Index Insights

Sustainable Investment | Factor

Uncontrolled ESG tilts impact

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Overview

Awareness and popularity of Sustainable Investing (SI) has grown significantly in recent years[1].

There are different approaches to creating SI portfolios and indexes. Some use exclusion lists, others stock picking, tilts, optimizations or various combinations of the above.

SI choices do have an impact on the performance of portfolios and investors are frequently concerned with the relative performance or tracking error of their SI portfolios, compared to the underlying universe benchmarks.

To illustrate the point, we look at factor, country and industry biases as well as the performance impact of unconstrained ESG tilts. The latter typically preserves the structure of the underlying market capitalization index and deviates less from the underlying benchmark than some other approaches.

These biases also provide an insight into ESG regional and industry differences and trends.

[1] Morningstar. A Broken Record: Flows for U.S. Sustainable Funds Again Reach New Heights | Morningstar

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Introduction

There are various approaches to creating Sustainable Investment portfolios and indexes: exclusion lists, tilts, stock selection, and any combinations of these.

Regardless of the applied methodology, if unconstrained, it is likely to produce factor, country and industry exposures, as ESG ratings[2] are not normally or uniformly distributed. These active exposures will contribute to the tracking error and portfolio performance in the long run.

In this paper, we illustrate the point by creating unconstrained ESG tilted portfolios, using our multiple tilt methodology[3] and analyze their performance characteristics, and active factor, country and industry exposures. This approach allows us to preserve the structure of the underlying benchmark. Other approaches, such as ESG-based screening for example, may result in more significant changes of the portfolio characteristics.

We start, in Section 1, from the performance attribution analysis of a portfolio created from the FTSE Developed Index by applying a single tilt to the composite ESG score. This analysis gives us an understanding of the main drivers of the difference in returns of the SI portfolio and the underlying market capitalization index.

In Section 2, we investigate the relationship between the strength of the tilt and the resulting factor exposures, which drive long-term portfolio returns, and portfolio performance. As factor exposures are not static, in Section 3, we analyze historical trends in the resulting factor exposures and their return contributions over time. The ESG composite score is a combination of the three pillars: Environmental, Social and Governance. They do not necessarily correlate, so in Section 4, we look at the results of tilts to individual ESG pillars. Short- and medium-term performance is impacted by the active country and industry weights, therefore, in Section 5, we review country and industry biases created by unconstrained ESG tilts. In Section 6, we draw our conclusions.

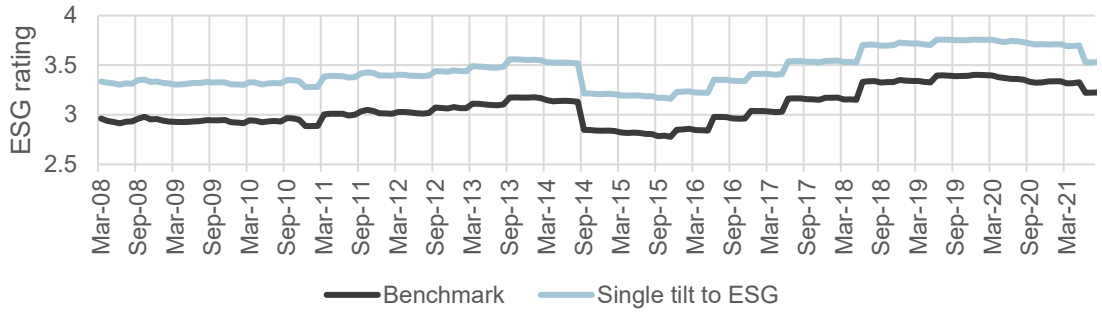
[2] We used FTSE Russell's ESG ratings in our simulations: FTSE Russell ESG rating overview. ESG Ratings | FTSE Russell.

[3] FTSE Russell. Multi-factor indexes: The power of tilting. August 2017. multi-factor-indexes--the-power-of-tilting-final.pdf (ftserussell.com).

1. Single ESG tilt performance attribution

We begin our analysis by creating a portfolio with a single tilt to the ESG composite score, without imposing any constraints and using the FTSE Developed Index as data source. The single tilt resulted in a fairly consistent 10-14% uplift in weighted average ESG rating (Figure 1), which is around the lower end of the range of a typical ESG uplift target sought by SI investors.

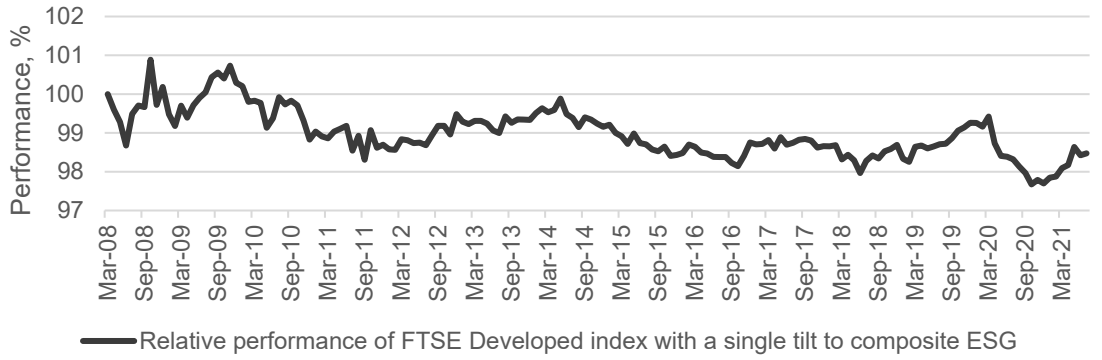
Figure 1. Weighted-average ESG rating of FTSE Developed and single tilt portfolio to ESG



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

As seen in Figure 2, the tilted portfolio performance gently drifted down relative to the FTSE Developed Index. Our calculation showed that the portfolio had underperformed the benchmark by 12bp p.a., with an annualized tracking error of 0.98%.

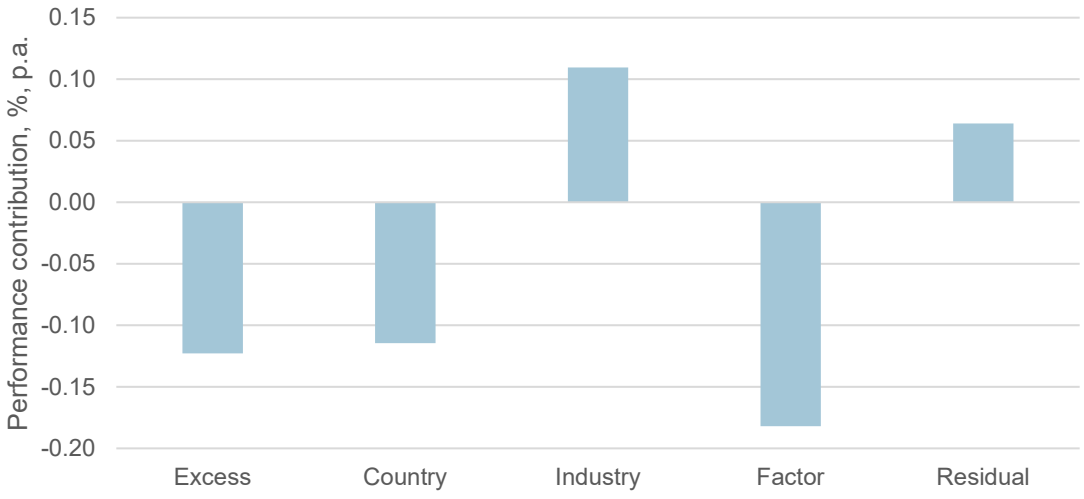
Figure 2. Relative performance of FTSE Developed TRI with a single tilt to composite ESG score, rebased.



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

As can be seen in Figure 3, the active factor exposures were the main contributors to the underperformance of the portfolio.

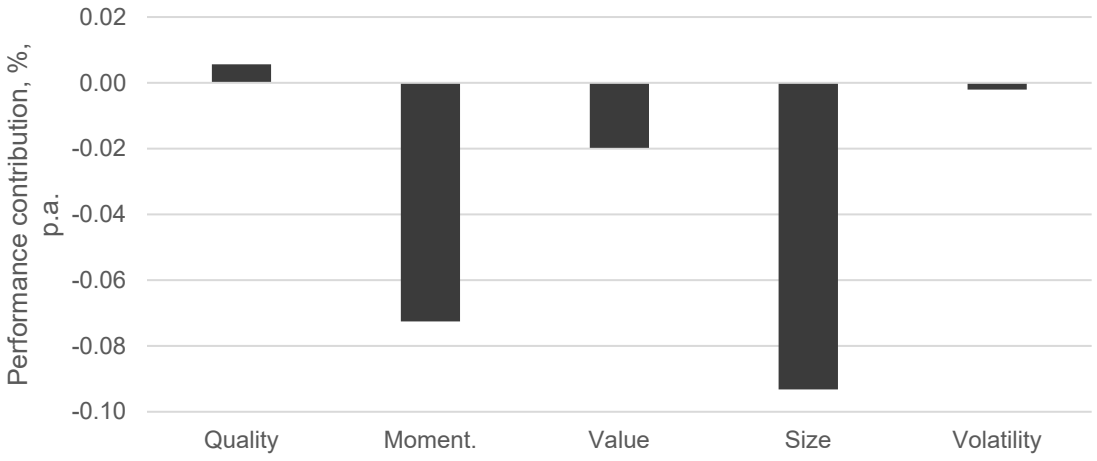
Figure 3: Relative performance contribution of a single ESG tilt portfolio, March 2008 – July 20121, in %, annualized



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures

Drilling down at the individual factor level in Figure 4, we see that the largest performance contribution was from the Size factor, and the second largest, from Momentum.

Figure 4. Factor contribution breakdown of a single ESG tilt portfolio, March 2008 – July 20121, in %, annualized

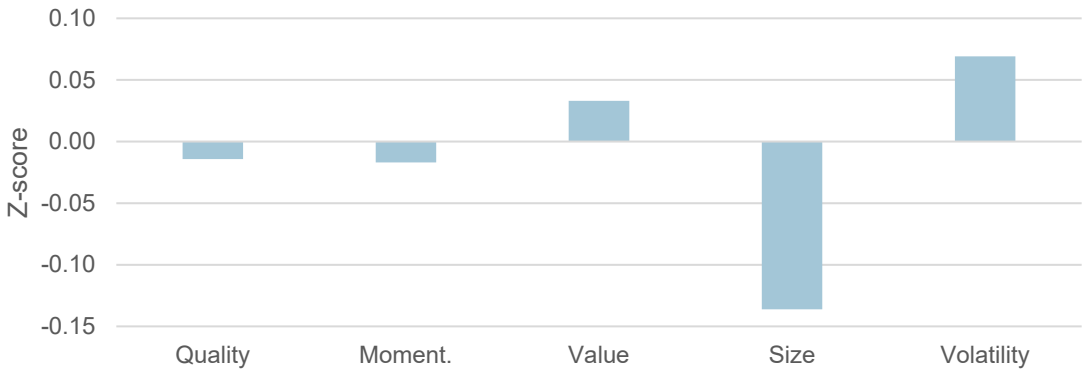


Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

Size has also been the largest negative active average factor exposure (i.e. overweight of larger capitalized stocks) as per Figure 5. This is in line with third party research, which demonstrated that ESG scores are positively correlated with company size [6]-[9]. The notable average positive exposure to the Volatility factor has not translated into performance contribution, which we will discuss later in this paper.

As we can see from the chart, average active exposures to the other factors: Quality, Momentum and Value factors are relatively small.

Figure 5. Average active factor exposures of a single ESG tilt portfolio



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

2. Impact of tilt strength

In the previous section, we created and investigated a portfolio with a single tilt relative to the composite ESG score. Real life portfolios may have bigger or smaller exposures to ESG, or indeed, negative exposures due to investor choices. To investigate the effects of different levels of ESG exposures, we create portfolios with positive and negative, half and double ESG tilts. The performance statistics and ESG rating of the underlying benchmark and tilted portfolios are presented in Table 1.

The positive ESG tilts produced a 6.3%, 12.2% and 16.3% increase in average ESG ratings for half, single and double tilts accordingly. Negative tilts produced a stronger impact, with negative half, single and double tilts, producing a reduction of ESG rating of -11.6%, -24.6% and -42.3% respectively. This is an indication that the distribution of ESG ratings is not symmetrical relative to its mean.

This can be further seen in the performance statistics. Negative tilts to ESG produced similar annualized performance but increased the volatility according to the strength of the tilt. Positive ESG tilts demonstrated both a higher volatility and a greater underperformance of the underlying benchmark, with an increase in ESG tilt. There is a clear relationship between an increase in tilt (in both directions) and rising tracking error.

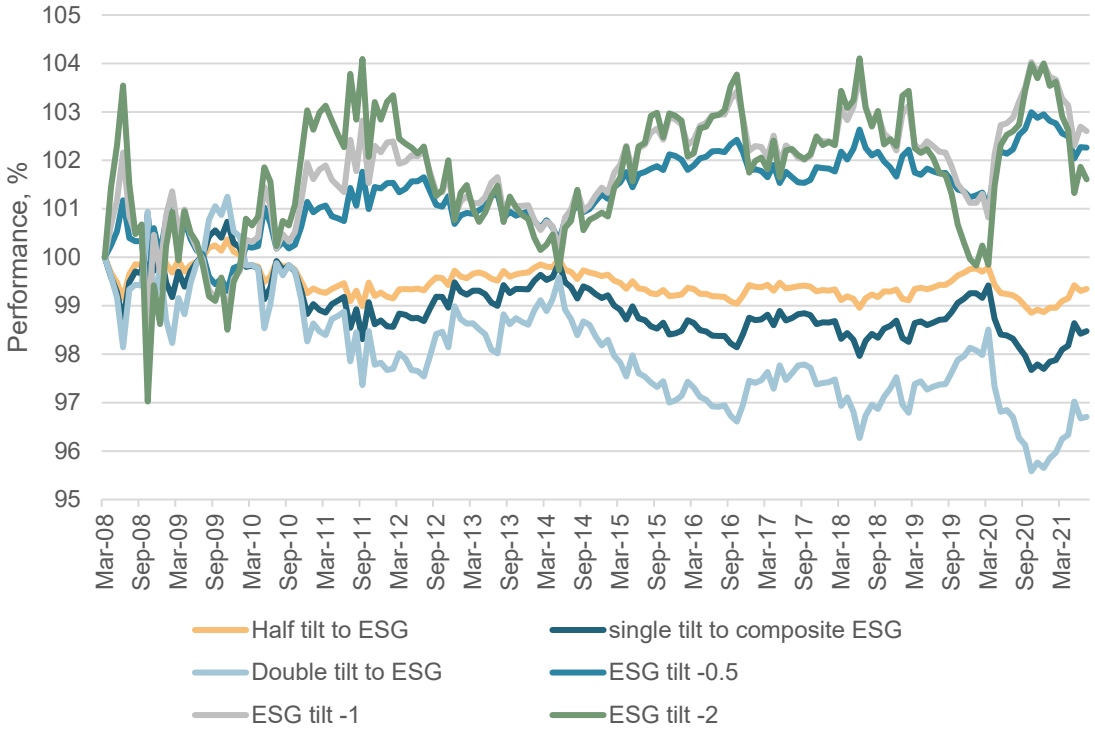
Table 1. Summary Statistics: FTSE Developed index with ESG tilted portfolios

	ESG tilt			MCAP	ESG tilt		
	-2	-1	-0.5	Benchmark	0.5	1	2
Index Statistics							
Arithmetic Return % p.a.	10.64	10.66	10.6	10.42	10.37	10.3	10.18
Geo. Return % p.a.	8.73	8.81	8.78	8.6	8.55	8.48	8.33
Volatility % p.a.	20.45	20.21	20.08	20.05	20.01	20.03	20.11
Return/Risk Ratio	0.43	0.44	0.44	0.43	0.43	0.42	0.41
Max Drawdown %	-49.65	-48.87	-48.69	-48.96	-48.86	-49.01	-49.45
Turnover % p.a.	46.71	34.63	24.22	9.75	16.59	21.64	28.5
Average ESG rating	2.06	2.41	2.70	3.08	3.31	3.45	3.64
Relative to Benchmark							
Arithmetic Excess Return % p.a.	0.21	0.23	0.18	--	-0.06	-0.12	-0.24
Geo. Excess Return % p.a.	0.12	0.19	0.17	--	-0.05	-0.11	-0.25
Vol. Reduction % p.a.	-2	-0.8	-0.15	--	0.2	0.1	-0.3
Information Ratio	0.05	0.11	0.17	--	-0.09	-0.11	-0.16
Tracking Error % p.a.	2.42	1.67	1.02	--	0.57	0.98	1.58
Up Capture % p.a.	100.3	100.08	100	--	99.94	99.96	100.07
Down Capture % p.a.	99.8	99.33	99.36	--	100.14	100.41	101.01
Beta	1.01	1	1	--	1	1	1

Sources: FTSE Russell & Trucost. Data based on the FTSE Developed Index Universe from March 2008 to July 2021. Performance shown for the SI Index is hypothetical and for illustrative purposes only. Past performance is no guarantee of future results. Please see the end for important legal disclosures.

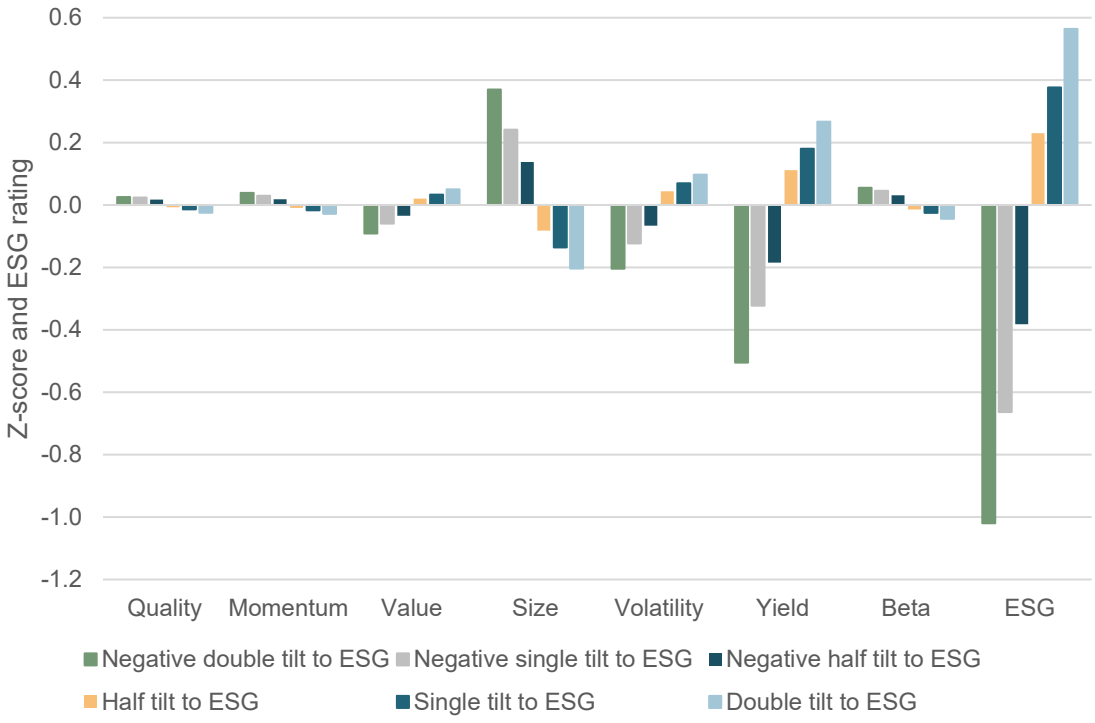
The asymmetry of positive and negative tilts to ESG further transpires in Figures 6 and 7, which shows historical relative performance and active ESG and factor exposures respectively.

Figure 6. Relative performance of portfolios with different ESG tilts



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

Figure 7. Average active ESG and factor exposures of unconstrained ESG tilted indexes



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for September 2014 – July 2021. Please see the end for important legal disclosures.

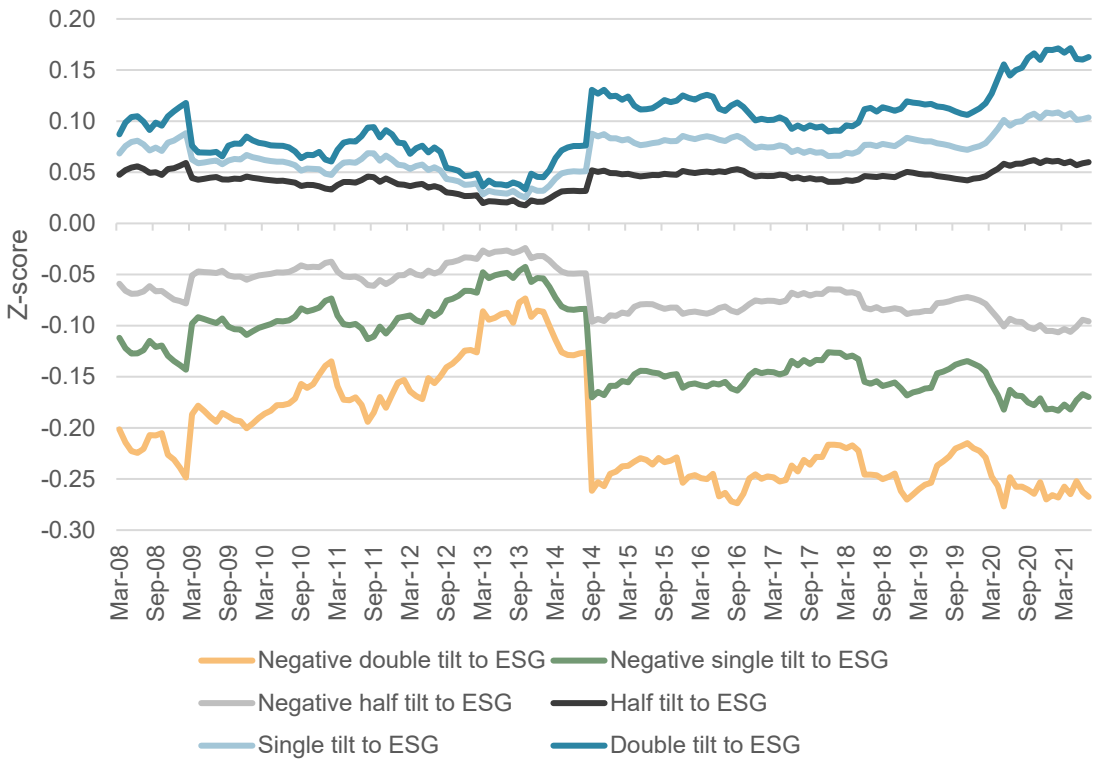
Although the relationship between the tilts and the average factor exposures is not symmetrical, it is monotonic. The same magnitude, but opposite side tilt, does not produce the same magnitude factor exposure with the opposite sign. Figure 7 shows that a negative tilt to ESG is producing larger magnitude average factor exposure than similarly sized positive ESG tilt. For example, a double positive tilt to ESG resulted in an average size factor exposure of -0.2, while a negative double exposure to ESG resulted in an average positive factor exposure to size of 0.4. This asymmetry of impact stems from the distribution of ESG ratings, which is neither symmetrical nor normal, so tilts in opposite directions do not produce a symmetrical impact. The skew of the distribution of the ESG ratings is the reason behind this effect.

3. Factor exposures and contribution over time

We mentioned in Section 1 that despite significant average active exposure to Low volatility factor, the performance contribution from the Low volatility factor was insignificant and Figures 8 and 9 demonstrate why. Factor contributions to the relative performance of the portfolios change over time as they are a product of variable factor returns and factor exposures.

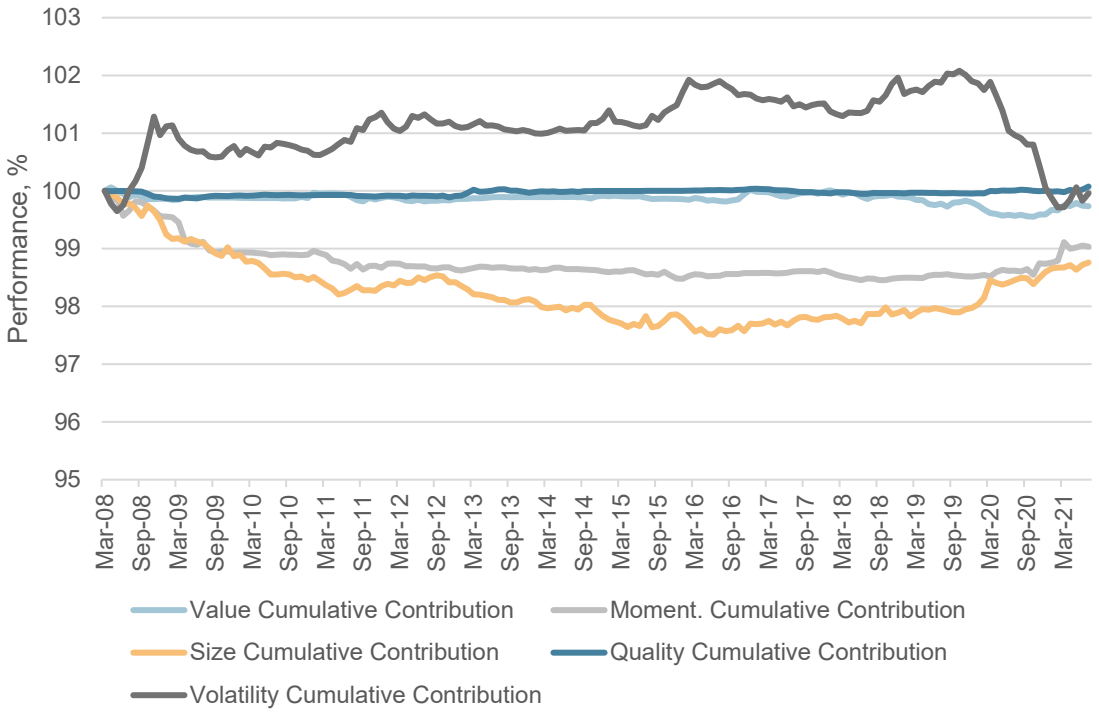
Figure 8 shows that the exposure to the volatility for all portfolios has been fairly stable and slightly increased after April 2020. At the same time, the significant positive contribution from the volatility factor has been mostly erased since the end of 2019, due to negative volatility factor returns since the end of 2019, as per Figure 9.

Figure 8. Active Volatility factor exposure of ESG tilted portfolios relative to FTSE Developed



Sources: FTSE Russell . Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

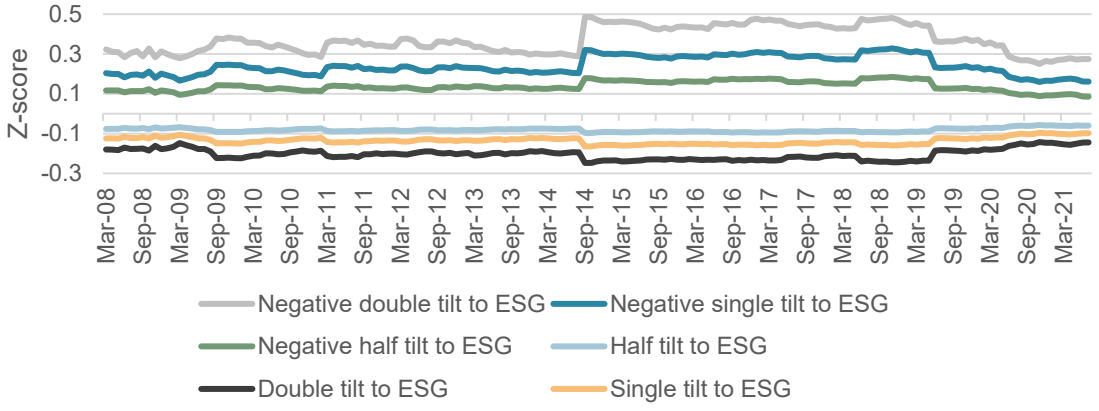
Figure 9. Cumulative factor contributions to relative performance of single tilt to ESG composite relative to FTSE Developed



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

Figure 9 also shows that the negative contribution from the Size factor exposure has diminished since mid-2016. What is also remarkable is that the magnitude of the size exposure has decreased from mid-2018 consistently in all the portfolios which have different ESG tilts, as per Figure 10.

Figure 10: Active Size factor exposure of ESG tilted portfolios composite relative to FTSE Developed.



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

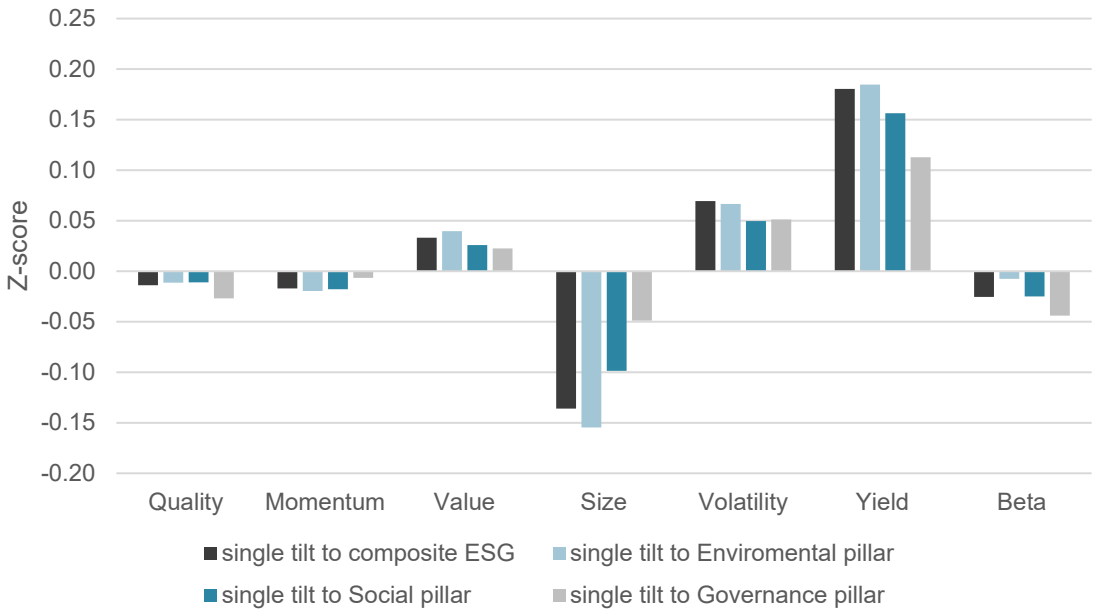
4. ESG pillars

We also looked at the impact of the tilts to ESG pillars and compared it to the tilt versus a composite ESG score tilt.

As Figure 11 shows, there is a small difference in average factor exposures resulting from single tilts to ESG pillars, with two notable exceptions: the Size factor and Yield. The former means that the Governance pillar is not such a strong differentiating parameter between companies of different size. The Governance pillar covers the issues such as gender and ethnic diversity, division of duties and transparency of management reporting. It is remarkable that smaller companies are closing the gap with larger companies in this respect, particularly in the context of wider ESG convergence between larger and smaller companies, as we saw in the previous section.

The smaller impact of the Governance pillar on the Yield is, perhaps, a less intuitive result. Although, companies with better Governance score do yield higher dividends, the impact is less pronounced than it is for the composite ESG score, Environmental or Social pillars. One of the reasons could be that the higher Government pillar rating has a stronger impact on valuation than the other pillars, reducing the higher dividend yield effect. Another reason for this could be that the Size factor is a more dominant factor in determining the yield of the portfolio and, as we can see from Figure 11, the Governance tilt is resulting in a small magnitude of Size factor exposure.

Figure 11. Resulting average factor exposures of unconstrained tilts to ESG and its pillars



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

5. Country and industry biases

Although the factors are drivers of excess returns in the long run, over short and medium periods, active country and industry exposures contribute to the tracking error relative to the underlying benchmark. Unconstrained ESG tilt also leads to an overweight in countries and industries, which have a higher average ESG rating. Conversely, industries and countries with lower ESG rating

are underweighted. It is, therefore, useful to know the country biases produced by unconstrained ESG tilts in terms of performance risk management and ESG profiling of portfolios.

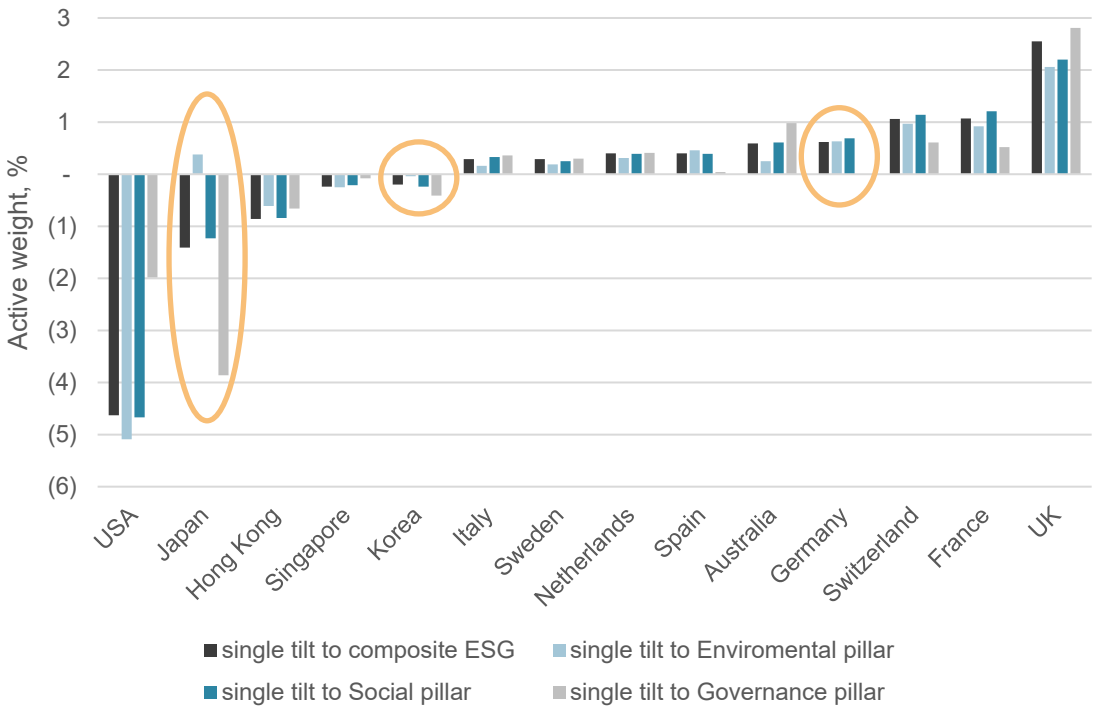
Figure 12 shows selected active country exposures of unconstrained tilts to the composite ESG rating and its individual ESG pillars.

The countries on the chart are sorted by the resulting active country weight from the most negative (the US) and the highest positive (the UK) from a single tilt to the ESG composite rating. The chart demonstrates that historically, on average, European companies have higher ESG ratings then their US and Asian counterparts.

Drilling down to the individual ESG pillars also yields interesting results. Japan has the second largest underweight after the US in terms of the composite ESG score but has the largest negative active weight as a result of a single tilt to Governance. Japan scores better on the Environmental pillar, so it is overweight as a result of its positive tilt to the Environmental pillar. Our results align with the ESG overview of the Japanese corporate landscape by McKinsey & Co [11].

The single tilt to the Governance pillar has a negative impact on active exposures of other countries, such as Germany and Korea for example. The issues around corporate governance in Japan and Germany have also been extensively covered, including [12] and references therein.

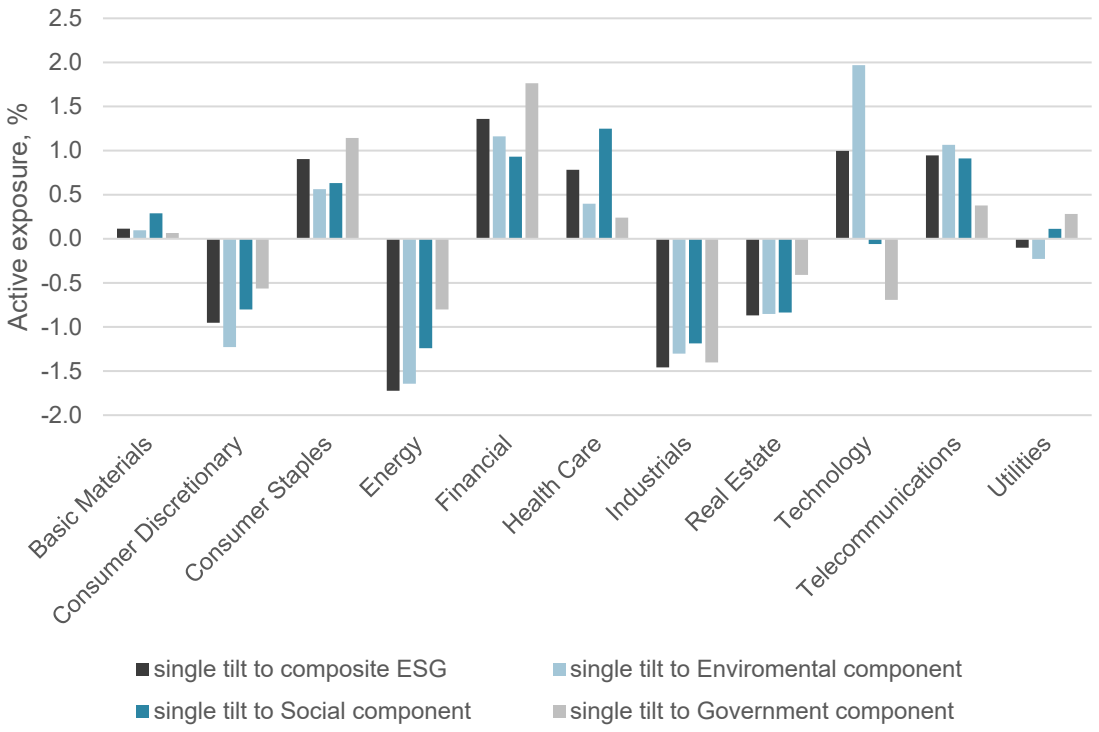
Figure 12. Selected average active country exposures of unconstrained tilts to ESG and its pillars



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

Figure 13 shows the average active industry exposures of unconstrained tilts to ESG composite score and its individual pillars.

Figure 13. Active average sector exposures in unconstrained ESG tilts of FTSE Developed



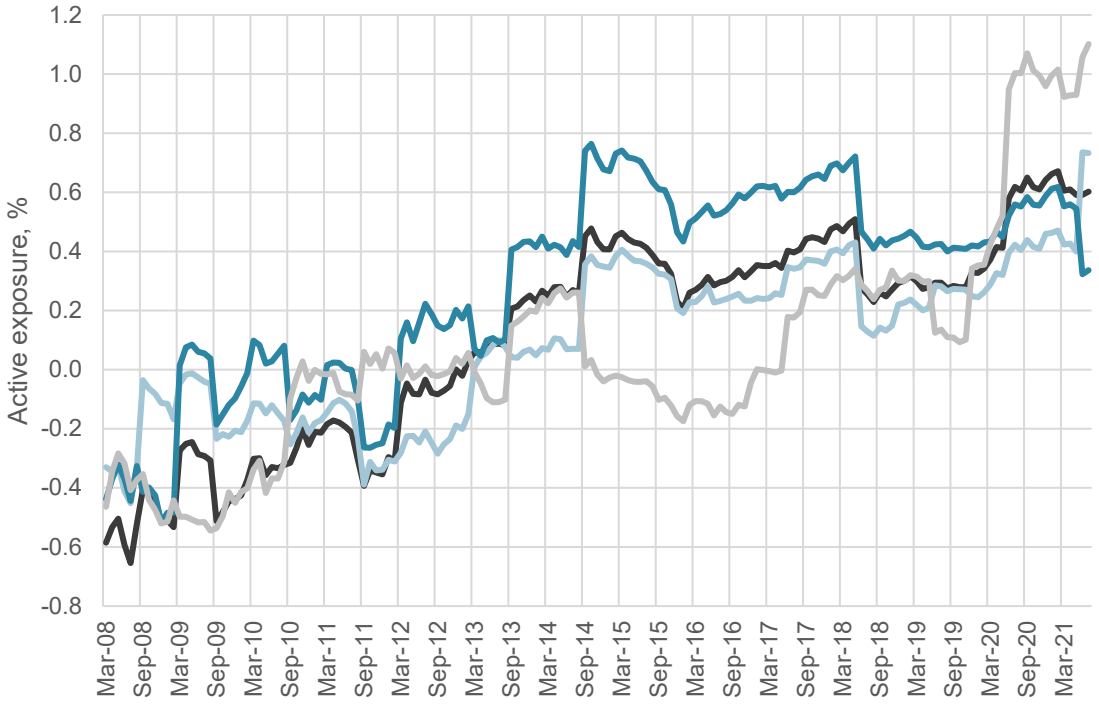
Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

We would like to highlight that most industry active exposure are similar in response to tilts to individual ESG pillars. Technology and Utilities are notable exceptions, however. A positive tilt to the Governance pillar resulted in a negative active exposure for Technology and positive exposure for Utilities, while the Environmental tilt produced a strong overweight in Technology and a minor underweight in Utilities.

The active industry exposures changed over time. This can be well illustrated by changes in active exposures of the Basic materials and Health Care industries (Figures 14 and 15).

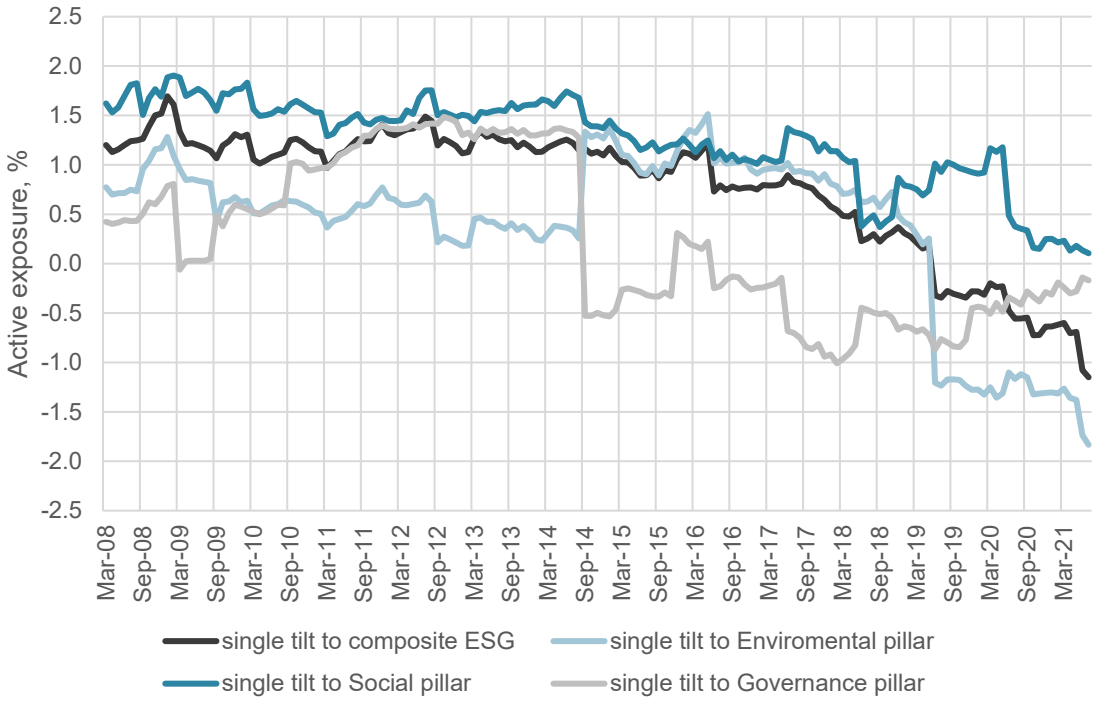
Underweight in Basic Materials has gradually changed to overweight, while Health Care active exposure has decreased since 2008, as relative weighted ESG ratings of companies in Basic Materials industry has improved and worsened in Health Care.

Figure 14. Basic materials, active exposure resulting from single ESG tilt



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 – July 2021. Please see the end for important legal disclosures.

Figure 15. Health care, active exposure resulting from single ESG tilt



Sources: FTSE Russell. Data based on the FTSE Developed Index Universe for March 2008 - July 2021. Please see the end for important legal disclosures.

6. Conclusion

Investors have to be mindful of the impact of SI overlays and strategies they apply in their portfolios. They may lead to active factor, country and industry exposures, which will not only contribute to the tracking error in the short term, but may also impact long-term performance.

To illustrate the point, we investigated the impact of unconstrained ESG tilts on the FTSE Developed universe. We looked at the resulting active factor, industry and country exposures from March 2008 to July 2021.The largest factor exposure was Size, which is in line with previous research, indicating that larger companies typically have higher ESG scores. It is notable that Size is becoming less of a differentiating factor in relation to ESG parameters, however. It is already the smallest for the Governance parameter, which indicates that smaller companies are catching up with their larger equivalents with regards to ESG ratings.

A positive tilt to ESG composite score and its individual pillar also produced notable positive exposure to Yield, albeit to smaller extent in case of the Governance pillar.

There were no surprises in the resulting active country exposures: the UK and continental European countries were overweight, while the US and Asian countries were generally underweight. Tilts to the individual ESG pillars generally produces similar active country exposures, with some notable exceptions of Germany and Japan. Tilt to the Governance pillar produced a neutral exposure to Germany, while it was positive for the other pillars and overall ESG score. Japan scored relatively high on the Environmental pillar components, so it was overweight after tilting to the Environmental pillar, while being underweight as a result of tilts to the other pillars and the composite ESG score.

Active industry exposures, similarly to the Size factor, have also demonstrated notable changes over time. Active exposure of Basic Materials has increased as companies in the industry have, on average, relatively improved their ESG scores. At the same time, Health Care active exposure has decreased as, on average, the ESG score of health care companies declined in relative terms. There was no notable difference in the active industry exposures in response to the tilts to the ESG pillars, except in Technology and Utilities, where tilts to the Environment and Governance pillars produce opposite active exposures, highlighting by the lower Governance ratings of Technology companies.

The strength of the tilt (in both directions) monotonically increases the tracking error. There is also a monotonic relationship between the strength of the tilt and the factor exposures. There was no symmetry in relative performance and factor exposures in response to tilts to and away from ESG composite score.

It also should be noted that tilting, even unconstrained one, generally preserves the structure of the underlying benchmark, departing from it to a varying extent depending on the strength of the tilt. SI exclusions are more disruptive in nature and may have more dramatic impact on the portfolio parameters and performance.

To reduce the tracking error and performance drift, investors can introduce industry constraints and factor exposure targeting.

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