

S&P Dow Jones Indices

A Division of **S&P Global**

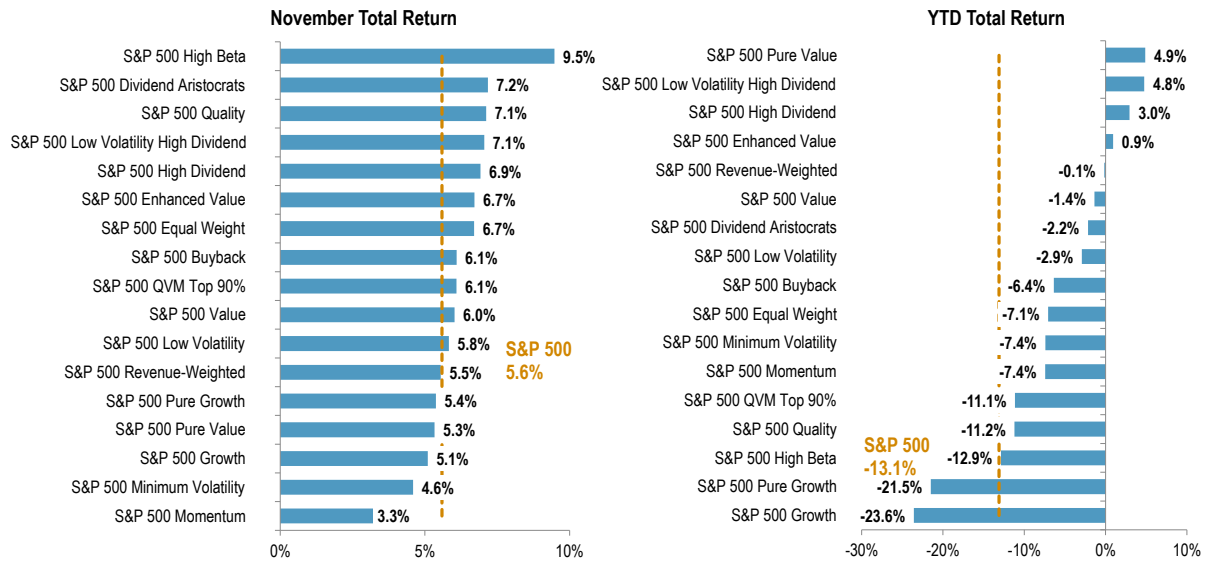
CORE PRODUCT MANAGEMENT: FACTORS

SPDJ-CoreFactorIndices@spglobal.com

Index Dashboard: S&P 500® Factor Indices

November 2022

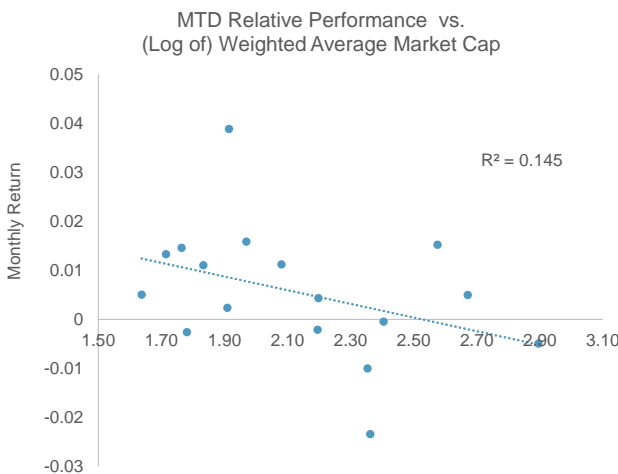
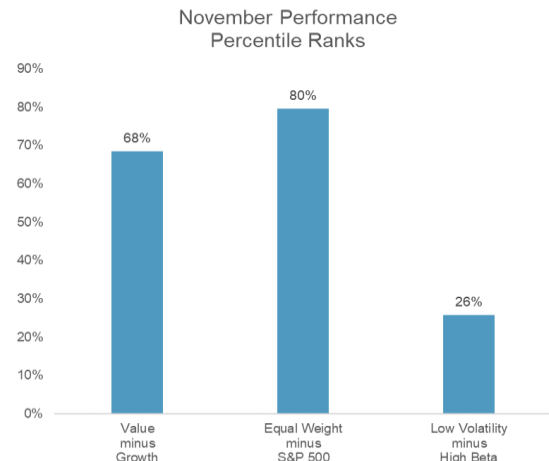
MONTHLY AND YTD PERFORMANCE SUMMARY



COMMENTARY

The S&P 500 continued its advance in November, albeit at a reduced pace. The index finished the month up a very respectable 5.6%, a slowdown from October's 8.1% gain but still well above its historical average. Every factor index gained as well, with (unsurprisingly) High Beta leading the way.

Last month we commented that it is relatively unusual for Value to outperform Growth in a month when the S&P 500 rises. It's still unusual, despite now happening for two months running (although both the Value-Growth spread and the S&P 500's return were lower in November than in October). Our first chart compares the returns of three sets of notionally opposite indices. The spread between Value and Growth, though down from last month, was still well above median. Meanwhile the gap between Equal Weight and the S&P 500 was in the top quintile of historical experience, suggesting strong payoffs to value and (especially) small size tilts.



In contrast, the Low Vol-High Beta spread was below average, as expected in a month with strongly positive index returns.

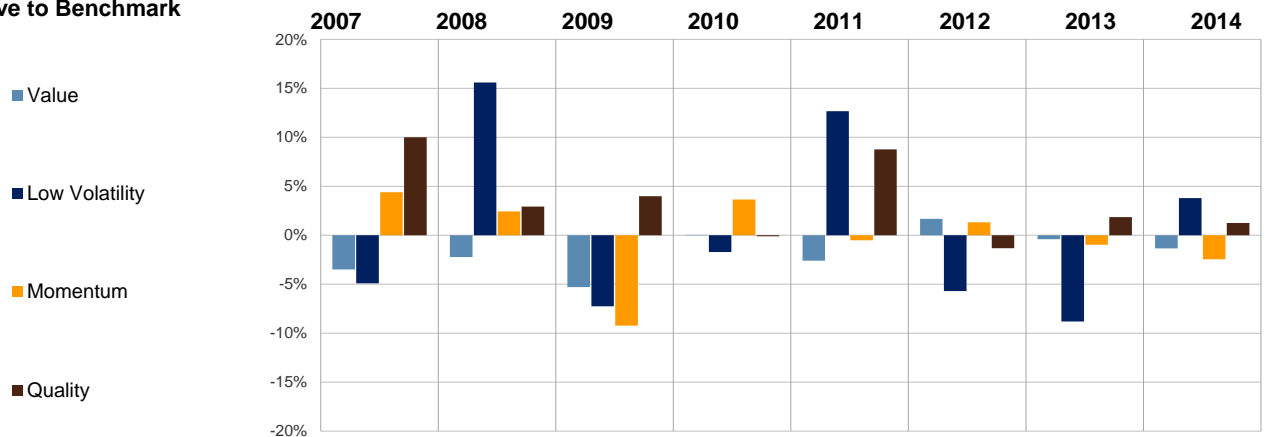
We've commented before on the importance of the size factor to factor indices generally. The weighted average capitalization of most factor indices is below that of the S&P 500. Other things equal, therefore, most factor indices will benefit from a tailwind when smaller companies outperform. In November, e.g., only six factor indices lagged the S&P 500, while 11 outperformed. Our second chart illustrates the impact of capitalization on returns in November. If the relationship was not overwhelmingly important, neither was it negligible. Of our 8 largest-cap factor indices, only three outperformed and five lagged; of our 9 smallest-cap factors, all but one outperformed.

ANNUAL PERFORMANCE

Core factor performance by calendar year, 2007-present:

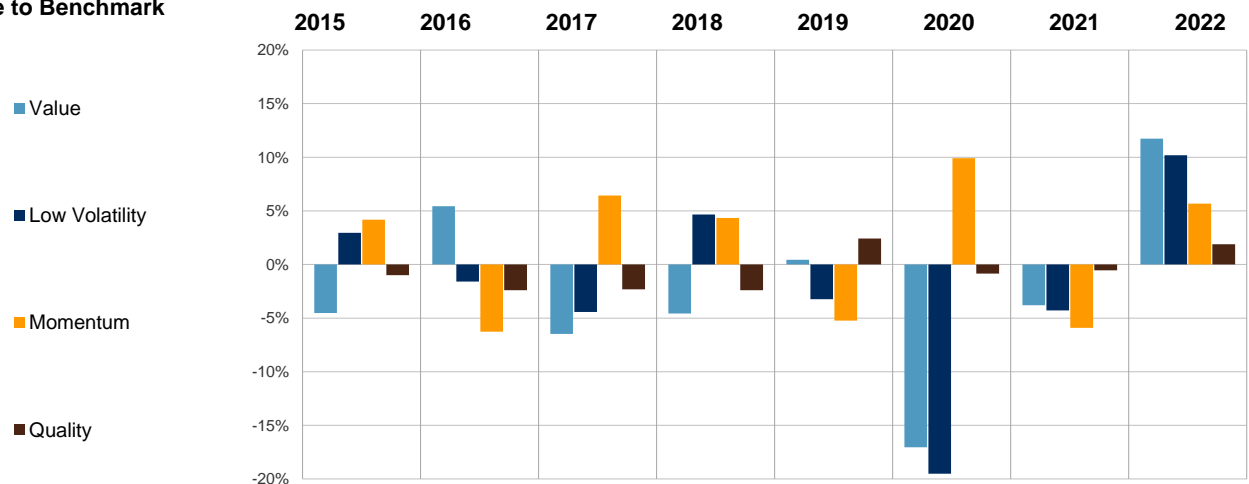
Total Return	2007	2008	2009	2010	2011	2012	2013	2014
Value	1.99%	-39.22%	21.18%	15.10%	-0.48%	17.68%	31.99%	12.36%
Low Volatility	0.58%	-21.41%	19.22%	13.36%	14.78%	10.30%	23.59%	17.49%
Momentum	9.89%	-34.56%	17.24%	18.72%	1.60%	17.33%	31.42%	11.23%
Quality	15.50%	-34.06%	30.46%	14.95%	10.89%	14.68%	34.24%	14.95%
S&P 500	5.49%	-37.00%	26.46%	15.06%	2.11%	16.00%	32.39%	13.69%

Relative to Benchmark



Total Return	2015	2016	2017	2018	2019	2020	2021	2022
Value	-3.13%	17.40%	15.36%	-8.95%	31.93%	1.36%	24.90%	-1.36%
Low Volatility	4.34%	10.37%	17.41%	0.27%	28.26%	-1.11%	24.42%	-2.91%
Momentum	5.56%	5.70%	28.27%	-0.04%	26.25%	28.32%	22.79%	-7.43%
Quality	0.38%	9.56%	19.51%	-6.79%	33.91%	17.55%	28.16%	-11.22%
S&P 500	1.38%	11.96%	21.83%	-4.38%	31.49%	18.40%	28.71%	-13.10%

Relative to Benchmark



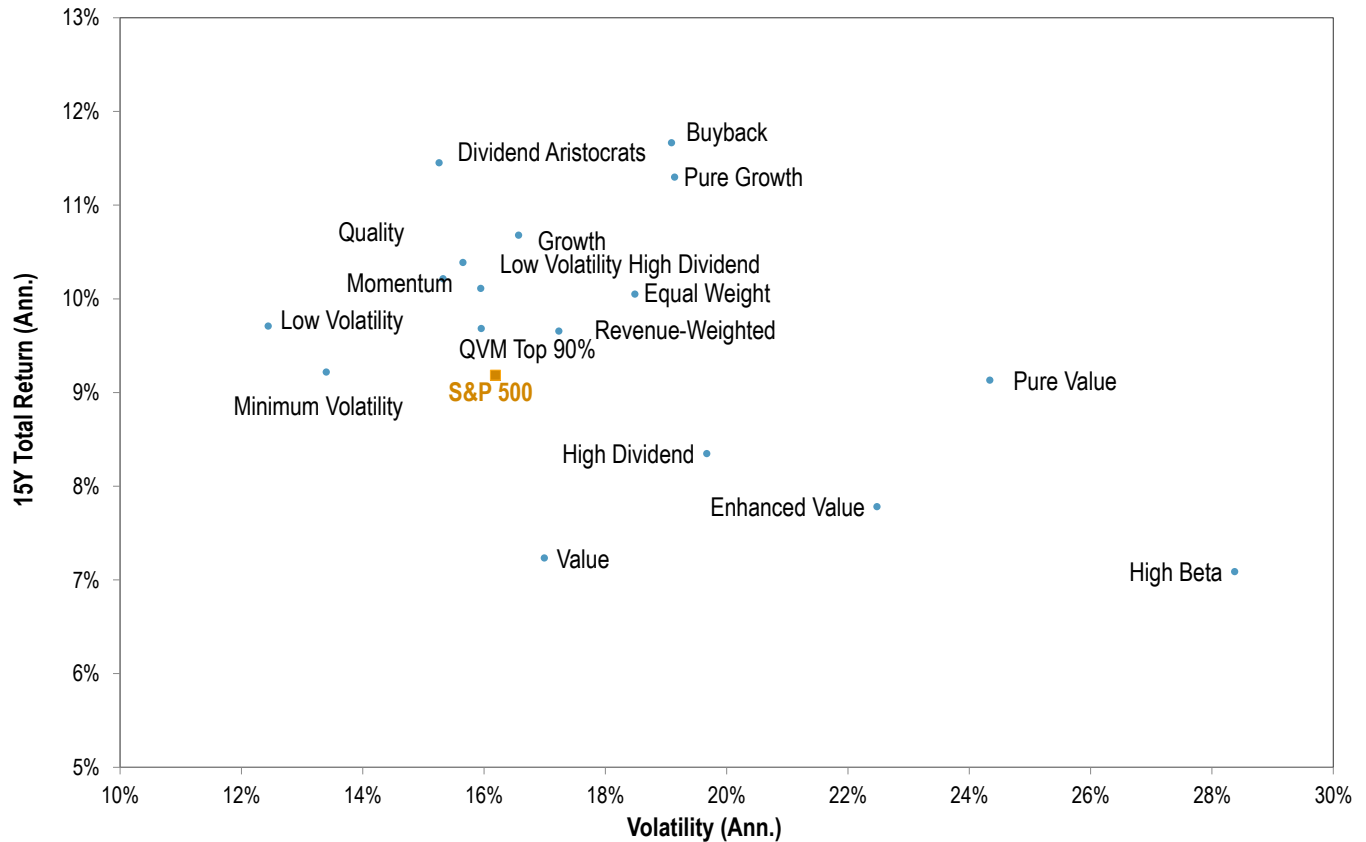
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Index Dashboard: S&P 500® Factor Indices

November 2022

15 YEAR RISK & RETURN - ABSOLUTE



TOTAL RETURN	1M	3M	12M	3Y	5Y	10Y	15Y
S&P 500 Buyback	6.1%	8.3%	-0.7%	11.5%	11.2%	14.6%	11.7%
S&P 500 Dividend Aristocrats	7.2%	7.5%	5.0%	10.9%	11.2%	13.4%	11.5%
S&P 500 Pure Growth	5.4%	3.5%	-22.1%	10.6%	10.1%	14.0%	11.3%
S&P 500 Growth	5.1%	-1.1%	-21.7%	11.5%	12.2%	14.5%	10.7%
S&P 500 Low Volatility High Dividend	7.1%	5.1%	13.9%	6.8%	6.1%	11.0%	10.4%
S&P 500 Quality	7.1%	6.9%	-6.8%	11.4%	11.1%	13.1%	10.2%
S&P 500 Momentum	3.3%	9.3%	-4.9%	14.2%	13.1%	14.2%	10.1%
S&P 500 Equal Weight	6.7%	6.3%	-1.3%	11.8%	10.4%	13.2%	10.1%
S&P 500 Low Volatility	5.8%	3.8%	6.5%	6.7%	8.7%	11.6%	9.7%
S&P 500 QVM Top 90%	6.1%	4.7%	-6.7%	12.0%	11.7%	13.7%	9.7%
S&P 500 Revenue-Weighted	5.5%	6.9%	6.4%	13.4%	11.7%	13.9%	9.7%
S&P 500 Minimum Volatility	4.6%	4.3%	-1.0%	9.0%	9.7%	12.6%	9.2%
S&P 500 Pure Value	5.3%	8.2%	11.7%	9.8%	7.7%	12.3%	9.1%
S&P 500 High Dividend	6.9%	4.9%	10.5%	7.5%	7.1%	11.7%	8.3%
S&P 500 Enhanced Value	6.7%	8.9%	7.8%	8.1%	7.9%	12.8%	7.8%
S&P 500 Value	6.0%	8.2%	5.6%	8.8%	8.8%	11.5%	7.2%
S&P 500 High Beta	9.5%	6.1%	-9.8%	17.8%	12.5%	14.5%	7.1%
S&P 500	5.6%	3.6%	-9.2%	10.9%	11.0%	13.3%	9.2%

VOLATILITY (ANN.)	12M	3Y	5Y	10Y	15Y
S&P 500 Buyback	23.1%	24.3%	21.9%	17.6%	19.1%
S&P 500 Dividend Aristocrats	21.0%	19.9%	17.5%	14.1%	15.3%
S&P 500 Pure Growth	28.3%	25.6%	22.2%	17.5%	19.1%
S&P 500 Growth	25.4%	23.0%	20.0%	15.7%	16.6%
S&P 500 Low Volatility High Dividend	20.6%	21.9%	18.8%	14.8%	15.7%
S&P 500 Quality	22.5%	19.6%	17.6%	14.2%	15.3%
S&P 500 Momentum	22.6%	20.0%	18.0%	14.5%	15.9%
S&P 500 Equal Weight	22.6%	22.6%	20.0%	15.8%	18.5%
S&P 500 Low Volatility	18.5%	17.3%	14.9%	12.3%	12.4%
S&P 500 QVM Top 90%	21.8%	20.3%	18.2%	14.5%	16.0%
S&P 500 Revenue-Weighted	21.5%	20.9%	18.9%	15.1%	17.2%
S&P 500 Minimum Volatility	18.7%	18.0%	15.9%	12.7%	13.4%
S&P 500 Pure Value	22.7%	28.5%	24.9%	19.8%	24.3%
S&P 500 High Dividend	21.8%	25.8%	21.8%	16.9%	19.7%
S&P 500 Enhanced Value	24.6%	27.7%	24.2%	19.4%	22.5%
S&P 500 Value	20.9%	20.3%	18.4%	14.7%	17.0%
S&P 500 High Beta	30.5%	33.8%	29.6%	23.8%	28.4%
S&P 500	22.2%	20.5%	18.3%	14.6%	16.2%

Performance figures for more than one year are annualized.

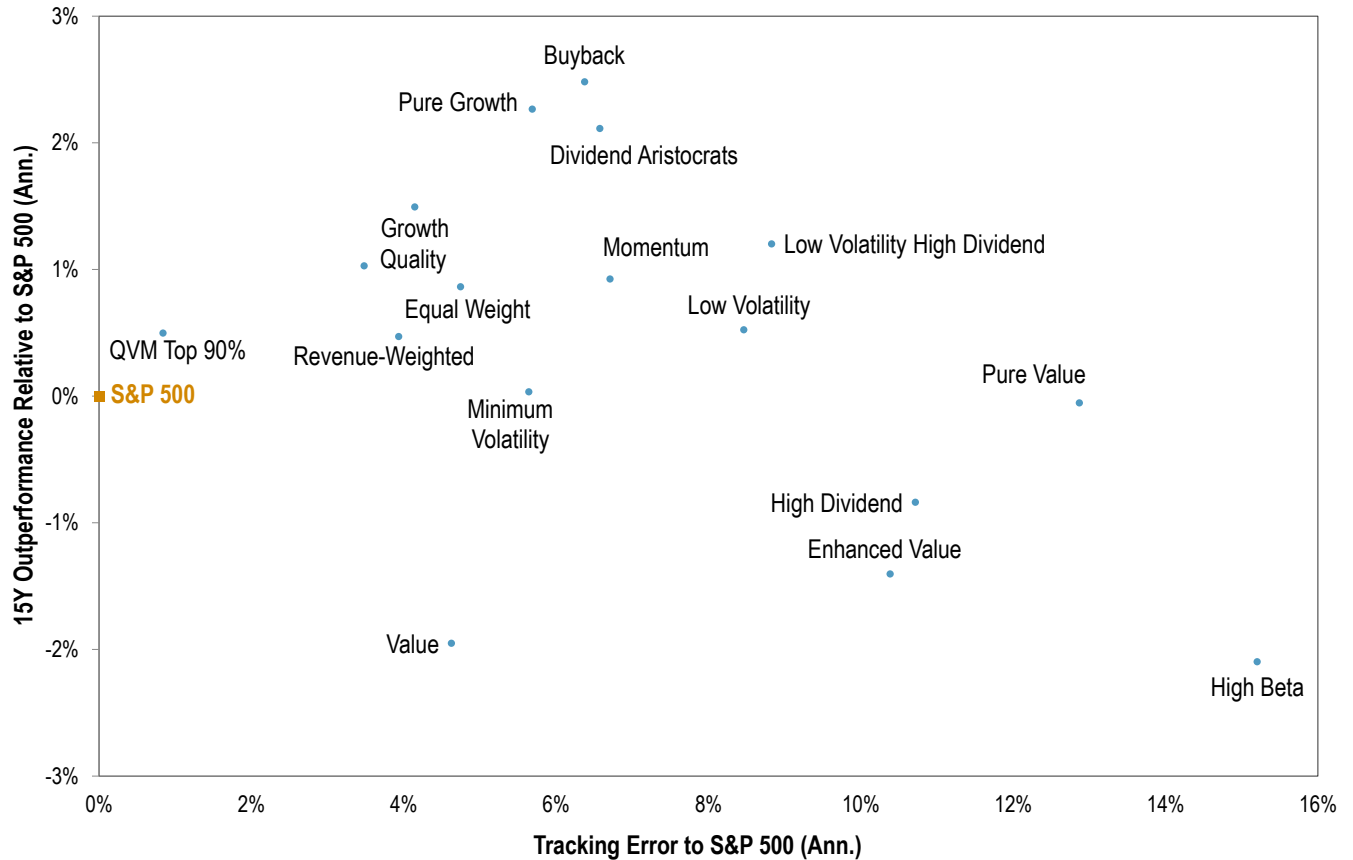
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November 2022

TO S&P 500



RELATIVE RETURN AND TRACKING ERROR

PERFORMANCE v S&P 500	1M	3M	1YR	3YR	5YR	10YR	15YR	TRACKING ERROR v S&P 500 (ANN.)	1YR	3YR	5YR	10YR	15YR
S&P 500 Buyback	0.5%	4.7%	8.6%	0.6%	0.2%	1.3%	2.5%	S&P 500 Buyback	6.9%	8.9%	7.6%	6.3%	6.4%
S&P 500 Dividend Aristocrats	1.6%	3.9%	14.2%	0.0%	0.2%	0.0%	2.3%	S&P 500 Dividend Aristocrats	6.4%	6.5%	5.9%	4.9%	5.7%
S&P 500 Pure Growth	-0.2%	-0.1%	-12.9%	-0.3%	-0.9%	0.6%	2.1%	S&P 500 Pure Growth	11.5%	9.5%	8.0%	6.6%	6.6%
S&P 500 Growth	-0.5%	-4.8%	-12.5%	0.6%	1.2%	1.1%	1.5%	S&P 500 Growth	6.8%	6.7%	5.5%	4.4%	4.1%
S&P 500 Low Volatility High Dividend	1.5%	1.5%	23.1%	-4.1%	-4.9%	-2.3%	1.2%	S&P 500 Low Volatility High Dividend	11.7%	12.0%	10.5%	8.9%	8.8%
S&P 500 Quality	1.5%	3.3%	2.4%	0.5%	0.1%	-0.3%	1.0%	S&P 500 Quality	5.0%	4.5%	4.0%	3.2%	3.5%
S&P 500 Momentum	-2.3%	5.7%	4.3%	3.3%	2.1%	0.9%	0.9%	S&P 500 Momentum	7.2%	7.4%	6.9%	5.9%	6.7%
S&P 500 Equal Weight	1.1%	2.7%	7.9%	0.9%	-0.6%	-0.1%	0.9%	S&P 500 Equal Weight	4.0%	6.1%	5.2%	4.0%	4.7%
S&P 500 Low Volatility	0.2%	0.2%	15.7%	-4.2%	-2.3%	-1.7%	0.5%	S&P 500 Low Volatility	10.1%	9.7%	9.2%	8.0%	8.5%
S&P 500 QVM Top 90%	0.5%	1.0%	2.5%	1.1%	0.7%	0.4%	0.5%	S&P 500 QVM Top 90%	1.6%	1.2%	1.0%	0.8%	0.8%
S&P 500 Revenue-Weighted	0.0%	3.3%	15.6%	2.5%	0.7%	0.6%	0.5%	S&P 500 Revenue-Weighted	5.1%	6.2%	5.2%	4.1%	3.9%
S&P 500 Minimum Volatility	-1.0%	0.7%	8.2%	-1.9%	-1.2%	-0.7%	0.0%	S&P 500 Minimum Volatility	6.3%	5.5%	4.8%	4.8%	5.6%
S&P 500 Pure Value	-0.3%	4.6%	20.9%	-1.1%	-3.3%	-1.0%	-0.1%	S&P 500 Pure Value	11.4%	16.1%	13.3%	10.3%	12.9%
S&P 500 High Dividend	1.3%	1.3%	19.7%	-3.4%	-3.8%	-1.6%	-0.8%	S&P 500 High Dividend	11.4%	14.6%	12.2%	9.9%	10.7%
S&P 500 Enhanced Value	1.1%	5.2%	17.1%	-2.8%	-3.0%	-0.6%	-1.4%	S&P 500 Enhanced Value	11.0%	14.5%	12.2%	9.8%	10.4%
S&P 500 Value	0.4%	4.6%	14.8%	-2.1%	-2.2%	-1.8%	-2.0%	S&P 500 Value	6.8%	7.5%	6.2%	4.9%	4.6%
S&P 500 High Beta	3.9%	2.4%	-0.6%	6.9%	1.5%	1.2%	-2.1%	S&P 500 High Beta	11.5%	18.3%	15.3%	12.9%	15.2%

Performance figures for more than one year are annualized.

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DEGREE OF PORTFOLIO OVERLAP AND RELATIVE RETURN CORRELATIONS

PORTFOLIO OVERLAP

	S&P 500 Momentum	S&P 500 Growth	S&P 500 Quality	S&P 500 Pure Growth	S&P 500 Low Volatility	S&P 500 Minimum Volatility	S&P 500 QVM Top 90%	S&P 500 Dividend Aristocrats	S&P 500 Low Volatility High Dividend	S&P 500 High Dividend	S&P 500 Revenue-Weighted	S&P 500 Value	S&P 500 Equal Weight	S&P 500 Pure Value	S&P 500 Buyback	S&P 500 Enhanced Value	S&P 500 High Beta	
S&P 500 Momentum	100%	12%	28%	6%	23%	20%	25%	13%	7%	11%	30%	31%	19%	19%	12%	14%	2%	22%
S&P 500 Growth	12%	100%	25%	28%	6%	23%	57%	7%	2%	2%	33%	27%	30%	0%	9%	5%	22%	61%
S&P 500 Quality	28%	25%	100%	9%	9%	17%	33%	18%	7%	9%	23%	26%	19%	11%	15%	11%	11%	31%
S&P 500 Pure Growth	6%	28%	9%	100%	1%	13%	15%	4%	2%	1%	11%	0%	11%	0%	13%	5%	34%	17%
S&P 500 Low Volatility	23%	6%	9%	1%	100%	28%	22%	28%	19%	21%	18%	30%	20%	18%	11%	6%	0%	21%
S&P 500 Minimum Volatility	20%	23%	17%	13%	28%	100%	29%	16%	9%	10%	25%	30%	18%	13%	7%	10%	9%	31%
S&P 500 QVM Top 90%	25%	57%	33%	15%	22%	29%	100%	17%	9%	13%	58%	66%	50%	17%	13%	15%	16%	88%
S&P 500 Dividend Aristocrats	13%	7%	18%	4%	28%	16%	17%	100%	17%	19%	17%	22%	13%	10%	8%	7%	2%	16%
S&P 500 Low Volatility High Dividend	7%	2%	7%	2%	19%	9%	9%	17%	100%	58%	12%	14%	10%	17%	7%	13%	0%	8%
S&P 500 High Dividend	11%	2%	9%	1%	21%	10%	13%	19%	58%	100%	19%	19%	16%	33%	14%	21%	4%	12%
S&P 500 Revenue-Weighted	30%	33%	23%	11%	18%	25%	58%	17%	12%	19%	100%	61%	49%	35%	21%	31%	14%	62%
S&P 500 Value	31%	27%	26%	0%	30%	30%	66%	22%	14%	19%	61%	100%	54%	25%	15%	21%	8%	66%
S&P 500 Equal Weight	19%	30%	19%	11%	20%	18%	50%	13%	10%	16%	49%	54%	100%	24%	20%	19%	20%	52%
S&P 500 Pure Value	19%	0%	11%	0%	18%	13%	17%	10%	17%	33%	35%	25%	24%	100%	33%	48%	8%	16%
S&P 500 Buyback	12%	9%	15%	13%	11%	7%	13%	8%	7%	14%	21%	15%	20%	33%	100%	28%	18%	13%
S&P 500 Enhanced Value	14%	5%	11%	5%	6%	10%	15%	7%	13%	21%	31%	21%	19%	48%	28%	100%	10%	13%
S&P 500 High Beta	2%	22%	11%	34%	0%	9%	16%	2%	0%	4%	14%	8%	20%	8%	18%	10%	100%	18%

"Portfolio Overlap" is percentage of index weights held in common between any two indices.

RELATIVE RETURN CORRELATIONS

	S&P 500 Momentum	S&P 500 Growth	S&P 500 Quality	S&P 500 Pure Growth	S&P 500 Low Volatility	S&P 500 Minimum Volatility	S&P 500 QVM Top 90%	S&P 500 Dividend Aristocrats	S&P 500 Low Volatility High Dividend	S&P 500 High Dividend	S&P 500 Revenue-Weighted	S&P 500 Value	S&P 500 Equal Weight	S&P 500 Pure Value	S&P 500 Buyback	S&P 500 Enhanced Value	S&P 500 High Beta
S&P 500 Momentum	1.00	0.23	0.33	0.28	0.11	0.02	0.08	-0.36	-0.35	-0.44	-0.33	-0.32	-0.42	-0.39	-0.38	-0.42	-0.54
S&P 500 Growth	0.23	1.00	-0.10	0.47	-0.51	-0.43	-0.40	-0.82	-0.87	-0.82	-0.87	-0.98	-0.75	-0.78	-0.63	-0.77	-0.33
S&P 500 Quality	0.33	-0.10	1.00	0.00	-0.07	0.02	0.04	0.02	-0.17	-0.21	0.01	0.06	-0.15	-0.18	-0.14	-0.16	-0.27
S&P 500 Pure Growth	0.28	0.47	0.00	1.00	-0.34	-0.30	0.07	-0.46	-0.42	-0.27	-0.46	-0.46	-0.02	-0.18	0.05	-0.17	0.19
S&P 500 Low Volatility	0.11	-0.51	-0.07	-0.34	1.00	0.81	0.35	0.58	0.59	0.36	0.31	0.48	0.24	0.16	0.13	0.17	-0.34
S&P 500 Minimum Volatility	0.02	-0.43	0.02	-0.30	0.81	1.00	0.27	0.53	0.49	0.24	0.25	0.40	0.15	0.04	0.01	0.05	-0.37
S&P 500 QVM Top 90%	0.08	-0.40	0.04	0.07	0.35	0.27	1.00	0.32	0.46	0.44	0.23	0.38	0.47	0.45	0.53	0.47	0.20
S&P 500 Dividend Aristocrats	-0.36	-0.82	0.02	-0.46	0.58	0.53	0.32	1.00	0.82	0.71	0.78	0.84	0.70	0.60	0.55	0.61	0.25
S&P 500 Low Volatility High Dividend	-0.35	-0.87	-0.17	-0.42	0.59	0.49	0.46	0.82	1.00	0.92	0.79	0.88	0.79	0.79	0.69	0.79	0.37
S&P 500 High Dividend	-0.44	-0.82	-0.21	-0.27	0.36	0.24	0.44	0.71	0.92	1.00	0.79	0.86	0.88	0.92	0.81	0.91	0.61
S&P 500 Revenue-Weighted	-0.33	-0.87	0.01	-0.46	0.31	0.25	0.23	0.78	0.79	0.79	1.00	0.90	0.74	0.80	0.65	0.81	0.43
S&P 500 Value	-0.32	-0.98	0.06	-0.46	0.48	0.40	0.38	0.84	0.88	0.86	0.90	1.00	0.80	0.81	0.68	0.81	0.41
S&P 500 Equal Weight	-0.42	-0.75	-0.15	-0.02	0.24	0.15	0.47	0.70	0.79	0.88	0.74	0.80	1.00	0.90	0.91	0.89	0.77
S&P 500 Pure Value	-0.39	-0.78	-0.18	-0.18	0.16	0.04	0.45	0.60	0.79	0.92	0.80	0.81	0.90	1.00	0.87	0.97	0.74
S&P 500 Buyback	-0.38	-0.63	-0.14	0.05	0.13	0.01	0.53	0.55	0.69	0.81	0.65	0.68	0.91	0.87	1.00	0.89	0.74
S&P 500 Enhanced Value	-0.42	-0.77	-0.16	-0.17	0.17	0.05	0.47	0.61	0.79	0.91	0.81	0.81	0.89	0.97	0.89	1.00	0.73
S&P 500 High Beta	-0.54	-0.33	-0.27	0.19	-0.34	-0.37	0.20	0.25	0.37	0.61	0.43	0.41	0.77	0.74	0.74	0.73	1.00

Correlation of weekly excess total returns (versus S&P 500), last three years

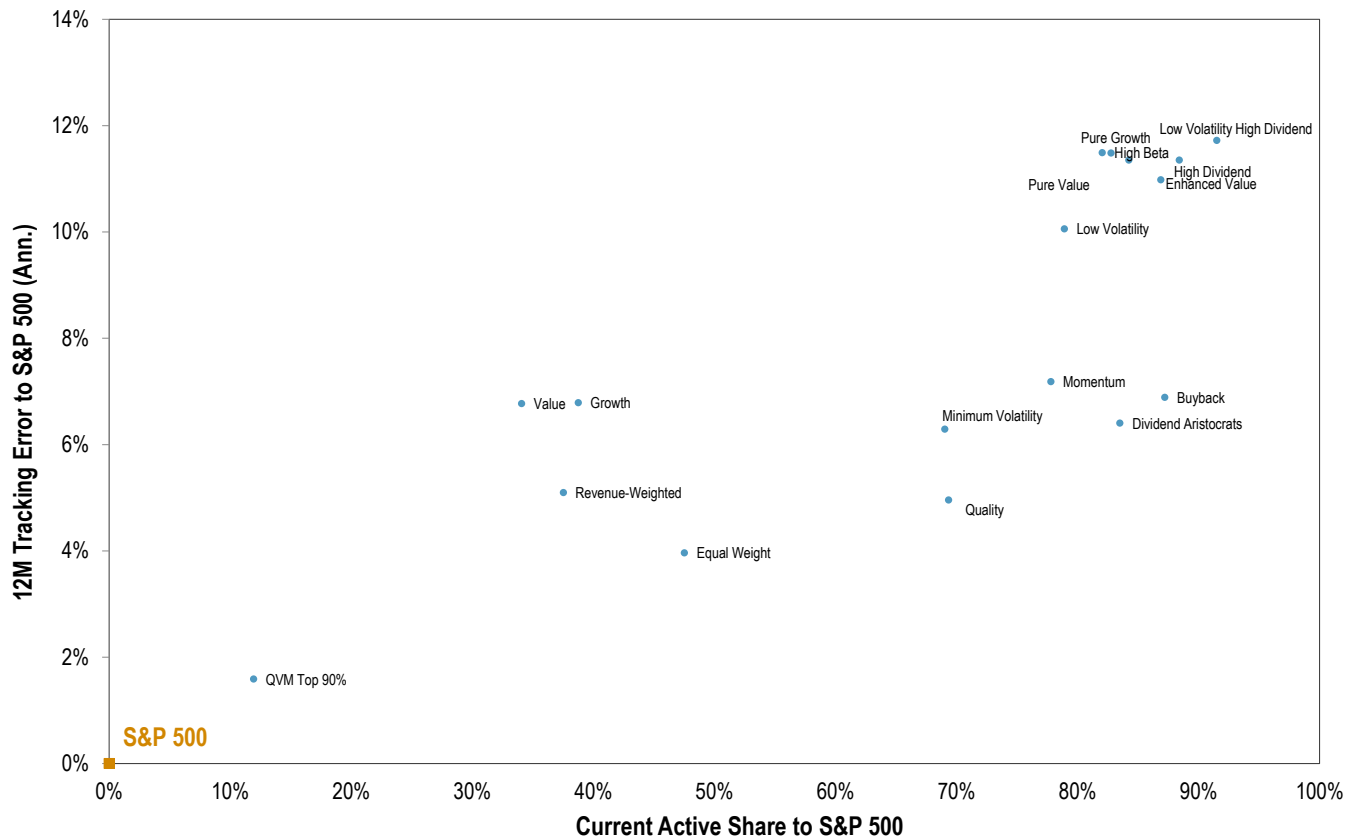
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TRACKING ERROR & ACTIVE SHARE- RELATIVE TO S&P 500



FACTOR EXPOSURE SUMMARY (See following pages for factor details)

INDEX	PAGE No.	LOW VOLATILITY	MOMENTUM	VALUE	HIGH BETA	DIVIDEND	QUALITY	SMALL SIZE
S&P 500 Low Volatility	7	71.4%	33.6%	8.1%	-62.4%	44.9%	-10.6%	42.0%
S&P 500 Minimum Volatility	7	28.0%	18.3%	-2.0%	-34.3%	13.9%	-9.6%	12.1%
S&P 500 Low Volatility High Dividend	8	37.4%	11.0%	57.7%	-47.7%	87.0%	-15.5%	53.7%
S&P 500 High Dividend	8	11.1%	4.7%	69.7%	-30.1%	85.1%	-10.6%	57.9%
S&P 500 Quality	9	1.7%	19.9%	9.2%	-5.9%	13.9%	40.1%	6.5%
S&P 500 Dividend Aristocrats	9	27.6%	6.8%	10.4%	-23.0%	33.9%	-0.2%	38.9%
S&P 500 Momentum	10	20.3%	76.3%	38.5%	-53.7%	32.4%	9.0%	12.1%
S&P 500 Revenue-Weighted	10	3.3%	26.9%	57.2%	-21.7%	16.5%	2.5%	12.1%
S&P 500 QVM Top 90%	11	1.7%	4.9%	7.5%	-2.7%	4.3%	2.9%	-4.1%
S&P 500 Growth	11	-31.4%	-15.0%	-19.4%	34.5%	-22.8%	1.1%	-45.5%
S&P 500 Value	12	17.9%	22.6%	30.6%	-30.9%	32.4%	-1.4%	19.3%
S&P 500 Pure Growth	12	-69.8%	-3.5%	-1.5%	48.8%	-17.1%	-52.4%	21.1%
S&P 500 Pure Value	13	3.3%	38.5%	86.7%	-30.1%	38.6%	6.0%	52.5%
S&P 500 Buyback	13	-20.3%	7.6%	69.7%	-1.3%	21.4%	7.2%	62.2%
S&P 500 High Beta	14	-81.4%	-38.3%	7.8%	77.9%	-39.3%	-50.7%	34.1%
S&P 500 Enhanced Value	14	-1.4%	3.6%	89.0%	-10.8%	44.9%	-15.5%	27.2%
S&P 500 Equal Weight	15	-8.3%	-1.6%	29.8%	-2.3%	12.4%	-17.1%	48.5%

Source: S&P Dow Jones Indices LLC and/or its affiliates. Data as of November 30, 2022. Returns in U.S. dollars.

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices

November 2022

S&P 500 Low Volatility

Description

The S&P 500 Low Volatility is designed to measure the performance of the 100 stocks in the S&P 500 with the lowest volatility, measured on a 1-year trailing basis. The weighting of each stock is in inverse proportion to its volatility. As of November 30, 2022 the index comprised 100 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	5.8%	3.8%	-2.9%	6.5%	6.7%	8.7%	11.6%	9.7%
Relative to Benchmark	0.2%	0.2%	10.2%	15.7%	-4.2%	-2.3%	-1.7%	0.5%
Index Volatility				18.5%	17.3%	14.9%	12.3%	12.4%
Tracking Error				10.1%	9.7%	9.2%	8.0%	8.5%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.56

Portfolio Statistics

	Index	Bmark
Active Share (Stock)	79%	0%
Active Share (Sector)	45%	0%
Concentration (HH Index)	100.7	124.5
Correlation (stock)	0.49	0.47
Ann. Turnover (last 10 yr)	0.64	0.04

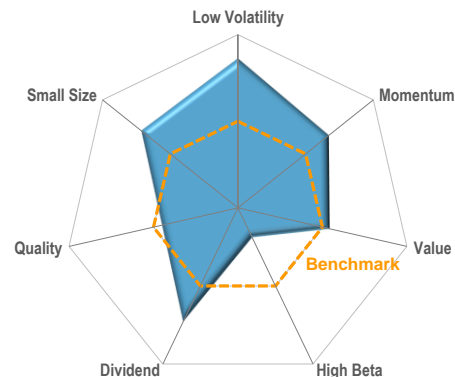
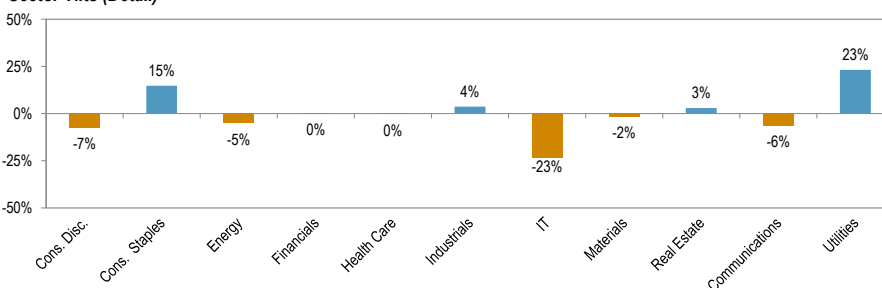
Index-Weighted Avg.

	Index	Bmark
Stock Volatility	24%	35%
12M - 1M price return	7%	-6%
Book/Price	0.31	0.24
Earnings/Price	0.04	0.05
Sales/Price	0.42	0.41
Stock Beta	0.62	0.98
Yield (12M trailing)	2.6%	1.7%
R.O.E.	23%	34%
Market Cap (U.S. \$ bn)	84.2	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Difference
Utilities	26%	3%	23%
Cons. Staples	22%	7%	15%
IT	3%	26%	23%
Cons. Disc.	3%	10%	7%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Minimum Volatility

Description

The S&P 500 Minimum Volatility uses an optimization process to find the portfolio of S&P 500 stocks, and weights, that would have demonstrated the lowest volatility on a historical basis, subject to constraints maintaining limiting sector and factor exposures. As of November 30, 2022 the index comprised 92 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	4.6%	4.3%	-7.4%	-1.0%	9.0%	9.7%	12.6%	9.2%
Relative to Benchmark	-1.0%	0.7%	5.7%	8.2%	-1.9%	-1.2%	-0.7%	0.0%
Index Volatility				18.7%	18.0%	15.9%	12.7%	13.4%
Tracking Error				6.3%	5.5%	4.8%	4.8%	5.6%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.78

Portfolio Statistics

	Index	Bmark
Active Share (Stock)	69%	0%
Active Share (Sector)	18%	0%
Concentration (HH Index)	157.7	124.5
Correlation (stock)	0.46	0.47
Ann. Turnover (last 10 yr)	0.28	0.04

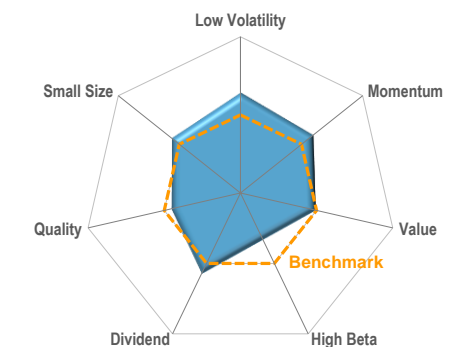
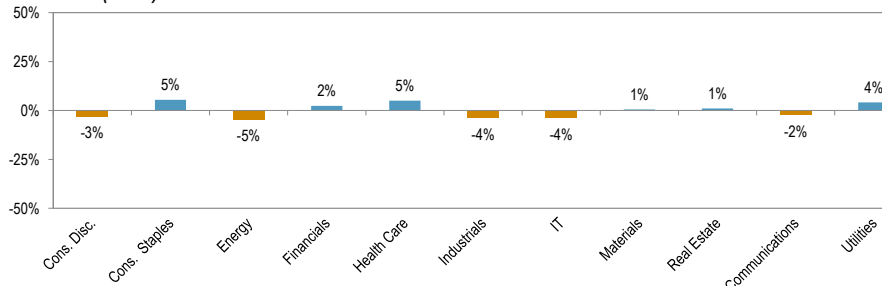
Index-Weighted Avg.

	Index	Bmark
Stock Volatility	30%	35%
12M - 1M price return	1%	-6%
Book/Price	0.27	0.24
Earnings/Price	0.04	0.05
Sales/Price	0.35	0.41
Stock Beta	0.79	0.98
Yield (12M trailing)	1.9%	1.7%
R.O.E.	30%	34%
Market Cap (U.S. \$ bn)	231.7	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Difference
Cons. Staples	12%	7%	5%
Health Care	20%	15%	5%
Energy	0%	5%	5%
Industrials	4%	8%	4%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices
November 2022

S&P 500 Low Volatility High Dividend

Description

The S&P 500 Low Volatility High Dividend measures the performance of the 50 least-volatile high dividend-yielding stocks in the S&P 500. Each component is weighted proportionally to its dividend yield, subject to single stock and sector constraints. As of November 30, 2022 the index comprised 50 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	7.1%	5.1%	4.8%	13.9%	6.8%	6.1%	11.0%	10.4%
Relative to Benchmark	1.5%	1.5%	17.9%	23.1%	-4.1%	-4.9%	-2.3%	1.2%
Index Volatility				20.6%	21.9%	18.8%	14.8%	15.7%
Tracking Error				11.7%	12.0%	10.5%	8.9%	8.8%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.58

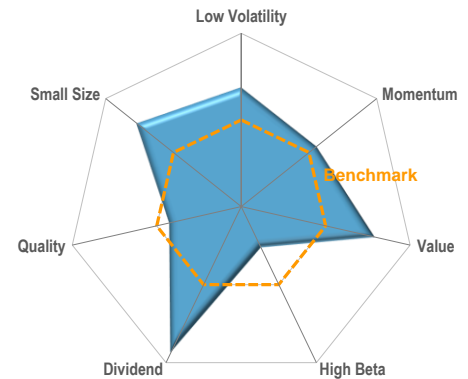
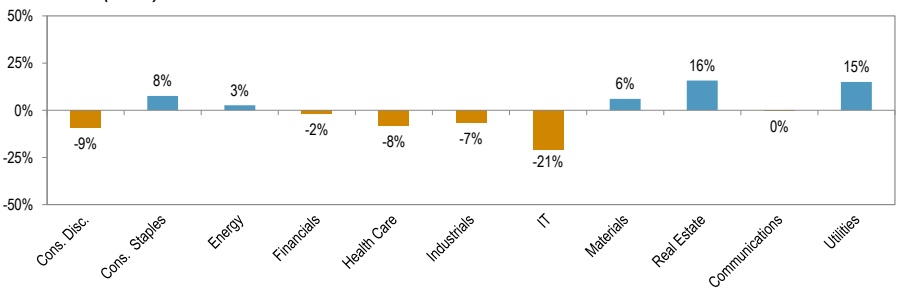
Portfolio Statistics	Index	Bmark
Active Share (Stock)	92%	0%
Active Share (Sector)	47%	0%
Concentration (HH Index)	211.1	124.5
Correlation (stock)	0.39	0.47
Ann. Turnover (last 10 yr)	0.63	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	29%	35%
12M - 1M price return	-1%	-6%
Book/Price	0.50	0.24
Earnings/Price	0.06	0.05
Sales/Price	0.66	0.41
Stock Beta	0.72	0.98
Yield (12M trailing)	4.5%	1.7%
R.O.E.	20%	34%
Market Cap (U.S. \$ bn)	61.3	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Real Estate	18%	3%	16%
Utilities	18%	3%	15%
IT	5%	26%	21%
Cons. Disc.	1%	10%	9%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 High Dividend

Description

The S&P 500 High Dividend is constructed from the 80 constituents of the S&P 500 with the highest indicated dividend yield. The index is equal weighted. As of November 30, 2022 the index comprised 80 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.9%	4.9%	3.0%	10.5%	7.5%	7.1%	11.7%	8.3%
Relative to Benchmark	1.3%	1.3%	16.1%	19.7%	-3.4%	-3.8%	-1.6%	-0.8%
Index Volatility				21.8%	25.8%	21.8%	16.9%	19.7%
Tracking Error				11.4%	14.6%	12.2%	9.9%	10.7%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.7

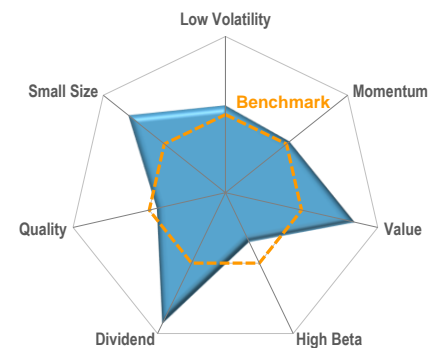
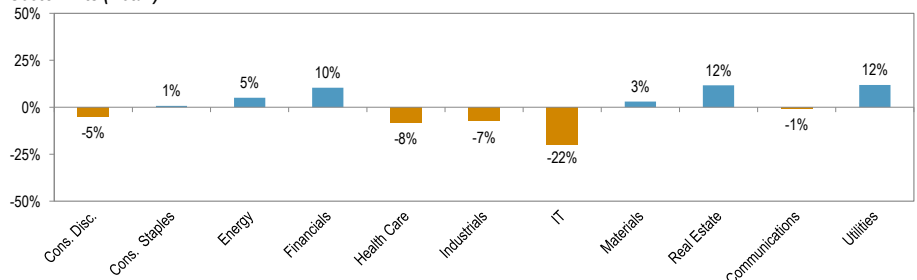
Portfolio Statistics	Index	Bmark
Active Share (Stock)	88%	0%
Active Share (Sector)	43%	0%
Concentration (HH Index)	128.3	124.5
Correlation (stock)	0.38	0.47
Ann. Turnover (last 10 yr)	0.41	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	32%	35%
12M - 1M price return	-3%	-6%
Book/Price	0.53	0.24
Earnings/Price	0.07	0.05
Sales/Price	0.83	0.41
Stock Beta	0.82	0.98
Yield (12M trailing)	4.3%	1.7%
R.O.E.	21%	34%
Market Cap (U.S. \$ bn)	54.2	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Utilities	15%	3%	12%
Real Estate	14%	3%	12%
IT	5%	26%	22%
Health Care	7%	15%	8%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

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Index Dashboard: S&P 500® Factor Indices

November 2022

S&P 500 Quality

Description

The S&P 500 Quality is designed to track the 100 stocks in the S&P 500 with the highest quality score, which is calculated based on return on equity, accruals ratio and financial leverage ratio. The weighting is proportional to both the quality score, and the market capitalization, of each component, subject to single stock and sector constraints. As of November 30, 2022 the index comprised 99 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	7.1%	6.9%	-11.2%	-6.8%	11.4%	11.1%	13.1%	10.2%
Relative to Benchmark	1.5%	3.3%	1.9%	2.4%	0.5%	0.1%	-0.3%	1.0%
Index Volatility				22.5%	19.6%	17.6%	14.2%	15.3%
Tracking Error				5.0%	4.5%	4.0%	3.2%	3.5%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.98

Portfolio Statistics

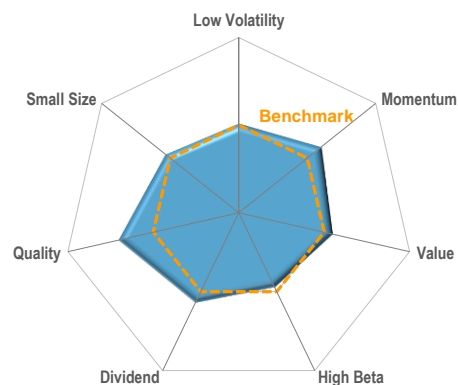
	Index	Bmark
Active Share (Stock)	69%	0%
Active Share (Sector)	27%	0%
Concentration (HH Index)	253.5	124.5
Correlation (stock)	0.49	0.47
Ann. Turnover (last 10 yr)	0.63	0.04

Index-Weighted Avg.

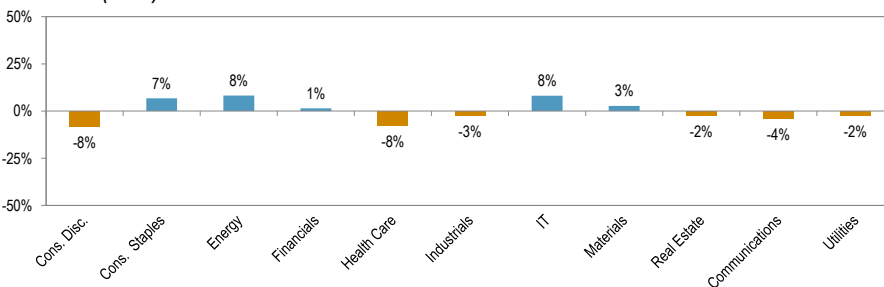
	Index	Bmark
Stock Volatility	34%	35%
12M - 1M price return	3%	-6%
Book/Price	0.24	0.24
Earnings/Price	0.06	0.05
Sales/Price	0.39	0.41
Stock Beta	0.94	0.98
Yield (12M trailing)	1.9%	1.7%
R.O.E.	42%	34%
Market Cap (U.S. \$ bn)	379.2	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Energy	13%	5%	8%
IT	35%	26%	8%
Cons. Disc.	2%	10%	8%
Health Care	7%	15%	8%



Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Dividend Aristocrats

Description

The S&P 500 Dividend Aristocrats measures the performance S&P 500 companies that have increased dividends every year for the last 25 consecutive years. The Index is equally weighted at each rebalance. As of November 30, 2022 the index comprised 64 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	7.2%	7.5%	-2.2%	5.0%	10.9%	11.2%	13.4%	11.5%
Relative to Benchmark	1.6%	3.9%	10.9%	14.2%	0.0%	0.2%	0.0%	2.3%
Index Volatility				21.0%	19.9%	17.5%	14.1%	15.3%
Tracking Error				6.4%	6.5%	5.9%	4.9%	5.7%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.74

Portfolio Statistics

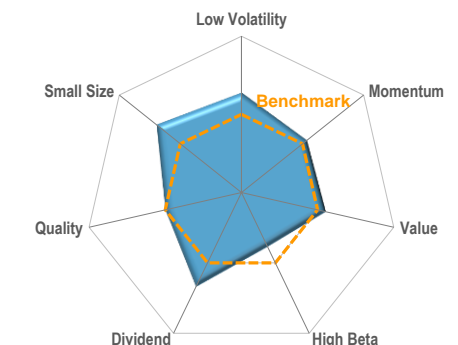
	Index	Bmark
Active Share (Stock)	84%	0%
Active Share (Sector)	39%	0%
Concentration (HH Index)	156.9	124.5
Correlation (stock)	0.41	0.47
Ann. Turnover (last 10 yr)	0.18	0.04

Index-Weighted Avg.

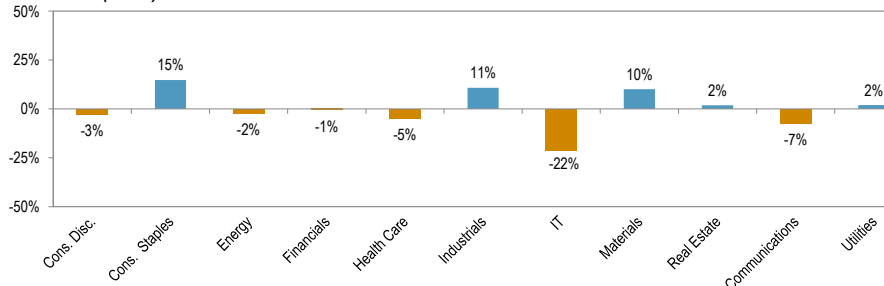
	Index	Bmark
Stock Volatility	30%	35%
12M - 1M price return	-2%	-6%
Book/Price	0.24	0.24
Earnings/Price	0.05	0.05
Sales/Price	0.54	0.41
Stock Beta	0.84	0.98
Yield (12M trailing)	2.4%	1.7%
R.O.E.	33%	34%
Market Cap (U.S. \$ bn)	92.5	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Cons. Staples	22%	7%	15%
Industrials	19%	8%	11%
IT	5%	26%	22%
Communications	0%	7%	7%



Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices
November 2022

S&P 500 Momentum

Description

The S&P 500 Momentum comprises the top 100 stocks in the S&P 500 based on 12M prior risk-adjusted performance (excluding the most recent month at the rebalance). The weighting is inversely proportional to the trailing volatility of each component, subject to single stock and sector constraints. As of November 30, 2022 the index comprised 99 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	3.3%	9.3%	-7.4%	-4.9%	14.2%	13.1%	14.2%	10.1%
Relative to Benchmark	-2.3%	5.7%	5.7%	4.3%	3.3%	2.1%	0.9%	0.9%
Index Volatility				22.6%	20.0%	18.0%	14.5%	15.9%
Tracking Error				7.2%	7.4%	6.9%	5.9%	6.7%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.9

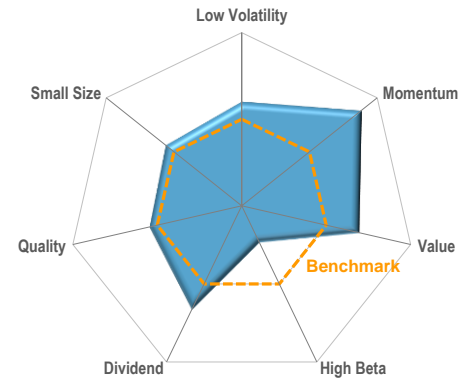
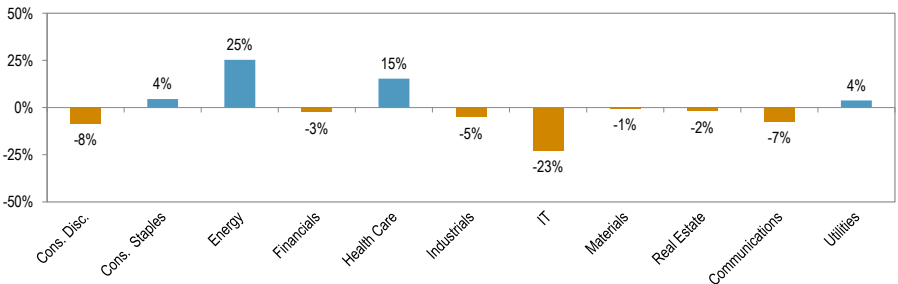
Portfolio Statistics	Index	Bmark
Active Share (Stock)	78%	0%
Active Share (Sector)	49%	0%
Concentration (HH Index)	333.8	124.5
Correlation (stock)	0.57	0.47
Ann. Turnover (last 10 yr)	1.16	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	30%	35%
12M - 1M price return	37%	-6%
Book/Price	0.27	0.24
Earnings/Price	0.06	0.05
Sales/Price	0.63	0.41
Stock Beta	0.68	0.98
Yield (12M trailing)	2.3%	1.7%
R.O.E.	34%	34%
Market Cap (U.S. \$ bn)	236.9	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Energy	30%	5%	25%
Health Care	31%	15%	15%
IT	4%	26%	23%
Cons. Disc.	2%	10%	8%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Revenue-Weighted

Description

The S&P 500 Revenue-Weighted comprises all the constituents of the S&P 500, weighted in proportion to revenues. As of November 30, 2022 the index comprised 499 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	5.5%	6.9%	-0.1%	6.4%	13.4%	11.7%	13.9%	9.7%
Relative to Benchmark	0.0%	3.3%	13.0%	15.6%	2.5%	0.7%	0.6%	0.5%
Index Volatility				21.5%	20.9%	18.9%	15.1%	17.2%
Tracking Error				5.1%	6.2%	5.2%	4.1%	3.9%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.84

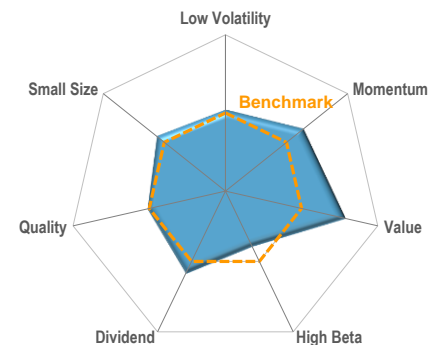
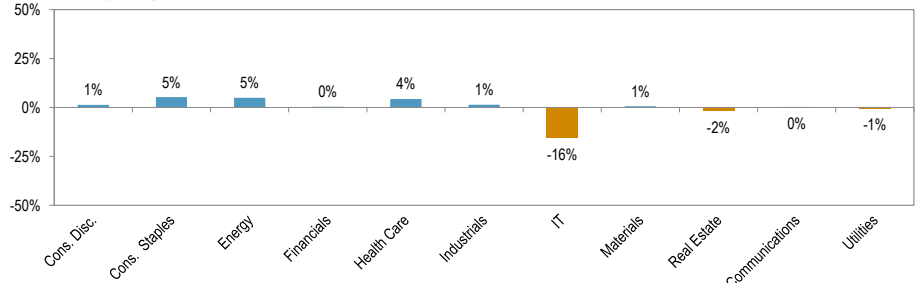
Portfolio Statistics	Index	Bmark
Active Share (Stock)	38%	0%
Active Share (Sector)	18%	0%
Concentration (HH Index)	93.1	124.5
Correlation (stock)	0.38	0.47
Ann. Turnover (last 10 yr)	0.20	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	34%	35%
12M - 1M price return	5%	-6%
Book/Price	0.33	0.24
Earnings/Price	0.06	0.05
Sales/Price	1.00	0.41
Stock Beta	0.87	0.98
Yield (12M trailing)	2.0%	1.7%
R.O.E.	27%	34%
Market Cap (U.S. \$ bn)	252.9	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Cons. Staples	12%	7%	5%
Energy	10%	5%	5%
IT	11%	26%	16%
Real Estate	1%	3%	2%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices

November 2022

S&P 500 QVM Top 90%

Description

The S&P 500 Quality, Value & Momentum Top 90% Multi-factor Index is designed to measure the performance of 90% of the stocks within the S&P 500, after excluding those with the lowest quality, value, and momentum as determined by a multi-factor score. As of November 30, 2022 the index comprised 448 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.1%	4.7%	-11.1%	-6.7%	12.0%	11.7%	13.7%	9.7%
Relative to Benchmark	0.5%	1.0%	2.0%	2.5%	1.1%	0.7%	0.4%	0.5%
Index Volatility				21.8%	20.3%	18.2%	14.5%	16.0%
Tracking Error				1.6%	1.2%	1.0%	0.8%	0.8%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.97

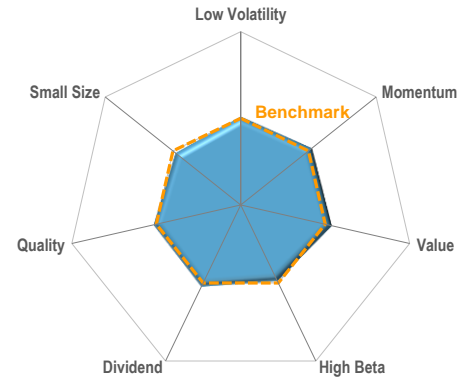
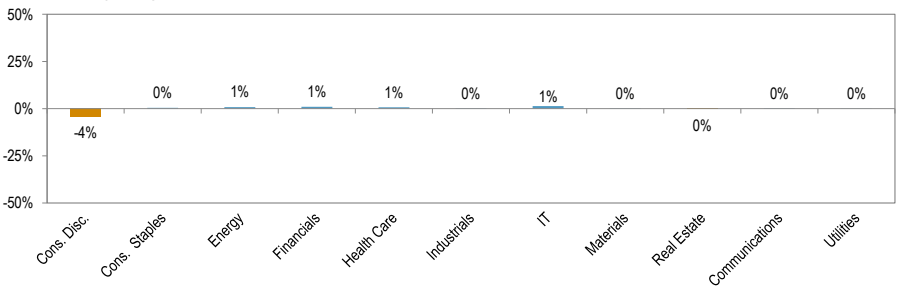
Portfolio Statistics	Index	Bmark
Active Share (Stock)	12%	0%
Active Share (Sector)	5%	0%
Concentration (HH Index)	153.8	124.5
Correlation (stock)	0.45	0.47
Ann. Turnover (last 10 yr)	0.19	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	34%	35%
12M - 1M price return	-4%	-6%
Book/Price	0.26	0.24
Earnings/Price	0.05	0.05
Sales/Price	0.42	0.41
Stock Beta	0.96	0.98
Yield (12M trailing)	1.7%	1.7%
R.O.E.	35%	34%
Market Cap (U.S. \$ bn)	467.4	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
IT	28%	26%	1%
Financials	13%	12%	1%
Cons. Disc.	6%	10%	4%
Real Estate	2%	3%	0%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Growth

Description

The S&P 500 Growth is comprised of S&P 500 stocks with above-average combinations of the ratio of earnings growth to price, sales growth, and momentum. The weighting is by capitalization, although the weight of some stocks is divided between the Value and Growth indices. As of November 30, 2022 the index comprised 242 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	5.1%	-1.1%	-23.6%	-21.7%	11.5%	12.2%	14.5%	10.7%
Relative to Benchmark	-0.5%	-4.8%	-10.5%	-12.5%	0.6%	1.2%	1.1%	1.5%
Index Volatility				25.4%	23.0%	20.0%	15.7%	16.6%
Tracking Error				6.8%	6.7%	5.5%	4.4%	4.1%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 1.25

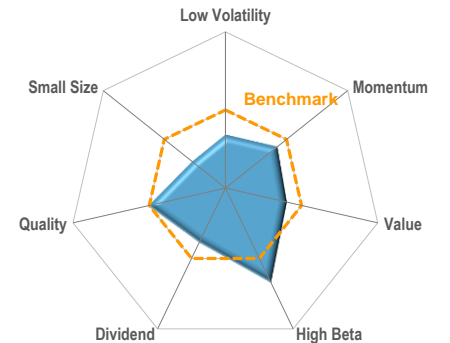
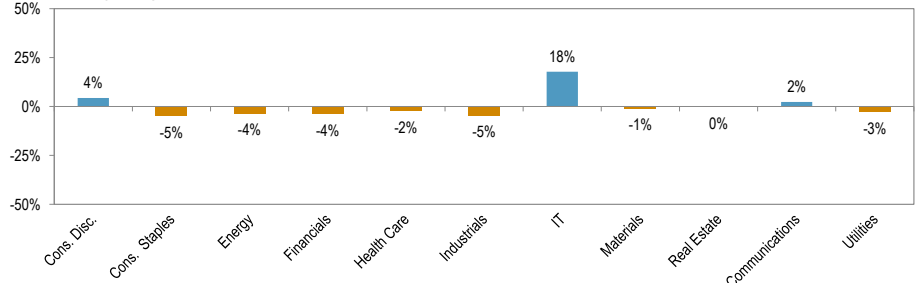
Portfolio Statistics	Index	Bmark
Active Share (Stock)	39%	0%
Active Share (Sector)	24%	0%
Concentration (HH Index)	441.4	124.5
Correlation (stock)	0.60	0.47
Ann. Turnover (last 10 yr)	0.24	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	40%	35%
12M - 1M price return	-17%	-6%
Book/Price	0.13	0.24
Earnings/Price	0.04	0.05
Sales/Price	0.25	0.41
Stock Beta	1.19	0.98
Yield (12M trailing)	1.0%	1.7%
R.O.E.	44%	34%
Market Cap (U.S. \$ bn)	771.2	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
IT	44%	26%	18%
Cons. Disc.	15%	10%	4%
Cons. Staples	2%	7%	5%
Industrials	4%	8%	5%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices
November 2022

S&P 500 Value

Description

The S&P 500 Value comprises S&P 500 stocks with above-average combinations of book value-to-price, earnings-to-price, and sales-to-price. The weighting is by capitalization, although the weight of some stocks is divided between the Value and Growth indices. As of November 30, 2022 the index comprised 445 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.0%	8.2%	-1.4%	5.6%	8.8%	8.8%	11.5%	7.2%
Relative to Benchmark	0.4%	4.6%	11.7%	14.8%	-2.1%	-2.2%	-1.8%	-2.0%
Index Volatility				20.9%	20.3%	18.4%	14.7%	17.0%
Tracking Error				6.8%	7.5%	6.2%	4.9%	4.6%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.76

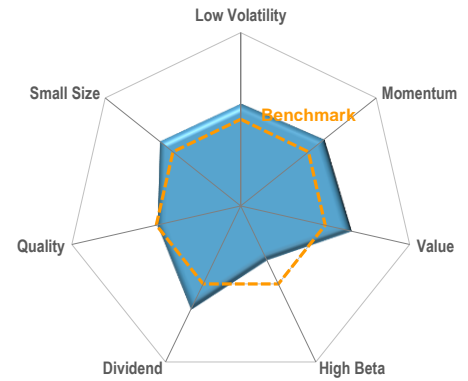
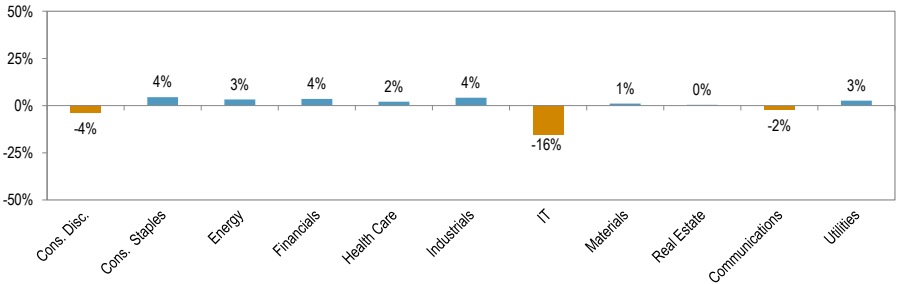
Portfolio Statistics	Index	Bmark
Active Share (Stock)	34%	0%
Active Share (Sector)	21%	0%
Concentration (HH Index)	72.2	124.5
Correlation (stock)	0.38	0.47
Ann. Turnover (last 10 yr)	0.25	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	31%	35%
12M - 1M price return	4%	-6%
Book/Price	0.34	0.24
Earnings/Price	0.05	0.05
Sales/Price	0.55	0.41
Stock Beta	0.80	0.98
Yield (12M trailing)	2.2%	1.7%
R.O.E.	25%	34%
Market Cap (U.S. \$ bn)	165.4	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Cons. Staples	11%	7%	4%
Industrials	13%	8%	4%
IT	11%	26%	16%
Cons. Disc.	7%	10%	4%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Pure Growth

Description

The S&P 500 Pure Growth comprises those S&P 500 stocks with 100% of their market cap in the S&P 500 Growth index and a growth score in the highest quartile. The weighting is proportional to the growth score. As of November 30, 2022 the index comprised 58 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	5.4%	3.5%	-21.5%	-22.1%	10.6%	10.1%	14.0%	11.3%
Relative to Benchmark	-0.2%	-0.1%	-8.4%	-12.9%	-0.3%	-0.9%	0.6%	2.1%
Index Volatility				28.3%	25.6%	22.2%	17.5%	19.1%
Tracking Error				11.5%	9.5%	8.0%	6.6%	6.6%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 1.31

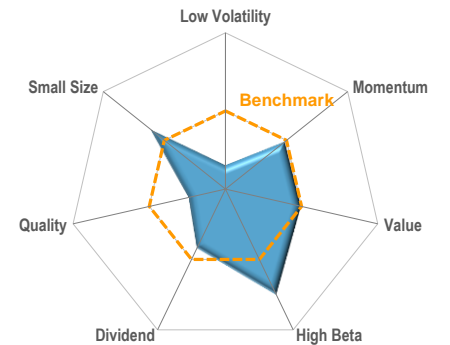
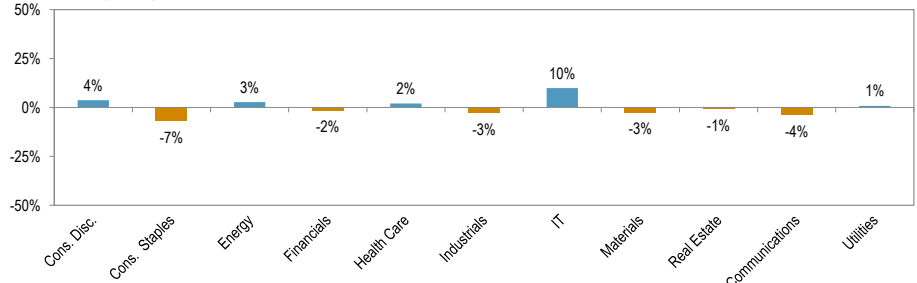
Portfolio Statistics	Index	Bmark
Active Share (Stock)	83%	0%
Active Share (Sector)	19%	0%
Concentration (HH Index)	211.6	124.5
Correlation (stock)	0.47	0.47
Ann. Turnover (last 10 yr)	0.64	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	48%	35%
12M - 1M price return	-10%	-6%
Book/Price	0.17	0.24
Earnings/Price	0.06	0.05
Sales/Price	0.37	0.41
Stock Beta	1.26	0.98
Yield (12M trailing)	1.1%	1.7%
R.O.E.	40%	34%
Market Cap (U.S. \$ bn)	157.3	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
IT	36%	26%	10%
Cons. Disc.	14%	10%	4%
Cons. Staples	0%	7%	7%
Communications	4%	7%	4%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices

November 2022

S&P 500 Pure Value

Description

The S&P 500 Pure Value comprises S&P 500 stocks with 100% of their market cap in the S&P 500 Value index and a value score in the highest quartile. The weighting is proportional to the value score. As of November 30, 2022 the index comprised 119 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	5.3%	8.2%	4.9%	11.7%	9.8%	7.7%	12.3%	9.1%
Relative to Benchmark	-0.3%	4.6%	18.0%	20.9%	-1.1%	-3.3%	-1.0%	-0.1%
Index Volatility				22.7%	28.5%	24.9%	19.8%	24.3%
Tracking Error				11.4%	16.1%	13.3%	10.3%	12.9%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.79

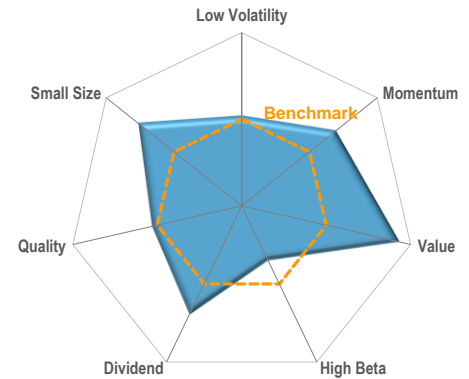
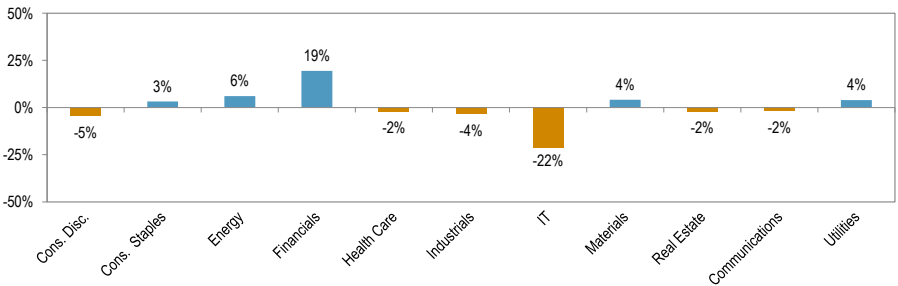
Portfolio Statistics	Index	Bmark
Active Share (Stock)	84%	0%
Active Share (Sector)	37%	0%
Concentration (HH Index)	117.5	124.5
Correlation (stock)	0.42	0.47
Ann. Turnover (last 10 yr)	0.45	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	34%	35%
12M - 1M price return	11%	-6%
Book/Price	0.67	0.24
Earnings/Price	0.08	0.05
Sales/Price	1.35	0.41
Stock Beta	0.81	0.98
Yield (12M trailing)	2.5%	1.7%
R.O.E.	16%	34%
Market Cap (U.S. \$ bn)	63.4	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Financials	31%	12%	19%
Energy	11%	5%	6%
IT	4%	26%	22%
Cons. Disc.	6%	10%	5%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Buyback

Description

The S&P 500 Buyback is designed to measure the performance of the top 100 stocks in the S&P 500 by buyback ratio. The components are equally weighted. As of November 30, 2022 the index comprised 100 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.1%	8.3%	-6.4%	-0.7%	11.5%	11.2%	14.6%	11.7%
Relative to Benchmark	0.5%	4.7%	6.7%	8.6%	0.6%	0.2%	1.3%	2.5%
Index Volatility				23.1%	24.3%	21.9%	17.6%	19.1%
Tracking Error				6.9%	8.9%	7.6%	6.3%	6.4%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.95

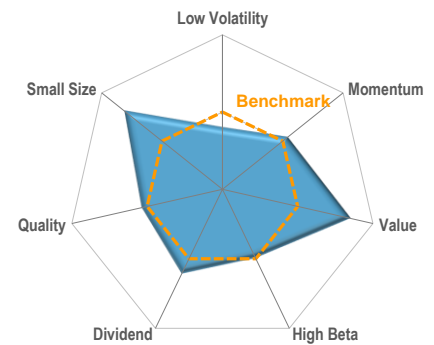
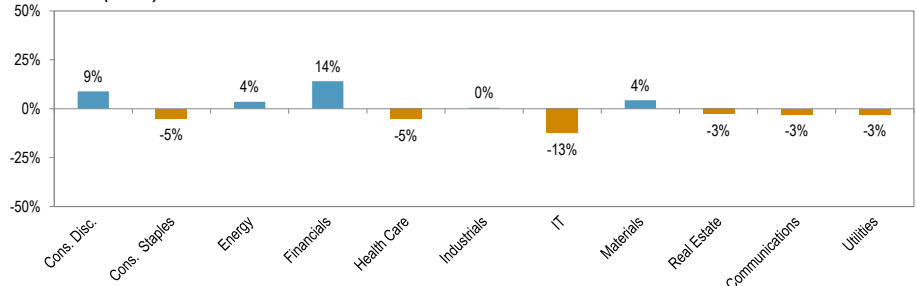
Portfolio Statistics	Index	Bmark
Active Share (Stock)	87%	0%
Active Share (Sector)	31%	0%
Concentration (HH Index)	101.0	124.5
Correlation (stock)	0.40	0.47
Ann. Turnover (last 10 yr)	0.93	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	38%	35%
12M - 1M price return	-2%	-6%
Book/Price	0.42	0.24
Earnings/Price	0.08	0.05
Sales/Price	0.93	0.41
Stock Beta	0.97	0.98
Yield (12M trailing)	2.1%	1.7%
R.O.E.	31%	34%
Market Cap (U.S. \$ bn)	46.9	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Financials	26%	12%	14%
Cons. Disc.	19%	10%	9%
IT	14%	26%	13%
Health Care	10%	15%	5%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices
November 2022

S&P 500 High Beta

Description

The S&P 500 High Beta is designed to measure the performance of the top 100 stocks in the S&P 500 by sensitivity to market returns. The weighting is in proportional to the beta coefficient of each constituent. As of November 30, 2022 the index comprised 100 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	9.5%	6.1%	-12.9%	-9.8%	17.8%	12.5%	14.5%	7.1%
Relative to Benchmark	3.9%	2.4%	0.2%	-0.6%	6.9%	1.5%	1.2%	-2.1%
Index Volatility				30.5%	33.8%	29.6%	23.8%	28.4%
Tracking Error				11.5%	18.3%	15.3%	12.9%	15.2%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 1.43

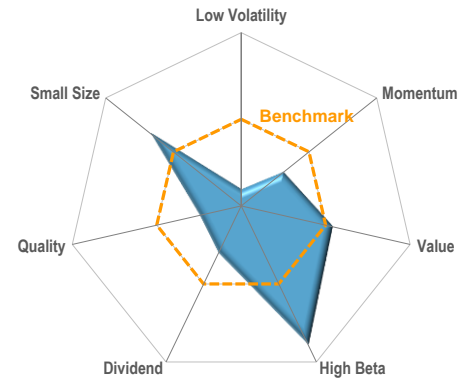
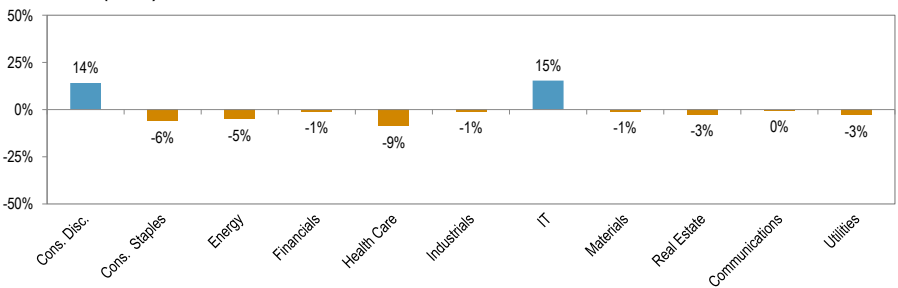
Portfolio Statistics	Index	Bmark
Active Share (Stock)	82%	0%
Active Share (Sector)	29%	0%
Concentration (HH Index)	103.5	124.5
Correlation (stock)	0.47	0.47
Ann. Turnover (last 10 yr)	0.93	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	54%	35%
12M - 1M price return	-33%	-6%
Book/Price	30%	24%
Earnings/Price	4%	5%
Sales/Price	54%	41%
Stock Beta	146%	98%
Yield (12M trailing)	0.6%	1.7%
R.O.E.	23%	34%
Market Cap (U.S. \$ bn)	107.3	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
IT	42%	26%	15%
Cons. Disc.	24%	10%	14%
Health Care	6%	15%	9%
Cons. Staples	1%	7%	6%

Sector Tilts (Detail)



Factor Exposure Chart

S&P 500 Enhanced Value

Description

The S&P 500 Enhanced Value is designed to measure the performance of the 100 stocks in the S&P 500 with the highest average book value-to-price, earnings-to-price, and sales-to-price. The weighting is proportional to both the value score and the market capitalization of each component. As of November 30, 2022 the index comprised 98 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.7%	8.9%	0.9%	7.8%	8.1%	7.9%	12.8%	7.8%
Relative to Benchmark	1.1%	5.2%	14.0%	17.1%	-2.8%	-3.0%	-0.6%	-1.4%
Index Volatility				24.6%	27.7%	24.2%	19.4%	22.5%
Tracking Error				11.0%	14.5%	12.2%	9.8%	10.4%

Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.86

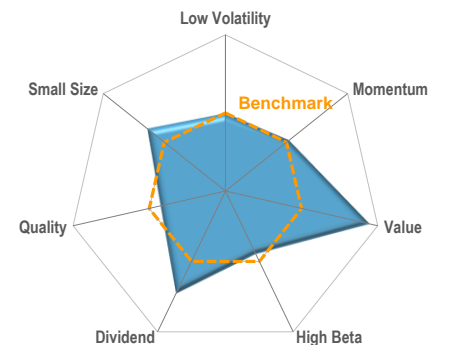
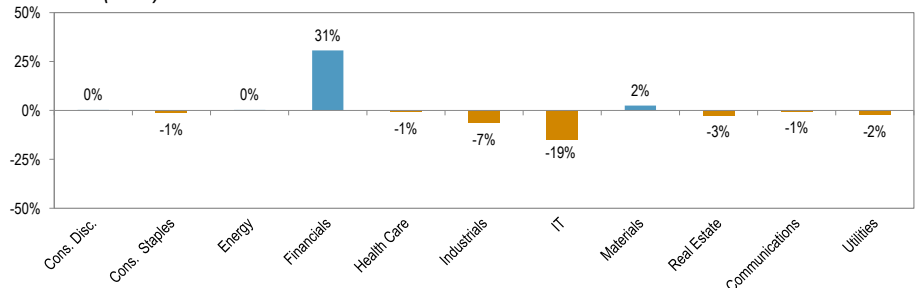
Portfolio Statistics	Index	Bmark
Active Share (Stock)	87%	0%
Active Share (Sector)	34%	0%
Concentration (HH Index)	237.2	124.5
Correlation (stock)	0.42	0.47
Ann. Turnover (last 10 yr)	0.41	0.04

Index-Weighted Avg.	Index	Bmark
Stock Volatility	35%	35%
12M - 1M price return	-4%	-6%
Book/Price	0.72	0.24
Earnings/Price	0.09	0.05
Sales/Price	1.25	0.41
Stock Beta	0.91	0.98
Yield (12M trailing)	2.6%	1.7%
R.O.E.	16%	34%
Market Cap (U.S. \$ bn)	130.1	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Financials	42%	12%	31%
Materials	5%	3%	2%
IT	7%	26%	19%
Industrials	2%	8%	7%

Sector Tilts (Detail)



Factor Exposure Chart

S&P Dow Jones Indices

A Division of **S&P Global**

Index Dashboard: S&P 500® Factor Indices
November 2022

S&P 500 Equal Weight

Description

The S&P 500 Equal Weight comprises all the constituents in the S&P 500, equally weighted at each quarterly rebalance. As of November 30, 2022 the index comprised 503 constituents.

Index Statistics	1M	3M	YTD	12M	3Y	5Y	10Y	15Y
Total Return (Ann)	6.7%	6.3%	-7.1%	-1.3%	11.8%	10.4%	13.2%	10.1%
Relative to Benchmark	1.1%	2.7%	6.0%	7.9%	0.9%	-0.6%	-0.1%	0.9%
Index Volatility				22.6%	22.6%	20.0%	15.8%	18.5%
Tracking Error				4.0%	6.1%	5.2%	4.0%	4.7%

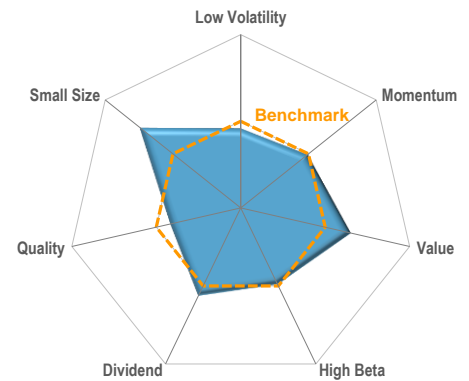
Benchmark: S&P 500. 1 Yr trailing beta to benchmark = 0.93

Portfolio Statistics	Index	Bmark
Active Share (Stock)	48%	0%
Active Share (Sector)	18%	0%
Concentration (HH Index)	20.3	124.5
Correlation (stock)	0.40	0.47
Ann. Turnover (last 10 yr)	0.22	0.04

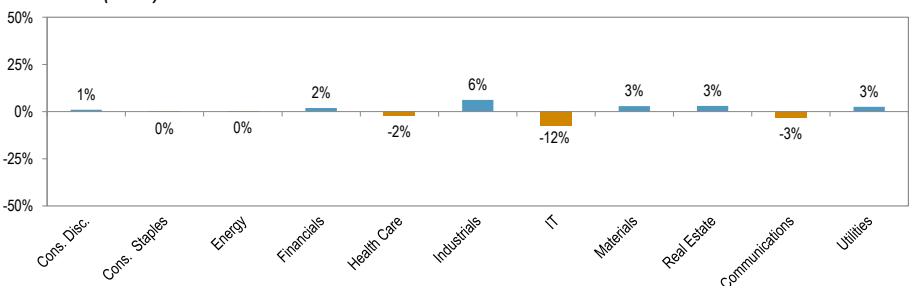
Index-Weighted Avg.	Index	Bmark
Stock Volatility	36%	35%
12M - 1M price return	-6%	-6%
Book/Price	0.33	0.24
Earnings/Price	0.05	0.05
Sales/Price	0.57	0.41
Stock Beta	0.96	0.98
Yield (12M trailing)	1.9%	1.7%
R.O.E.	25%	34%
Market Cap (U.S. \$ bn)	70.9	448.8

Top Sector Tilts (versus benchmark)

Sector	Index	Bmark	Diff.
Industrials	15%	8%	6%
Real Estate	6%	3%	3%
IT	15%	26%	12%
Communications	4%	7%	3%



Sector Tilts (Detail)



More Factor Resources



Factor Allocator is a complementary web-based tool from Optimal Asset Management that allows advisors to build and analyse simulated portfolios using S&P Factor Indices. Using 15 years of S&P factor index data, explore how individual risk factors behave together and in different market conditions to meet specific performance goals.

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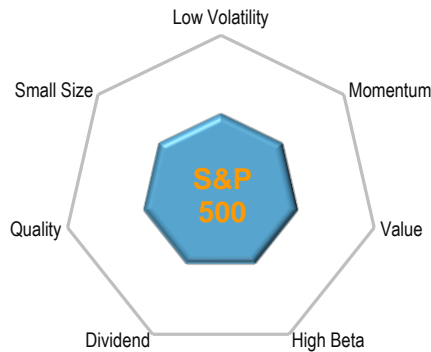


For more about S&P DJI's approach to factors, read "Factor Indices: A Simple Compendium" spglobal.com/spdji/en/research/article/factor-indices-a-simple-compendium

KEY TO FACTOR SCORINGS FOR INDICES

Factor Definitions

Each constituent of the S&P 500 index is provided with a factor "score" for each of Beta, Volatility, Momentum, Dividend, Size, Value and Quality.



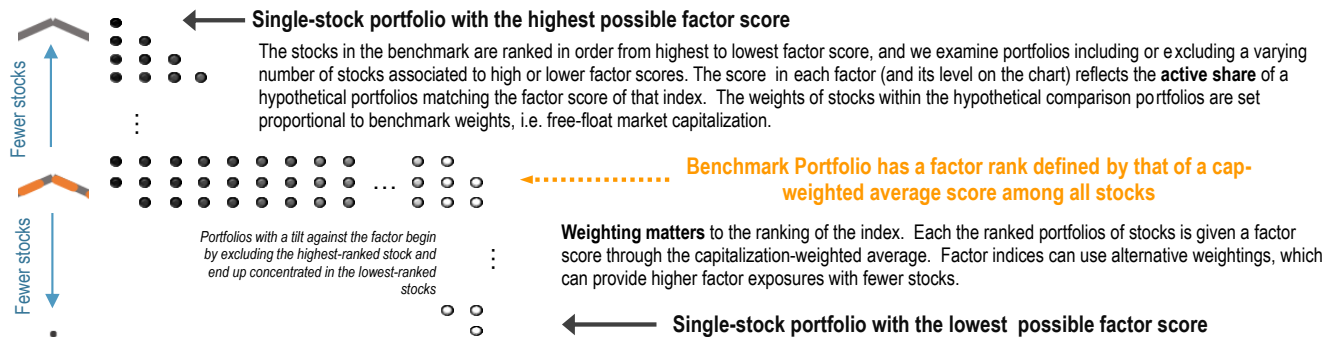
Factor	Measurement at single-stock level
Volatility	Trailing 12-month daily volatility.
Momentum	Twelve-month total return change as of one month ago ("13 minus 1 momentum"), divided by the daily volatility during the twelve-month period that ended one month prior. For more details, see the S&P Momentum methodology.
Value	The average of (normalized) earnings to price ratio, book to price ratio and sales to price ratio. For more details, see the S&P Value methodology.
Beta	Trailing 1 year beta of daily returns to the benchmark's returns.
Dividend	Trailing 12-month dividend.
Quality	The average of the (normalized) return on equity, the negative of the accruals ratio and the negative of the financial leverage ratio. For more details, see the S&P Quality methodology. Average and standard deviations for each metric follow below.
Size	Free-float market capitalization.

Index Factor Ranking and Factor Diagram Scaling

Index Scores

Each index is provided score in each factor from -100% to +100% based on how much of the total capitalization of the benchmark must be excluded in order to provide a portfolio of stocks with similar exposure to that factor. This is done by examining a ranked series of hypothetical cap-weighted portfolios, including or excluding an increasing number of the stocks with the highest or lowest scores. An illustration of the process is below, further details may be found at this [link](#).

Factor Diagram Axis



Notes On Additional Index Statistics

Statistic	Notes
Active Share (Stock)	Ranging from 0 to 100%, "active share" is a measure of how much a portfolio's composition differs from that of its benchmark, and provides the amount of trading theoretically required to switch from a position in one to a position in the other. The Active Share (Stock) for each index is calculated as the absolute sum of difference between S&P 500 stock weights and Index stock weights, divided by two.
Active Share (Sector)	The Active Share (Sector) is the absolute sum of difference between S&P 500 sector weights and Index sector weights, divided by two.
Concentration (HH Index)	The Herfindahl-Hirschman ("HH") concentration measure is equal to the index constituent's percentage weights, squared. For example, the HH measure of a single-stock portfolio is 10,000 (the maximum possible). The HH measure of a 100-stock, equally weighted index is 100.
Correlation (Stock)	Calculated as the weighted-average 1Yr trailing daily variance of current index constituents, divided by the 1Yr trailing daily Index variance. The value approximates an average stock-to-stock correlation of index constituents, weighted proportionally to both constituent weight and constituent volatility.

Benchmark Statistics for Value, Quality and Momentum (normalization variables)

	VALUE				QUALITY		MOMENTUM	
	Earnings to Price	Book to Price	Sales to Price	Accrual Ratio	Return on Equity	Leverage Ratio	13M - 1M Return	Daily Price Volatility
S&P 500 index-weighted average	0.046	0.245	0.406	9.85%	33.66%	1.27	-6.03%	2.16%
S&P 500 index-weighted standard deviation	0.036	0.258	0.462	17.90%	29.16%	1.09	30.13%	0.70%

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Performance Disclosure

The S&P 500 Buyback Index was launched November 29, 2012. The S&P 500 Enhanced Value Index was launched April 27, 2015. The S&P 500 Revenue-Weighted was launched on Dec 30, 2005. The S&P 500 Pure Value was launched December 16, 2005. The S&P 500 Quality Index was launched July 8, 2014. The S&P 500 Pure Growth was launched December 16, 2005. The S&P 500 Momentum was launched November 18, 2014. The S&P 500 High Beta Index was launched April 4, 2011. The S&P 500 Equal Weight Index was launched January 8, 2003. The S&P 500 Low Volatility High Dividend Index was launched September 17, 2012. The S&P 500 Dividend Aristocrats was launched May 2, 2005. The S&P 500 High Dividend Index was launched September 21, 2015. The S&P 500 Minimum Volatility Index was launched November 9, 2012. The S&P 500 Low Volatility Index was launched April 4, 2011. 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Complete index methodology details are available at www.spglobal.com/spdji. Back-tested performance reflects application of an index methodology and selection of index constituents with the benefit of hindsight and knowledge of factors that may have positively affected its performance, cannot account for all financial risk that may affect results and may be considered to reflect survivor/look ahead bias. Actual returns may differ significantly from, and be lower than, back-tested returns. Past performance is not an indication or guarantee of future results. Please refer to the methodology for the Index for more details about the index, including the manner in which it is rebalanced, the timing of such rebalancing, criteria for additions and deletions, as well as all index calculations. Back-tested performance is for use with institutions only; not for use with retail investors. S&P Dow Jones Indices defines various dates to assist our clients in providing transparency. The First Value Date is the first day for which there is a calculated value (either live or back-tested) for a given index. The Base Date is the date at which the index is set to a fixed value for calculation purposes. The Launch Date designates the date when the values of an index are first considered live: index values provided for any date or time period prior to the index's Launch Date are considered backtested. S&P Dow Jones Indices defines the Launch Date as the date by which the values of an index are known to have been released to the public, for example via the company's public website or its data feed to external parties. For Dow Jones-branded indices introduced prior to May 31, 2013, the Launch Date (which prior to May 31, 2013, was termed "Date of introduction") is set at a date upon which no further changes were permitted to be made to the index methodology, but that may have been prior to the Index's public release date. 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For example, Backward Data Assumption inherently assumes that companies currently not involved in a specific business activity (also known as "product involvement") were never involved historically and similarly also assumes that companies currently involved in a specific business activity were involved historically too. The Backward Data Assumption allows the hypothetical back-test to be extended over more historical years than would be feasible using only actual data. For more information on "Backward Data Assumption" please refer to the [FAQ](#). The methodology and factsheets of any index that employs backward assumption in the back-tested history will explicitly state so. The methodology will include an Appendix with a table setting forth the specific data points and relevant time period for which backward projected data was used. Index returns shown do not represent the results of actual trading of investable assets/securities. 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Over a three-year period, an annual 1.5% fee taken at year end with an assumed 10% return per year would result in a cumulative gross return of 33.10%, a total fee of US \$5,375, and a cumulative net return of 27.2% (or US \$27,200).