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Net zero - A practical guide for investors

We show the true scale of the climate challenge facing investors – and outline how they can seek to manage the associated risks, and look to consider the potential opportunities, by aligning their portfolios to a net-zero pathway.

Nick Stansbury
Head of Climate Solutions

Meeting the goals of the Paris climate agreement will require one of the most dramatic reallocations of capital in the entirety of human history, to rebuild the world's energy system – virtually from the ground up – over the next three decades.

Energy transitions have historically taken 80-100 years. We believe we need to see a greater scale of change, with a shift of more than 50% in market share between energy sources, for this to occur in fewer than 30 years.

In this paper, we outline how investors can seek to help accomplish this crucial mission and avert a climate catastrophe.

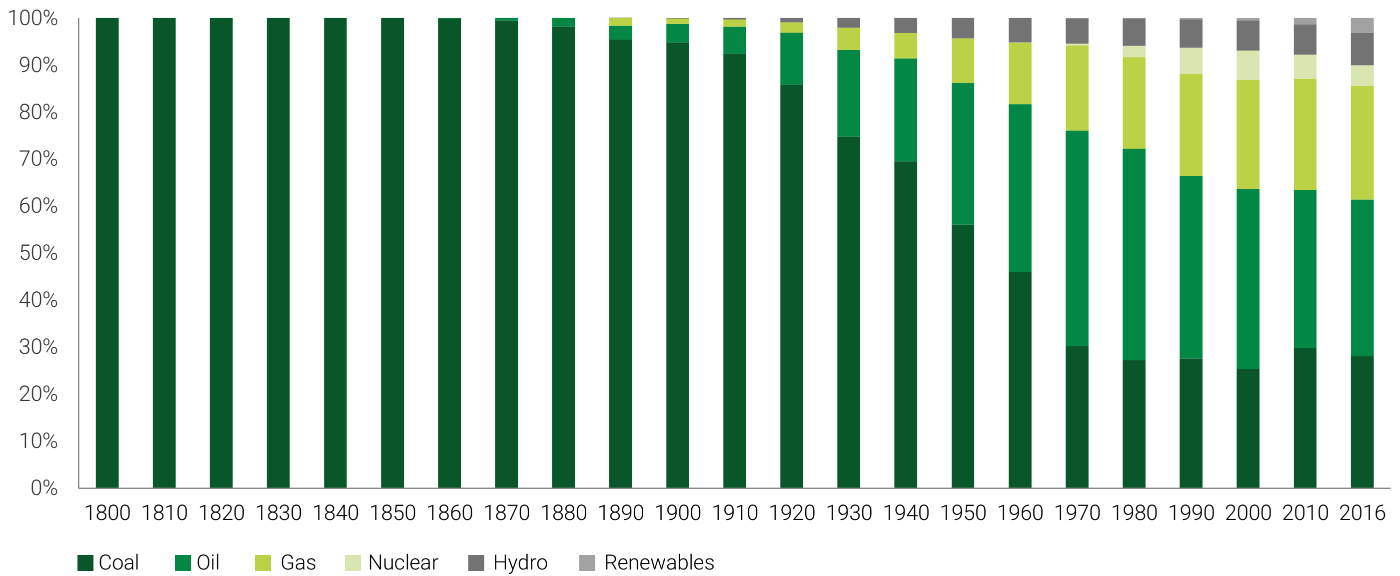
An urgent need to act

Time is running out to meet the Paris goal of limiting global warming to well below two, and preferably 1.5, degrees Celsius versus pre-industrial levels.
The world is likely to fully exhaust the remaining 1.5 degree budget within the next decade. As a result, urgent change is needed: we believe the crucial window for action is the next five years.

We believe at least an incremental $30 trillion needs to be invested in low-carbon renewables, energy efficiency and associated technologies before the mid-point of the century. How can investors look to reflect this vast project in their investment strategies – and what would success potentially look like?

LGIM

The global energy mix



Source: LGIM as at 27 May 2021. There is no guarantee that any forecasts, which are made for illustrative purposes only, will come to pass.

Identifying and evaluating outcomes

Part of the challenge of integrating climate considerations is the need to look at the risks through a forward-looking, rather than backward-looking, lens.

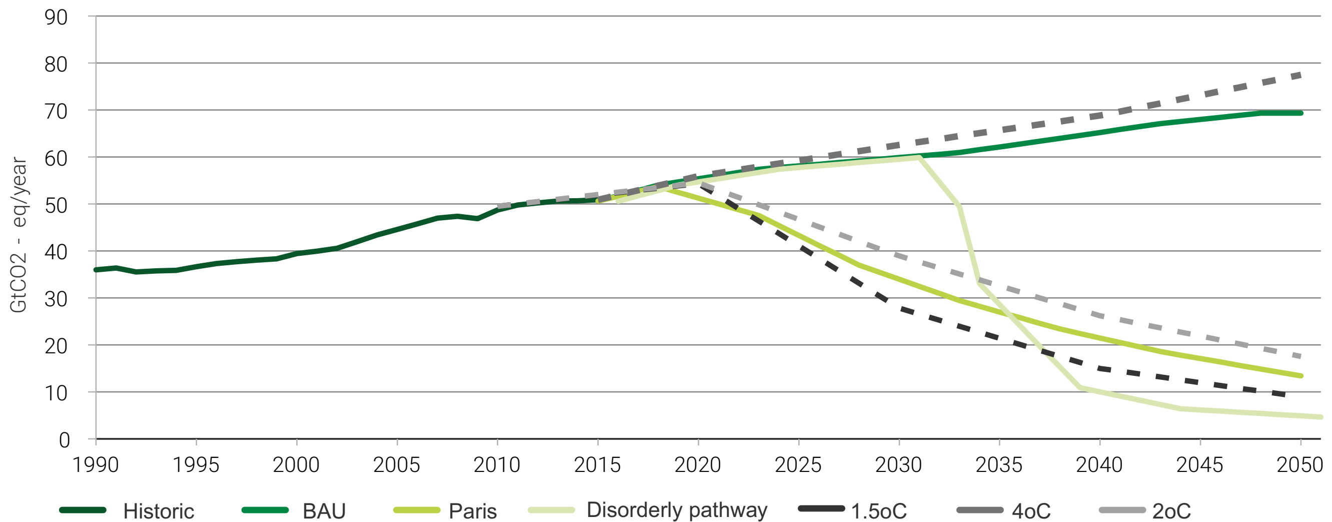
At LGIM, we use three central climate scenarios in our analysis:

1) The world takes no policy action, in a 'business as usual' pathway, which in our view is consistent with global warming of around 3.5 degrees by 2100. This scenario would be associated with significant physical risks in the second half of the century, potentially resulting in widespread macroeconomic disruption and associated geopolitical stress.

2) The world takes clearly organised, logical policy steps to reduce global emissions at a rate fast enough for an outcome consistent with well below two degrees (although not to net-zero emissions). This scenario has far smaller physical risk consequences, but is associated with moderately significant transitional risks as carbon costs rise from near zero today to around $400 a tonne by 2050.

3) The world does little to address climate change until the end of the decade, thereafter attempting to reduce cumulative emissions by the amount it needed to under the second scenario. This 'disorderly' scenario results in material macroeconomic disruption, creates a material risk of stranded assets, and pushes carbon prices to $1,000 a tonne by the end of the forecast period.

Climate scenarios



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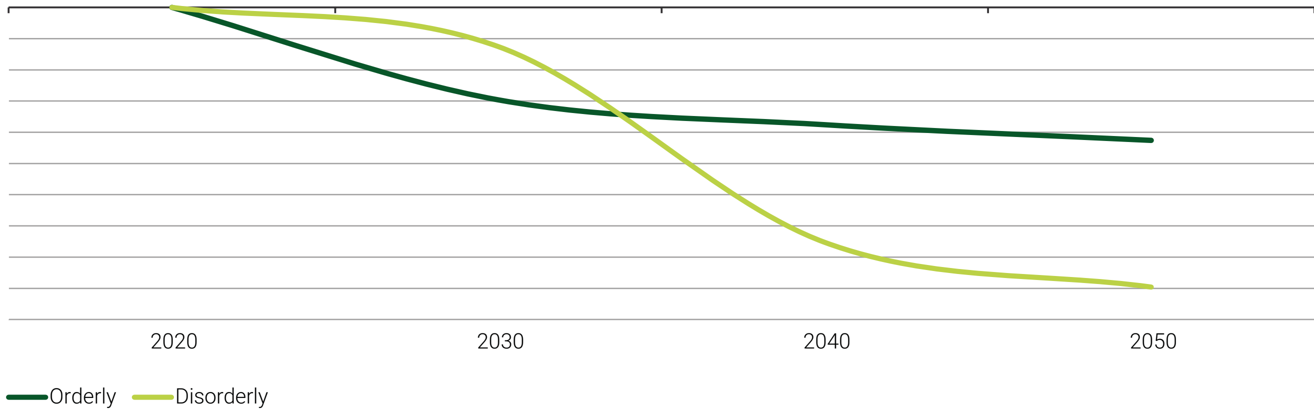
Each scenario brings with it significant consequences for long-term investors, as is evident from our analysis of the different impact on global stock markets of scenarios two and three.

Illustrative impact on global equities of orderly vs disorderly scenarios



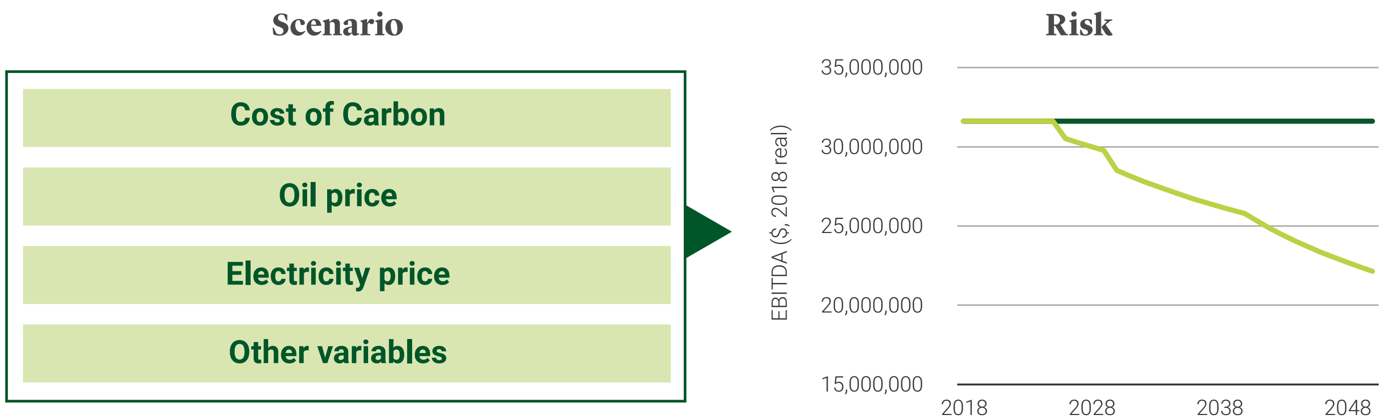
The chart shows a representative universe of global equities. The lines should be interpreted as representing a point-in-time risk, just like VaR or equivalents do. In other words, we are looking at relative performance: underlying equity markets might well rise over the time horizon, but rise by less than in a business-as-usual scenario as a consequence of this mis-priced risk being realised.
Source: LGIM as at 27 May 2021. There is no guarantee that any forecasts, which are made for illustrative purposes only, will come to pass. Past performance is not a guide to the future. The value of an investment and any income taken from it is not guaranteed and can go down as well as up; you may not get back the amount you originally invested.

An active approach

Climate risk is highly stock specific in nature. It is difficult, in our view, to analyse climate risk effectively by only considering top-down factors. Two very similar companies may, by the nature of their underlying business model, present very different climate-risk profiles, either to an orderly transition to a well-below two-degree world, and to a lesser extent to the physical risks of a four-degree world. There are strong reasons to believe that climate risk is not properly priced into markets today, not least the uncertainty over which outcome the world is heading towards.

We believe climate risk should be considered alongside all other investment risks and integrated into all parts of an investment process. Within LGIM's active strategies, our ability to assess and price these risks accurately has been improved with the development of L&G's LGIM Destination@Risk toolkit, which converts the macroeconomic changes from any given climate scenario into a company (or country) specific risk.

Assessing the impact of climate risk on company earnings



For illustrative purposes only. Forecasts made are for illustrative purposes only and may not come to pass.

Regardless of investment approach and asset class – active or index, public or private – we believe that persistent, active engagement with companies is critical to tackling environmental, social and governance issues. As a result, we engage with companies worldwide on behalf of our clients to press them to consider sustainability risks, develop resilient strategies and consider all their stakeholders.

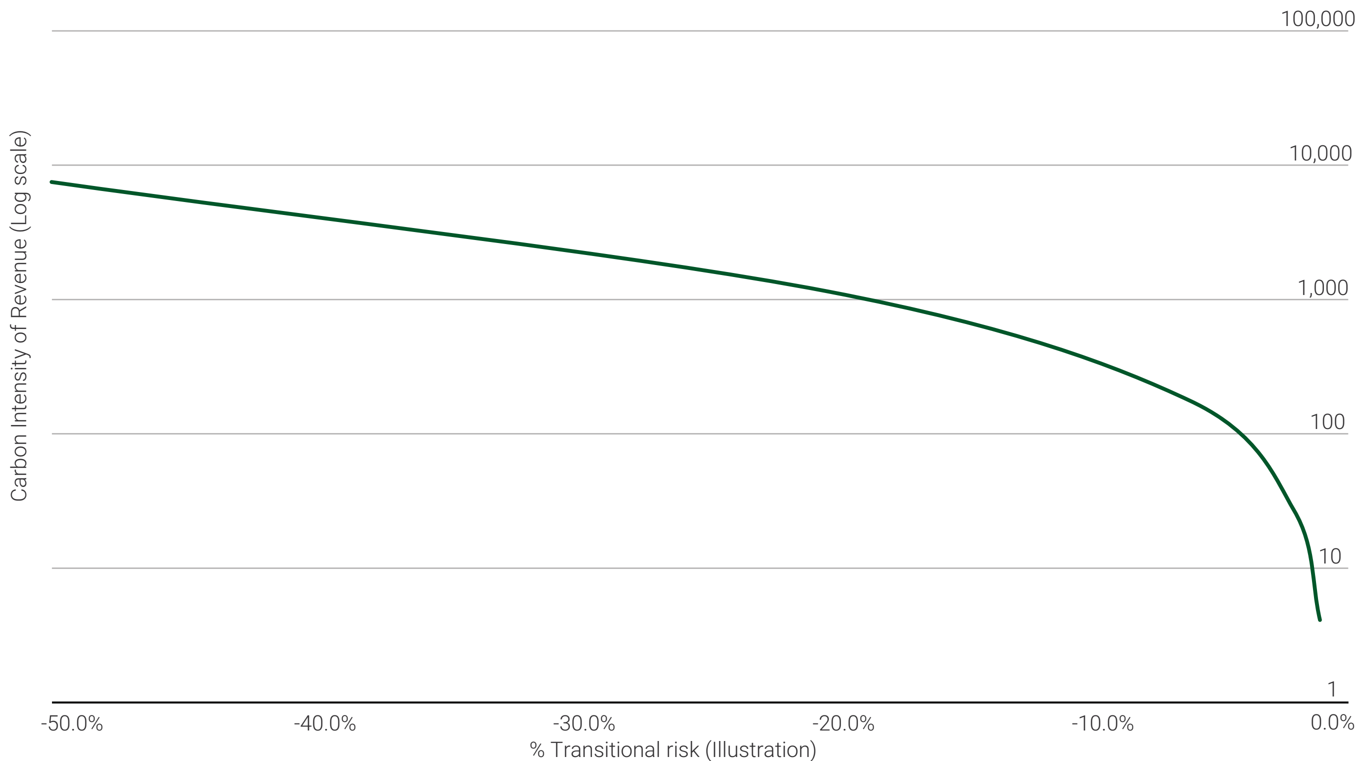
Under LGIM's Climate Impact Pledge, we target approximately 1,000 companies in 15 climate-critical sectors that are responsible for more than half of the greenhouse gas emissions from listed equities, pressing them to hasten the energy transition and enacting sanctions against those that do not meet our minimum standards.

Integration in index strategies

Our analysis confirms that climate risk and the carbon intensity of revenues tend to be moderately correlated. This is relatively intuitive – the bulk of transition risk tends to be in those areas where carbon intensity is greatest, in sectors like industrials, mining, energy and utilities.

Investors who move from standard index-tracking funds into strategies that reduce or 'tilt' their exposure away from high-carbon stocks are therefore likely to be reducing their climate risk, in our view. The chart below illustrates that there is a significant but imperfect correlation between climate risk and carbon intensity. Using a scenario-led approach, an investor can evaluate how much risk improvement has been achieved for a given degree of carbon intensity reduction. This can then be used to inform setting tracking-error budgets over time.

Tracking transition risk: Illustrative transitional risk and carbon intensity of revenue



Source: LGIM as at 27 May 2021. This chart is for illustrative purposes only.
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Moving beyond risk and return

Integrating climate risk into an investment strategy can reduce, but not eliminate climate risk altogether. It is also unlikely to alter the climate outcome that the world, and therefore investors, realise. It is clearly the case that there is a significant different in realised risk between an orderly well-below two-degree transition – the preferred outcome, with the best risk profile over the long term – versus either climate failure or the more probable disorderly transition. Investors cannot easily hedge against this latter eventuality; they can only act in such a way to reduce the probability of the eventuality itself occurring.

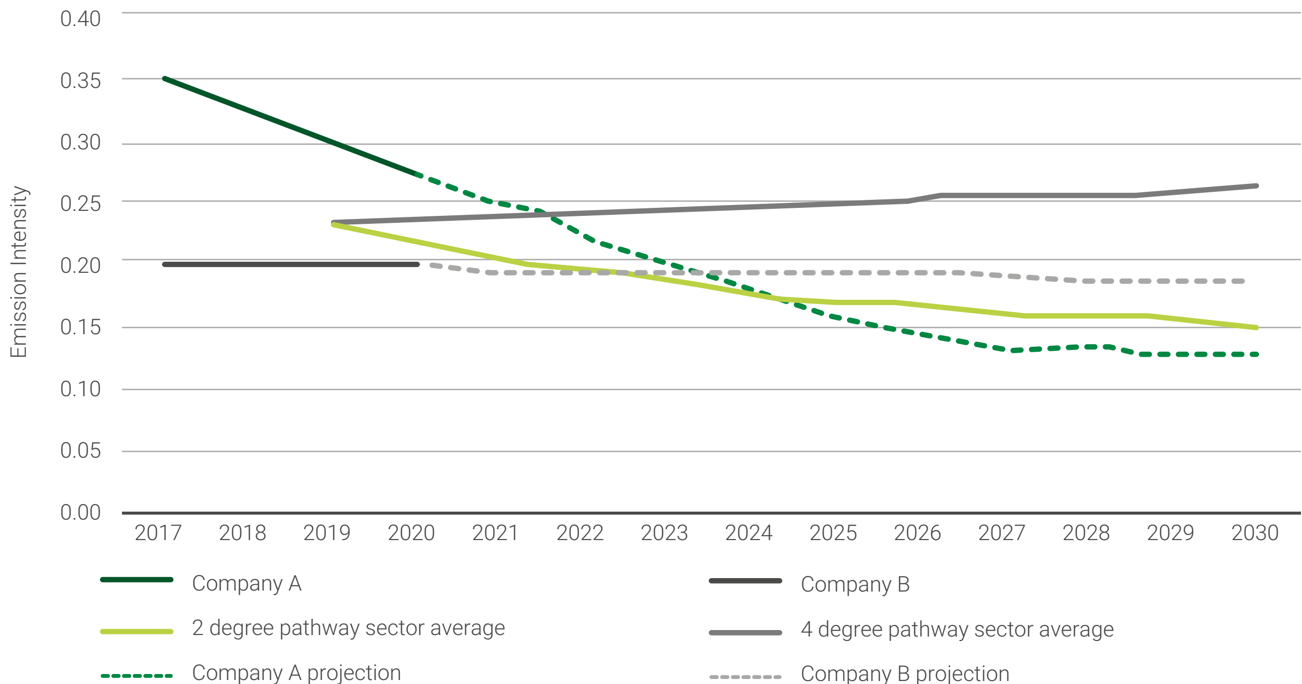
Given this imperative, many investors are seeking to move beyond only evaluating financial risks, and instead considering whether they can improve the climate alignment of their portfolios. In most cases, they are seeking to do as much as is possible without sacrificing risk-adjusted returns and without compromising on their desired financial outcomes. Many investors are also seeking to set 'net zero' or similar aspirations – and want to understand what pathways there are available to them to achieve that goal.

Our LGIM Destination@Risk toolkit analyses around 5,000 companies globally, using a combination of both backward-looking data and a risk-adjusted view of forward-looking targets to understand how carbon intensive we would expect each of these companies to be in 2030. By then mapping these forward estimates of carbon intensities to sector-derived targets from climate models, we can transform an expected carbon intensity into an equivalent 'temperature alignment'.

2030 only takes us so far towards understanding alignment to net zero in 2050, as we believe forecasting after 2030 is unlikely to be terribly accurate. Our forward decarbonisation targets are then benchmarked against appropriate targets, given the starting point of the company in question (recognising how fast the company either has or has not decarbonised). We also measure the temperature alignment of sovereign and quasi-sovereign entities in a similar way.

By aggregating the temperature alignment[1] of all securities in a portfolio, and then weighting them by their respective contribution to the portfolio's carbon intensity, we can calculate an overall temperature alignment for that portfolio.

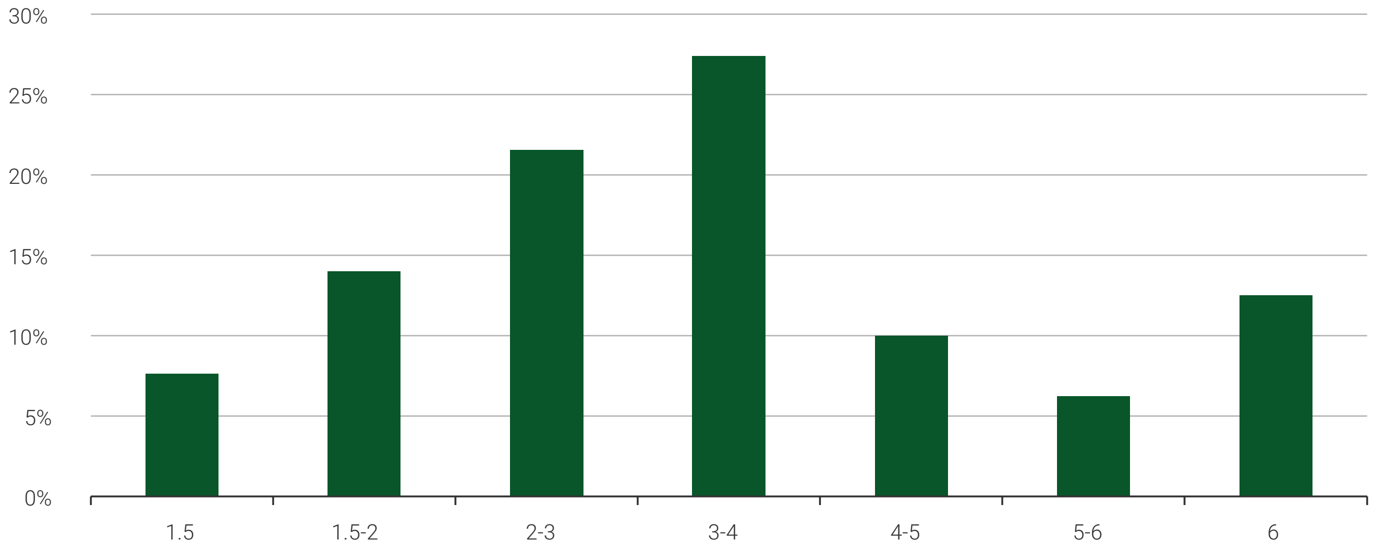
Measuring temperature alignment, and forecasting a company's expected future rate of decarbonisation



Source: LGIM as at 27 May 2021. There is no guarantee that any forecasts, which are made for illustrative purposes only, will come to pass

[1]A company's temperature alignment (sometimes referred to as "implied temperature rise") is a quantification of the likely future climate outcome that the world would obtain if every emitting entity behaved in a similar way to the entity being measured.

Distribution of temperature alignments by enterprise value



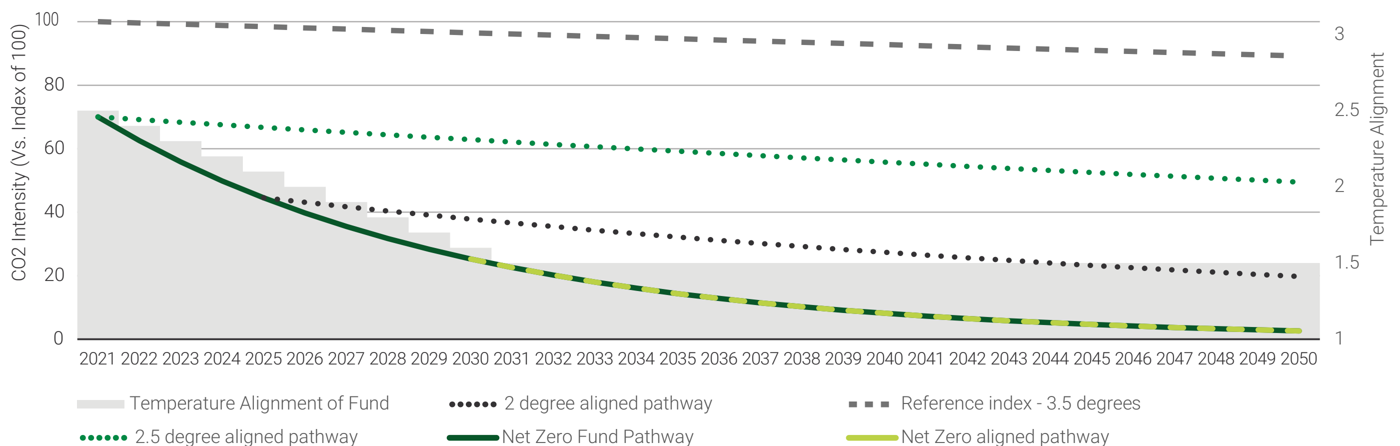
Source: LGIM as at 27 May 2021. The data provided, which represent a universe of global equities, are illustrative in nature only and do not imply a probability of achieving any given climate outcome.

Less than 25% of the companies covered by our LGIM Destination@Risk model are aligned to a Paris-consistent climate outcome. And only a very small majority are aligned to our 1.5 degree-consistent target of net-zero greenhouse gasses by 2050. This is consistent with what we observe at a global level – and supports the concerning conclusion that the world is currently aligned to a pathway consistent with more like three to four degrees, as is most of the universe covered by our model today. Intuitively, most major indices and portfolios tend to be aligned to climate outcomes of around three degrees.

Closing the gap

It is probably impossible to align a well-diversified portfolio today to a net-zero outcome, or even to 1.5 degrees, given the current data and the trajectory of the world. But doing nothing leaves investors with a significant 'gap risk' to a net-zero outcome. While it is difficult to predict precisely the size of this gap, our modelling suggests that by 2050 a diversified global index might only have decarbonised by 10%-20%, leaving a gap of at least 80%. How can investors look to close that gap and align to net zero?

Net zero alignment - an illustration



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The most straightforward approach is to approach the problem ex-post. This would involve targeting a reduction in overall CO2 emissions at a portfolio level of a certain quantity each year – and solving for the required problem as an outcome at each time point. This approach has clear advantages, assuming the required rate of decarbonisation is high enough, it is demonstrably aligned to a net-zero outcome, and constructing the portfolio requires little subjective or qualitative analysis. Closing the gap from the top down is an intuitive and transparent solution, in our view.

However, it is also possible to approach the challenge from an ex-ante perspective, by combining a top-down carbon target with an attempt to predict at the start of each time period whether the stocks in the portfolio are likely to decarbonise at a sufficiently fast rate to warrant inclusion at the end. This approach attempts to identify the carbon 'winners' upfront, rather than to back-solve for them after the fact. Doing so, though, requires both a higher tolerance for tracking error and using both qualitative and quantitative analysis in addition to raw data.

The illustration above shows one possible implementation of such a strategy. Assuming a reference index that is aligned to a three-degree climate outcome, and a forward decarbonisation rate of about 1%, leaves an investor with a net-zero gap risk of approximately 90%.

The alternative approach would be to seek to decarbonise the portfolio by 30% in the first year, by screening out a portion of the highest emitters. The portfolio would also reduce its alignment from three to 2.5 degrees. The combination of a higher 'natural' rate of decarbonisation, and the portfolio-management actions in the first year, would close about one-third of the original gap, our analysis suggests.

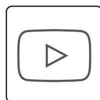
For the next decade, the fund manager would need both to reduce the temperature alignment of the portfolio by 0.1 degrees, while simultaneously decarbonising at a portfolio level. By 2025 the fund would be on track for an 80% reduction in emissions, having closed over three-quarters of the original gap, according to our analysis. By 2030, the portfolio would be in full alignment with net zero, and on track for net zero by 2050, assuming the investee companies continue to deliver on their forward commitments.

Multiple options

Climate risk presents demonstrable first-order risks to investors, who face a choice about how to respond. We have outlined two potential options: through allocating capital to active managers who can demonstrate a robust approach to climate integration; and through choosing lower-carbon index portfolios to reduce that risk from the top down. However, the most significant risk factor – the climate outcome itself – is not one that can simply be diversified or hedged away. The only way we can address this risk is through action to change the behaviour of companies themselves.

Contact us

For further information about LGIM, please visit lgim.com or contact your usual LGIM representative



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