

Explaining the Outperformance of Net Zero Indices

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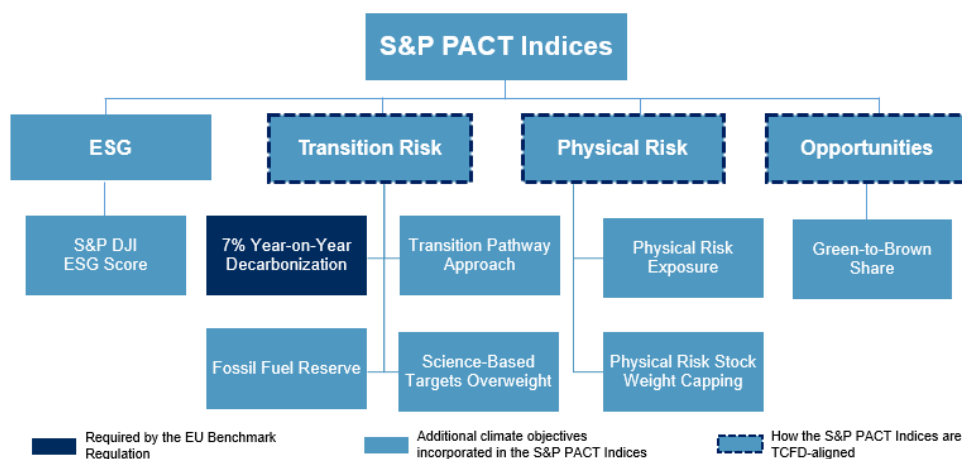
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INTRODUCTION

The [S&P PACT™ Indices \(S&P Paris-Aligned & Climate Transition Indices\)](#) represent a sophisticated, multifaceted approach that aims to align with a 1.5°C scenario and net zero emissions by 2050 (see Exhibit 1). The indices are also intended to meet the EU’s minimum standards for EU Climate Transition Benchmarks (CTBs) and EU Paris-Aligned Benchmarks (PABs) and the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD), with the goal of being as efficient as possible to allow for a broad, diversified index. So, how have the indices performed?

Exhibit 1: The S&P PACT Index Methodology



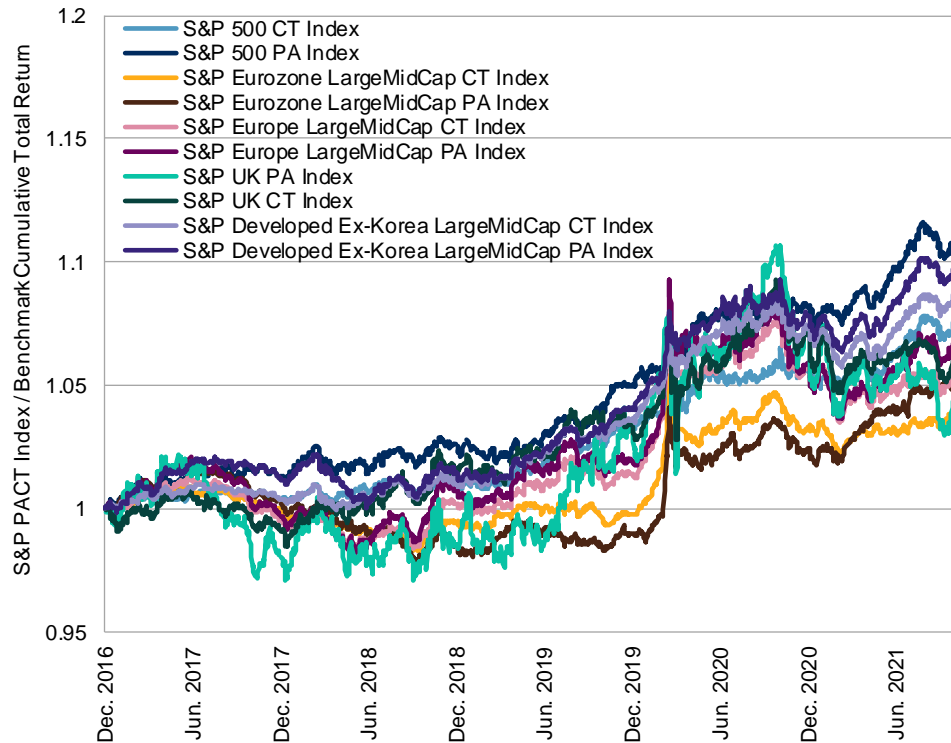
Source: S&P Dow Jones Indices LLC. Chart is provided for illustrative purposes.

The S&P PACT Indices represent a sophisticated, multifaceted approach that aims to align with a 1.5°C scenario and net zero emissions by 2050.

PERFORMANCE

Across all regions tracked by the S&P PACT Indices, both the S&P Climate Transition (CT) Indices and S&P Paris-Aligned (PA) Indices have shown outperformance over their market-cap-weighted underlying benchmarks. In Exhibit 2, we can see that the outperformance over the benchmarks was positive for every listed index since inception.¹

Exhibit 2: Strong Relative Performance Across Markets



The S&P PACT Indices have shown an outperformance over their market-cap-weighted underlying indices.

Source: S&P Dow Jones Indices LLC. Data from December 2016 to October 2021. Index performance based on total return in USD for U.S. and Developed, EUR for Eurozone and Europe, and GBP for U.K. Past performance is no guarantee of future results. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

How does this performance compare with that of standard equity factor strategies? This question can be answered at the index level and per unit of active risk (see Exhibit 3). At the index level, we observe outperformance across all markets tracked by the S&P PACT Indices, outperforming by between 0.85% and 2.5% per year.² Not only do we see higher performance relative to market-cap-weighted indices, but we also see stronger performance than the majority of equity factors (i.e., size, value, momentum, low volatility, and quality) in the regions we examined.

¹ Please see the Performance Disclosure for index launch dates. All data prior to the launch date is back-tested hypothetical performance data.

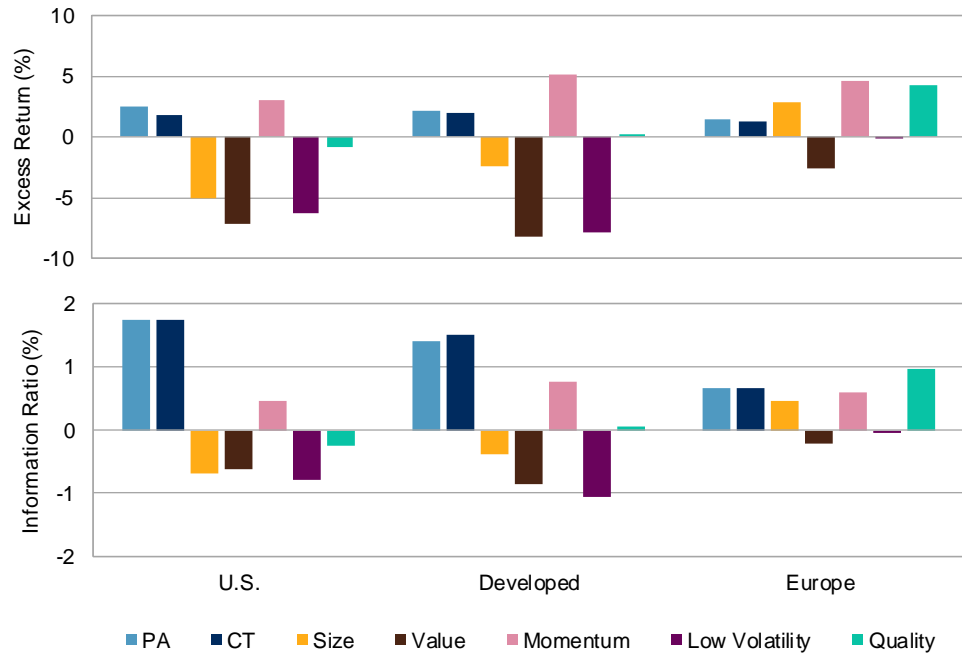
² This outperformance is calculated since inception, Dec. 30, 2016.

The exceptions to the rule were the momentum factor across all regions and the quality factor in Europe.

At the index level, we observed all the S&P PACT Indices outperforming most equity factors by 0.85%-2.5% per year...

When we adjust for tracking error, however, of the 15 indices assessed, only the S&P Europe LargeMidCap Quality Index had a higher information ratio³ than any of the S&P PACT Indices within their regions.

Exhibit 3: The S&P PACT Indices Showed Higher Performance and Information Ratios than Most Equity Factors Examined



Only the S&P Europe LargeMidCap Quality Index had a higher information ratio than any of the S&P PACT Indices within their region.

Source: S&P Dow Jones Indices LLC. Data from December 2016 to October 2021. Past performance is no guarantee of future results. Index performance based on total return in USD for U.S. and Developed and EUR for Europe. Charts are provided for illustrative purposes and reflect hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

PERFORMANCE ATTRIBUTION

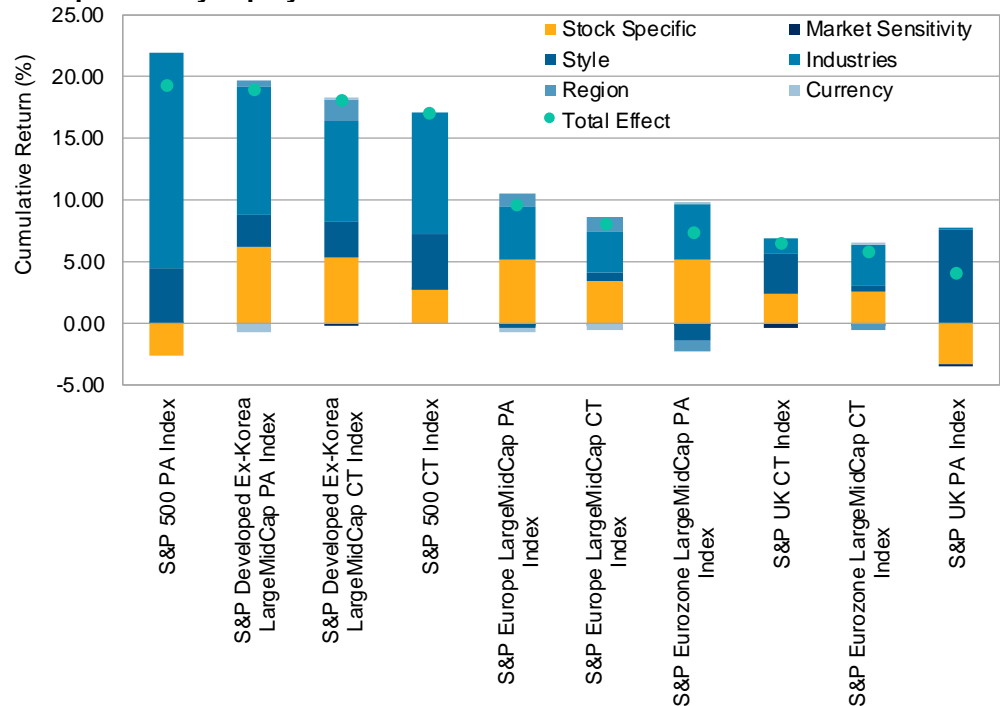
Simply looking at outperformance may not reveal the full picture. We decompose the performance of the S&P PACT Indices to understand where this outperformance has come from (see Exhibit 4). Across the majority of regions tracked by the S&P PA and CT Indices, we see industries have likely played a fairly large role in explaining the active return, along with style factors, which have been largely positive.

Perhaps the most interesting aspect is the positive stock-specific effect for 8 out of the 10 S&P PACT Indices. This alpha is unexplained by equity risk factors, as a result of the S&P PACT Indices methodology. The risk factors used by the performance attribution include market sensitivity, style factors, and industry, region, and currency effects.

³ We define the information ratio as the annualized excess return over the underlying index, divided by the monthly tracking error.

Across the majority of regions tracked by the S&P PACT Indices, we see industries have likely played a fairly large role in explaining the active return, along with style factors.

Exhibit 4: 8 out of the 10 S&P PACT Indices Showed Positive Alpha Unexplained by Equity Risk Factors



Perhaps the most interesting aspect is the positive stock-specific effect for 8 out of the 10 S&P PACT Indices.

Source: S&P Dow Jones Indices LLC and Axioma. Data from December 2016 to October 2021. The Axioma US Fundamental Equity Risk Model MH 4, Axioma World-Wide Fundamental Equity Risk Model MH 4, Axioma UK Fundamental Equity Risk Model MH 4, and Axioma Europe Fundamental Equity Risk Model MH 4 were used for the U.S., developed, U.K., and Europe/eurozone indices, respectively. Chart is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

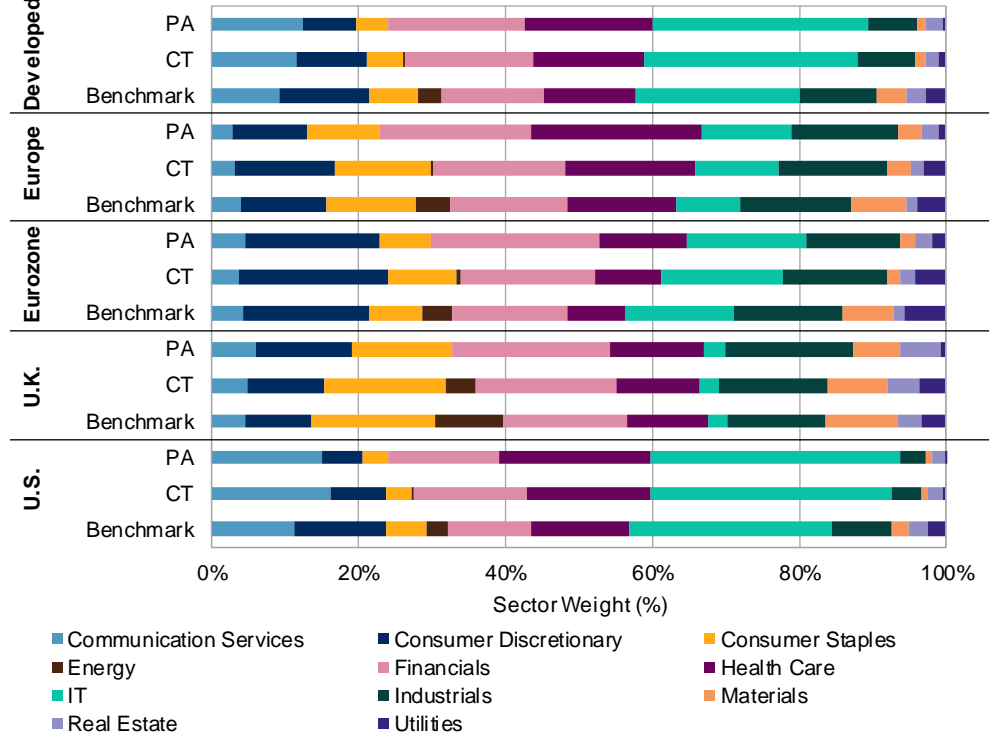
EXPOSURES

We observe some active sector, region, and factor allocations within the S&P PACT Indices, with the sector deviations being more pronounced (see Exhibits 5-7).

These are particularly noticeable for the Energy sector within the S&P PA Indices, where the regulation requires exclusions based on fossil fuel exposures at strict thresholds. This translates to little or no exposure to Energy at all.

We observe some active sector, region, and factor allocations within the S&P PACT Indices, with the sector deviations being more pronounced.

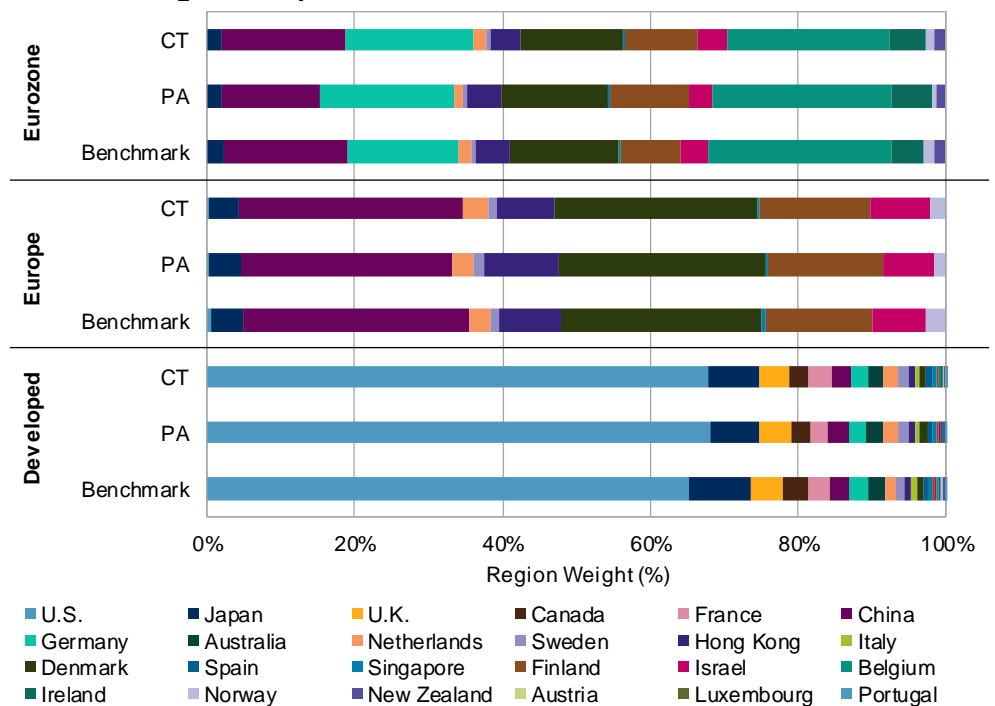
Exhibit 5: Sector Exposures



Source: S&P Dow Jones Indices LLC. Data as of October 2021. Chart is provided for illustrative purposes.

The Energy sector has little to no weight in the S&P PA Indices, where the regulation requires exclusions based on fossil fuel exposures at strict thresholds.

Exhibit 6: Regional Exposures



Source: S&P Dow Jones Indices LLC. Data as of October 2021. Chart is provided for illustrative purposes.

Exhibit 7: Factor Exposures										
FACTOR	U.S.		EUROZONE		EUROPE		U.K.		DEVELOPED	
	PA	CT	PA	CT	PA	CT	PA	CT	PA	CT
Dividend Yield	-0.1114	-0.1751	-0.1192	-0.1332	-0.1300	-0.1647	-0.1808	-0.0537	-0.1329	-0.1621
Earnings Yield	0.0055	-0.0120	0.0782	0.0552	0.0669	0.0420	0.0599	0.0363	0.0318	0.0166
Exchange Rate Sensitivity	0.0691	0.0858	-0.0080	0.0076	-0.0826	-0.0348	0.0078	-0.0081	0.0457	0.0824
Growth	0.0715	0.1129	-0.0267	0.0280	0.0412	0.0406	0.0591	0.0384	0.0742	0.0912
Leverage	-0.0938	-0.1178	0.0355	0.0171	-0.0039	-0.0027	0.0218	0.0175	-0.0420	-0.0558
Liquidity	0.0003	-0.0033	0.0029	-0.0359	-0.0387	-0.0466	0.0212	0.0132	-0.0219	-0.0185
Market Sensitivity	0.0552	0.1024	-0.0799	-0.1031	-0.2014	-0.1489	-0.1747	-0.1051	-0.0501	-0.0661
Medium-Term Momentum	0.0336	0.0357	-0.0030	-0.0226	-0.0538	-0.0373	-0.1757	-0.0850	0.0231	0.0164
Profitability	0.0015	0.0148	0.0622	0.0399	0.1371	0.0908	0.0837	0.0794	0.0580	0.0674
Size	0.0059	0.0371	0.0046	0.0268	0.0388	0.0341	-0.0709	-0.0372	0.0456	0.0759
Value	-0.0358	-0.0552	0.0838	-0.0145	-0.0323	-0.0609	0.0217	-0.0737	-0.0540	-0.0790
Volatility	0.0031	-0.0428	0.0090	0.0111	-0.0067	-0.0059	-0.0249	-0.0202	0.0089	-0.0011
Market	0.0000	0.0000	-0.0016	-0.0016	-0.0008	-0.0008	-0.0084	-0.0121	0.0000	0.0000

Source: S&P Dow Jones Indices LLC and Axioma. Data as of October 2021. Table is provided for illustrative purposes.

CONCLUSION

The S&P PACT Indices have generally outperformed their market cap-weighted benchmarks, with the S&P PA Index strategy usually experiencing stronger outperformance than its S&P CT Index counterpart. While much of this outperformance may be attributed to industry and factor allocation, there appears to be stock-specific alpha, which has been positive for the most part. Whether this alpha could be driven by a climate or ESG factor, however, remains an open question.

APPENDIX

Exhibit 8: Risk/Return Statistics of the S&P PACT Indices									
STATISTIC	U.S.			DEVELOPED			EUROPE		
	BENCHMARK	PA	CT	BENCHMARK	PA	CT	BENCHMARK	PA	CT
RETURN (%)									
1-Year	42.91	46.2	45.06	40.81	42.15	41.54	42.8	41.39	40.38
3-Year	21.48	24.73	24.05	18.75	21.95	21.71	12.39	15.06	14.89
Since Inception	17.93	20.42	19.68	15.39	17.58	17.37	8.71	10.16	9.93
EXCESS RETURN (%)									
1-Year	-	3.29	2.15	-	1.34	0.73	-	-1.41	-2.43
3-Year	-	3.25	2.57	-	3.2	2.96	-	2.68	2.5
Since Inception	-	2.5	1.75	-	2.19	1.97	-	1.45	1.22
VOLATILITY (%)									
3-Year	18.43	18.54	18.4	17.74	17.41	17.54	16.67	15.29	15.47
Since Inception	15.56	15.69	15.57	14.99	14.79	14.85	14.23	13.21	13.35
TRACKING ERROR (%)									
3-Year	-	1.54	1.12	-	1.63	1.46	-	2.49	2.16
Since Inception	-	1.43	1.01	-	1.57	1.3	-	2.23	1.89
RETURN/VOLATILITY (%)									
3-Year	1.17	1.33	1.31	1.06	1.26	1.24	0.74	0.99	0.96
Since Inception	1.15	1.3	1.26	1.03	1.19	1.17	0.61	0.77	0.74
INFORMATION RATIO (%)									
3-Year	-	2.11	2.29	-	1.96	2.03	-	1.07	1.16
Since Inception	-	1.75	1.73	-	1.4	1.52	-	0.65	0.65
OTHER STATISTICS									
Active Share (%)	-	35.43	28.51	-	37.36	30.98	-	42.53	26.85
Effective Number of Shares	74.25	53.74	59.13	172.85	89.23	96.97	140.71	66.19	89.89
Weight in Top 5 Holdings (%)	20.21	22.82	23.04	12.77	18.73	17.73	11.91	19.07	15.73
Benchmark Market Cap Coverage (%)	-	73.27	80.75	-	67.76	76	-	63.25	78.04

Source: S&P Dow Jones Indices LLC. Data from December 2016 to October 2021. Index performance based on total return in USD for U.S. and Developed and EUR for Europe. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

Exhibit 8: Risk/Return Statistics of the S&P PACT Indices						
STATISTIC	EUROZONE			U.K.		
	BENCHMARK	PA	CT	BENCHMARK	PA	CT
RETURN (%)						
1-Year	45.73	47.83	44.8	35.89	28.62	32.31
3-Year	12.76	15.29	14.74	4.67	7.04	6.51
Since Inception	8.93	10.01	9.78	4.51	5.41	5.76
EXCESS RETURN (%)						
1-Year	-	2.09	-0.94	-	-7.26	-3.58
3-Year	-	2.52	1.98	-	2.37	1.84
Since Inception	-	1.08	0.85	-	0.9	1.25
VOLATILITY (%)						
3-Year	19.14	18.23	18.05	16.03	15.77	15.18
Since Inception	16.41	15.84	15.66	13.96	13.63	13.28
TRACKING ERROR (%)						
3-Year	-	1.74	1.61	-	3.75	2.51
Since Inception	-	1.61	1.41	-	3.44	2.23
RETURN/VOLATILITY (%)						
3-Year	0.67	0.84	0.82	0.29	0.45	0.43
Since Inception	0.54	0.63	0.62	0.32	0.4	0.43
INFORMATION RATIO (%)						
3-Year	-	1.45	1.23	-	0.63	0.74
Since Inception	-	0.67	0.6	-	0.26	0.56
OTHER STATISTICS						
Active Share (%)	-	42.73	23.14	-	36.35	18.02
Effective Number of Shares	80.86	48.48	60.43	54.35	46.29	51.11
Weight in Top 5 Holdings (%)	16.17	22.14	20.31	21.44	23.97	24.23
Benchmark Market Cap Coverage (%)	-	62.54	84.22	-	67.6	89.98

Source: S&P Dow Jones Indices LLC. Data from December 2016 to October 2021. Index performance based on total return in EUR for Eurozone and GBP for U.K. Table is provided for illustrative purposes and reflects hypothetical historical performance. Please see the Performance Disclosure at the end of this document for more information regarding the inherent limitations associated with back-tested performance.

PERFORMANCE DISCLOSURE/BACK-TESTED DATA

The S&P 500 Net Zero 2050 Paris-Aligned ESG Index, S&P 500 Net Zero 2050 Climate Transition ESG Index, S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Paris-Aligned ESG Index, and S&P Developed Ex-Korea LargeMidCap Net Zero 2050 Climate Transition ESG Index were launched June 1, 2020. The S&P Europe LargeMidCap Net Zero 2050 Paris-Aligned ESG Index and S&P Europe LargeMidCap Net Zero 2050 Climate Transition ESG Index were launched May 4, 2020. The S&P Eurozone LargeMidCap Net Zero 2050 Paris-Aligned ESG Index and S&P Eurozone LargeMidCap Net Zero 2050 Climate Transition ESG Index were launched April 20, 2020. All information presented prior to an index's Launch Date is hypothetical (back-tested), not actual performance. The back-test calculations are based on the same methodology that was in effect on the index Launch Date. However, when creating back-tested history for periods of market anomalies or other periods that do not reflect the general current market environment, index methodology rules may be relaxed to capture a large enough universe of securities to simulate the target market the index is designed to measure or strategy the index is designed to capture. For example, market capitalization and liquidity thresholds may be reduced. Complete index methodology details are available at www.spglobal.com/spdji. Past performance of the Index is not an indication of future results. 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.

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