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# Want to incorporate SDG exposures into your portfolios?

## There's no such thing as a (risk) free lunch, but here's a way to do it...

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In a recent blog post[1], we discussed key considerations for managers incorporating Sustainable Development Goals (SDGs) into their portfolios. We showed that taking on more active risk led to higher potential SDG exposure and that one could achieve meaningful exposure even at a relatively low level of active risk—though the level of exposure varied by SDG.

Of course, making one set of tilts in a portfolio may lead to other exposures, some desirable and some less so. As a follow up to our original analysis, we now take a look at what some of those bets might be.

We used the end-of-year 2021 data from the Sustainable Development Investments Asset Owner Platform (SDI AOP) to run simple optimizations with the objective of maximizing exposure (defined by the percent of revenue) to one, two or all SDGs. The STOXX® Global 1800 Index[2] was our investment universe and benchmark. The only constraints we employed were to be fully invested with a 3% target tracking error. We created four active portfolios:

1. Maximize exposure to all SDGs
2. SDG-3 (Good Health and Well Being)
3. SDG-7 (Affordable and Clean Energy)
4. A combination of SDG-6 and SDG-13 (Clean Water and Sanitation & Climate Action)

As in our earlier study, we found that different SDG target objectives led to much higher overall SDG exposure. For this study we dug a bit deeper to find very different levels of concentration, distributions of risk, sector, country and factor exposures.

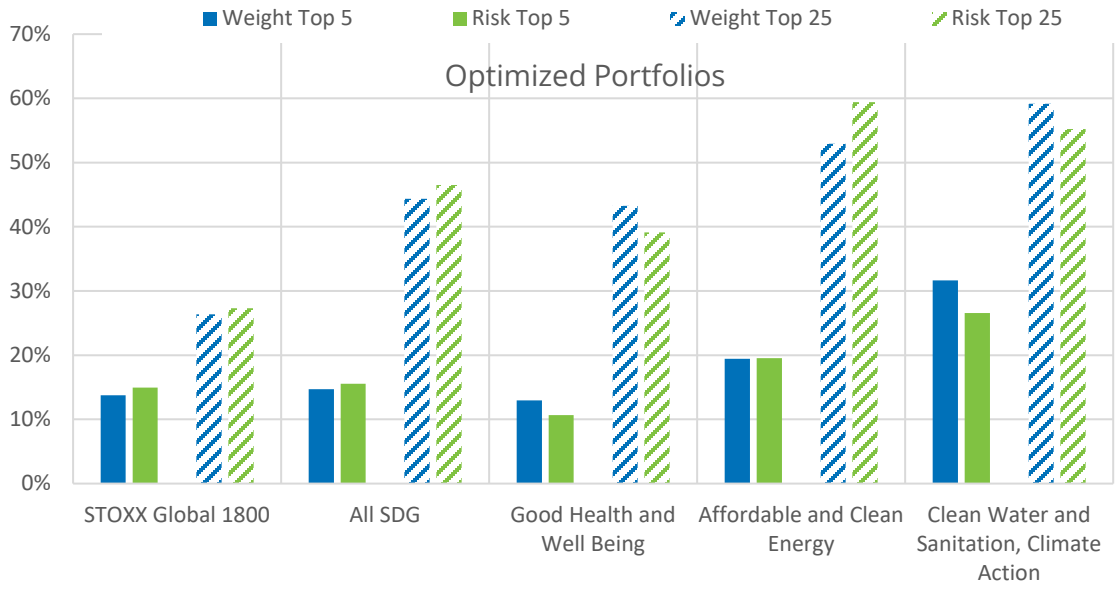
[1] See "When it comes to sustainability, you can accentuate the positive, not just eliminate the negative"

[2] A global developed-markets index.

## 1. STOXX® Global 1800: More diversified than the SDG portfolios, with much lower SDG exposure

The STOXX® Global 1800 Index by definition holds 1800 names, but the effective number of names at the end of 2021 was 156[3], with 13.7% of the weight and almost 15% of the risk in the top five names, and just over a quarter of the weight and 27.3% of the risk in the top 25 (Exhibit 1).

Exhibit 1. Concentration of Weight and Risk in Biggest Names, Parent Index and SDG Portfolios



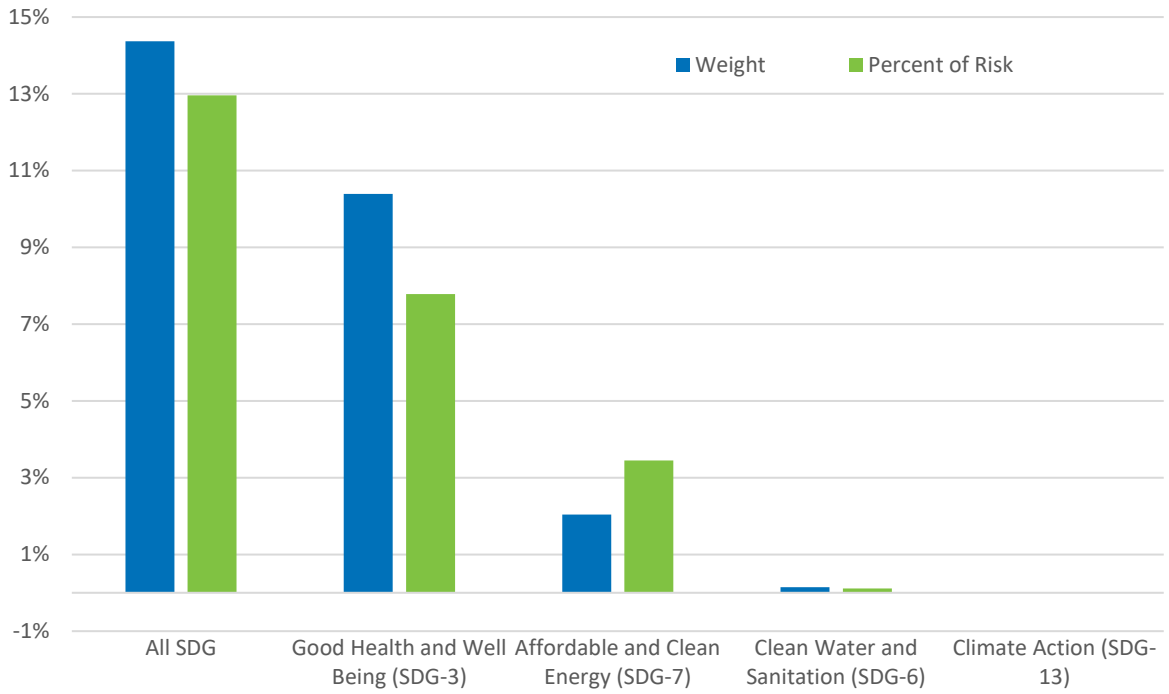

Source: SDI AOP, Qontigo

SDG exposure was not completely absent from the index, although it was relatively muted (Exhibit 2): 14% of the index weight met at least one Sustainable Development Goal and 10% met SDG-3 (Good Health and Well Being)[4]. The other SDGs in this study had negligible exposure. Another interesting note is that the percent of total portfolio risk in the index exposed to the "All SDG" and SDG-3 categories was lower than their weight, suggesting that companies meeting those criteria were also less risky than other names.

[3] This represents the inverse of the Herfindahl-Hirschman index, which is a measure of market concentration. If the effective number of names is very low (i.e. the index is very concentrated) it suggests it will be more difficult to be well-diversified.

[4] The index exposure is defined as the percent of revenue from a specific SDG times the stock's total weight in the portfolio. This calculation differs from that in our earlier study, where we summed the weight of stocks that obtained at least 10% of their revenue from the SDG (i.e., had a "Decisive" or "Majority" designation from the SDI AOP).

Exhibit 2. STOXX® Global 1800 SDG Exposures by Weight and Percent of Risk



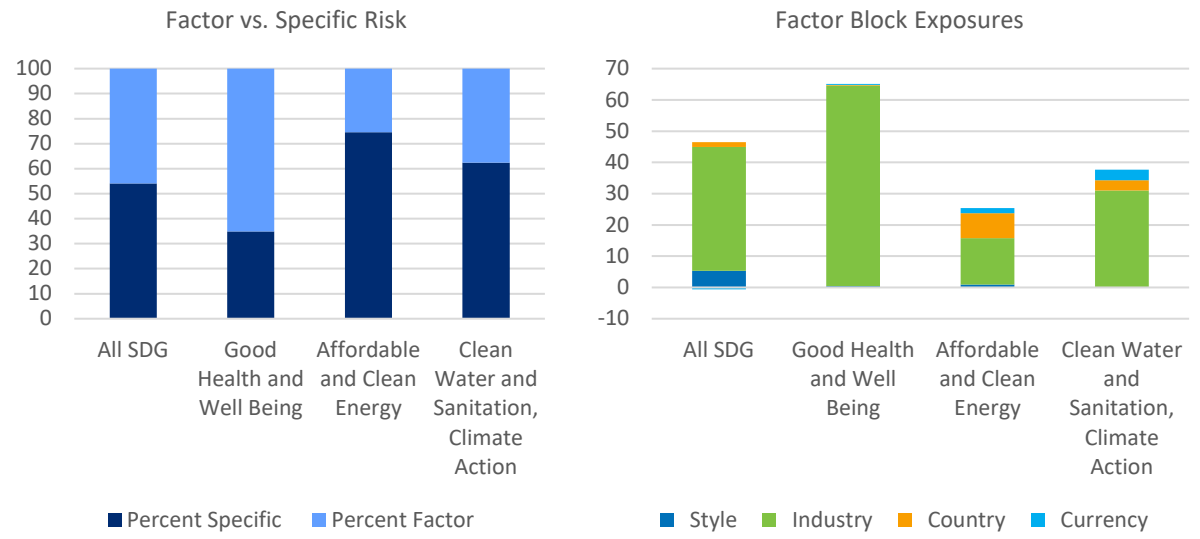

Source: SDI AOP, Qontigo

The STOXX® Global 1800 is the standard to which we compared the individual SDG portfolios. Ideally these portfolios would have much higher exposures to the individual and aggregate SDGs, without substantially higher concentrations among holdings or risk factors. We found that most of the test-case goals were achieved by taking on substantial industry or country exposures, with a few style exposures also cropping up. They tended to be more concentrated, but still appeared to be investible.

## 2. Optimizing exposure to all SDGs: More concentrated than the STOXX® Global 1800, with most factor risk coming from Industries

The portfolio designed to maximize exposure to *all SDGs,* in contrast to the STOXX® Global 1800, held 170 names, with an effective number of names of 89. The top-five weight was similar to that of the index, but the All-SDG portfolio was significantly more concentrated in the top 25 names. About half of this portfolio's 3% tracking error was factor-based, with the other half stock-specific (Exhibit 3).

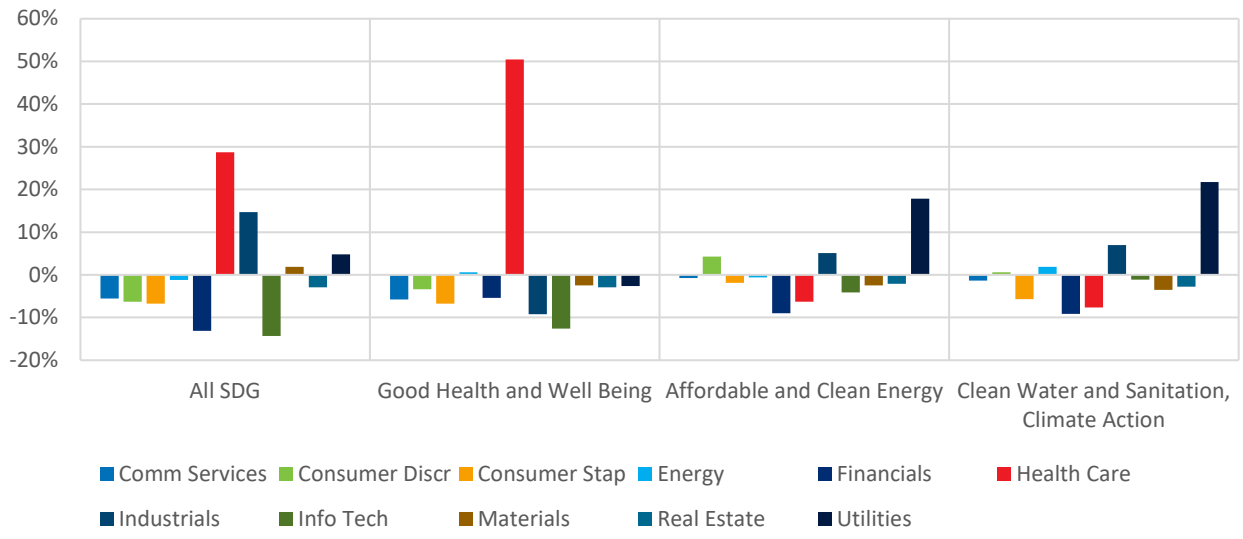
Exhibit 3. Main Risk Exposures, Optimized Portfolios




Source: SDI AOP, Qontigo

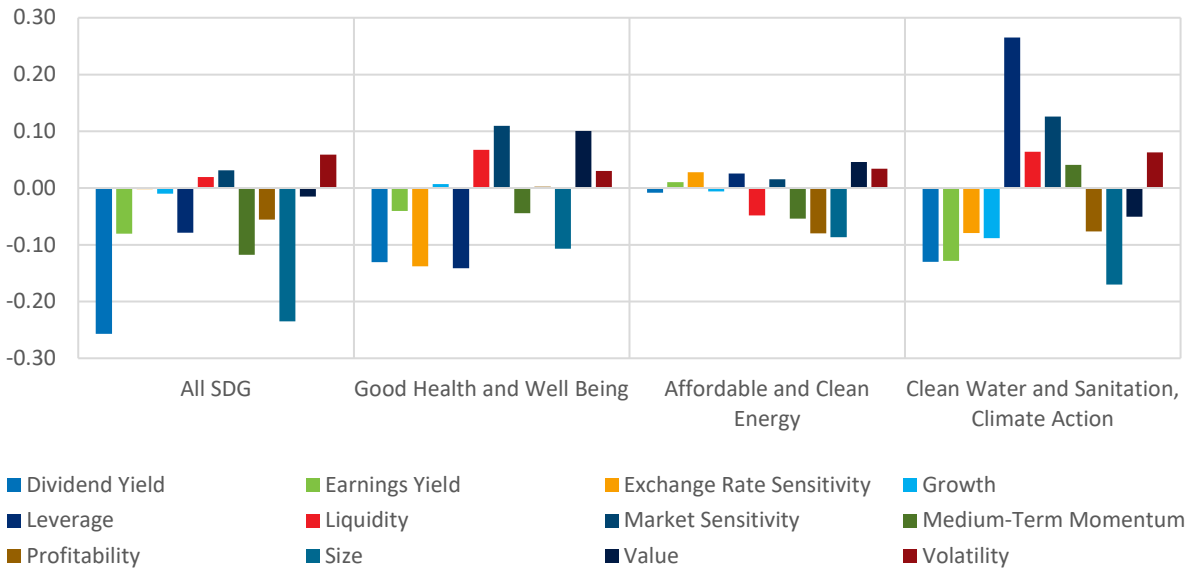
As expected, given the nature of most of the SDGs that are aligned with certain economic sectors, industries comprised by far the biggest proportion of the factor risk, although some came from style and country exposures. Of those, we see Small-Cap and low Dividend Yield biases, overweights in Health Care and Industrials, and underweights in Tech and Financials (Exhibits 4 and 5).

Exhibit 4. Active Sector Exposures, Optimized Portfolios




Source: SDI AOP, Qontigo

Exhibit 5. Style Exposures, Optimized Portfolios




Note: Style exposures are stated in standard deviations, so an exposure of -0.2 indicates the aggregate active exposure is 0.2 standard deviations below that of the benchmark.

Source: SDI AOP, Qontigo

Of all our test portfolios, the "All SDG" version had the biggest country underweight in US exposure (Exhibit 6). Still, country exposures contributed less than 2% of the active risk.

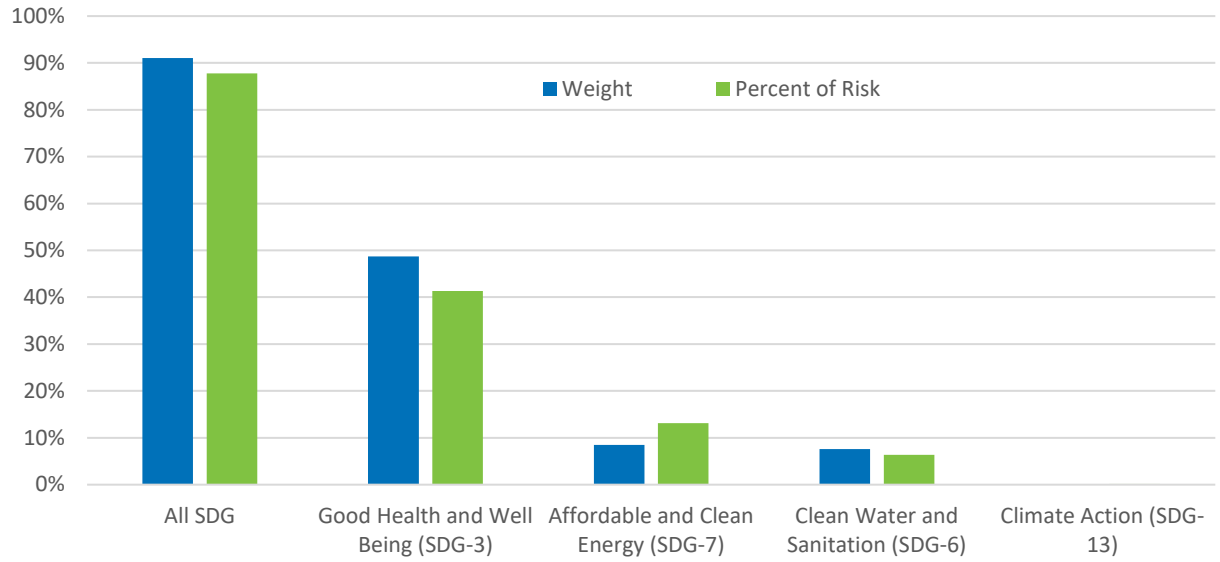
Exhibit 6. Country Exposures, Optimized Portfolios

| All SDG | | Good Health and Well Being | | Affordable and Clean Energy | | Clean Water and Sanitation, Climate Action | |
|---|---|---|---|---|---|---|---|
| United Kingdom | 2.2% | Switzerland | 2.8% | Spain | 5.2% | United Kingdom | 11.8% |
| Ireland | 1.5% | Australia | 1.4% | Portugal | 4.2% | China | 1.4% |
| Denmark | 1.4% | Denmark | 1.1% | New Zealand | 2.9% | Austria | 0.5% |
| United States | -4.3% | Canada | -1.7% | United Kingdom | -4.4% | France | -2.6% |
| Germany | -2.2% | Netherlands | -1.2% | United States | -3.2% | Canada | -2.2% |
| Netherlands | -1.1% | Hong Kong | -0.8% | Switzerland | -2.9% | United States | -2.1% |

Source: SDI AOP, Qontigo

The exposures of this generalized SDG portfolio to all SDGs can be found in our earlier post, but in terms of the SDGs examined for this study, SDG-3 contributed the most. And as in the parent benchmark, we note that the risk contribution was lower than the weight would suggest (Exhibit 7).

Exhibit 7. All SDG Optimized Portfolio, Weights and Risk Contribution of Selected SDGs




Source: SDI AOP, Qontigo

## 3. Now we turn to our single-SDG sample portfolios…

The Good Health and Well Being portfolio (SDG-3) had the lowest proportion of specific vs. factor risk of our test cases, driven largely by a substantial overweight of 50% in the Health Care Sector (and corresponding underweights in most other sectors). It showed a similar level of diversification to our All-SDG portfolio in terms of the effective number of names (90) and weights in the top five and 25 names. With 238 names, it did however have more absolute holdings.

Almost no aggregate risk could be attributed to style factors or countries, although we do see small individual country and style factor exposures. The relevant SDG—SDG-3—had a weighted average exposure of almost 64%, but these names accounted for much less risk, just 54% (Exhibit 8). These were both clearly much higher than we saw for the STOXX® Global 1800.

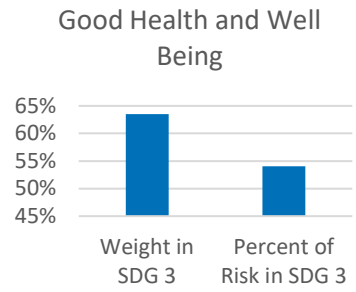
In contrast, the Affordable and Clean Energy portfolio, which seeks to maximize exposure to SDG-7, was more concentrated, with an effective number of names of just 63, and more than half the weight (and almost 60% of the risk) in just the top 25 names. It was also much more skewed toward specific risk than its SDG-3 counterpart, with almost 75% of the risk coming from that source. And for this portfolio, country risk accounted for a higher proportion—almost one-third—of the factor risk, driven by its overweights in relatively riskier Spain, Portugal and New Zealand, and its significant underweight in the US. With the exception of the overweight in Utilities, active-sector exposures for this portfolio were smaller in magnitude than they were in the others, and style exposures were within +/- 0.1 standard deviations versus the parent benchmark. Finally, the comparison of weight versus percent of risk allocated to the relevant SDG shows that this is the only one of

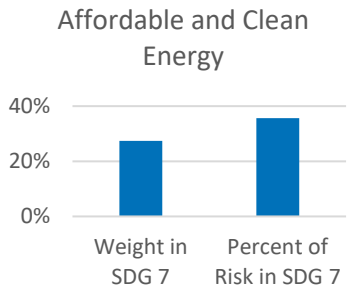
our four scenarios in which the percent of risk is higher than would be expected given the weight, suggesting that companies with revenues derived from this SDG tend to be somewhat riskier than average.

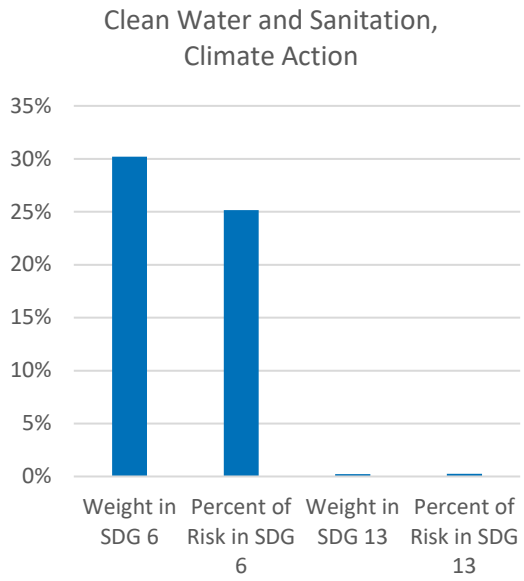
Finally, our last test combined two SDGs that are often paired: SDG-6 (Clean Water and Sanitation) and SDG-13 (Climate Action). Both SDGs had very little representation in the STOXX® Global 1800, in terms of number of names and index weight. Still, we were able to create a 3% tracking error portfolio that aimed to maximize exposure to both SDGs simultaneously, with most of the exposure, and 30% of the revenues in the portfolio (25% when weighted by risk), coming from SDG-6.

This portfolio obtained about two-thirds of its active risk from stock-specific sources, and most of the factor risk came from industries. The portfolio also had a large overweight in the UK, where three of the five largest holdings are based, but this exposure did not lead to a significant country-risk exposure, as the UK is among the lower volatility developed-market countries. We also observed an even bigger overweight in Utilities than the SDG-7 version, and that exposure drove most of the industry-risk contribution, in fact much more than that in the SDG-7 portfolio—likely the result of the specific names that filled out the index weight. This portfolio was the most concentrated of any of the test cases, with more than 30% in the top five names (although only 26.5% of the risk). And although it held more than 400 stocks, the lopsided weighting led to an effective number of names of just 36. The SDG-6/SDG-13 portfolio had a significant positive exposure to leverage, and a larger small-cap exposure than our two single-factor portfolios.

Exhibit 8. Relevant SDG Exposures, Single- and Two-Factor Optimized SDG Portfolios



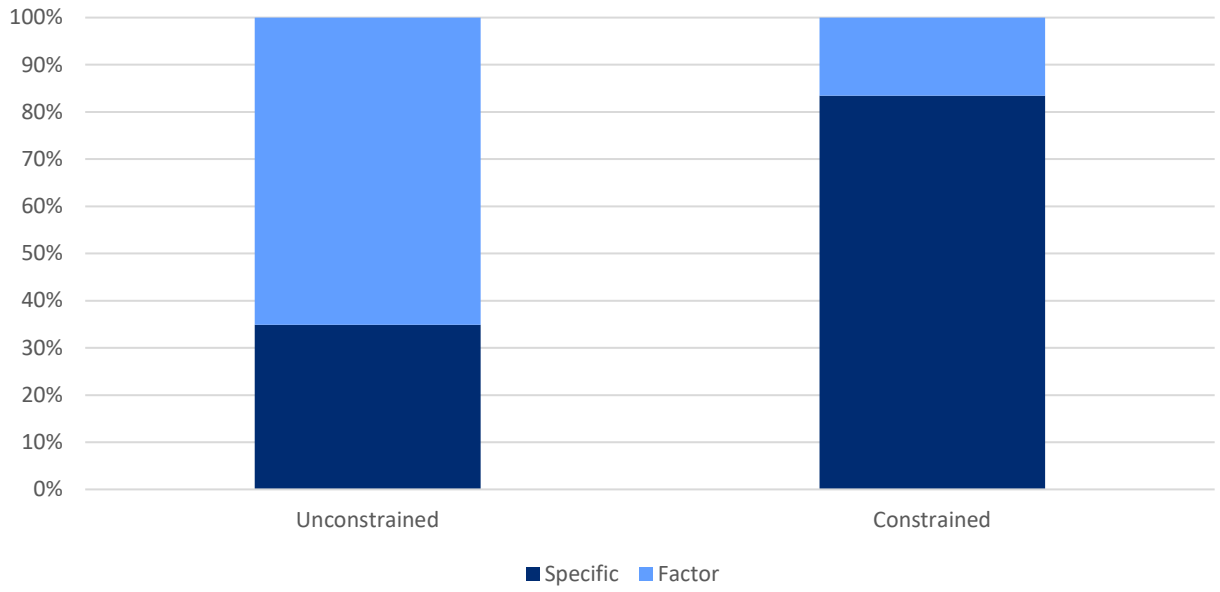

Source: SDI AOP, Qontigo

What if the risk exposure is just a bit too much? Not surprisingly, a portfolio that aims to maximize exposure to SDG-3, which identifies companies that meet the "Good Health and Well Being" standard, ends up highly concentrated in Health Care companies, as we saw above. That level of concentration, in both asset weight and risk, may be too much for an investor seeking a broadly diversified portfolio, even though its tracking error was not excessive.

We ran one more test, adding a simple rule that the overweight in the Health Care sector for a portfolio that wants to maximize SDG-3 exposure could not be more than 10% (as compared with 50% in our original test where we did not impose any sector constraints). We maintained the 3% tracking error target.

By eliminating the possibility of that big sector weight driving factor risk, this "constrained" portfolio got much more of its risk from stock-specific factors (Exhibit 9).

Exhibit 9. Risk Distribution for Health Care Constrained SDG-3 Portfolio vs. Unconstrained

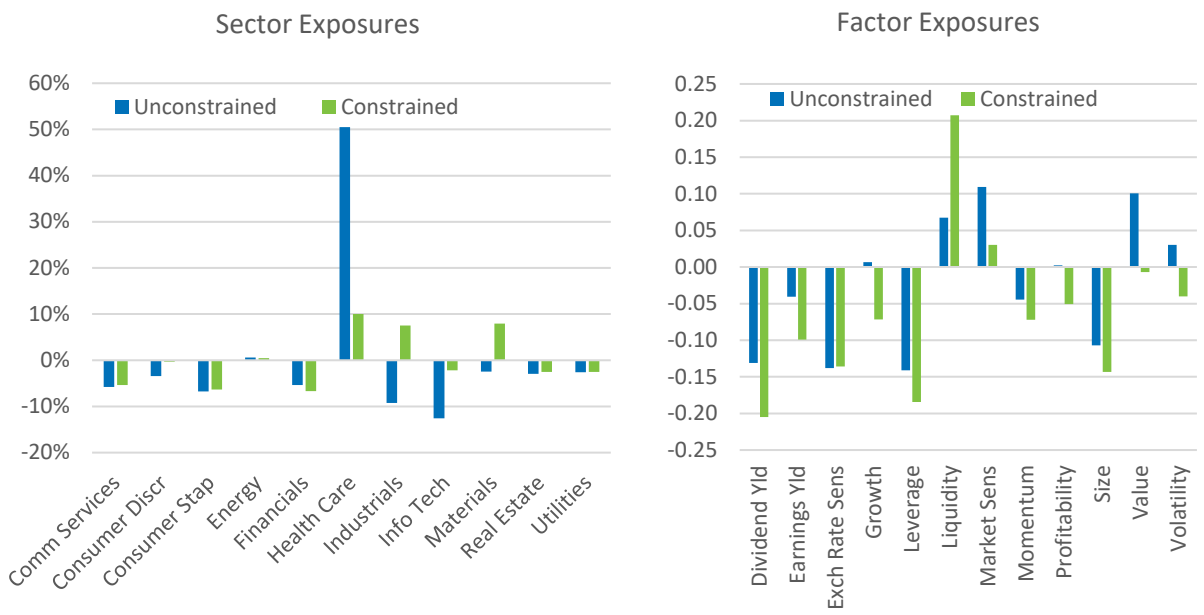



Source: SDI AOP, Qontigo

Reducing the overweight in Health Care had other impacts on the risk characteristics of the portfolio (Exhibit 10). The "constrained" portfolio had a much smaller underweight in Information Technology, and its active eight in Industrials and Materials actually switched sign from negative to positive. Most other sectors did not see big changes in their active weights.

A few style exposures also changed by quite a bit. The "constrained" version had a much higher exposure to Liquidity (that is, it held more liquid names), shifted to a negative exposure to Profitability (in general Health Care companies are more profitable than others so reducing their weight also reduced the level of profitability in the portfolio), and finally the portfolio with the constrained sector exposure no longer had a Value tilt (which was, admittedly, quite modest for the unconstrained version).

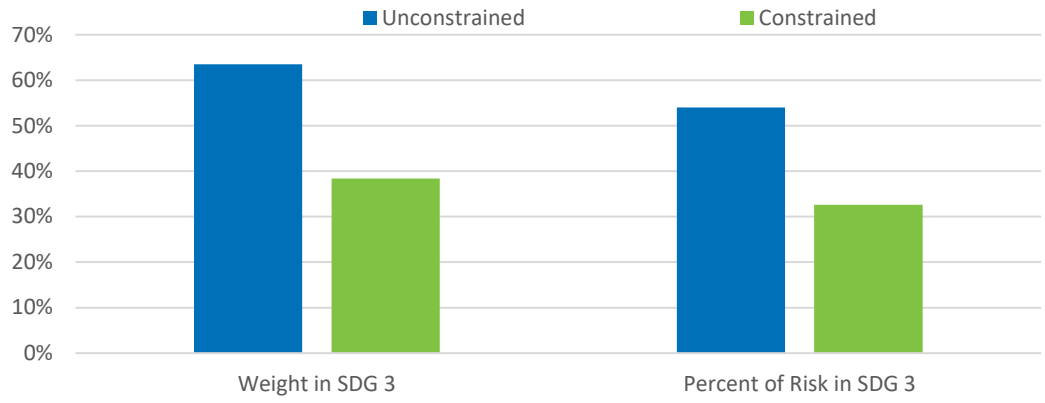
Exhibit 10. Sector and Factor Exposures for Health Care Constrained SDG-3 Portfolio vs. Unconstrained




Source: SDI AOP, Qontigo

Finally, and most importantly, constraining the Health Care exposure caused a sharp drop in the weighted average percent of revenue from SDG-3, from over 63% to 38% (Exhibit 11). In both cases the percent of risk in the portfolio from SDG-3 was lower than the weight — which we view as a positive — but the difference between the two shrunk.

Exhibit 10. Weighted-Average SDG-3 Exposure, Health Care Constrained SDG-3 Portfolio vs. Unconstrained




Source: SDI AOP, Qontigo

## 4. Conclusion

Many investors want to incorporate Sustainable Development Goals in their portfolios. This objective is eminently achievable, and the added risk exposures may well be worth the higher SDG exposure. Companies that derive a significant portion of their revenues from a given SDG are often concentrated in a few industries, which will be reflected in a portfolio seeking to maximize exposure to the SDG. Some of those industries may also be more prevalent in certain countries, leading to significant active country exposures. Those companies with the most SDG revenue may also be smaller than average, resulting in a small-cap bias for these portfolios.

Still, it is quite possible to create a portfolio that significantly improves the exposure to SDGs without taking on too much active risk. For some SDGs, companies that rank better also seem to have lower risk, which, all things being equal, should improve the risk-return ratio. An optimizer can help manage that active risk to a level at which the asset manager or asset owner is comfortable, and a risk model provides guidance on how much risk a given active bet actually entails. It is essential to understand the tradeoffs, i.e., there will be active risk, but it should be commensurate with the increase in sustainability associated with any or all SDGs.

## 5. Contacts & Information

Learn more about how Qontigo can help you better manage risk and enhance your investment process.
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