

Sustainable Investment Insights

QUARTERLY REPORT: APRIL 2023

FOR PROFESSIONAL INVESTORS ONLY

Broad outperformance of SI strategies in a volatile quarter

Sustainable investment (SI) strategies broadly outperformed the market in Q1 2023. The strongest performance came from the green economy focused Environmental Opportunities (EO) strategy, which was the biggest underperformer in 2022. Strategies which were underweight Energy, such as EU Paris Aligned Benchmark (PAB) and Global Choice also outperformed as oil prices fell, while ESG and TPI strategies were at or slightly ahead of the market.

Highlights

EO outperformance & green sector divergence

Environmental Opportunities was 6.6% ahead of the market in Q1, reversing much of the 7.9% underperformance in 2022. This performance was driven by Energy Efficiency, up 17.0%, which typically outperforms in a cyclical upturn. The weakest sector was Renewable & Alternative Energy, down -2.2%, despite the announcement of strong government support from the US Inflation Reduction Act and the EU Net Zero Industry Act.

Underweight Energy moves from headwind to tailwind

The Energy sector underperformed in Q1, as oil prices fell, following strength in 2022. This benefited strategies such as Global Choice and EU PAB, which are both 4.8% underweight Energy.

Overweight Technology positive

Technology, in which all global and developed SI strategies are overweight, was positive across strategies, although some saw a negative selection effect. The largest positive impact from Technology was in the US.

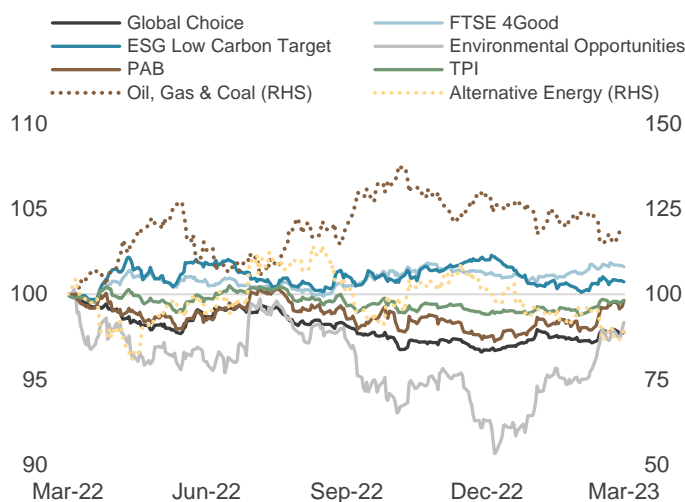
Financials, a mixed bag

Positioning in Financials varied across SI strategies. EO was underweight, adding to returns, while ESG Low Carbon was overweight, acting as a headwind. The biggest headwinds from Financials were in EM, APAC and Japan.

Valuations manageable but creeping up

SI valuations are down vs 2021 highs and below 5-year averages, except PAB. However, absolute P/Es have risen in the quarter and the premia over market are now above 5-year averages. Price to Book premia are at 5-year averages. FTSE4Good is the only strategy trading below the market, while EM has the lowest average premium, and Japan the highest.

Chart 1. 12-month relative performance Global SI indices, FTSE Oil Gas & Coal and FTSE Alternative Energy (LCY,%).



Note: Low Carbon covers developed markets.

13.4%

FTSE EnvOps
Global 3M (TR, LC)

6.7%

FTSE Global All Cap
Global 3M (TR, LC)

7.9%

FTSE Global Choice
Global 3M (TR, LC)

-2.9%

Oil Gas & Coal Sector
Global 3M (TR, LC)

17.0%

FTSE EO Energy Efficiency
Global 3M (TR, LC)

1.8%

FTSE EM Low Carb
3M (TR, LC)

Source: FTSE Russell / Refinitiv. Data as of March 31, 2023.

Risk and Climate Characteristics – as of March 31, 2023

Key Observations

Sustainable investing encompasses a range of strategies with different investment outcomes. In this section, we summarise the key risk and climate characteristics of the indices covered in this report. See next page for climate characteristic scores.

Global Choice product category screens filter out fossil fuels and other negative SI activities. They obtain significant carbon reductions (44% to 62%) and underweights to Energy (-5.4% to -1.8%), except in the UK. Market-cap weighting the remaining stocks results in a risk profile close to the benchmark, betas of around 1, and high diversification. The UK is the most diversified, holding 98% of benchmark stocks, while Europe is the least diversified, holding 82% of benchmark stocks.

FTSE4Good's best-in-class ESG selection thresholds result in significant ESG uplifts, while keeping tracking errors low (1.7% globally), except in Emerging markets (EM), where the highest ESG uplift of 25.5% is achieved with a 6.5% tracking error. Europe has the lowest ESG uplift (3.8%) but has the highest absolute ESG score (3.9 Europe versus 3.4 EM). TPI Management Quality (MQ) scores are also improved, up to 35.3% in EM.

Environmental Opportunities (EO) selects companies with significant green revenues (>20%), resulting in large improvements in active green revenues exposure from 34.1 percentage points (pp) in the US to 55.7 pp in the UK. The focus on "greenness" leads to index concentration and higher tracking errors (5.9% globally).

ESG Low Carbon Target achieves the targeted 50% carbon reduction across regions and significant ESG uplifts (10.1% to 18.9%) with tracking errors (TE) of around 2.5% and betas close to 1, except in the UK (TE 6.4%, beta 0.9).

Paris Aligned Benchmark (PAB) achieves the targeted 50% carbon reduction, TPI MQ* (see page 3) uplifts ranging from 7.0% to 32.0% and 5.1% to 6.3% increases in green revenues. Global tracking error is 2.2% but it is higher in the UK (5.9% p.a.).

TPI Climate Transition (TPI) targets multiple climate related uplifts. Globally, it achieves a 49.4% reduction in carbon intensity, 1.6% increase in green revenues and 16.4% increase in TPI MQ, while the tracking error is relatively modest at 1.7%. EM has the highest tracking error at 3.6%, but also has the highest TPI MQ uplift of 35.1%.

RISK Characteristics: In green are lower risk (tracking error, beta) and more diversified (high % of stocks in benchmark, low weight in Top 10) indices; in red are the more risky, concentrated indices.

Risk	FTSE Russell SI Index	US	UK	Europe	Japan	APAC	Emerging	Developed	Global
Tracking Error	Global Choice	1.9%	1.8%	2.3%		1.2%	1.7%	1.8%	1.6%
	FTSE4Good	2.2%	1.8%	1.0%	2.6%	2.0%	6.5%	1.7%	1.7%
	Environmental Ops	8.7%	9.1%	6.4%	6.6%	8.9%			5.9%
	ESG Low Carbon Target	2.7%	6.4%	3.0%	2.4%	2.3%	2.6%	2.0%	
	Paris Aligned		5.9%				3.3%	1.9%	2.2%
	Transition Pathway	1.9%			2.4%		3.6%	1.6%	1.7%
Beta	Global Choice	1.0	1.0	1.0		1.0	1.0	1.0	1.0
	FTSE4Good	1.0	1.0	1.0	1.0	1.0	0.8	1.0	1.0
	Environmental Ops	1.1	0.9	1.1	1.1	1.0			1.1
	ESG Low Carbon Target	1.0	0.9	1.0	1.0	1.0	1.0	1.0	
	Paris Aligned		0.9				0.9	1.0	1.0
	Transition Pathway	1.0			1.0		0.9	1.0	1.0
Number of stocks as % of benchmark	Global Choice	82.4%	98.3%	82.2%		87.5%	84.6%	84.6%	84.6%
	FTSE4Good	42.9%	36.6%	68.7%	43.6%	42.3%	28.6%	49.3%	39.5%
	Environmental Ops	8.2%	7.0%	12.7%	7.7%	5.2%			7.1%
	ESG Low Carbon Target	77.1%	55.0%	53.8%	70.7%	45.4%	50.4%	44.2%	
	Paris Aligned		37.7%				45.6%	42.6%	27.3%
	Transition Pathway	59.3%			67.4%		48.1%	50.9%	35.8%
Weight in Top 10 relative to benchmark	Global Choice	120.7%	99.9%	128.2%		113.5%	104.5%	124.3%	124.4%
	FTSE4Good	154.4%	121.1%	121.4%	139.6%	128.3%	126.9%	138.9%	142.8%
	Environmental Ops	305.8%	145.0%	246.5%	327.7%	315.0%			369.3%
	ESG Low Carbon Target	172.2%	144.3%	193.5%	180.2%	158.6%	138.5%	188.5%	
	Paris Aligned		115.2%				116.8%	168.1%	183.3%
	Transition Pathway	135.2%			160.5%		122.6%	148.4%	141.1%

Note: Tracking error and Beta calculations are based on five-years of daily data, all other calculations are 12-month averages.

Risk and Climate Characteristics – as of March 31, 2023

Climate Characteristics: In green are indices achieving the highest uplift relative to the benchmark in the E,S,G and ESG Score, Green Revenues, TPI MQ and the largest carbon reduction. These reflect the different objectives embedded in the indices.

Climate	FTSE Russell SI Index	US	UK	Europe	Japan	APAC	Emerging	Developed	Global
Active E score	Global Choice	1.9%	-0.2%	-4.8%		-1.5%	-2.9%	-0.1%	-0.3%
	FTSE4Good	19.0%	10.7%	4.9%	16.5%	13.6%	33.3%	15.5%	17.2%
	Environmental Ops	30.7%	-24.1%	0.3%	4.9%	35.3%			25.1%
	ESG Low Carbon Target	26.8%	19.3%	24.1%	20.7%	23.6%	22.6%	27.2%	
	Paris Aligned		8.0%				21.0%	11.0%	13.5%
	Transition Pathway	14.5%			14.1%		23.1%	13.3%	13.8%
Active S score	Global Choice	3.2%	-0.6%	-1.0%		-0.7%	-0.4%	1.6%	1.4%
	FTSE4Good	13.2%	10.0%	4.3%	16.7%	13.9%	30.8%	12.2%	13.9%
	Environmental Ops	14.8%	-17.3%	-4.5%	-9.3%	29.1%			11.7%
	ESG Low Carbon Target	19.9%	11.1%	13.7%	20.3%	20.8%	22.4%	19.1%	
	Paris Aligned		1.7%				17.1%	6.4%	8.7%
	Transition Pathway	7.8%			8.7%		16.5%	6.8%	7.8%
Active G score	Global Choice	-0.2%	-0.6%	-2.4%		-1.5%	0.2%	-1.1%	-1.0%
	FTSE4Good	5.4%	8.2%	2.2%	10.5%	9.7%	16.0%	6.1%	7.1%
	Environmental Ops	10.6%	-8.9%	-1.8%	-3.7%	11.0%			7.3%
	ESG Low Carbon Target	10.6%	2.1%	5.6%	13.0%	9.4%	10.0%	9.8%	
	Paris Aligned		-1.4%				10.6%	1.0%	1.7%
	Transition Pathway	0.5%			5.5%		10.4%	1.2%	2.1%
Active ESG score	Global Choice	1.7%	-0.6%	-2.5%		-1.2%	-0.7%	0.2%	0.1%
	FTSE4Good	12.3%	9.7%	3.8%	14.6%	12.4%	25.5%	11.2%	12.5%
	Environmental Ops	17.9%	-17.2%	-2.5%	-2.8%	23.0%			13.7%
	ESG Low Carbon Target	18.9%	10.1%	13.9%	18.0%	17.3%	17.6%	18.5%	
	Paris Aligned		2.0%				15.2%	5.9%	7.6%
	Transition Pathway	7.2%			9.4%		15.6%	6.8%	7.6%
Carbon Reduction	Global Choice	-62.1%	4.5%	-54.5%		-51.2%	-43.9%	-59.6%	-56.5%
	FTSE4Good	-38.7%	8.4%	-0.9%	7.2%	-6.3%	7.4%	-25.5%	-21.2%
	Environmental Ops	54.5%	-19.9%	75.4%	50.0%	71.1%			59.0%
	ESG Low Carbon Target	-52.0%	-53.2%	-51.2%	-47.7%	-48.3%	-48.2%	-52.2%	
	Paris Aligned		-65.7%				-63.1%	-61.2%	-60.2%
	Transition Pathway	-43.3%			-35.0%		-48.3%	-58.0%	-49.4%
Active Green Revenues	Global Choice	0.17	0.20	-1.21		-0.54	0.54	-0.03	0.03
	FTSE4Good	-0.58	-0.27	0.05	-1.15	-0.97	2.49	-0.52	-0.25
	Environmental Ops	34.08	55.70	35.29	39.95	40.13			36.18
	ESG Low Carbon Target	-0.57	0.07	2.51	-0.66	1.12	1.47	0.06	
	Paris Aligned		6.35				5.72	5.11	5.96
	Transition Pathway	0.51			3.76		2.92	0.90	1.64
Active TPI Management Quality Score	Global Choice	-1.4%	0.9%	-6.2%		-3.5%	-4.9%	-2.9%	-3.2%
	FTSE4Good	13.5%	7.6%	4.0%	14.2%	14.9%	35.3%	12.0%	14.0%
	Environmental Ops	12.8%	-18.9%	-1.7%	10.4%	27.5%			12.7%
	ESG Low Carbon Target	16.1%	3.3%	11.5%	16.2%	21.6%	21.9%	15.8%	
	Paris Aligned		7.0%				32.0%	11.4%	14.1%
	Transition Pathway	15.1%			16.1%		35.1%	15.0%	16.4%

Note: All calculations are 12-month averages.

*TPI MQ is the TPI Management Quality score. Carbon reductions are normalised by revenues except for the PAB benchmarks, where European law requires normalisation by EVIC. ESG Low Carbon Target index series target the minimum of a standard deviation of market capitalisation averaged index ESG score and 20% uplift.

Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Macroeconomic Backdrop

Key Observations

Q1 2023 was a volatile quarter, swinging from a rally in January to a banking crisis in March. Dovish central bank commentary and slower rate rises led to expectations that the worst of the rate rises were over, prompting a 'risk-on' rally in January across equity markets. In the US, Growth started to outperform Value (although this was not the case in all regions), supporting EO, which has a focus on growth. The more cyclical EO green sector, Energy Efficiency (the worst performer in 2022), outperformed, while Renewable & Alternative Energy (the best performer in 2022), underperformed. A more stable interest rate outlook also contributed to a sharp increase in green bond issuance, across both governments and corporates, with Q1 seeing the largest ever quarterly issuance, after two weak quarters in H2 2022. Increasing capital flows for green and transition purposes is vital for achieving climate goals, and in Q1 green bonds were 6% of the total bond issuance.

February saw stronger than expected inflation data and a more hawkish tone from central banks, causing the rally to pause and falling US yields to stabilise. Markets were surprised in March by the failure of two banks in the US and a bank rescue in Switzerland. This led to a sharp fall in bank shares, increasing bank credit spreads (particularly in high yield) and a flight of bank deposits to money markets. However expectations that tighter financial conditions would reduce rate rises led to US yields, particularly 2 year, falling and global equity markets ending the month higher.

Chart 1: Amid EO sectors, Energy Efficiency saw the strongest performance in Q1, while Renewables fell.

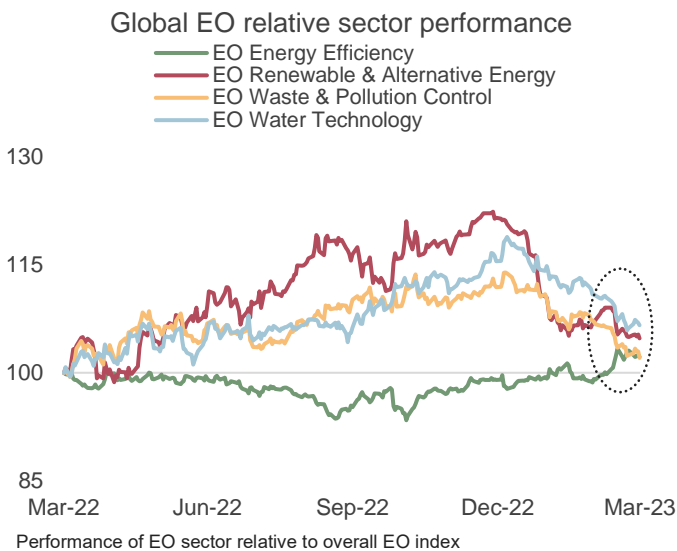


Chart 2: Growth outperformed Value in the US as the risk-on trade created a strong rally in January.

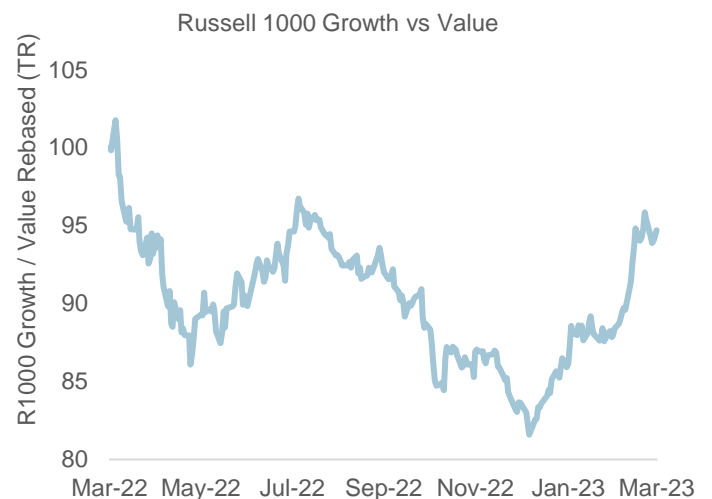


Chart 3: The green bond issuance market re-opened strongly in Q1, following weak issuance in H2 2022.

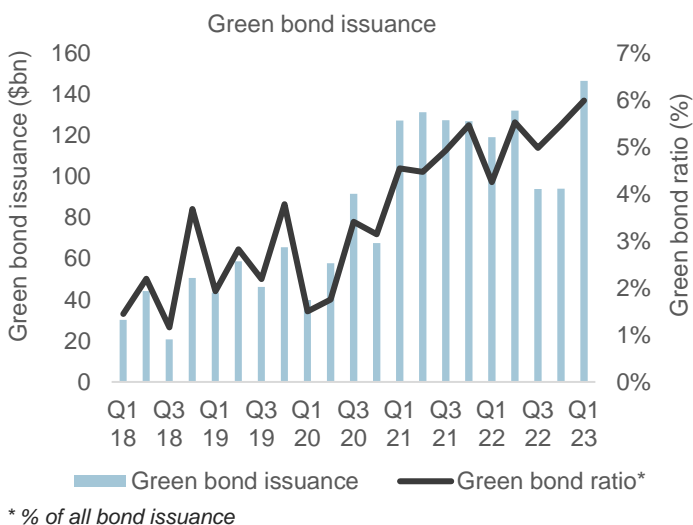
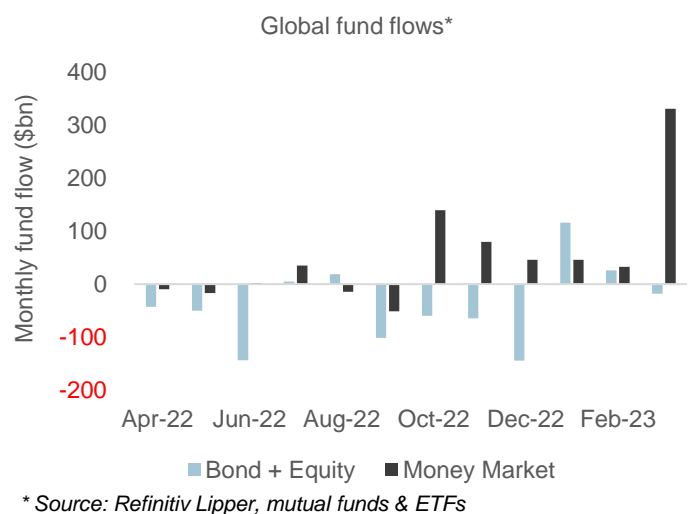


Chart 4: Bank concerns and volatility caused outflows from bond and equity funds, into money markets in March.



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Global View - SI Index Macro Insights – Q1 2023

Q1 saw a shift in leadership among SI strategies with 2022's biggest underperformer, EO, leading in Q1 (+6.6%), while the next worst in 2022, Global Choice and PAB, also performed strongly (+1.2%) and (+2.4%). However the strongest performers in 2022, FTSE4Good and ESG Low Carbon, were the worst performers in Q1 (+0.5%) and (-1.3%).

Oil prices continued to fall in Q1 due to concerns over global demand and weaker than expected demand from China post Covid reopening. SI strategies are typically underweight Energy (particularly climate strategies) and have all been negatively correlated to oil over the past year, helping performance in Q1. The performance of green equities (EO) versus Energy equities reversed sharply in Q1, with EO being 16.3% ahead of the All World Energy, after underperforming in 2022.

Correlations of SI Strategies to the Alternative Energy sector have fallen over the last 1-2 years, with only EO currently showing any significant positive correlation. As such, weakness in Alternative Energy in Q1 did not negatively impact SI strategies and in EO was compensated by strength in Energy Efficiency.

Higher yielding, more value oriented FTSE4Good and Low Carbon have a small positive correlation to bond yields, which had a negative impact in Q1 as US 10 and 2-year yields fell.

For further, in depth analysis of the macro background see [Asset Allocation Insights - March 2023 | FTSE Russell](#)

Note: Low Carb covers developed markets. For the relevant benchmarks please refer to Appendix 1.

Chart 1: WTI Crude Oil Performance Oil price fell 5.7% in Q1.

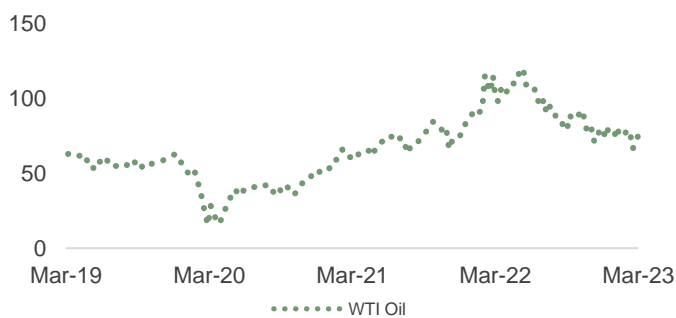


Chart 2: Correlation with Crude Oil. Oil price sell-off supports SI indices.

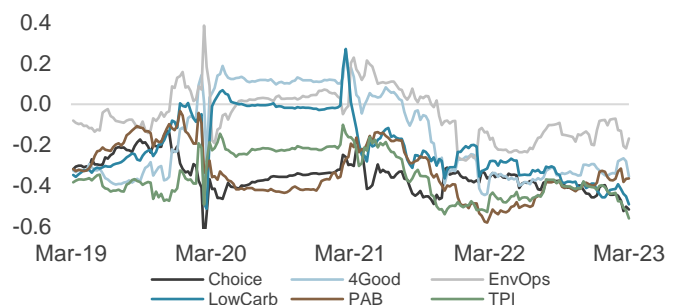


Chart 3: FTSE Alternative Energy Sector Relative Performance fell 12% in Q1.

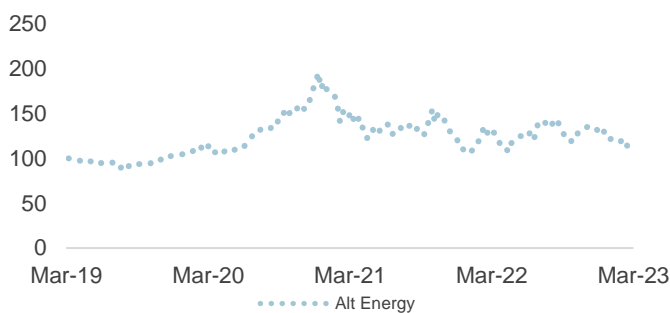


Chart 4: Correlation with Alternative Energy. The correlation with Alternative Energy has been falling.

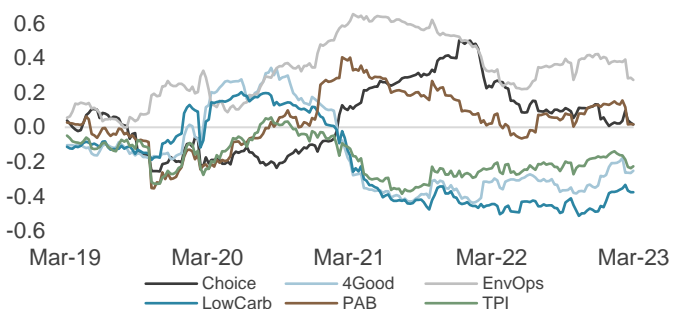


Chart 5: US 10-Year & 2-Year Yield fell in Q1, but saw intra-quarter volatility.

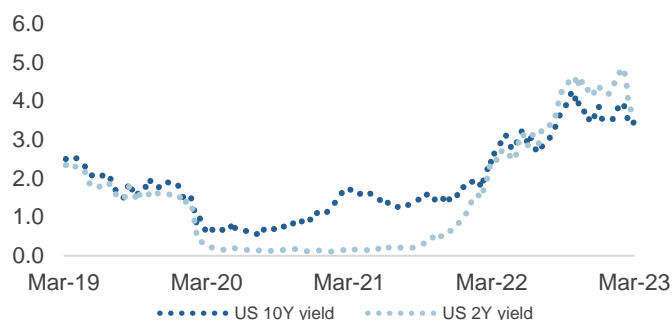
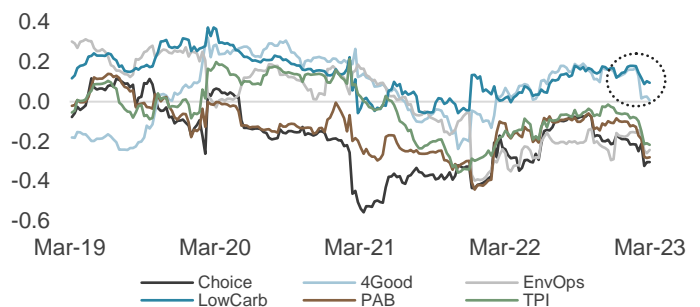


Chart 6: Correlation with US 10-Year: Falling yields in Q1 negatively impacted FTSE4Good and ESG Low Carbon.



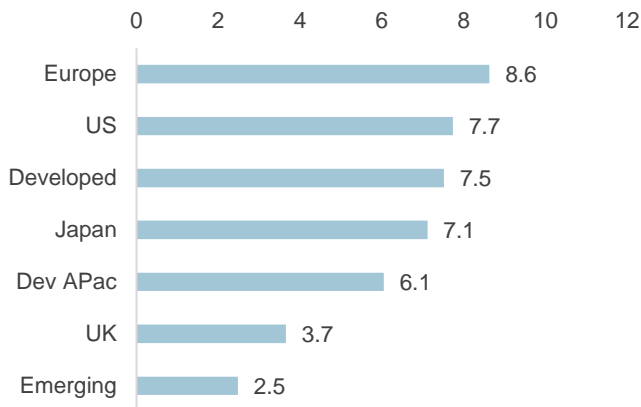
Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Absolute Returns – 3M & 12M (TR, LC %) as of March 31, 2023

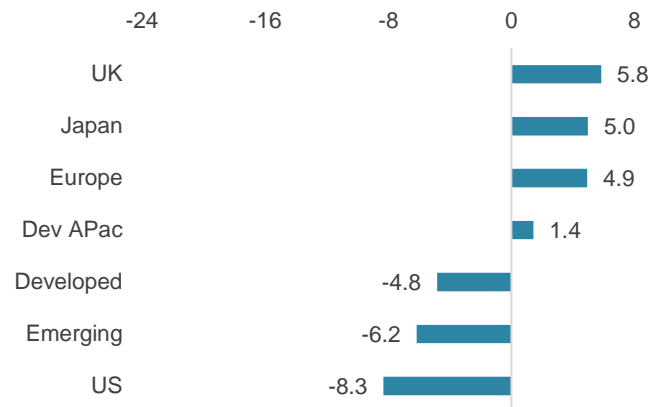
Key Observations

Despite a volatile quarter, marked by a rally in January and a banking crisis in March, all regions posted a positive performance in Q1. Europe gained the most, for the second quarter in a row, as the economy recovered with falling energy prices. UK performance was relatively weaker, as Energy equities fell, while Emerging Markets continued to be weak. EnvOps was strong across regions (except UK), while EM was weak for all SI strategies.

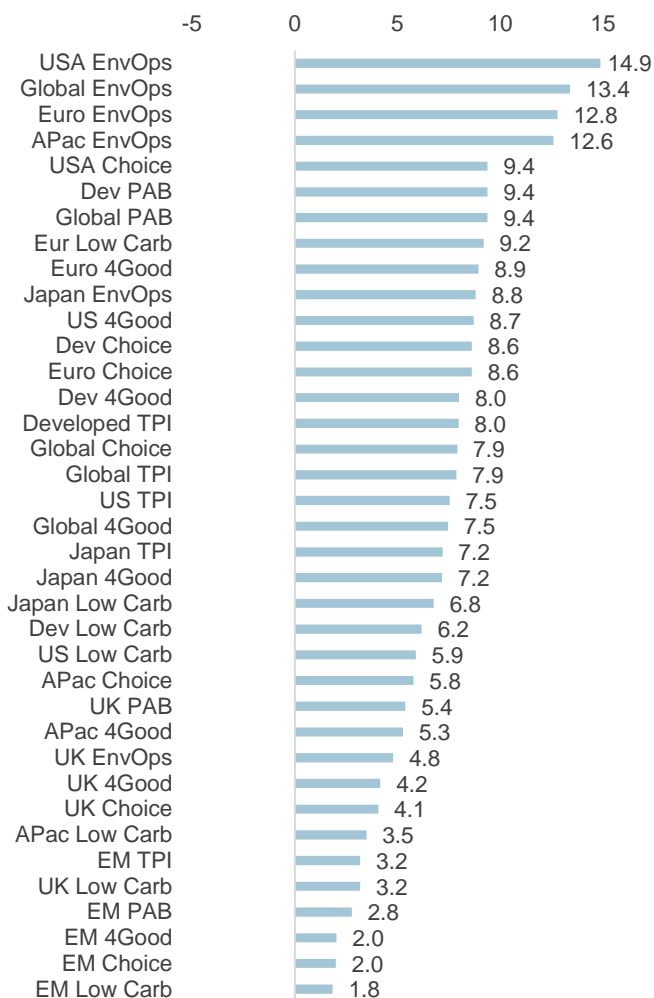
Regional 3M Absolute Returns* (LC %). Europe led performance in Q1, helped by the January rally.



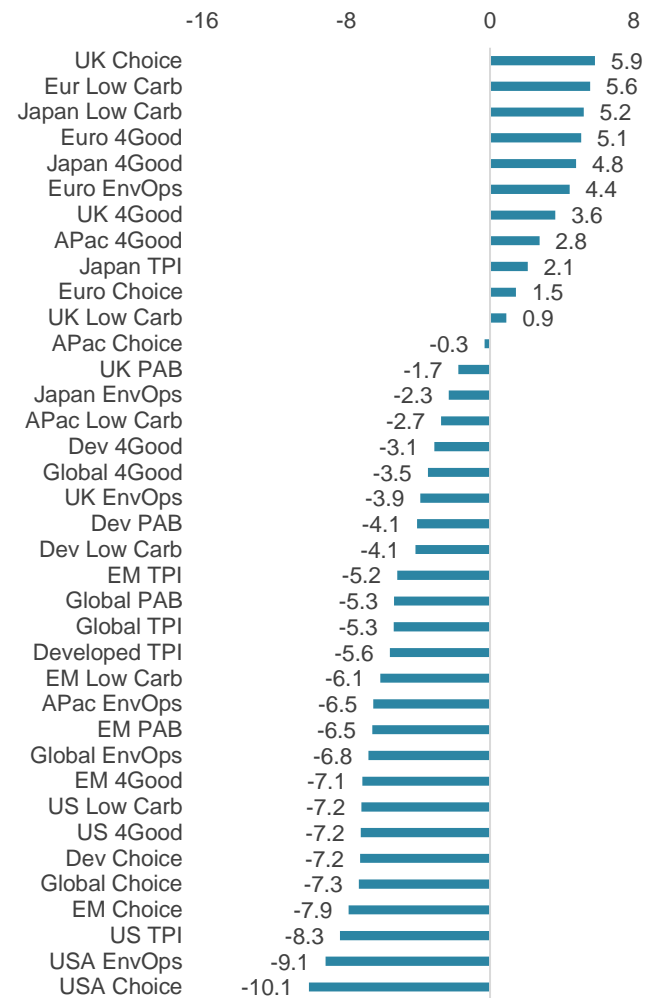
Regional 12M Absolute Returns* (LC %). Strong jump in Europe performance, while US and Emerging lagged



SI Index 3M Absolute Returns (LC %). EnvOps saw a strong performance in all regions, except the UK. EM performed worst.



SI Index 12M Absolute Returns (LC %). ESG-focused strategies performed best; the US was the weakest region.



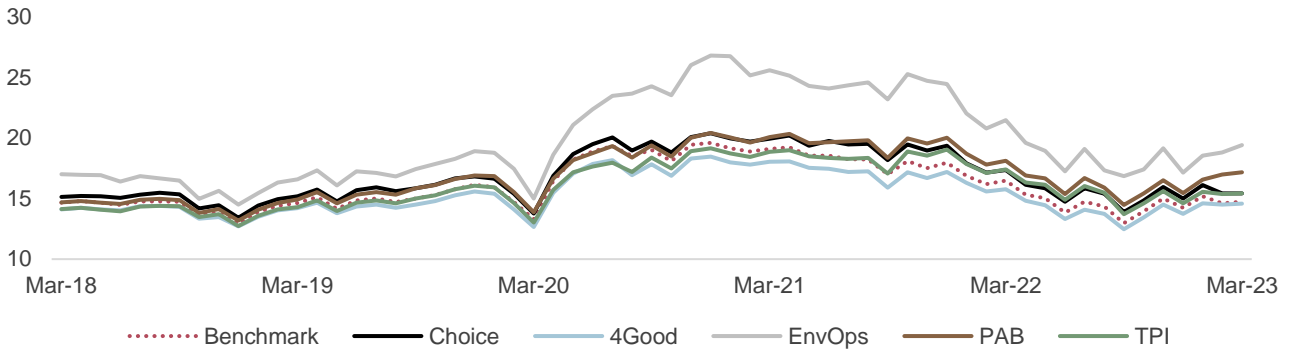
*The broad regional indices above are: FTSE USA, FTSE UK, FTSE Developed Europe, FTSE Japan, FTSE Developed Asia-Pacific and FTSE Emerging Markets. Benchmarks for the listed SI indices may vary. Appendix 1 shows the appropriate benchmark and market-cap coverage for the SI indices covered in this report.

Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

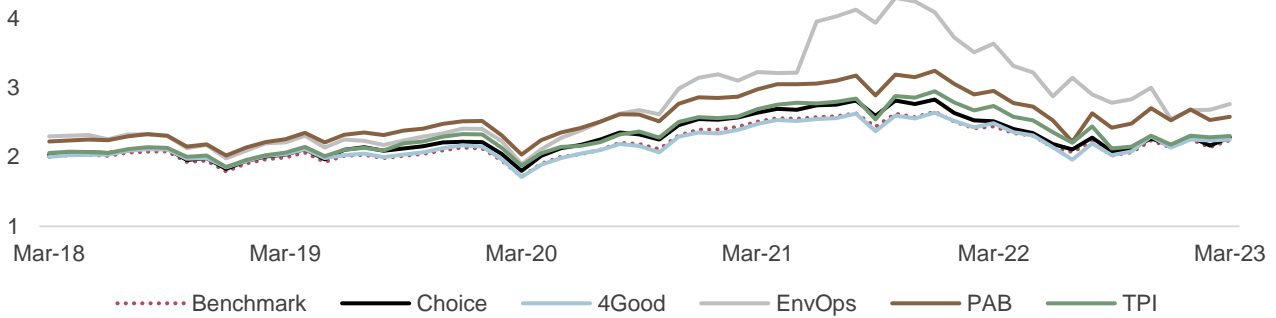
Global View – SI Index Valuation Insights – Q1 2023

SI P/E valuations rose in Q1, but remained below their 2020-2021 highs and are below their 5-year averages, except PAB. The premium of SI strategies over their parent indices are up in Q1 and above their 5-year average. FTSE4Good is the only strategy, which is less expensive than the market, while EO is the most expensive. US SI strategies are the most expensive, but only by a relatively modest 1.06x premium over the market. By contrast, Japan is the cheapest in absolute P/E terms, but trades at the biggest premium, 1.29x. Price to Book ratios for SI strategies have followed a similar pattern to P/Es, but the premium is flat in Q1 and is currently at 5-year averages. Dividend yields fell in the quarter and are at or below 5-year averages.

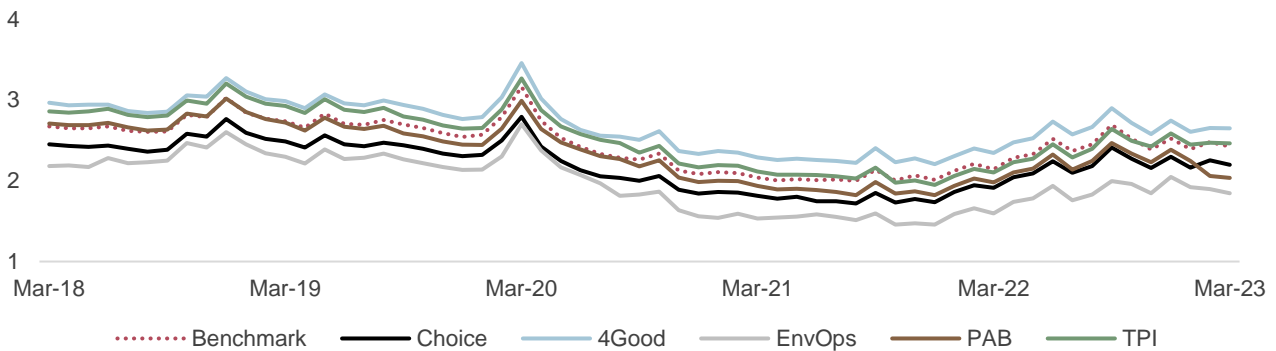
Global Markets—12-month forward factor P/E ratios



Global Markets—12-month forward factor Price to Book ratios



Global Markets— Dividend Yield



12-month forward P/E vs history



12-month forward Price to Book vs history



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE Global Choice indices – Q1 2023

Global Choice made a come back during Q1, outperforming the benchmark in most regions (Chart 1). The strongest performance was recorded in the US (2%), which lifted up the developed region too. Underweight in the underperforming Energy industry and overweight in Technology boosted the index performance globally (Chart 3). Basic Materials was a swing factor for the UK and APAC, additive for the former, but detractive for the latter. The weakest performance was recorded in EM (-0.5%), where lukewarm performance of Technology and Financials dragged gains down. All but the UK, achieved substantial carbon reductions, especially in Utilities, followed by Energy & Basic Materials (Chart 4).

Chart 1: Active performance (TR, LC %)

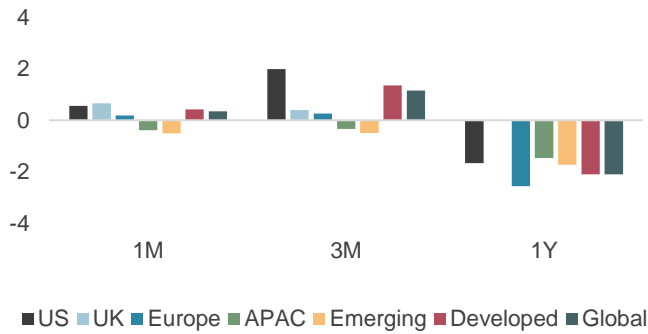


Chart 2: Benchmark Carbon Emissions / Revenues

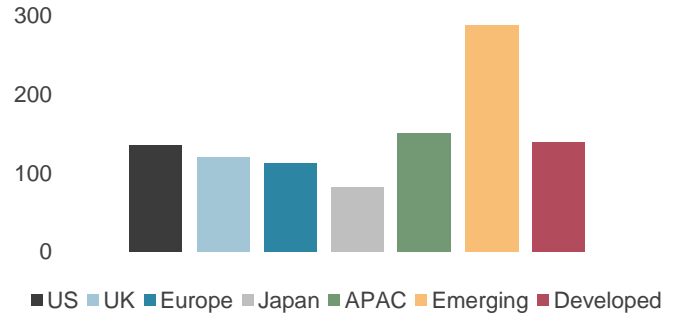


Chart 3: Attribution of global index (%)

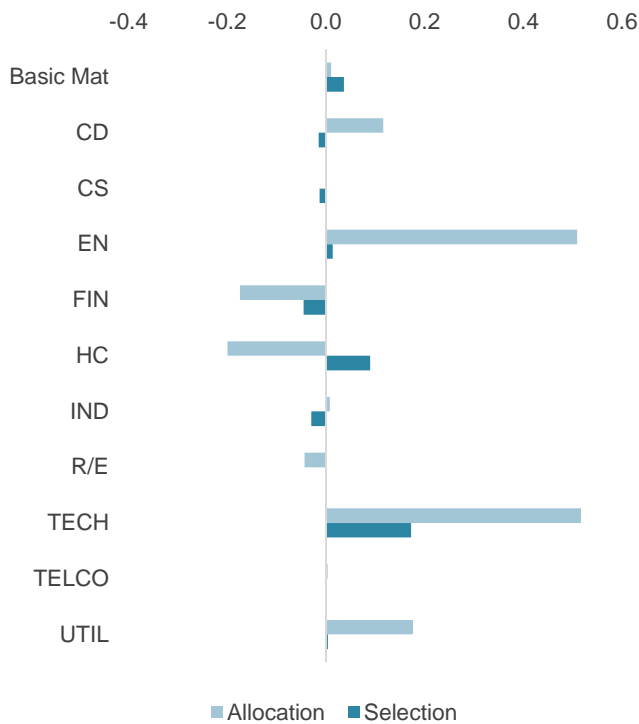


Chart 4: Contribution to carbon reduction (%)

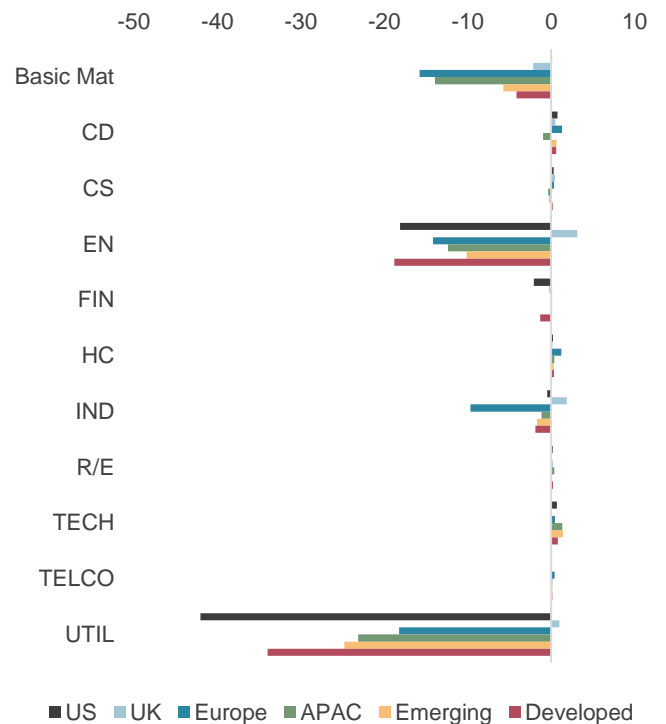
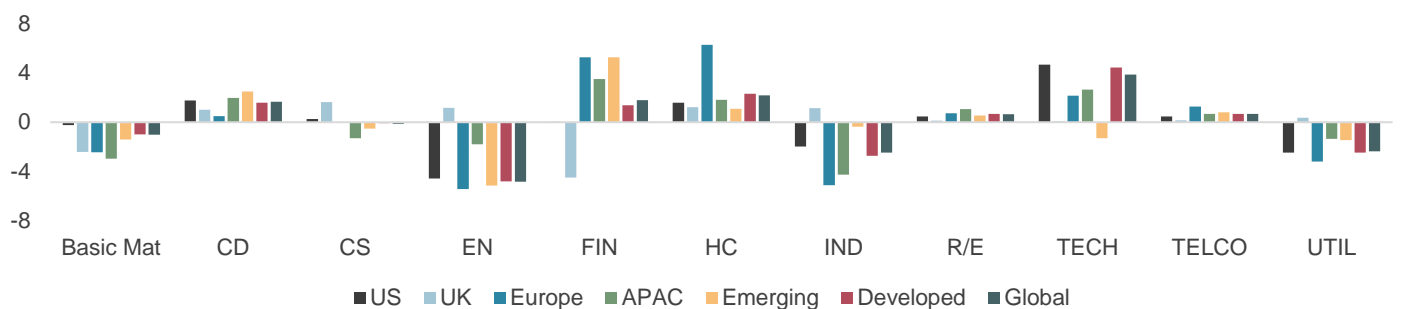


Chart 5: Active industry weights (%)



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE4Good indices – Q1 2023

FTSE4Good indices generally outperformed in Q1, except for the APAC and Emerging markets regions. The UK led the pack with a 1.1% relative return, while APAC had the weakest performance (-0.8%) in Q1 (Chart 1). The global rebound of the Technology sector lifted performance across the board, except for APAC, where the industry is underweighted (-3.2%). Underweight in Consumer Discretionary in the US and EM hurt performance. Financials detracted, particularly in APAC, as the strategy generally has active exposure to this industry. The applied threshold for minimum ESG and Climate standards resulted in substantial ESG uplifts (see page 4), and industry contributions were dominated by Financials and Technology stocks (Chart 4).

Chart 1: Active performance (TR, LC %)

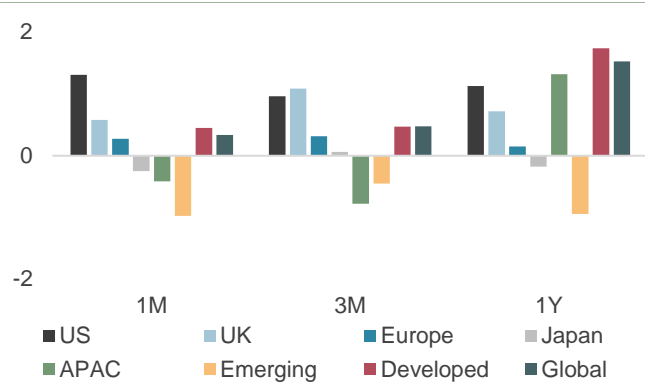


Chart 2: Benchmark ESG scores

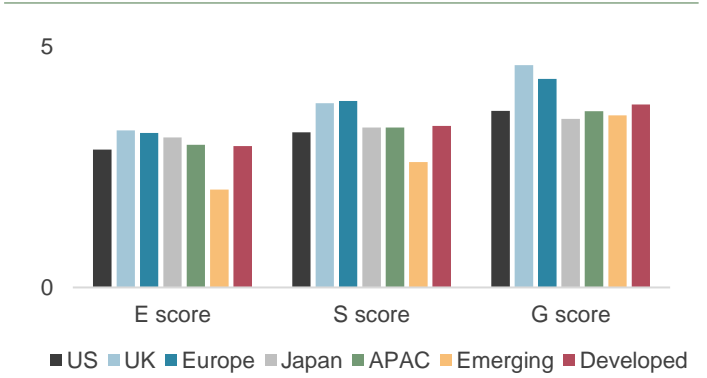


Chart 3: Attribution of global index (%)

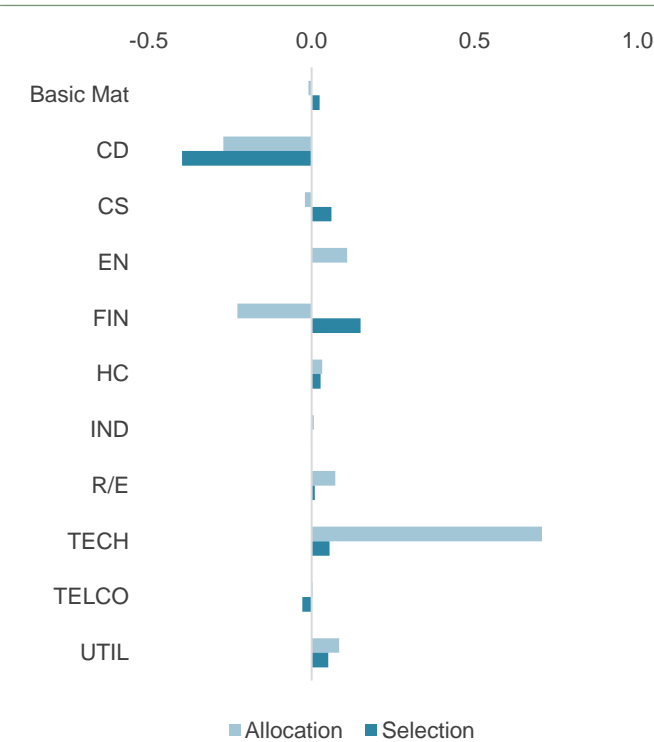


Chart 4: Contribution to ESG uplift (%)

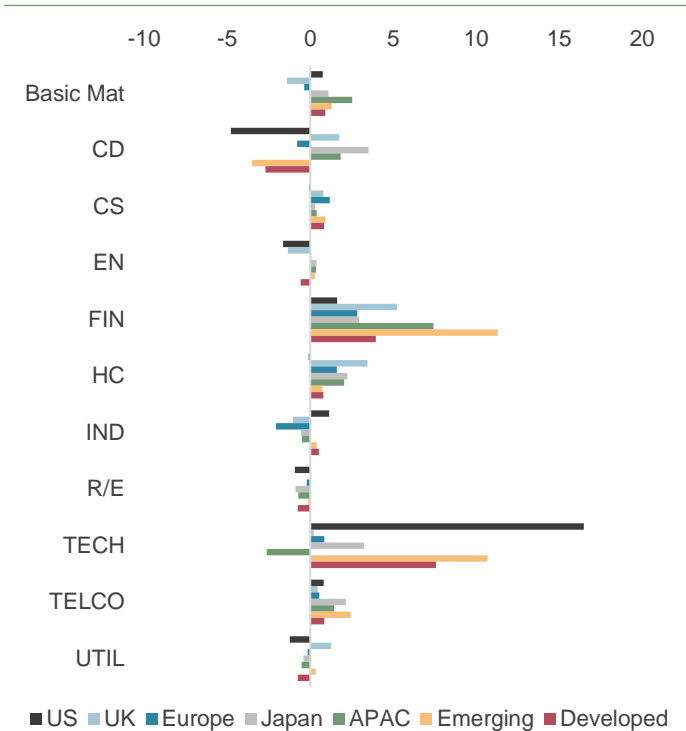
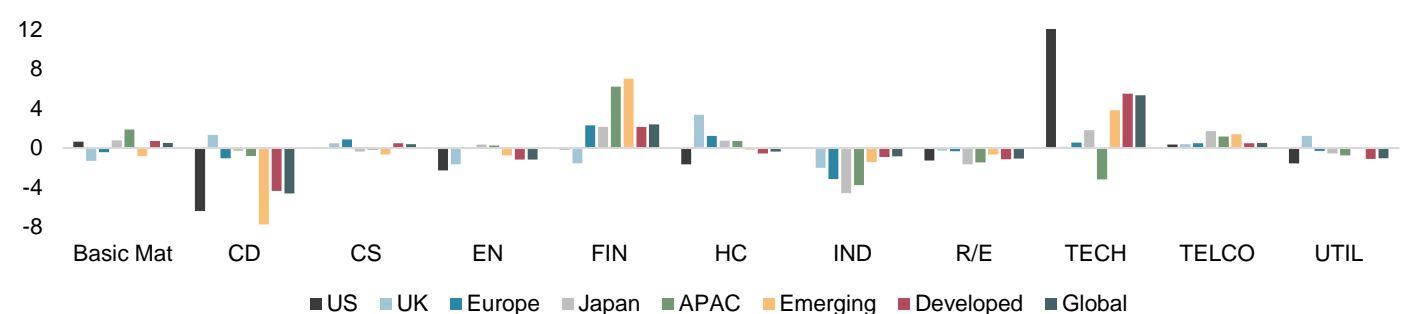


Chart 5: Active industry weights (%)



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE Environmental Opportunities indices – Q1 2023

EO indices strongly outperformed across all regions in Q4. The best result came from APAC (8.4%), followed by the US (7.5%). The weakest performance was in the UK, which is still leading the benchmark by 1.7%. Lower exposure to underperforming Financials and Health Care lifted EO indices performance. High exposure to Technology boosted it even further. Globally, selection effects were additive for Consumer Discretionary (Chart 3). Large green revenues uplifts (see page 3) were broad-based across industries in the US but more concentrated in Financials & Utilities in the UK, in Industrials in the UK, Japan and Europe and in Technology in APAC (Chart 5).

Chart 1: Active Performance (TR, LC %)

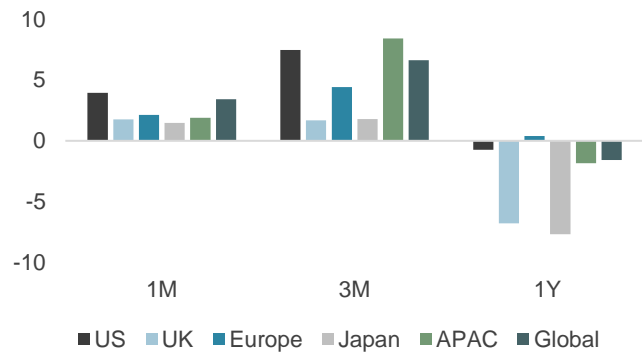


Chart 2: Benchmark Green Revenues scores

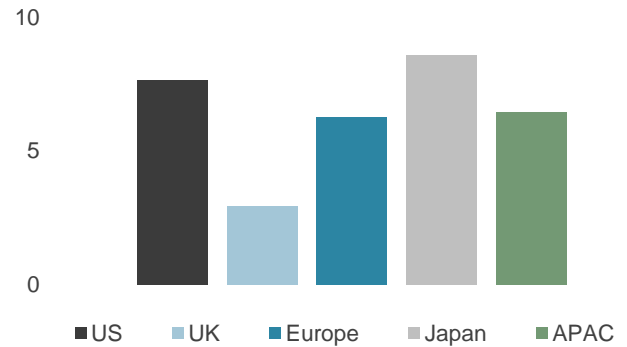


Chart 3: Attribution of global index (%)

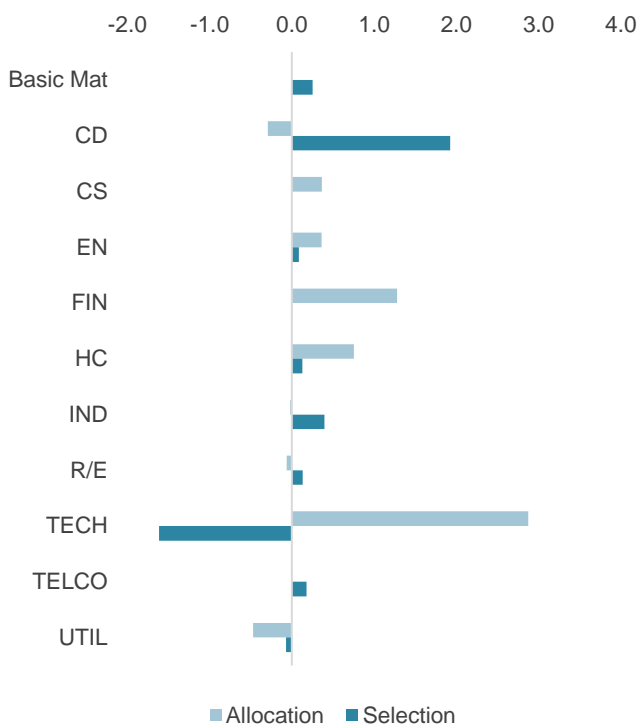


Chart 4: Contribution to Green Revenues uplift (%)

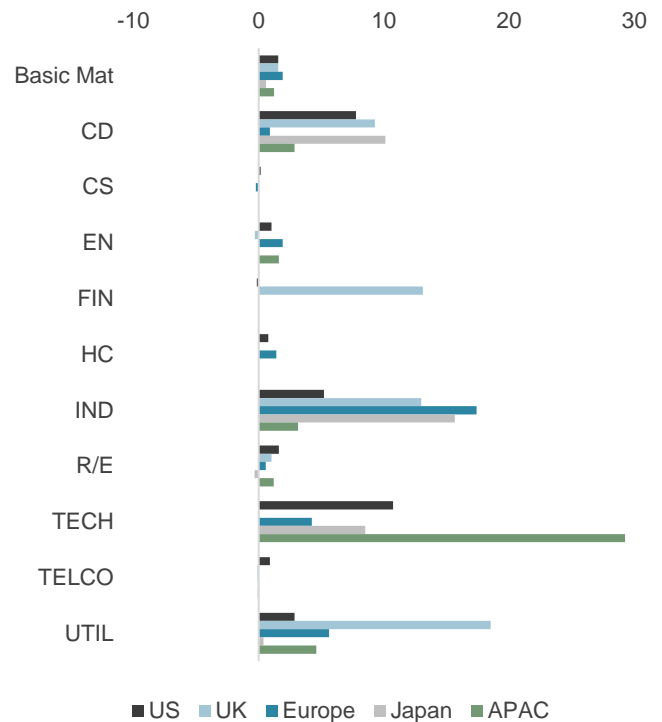
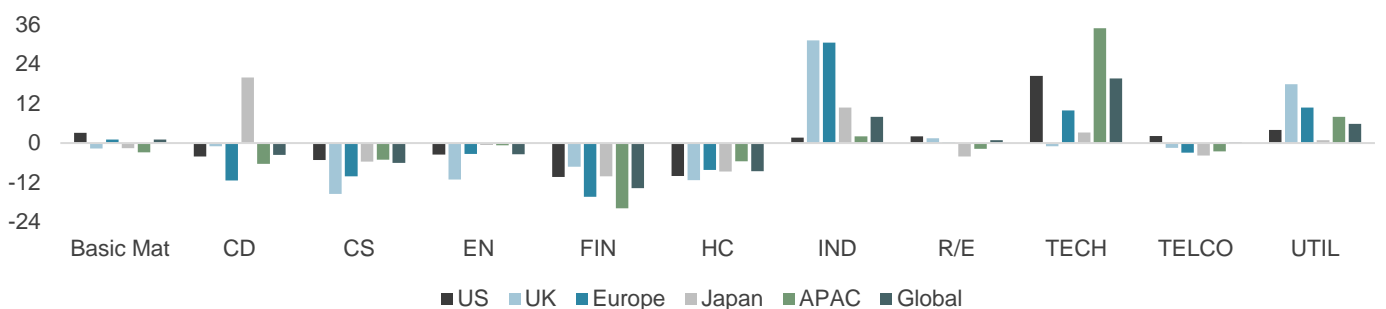


Chart 5: Active industry weights (%)



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE ESG Low Carbon Target Exposure indices – Q1 2023

FTSE ESG Low Carbon generally lost value against the benchmark, except for Europe. The weakest performance was recorded in the US (-1.8%), whereas Europe outperformed by 0.6%. High exposure to the troubled Financial industry contributed to an under-performance. Underweight in Health Care helped returns in Europe, whereas the overweight in the US detracted. Industry contributions to the targeted 20% uplift in ESG scores were relatively broad-based, with Financials and Tech playing the largest role. The targeted 50% carbon reduction was also broadly achieved (page 3).

Chart 1: Active Performance (TR, LC %)

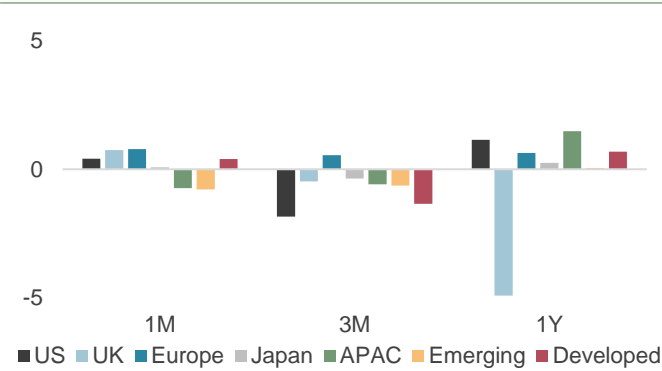


Chart 2: Benchmark Carbon Intensity/Revenues scores

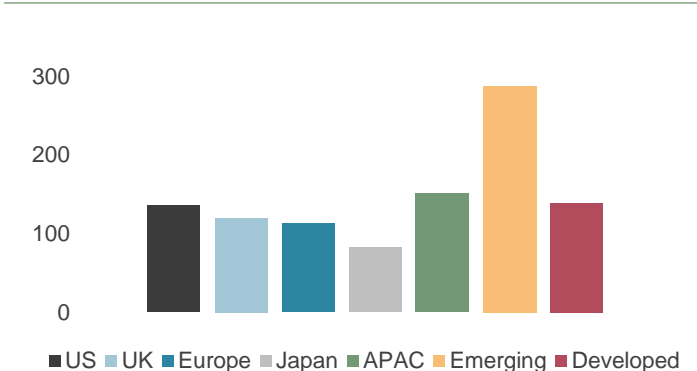


Chart 3: Attribution of global index (%)

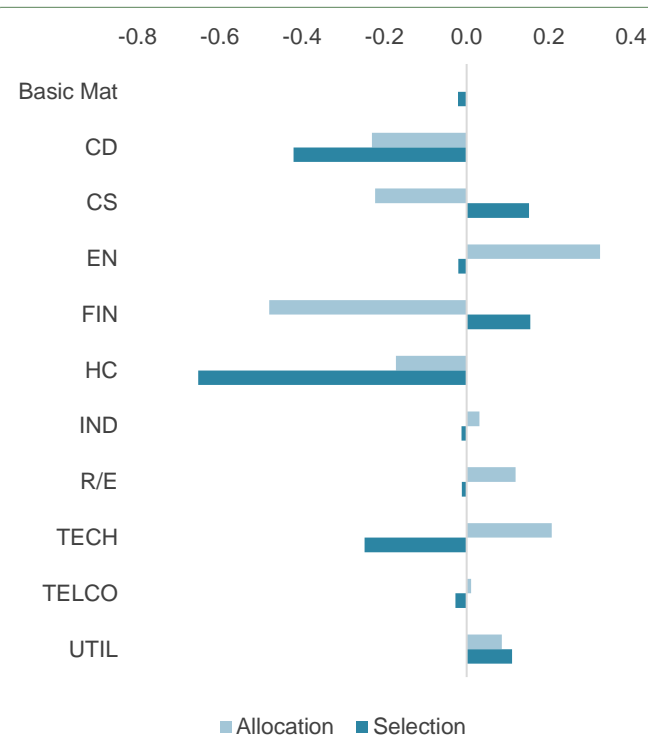


Chart 4: Contribution to ESG uplift (%)

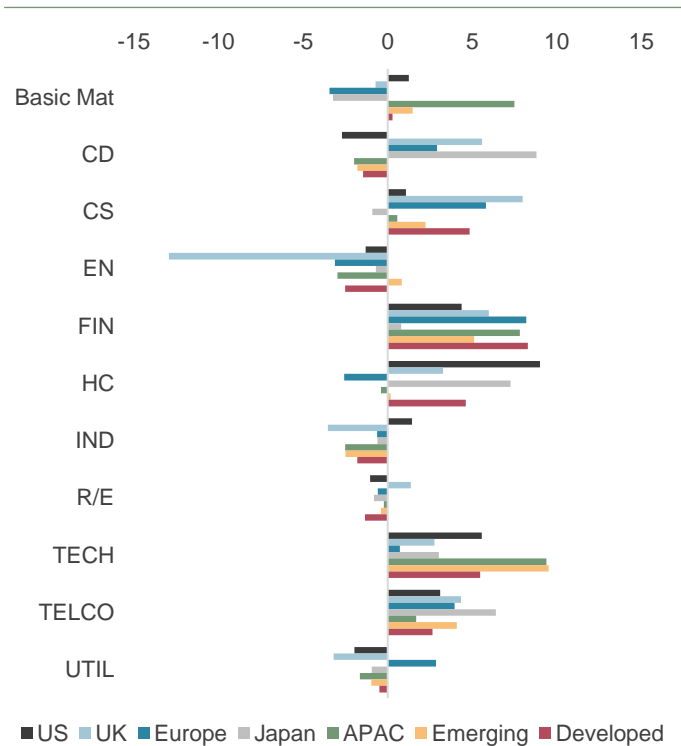
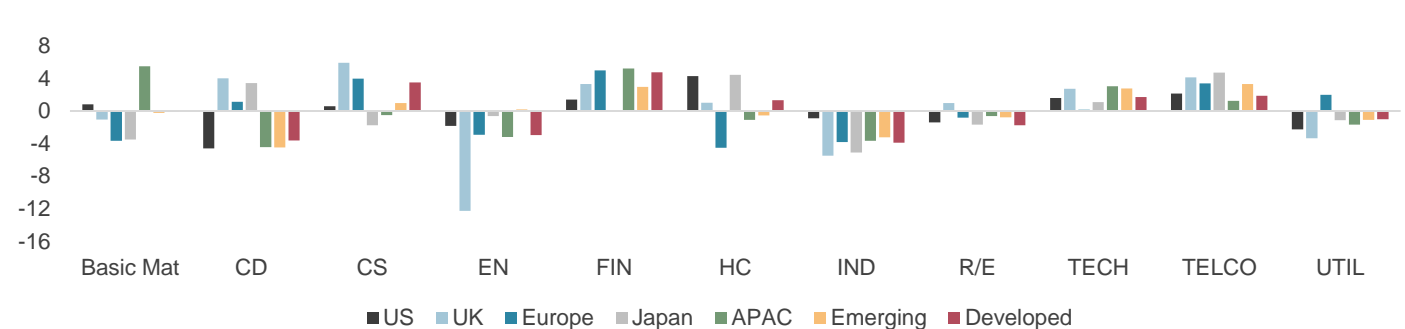


Chart 5: Active industry weights (%)



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE EU Paris-Aligned Benchmark indices – Q1 2023

Performance for the Paris-Aligned Benchmark indices was positive in Q1 across regions. The UK performed the best, leading the benchmark by 2.0%, Emerging outperformed by only 0.3%. Tech overweight helped performance, particularly in the Developed region. Another additive gain factor was the underweight in Financials, and Basic Materials, the latter favouring the UK. Underweight in Energy was additive too, contributing the most to the reduction in Carbon Emissions (Chart 5). PAB's aggressive 50% carbon-reduction target required large active bets in Materials & Energy (Chart 5). TPI uplifts (see page 4) can be attributed to Discretionary, Technology and Telecoms.

Chart 1: Active Performance (TR, LC %)

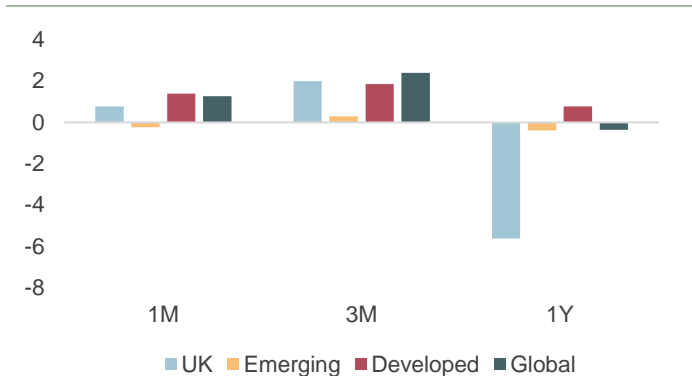


Chart 2: Active TPI Management Quality Score

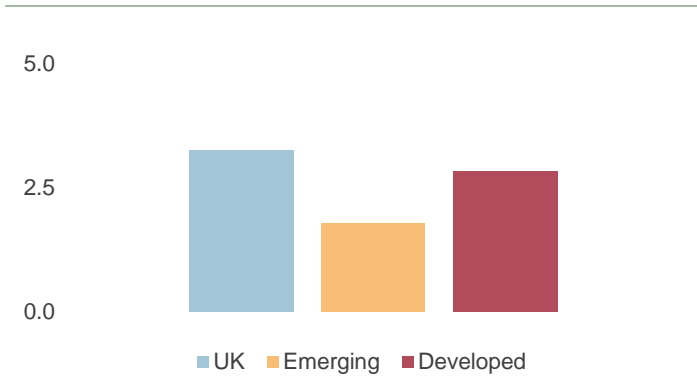


Chart 3: Attribution of global index (%)

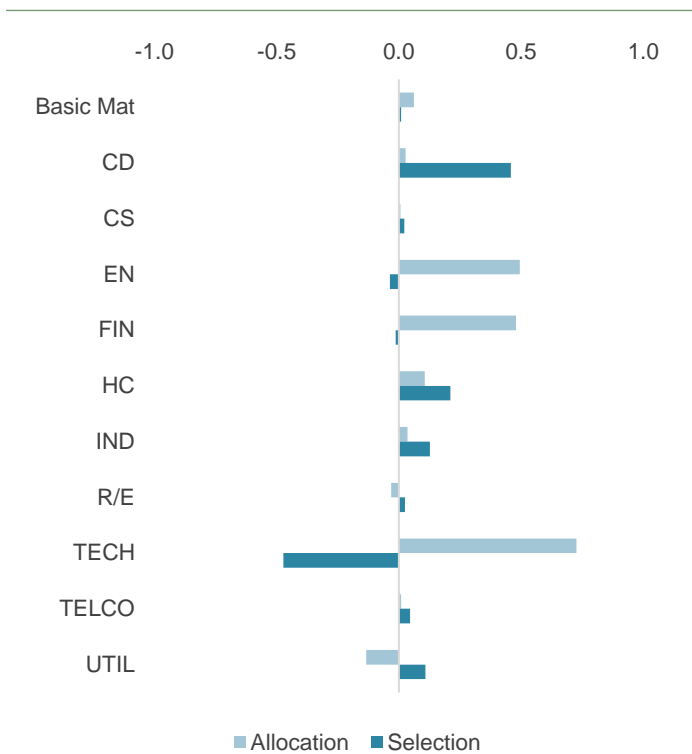


Chart 4: Contribution to Carbon reduction (%)

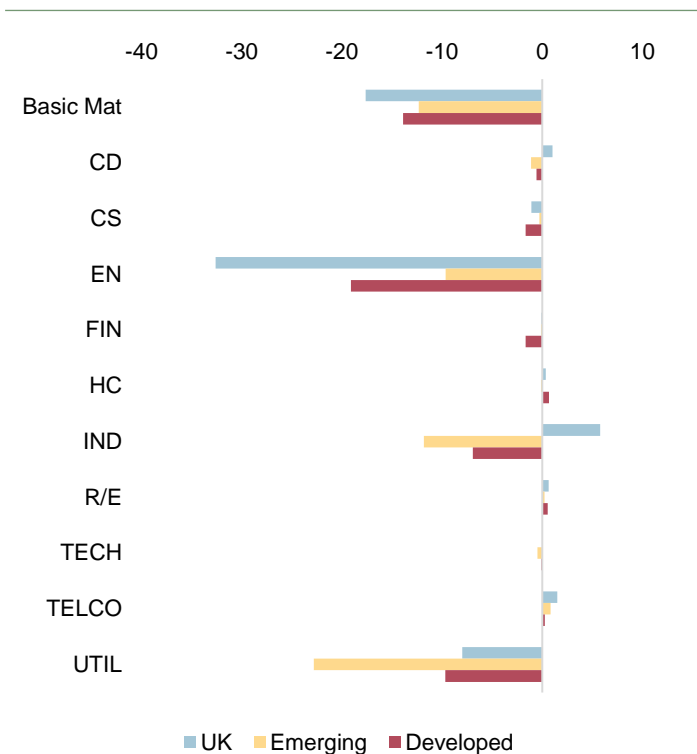
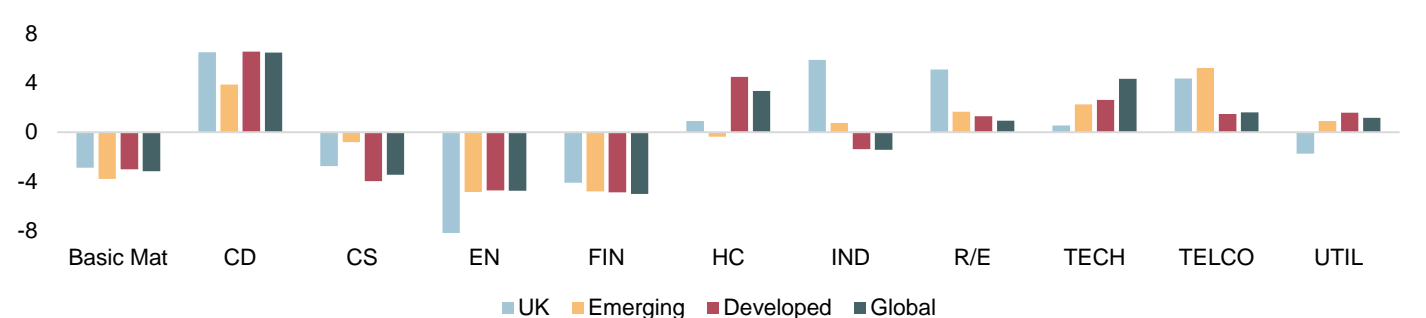


Chart 5: Active industry weights (%)



PAB underwent an exceptional rebalance in Q1 which may impact the precision of the Brinson attribution.

Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

FTSE TPI Climate Transition indices – Q1 2023

TPI indices slightly outperformed the benchmark across all regions. Emerging performed the best (0.7%). Globally, and similarly to other strategies, the underweight in Energy and overweight in Technology industries helped the index to outperform. A negative Technology bet for the EM region was detractive, but positive selection effects across industries boosted EM returns. Positive exposure to Discretionary was additive too, but counterbalanced by selection effects within the industry (Chart 3). The uplift in TPI scores was derived from a higher exposure to Consumer Discretionary and Technology (Chart 4), and in particular in EM, due to an overweight in Financials.

Chart 1: Active Performance (TR, LC %)

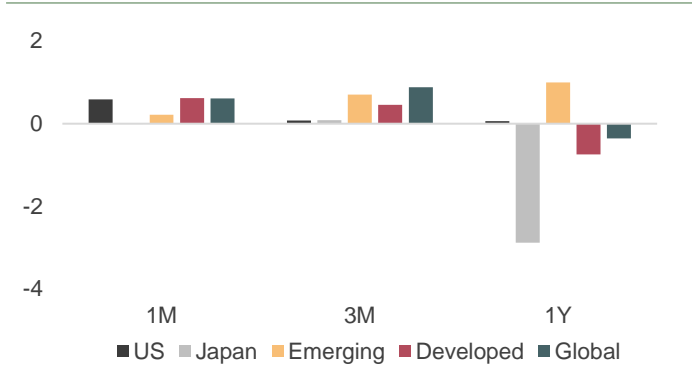


Chart 2: Active TPI Management Quality Score

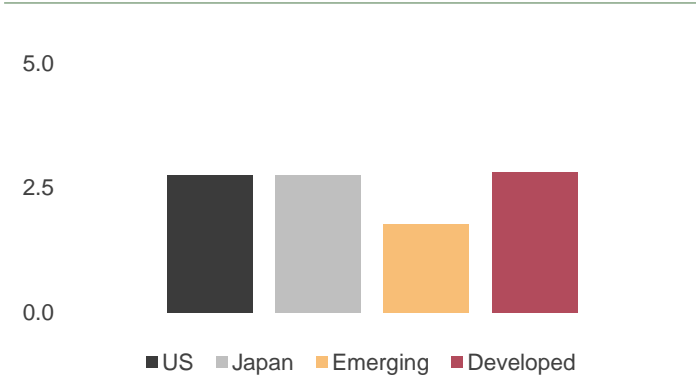


Chart 3: Attribution of global index (%)

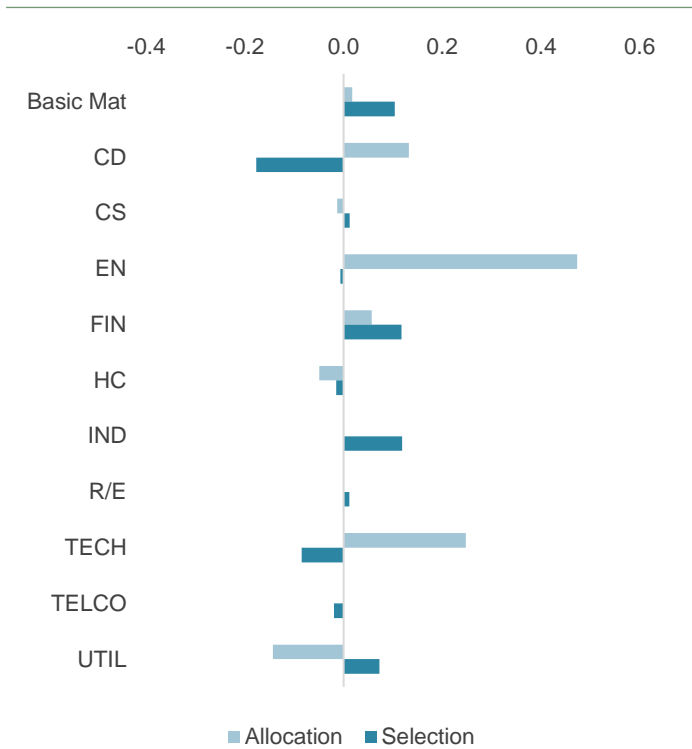


Chart 4: Contribution to TPI MQ uplift (%)

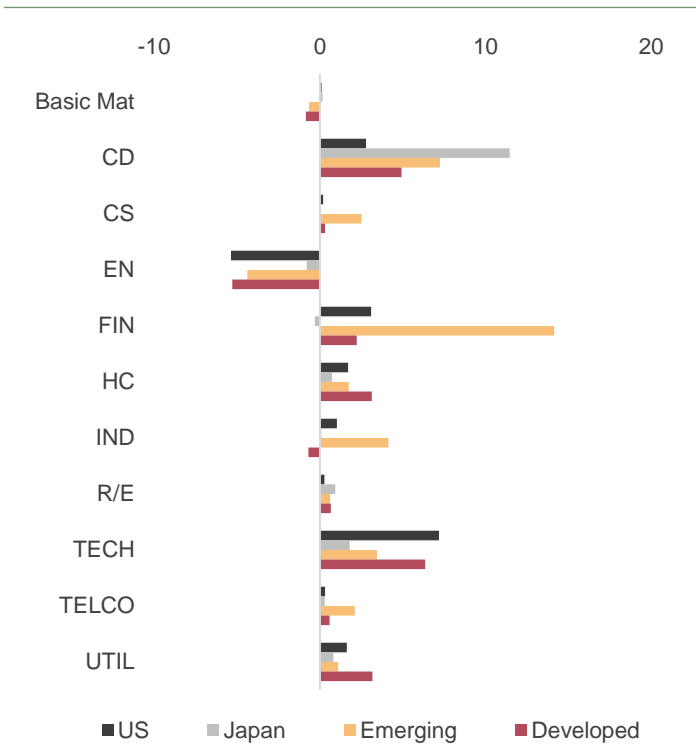
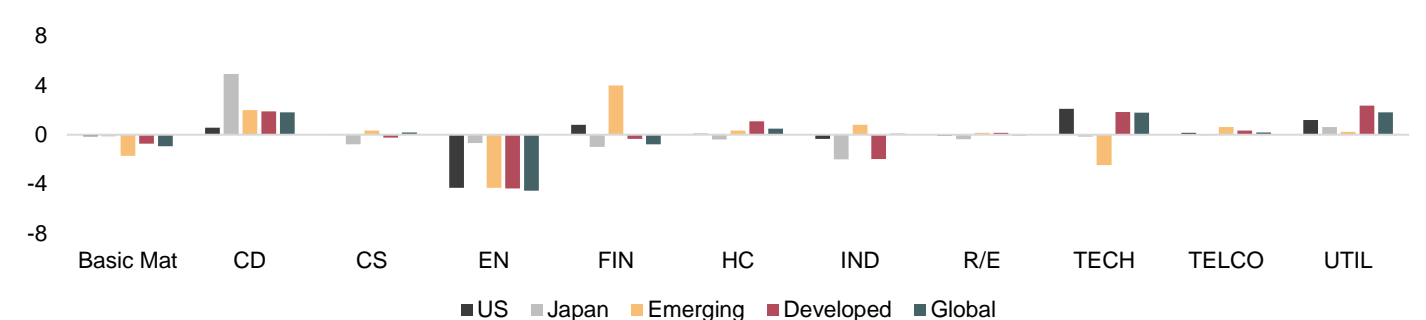


Chart 5: Active industry weights (%)



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Global Index Comparisons – Q1 2023

Global SI strategies performance was positive in Q1. The best performer was Environmental Opportunities, leading the benchmark by 6.6%, driven by its large overweight in Technology and underweight in Financials and Health Care. FTSE4Good outperformed the least (0.5%) as its underweight in the outperforming Discretionary industry dragged down performance (Chart 4). EO has a higher tracking error of 5.9%, because of stricter inclusion rules. Globally, SI strategies are trading at a higher relative premium compared to their historical average (Chart 5). Except for FTSE 4Good, all the SI premia appreciated in Covid times, but fell back in 2022, only to regain that premium in Q1. FTSE 4Good is the cheapest strategy, whereas EO remains the most expensive.

Chart 1: Active Performance (LC %)

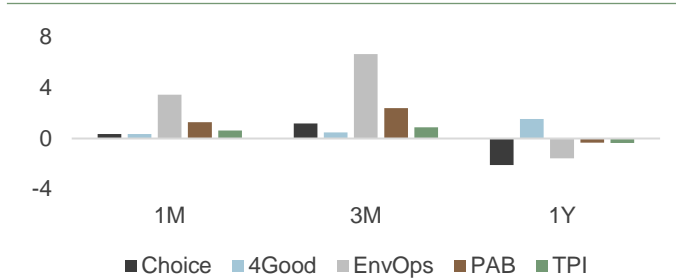


Chart 2: Index tracking error (%)

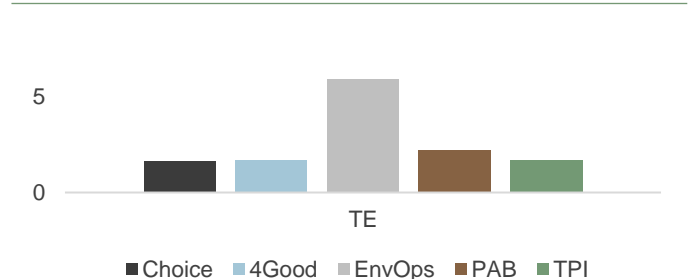


Chart 3: Active Industry weights (%)

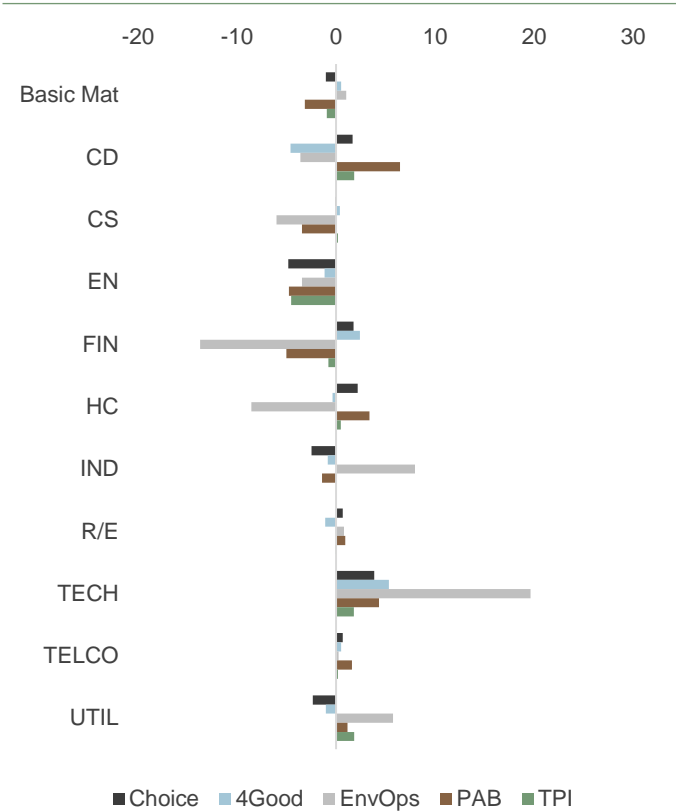


Chart 4: Industry allocation effect - 3M (LC %)

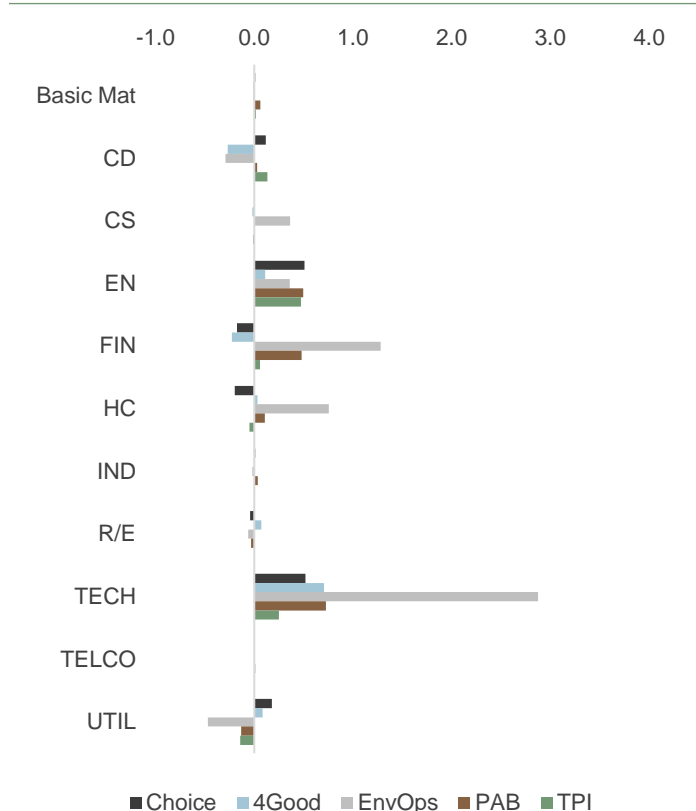
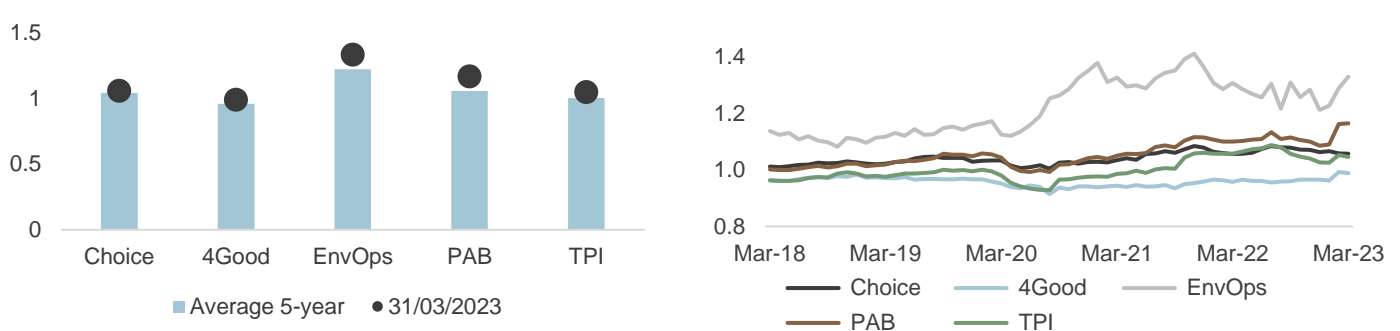


Chart 5: Global indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

US Index Comparisons – Q1 2023

US SI strategies generally outperformed the benchmark in Q1 except for ESG Low Carbon (-1.8%). Environmental Opportunities was the best performer (7.5%) helped by a large overweight in Technology. Underweight in outperforming Consumer Discretionary, together with active bets in the underperforming Health Care and Financials, dragged down ESG Low Carbon performance. All strategies benefitted from reduced exposure to Energy (Chart 3 and 4). The stellar performance of EO almost compensated for the losses of the previous year. SI indices trade slightly above to their 5-year averages. EO trades at a premium and appreciated slightly in Q1, whereas ESG Low Carb trades at a discount.

Chart 1: Active Performance (LC %)



Chart 2: Index tracking error (%)



Chart 3: Active Industry weights (%)

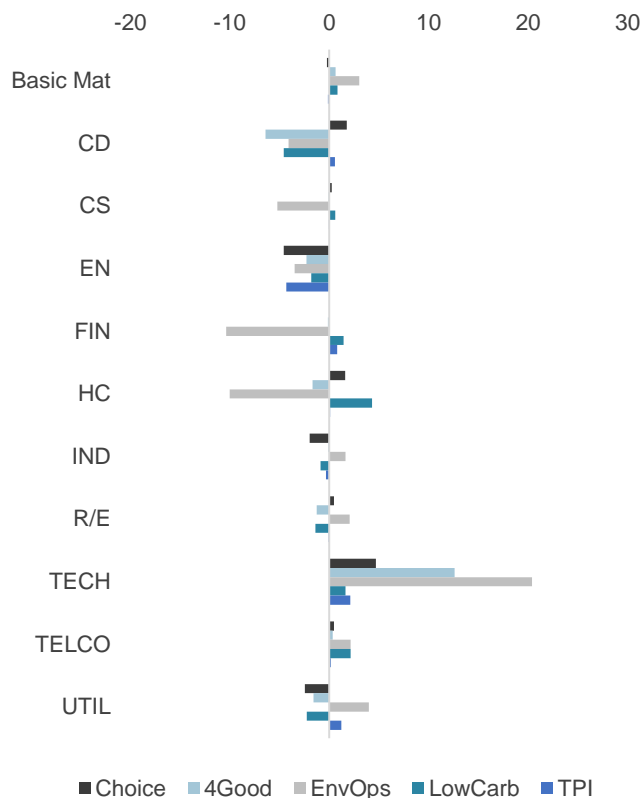


Chart 4: Industry allocation effect - 3M (LC %)

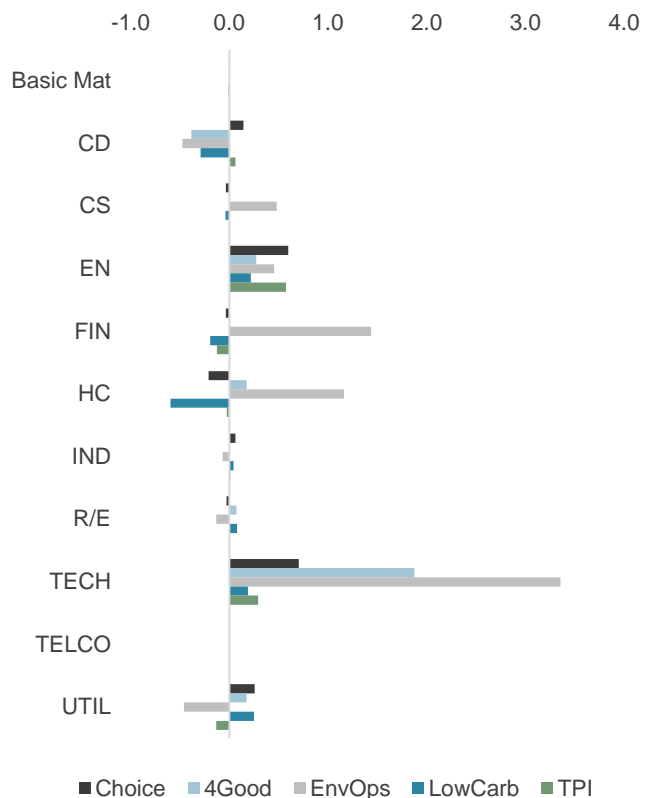
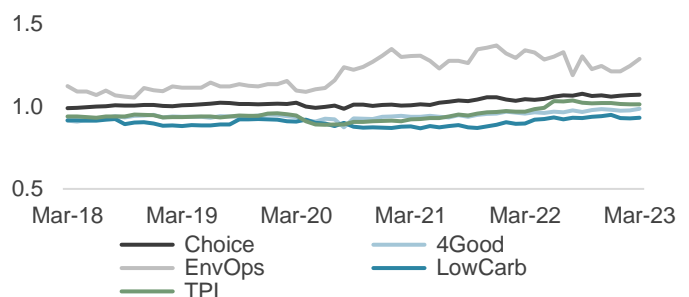
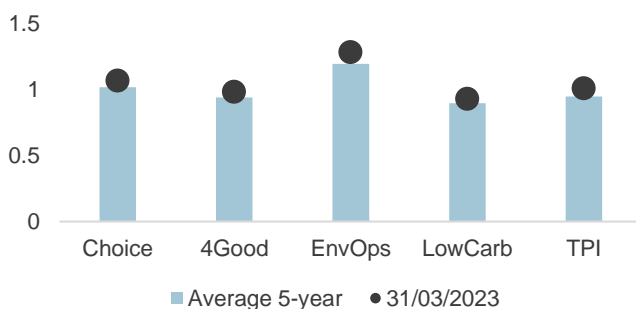


Chart 5: US indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

UK Index Comparisons – Q1 2023

In the UK, PAB was the best performer, leading its benchmark by 2%. SI strategies generally outperformed the benchmark except for ESG Low Carbon (-0.5%). UK benchmarks are characterised by large Energy weights, leading SI strategies to have large underweights in the industry (Chart 3), although in Q1 the performance was not impacted by it (Chart 4). Underweight in Basic Materials lifted all strategies performance, with PAB benefitting from a larger overweight in Consumer Discretionary. The UK SI strategies trade broadly at their 5-year valuation (Chart 5), with PAB slightly above. The EO premium increased during Q1, although not enough to make it the most expensive strategy, with the first place being taken by PAB.

Chart 1: Active Performance (LC %)

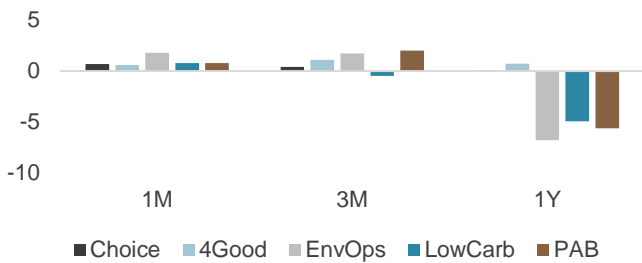


Chart 2: Index Betas



Chart 3: Active Industry weights (%)

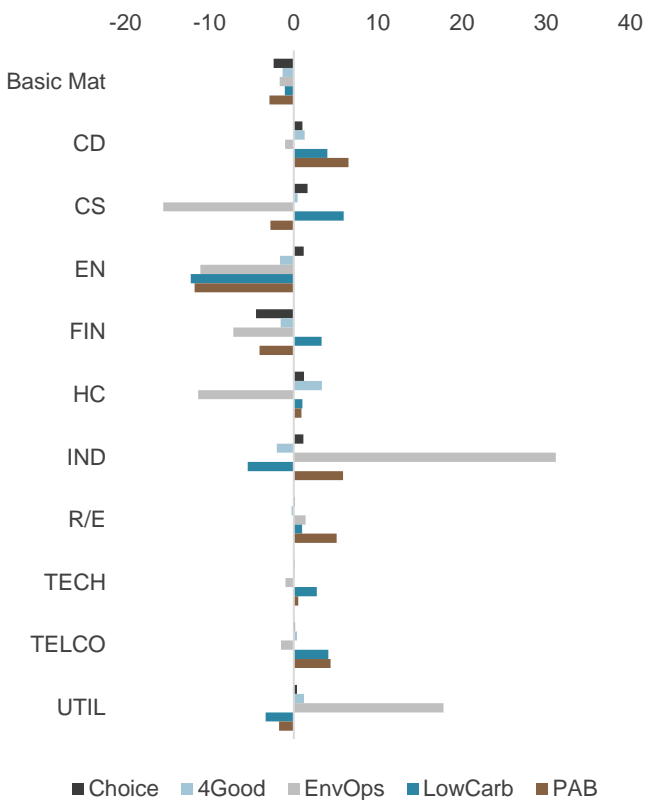


Chart 4: Industry allocation effect - 3M (LC %)

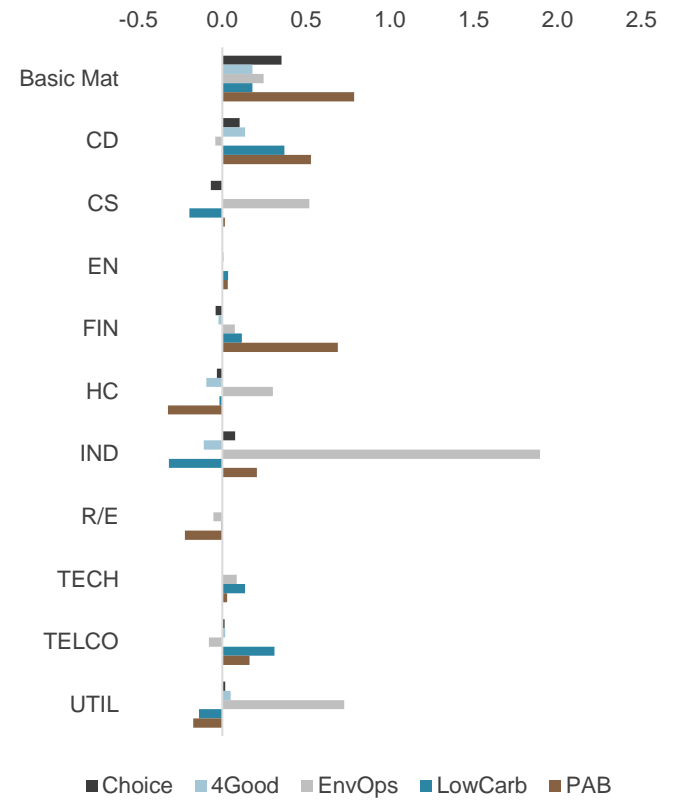
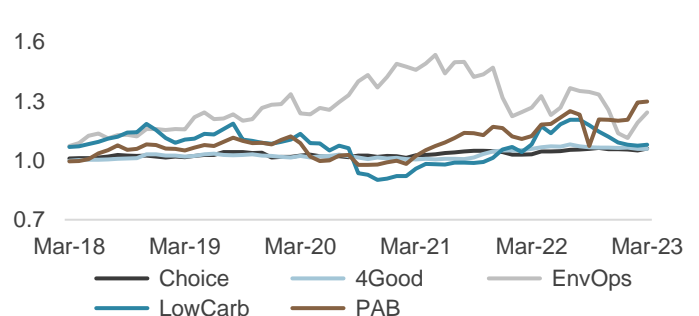
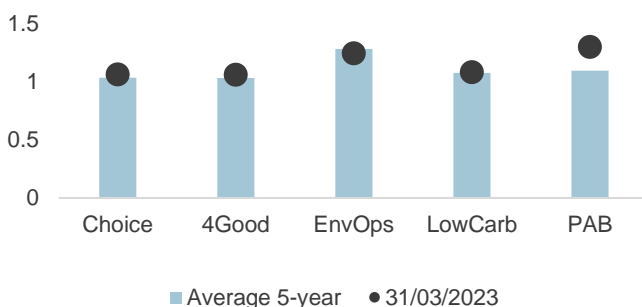


Chart 5: UK indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Europe Index Comparisons – Q1 2023

Environmental Opportunities was the best performing strategy in Europe, leading its benchmark by 4.4%. Other indices slightly outperformed in the range of 0.2%-0.6%. EO focus on green revenues has also resulted in it being the most concentrated index (includes only 12.7% of the constituents of its benchmark) (Chart 2), although its weight in the top 10 constituents is only slightly larger than the other strategies. Its performance was driven by a larger exposure to Industrials and Technology. Relatively lower exposure to Financials benefitted the index too (Chart 4). SI indices relative valuations are in line with their historical averages. The **EO premium shrank considerably in 2022, but picked up again during Q1** (chart 5). FTSE 4Good remains the cheapest strategy.

Chart 1: Active Performance (LC %)



Chart 2: Index concentration

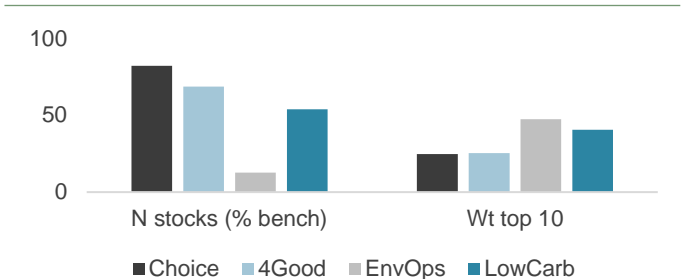


Chart 3: Active Industry weights (%)

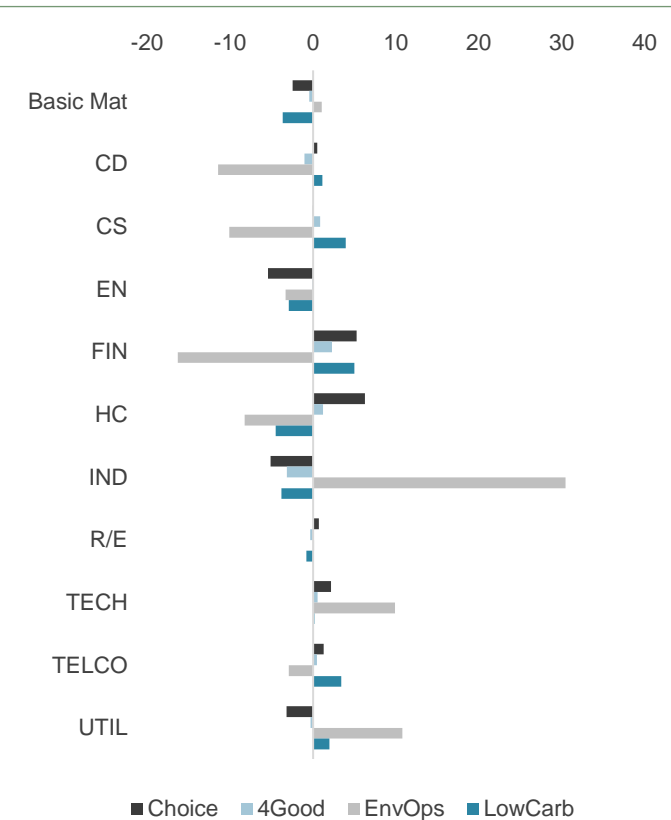


Chart 4: Industry allocation effect - 3M (LC %)

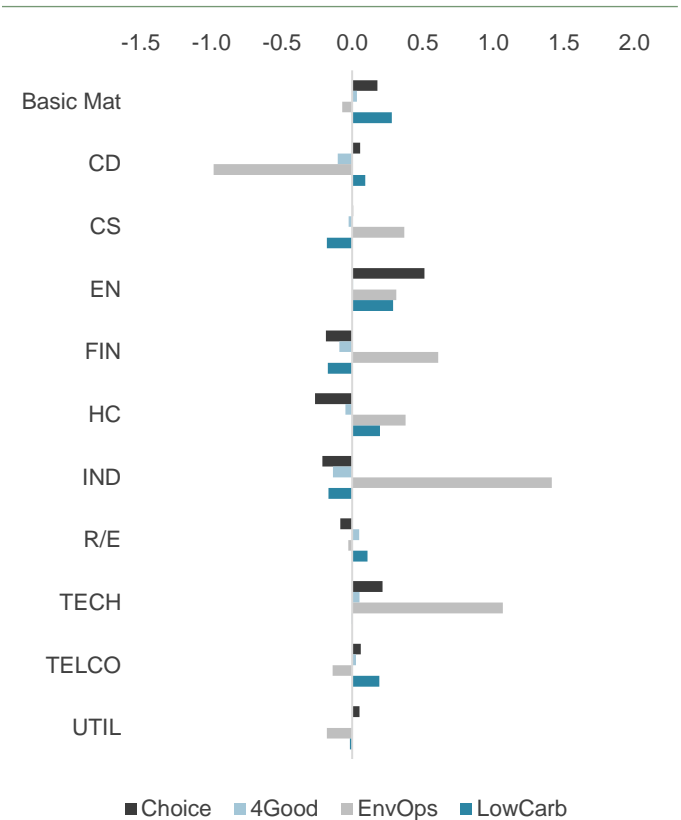
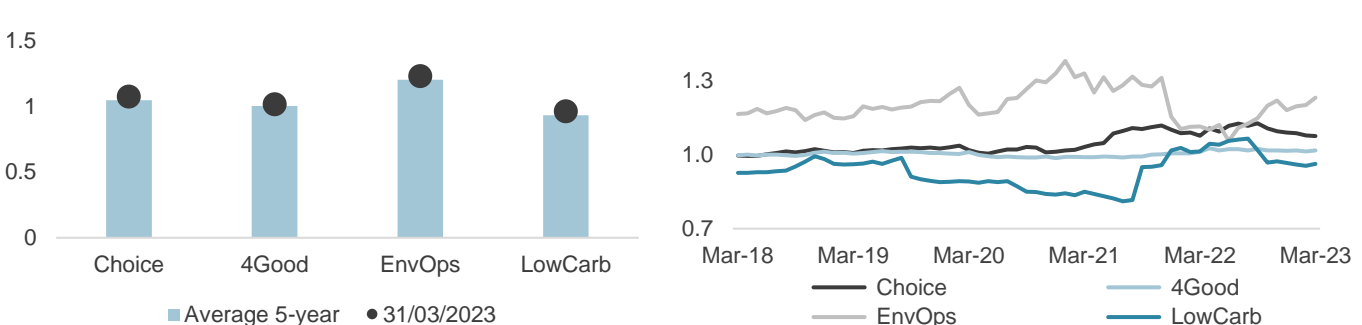


Chart 5: European indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Japan Index Comparisons – Q1 2023

The Japan EO index was the best performer in Q1 (1.8%), while the performance for the other indices was relatively in line. EO outperformed mainly due to its large underweight to the Japanese Financial, Health Care and Real Estate industries. Overweight in Discretionary and Industrials were additive too (Chart 3 & 4). Similarly to other regions, EO is the strategy which has the largest tracking error in Japan (6.6%, Chart 2). All SI strategies in Japan trade at a relative premium compared to the historical average. Relative valuation increased in Q1 due to the cheapening of the benchmark, rather than an appreciation of the strategy. Similarly to other region, EO has consistently traded at a premium (Chart 5).

Chart 1: Active Performance (LC %)

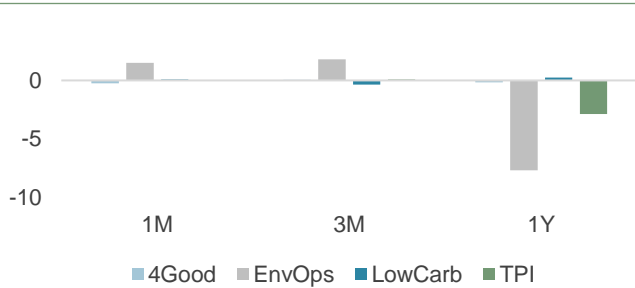


Chart 2: Index tracking error (%)

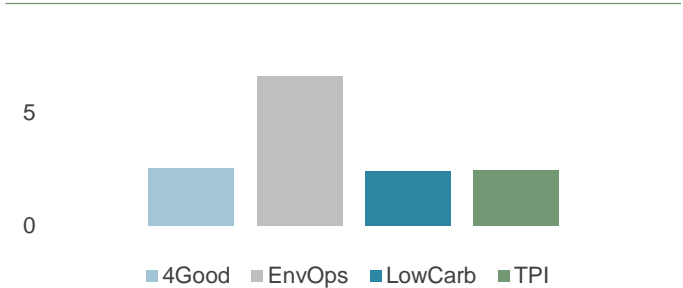


Chart 3: Active Industry weights (%)

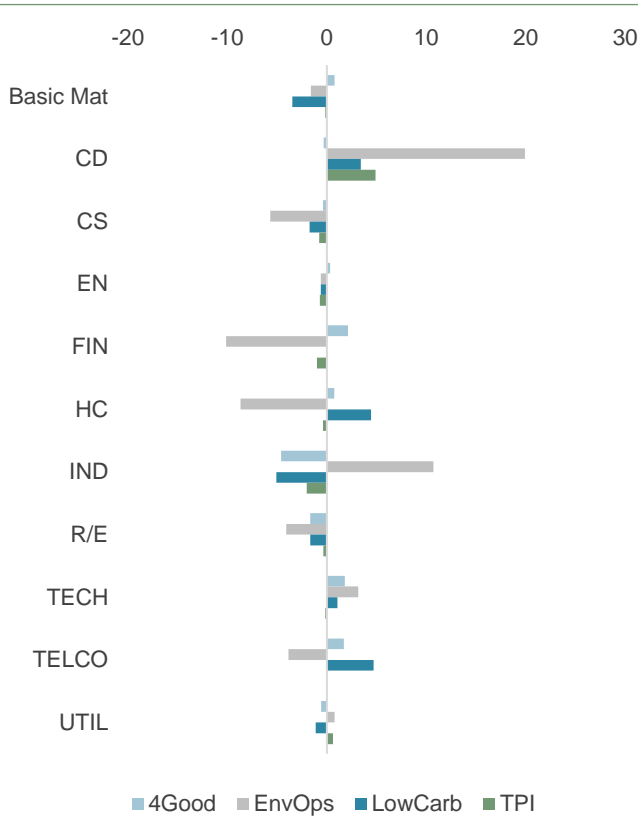


Chart 4: Industry allocation effect - 3M (LC %)

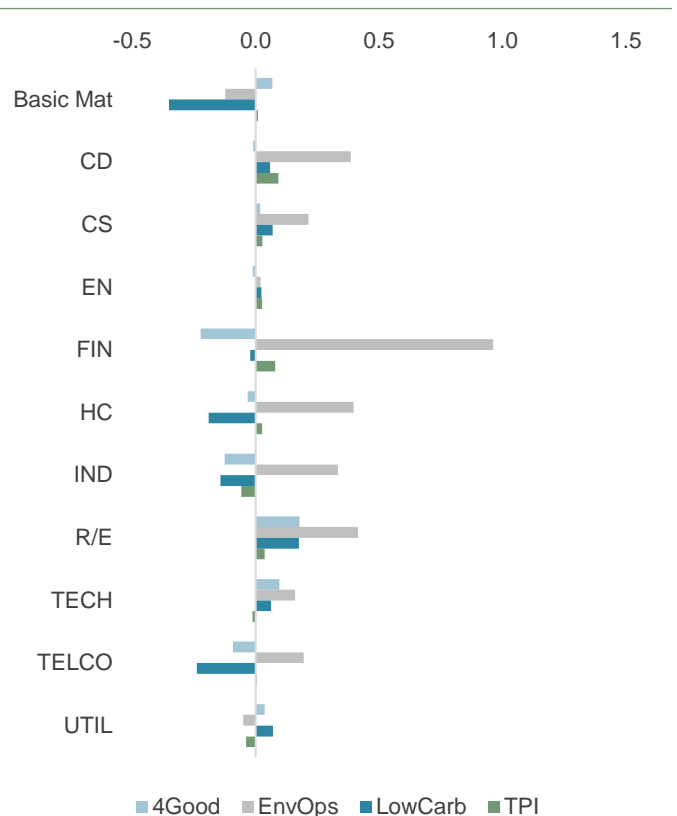
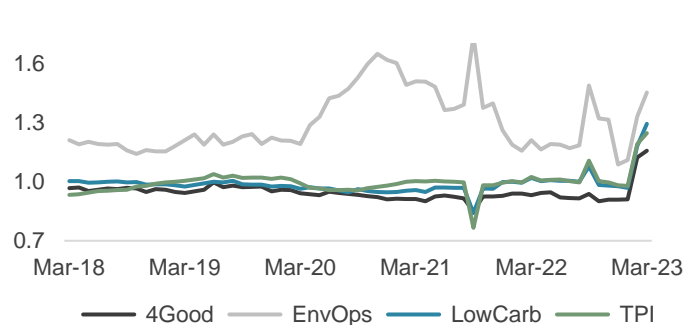
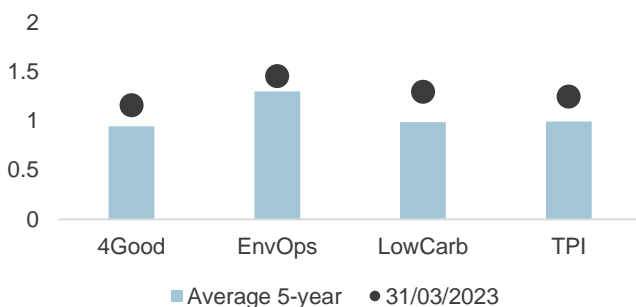


Chart 5: Japan indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Asia Pacific Index Comparisons – Q1 2023

In the Asia Pacific region, Environmental Opportunities was the only strategy outperforming the benchmark (8.8%), whereas Global Choice, FTSE 4 Good and ESG Low Carbon slightly underperformed. The impressive performance by EO is due to its large underweight in Financials and high exposure to Technology. Other strategies exposure to Financials hurt performance in Q1 (Charts 3 & 4). Similarly to other regions, EO has the largest tracking error, standing at 8.9%, whereas the second largest tracking error is achieved by ESG Low Carbon, at 2.3%. All SI strategies are trading in line with their 5-year average versus 12-month forward P/E. FTSE 4Good and EO saw a slight increase in relative premium in Q1 (Chart 5).

Chart 1: Active Performance (LC %)

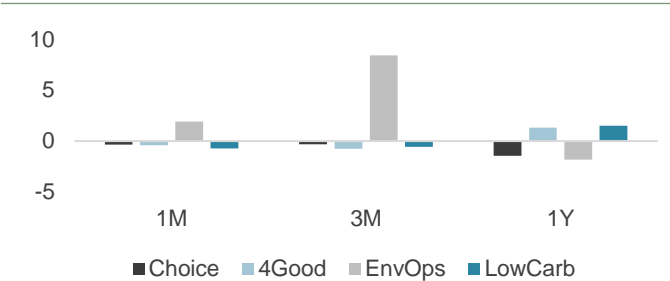


Chart 2: Index tracking error (%)

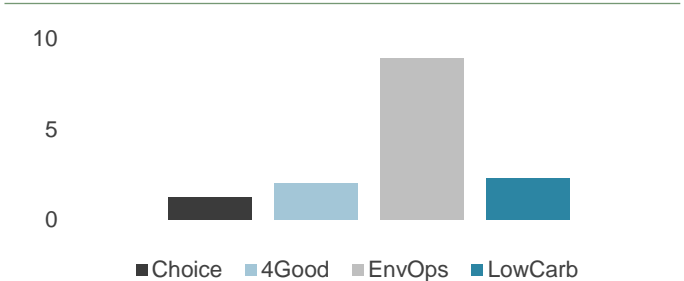


Chart 3: Active Industry weights (%)

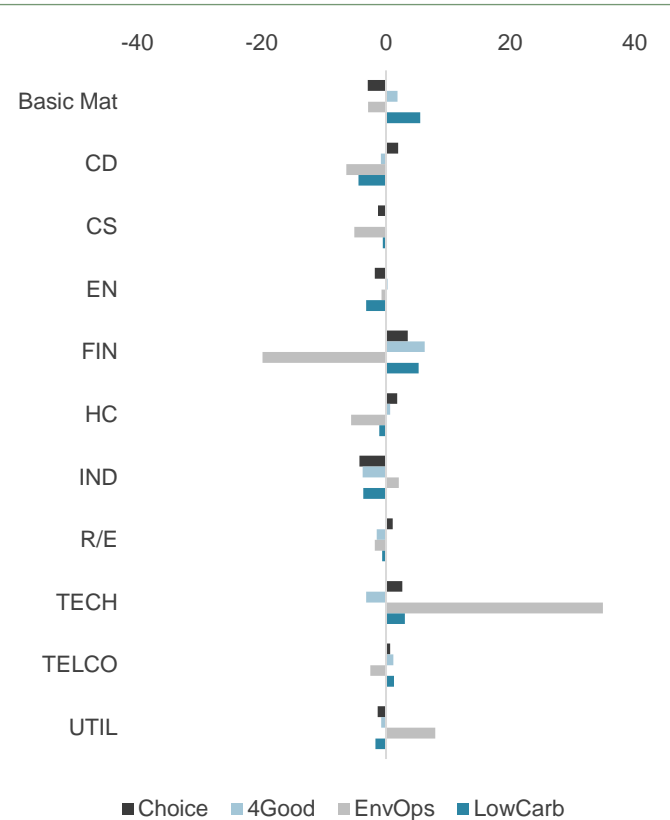


Chart 4: Industry allocation effect - 3M (LC %)

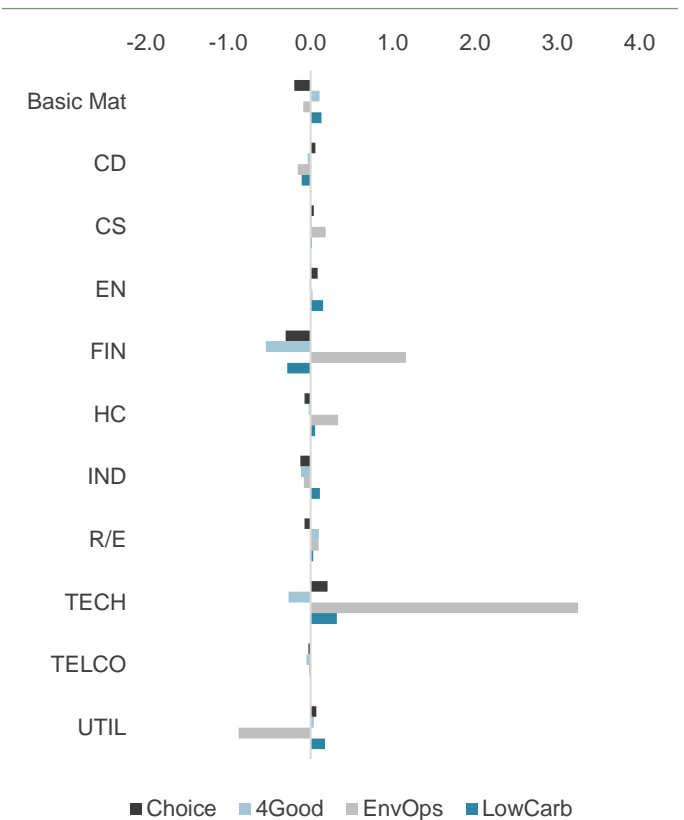
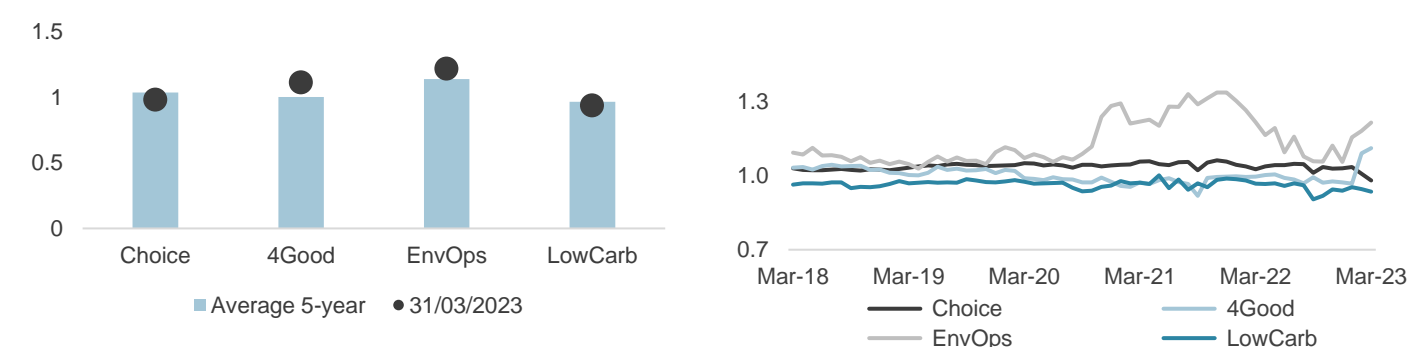


Chart 5: Asia Pacific indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Emerging Index Comparisons – Q1 2023

Only TPI and PAB outperformed the benchmark in Q1, whereas the other strategies were in negative territory. TPI delivered the best performance with a 0.7% excess return, helped by an underweight in Energy and selection effects. Gains from the Tech industry exposure of FTSE 4Good and ESG Low Carbon were dragged down by unfavourable bets in Financials and Consumer Discretionary (Charts 3 & 4). FTSE 4Good recorded the highest tracking error in the EM region (6.5%, Chart 2). Relative valuations (Chart 5) are in line with their 5-year history, with PAB trading at a small premium and TPI trading at a small discount. Compared to the benchmark, ESG Low Carbon trades at a small discount.

Chart 1: Active Performance (LC %)

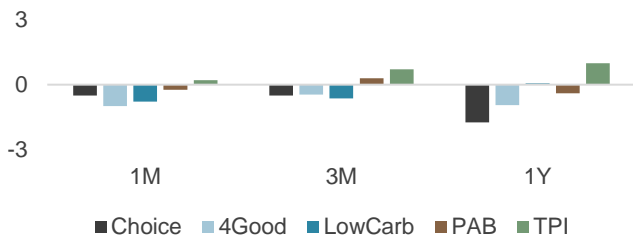


Chart 2: Index tracking error (%)

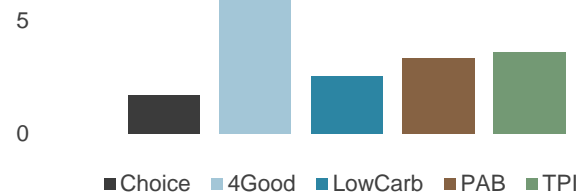


Chart 3: Active Industry weights (%)

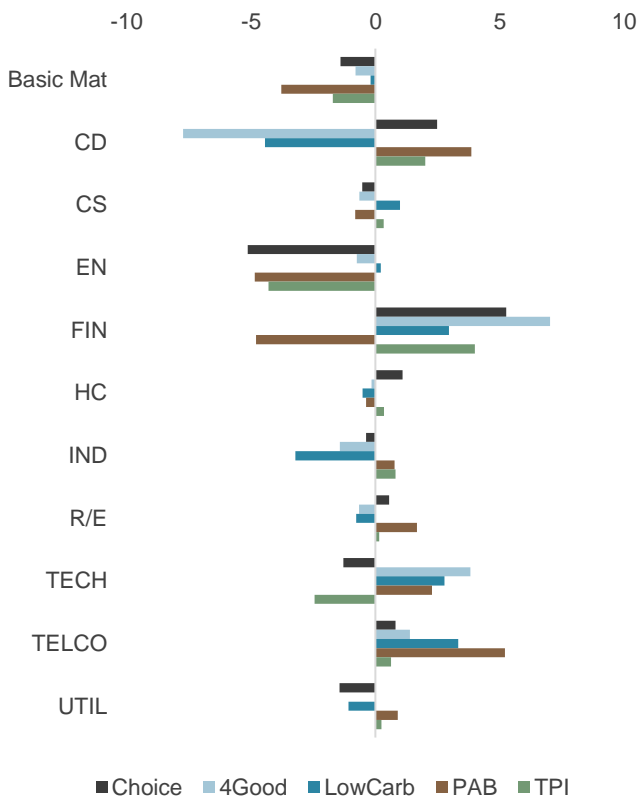


Chart 4: Industry allocation effect - 3M (LC %)

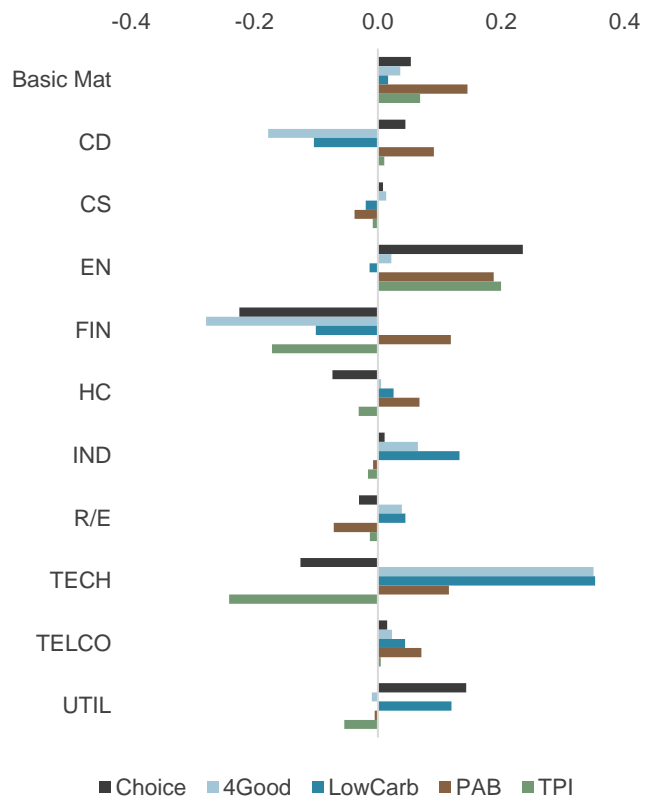
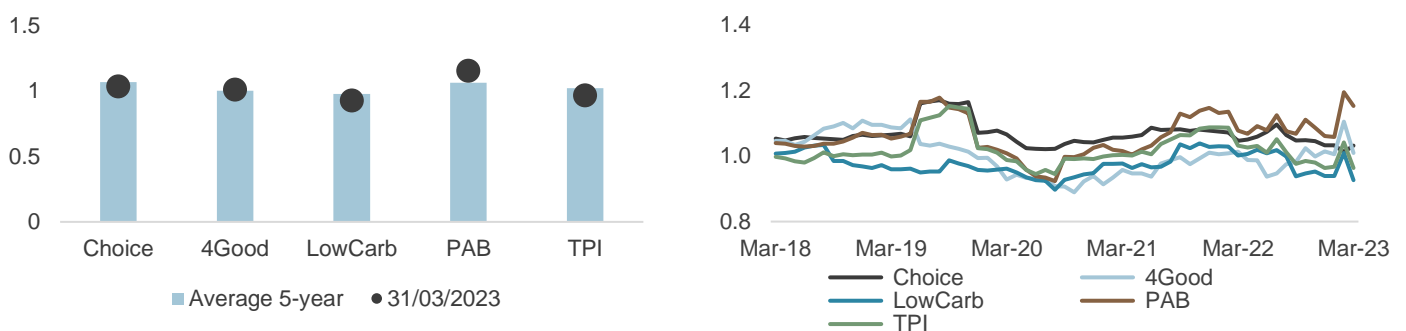


Chart 5: Emerging indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Developed Index Comparisons – Q1 2023

The Developed Market SI indices performance was generally good in Q1, with only ESG Low Carbon underperforming (-1.35%). PAB was the best performer (1.8%), followed by Global Choice (1.4%). The underweight in Energy and overweight in Technology generally helped performance across the board, the opposite of what happened the previous quarter. Financial underweight was additive for PAB, whereas ESG Low Carbon high exposure dragged performance (Charts 3 & 4). Relative valuation of Developed SI indices has been stable and close to the underlying benchmark, although currently at a slight premium, especially for PAB. Global Choice, PAB and TPI have been historically more expensive than FTSE4Good and ESG Low Carbon.

Chart 1: Active Performance (LC %)

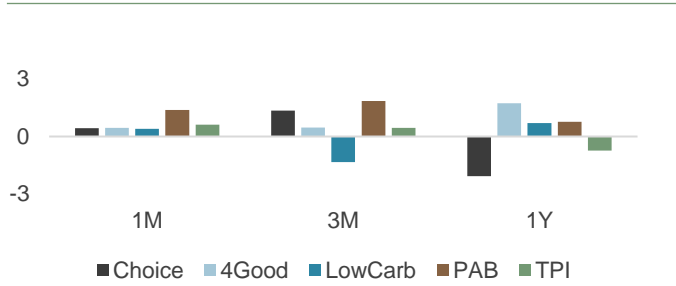


Chart 2: Index tracking error (%)

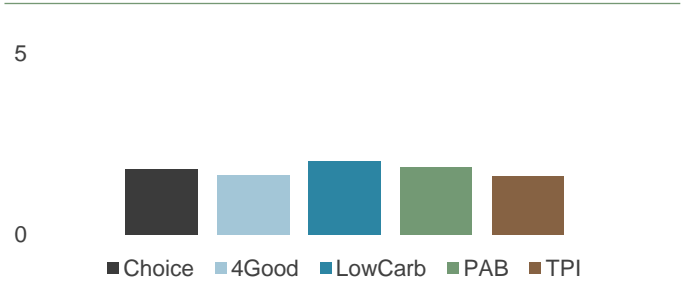


Chart 3: Active Industry weights (%)

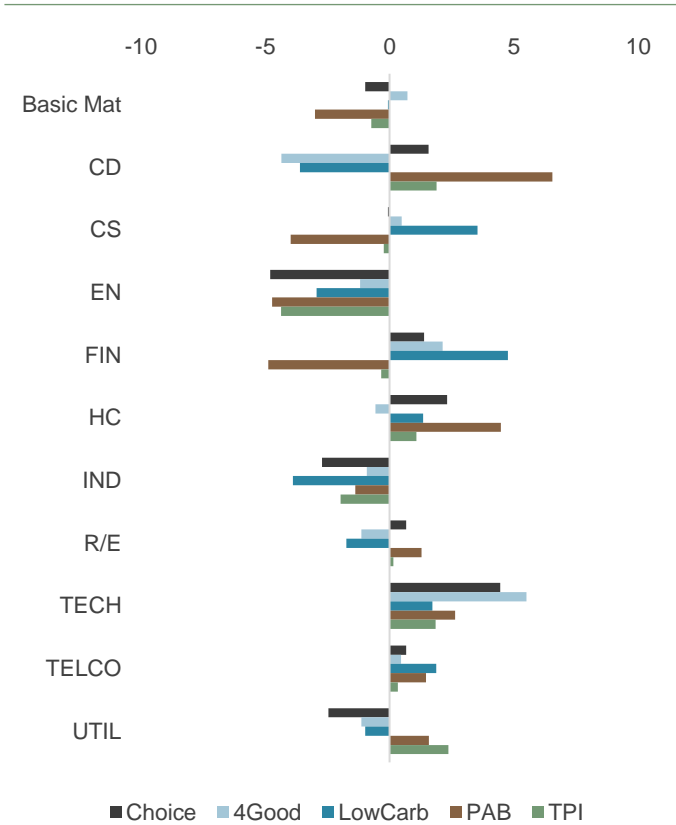


Chart 4: Industry allocation effect - 3M (LC %)

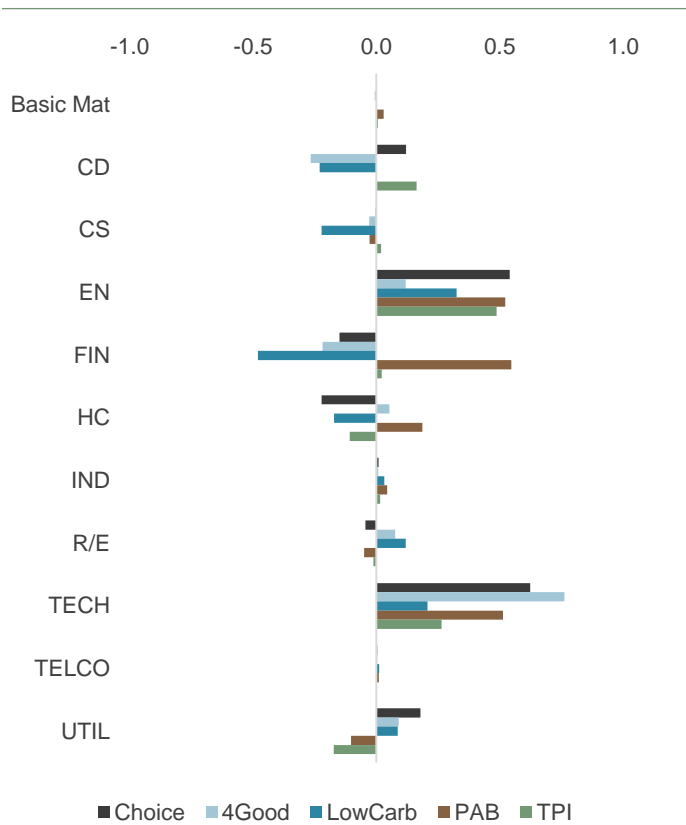
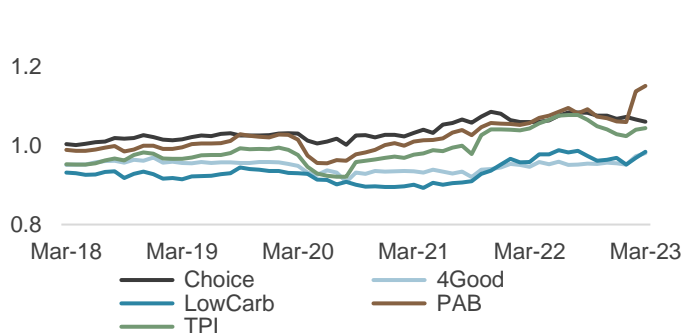
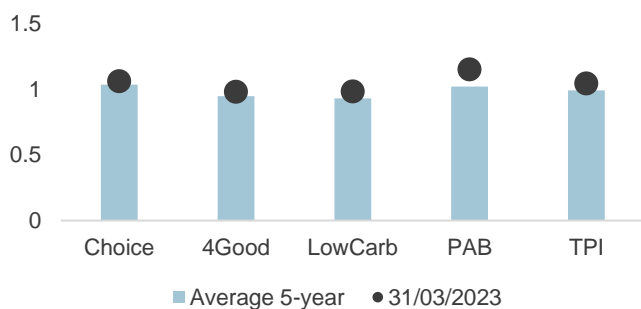


Chart 5: Developed indices Relative Valuation: Latest 12-month Forward P/E relative to 5-year average

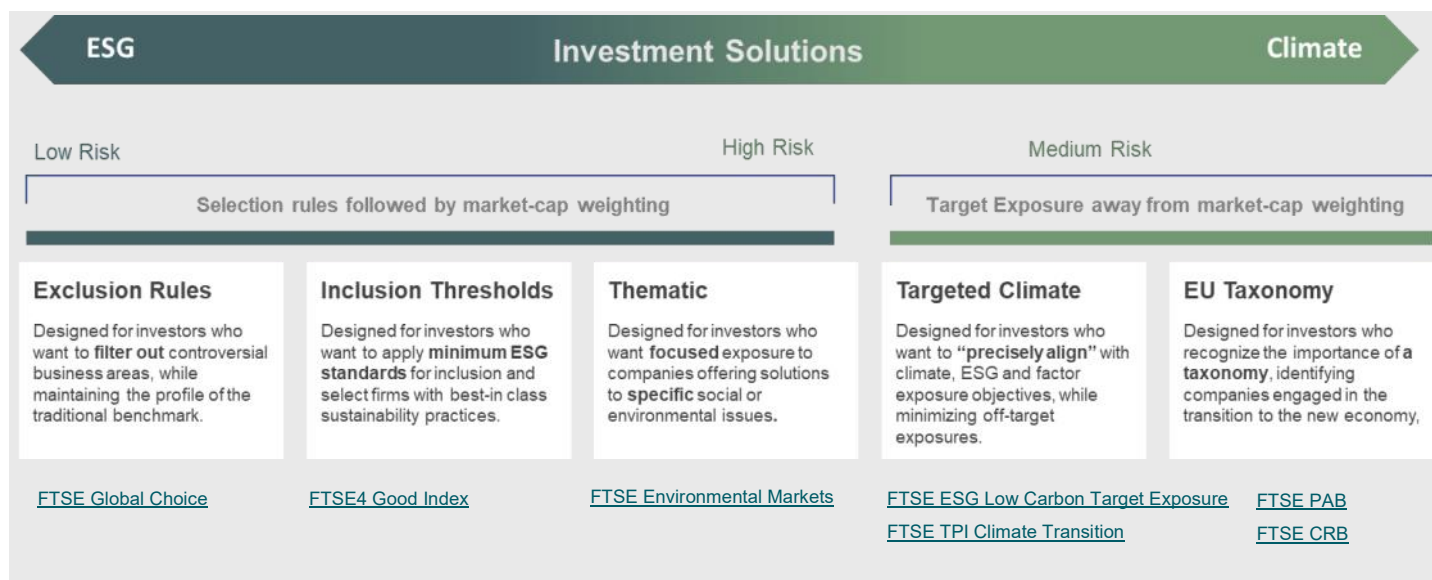


* PAB underwent an exceptional rebalance in Q1 which may have impacted the precision of the Brinson attribution. Source: FTSE Russell/Refinitiv. All data as of March 31, 2023. Past performance is no guarantee of future results. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures. Results in this report are for research / illustrative purposes and do not represent the official performance of the indices.

Appendix 1: SI Index Coverage and Benchmarks – as of March 31, 2023

At FTSE Russell, sustainable investing includes a range of index strategies that aim to provide purpose-driven outcomes aligned with investors' sustainable investment policies. Investors seeking close alignment with the benchmark can choose to apply screens to exclude companies with undesirable features or to overweight those with strong ESG practices. A more concentrated option, Thematic indices, can help address specific social or environmental issues, and the transition to a greener economy, focusing on particular sectors. These indices share rules-based selection methodologies and are market-cap weighted.

The FTSE Russell Target exposure methodology is for investors looking to integrate multiple climate-change objectives, such as hedging specific climate risks, into an index, while gaining exposure to potential upsides from rising demand for green products. It is also used to support investor's decarbonization or net-zero strategies, such as European investors' requirement to align with the minimum standards for EU Low Carbon Benchmarks Requirements.



Market-Cap Weighted indices

FTSE Global Choice indices select companies based on the impact of their products and conduct on society and the environment.

FTSE4Good indices include companies with an ESG and climate-change scores above a minimum threshold, with exclusions.

FTSE Environmental Opportunities indices include companies that derive at least 20% of their revenue from green products.

Target Exposure indices

FTSE ESG Low Carbon Target Exposure indices target a 20% uplift in the ESG score ** and a 50% reduction in carbon emissions, controlling for country and ICB industry exposures.

FTSE EU Climate Transition Benchmarks (CTB) target a 30% reduction in carbon emissions, 100% uplift in Green Revenues (70% in Japan) and high climate governance as measured by the Transition Pathway Initiative (TPI).

FTSE Paris Aligned Benchmarks (PAB) target a 50% reduction in carbon emissions, 100% uplift in Green Revenues and high climate governance.

FTSE TPI Climate Transition over/underweights companies based on fossil fuel reserves, carbon emissions, green revenues, TPI management quality and TPI carbon performance.

*Please refer to the Appendix 3: Glossary Products and Methodology for a comprehensive list of FTSE Russell SI Index Solutions.

** ESG uplift target is the minimum of a standard deviation of market capitalization averaged index ESG score and a 20% uplift.

Appendix 1: SI Index Coverage and Benchmarks – as of March 31, 2023

REGION	SI FAMILY	FTSE Russell Index	FTSE Russell Benchmark	Regional Coverage		Market Cap Coverage	
				DM	EM	Large + Mid Cap	Large + Mid + Small Cap
US	Global Choice	FTSE USA All Cap Choice	FTSE Global Equity USA All Cap	✓			✓
	FTSE4Good	FTSE4Good US	FTSE USA	✓		✓	
	Environmental Ops	FTSE Environmental Opportunities USA	FTSE Global Equity USA All Cap	✓			✓
	ESG Low Carbon Target	FTSE USA ESG Low Carbon Target Exposure	FTSE USA	✓		✓	
	TPI Climate Transition	Russell 1000 TPI Climate Transition	Russell 1000	✓		✓	
UK	Global Choice	FTSE UK ex Controversies ex CW	FTSE UK	✓		✓	
	FTSE4Good	FTSE4Good UK	FTSE All-Share	✓			✓
	Environmental Ops	FTSE Environmental Opportunities UK	FTSE All-Share	✓			✓
	ESG Low Carbon Target	FTSE UK ESG Low Carbon Target Exposure	FTSE UK	✓		✓	
	Climate Transition	FTS Climate Transition Benchmark	FTSE All-Share ex Investment Trusts	✓			✓
	Paris Aligned	FTSE Paris Aligned Benchmark	FTSE All-Share ex Investment Trusts	✓			✓
Europe	Global Choice	FTSE Developed Europe All Cap Choice	FTSE Developed Europe All Cap	✓			✓
	FTSE4Good	FTSE4Good Europe	FTSE Developed Europe	✓		✓	
	Environmental Ops	FTSE Environmental Opportunities Europe	FTSE Developed Europe All Cap	✓			✓
	ESG Low Carbon Target	FTSE Developed Europe ESG Low Carbon Target Exposure	FTSE Developed Europe	✓		✓	
Japan	FTSE4Good	FTSE4Good Japan	FTSE Japan	✓		✓	
	Environmental Ops	FTSE Environmental Opportunities Japan	FTSE Global Equity Series Japan All Cap	✓			✓
	ESG Low Carbon Target	FTSE Japan ESG Low Carbon Target Exposure	FTSE Japan	✓		✓	
	Climate Transition	FTSE Japan Climate Transition Benchmark	FTSE JPX Japan 500	✓		✓	
	TPI Climate Transition	FTSE Japan TPI Climate Transition	FTSE Japan	✓		✓	
APAC	Global Choice	FTSE Developed Asia Pacific All Cap Choice	FTSE Developed Asia Pacific All Cap	✓			✓
	FTSE4Good	FTSE4Good Developed Asia Pacific	FTSE Developed Asia Pacific	✓		✓	
	Environmental Ops	FTSE Environmental Opportunities Asia-Pacific Ex Japan	FTSE Asia Pacific All Cap ex Japan	✓	✓		✓
	ESG Low Carbon Target	FTSE Asia ex Japan ESG Low Carbon Target Exposure	FTSE Asia Pacific ex Japan	✓	✓	✓	
EM	Global Choice	FTSE Emerging All Cap Choice	FTSE Emerging All Cap		✓		✓
	FTSE4Good	FTSE4Good Emerging	FTSE Emerging		✓	✓	
	ESG Low Carbon Target	FTSE Emerging ESG Low Carbon Target Exposure	FTSE Emerging		✓	✓	
Global	Global Choice	FTSE Developed All Cap Choice	FTSE Developed All-Cap	✓			✓
	FTSE4Good	FTSE4Good Developed	FTSE Developed	✓		✓	
	Environmental Ops	FTSE Environmental Opportunities All-Share	FTSE Global All Cap	✓	✓		✓
	ESG Low Carbon Target	FTSE Developed ESG Low Carbon Target Exposure	FTSE Developed	✓		✓	
	TPI Climate Transition	FTSE Developed TPI Climate Transition ex Coal ex Controversies ex Nuclear ex Tobacco	FTSE Developed	✓		✓	

*The indices in bold are used as representative benchmarks on page 4.

Source: FTSE Russell/Refinitiv. This report should not be considered "research" for the purposes of MIFID II. Please see the end for important legal disclosures.

Appendix 2: Reference Guide

Report calculations

- Unless noted otherwise, all performance calculations are in local currency terms.
- Page 4: Regional benchmark performance are for representative benchmarks of the region and not the official benchmark for all listed SI indices. Appendix 1 shows the full list of SI indices covered in this report with their official benchmarks, which are used in the calculations throughout the report.
- Tracking error and Beta are calculated from 5-years of monthly returns. All other calculations on page 3 are 12-month averages.
- Index climate exposures are calculated as the index weighted average. Benchmark climate aggregates are absolute climate exposures. The percent deviations of index exposures from benchmark exposures are labelled “uplift” for ESG and Green Revenues and “reduction” for carbon.
- Contributions to climate “uplift” or “reduction” are the share of total index percent deviation such that the sum over industries equals the total index percent deviation.
- Three-month industry allocation effect is based on a Brinson attribution.

Sustainable Investment data inputs

- Carbon emissions: estimated annual CO2 equivalent GHG emissions (Scope 1 and 2) in metric tons scaled by annual sales (in USD) (metric tons/\$m).
- Green Revenues: the ratio of green revenues as classified by the FTSE Green Revenues Classification System to total revenues.
- FTSE Russell’s ESG Data Model ratings are objective measures of ESG exposure and performance in multiple dimensions.
- TPI Management Quality Data from the Transition Pathway Initiative
- An introduction to the FTSE ESG Ratings can be found in the following guide:
[Guide to FTSE Sustainable Investment Data used in FTSE Russell indices.pdf](#)

Naming convention

FTSE Russell Sustainable indices are abbreviated in the report as follows

Official Name	Report Abbreviation
FTSE Global Choice	Choice
FTSE4Good	4Good
FTSE Environmental Opportunities	Env Ops or EO
FTSE ESG Low Carbon Target Exposure	Low Carb
FTSE Paris-Aligned Benchmark	PAB
FTSE Climate Transition Benchmark	CTB
FTSE TPI Climate Transition	TPI

Source: FTSE Russell/Refinitiv. Please see the end for important legal disclosures.

Appendix 3: Glossary Products and Methodology - extended offering

INDEX SERIES	INVESTMENT SOLUTION	METHODOLOGY
Screened	Filter out controversial business areas	Market-Cap Weighted
FTSE Global Choice	The FTSE Global Choice Index Series is designed to help investors align their portfolios with their individual values by selecting companies based on the impact of their conduct and products on society and the environment.	Market-cap weighted series and can include negative screens in three product categories and two conduct categories. Individual indices within the series may only apply a subset of the screening categories.
Thresholds	Apply Minimum Inclusion standards	Market-Cap Weighted
FTSE4Good	The FTSE4Good Index Series is designed to measure the performance of companies demonstrating strong Environmental, Social and Governance (ESG) practices.	Companies in the investment universe are given an ESG rating ranging from 0 to 5, with 5 being the highest. A minimum score is applied for inclusion and stocks fall out of the index if their score falls below a threshold. In addition a minimum Climate Change Score is applied. An exclusion list covers sectors like Tobacco, Controversial weapons, Coal and Investment Trusts.
FTSE Environmental Opportunities	The FTSE EO Index Series measures the performance of global companies that have significant involvement in environmental business activities, including renewable and alternative energy, energy efficiency, water technology and waste and pollution control.	To be included in the index, companies are required to have at least 20% of their business derived from environmental products and services, including renewable and alternative energy, energy management and efficiency, water infrastructure and technology, and waste and pollution control.
Target Exposure	Target climate change objectives	Non Market-Cap Weighted
FTSE ESG Low Carbon Target	The FTSE ESG Low Carbon indices target a percentage reduction in index level carbon emissions and a significant improvement in the aggregate ESG Rating.	FTSE Russell's Target Exposure methodology is applied to target an uplift of 20% in the ESG score, a 50% reduction in operational carbon emissions intensity and a 50% reduction in fossil fuel reserves intensity, remaining country neutral and limiting the maximum deviation from the ICB industry weights of the underlying index.
FTSE SDG-Aligned	The FTSE SDG Aligned indices adjust constituent weights to create alignment with United Nations Sustainable Development Goals (SDGs)	FTSE Russell's Tilt methodology is applied to overweight stocks to SDG-aligned ESG theme scores and the global green economy. Climate related aspects of the SDG's are further captured tilting away from company exposure to fossil fuels and operational carbon emissions.
FTSE Global Climate	The FTSE Global Climate Index Series is designed to reflect the performance of indices incorporating Climate Change considerations. The index incorporates both the risks and the opportunities associated with climate change and the transition to a green economy.	FTSE Global Climate constituent weights are determined by adjusting the market capitalisation weight for three aspects of climate change: (1) Fossil Fuel Reserves (2) Operational Carbon Emissions (3) Green Revenues.
FTSE Smart Sustainability	The FTSE Smart Sustainability Index Series is designed to reflect the performance of stocks representing a specific set of factor characteristics, climate change considerations and or ESG practices.	FTSE Russell's Target Exposure and FTSE Russell's Tilt methodology are applied to achieve the sustainability and factor exposure profile sought.

Appendix 3: Glossary Products and Methodology

INDEX SERIES	INVESTMENT SOLUTION	METHODOLOGY
EU Taxonomy	Target climate change objectives	Non Market-Cap Weighted
FTSE EU Climate Benchmarks	<p>The FTSE EU Climate Benchmarks series are set to meet Paris aligned (PAB) objectives and Climate Transition (CTB) objectives and exceed the minimum requirements of the EU Climate Benchmark's Regulation.</p>	<p>The FTSE Russell's Target Exposure methodology is applied to target:</p> <p>50% reduction in carbon emissions (PAB), 30% (CTB) and an annual decarbonization targets (7% average annual carbon emissions reduction relative to the index base year) to reach 'net zero' over 10 year.</p> <p>An increased exposure to companies with Green Revenues and high climate governance.</p> <p>Exclusions of pure play (>50% revenues) oil sands, thermal coal extraction and thermal coal power generation companies.</p> <p>Limits on weights of companies in the Banking sector</p>
FTSE TPI Climate Transition	<p>The FTSE TPI Climate Transition Index Series capture the risks and opportunities arising from the climate transition while also adjusting exposure to companies based on their TCFD-aligned climate governance and commitments to "2DC/Below 2DC pathways".</p> <p>The Index Series combines FTSE Russell's expertise in climate data and sustainable investment index design with the Transition Pathway Initiative's (TPI) analysis of how the world's largest and most carbon exposed / intensive public companies are managing the climate transition.</p>	<p>FTSE Russell's Tilt methodology is applied to reweight constituent weights based on five key climate considerations:</p> <p>Fossil fuel reserves: Underweight companies with fossil fuel reserves.</p> <p>Carbon emissions: Over/underweight companies based on their GHG emission within sector.</p> <p>Green revenues: Overweight companies engaged in the transition to a green economy.</p> <p>Management quality: Over/underweight companies based on their climate governance score.</p> <p>Carbon performance: Over/underweight companies according to their carbon performance (2DC/below 2DC) assessment.</p>

Appendix 4: Sustainable indices benchmarked to ETFs

Illustrative selection of index-linked products benchmarked to FTSE Russell sustainable investment indices

INDEX NAME	METHODOLOGY	MANAGER
FTSE Asia Pacific ex Japan ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE Developed ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE Developed Europe ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE Emerging ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE Japan ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE USA ESG Low Carbon Select Net Tax Index	FTSE Target Exposure methodology	HSBC
FTSE UK ESG Low Carbon Select Index	FTSE Target Exposure methodology	HSBC
FTSE Developed ex Australia Choice Index	FTSE Global Choice Index Series	Vanguard
FTSE Global All Cap Choice Index	FTSE Global Choice Index Series	Vanguard
FTSE Global All Cap ex US Choice Index	FTSE Global Choice Index Series	Vanguard
FTSE US All Cap Choice Index	FTSE Global Choice Index Series	Vanguard
FTSE All-Share ex Investment Trusts ESG Climate Select Index	FTSE Target Exposure methodology	Invesco

Source: FTSE Russell/Refinitiv. Please see the end for important legal disclosures.

Receive all research reports

Global Investment Research reports offer investors timely capital-market analysis and insights across asset classes, regions, currencies, industries and styles for better investment decision-making. Subscribers are notified by email when each report is published.

Subscribe now: [Market Maps Registration](#)

To learn more, visit ftserussell.com; email info@ftserussell.com or call your regional Client Service Team office:

EMEA +44 (0) 20 7866 1810

North America +1 877 503 6437

Asia Pacific

Hong Kong +852 2164 3333

Tokyo +81 3 4563 6346

Sydney +61 (0) 2 8823 3521

© 2023 London Stock Exchange Group plc and its applicable group undertakings (the "LSE Group"). The LSE Group includes (1) FTSE International Limited ("FTSE"), (2) Frank Russell Company ("Russell"), (3) FTSE Global Debt Capital Markets Inc. and FTSE Global Debt Capital Markets Limited (together, "FTSE Canada"), (4) FTSE Fixed Income Europe Limited ("FTSE FI Europe"), (5) FTSE Fixed Income LLC ("FTSE FI"), (6) The Yield Book Inc ("YB") and (7) Beyond Ratings S.A.S. ("BR"). All rights reserved.

FTSE Russell® is a trading name of FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB and BR. "FTSE®", "Russell®", "FTSE Russell®", "FTSE4Good®", "ICB®", "The Yield Book®", "Beyond Ratings®" and all other trademarks and service marks used herein (whether registered or unregistered) are trademarks and/or service marks owned or licensed by the applicable member of the LSE Group or their respective licensors and are owned, or used under licence, by FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB or BR. FTSE International Limited is authorised and regulated by the Financial Conduct Authority as a benchmark administrator.

All information is provided for information purposes only. All information and data contained in this publication is obtained by the LSE Group, from sources believed by it to be accurate and reliable. Because of the possibility of human and mechanical error as well as other factors, however, such information and data is provided "as is" without warranty of any kind. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the accuracy, timeliness, completeness, merchantability of any information or of results to be obtained from the use of FTSE Russell products, including but not limited to indices, data and analytics, or the fitness or suitability of the FTSE Russell products for any particular purpose to which they might be put. Any representation of historical data accessible through FTSE Russell products is provided for information purposes only and is not a reliable indicator of future performance.

No responsibility or liability can be accepted by any member of the LSE Group nor their respective directors, officers, employees, partners or licensors for (a) any loss or damage in whole or in part caused by, resulting from, or relating to any error (negligent or otherwise) or other circumstance involved in procuring, collecting, compiling, interpreting, analysing, editing, transcribing, transmitting, communicating or delivering any such information or data or from use of this document or links to this document or (b) any direct, indirect, special, consequential or incidental damages whatsoever, even if any member of the LSE Group is advised in advance of the possibility of such damages, resulting from the use of, or inability to use, such information.

No member of the LSE Group nor their respective directors, officers, employees, partners or licensors provide investment advice and nothing in this document should be taken as constituting financial or investment advice. No member of the LSE Group nor their respective directors, officers, employees, partners or licensors make any representation regarding the advisability of investing in any asset or whether such investment creates any legal or compliance risks for the investor. A decision to invest in any such asset should not be made in reliance on any information herein. Indices cannot be invested in directly. Inclusion of an asset in an index is not a recommendation to buy, sell or hold that asset nor confirmation that any particular investor may lawfully buy, sell or hold the asset or an index containing the asset. The general information contained in this publication should not be acted upon without obtaining specific legal, tax, and investment advice from a licensed professional.

The information contained in this report should not be considered "research" as defined in recital 28 of the Commission Delegated Directive (EU) 2017/593 of 7 April 2016 supplementing Directive 2014/65/EU of the European Parliament and of the Council ("MiFID II") and is provided for no fee.

Past performance is no guarantee of future results. Charts and graphs are provided for illustrative purposes only. Index returns shown may not represent the results of the actual trading of investable assets. Certain returns shown may reflect back-tested performance. All performance presented prior to the index inception date is back-tested performance. Back-tested performance is not actual performance, but is hypothetical. The back-test calculations are based on the same methodology that was in effect when the index was officially launched. However, back-tested data may reflect the application of the index methodology with the benefit of hindsight, and the historic calculations of an index may change from month to month based on revisions to the underlying economic data used in the calculation of the index.

This document may contain forward-looking assessments. These are based upon a number of assumptions concerning future conditions that ultimately may prove to be inaccurate. Such forward-looking assessments are subject to risks and uncertainties and may be affected by various factors that may cause actual results to differ materially. No member of the LSE Group nor their licensors assume any duty to and do not undertake to update forward-looking assessments.

No part of this information may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior written permission of the applicable member of the LSE Group. Use and distribution of the LSE Group data requires a licence from FTSE, Russell, FTSE Canada, FTSE FI, FTSE FI Europe, YB, BR and/or their respective licensors.