

Sustainable Investment Insights

QUARTERLY REPORT: OCTOBER 2022

FOR PROFESSIONAL INVESTORS ONLY

Energy stock gains continue to weigh on SI strategies in Q3

Whilst the bounce back in Alternative Energy stocks helped lift green-technology-focused Environmental Opportunities in Q3, it was a headwind for the ESG and Climate focused indexes, FTSE4Good and ESG Low Carbon Target. Strategies underweighting Energy suffered the most, as the stocks continued their strong run, even as oil prices plunged.

Highlights

EO enjoys a comeback

Environmental Opportunities (EO) rebounded in the US and Europe, benefiting mostly from underweights in lagging Health Care, Staples and rate-sensitive Financials. The large Tech exposure remained a hurdle for the US (pg. 11)

FTSE4Good EM scores big in ESG

FTSE4Good EM made the greatest headway in ESG and TPI uplifts, boosted by Financials & technology exposures (pg.10)

Discretionary exposure a FTSE4Good swing factor

Underweights in Discretionary stocks had the biggest impact n FTSE4Good returns - cushioning losses in EM and detracting most in the US, a reversal from Q2 trends (pg.19)

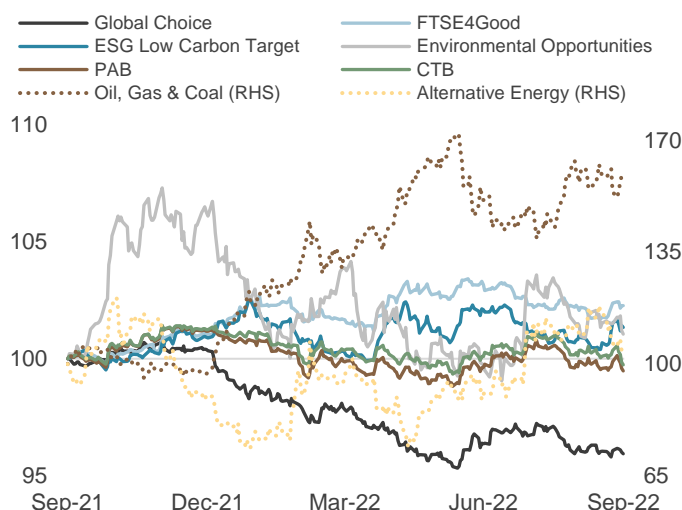
Valuation reset continues

EO's exposures to green-focused Industrials, Utilities & Tech drove up valuation premiums in the US and Japan (pg. 14 and 17).

Energy a pain-point for UK SI

SI Indexes in the UK were hit hard by their underweight in outperforming Energy stocks in Q3, even as crude oil prices fell (page 15).

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



Note: SI indexes are for developed markets except EO, which is global.

-2.9%
FTSE UK
3M (TR, LC)

-4.8%
FTSE USA
3M (TR, LC)

+1.1%
Oil Gas & Coal Sector
Developed 3M (TR, LC)

+10.6%
Alternative Energy Sector
Developed 3M (TR, LC)

-5.0%
FTSE UK ESG Low Carb
Target 3M (TR, LC)

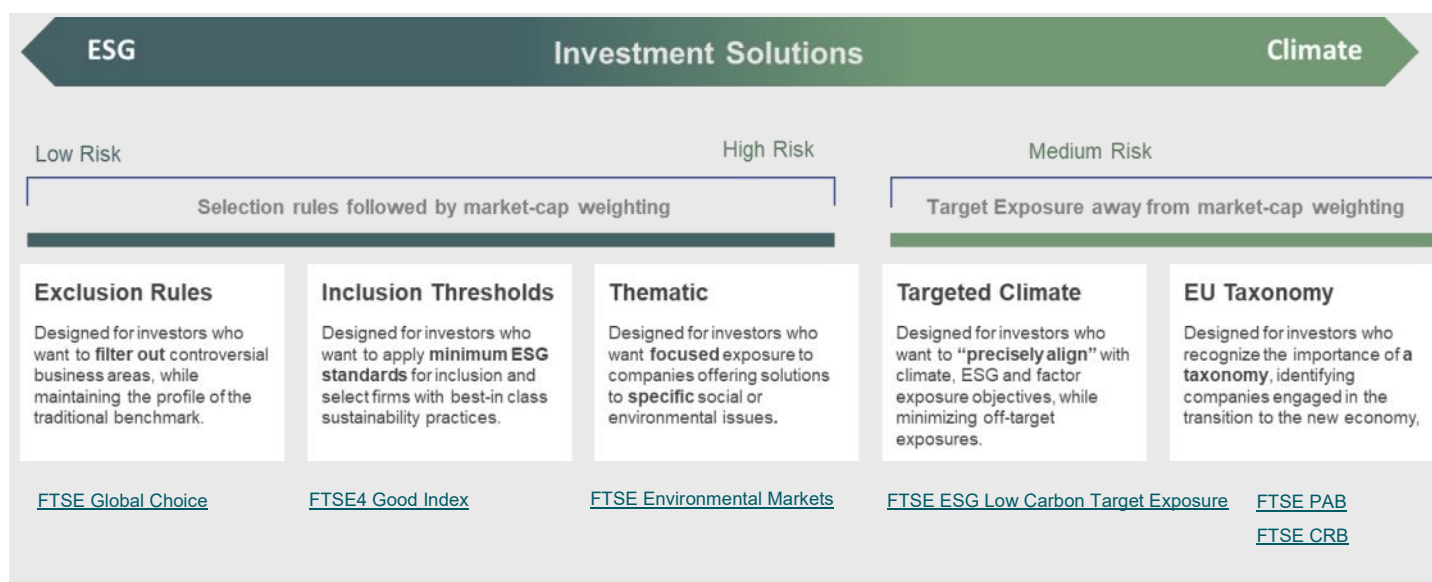
-2.7%
FTSE USA Environmental
Ops 3M (TR, LC)

Source: FTSE Russell / Refinitiv. Data as of September 30, 2022.

ESG & Sustainable Index Coverage – as of September 30, 2022*

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 indexes, can help address specific social or environmental issues, and the transition to a greener economy, focusing on particular sectors. These indexes 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. We hope this report provides the transparency and investment insights for investors in the sustainable investment universe.



Market-Cap Weighted Indexes

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

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

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

Target Exposure Indexes

FTSE ESG Low Carbon Target Exposure Indexes 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.

*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.

Risk and Climate Characteristics – as of September 30, 2022

Key Observations

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

Global Choice product category (“non-renewable energy”) filters out fossil fuels and significant carbon reductions (37% to 58%) except in the UK. Market-cap weighting the remaining stocks results in a risk profile close to the benchmark, betas around 1 and high diversification. The UK is the most diversified, holding 98% of benchmark stocks, whilst Europe is the least diversified, holding 82% of benchmark stocks and 30.5% more weight in the Top 10 largest stocks (130.5%).

FTSE4Good’s best-in-class ESG selection thresholds result in significant ESG uplifts with low tracking errors, except in EM (6.2%, highest ESG uplift of 27.9%). Europe has the lowest ESG uplift (4.5%) but also one of the highest benchmark scores (3.8 UK versus 2.6 EM). The climate thresholds improve the TPI Management Quality (MQ) score, up to 44% in EM.

Environmental Opportunities selects companies with significant environmental business activities, resulting in large improvements in active green revenues exposure from 34.5 pp in the US to 54.9 pp in the UK. The focus on “greenness” leads to index concentration and higher tracking errors.

ESG Low Carbon Target achieves the targeted 50% carbon reduction across regions and significant ESG uplifts with tracking errors around 2.5% and betas close to 1, except the UK (TE 6.2%, Beta 0.88).

Climate Transition Benchmark (CTB) achieves the targeted 30% reduction in carbon emissions, targeted green revenues uplift and an improved TPI Management Quality (MQ) score. Tracking errors are relatively high in the UK, which is also the least diversified, holding only 45.8% of benchmark stocks, versus 94.7% in Japan. The highest concentration in terms of relative top 10 stock weight is reached in the developed region.

Paris Aligned Benchmark (PAB) achieves the targeted 50% carbon reduction, TPI MQ* uplifts ranging from 13% to 39%. UK bear the highest tracking error (5.6% p.a.), and has the lowest percentage of benchmark stocks, 35.4%.

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

Risk	FTSE Russell SI Index	US	UK	Europe	Japan	Asia Pac	Emerging	Developed
Tracking Error	Global Choice	1.8%	1.9%	2.2%		1.2%	1.7%	1.7%
	FTSE4Good	2.2%	1.8%	1.0%	2.6%	2.0%	6.2%	1.6%
	Environmental Ops	8.4%	8.6%	6.1%	6.7%	8.3%		
	ESG Low Carbon Target	2.6%	6.2%	3.0%	2.4%	2.2%	2.5%	2.0%
	Climate Transition BMK		4.5%		1.2%		3.0%	1.5%
	Paris Aligned BMK		5.6%				3.1%	1.7%
Beta	Global Choice	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
	Environmental Ops	1.1	0.9	1.1	1.1	1.0		
	ESG Low Carbon Target	1.0	0.9	1.0	1.0	1.0	1.0	1.0
	Climate Transition BMK		1.0		1.0		0.9	1.0
	Paris Aligned BMK		0.9				0.9	1.0
Number of stocks as % of benchmark	Global Choice	83.3%	98.1%	82.0%		87.4%	85.3%	85.2%
	FTSE4Good	41.3%	35.8%	68.6%	41.4%	40.1%	29.3%	48.0%
	Environmental Ops	7.7%	6.6%	12.2%	7.0%	4.7%		
	ESG Low Carbon Target	78.2%	50.4%	52.6%	77.6%	48.0%	54.0%	44.7%
	Climate Transition BMK		45.8%		94.7%		48.5%	46.0%
	Paris Aligned BMK		35.4%				46.7%	43.9%
Weight in Top 10 relative to benchmark	Global Choice	119.6%	100.9%	130.5%		114.4%	112.5%	123.3%
	FTSE4Good	150.2%	125.2%	121.9%	141.0%	129.8%	126.2%	135.7%
	Environmental Ops	298.1%	159.8%	259.2%	310.5%	325.3%		
	ESG Low Carbon Target	164.4%	161.4%	199.3%	164.2%	149.7%	133.3%	180.9%
	Climate Transition BMK		123.4%		134.0%		111.8%	152.5%
	Paris Aligned BMK		123.8%				113.4%	156.8%

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 September 30, 2022

Climate Characteristics: In green are indexes 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 indexes.

Climate	FTSE Russell SI Index	US	UK	Europe	Japan	Asia Pac	Emerging	Developed
Active E score	Global Choice	1.6%	0.3%	-5.4%		-1.8%	-4.1%	-0.7%
	FTSE4Good	21.1%	12.6%	6.1%	18.0%	15.1%	37.3%	17.2%
	Environmental Ops	35.4%	-20.8%	1.8%	2.1%	42.3%		
	ESG Low Carbon Target	27.2%	21.3%	24.0%	19.2%	24.4%	21.4%	27.6%
	Climate Transition BMK		11.7%		8.5%		24.2%	12.8%
	Paris Aligned BMK		12.1%				23.8%	13.1%
Active S score	Global Choice	2.4%	-0.8%	-1.8%		-1.0%	-0.7%	0.6%
	FTSE4Good	13.1%	10.6%	4.8%	18.1%	15.7%	32.8%	12.6%
	Environmental Ops	10.6%	-17.1%	-4.8%	-7.5%	33.5%		
	ESG Low Carbon Target	19.2%	11.5%	14.8%	19.9%	20.8%	22.0%	18.4%
	Climate Transition BMK		1.5%		5.7%		17.0%	6.2%
	Paris Aligned BMK		2.0%				17.8%	6.8%
Active G score	Global Choice	-0.2%	-0.1%	-2.5%		-1.5%	0.1%	-1.2%
	FTSE4Good	4.1%	8.9%	2.6%	11.4%	10.9%	18.2%	5.8%
	Environmental Ops	8.6%	-7.3%	-2.2%	-4.4%	17.3%		
	ESG Low Carbon Target	9.8%	2.3%	5.9%	13.0%	9.8%	10.6%	9.1%
	Climate Transition BMK		0.0%		2.8%		10.5%	1.6%
	Paris Aligned BMK		-0.6%				10.5%	1.4%
Active ESG score	Global Choice	1.4%	-0.6%	-2.9%		-1.4%	-1.0%	-0.3%
	FTSE4Good	12.4%	10.7%	4.5%	15.7%	13.9%	27.9%	11.7%
	Environmental Ops	16.4%	-15.8%	-2.7%	-3.7%	27.6%		
	ESG Low Carbon Target	18.4%	10.4%	14.2%	17.4%	17.6%	17.2%	18.0%
	Climate Transition BMK		3.0%		5.6%		15.6%	6.3%
	Paris Aligned BMK		3.1%				15.8%	6.6%
Carbon Reduction	Global Choice	-58.2%	3.2%	-52.5%		-48.6%	-37.5%	-55.1%
	FTSE4Good	-36.3%	9.6%	-1.7%	4.3%	-10.0%	11.9%	-23.5%
	Environmental Ops	43.5%	-1.7%	91.7%	40.9%	51.1%	0.0%	
	ESG Low Carbon Target	-48.5%	-60.4%	-55.0%	-49.3%	-51.6%	-50.2%	-53.3%
	Climate Transition BMK		-39.7%		-41.0%		-46.1%	-41.4%
	Paris Aligned BMK		-61.6%				-63.6%	-60.6%
Active Green Revenues	Global Choice	0.26	0.24	-1.11		-0.53	0.47	0.02
	FTSE4Good	-0.93	-0.29	0.04	-1.21	-0.99	2.06	-0.76
	Environmental Ops	34.53	54.93	36.44	43.11	38.45		
	ESG Low Carbon Target	-1.01	0.51	1.99	-0.18	0.69	0.65	-0.10
	Climate Transition BMK		3.92		5.91		5.82	4.77
	Paris Aligned BMK		6.24				5.67	4.61
Active TPI Management Quality Score	Global Choice	-0.8%	1.0%	-7.3%		-3.9%	-6.3%	-3.0%
	FTSE4Good	15.1%	8.0%	5.0%	17.6%	18.0%	44.0%	13.5%
	Environmental Ops	21.0%	-14.5%	-1.2%	5.8%	37.7%		
	ESG Low Carbon Target	17.5%	2.8%	11.9%	16.8%	24.1%	23.8%	16.5%
	Climate Transition BMK		16.9%		9.7%		39.7%	14.9%
	Paris Aligned BMK		12.9%				39.2%	14.3%

Note: All calculations are 12-month averages.

TPI MQ is the TPI Management Quality score. Carbon reductions are normalized by revenues except for the CTB and PAB benchmarks, where European law requires normalization by EVIC. ESG Low Carbon Target index series target the minimum of a standard deviation of market

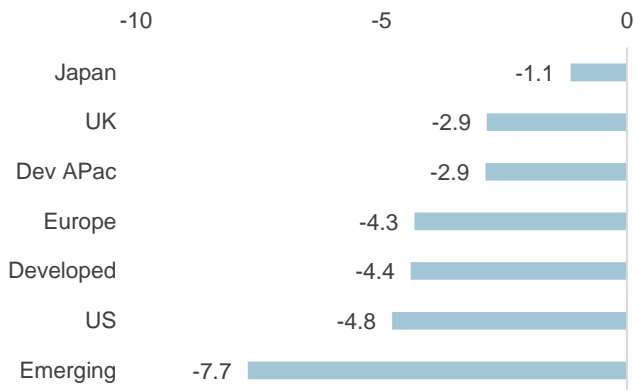
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Absolute Returns – 3M & 12M (TR, LC %) as of September 30, 2022

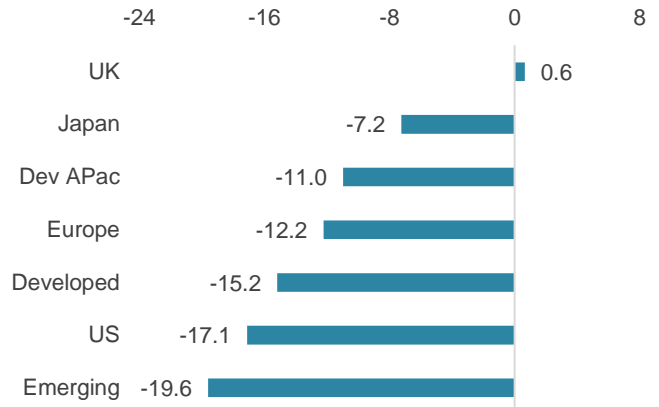
Key Observations

Equity markets fell across the board in Q3, as central banks' aggressive, synchronized tightening moves intensified recession fears. EM stocks suffered most amid a massive flight to quality and the slowdown in China. Japan fared best amid an improving economic backdrop. Notably, FTSE 4Good EM fell 2.5%, significantly outperforming the benchmark, helped by its underweight in lagging Discretionary stocks. Environmental Opportunities performed relatively better than other SI indices.

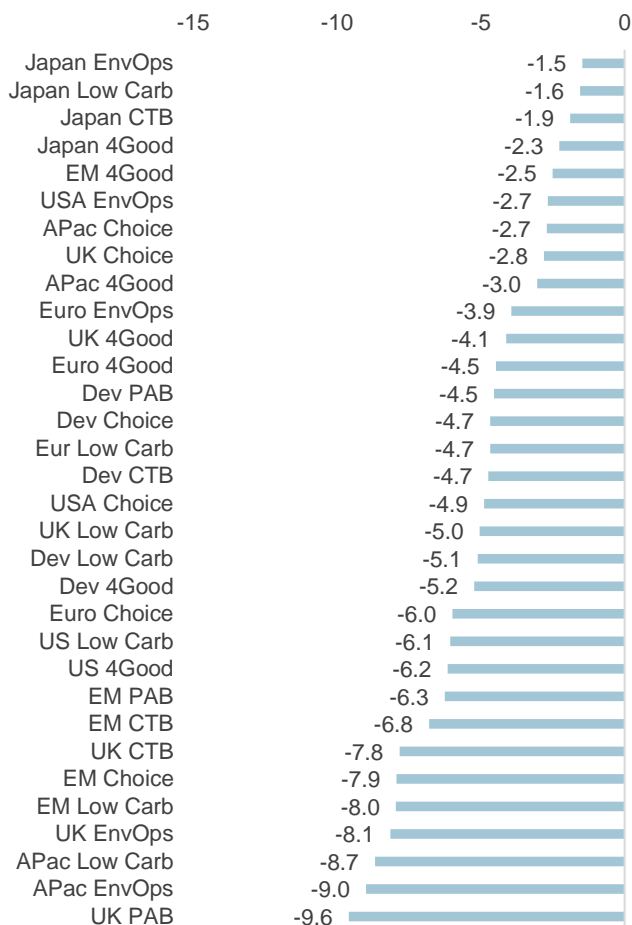
Regional 3M Absolute Returns (LC %). Uncertainty in China hurt EM. Improved fundamental helped Japan.



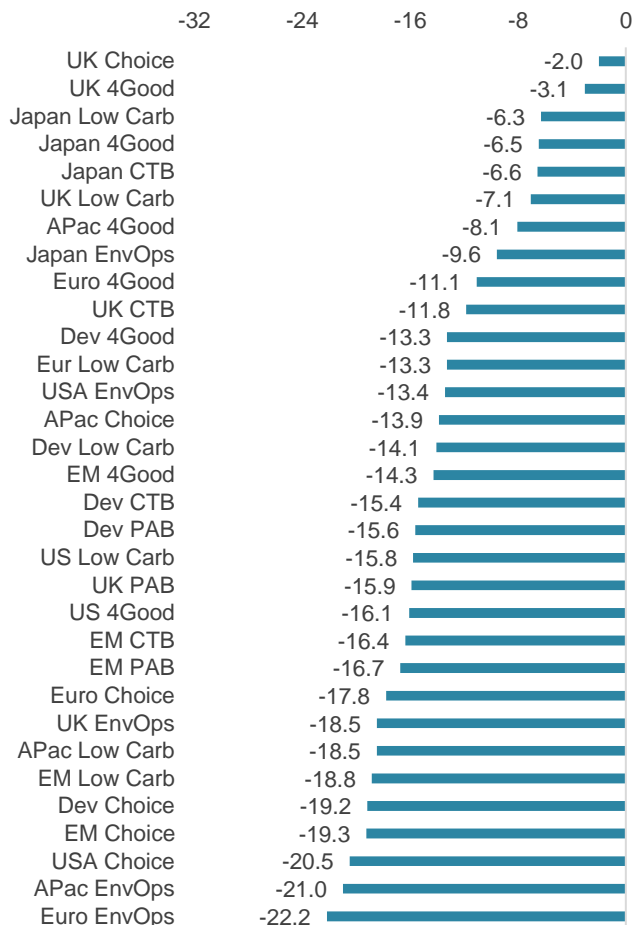
Regional 12M Absolute Returns (LC %). China lockdowns and continuing war hurt EM. Only UK outperformed.



SI Index 3M Absolute Returns (LC %). Japan indexes led performance, owing to their high correlations to the bench.



SI Index 12M Absolute Returns (LC %). UK & Japan SI Indexes delivered the highest absolute returns.



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

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Global View - SI Index Macro Insights – Q3 2022

Rolling 52-week correlations between Global SI indices and crude oil prices turned negative in 2022 (Chart 2). The impact of the small rebound in Alternative Energy stocks was mixed, benefiting green-focused Environmental Opportunities (EO) but hurting FTSE4Good and ESG Low Carbon Target, due to negative correlations (Chart 4). Correlations to shifts in 10-year US Treasury bond yields, which surged in Q3 amid persistent US inflation readings and increasingly hawkish Fed inflation-fighting rhetoric, were positive for FTSE4Good and ESG Low Carbon Target, but negative for EO.

Global SI indexes active returns and climate statistics (TR, LC%)

FTSE Russell SI Index	Active Return Q3	Active ESG Score	Carbon reduction	Active Green Revenues	Active TPI Score	Brent Crude return Q3	Alternative Energy return Q3	US 10Y yield change Q3
Global Choice	-0.52%	-0.4%	-51.2%	0.07	-3.4%			
FTSE4Good	-0.23%	13.2%	-18.3%	-0.51	15.9%			
Environmental Ops	1.25%	13.1%	47.7%	36.45	19.0%	-24.1%	6.3%	0.83
ESG Low Carbon Target *	-0.71%	18.0%	-53.3%	-0.10	16.5%			
Climate Transition BMK	-0.51%	8.2%	-0.2%	6.07	18.1%			
Paris Aligned BMK	-0.04%	8.4%	-38.9%	5.93	17.6%			

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

Chart 1: Brent Crude Oil Performance Oil prices fell 24% in Q3 amid rising worries about global demand.

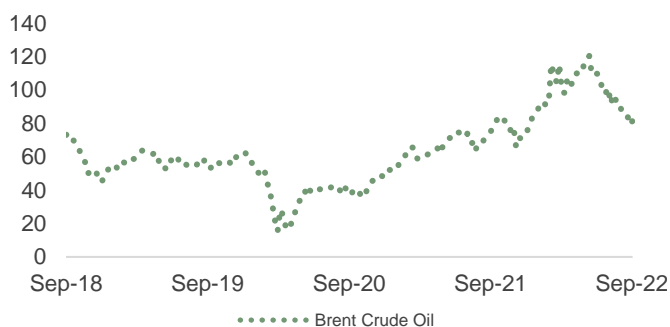


Chart 2: Correlation with Crude Oil. Oil price sell-off supports recovery, especially Environmental Opportunities.

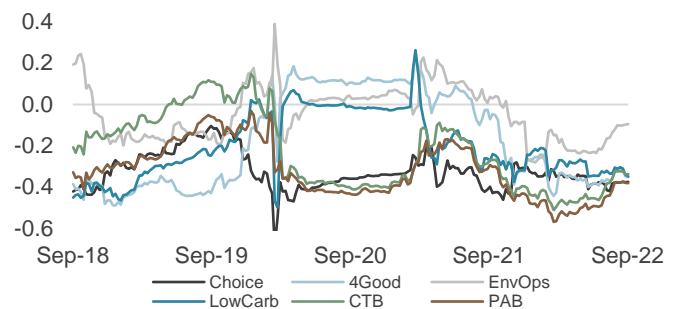


Chart 3: FTSE Alternative Energy sector relative Performance: These stocks gained 6.3% in Q3.

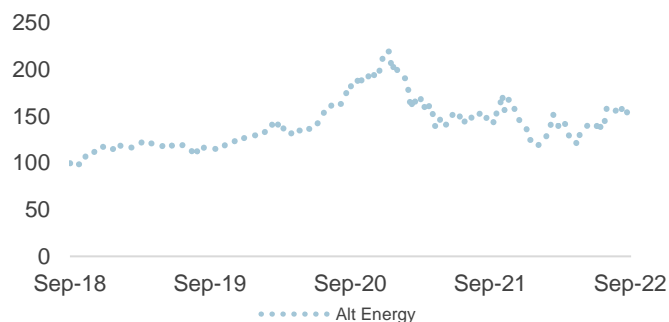


Chart 4: Correlation with Alternative Energy. Green-focused EO supported by a recovery in Alternative Energy.

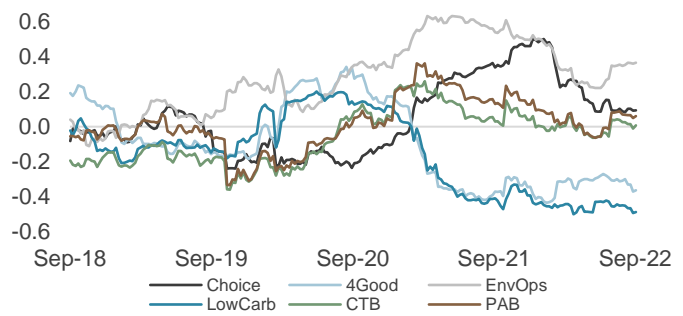


Chart 5: 10-Year US Treasury Yield rose 83bps as Fed policymakers signaled unwavering hardline focus on inflation.

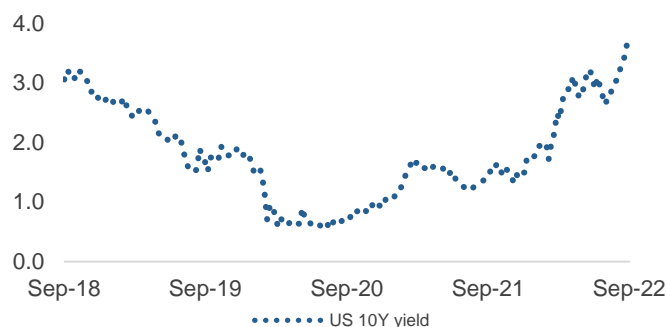
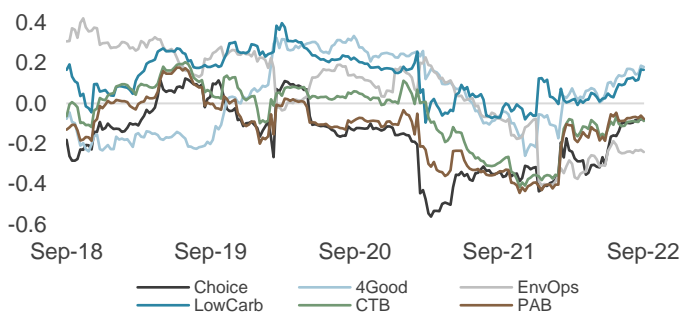


Chart 6: Correlation with US 10-Year: Positive correlations to US yields help FTSE4Good and ESG Low Carbon Target.

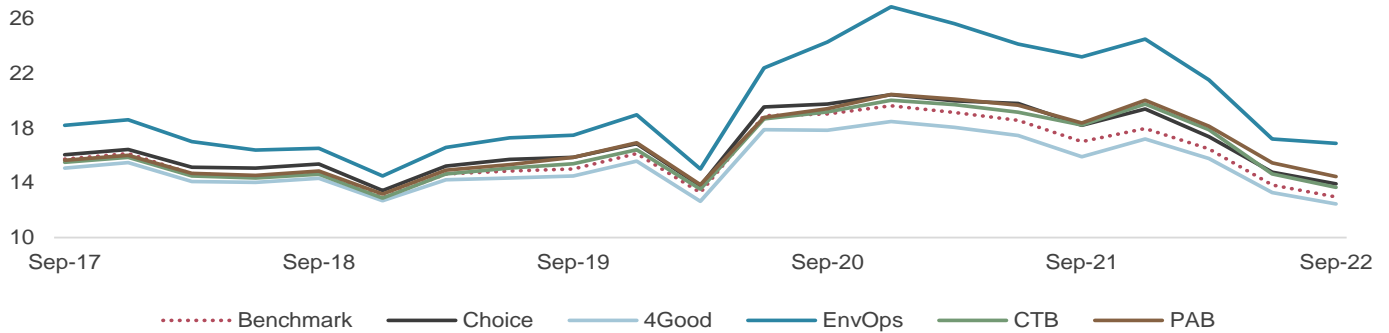


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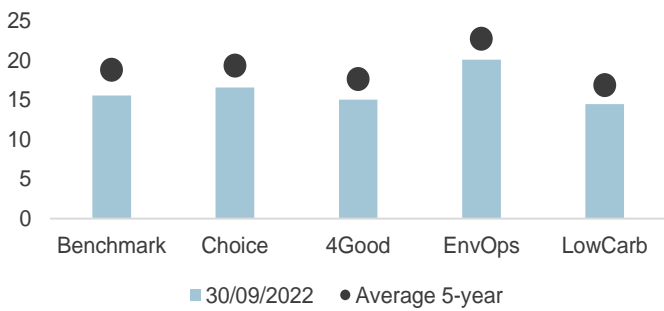
Global View – SI Index Valuation Insights – Q3 2022

Forward 12-month P/Es have been contracting across the SI indices since the outbreak of the Russia-Ukraine war. Only Global Environmental Opportunities trades at a premium to the benchmark. At a regional level, both benchmarks and the SI strategies are currently trading below their 5-year averages. SI Indexes in Japan, Europe and the UK trade well below their 5-year average, most significantly for Environmental Opportunities. Emerging-market-focused SI strategies are among the cheapest, reflecting the market’s steep selloff, whilst the US SI Indexes are the most expensive on an absolute basis.

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



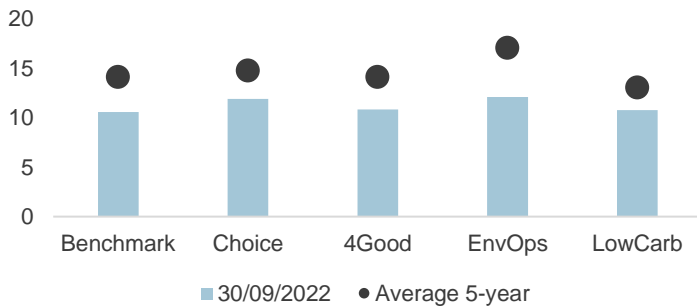
US - 12-month forward P/E vs history



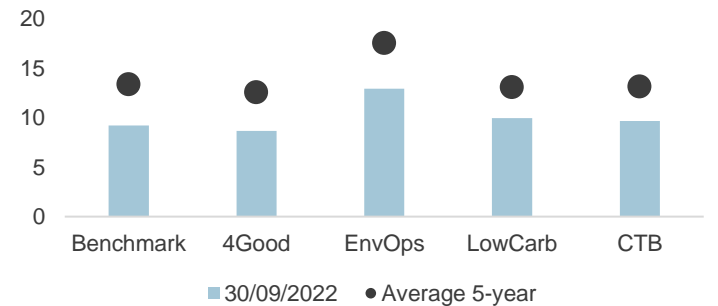
UK - 12-month forward P/E vs history



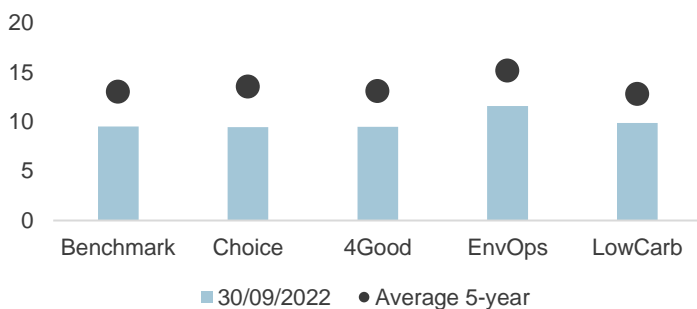
Europe - 12-month forward P/E vs history



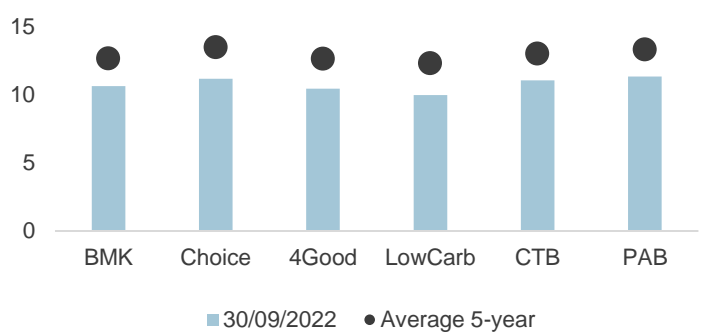
Japan - 12-month forward P/E vs history



APAC - 12-month forward P/E vs history



EM - 12-month forward P/E vs history



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Macroeconomic Backdrop

Key Observations

FTSE Global Environmental Opportunities bounced back in Q3, lifting by tailwinds from falling oil prices (down 24.1%) and a recovery in the Alternative Energy stocks (up 10.1%). Relative performance of EO's component sectors was mixed, with a strong recovery in Renewable and Alternative Energy (+6.3%) and Waste & Pollution Control stocks (+3%). Water Technology (0.5%) was additive, with only the largest and high-beta component, Energy Efficiency (-3.9%), detracting.

As yields rose sharply (Chart 2), SI indexes in the UK generally underperformed the benchmark in Q3. The Paris-aligned benchmark and EO strategies were the hardest hit, down 6% and 4.7%, respectively, on a relative basis. A common denominator was an underweight to outperforming Energy stocks.

Japan was the best-performing equity market in Q3, but SI indexes there slightly lagged the benchmark. EO, which takes concentrated bets, benefited from its exposure to green-focused Industrials but was hurt by its overweight to lagging Health Care.

In Europe, SI indexes generally performed in line with the benchmark. Small underweights in the Energy stocks deducted from performance, with Global Choice paying the harshest toll.

Chart 1: EO Sectors rebounded in Q3, thanks mostly to strong performances in Renewable and Alternative Energy stocks.

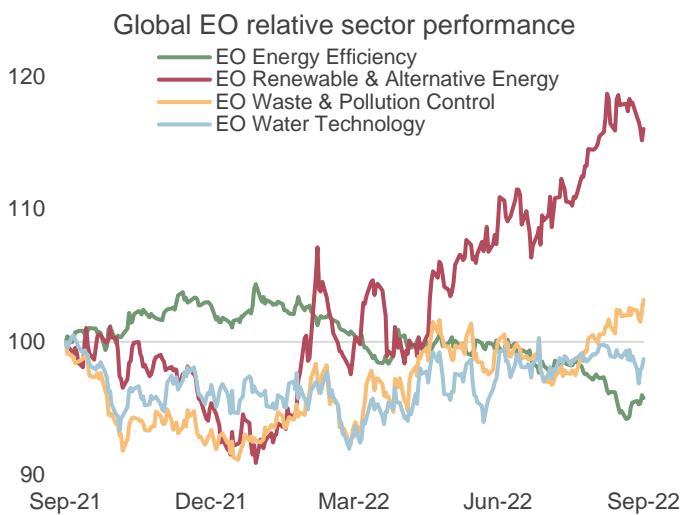


Chart 2: UK — Rising yields and Value outperformance were headwinds for SI strategies with defensive underweights.

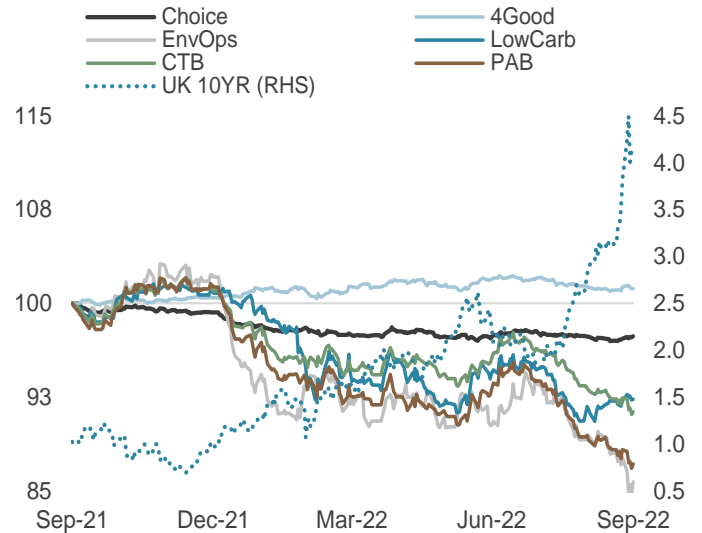


Chart 3: Japan — EO's lower defensive exposures hurt amid the Value rotation in Q3; other SI indexes remained steady.

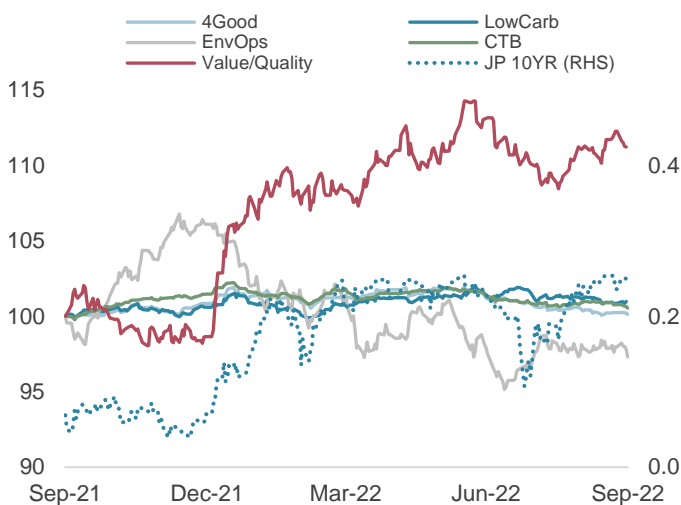
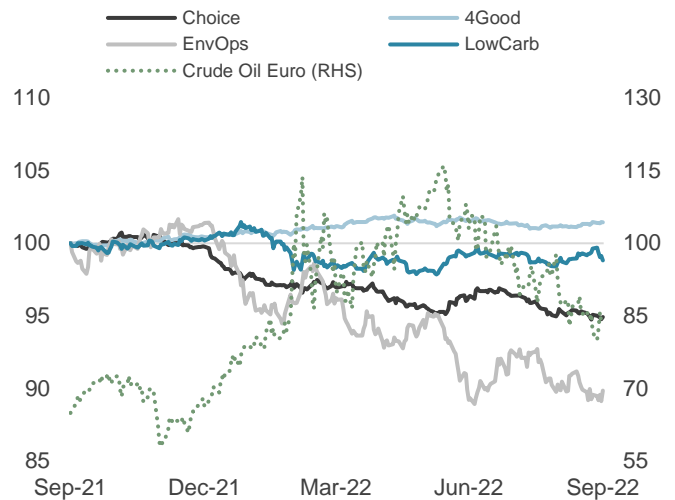


Chart 4: Europe — Correlations between EO returns and swings in oil prices remained negative in Q3.



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FTSE Global Choice Indexes – Q3 2022

Global Choice performance was mixed in Q3, with the UK benefiting from exposure to Energy and underweight in underperforming Financials. Europe was the hardest hit (-1.4%), poorly positioned to underperforming Health Care and Financials and outperforming Energy. Global Choice applies screens without explicit ESG or carbon targets, and achieved ESG uplift, as small positive and negative contributions offset each other (Chart 3). Most GC strategies (except in the UK) achieved substantial carbon reductions, especially from Utilities, followed by Energy and Basic Materials (Chart 4); small active weights in Energy and Utilities helped most (Chart 5). The EM benchmark's carbon emissions remain high relative to the other regions (Chart 2).

Chart 1: Active performance (TR, LC %)

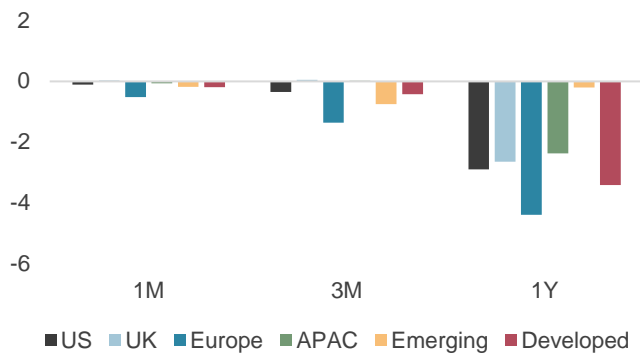


Chart 2: Benchmark Carbon Emissions / Revenues

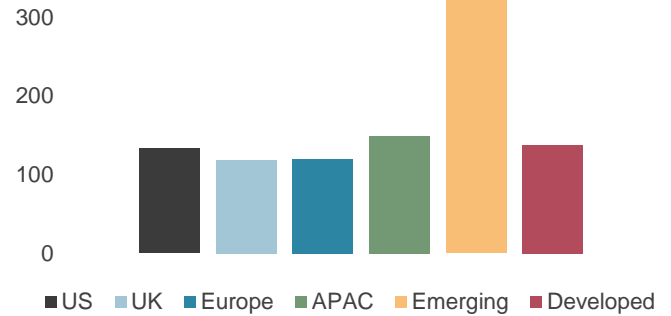


Chart 3: Contribution to ESG uplift (%)

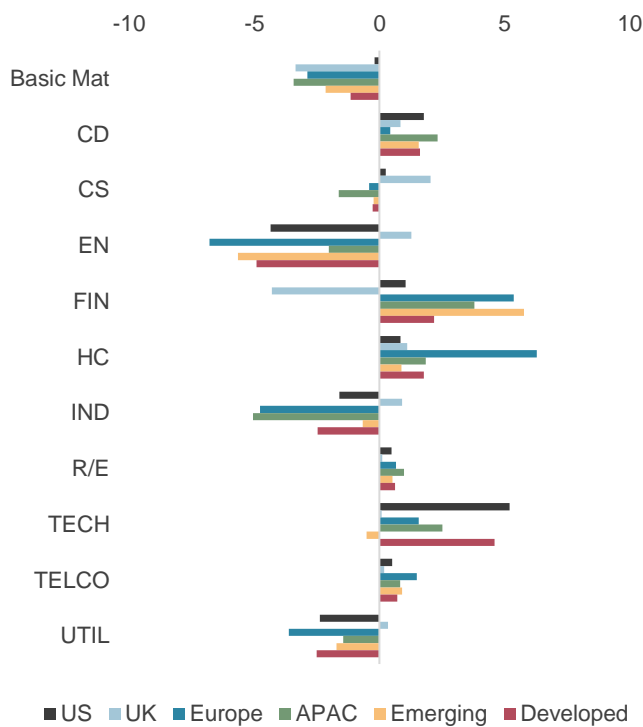


Chart 4: Contribution to Carbon reduction (%)

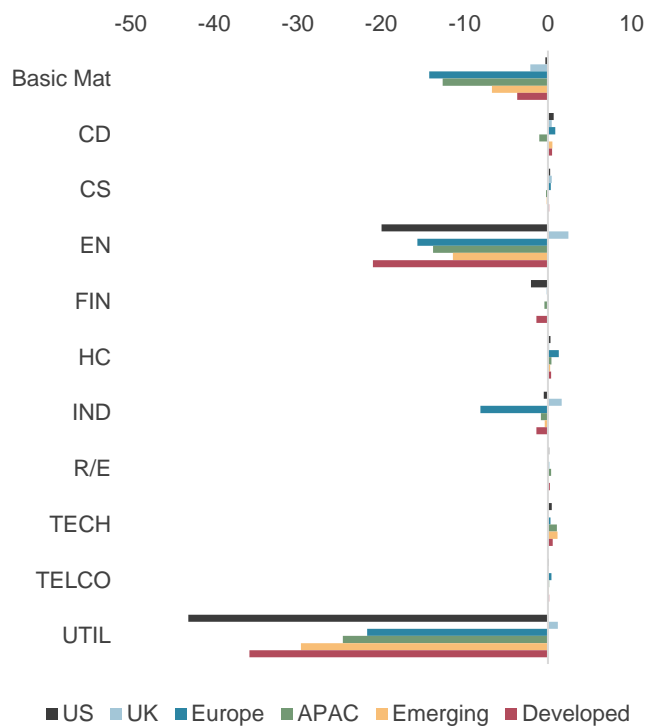
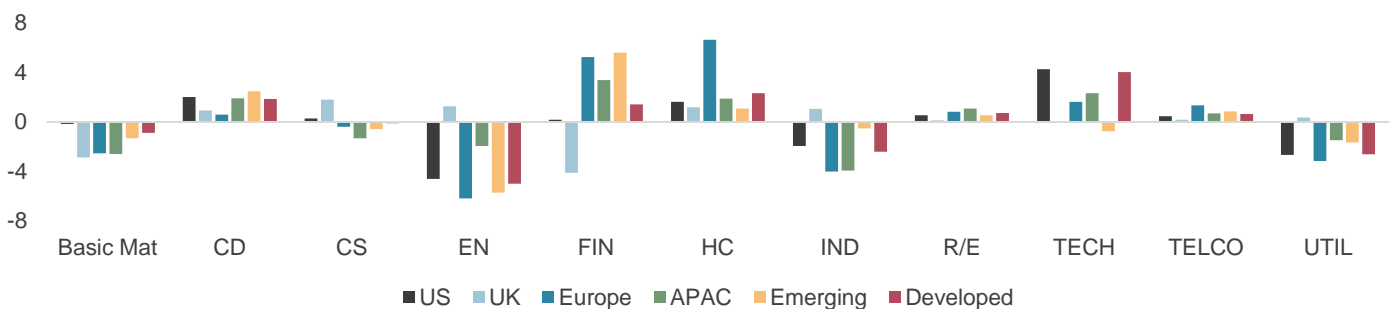


Chart 5: Active industry weights (%)



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FTSE4Good Indexes – Q3 2022

Relative returns for the FTSE4Good indices in Q3 ranged from flat in Europe and Asia Pacific to substantial outperformance in EM. Underweights to Consumer Discretionary drove EM relative gains but hurt in the US. The applied threshold for minimum ESG and Climate standards resulted in substantial ESG uplifts (see page 4), with Financials and Tech stocks dominating industry contributions (Chart 3). Minimum Climate standards resulted in uplifts in the TPI MQ score across regions, especially in EM (44%), where Financials and Tech made particularly strong contributions (Chart 4).

Chart 1: Active performance (TR, LC %)

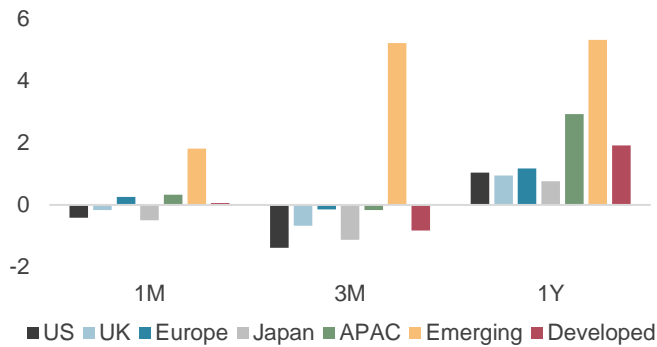


Chart 2: Benchmark ESG scores

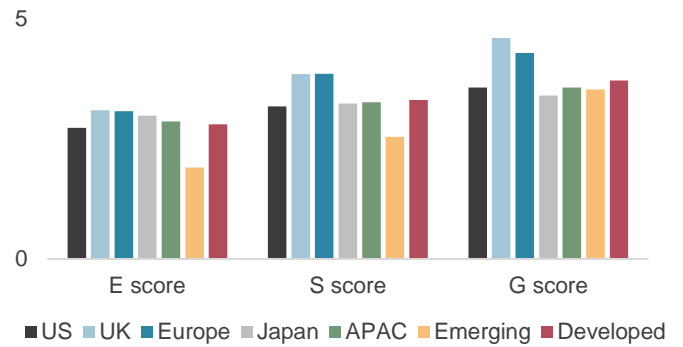


Chart 3: Contribution to ESG uplift (%)

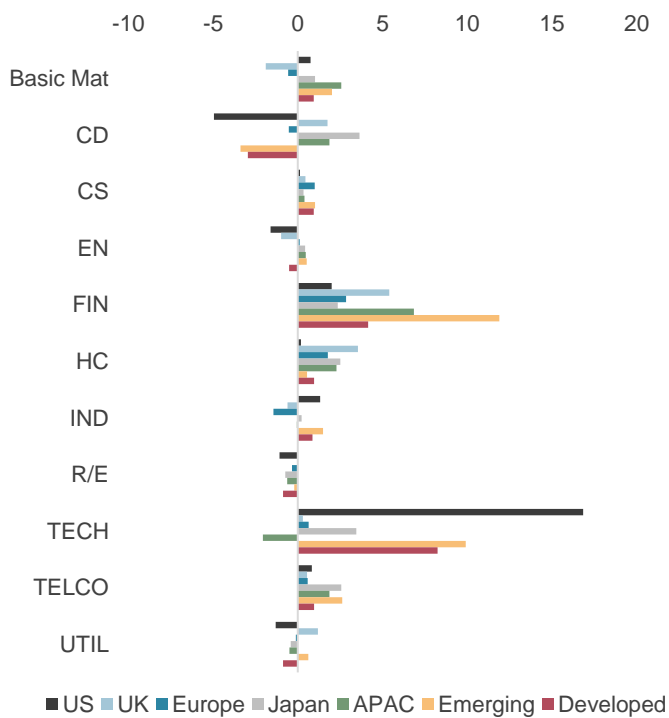


Chart 4: Contribution to TPI Management Quality uplift (%)

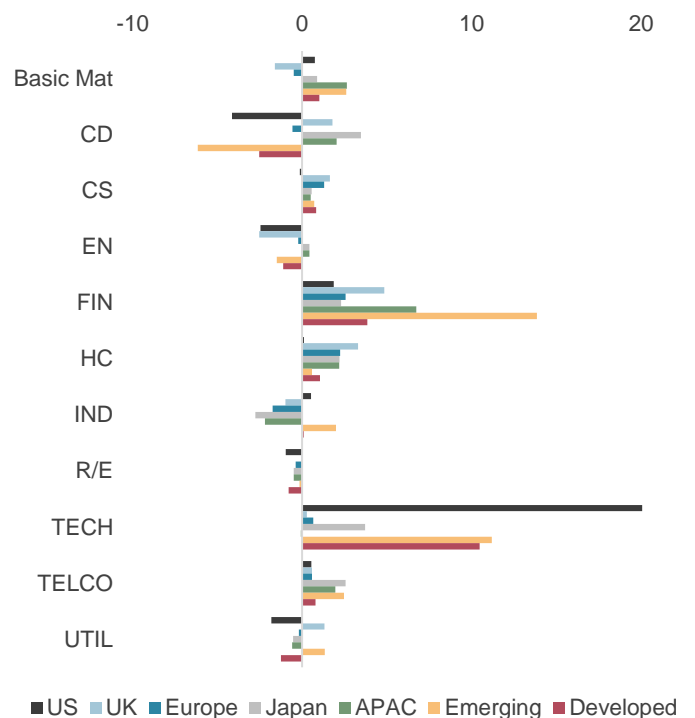
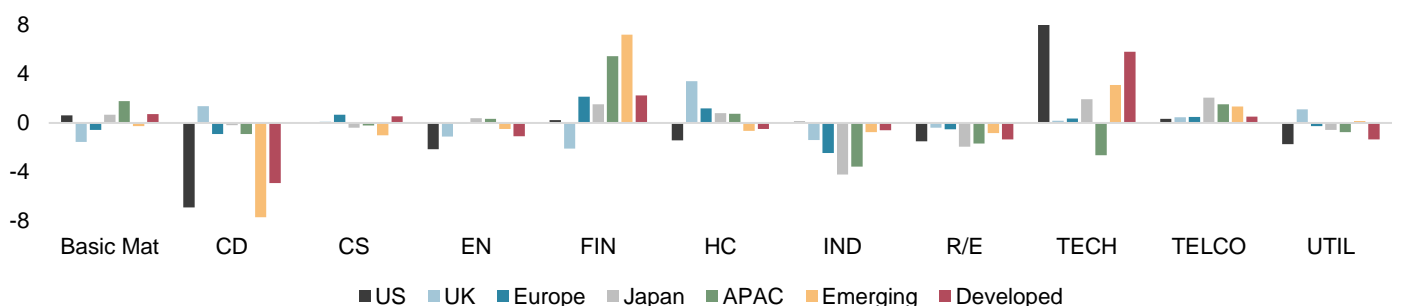


Chart 5: Active industry weights (%)



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FTSE Environmental Opportunities Indexes – Q3 2022

EO indexes broadly recovered in Q3, especially in the US (up 1.9% in relative terms). EO lagged in the UK (-4.7%), as gains in Industrials were more than offset by underweights in outperforming Energy and Consumer Staples. Green-revenue selection thresholds (20% or more) resulted in significant index concentration (see page 3) and large active weights (Chart 5) in Industrials, Technology & Utilities. Large green revenues uplifts (see page 3) were well diversified across industries in the US but more concentrated in Financials & Utilities in the UK; in Industrials in the UK, Japan and Europe; and in Tech in Asia Pacific (Chart 4).

Chart 1: Active Performance (TR, LC %)

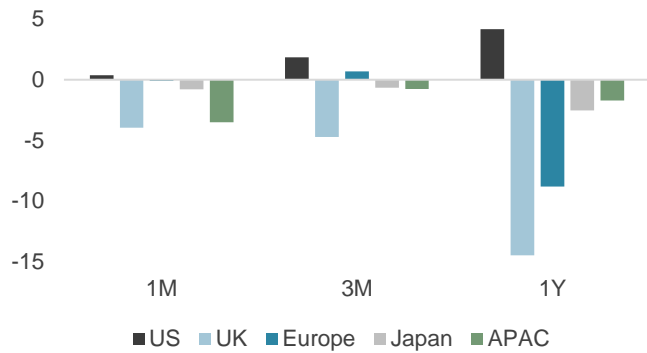


Chart 2: Benchmark Green Revenues scores

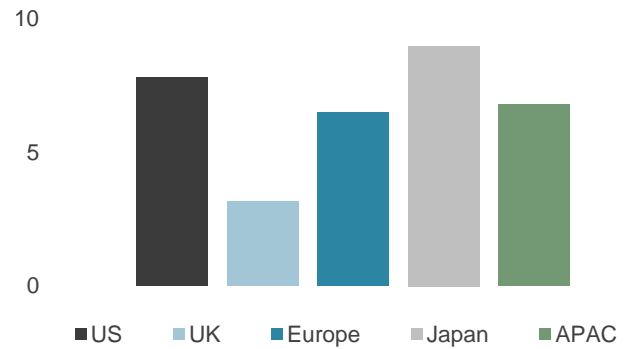


Chart 3: Contribution to ESG uplift (%)

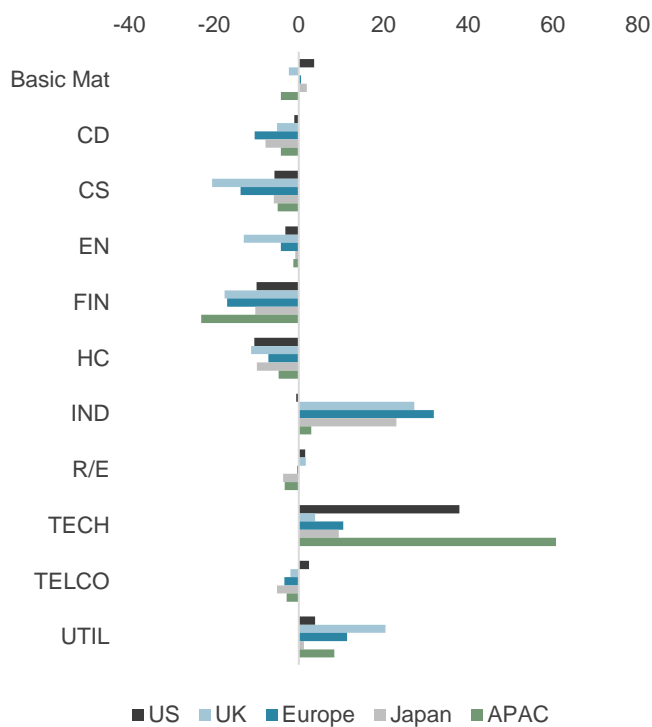


Chart 4: Contribution to Green Revenues uplift (%)

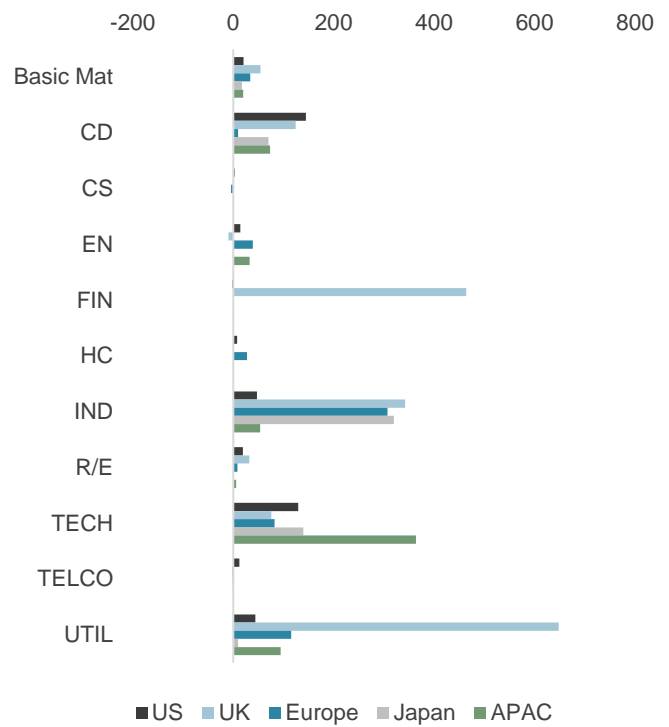
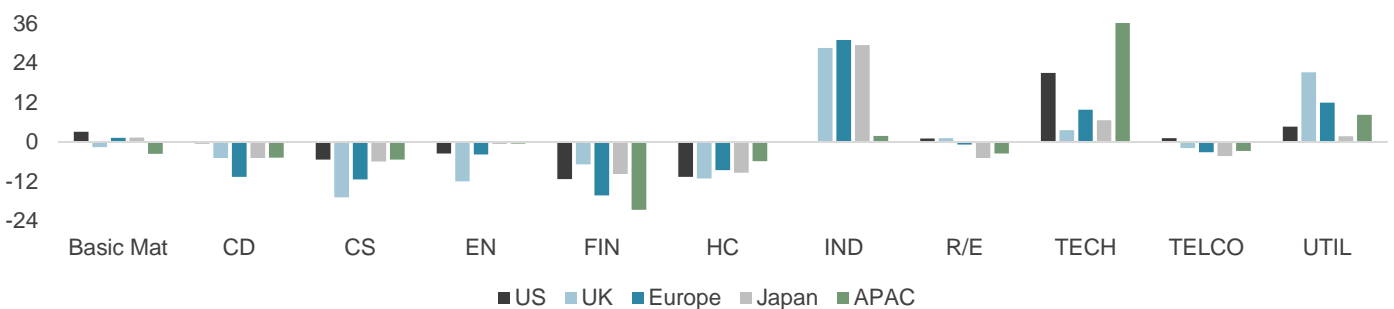


Chart 5: Active industry weights (%)



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FTSE ESG Low Carbon Target Exposure Indexes – Q3 2022

FTSE ESG Low Carbon Target relative performance was flat in most regions but lost value in the UK (reflecting its large underweight in Energy) and in the US (reflecting its underweight in outperforming Discretionary stocks). Industry contributions to the targeted 20% uplift in ESG scores were broad-based, except in the UK, where a large (13%) underweight in Energy detracted. The targeted 50% carbon reduction was also broadly achieved, reflecting re-weightings to companies in carbon-intensive industries – i.e., Energy, Basic Materials, Industrials & Utilities.

Chart 1: Active Performance (TR, LC %)

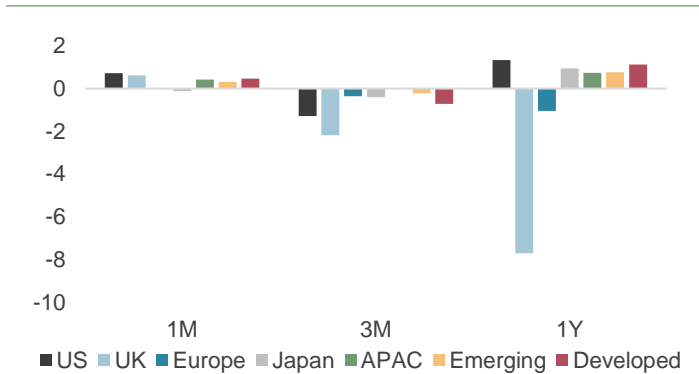


Chart 2: Benchmark Carbon Intensity/Revenues scores

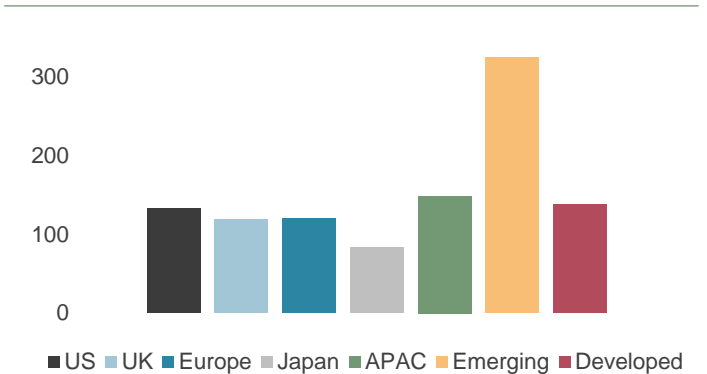


Chart 3: Contribution to ESG uplift (%)

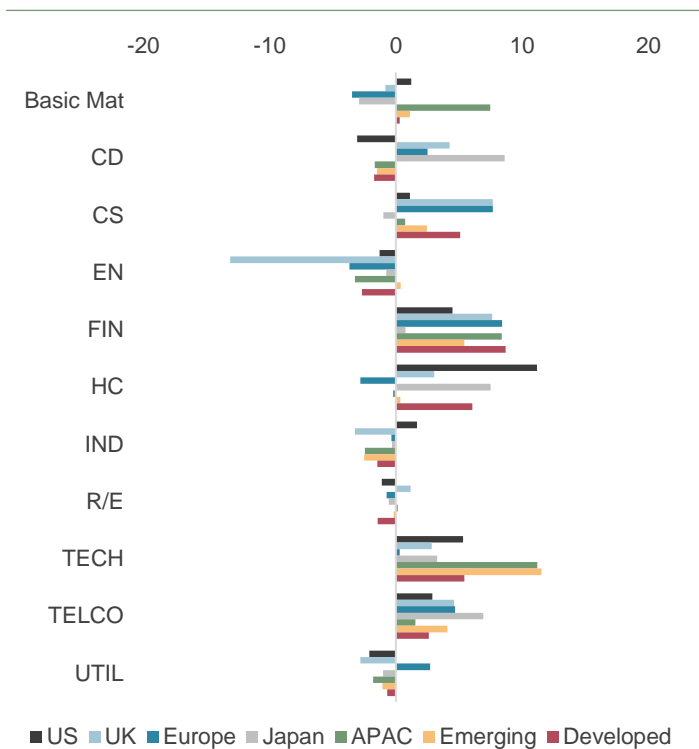


Chart 4: Contribution to Carbon reduction (%)

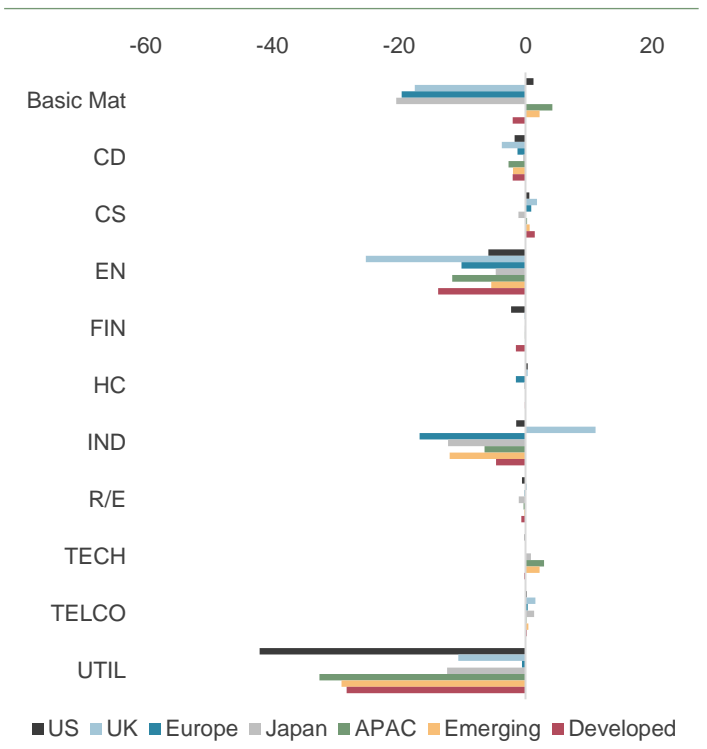
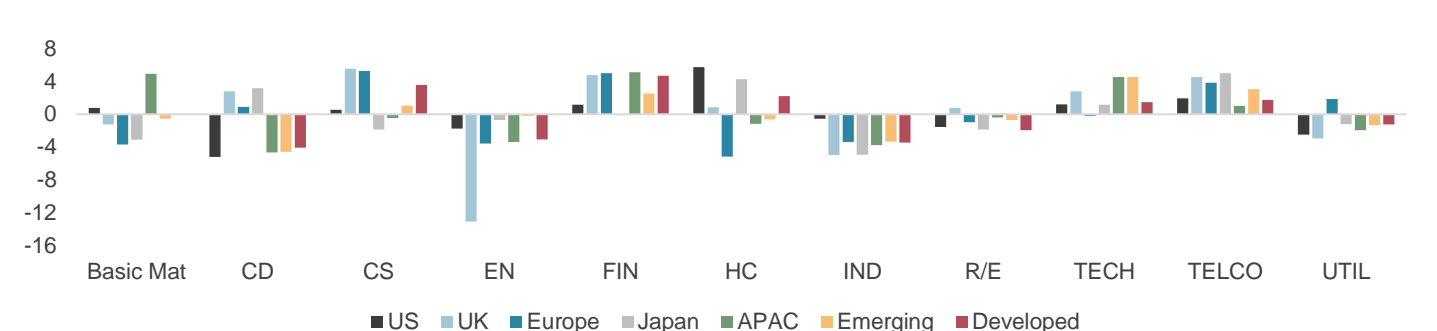


Chart 5: Active industry weights (%)



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FTSE EU Climate Benchmark Indexes – Q3 2022

Performance was mixed in Q3, with the UK-focused PAB (-6%) and CTB (-4.2%) indexes underperforming most, driven by underweights in Energy & Materials. PAB's more aggressive 50% carbon-reduction target, relative to CTB's 30%, required larger active bets in Materials & Energy (Chart 5). Industrials, Technology and, particularly in the UK, Consumer Discretionary, Utilities & Telecoms (Chart 3), contributed most to green revenues uplifts (see page 4). Carbon reduction is not explicitly targeted but underweights in Energy, Materials & EM Utilities resulted in significant reductions (see page 4).

Chart 1: Active Performance (TR, LC %)

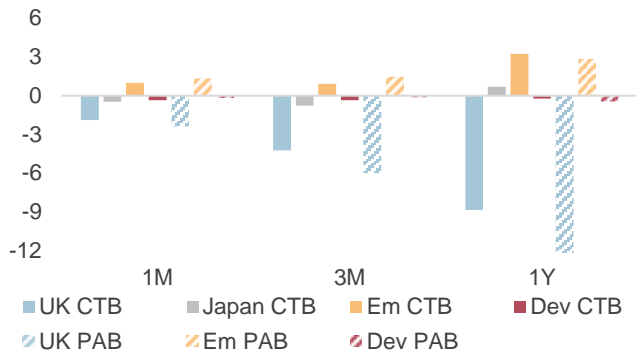


Chart 2: Active TPI Management Quality Score

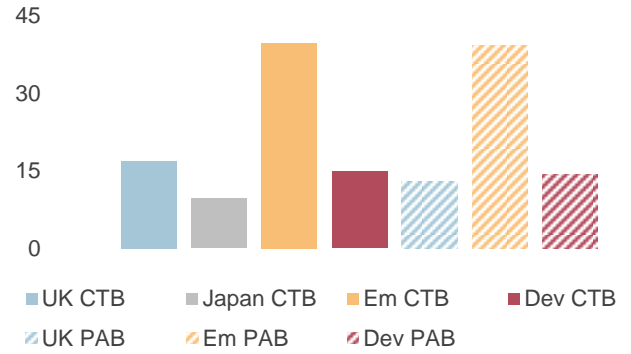


Chart 3: Contribution to Green Revenues uplift (%)

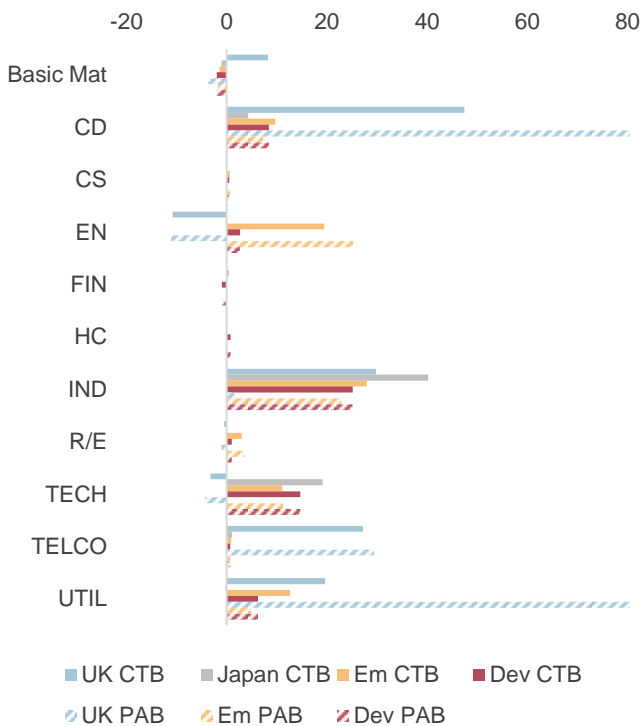


Chart 4: Contribution to Carbon reduction (%)

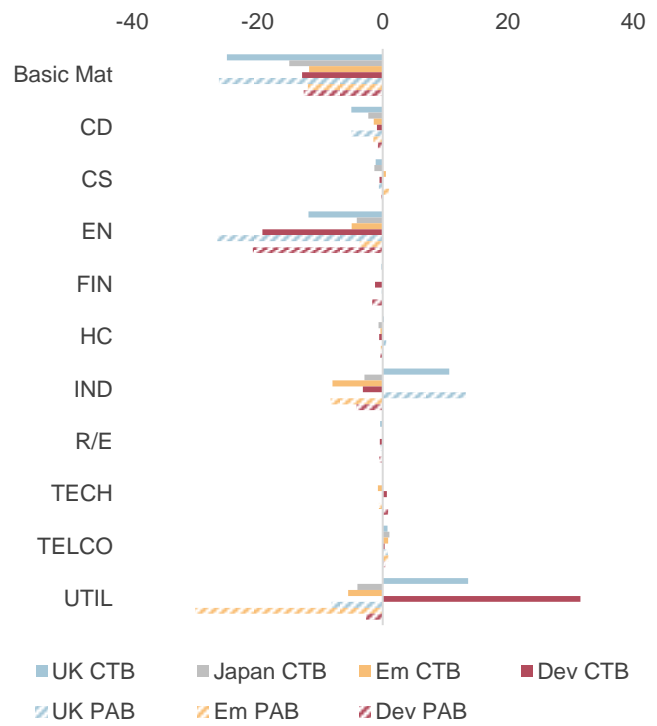
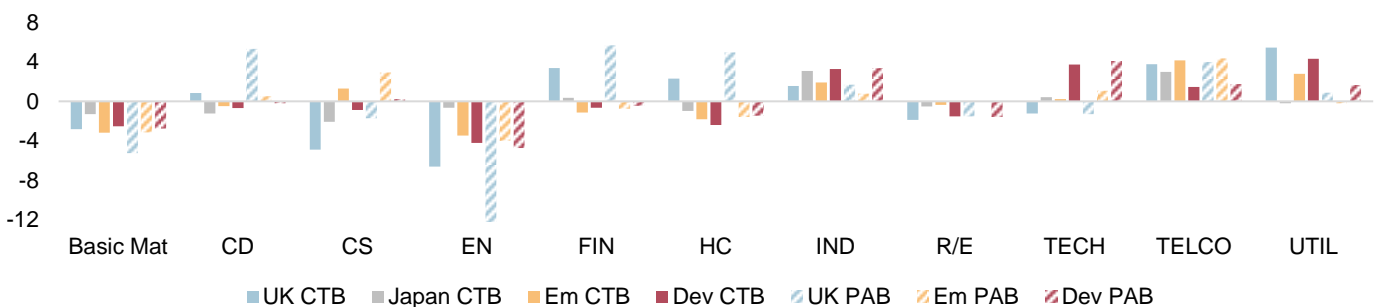


Chart 5: Active industry weights (%)



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US Index Comparisons – Q3 2022

Bouncing back from Q2 losses, US Environmental Opportunities (EO) was the best-performing strategy in Q3, outperforming the benchmark by 1.8%, with underweights in Health Care and Consumer Staples offsetting losses from Tech (Chart 3 and 4). ESG Low Carbon Target trailed by 1.3%, hurt by its relatively large Health Care exposure. EO is the most expensive index in the US, trading at a 20% premium to the benchmark, whilst ESG low Carbon Target is the cheapest, trading at a 10% discount to the market. All US SI indexes trade at their 5-year average valuations.

Chart 1: Active Performance (LC %)

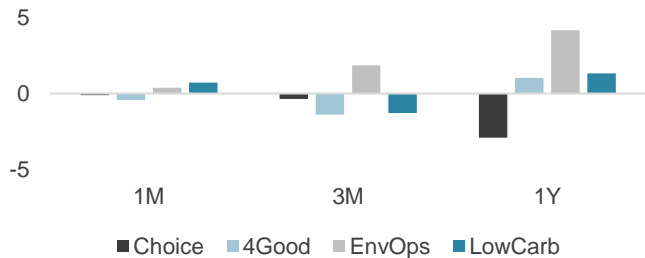


Chart 2: Index tracking error (%)

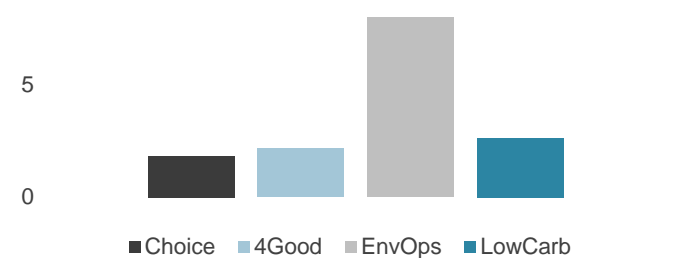


Chart 3: Active Industry weights (%)

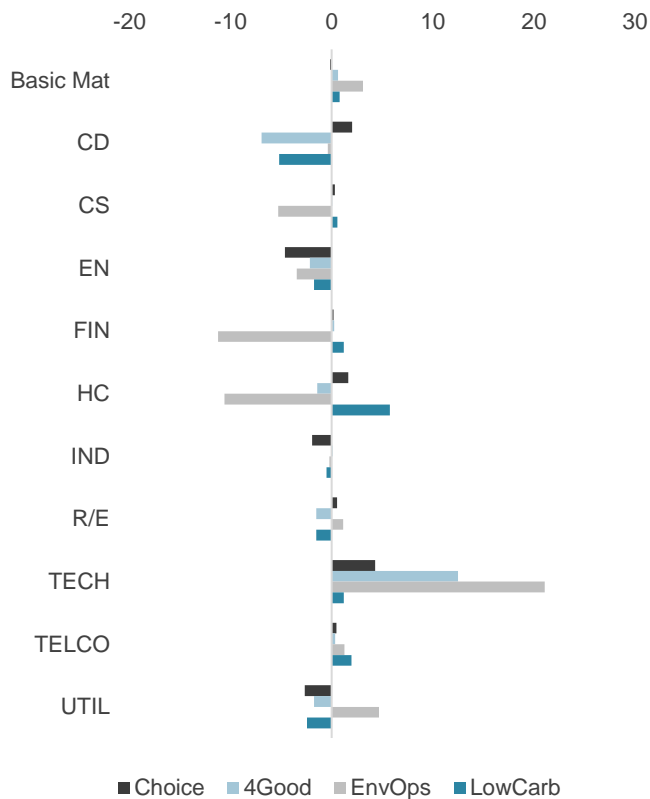


Chart 4: Industry allocation effect - 3M (LC %)

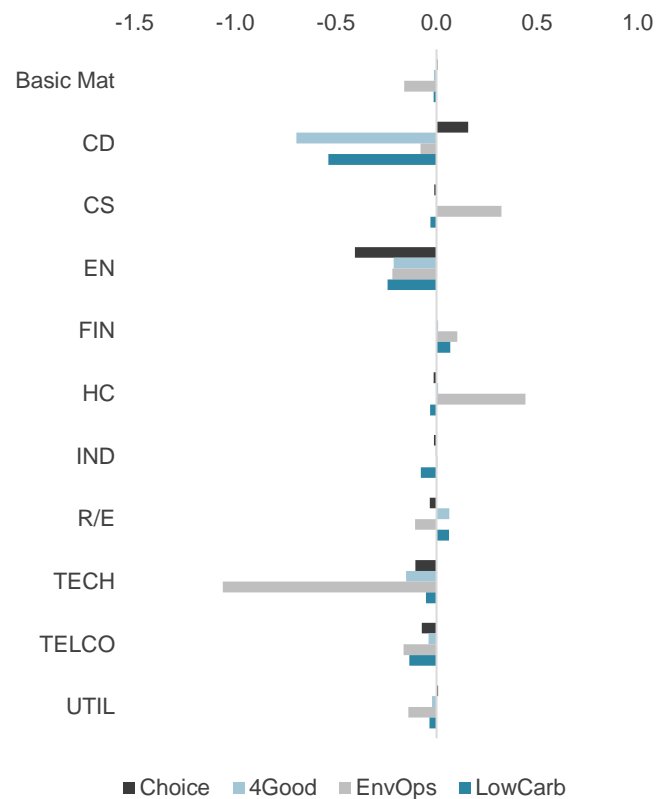
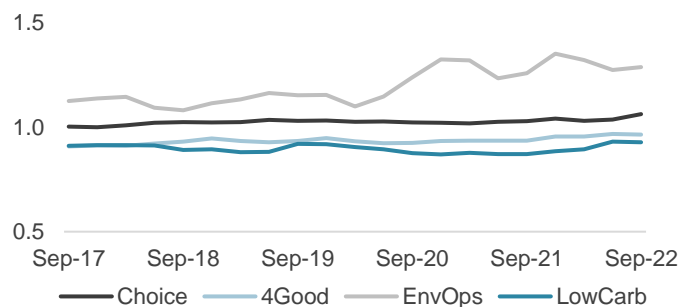
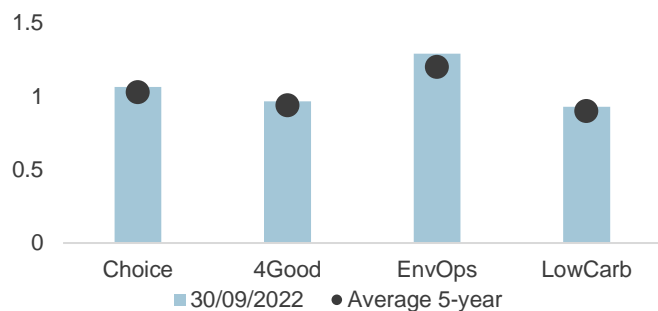


Chart 5: US Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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UK Index Comparisons – Q3 2022

UK SI indexes generally lagged the benchmark in Q3, except Global Choice, a diversified index that takes only small active industry bets (Chart 3). EO's cyclical Industrials exposure and small underweight in Utilities were additive, but underweights in Consumer Staples and Energy detracted, resulting in 4.7% loss of the index. The Paris-aligned benchmark was the worst performer, down 6%, largely owing to its underweight in Energy. The UK SI strategies trade at their 5-year valuation (Chart 5). All strategies trade in line with the valuation of the UK market (1:1 ratio), except ESG Low Carbon Target, which trades at a 35% premium.

Chart 1: Active Performance (LC %)

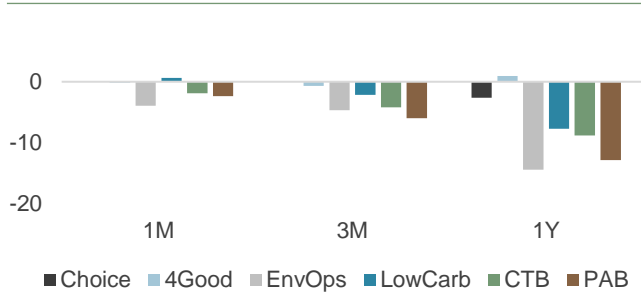


Chart 2: Index Betas



Chart 3: Active Industry weights (%)

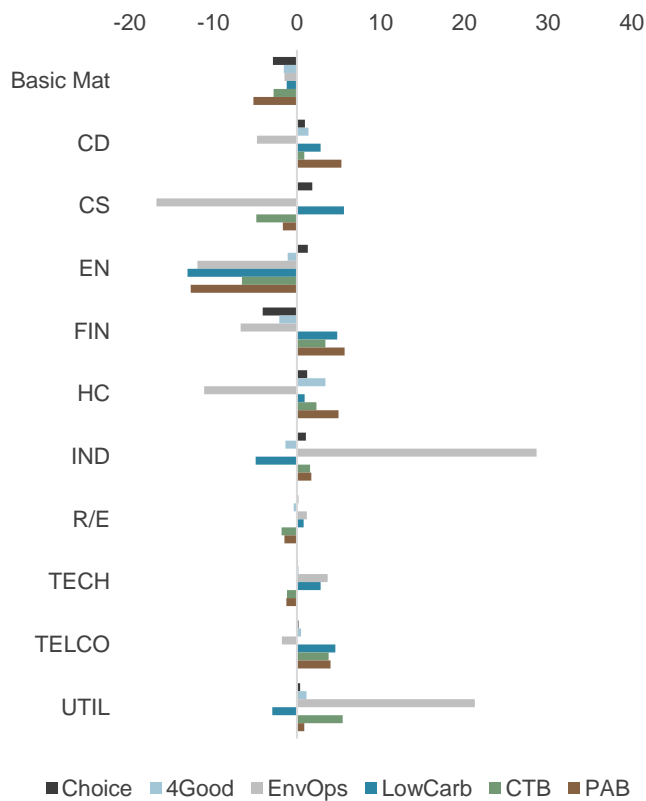


Chart 4: Industry allocation effect - 3M (LC %)

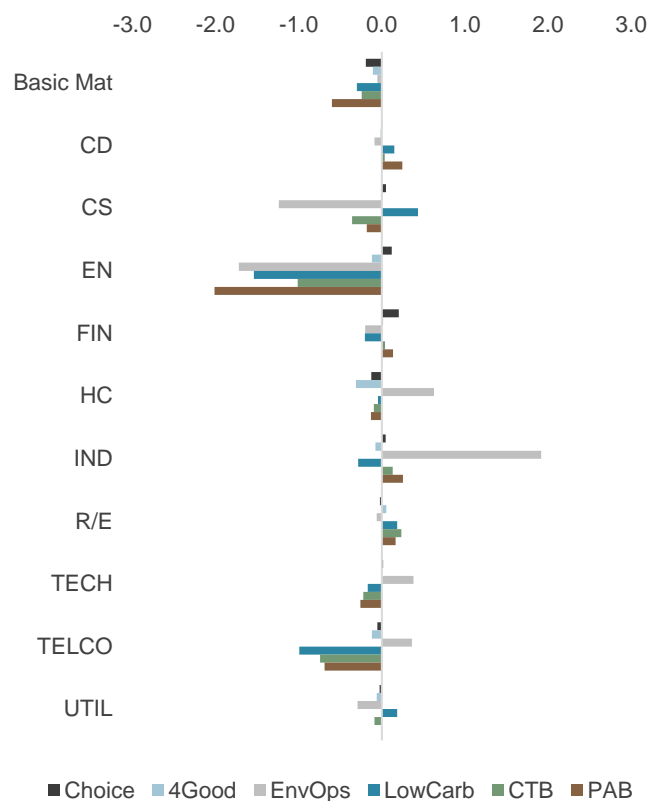
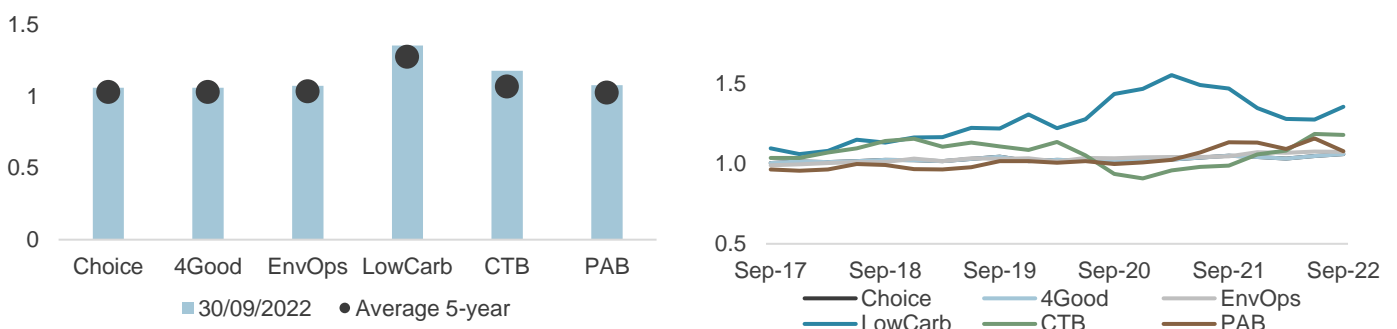


Chart 5: UK Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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Europe Index Comparisons – Q3 2022

European SI index returns continued to match the benchmark in Q3, except for Global Choice, which lagged by 1.3%. As elsewhere, EO benefited from a flight to quality, with positive contributions from underweights in defensive and rate-sensitive stock groups and an overweight in cyclical “green” Industrials. Small negative contributions from small underweights in Energy was a common theme, particularly for Global Choice. The focus on green technologies has resulted in a high index concentration: EO holds just 12% of benchmark stocks and has a 48% weight in the top 10 stocks (Chart 2). European Indexes mostly trade in line with the benchmark, except FTSE4Good, which currently trades at a 15% premium.

Chart 1: Active Performance (LC %)

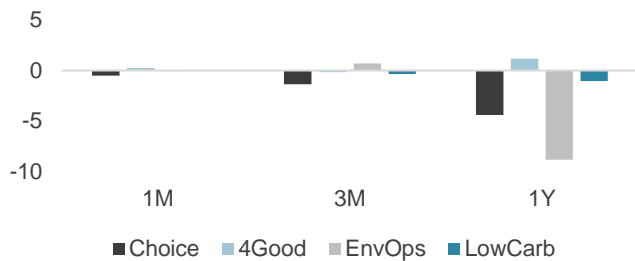


Chart 2: Index concentration



Chart 3: Active Industry weights (%)

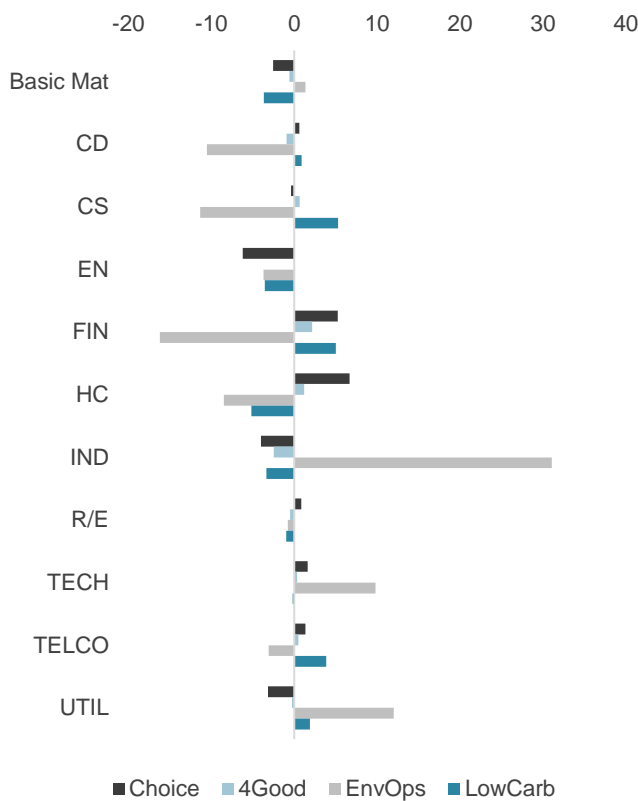


Chart 4: Industry allocation effect - 3M (LC %)

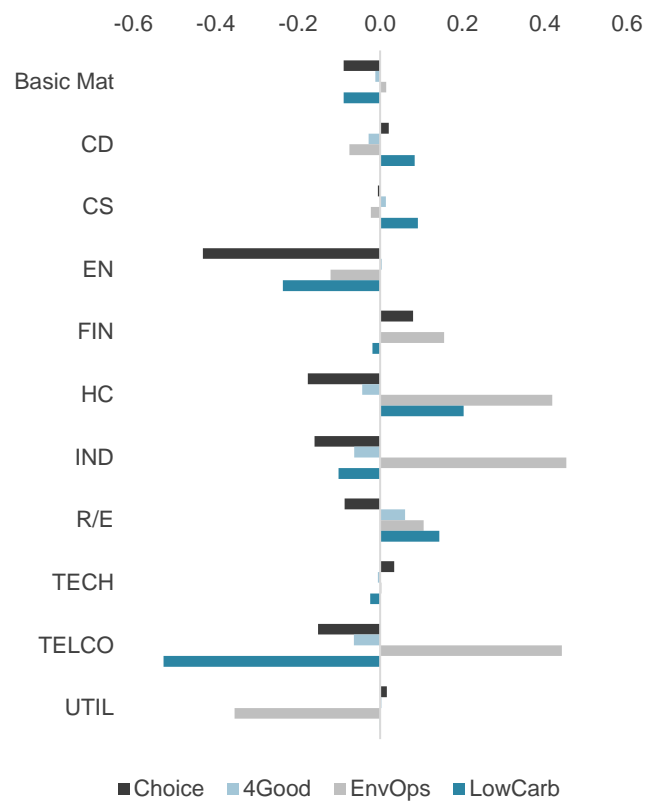
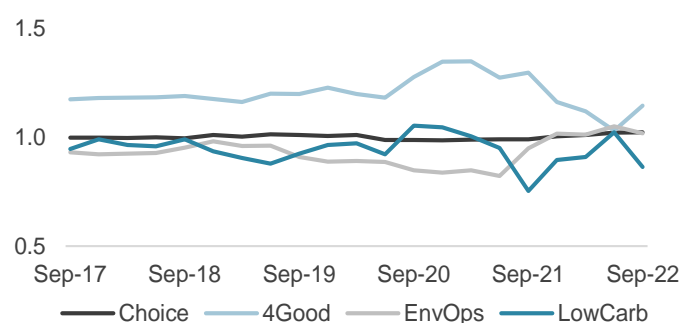
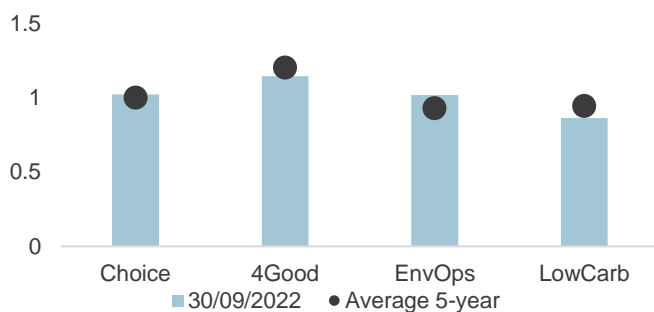


Chart 5: European Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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Japan Index Comparisons – Q3 2022

Japan was the best-performing equity market in Q3. Thus, whilst SI indexes in Japan enjoyed the strongest gains in absolute terms, they slightly lagged their benchmark. FTSE4Good was the worst performer (-1.1%), reflecting its small active industry exposures and low tracking error (Chart 2); gains and losses were spread out across industries. EO's overweight to Industrials was a strong contributor, but this was more than offset by losses from underweights in Health Care & Consumer Staples. EO trades at a 40% premium to the Japanese market, whilst the other strategies trade in line with the market. All indexes traded at their 5-year average.

Chart 1: Active Performance (LC %)

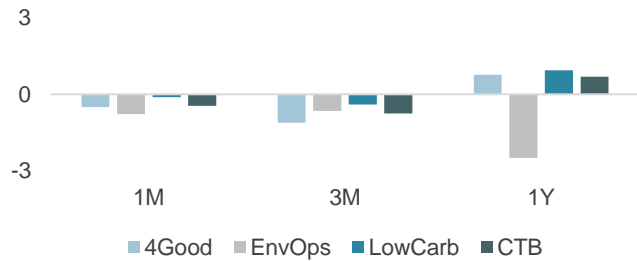


Chart 2: Index tracking error (%)



Chart 3: Active Industry weights (%)

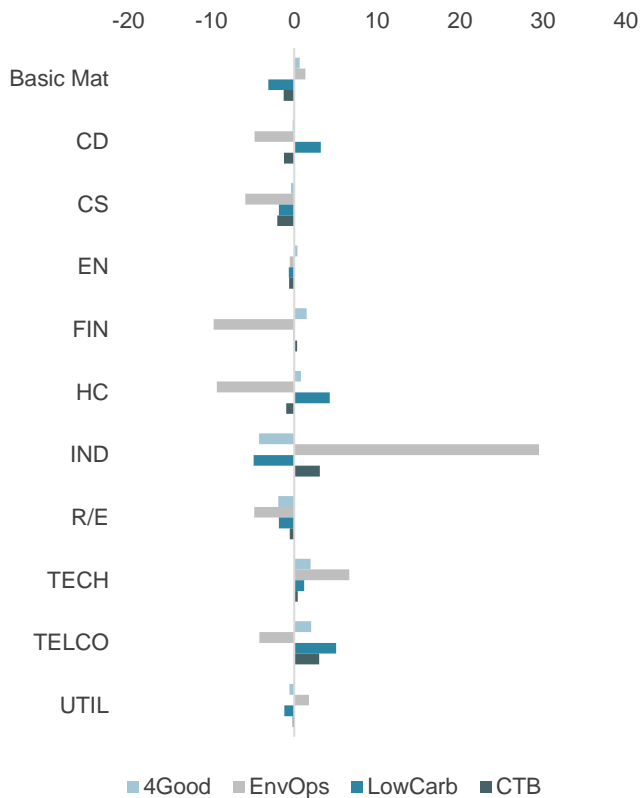


Chart 4: Industry allocation effect - 3M (LC %)

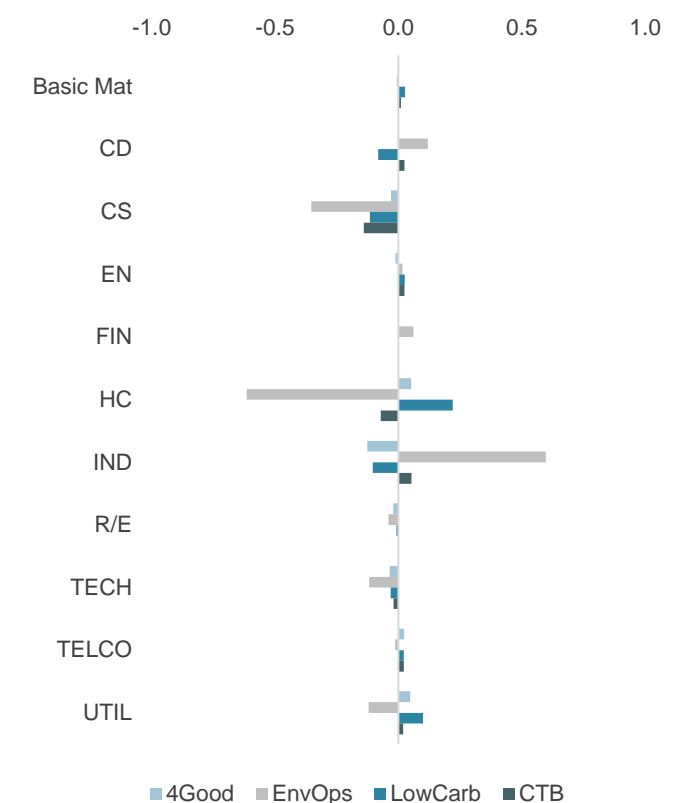
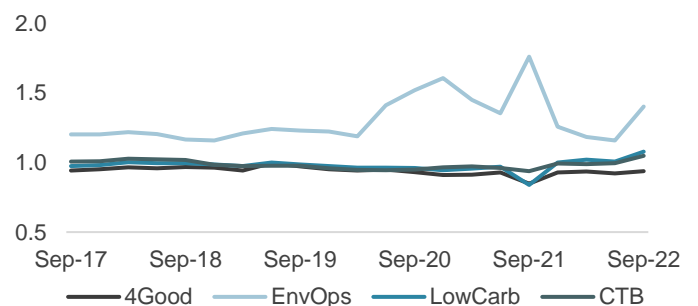
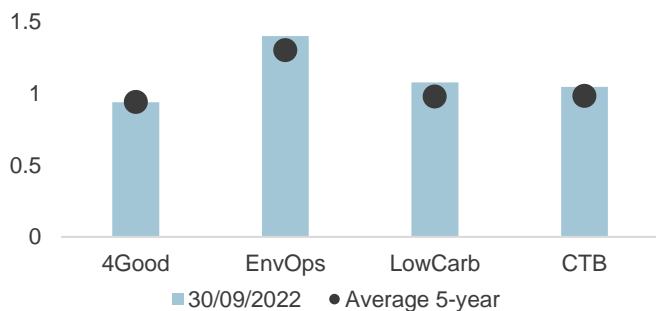


Chart 5: Japan Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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Asia Pacific Index Comparisons – Q3 2022

SI index returns in Asia Pacific were broadly in line the benchmark. EO has large active weights in Financials and Technology (Chart 3), which both detracted from performance (Chart 4), though resulting in only a 0.75% relative loss. Active industry weights for the rest of the SI indexes are small, resulting in small contributions to performance. EO's larger active industry exposures, higher index concentration (see page 3) and high tracking error (Chart 2) underpinned the strategy's higher volatility. All strategies trade at their 5-year average relative 12-month forward P/E, but only EO is more expensive than the benchmark (a 22% premium).

Chart 1: Active Performance (LC %)

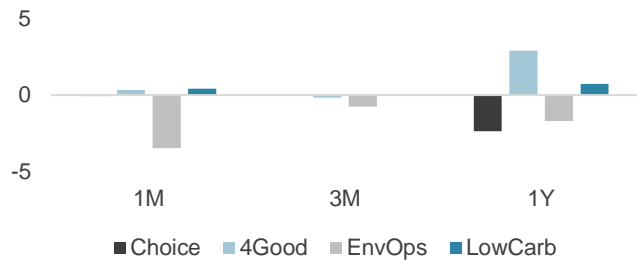


Chart 2: Index tracking error (%)

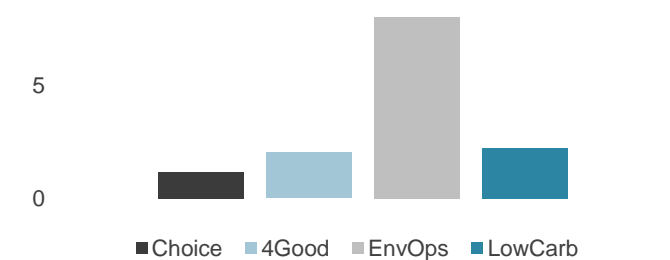


Chart 3: Active Industry weights (%)

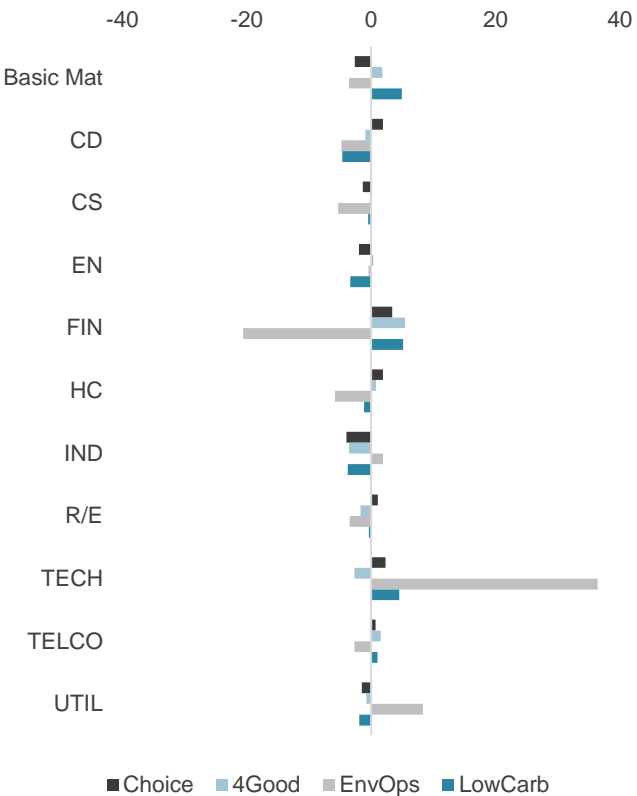


Chart 4: Industry allocation effect - 3M (LC %)

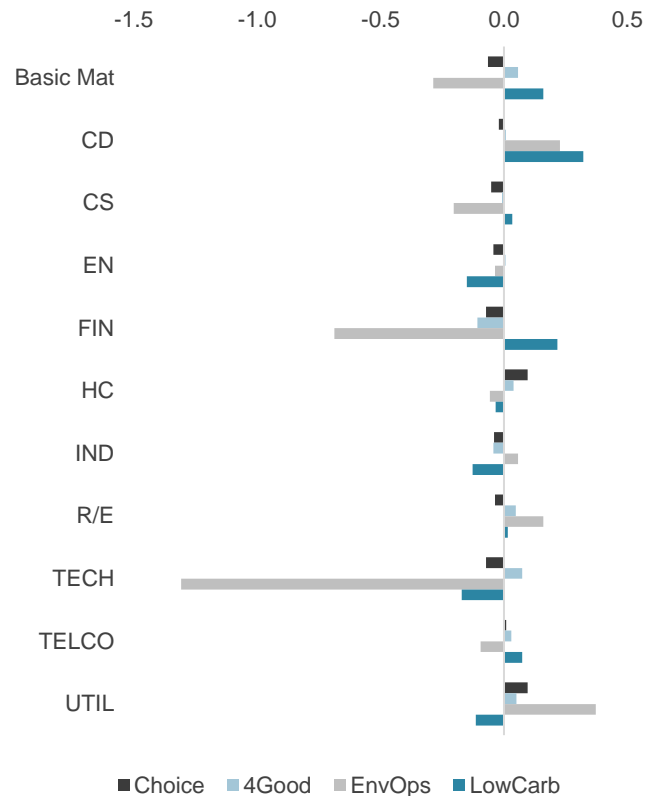
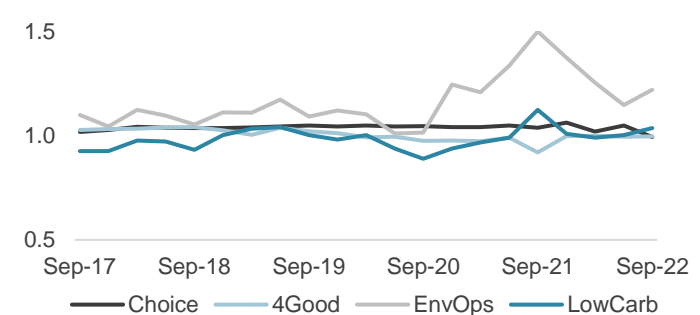
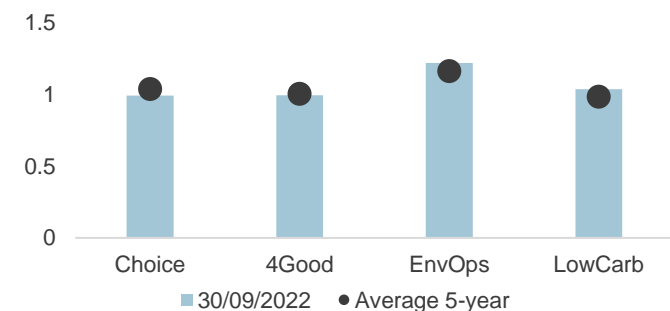


Chart 5: Asia Pacific Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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Emerging Index Comparisons – Q3 2022

Most of the SI indexes added value relative to the worst-performing global market in Q3 (with a decline of 7.7%). FTSE4Good was the most additive (+5.2%), helped by an underweight in Discretionary stocks, which nosedived in the quarter. Global Choice lost 0.75%, with an underweight in Energy more than offsetting the gain in Financials. Negative contributions from overweights in Technology was a common theme. The SI indexes traded in line with the benchmark (Chart 5) based on the latest 12-month forward P/Es, which are at 5-year averages for both.

Chart 1: Active Performance (LC %)

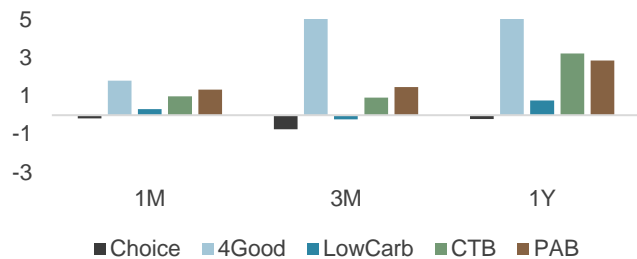


Chart 2: Index tracking error (%)

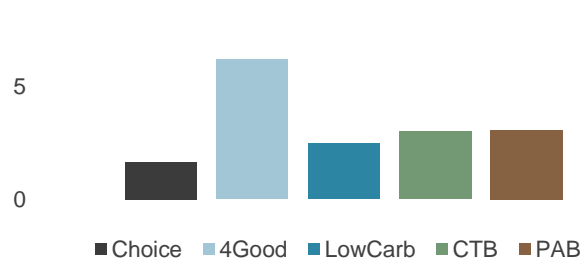


Chart 3: Active Industry weights (%)

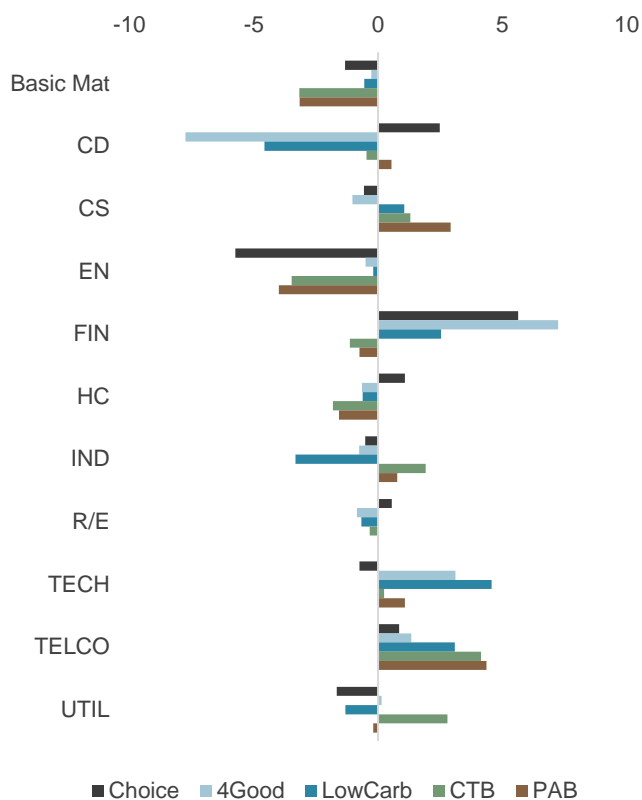


Chart 4: Industry allocation effect - 3M (LC %)

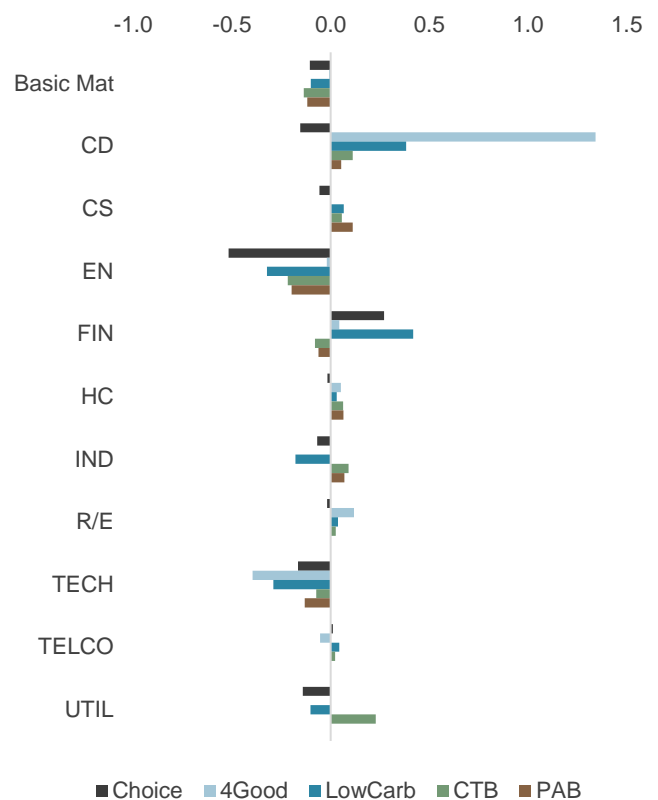
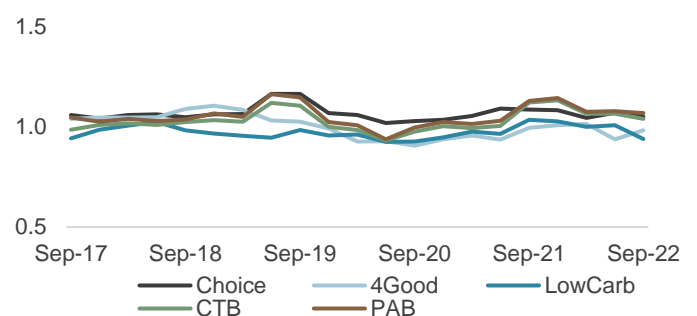
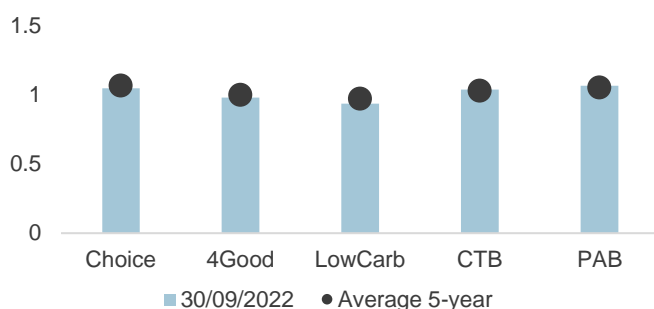


Chart 5: Emerging Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



Source: FTSE Russell/Refinitiv. All data as of September 30, 2022. 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 indexes.

Developed Index Comparisons – Q3 2022

The Developed Market SI Indexes all slightly underperformed their benchmark. The underweight in Energy and overweight in Technology and Telco generally hurt performance. FTSE4Good and ESG Low Carbon Target also suffered from underweights in outperforming Consumer Discretionary. Tracking error (Chart 2) of the Developed Market indexes is higher than for the underlying markets, ranging from 1.5 for CTB to almost 2.0 for ESG low Carbon Target. Relative valuations are close to the underlying benchmark. Global Choice, CTB and PAB are in line with the benchmark (1:1) and above their 5-year averages. CTB and PAB currently trade at around a 10% premium to the benchmark.

Chart 1: Active Performance (LC %)

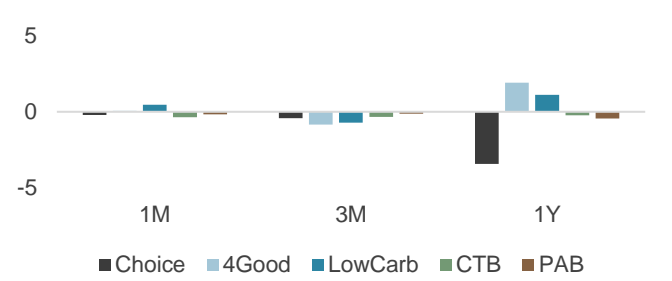


Chart 2: Index tracking error (%)

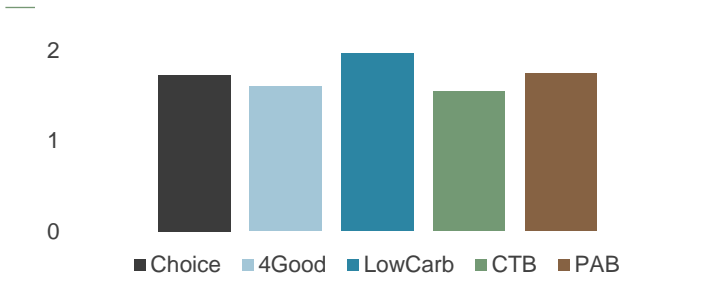


Chart 3: Active Industry weights (%)

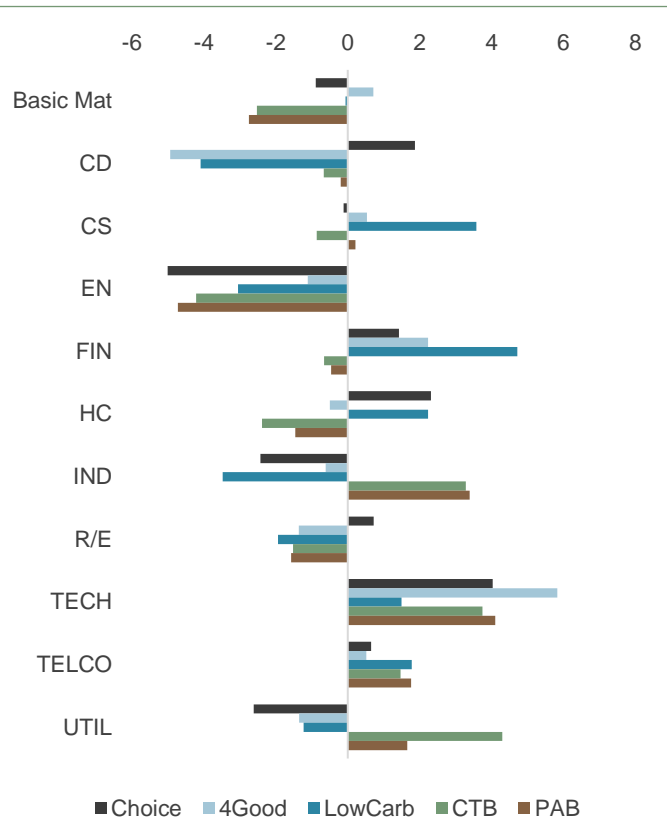


Chart 4: Industry allocation effect - 3M (LC %)

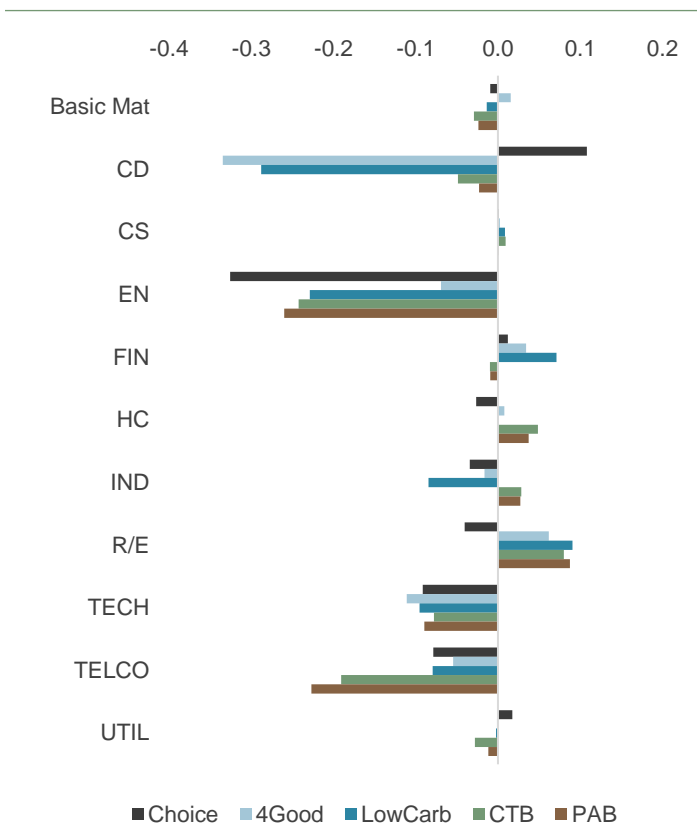
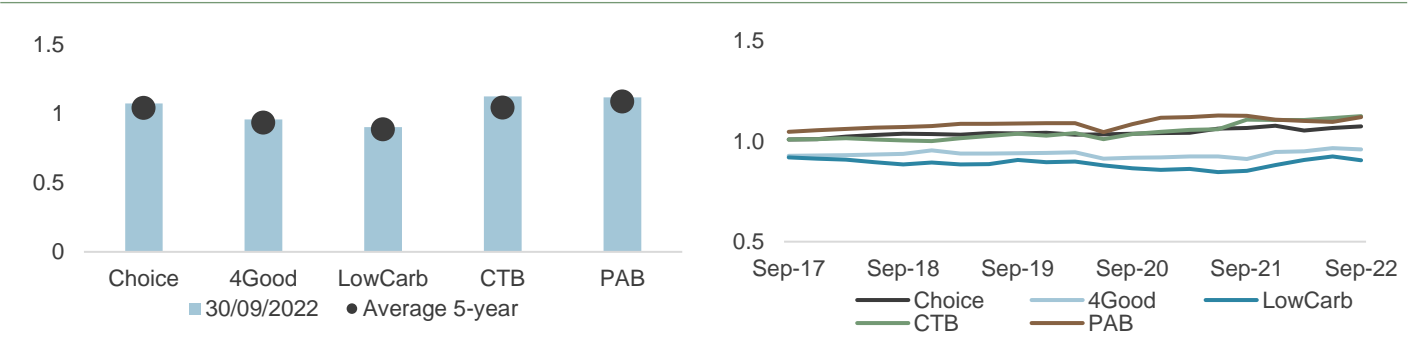


Chart 5: Developed Indexes Relative Valuation: Latest 12-month Forward P/E relative to 5-year average



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Appendix 1: SI Index Coverage and Benchmarks – as of September 30, 2022

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	✓		✓	
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	✓		✓	
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	✓		✓	

*The indexes 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 indexes. Appendix 1 shows the full list of SI indexes 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 Indexes.pdf](#)

Naming convention

FTSE Russell Sustainable Indexes 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

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 indexes 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 measure 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 Indexes 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 Indexes 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 indexes 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 Indexes benchmarked to ETF's

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

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.

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