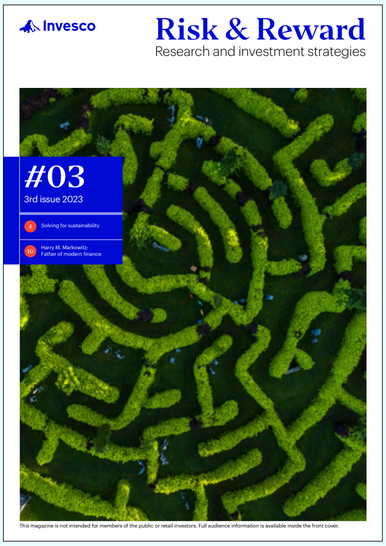
Solving for sustainability

By Matthew Chaldecott, CFA®



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ESG continues to increase in importance for many investors. But what about the potential impacts of ESG approaches on return and risk? For buy-and-maintain strategies in fixed income, we find that the sustainability profile of a portfolio can be improved substantially without materially impacting return expectations. Furthermore, as many investors aim for net zero, we explore frameworks for monitoring and measuring decarbonization progress.

Sustainability considerations are indeed becoming more and more important: At the end of 2021, 3,800 investors accounting for USD 121 trillion in assets had signed the UN Principles for Responsible investment – up from fewer than 1,000 investors (USD 24 trillion) a decade earlier.[1] The Net Zero Asset Owners Alliance has also grown to 86 entities representing a total of USD 11 trillion,[2] and the Net Zero Asset Managers initiative has grown to over 300 signatories with USD 59 trillion in assets under management.[3]

Despite this trend, there is a stubborn preconception among some market participants that ESG-oriented investing is synonymous with lower returns. Their conviction was only strengthened with the start of Russia's war in Ukraine, when the spike in oil & gas prices led to soaring profits for many energy companies. Indeed, if we compare the MSCI World Energy Index (+48% in 2022) with the overall MSCI World Index (-18% in 2022), we see a performance gap of 65 percentage points.[4]

And what about credit? In 2022, the Bloomberg Global Aggregate Corporate Energy Index actually slightly underperformed the main index (-14.73% vs. -14.11%, figure 1). Admittedly, this has a lot to do with the longer duration of the energy index in a year when Treasury yields rose by around 2 percentage points.[5] In the same year, the SRI index, which excludes issuers involved

About risk: The value of investments and any income will fluctuate (this may partly be the result of exchange rate fluctuations) and investors may not get back the full amount invested.

SRI and ESG indices trade in line with the main universe, and have done so historically.

in controversial sectors and activities, fell by 13.85%; the ESG index, which weights issuers according to their ESG scores, fell by 13.60%. This aligns with research showing that, once factor exposures are matched, return patterns are very similar – and there is even potential for a positive ESG premium.[6]

Bringing this back to the equities example, we can also think about the factor exposure of the two indices. The energy sector has historically offered a higher dividend yield compared to the main universe – at the end of 2021 the rates were 4.37% vs. 1.67% respectively. If we think of the two as perpetual bonds and use the formula (1+y)/y to estimate the duration, the energy index comes out at 24y while the main index has a rough duration of 61y. The performance difference for 2022 is therefore more than explained [2% x (61-24)] by mathematical duration effects!

The yields-to-worst confirm this (figure 2). Again, the SRI and ESG indices trade in line with the main universe, and have done so historically. The maximum divergence over the past five years has been 13 basis points.

But, as with financial fundamentals, the momentum and direction of travel can matter as much as the current yield. Indeed, studies have found evidence of a higher information ratio for companies with positive ESG trajectories.[7]

Net zero: The new frontier

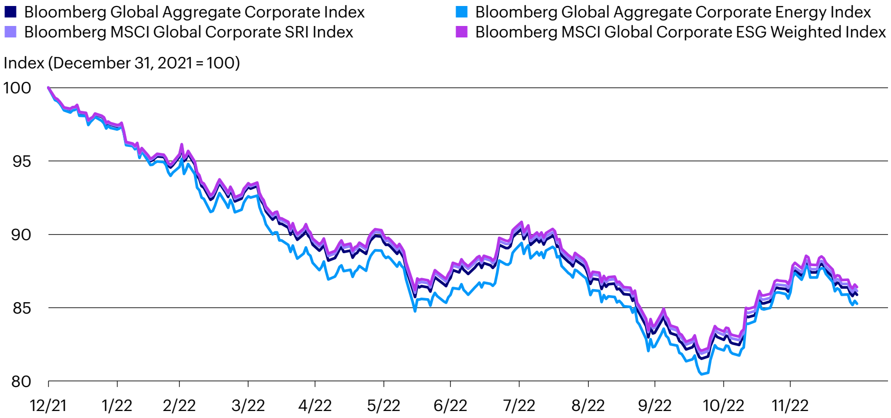
As many companies and countries seek to achieve net zero emissions by 2050, decarbonization has emerged as one of the most important sustainability topics. According to our research, around 2/3 of the global corporate universe (by market value) are "net zero committed". This is still a huge investible universe of nearly 10,000 securities with an aggregate market value of over USD 10 trillion.[8] The yields and spreads of this net zero universe are very close to the full universe – the average credit rating is the same and the industry breakdown is very similar (figure 3).

Solving for multiple dimensions

In the past, most investors had two dimensions to think about – risk and return. Today, the landscape is becoming ever more complex, with often conflicting considerations, such as sustainability, regulatory, liquidity and liability-matching,

Figure 1

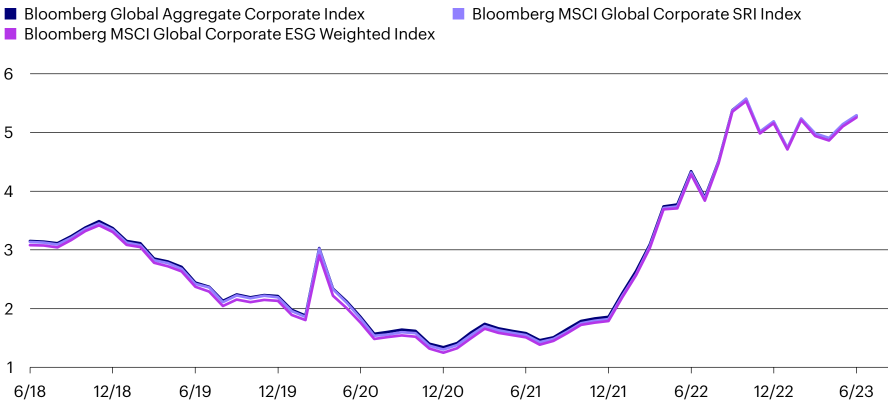
No major performance differences in 2022



Source: Bloomberg. Based on total returns in USD from December 31, 2021 to December 31, 2022. All indices are Total Return, hedged in USD. **Past performance does not predict future results.** An investment cannot be made in an index.

Figure 2

Yields-to-worst have been similar

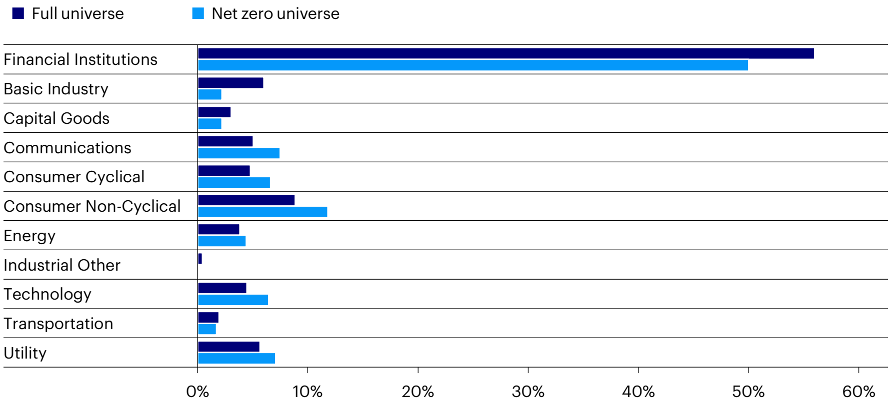


Source: Bloomberg. As of June 30, 2023. An investment cannot be made in an index.

> The yields and spreads of this net zero universe are very close to the full universe

Figure 3
Analyzing the global corporate bond landscape

Characteristic	Full universe	Net zero universe
Average credit rating	BBB-	BBB-
Market value (USD)	17,270 bn	10,198 bn
Number of issuers	2,149	820
Number of securities	15,658	9,973
Duration (option adjusted)	6.5 years	5.8 years
Spread (OAS vs. gov, USD term hedged)	158 bps	138 bps
Yield-to-worst (USD 3m hedged)	5.78%	5.47%
Yield-to-worst (term hedged)	5.63%	5.49%



Source: Invesco. As of June 30, 2023. Full universe = Bloomberg Global Aggregate Corporate Index. An investment cannot be made in an index.

gaining prominence. In this section, we use a four-step process to optimize portfolios for yield while satisfying constraints relating to net zero and other sustainability parameters.

Step 1 – Defining the universe

To name just a few possible parameters, investors may want to invest solely in their domestic currency, in corporate bonds or in investment grade-rated securities. Further screens are often required – in Invesco's European SFDR Article 8 portfolios, for example, issuers with material involvement in controversial activities, including tobacco, weapons or human rights violations, are excluded.[9] Investors may have additional criteria they want to impose, be it a minimum overall ESG rating or minimum individual pillar scores.

The impacts of such exclusions will vary depending on the starting universe. In general, they are modest for developed market and investment grade issuers, while for high yield and/or emerging market universes the impacts become more meaningful (figure 4). Interestingly, even though the drop off in market value or issuer numbers can be significant, the yield differentials are small.

Step 2 – Set constraints and optimize

Once the ex-ante universe has been narrowed down, we need to define limits and targets. We set thresholds for rating, sector weights or any combination of variables based on a custom coding function. These thresholds may be at the overall portfolio level (such as total carbon emissions) or the micro level (e.g., BBB-rated securities capped at 0.5%

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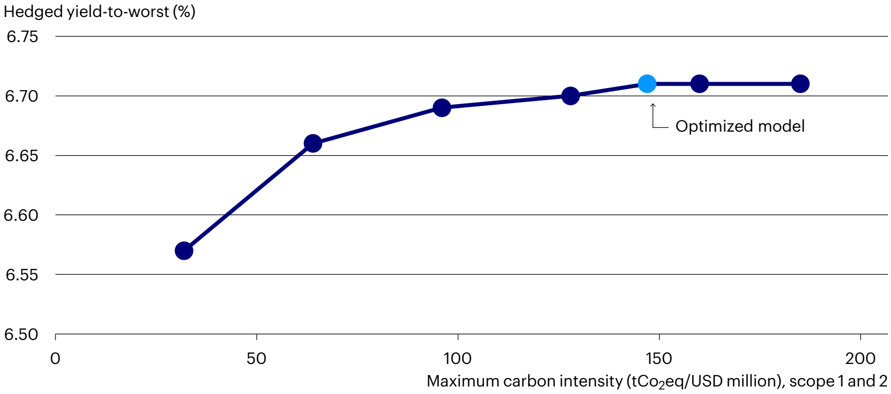
Figure 4
Indices and universes in comparison

	Bloomberg Global Aggregate Corporate Index		ICE BofA ML US High Yield Index		JP Morgan CEMBI Broad Diversified Index	
	Full universe	Article 8 screened	Full universe	Article 8 screened	Full universe	Article 8 screened
Number of issuers	2,149	1,599	892	592	763	566
Number of securities	15,658	13,300	1,869	1,398	1,873	1,556
Market value (USD)	17,270 bn	15,004 bn	1,223 bn	935 bn	1,809 bn	932 bn
Yield-to-worst (USD hedged)	5.78%	5.67%	8.55%	8.21%	7.52%	7.32%

Source: Invesco. As of June 30, 2023. An investment cannot be made in an index. "Article 8 screened" refers to the screening process applied at Invesco. An Article 8 Fund under SFDR is defined as "a Fund which promotes, among other characteristics, environmental or social characteristics, or a combination of those characteristics, provided that the companies in which the investments are made follow good governance practices".

Figure 5
Which combination of yield-to-worst and carbon intensity is optimal?



Source: Invesco. As of October 2022. For illustrative purposes only. Yield in GBP-hedged terms.

weight per issuer). We may also want to program in a cashflow obligation schedule for a defined benefit pension fund or an insurance company's claim expectations.

We then seek to construct the portfolio satisfying all these conditions. We may seek to optimize the output in local yield (for domestic portfolios), 3-month hedged terms (for international ones taking out FX risk) and fully hedged (where long-term cross currency swaps can be used). We may also optimize purely on credit spread (government or otherwise) in cases where duration is managed separately.

As an example, we show the potential impact of tightening or loosening a constraint – in this case carbon intensity (figure 5). The optimized model has an intensity of 147t CO_2 equivalents per million USD revenue, for a yield of 6.71%. However, we can see that it is possible to reduce the carbon intensity to less than 100t for a yield sacrifice of just 2 basis points. Thereafter, the trade-off gets steeper: From 100t to under 50t costs approximately 12 additional basis points of yield.

Step 3 – Qualitative review

Our approach is not a purely quantitative "black box" model. Portfolio managers assess the output qualitatively to ensure that it makes sense both in the letter and the spirit of the investment constraints and objectives. Furthermore, the initial guideline specifications may not be perfect, producing some unintended portfolio concentrations. In such cases, the model portfolio can be manually adjusted. Another possibility is to adjust the coding of the constraints before re-running the optimization process.

Step 4 – Ongoing management

Any portfolio needs to respond to changes in market conditions and issuer fundamentals. Faced with substantial in/outflows, many managers tend to pro-rate existing positions. We, however, prefer to re-scan the entire investable universe and propose a basket of trades to complement existing holdings and optimize the end result.

Decarbonization: What does success look like?

We now turn to our second topic – regular decarbonization monitoring. With more and more investors making net zero

Figure 6
Comparing commitments with actual emissions: an example

		2020	2021	2022	2023	2024
Decarbonization commitment (tCO_2)	Issuer A	100	97	94	91	88
	Issuer B	100	93	86	79	72
	Issuer C	100	101	102	103	104
	Total portfolio	**300**	**291**	**282**	**273**	**264**
	Cumulative commitments		**-3.0%**	**-6.0%**	**-9.0%**	**-12.0%**
Emissions (tCO_2)	Issuer A	100	98	96	94 (f)	92 (f)
	Issuer B	100	95	90	90 (f)	88 (f)
	Issuer C	100	101	102	103 (f)	100 (f)
	Total portfolio	**300**	**294**	**288**	**287 (f)**	**280 (f)**
	Cumulative decarbonization		**-2.0%**	**-4.0%**	**-4.3% (f)**	**-6.7% (f)**

Source: Invesco. Hypothetical example, for illustrative purposes only. (f) = forecast (shaded in blue).

Figure 7
Who is the culprit?

		2020	2021	2022	2023	2024
Commitment minus emissions (tCO_2)	Issuer A	0	-1	-2	-3	-4
	Issuer B	0	-2	-4	-11	-16
	Issuer C	0	0	0	0	4
	Total portfolio	**0**	**-3**	**-6**	**-14**	**-16**

Source: Invesco. Hypothetical example, for illustrative purposes only.

commitments, we need to monitor decarbonization progress at issuer and portfolio level. For simplicity, we assume a portfolio with just three positions, where each issuer emitted 100t of CO_2 in 2020. Issuers A and B have decarbonization commitments (with B's more ambitious), while issuer C has none. Over the subsequent five years, we can compare the actual and forecast emissions to the commitment schedule.

In our example, the portfolio has been decarbonized by just 4% by the end of 2022 and lags the target of 6% by 2 percentage points. Furthermore, the gap is expected to worsen to 5.3 percentage points by the end of 2024.

To analyze the sources of this miss, we compare each issuer's commitment to its actual reduction (figure 7). It turns out that, despite reducing emissions by more than the other two, issuer B is the primary culprit for not meeting the target – simply because this company was over-ambitious in its goals. The analysis also indicates that 2023 is a critical year for decarbonization commitments.

Such data helps to flag issuer B as a priority candidate for engagement – the conversation would revolve around the ability and willingness of the issuer to get back on track, or that expectations will instead need to be revised. Beyond any sustainability objective for the portfolio, there may be investment performance impacts as markets notice a lack of progress, and investors may demand a higher risk premium or choose to divest.

Conclusion

Contrary to lingering perceptions, adopting a more sustainable approach does not inherently mean sacrificing returns. But it is crucial to have the right tools to manage ESG considerations on top of classic risk and reward variables. New developments allow investors to screen and solve across multiple dimensions, helping build efficient and unbiased portfolios. Nevertheless, for the ongoing management of sustainable portfolios, analysis and attribution of ESG factors is needed and can help guide engagement.

Notes
1 Source: About the PRI | PRI Web Page | PRI (unpri.org), June 2023.
2 Source: Members – United Nations Environment – Finance Initiative (unepfi.org), June 2023.
3 Source: The Net Zero Asset Managers initiative, June 2023.
4 Source: Bloomberg, total returns in USD from 31 December 2021 to 31 December 2022.
5 The performance differntial between the two equity indices can also be explained in terms of duration differences.
6 E.g., Barclays Quant Equity Americas Advisory Council (June 2023): Integrating ESG as a Constraint and for Alpha Generation in Systematic Investing.
7 E.g., Zoltán Nagy, Doug Cogan, Dan Sinnreich (February 2013): Optimizing Environmental, Social, and Governance Factors in Portfolio Construction: An Analysis of Three ESG-tilted Strategies, MSCI Research Insight.
8 As of June 2023.
9 Invesco's SFDR Article 8 portfolios exclude issuers with material involvement in UN Global Compact violations, thermal coal extraction / power generation, unconventional oil & gas extraction, controversial weapons, tobacco and cannabis. Other activities may be excluded at fund level; please consult the offering documents for details.

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Matthew Chaldecott serves as a specialist on global buy & maintain strategies, providing analysis, thought leadership and product expertise to institutional and wholesale clients.

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