

Q4 2020

# Index Insights

## US traditional weighted benchmark performance

- Large-cap growth dominated 2020
- There was a reversal of long-term trends in Q4:
  - Small-cap outperformed large-cap
  - Value outperformed growth
  - Equal weight outperformed market-cap

Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
S&P 500	12.15	18.40	14.18	15.22	13.88	0.72	0.99	18.80	13.54
S&P 400	24.37	13.66	8.45	12.35	11.51	0.40	0.70	23.64	16.78
S&P 600	31.31	11.29	7.74	12.37	11.92	0.36	0.67	25.86	18.58
Russell 1000	13.69	20.96	14.82	15.60	14.01	0.73	0.97	19.37	13.89
Russell 1000 Growth	11.39	38.49	22.99	21.00	17.21	1.07	1.14	19.92	14.30
Russell 1000 Value	16.25	2.80	6.07	9.74	10.50	0.32	0.73	19.90	14.28
Russell 2000	31.37	19.96	10.25	13.26	11.20	0.45	0.63	25.63	18.88
Russell 3000	14.68	20.89	14.49	15.43	13.79	0.71	0.95	19.69	14.14
Russell 3000 Growth	12.41	38.26	22.50	20.67	16.93	1.04	1.11	20.15	14.51
Russell 3000 Value	17.21	2.87	5.89	9.74	10.36	0.31	0.71	20.24	14.53
DJ US Total Market	14.76	20.79	14.41	15.36	13.74	0.71	0.94	19.72	14.15
MSCI USA	13.15	21.37	15.12	15.73	14.12	0.75	0.99	19.17	13.74
S&P 500 Equal Weight	18.46	12.83	10.44	12.95	12.66	0.50	0.82	21.56	15.34

## Global traditional weighted benchmark performance

- US market outperformed over the long-term
- Emerging markets continued strong year, outperforming developed markets in Q4 and over a 1-year period
- Frontier markets continued to struggle across all time frames
- There was a reversal of long-term trends in Q4:
  - Global markets outperformed US
  - Value outperformed growth

Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
MSCI ACWI IMI	15.70	16.25	9.72	12.15	9.09	0.51	0.64	18.85	14.31
MSCI ACWI ex USA IMI	17.22	11.12	4.83	8.98	5.06	0.26	0.36	18.53	15.25
MSCI ACWI	14.68	16.25	10.06	12.26	9.13	0.53	0.65	18.38	14.08
MSCI ACWI ex USA	17.01	10.65	4.88	8.93	4.92	0.27	0.35	18.19	15.16
MSCI World	13.96	15.90	10.54	12.19	9.87	0.55	0.70	18.53	13.97
MSCI World ex USA	15.85	7.59	4.22	7.64	5.19	0.23	0.37	18.37	15.08
MSCI World ex USA Growth	12.63	18.41	9.57	10.50	7.01	0.55	0.51	16.44	14.21
MSCI World ex USA Value	19.30	-3.22	-1.28	4.57	3.23	--	0.24	21.21	16.62
MSCI World ex USA Small	17.55	12.78	5.04	9.63	6.98	0.27	0.46	21.08	16.19
MSCI EAFE	16.05	7.82	4.28	7.45	5.51	0.24	0.39	18.14	15.13
Emerging Markets	19.70	18.31	6.17	12.81	3.63	0.32	0.26	19.88	17.78
Emerging Markets Small Cap	22.22	19.29	2.69	8.19	2.29	0.17	0.18	23.79	18.85
MSCI Frontier Markets	11.20	1.43	0.01	6.25	3.26	0.02	0.26	18.49	13.82

Source: Morningstar Direct, Bloomberg, LGIMA

All "Traditional Weighted" benchmarks above have at least 10 years of actual performance that can be verified by accessing the provider's website for further information. LGIMA has obtained this information from the index provider and recommends that all information be verified on the provider's website. Index provider information has not been independently verified by LGIMA for its accuracy or completeness, therefore the information obtained from third party sources cannot be guaranteed. Please refer to the disclosures at the end of this presentation for more information.

## US alternative weighted benchmark performance

- Quality and momentum were the strongest factors in 2020 and over the long-term
- Size and value were the strongest performers in Q4

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Mkt Cap	S&P 500	12.15	18.40	14.18	15.22	13.88	0.72	0.99	18.80	13.54
	Composite Average Relative to Market Cap									
Relative to Mkt Cap	Value	6.48	-18.33	-9.20	-5.48	-2.90	0.28	0.73	22.50	15.46
	Low Vol	-4.25	-13.99	-4.49	-3.56	-0.48	0.57	1.12	16.08	11.25
	Momentum	-1.59	4.14	0.30	-0.79	0.45	0.72	1.03	19.62	13.52
	Quality	-1.36	0.49	0.69	0.88	1.12	0.77	1.09	18.28	13.13
	Size	8.81	-3.64	-3.41	-1.77	-1.00	0.49	0.80	23.13	15.59
	Composite Min-Max Spread									
Min-Max Spread	Value	11.81	19.38	9.49	6.34	2.56	0.37	0.26	9.36	6.01
	Low Vol	5.02	28.46	13.69	9.35	1.95	0.76	0.12	3.06	1.50
	Momentum	9.50	17.86	7.66	8.13	4.81	0.38	0.32	5.02	0.67
	Quality	4.01	15.17	6.79	4.52	2.30	0.35	0.18	1.07	0.41
	Size	7.65	9.81	2.45	4.67	2.29	0.10	0.05	4.18	2.33

## Global developed ex USA alternative weighted benchmark performance

- Quality and momentum were the strongest factors in 2020 and over the long-term
- Value and size were the strongest performers in Q4
- Low volatility was the poorest performer in Q4 (globally), continuing long-term underperformance

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Mkt Cap	MSCI World ex USA	15.85	7.59	4.22	7.64	5.19	0.23	0.37	18.37	15.08
	Composite Average Relative to Market Cap									
Relative to Mkt Cap	Value	5.02	-7.53	-4.97	-1.77	-0.60	0.00	0.31	21.46	16.92
	Low Vol	-4.45	-7.26	-1.38	-1.17	1.85	0.17	0.58	15.51	12.09
	Momentum	-2.95	8.68	2.55	1.63	2.13	0.39	0.54	16.75	13.80
	Quality	-1.34	5.98	3.49	2.24	2.25	0.44	0.54	16.69	13.96
	Size	1.77	0.73	-1.09	0.61	0.99	0.18	0.43	19.70	15.10
	Composite Min-Max Spread									
Min-Max Spread	Value	3.30	5.81	2.90	2.29	2.13	0.12	0.11	1.60	1.93
	Low Vol	6.21	9.45	5.02	3.07	0.42	0.28	0.11	5.84	2.97
	Momentum	3.06	11.40	5.96	3.36	0.94	0.36	0.10	1.32	1.31
	Quality	3.84	11.09	7.17	3.23	0.96	0.43	0.07	1.97	0.35
	Size	2.36	4.30	0.87	2.19	1.12	0.04	0.07	1.00	1.34

Source: Morningstar Direct, Bloomberg, Scientific Beta, LGIMA.

Hypothetical performance results have many inherent limitations and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. Please refer to the disclosures at the end of this presentation for more information.

## Emerging markets alternative weighted benchmark performance

- Momentum was the only factor with relative outperformance for 2020
- Value and size were the strongest performers in Q4
- Composite min-max spreads tightened considerably in Q4

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Mkt Cap	MSCI EM	19.70	18.31	6.17	12.81	3.63	0.32	0.26	19.88	17.78
	Composite Average Relative to Market Cap									
Relative to Mkt Cap	Value	2.04	-16.70	-5.52	-4.23	-2.40	0.06	0.13	20.64	18.53
	Low Vol	-4.36	-14.95	-4.62	-5.24	0.12	0.09	0.28	17.07	14.68
	Momentum	-1.02	5.61	1.11	-0.17	1.82	0.35	0.35	20.07	17.09
	Quality	-2.94	-3.37	-0.95	-1.96	0.55	0.28	0.30	18.58	15.95
	Size	0.78	-6.40	-4.08	-4.52	-0.87	0.13	0.21	21.72	18.07
	Composite Min-Max Spread									
Min-Max Spread	Value	2.16	8.75	2.73	2.56	0.49	0.14	0.03	1.12	2.38
	Low Vol	3.54	12.71	6.82	6.05	1.12	0.36	0.07	4.00	2.50
	Momentum	5.83	32.76	14.29	12.19	5.27	0.63	0.27	4.21	2.50
	Quality	4.60	14.71	8.97	7.00	1.95	0.46	0.12	0.58	1.21
	Size	4.02	14.24	5.02	5.41	1.54	0.25	0.08	4.63	2.44
	Composite Min-Max Spread									

## Environmental and socially responsible weighted benchmark performance

- Climate outperformed in Q4 and 2020 despite the recent strong energy performance

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Mkt Cap	MSCI World	13.96	15.90	10.54	12.19	9.87	0.55	0.70	18.53	13.97
	Russell 1000	13.69	20.96	14.82	15.60	14.01	0.73	0.97	19.37	13.89
ESG	FTSE Developed	14.29	16.11	10.33	12.21	9.78	0.54	0.69	18.53	14.01
	MSCI World ESG	12.95	15.30	10.87	12.07	9.74	0.58	0.71	17.84	13.57
	MSCI Wld Low Carbon Ldrs	14.47	16.36	10.80	12.26	10.18	0.56	0.72	18.63	14.06
	MSCI Wld Low Carbon Trgt	14.06	16.50	10.90	12.27	10.11	0.57	0.72	18.58	14.00
	MSCI World SRI	12.29	19.86	13.21	14.07	10.41	0.71	0.77	17.35	13.35
	Russell 1000 Climate	14.20	24.10	16.10	16.20	--	--	--	20.05	--
SRI	FTSE4Good US	12.46	21.14	16.63	17.17	15.27	0.83	1.07	19.05	13.66
	FTSE Custom Global Developed Component Climate	15.00	18.68	11.27	12.56	--	0.59	--	18.54	--

Source: Morningstar Direct, Bloomberg, Scientific Beta, FTSE-Russell, LGIMA.

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## Fixed income benchmark performance

- US underperformed global market in Q4 and 2020
- There was a reversal of long-term trends in Q4:
  - Long Treasuries were the worst performers
  - High yield and emerging markets were the strongest performers

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Agg	Barclays Global Agg	3.28	9.20	4.85	4.79	2.83	0.78	0.51	4.23	4.43
	Barclays US Agg	0.67	7.51	5.34	4.44	3.84	1.11	1.10	3.40	2.93
Credit	iBoxx US Investment Grade	3.50	11.30	7.92	7.49	6.31	0.84	0.98	7.66	5.83
	iBoxx US High Yield	5.87	4.66	5.73	7.71	6.06	0.51	0.78	8.77	7.10
Rates	Barclays US TIPS	1.62	10.99	5.92	5.08	3.81	1.11	0.75	3.87	4.33
	Barclays US Treasury	-0.83	8.00	5.19	3.77	3.34	0.86	0.76	4.30	3.60
	Barclays US Treasury: Intermediate	-0.23	5.77	4.12	2.90	2.50	1.01	0.83	2.56	2.29
EM	Barclays US Treasury: Long	-3.00	17.70	9.88	7.85	7.80	0.70	0.66	12.48	11.45
	JPM Emerging Market Global Core	6.12	5.77	5.21	7.22	6.30	0.37	0.70	11.38	8.36

## REITs, infrastructure and commodity benchmark performance

- REITs and Infrastructure underperformed market-cap in Q4 and 2020
- There was a reversal of longer-term trends in Q4:
  - Higher energy focus GSCI outperformed BBG Commodity
  - Commodities had positive returns

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Commod	BBG Commodity	10.19	-3.12	-2.53	1.03	-6.50	--	--	14.14	13.71
	S&P GSCI	14.49	-23.72	-8.21	-1.85	-8.76	--	--	27.86	21.46
REITs	FTSE EPRA Nareit United States	13.02	-9.59	2.62	3.85	7.77	0.16	0.49	21.05	16.93
	FTSE EPRA Nareit Dv ex US	13.89	-7.13	1.69	5.04	4.54	0.11	0.32	19.56	16.16
	FTSE EPRA Nareit Global	12.61	-9.95	1.08	4.08	5.10	0.08	0.36	19.46	15.60
Infrastructure	FTSE Global Core Infrastructure	7.03	-1.45	6.66	9.56	8.43	0.43	0.75	13.94	10.80
	MSCI ACWI Infrastructure	9.97	-0.62	3.72	5.95	4.88	0.23	0.43	13.84	11.23
	MSCI USA Infrastructure	6.74	-3.66	6.49	9.02	9.11	0.41	0.78	13.97	11.20

Source: Morningstar Direct.

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## Multi-factor benchmark performance

- Broad factor underperformance in 2020
- Factors were in line with market-cap in Q4
- SciBeta 4F outperformed 6F across all regions
- US multi-factor continued to show underperformance long-term
- Strong US multi-factor performance in Q4, echoing the reversal trend
- Developed multi-factor lags in Q4
- Emerging market multi-factor continued to exhibit the widest composite spreads

	Benchmark	Q4	1-yr	3-yr	5-yr	10-yr	3-yr Sharpe Ratio	10-yr Sharpe Ratio	3-yr Vol	10-yr Vol
Global	MSCI ACWI	14.68	16.25	10.06	12.26	9.13	0.53	0.65	18.38	14.08
	MSCI ACWI Div. Multi-Factor	14.54	10.52	5.89	10.18	9.62	0.32	0.68	18.51	14.19
	SciBeta Global MBMS 4F EW	14.25	6.82	5.53	8.99	8.55	0.31	0.65	18.00	13.14
	SciBeta Global HFI 6F EW	13.51	5.94	5.41	8.83	9.41	0.30	0.73	17.48	12.51
	FTSE AW Comprehensive Factor	13.97	9.05	6.01	9.79	9.34	0.33	0.71	17.91	13.02
	RAFI Multi-Factor Global	16.08	9.00	6.02	--	--	0.33	--	18.47	--
	Average	14.47	8.27	5.77	9.45	9.23	0.32	0.69	18.07	13.22
Min/Max Spread	2.57	4.58	0.61	1.35	1.07	0.03	0.09	1.04	1.68	
USA	S&P 500	12.15	18.40	14.18	15.22	13.88	0.72	0.99	18.80	13.54
	MSCI USA Div. Multi-Factor	13.96	11.42	8.41	11.96	13.23	0.44	0.91	19.18	14.07
	SciBeta US MBMS 4F EW	13.18	8.63	9.37	11.63	12.39	0.49	0.91	18.84	13.13
	SciBeta US HFI 6F EW	12.61	8.48	9.37	11.59	13.33	0.50	1.01	18.17	12.57
	Russell 1000 Cmprehnsve Factor	14.52	8.43	8.48	11.66	13.28	0.43	0.92	20.24	14.03
	RAFI Multi-Factor U.S. TR	14.34	10.69	9.63	12.06	12.85	0.49	0.92	19.37	13.58
	Average	13.72	9.53	9.05	11.78	13.02	0.47	0.93	19.16	13.47
Min/Max Spread	1.91	2.98	1.22	0.47	0.94	0.07	0.10	2.06	1.50	
Dev xUSA	MSCI World ex USA	15.85	7.59	4.22	7.64	5.19	0.23	0.37	18.37	15.08
	MSCI World ex USA DMF	12.97	3.18	1.02	5.80	6.31	0.07	0.45	18.70	14.89
	SciBeta Dev xUS MBMS 4F EW	15.19	5.46	2.58	6.93	6.50	0.15	0.48	18.03	14.04
	SciBeta Dev xUS HFI 6F EW	14.25	3.84	2.47	7.26	7.34	0.14	0.54	17.66	13.69
	FTSE Dev xUS Cmprehnsve Factor	12.53	8.62	3.96	8.02	7.39	0.22	0.56	17.16	13.29
	RAFI Multi-Factor Developed ex-U.S.	15.66	6.28	3.25	--	--	0.18	--	17.77	--
	Average	14.12	5.48	2.65	7.00	6.89	0.15	0.51	17.86	13.98
Min/Max Spread	3.13	5.44	2.94	2.22	1.08	0.16	0.11	1.54	1.61	
Emerging	MSCI Emerging Markets	19.70	18.31	6.17	12.81	3.63	0.32	0.26	19.88	17.78
	MSCI EM Div. Multi-Factor	14.66	11.75	2.79	10.97	4.02	0.16	0.27	19.97	18.25
	SciBeta EM MBMS 4F EW	18.16	5.30	-0.32	6.09	2.42	--	0.19	18.34	15.82
	SciBeta EM HFI 6F EW	17.22	3.05	-0.81	5.68	3.46	--	0.26	17.83	14.99
	FTSE EM Comprehensive Factor	17.94	5.08	0.56	7.42	3.50	0.05	0.25	19.84	16.60
	RAFI Multi-Factor Emerging Markets	23.62	11.99	4.18	--	--	0.23	--	21.10	--
	Average	18.32	7.43	1.28	7.54	3.35	0.15	0.25	19.42	16.42
Min/Max Spread	8.96	8.95	4.99	5.29	1.59	0.18	0.08	3.26	3.26	

Sources: Morningstar Direct, Bloomberg, Scientific Beta, LGIMA.

Sharpe Ratios intentionally left out when negative, or where data unavailable

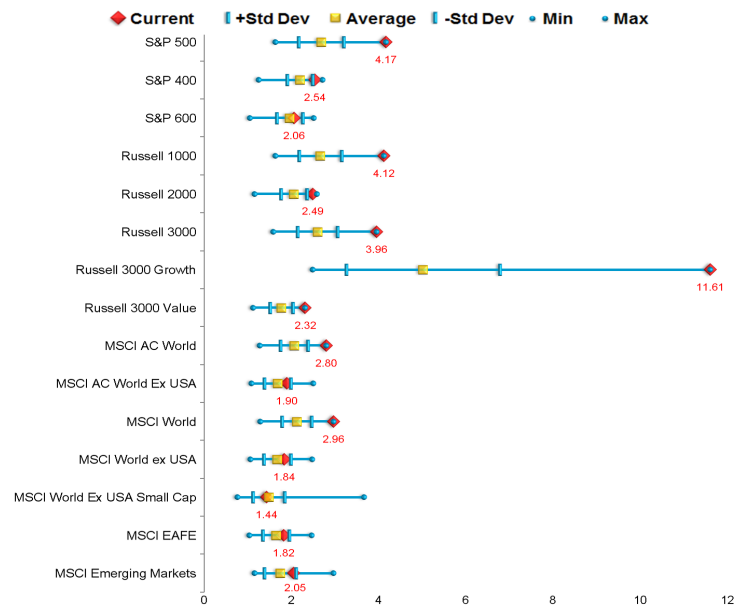
SciBeta MBMS 4F EW denotes Multi-Beta Multi-Strategy Four-Factor Equal Weight and HFI 6F EW denotes High-Factor-Intensity Diversified Multi-Beta Multi-Strategy 6-Factor 4-Strategy Equal Weight.

The FTSE AW Comp performance is hypothetical prior to November 3, 2016. The MSCI ACWI Diversified Multiple-Factor Index performance is hypothetical prior to Feb 17, 2015. SciBeta US MBMS 4F EW, SciBeta Dev xUS MBMS 4F EW, and SciBeta EM MBMS 4F EW performance is hypothetical prior to December 20, 2013. SciBeta US HFI 6F EW, SciBeta Dev xUS HFI 6F EW, and SciBeta EM HFI 6F EW performance is hypothetical prior to March 16, 2018. Hypothetical performance results have many inherent limitations and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. Please refer to the disclosures at the end of this presentation for more information.

### US and global market cap weighted valuations

- US markets traded near historical highs across all segments
- World markets traded near historical averages

### Price-to-book: 15-year relative value



Source: Bloomberg, MSCI, LGIMA as of end of Q4 2020.

### Currency summary – MSCI global indices

- US Dollar posted third consecutive negative quarter vs global basket

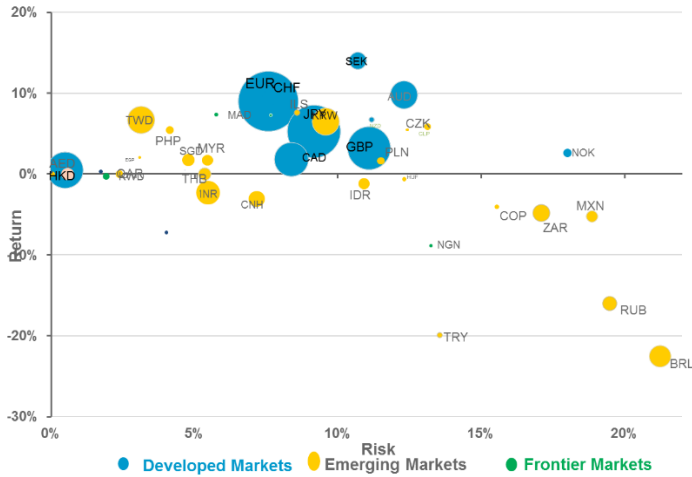
Index	USD Return %		Local Return %		Currency Impact %	
	3M	1-yr	3M	1-yr	3M	1-yr
MSCI ACWI ex US	14.68%	16.25%	12.83%	14.21%	1.86%	2.04%
MSCI ACWI ex US	17.01%	10.65%	12.58%	6.01%	4.43%	4.65%
MSCI USA	13.15%	21.37%	13.15%	21.37%	0.00%	0.00%
MSCI World ex US	15.85%	7.59%	11.10%	1.09%	4.75%	6.50%
MSCI EAFE	16.05%	7.82%	11.35%	0.84%	4.69%	6.97%
MSCI Canada	13.92%	5.32%	8.65%	3.47%	5.27%	1.85%
MSCI EM	19.70%	18.31%	16.02%	19.12%	3.68%	-0.81%
MSCI Frontier Markets	11.20%	1.43%	9.91%	0.89%	1.29%	0.53%

US Dollar Index	-4.21%	-6.69%
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Sources: LGIMA, MSCI, Bloomberg as of end of Q4 2020.

### One-year currency risk/return

- Brazilian Real continued poor performance
- Developed currencies outperformed US Dollar



Sources: MSCI, LGIMA as of end of Q4 2020.

### SciBeta Global Factor Indexes Periodic Table Investment Returns

#### Single Factor Indexes based on SciBeta’s diversified multi-strategy methodology

- Value was the strongest factor in Q4, but still worst factor 3 years running
- Low volatility ranking continued to fluctuate
- Momentum reversed to one of worst performing factors in Q4
- High-profitability was the best performer the last 2 years

2008	2009	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Q1	Q2	Q3	Q4
Low Vol -33.22	High Profitability 39.99	Low Vol 1.00	Size 17.45	Momentum 26.14	Low Vol 9.70	HFI 6F 3.04	Value 11.18	Momentum 27.73	Low Vol -6.12	MSCI ACWI 26.60	MSCI ACWI 16.25	Low Vol -21.21	MSCI ACWI 19.22	High Profitability 8.73	Value 17.12
HFI 6F -33.81	Size 35.44	HFI 6F -0.49	Low Investment 17.12	Low Investment 25.82	HFI 6F 9.12	Momentum 2.70	Low Investment 9.54	High Profitability 25.27	High Profitability -7.65	High Profitability 25.82	High Profitability 13.42	MSCI ACWI -21.37	High Profitability 18.45	MSCI ACWI 8.13	Size 16.97
Low Investment -35.37	MSCI ACWI 34.63	High Profitability -3.26	Value 16.70	High Profitability 25.16	High Profitability 8.16	Low Vol 2.13	MSCI ACWI 7.86	MSCI ACWI 23.97	MSCI ACWI -9.41	Momentum 23.33	Momentum 10.92	Momentum -21.58	Size 18.44	Momentum 7.10	Low Investment 15.36
High Profitability -37.27	Value 34.13	Momentum -5.01	Low Vol 16.59	HFI 6F 24.34	Size 7.38	High Profitability 2.11	Low Vol 6.30	Low Investment 22.93	HFI 6F -9.61	Low Vol 22.89	Size 6.75	High Profitability -22.00	Momentum 18.38	Size 6.34	MSCI ACWI 14.68
Value -39.90	Low Investment 30.50	Low Investment -5.32	MSCI ACWI 16.13	Size 23.26	Low Investment 6.69	Size 0.52	HFI 6F 6.11	HFI 6F 22.86	Low Investment -10.35	Size 22.82	HFI 6F 5.94	HFI 6F -23.97	Value 16.35	HFI 6F 6.00	HFI 6F 13.51
Size -40.24	HFI 6F 28.09	Size -5.71	High Profitability 16.07	Value 22.86	Value 6.07	Low Investment -0.34	Size 5.89	Size 22.69	Size -10.75	Low Investment 22.69	Low Vol 5.06	Low Investment -24.55	HFI 6F 15.82	Low Vol 5.97	High Profitability 12.91
Momentum -41.71	Momentum 27.37	MSCI ACWI -7.35	Momentum 15.99	MSCI ACWI 22.80	Momentum 5.53	MSCI ACWI -2.36	High Profitability 5.28	Value 21.75	Momentum -12.09	HFI 6F 22.30	Low Investment 4.99	Size -27.54	Low Investment 15.30	Value 5.51	Momentum 11.55
MSCI ACWI -42.19	Low Vol 27.21	Value -8.90	HFI 6F 15.76	Low Vol 20.96	MSCI ACWI 4.16	Value -3.38	Momentum 1.17	Low Vol 21.50	Value -12.47	Value 21.80	Value 4.29	Value -27.60	Low Vol 13.00	Low Investment 4.62	Low Vol 11.35

Sources: LGIMA, Scientific Beta, Morningstar Direct. HFI 6F equals SciBeta Global High-Factor-Intensity Multi-Beta Multi-Strategy Six-Factor EW. Performance is hypothetical prior to December 20, 2013. SciBeta Global HFI MBMS 6F EW performance is hypothetical prior to March 16, 2018. Hypothetical performance results have many inherent limitations and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program.

## Index providers update

### FTSE Russell

- FTSE Russell will incorporate the new ICB (Industry Classification Benchmark) framework into its FTSE series of equity indexes in March 2021. These changes were implemented in the Russell indexes in September 2020.
- As a reminder, FTSE Russell stated that the principal changes to ICB include the newly formed Real Estate Industry, an expansion of the telecommunications industry, the adoption of the consumer discretionary/consumer staples framework, and the renaming of the oil and gas Industry to energy.

### MSCI

- In December, the consultation on Assessing and Addressing the Market Impact of MSCI Index Reviews closed.
- MSCI announced that they will have the results of the consultation on or before January 31, 2021. As a reminder, in this consultation, MSCI have proposed employing a staggered implementation approach to index reviews.

### Scientific Beta

- In December, Scientific Beta announced the promotion of Kuwait to emerging markets status. In making this announcement, Scientific Beta cited developments in areas such as omnibus accounts, same NIN crossing for international investors, securities lending and borrowing.
- The addition of Kuwait will be effective at the June 2021 index review.

### S&P

- In November, S&P announced the results of their annual country classification consultation. Iceland was promoted from standalone to frontier status.
- Argentina will retain its current frontier market classification. S&P DJI recognized that although capital controls remained in place, only securities listed in developed markets exchanges are currently included for Argentina.

## Chinese Military-Related Stocks: Executive Order and Index Impact

On November 12, 2020, US President Donald Trump signed Executive Order (E.O.) 13959 on “Addressing the Threat from Securities Investments that Finance Communist Chinese Military Companies”. As a result, restrictions were applied on US persons from transacting in certain Chinese companies.

Index providers subsequently reached out to market participants for feedback on how best to manage the effects of the order. Ultimately, the index providers decided to remove the securities specified in the order from their flagship index families. MSCI referenced the fact that market participants had highlighted challenges with investability of the affected securities and noted that non-US participants had emphasized the extensive presence of US entities within their chain of financial intermediaries that would significantly limit their ability to transact in the impacted securities.

There were 31 securities referenced in the Department of Defense list on November 12, 2020. The key dates associated with this order are as follows:

- November 12, 2020: Executive Order 13959 signed by President Trump
- January 11, 2021: US persons are restricted from making purchases in the affected securities or any securities that are derivative of (60 days post the order)
- November 11, 2021: US persons must divest their holdings in the affected securities (1-year post the order)

This list was updated by the Department of Defense on December 3, 2020, when four more entities were added bringing the total to 35. A further update was announced by the Office of Foreign Assets Control [OFAC] in FAQ 864 on January 6th when three telecom securities were explicitly mentioned. The latest revision was announced on January 14, 2021 when the Department of Defense added nine more names.

The full scope of the order has been evolving over the past few weeks, particularly in relation to subsidiaries and affiliates. To help facilitate the implementation of the Executive order, OFAC published a list on its website on December 28, 2020 containing the names of entities impacted along with additional identifying information such as equity tickers. An updated list was published on January 8, 2021.

More information may be provided by the Department of the Treasury, Department of Defense and/or the Office of Foreign Assets Control (OFAC) in the coming days and weeks.



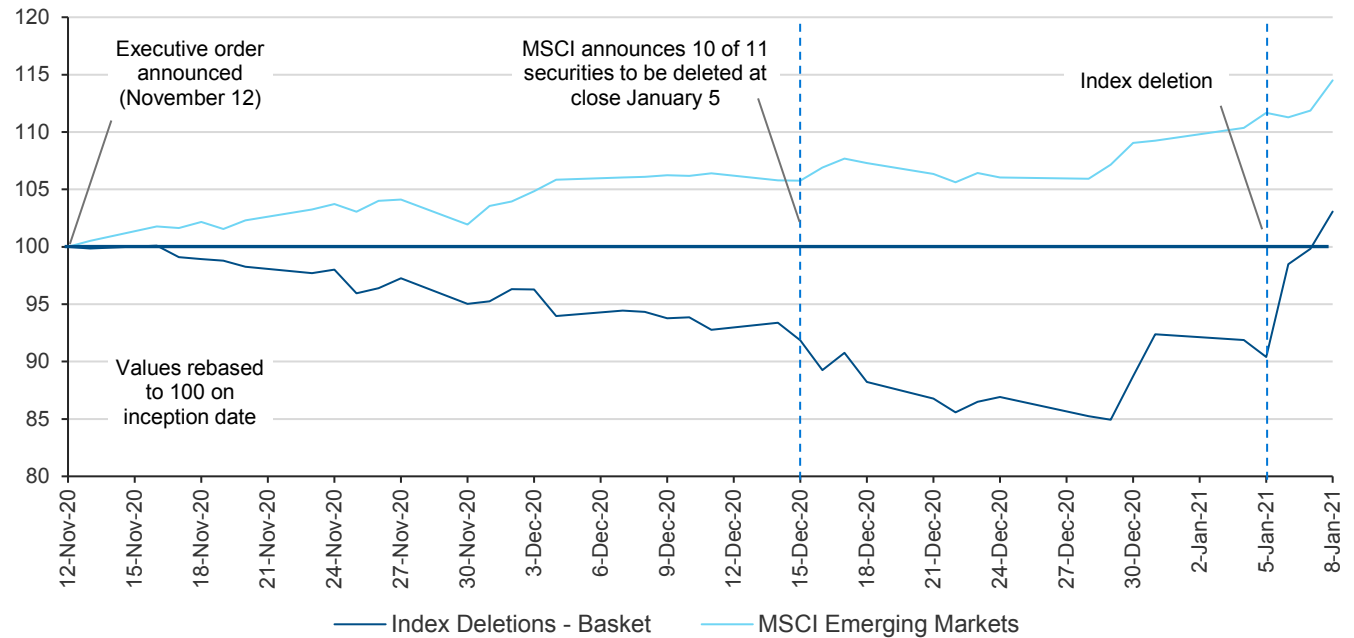
**Index timeline**

November 12, 2020	December 18	January 5, 2021	January 7	January 8	January 11	January 14	January 21/22
Executive order announced	FTSE deletes sanctioned securities	MSCI deletes sanctioned securities (11 in total)	MSCI and FTSE announces deletion of three Chinese Telecom stocks post clarification from OFAC (effective close Jan 8)	OFAC updates the identifier list	Restriction on purchases put into effect	Department of Defense announces nine new companies on the sanction list	MSCI and FTSE announce the deletion of CNOOC effective close Jan 26

**Index impact and performance**

From an index impact, at the MSCI Emerging Markets level, the weight of the impacted securities removed at the close January 5, 2021 was 0.29% whereas at the global level (MSCI ACWI), the weight was 0.04%. The three Chinese telecoms stocks removed at the close January 8, 2021 constituted 0.48% of MSCI Emerging Markets which was equivalent to 0.07% at the ACWI level. In the figure below, we show the performance of a weighted basket of sanctioned securities removed from the MSCI Emerging Markets index at close January 5, 2021 versus the index return since the Executive Order announcement date.

**Chinese military-related stock: MSCI Deletes January 5, 2021**



Source: LGIMA, Bloomberg, MSCI. Index deletions return is weighted-basket of securities removed (USD). MSCI Emerging Markets – price return (USD).

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The performance set forth below does not represent the results of actual trading, but rather was achieved by means of the retroactive application of a model designed with the benefit of hindsight.

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Hypothetical performance results have many inherent limitations and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown. In fact, there are frequently sharp differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program.

One of the limitations of hypothetical performance results is that they are generally prepared with the benefit of hindsight. In addition, hypothetical trading does not involve financial risk, and no hypothetical trading record can completely account for the impact of financial risk in actual trading. For example, the ability to withstand losses or to adhere to a particular trading program in spite of trading losses are material points which can also adversely affect actual trading results. There are numerous other factors related to the markets in general or to the implementation of any specific trading program which cannot be fully accounted for in the preparation of hypothetical performance results and all of which can adversely affect actual trading results.

The use of hypothetical performance is subject to inherent limitations derived from the reliance on historical data and the benefit of hindsight. All trading strategies applied to the analysis were available throughout the performance period. However, the analysis includes certain assumptions where actual performance could be different from the hypothetical performance presented.

In order to match the index returns a fund would need to track the security weightings in a way that would exactly match the Index and that the economic and market conditions were sufficient to have allowed effective execution of replicate the risk and return characteristics of the index. There are a number of factors that could reduce our ability to track index positions perfectly, including small position sizes and/or available liquidity in some securities. We estimate the net effects of index- and trading-related factors on the passive components of the strategy would affect performance either favorably or unfavorably depending on the size of the portfolio.

A review of the ERI Scientific Beta index methodology has been conducted by: a) comparing in and out of sample performance of the hypothetical back-tested information provided by Scientific Beta; b) testing the returns against the intended factor biases; c) conducting a comparison of similar multi-factor indices to Scientific Beta's multi-factor index; and d) reviewing the reasonability of portfolio characteristics. The output of the indices appears reasonable given the methodology and targeted portfolio risk biases and opinions expressed herein are as of October 2019 and may change based on market and other conditions. The material contained here is confidential and intended for the person to whom it has been delivered and may not be reproduced or distributed. The material is for informational purposes only and is not intended as a solicitation to buy or sell any securities or other financial instrument or to provide any investment advice or service. Legal & General Investment Management America, Inc. does not guarantee the timeliness, sequence, accuracy or completeness of information included. Past performance should not be taken as an indication or guarantee of future performance and no representation, express or implied, is made regarding future performance.