sector relative performance, and σ 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.

Important Disclosures

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The views expressed in this material are the views of SPDR Americas Research Team through the period ending 31 January 2020 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.

Investing in foreign domiciled securities may involve risk of capital loss from unfavorable fluctuation in currency values, withholding taxes, from differences in generally accepted accounting principles or from economic or political instability in other nations. Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

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.

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.

Asset Allocation is a method of diversification which positions assets among major investment categories. Asset Allocation may be used in an effort to manage risk and enhance returns. It does not, however, guarantee a profit or protect against loss.

Investing in foreign domiciled securities may involve risk of capital loss from unfavorable fluctuation in currency values, withholding taxes, from differences in generally accepted accounting principles or from economic or political instability in other nations.

Investments in emerging or developing markets may be more volatile and less liquid than investing in developed markets and may involve exposure to economic structures that are generally less diverse and mature and to political systems which have less stability than those of more developed countries.

Currency Risk is a form of risk that arises from the change in price of one currency against another. Whenever investors or companies have assets or business operations across national borders, they face currency risk if their positions are not hedged.

Appendix E

Important Disclosures

There are risks associated with investing in Real Assets and the Real Assets sector, including real estate, precious metals and natural resources. Investments can be significantly affected by events relating to these industries.

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