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Investment viewpoint

Finding the value in high-carbon sectors

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Need to know

- Our TargetNetZero portfolios leverage a methodology developed by our sustainability research team – allowing us to evaluate the alignment of companies in our investment universe to the climate transition in the form of the implied temperature rise (ITR)
- In this note we attempt to glimpse the performance implications of this approach by backtesting a hypothetical portfolio. The results are quite encouraging
- The findings square well with our conviction that the commitment to decarbonisation must be rewarded, particularly among high emitters. This is at the core of our TargetNetZero portfolios designed to benefit from a shift in relative valuations

A focus on high emitters

The transition to net-zero emissions of greenhouse gases requires a substantial transformation of the global economy. Investors must position their portfolios to support this transition and to benefit from it.

In the previous paper[1], we discussed our systematic approach to building portfolios aligned with the target to reach net-zero emissions by 2050. The TargetNetZero portfolio leverages an in-house methodology developed by our sustainability research team – allowing us to evaluate the alignment of companies in our investment universe to the climate transition in the form of the Implied Temperature Rise (ITR).

In short, TargetNetZero portfolios are built with the objective to reduce the ITR of the benchmark while keeping the tracking error under control.

Alexey Medvedev
Lead Portfolio Manager

[1] TargetNetZero: high conviction with low tracking error.

The ITR of equity indices is determined largely by the alignment of high-emitting companies[2]. As a result, the TargetNetZero strategy impacts the portfolio allocation primarily among high emitters by overweighting companies with lower ITR (leaders of the climate transition) and underweighting laggards[3].

This focus on high emitters – companies that will determine the fate of the climate transition – ensures that the strategy allocates its active risk budget efficiently. We also believe that TargetNetZero portfolios are ultimately set to outperform their benchmarks as the market will reward leaders by raising their relative valuations.

Quantamental nature of TargetNetZero

It is good to provide at least some evidence supporting our conviction even if it is based on solid economic grounds. However, this is not an easy task. The climate transition is at an early stage, so the TargetNetZero strategy has yet to show its full potential. In addition, the ITR methodology is conceptually difficult to backtest as it combines both quantitative modelling and qualitative analysis.

Notwithstanding these difficulties, in this note we attempt to glimpse the performance implications of our approach by looking at the pure `systematic core' of the underlying methodology.

Specifically, we will approximate the ITR of companies by using a composite score that combines company characteristics that are relevant to the climate thematic and have a reliable history. Then we backtest the performance of a hypothetical portfolio formed on this score. Some insight into the systematic core of the ITR methodology and its performance implications could help to confirm that we are on the right track.

Digging into the systematic core

An accurate assessment of the alignment of companies to the climate transition requires multiple inputs. A key one is the actual reduction in greenhouse gas (GHG) emissions achieved. The historical trend provides the first piece of information to evaluate intentions to decarbonise. To measure this, we will use emissions over the last five years based on data from Trucost[4].

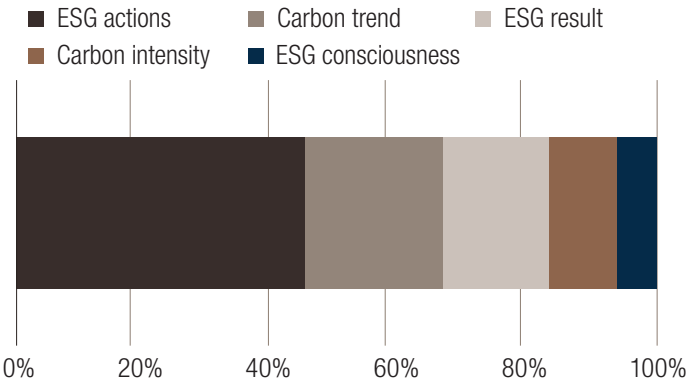
While the ITR is mainly related to future emissions reductions, some companies have already decarbonised and therefore do not need to cut emissions as much as their peers to be aligned. At the same time, the highest emitting companies may find it difficult to align with the transition even if they commit to higher rates of reduction. To account for the difference in starting points, we will use current carbon intensity[5] as another explanatory variable.

To capture the intangible side of company commitments to decarbonise, we will use ESG data, which is specifically intended for such assessments. Naturally, we will focus on the Environmental pillar of ESG. To get a more granular picture, we will rely on LOIM proprietary methodology, which provides an aggregation of raw ESG scores along three alternative dimensions: Consciousness, Actions and Results. With this approach, we can differentiate between companies that only have good intentions and those achieving actual results.

We decided to be less ambitious by seeking to classify companies with respect to their ITR rather than forecast the exact value of this metric. We chose a 2.4°C threshold to split the companies in the MSCI World Index into two classification groups. Two-thirds of the universe fell into a high-temperature group (ITR>2.4°C), with the rest in the low-temperature one (ITR<2.4°C)[6].

Figure 1 provides a summary of regression[7] that predicts the probability of a company being in the high-temperature group using data as of the end of 2022[8]. Instead of a standard report of coefficient estimates, we show the contribution of each explanatory variable to the model prediction, which accounts for correlation between the variables. Lower ESG scores, higher carbon intensity and a steeper upward trend in emissions all increase the chance that a company will have an ITR of more than 2.4°C.

FIG. 1 EXPLAINING THE IMPLIED TEMPERATURE RISE



Contributions of explanatory variables in a cross-sectional regression of ITR of stocks in MSCI World Index as at 31 December 2022. Carbon trend in emissions is the regression slope of the past 5-year GHG emissions on the corresponding year. Carbon intensity is the ratio of GHG emissions to revenues. ESG metrics are based on Environmental pillar aggregated along the dimensions of Consciousness, Actions and Results. Source: LOIM, Sustainalytics, Trucost.

[2] Portfolio emissions include scopes 1, 2 and 3.
[3] Holdings and/or allocations are subject to change.
[4] Scope 1 and 2 plus scope 3 upstream related to direct suppliers.
[5] The ratio of GHG emissions to revenues.
[6] We found that this split yields the best regression fit using various metrics of classification accuracy.
[7] Logistic regression.
[8] Carbon trend was percent-ranked across the universe. Carbon intensity was log-transformed.

First actions, then results

According to Figure 1, almost half of the variation in the model prediction is driven by the ESG Actions score, followed by the carbon trend. We noticed that these two metrics are negatively correlated. Naturally, a steeper reduction in carbon emissions tends to result in a better ESG score related to company actions.

Similarly, we can view the carbon intensity as a characteristic closely associated with company results. Therefore, it is not surprising to find a negative correlation between the ESG Results score and the carbon intensity. Given this interpretation, we can state that the model prediction is mainly driven by variables related to company actions rather than results, which confirms the forward-looking nature of the ITR.

The explanatory power of the regression is fairly modest with R-squared around 14%. Clearly, the ITR methodology cannot be easily deciphered as it is an output of a sophisticated process that combines substantially more numerous and more granular data sources. Nevertheless, we find that the overall accuracy of the classification is surprisingly decent. For example, for an arbitrary pair of companies belonging to different classification groups, the model will predict a correct ordering of ITR with a 72% probability[9].

Better score means higher return... but only for high emitters

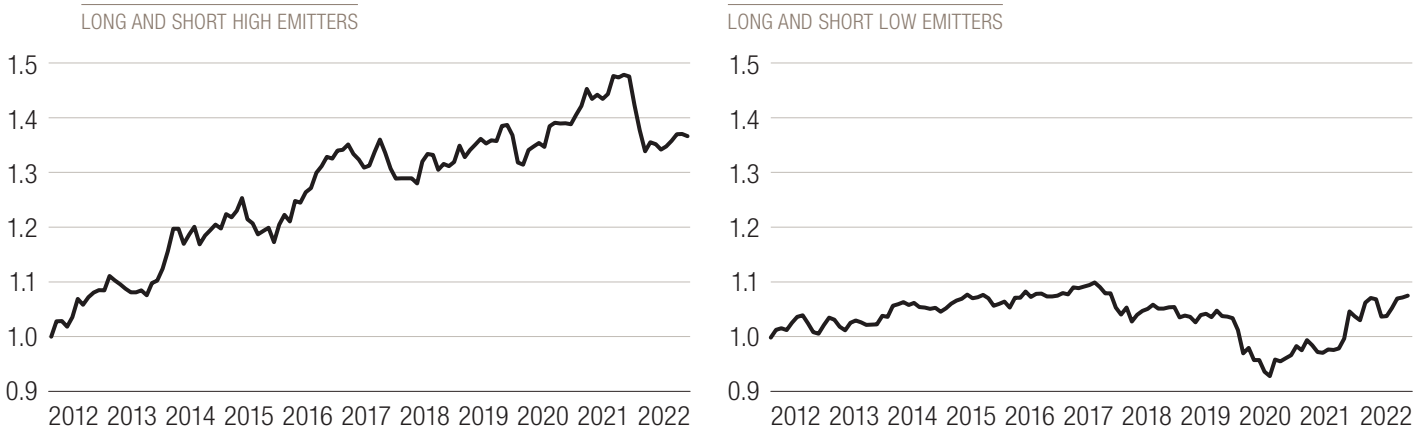
The regression model described in the previous section can be interpreted as a systematic score. To understand its performance implications, we built a long-short portfolio with weights aligned with this score – i.e., higher scores translated into positive weights in the portfolio, while lower scores resulted in negative weights. Additionally, to avoid the performance impact of possible regional biases, we made sure that the portfolio was region-neutral[10].

As we mentioned in the introduction, the TargetNetZero strategy impacts mainly high-emitting stocks through overweighting some and underweighting the others. With this in mind, we formed two long-short portfolios where one only consists of high-emitting stocks, and the other of low-emitting stocks[11].

Figure 2 plots the performance of the two hypothetical portfolios. We observe that the portfolio formed of low-emitting stocks does not generate a material performance over the observation period. Remarkably, the portfolio with high-emitting stocks exhibits a distinct positive return[12]. These results square well with our conviction that the commitment to decarbonisation must be rewarded, particularly among high emitters since these companies are likely to come under pressure as the climate transition unfolds. This conviction is at the core of our TargetNetZero portfolios designed to benefit from this shift in relative valuations.

It is fair to ask if the observed performance of the systematic core translates into a material benefit for a TargetNetZero portfolio. The rule of thumb is that a portfolio based on ITR will inherit $\sqrt{R^2}$ multiple of the risk-adjusted return of the systematic core. Given the r-squared of 0.14 reported in the previous section, we can

FIG 2. PERFORMANCE OF HYPOTHETICAL PORTFOLIOS BASED ON THE SYSTEMATIC CORE



Each portfolio allocates positive and negative weights to stocks based on the systematic score. The left graph shows return of the portfolio formed of high-emitting companies from the MSCI World Index. The graph on the right shows return of the portfolio with low-emitting constituents of the index. Rebalancing frequency is monthly. Source: LOIM, Sustainalytics, Trucost.

[9] This accuracy measure is known as AUC.

[10] Precisely, weight of a company in the portfolio is proportional to the difference between the company score and the average score within the region. Regions are: USA, Europe, Japan, Asia-Pacific ex. Japan, and Canada.

[11] In line with our TargetNetZero methodology, we used the carbon investment ratio to differentiate between high and low emitters with a threshold of 500 tonnes CO_2 per 1 mil. USD. While high-emitting companies make up 27% of the MSCI World universe, they account for 85% of the index emissions.

[12] We also tested a sector-neutral version, with similar results.

therefore expect a 0.4 multiple. It is also worth mentioning that the r-squared of the regression performed on the subsample of high-emitting companies only is as high as 0.24, which translates into a 0.5 multiple.

This expected return is decent but not shocking. We should emphasise, however, that this is only the performance that we can expect from the systematic core of the methodology underlying our TargetNetZero approach. As we noted above, this systematic core explains only a fraction of the variance of ITR across stocks. We firmly believe that the orthogonal component of ITR will bring further performance benefits for our portfolios; however, we cannot formally backtest this based on the past data.

Conclusion: quite encouraging

Our TargetNetZero solutions have a double objective of reducing risks related to the climate transition and taking advantage of opportunities. Importantly, TargetNetZero portfolios are designed to benefit from the shift in relative valuations among high-emitting companies, as the market will ultimately penalise laggards of the climate transition and reward the leaders.

Even though this conviction is of a forward-looking nature, we found that a systematic core of our TargetNetZero process also did well in the past. While this analysis cannot be considered a full-scale backtest of the current methodology, the results are quite encouraging.

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