GEOS as a Hedge to Portfolio Climate Risk

In recent years, investors have started paying more attention to portfolio climate risk, which includes transition and physical risk. Transition risk refers to the risks associated with moving to a low carbon economy, including changing technology demand, policy and regulation, legal risks, and shifting consumer preferences. Physical risk refers to the acute and chronic impacts of climate change such as drought, heatwaves, flooding, sea level rise, and other factors. To manage portfolio climate risks, many institutional investors have started using "net-zero aligned" or low carbon strategies to protect their portfolios and future returns from climate change. While decarbonizing a portfolio can address some elements of transition risk, the Essex Global Environmental Opportunities Strategy (GEOS) team views investing in climate-related opportunities as the best way to protect against transition and physical risks in a portfolio. We believe investors can use GEOS, a strategy solely focused on investing in solutions to climate change and other environmental challenges, as a hedge against portfolio climate risk. As global climate action and the actual impacts of climate change increase, companies providing climate mitigation and adaptation solutions should see increased demand for their products and services. Exposure to companies providing climate solutions through GEOS can help investors safeguard their portfolios from climate risks since climate change is expected to have a net positive impact on GEOS companies. In contrast, climate risks are expected to have a net negative impact on many other companies already in investors' portfolios, driven by lower revenue growth due to declining demand for their products or higher operating costs due to regulation, legal risks, or physical climate impacts.

The most common approach to manage portfolio climate risk is currently to reduce the portfolio's carbon footprint through "net-zero aligned" or low-carbon strategies. The basic concept of this approach is to reduce the portfolio's carbon footprint by investing in companies with net-zero targets, underweighting or avoiding companies with high scope 1, 2, and 3 emissions, or a combination of both. Progress on achieving portfolio decarbonization goals is frequently measured and tracked using the Taskforce on Climate-Related Financial Disclosure's (TCFD) weighted average carbon intensity metric (WACI). This metric captures a portfolio's exposure to carbon intensive companies by assessing the portfolio's emissions per revenue generation. The belief is investing in companies with decarbonization plans for their own operations and limiting exposure to emissions intensive companies, as measured via carbon intensity, will minimize transition risk, benefiting long term portfolio risk and return. Based on this view, investors are frequently encouraged to hold decarbonized index funds that reduce exposure to carbon intensive companies and minimize tracking error versus the benchmark.[1]

While investors can analyze their portfolio carbon footprint to glean insights and analyze some elements of transition risk, portfolio decarbonization strategies ignore climate-related opportunities, overstate the utility of carbon footprint metrics, and overlook physical climate risks. The GEOS approach, investing in solutions to mitigate and adapt to climate change, is far more rigorous than simply looking at a company's carbon intensity or static emissions footprint which are inherently backward-looking metrics. GEOS invests in companies with competitive advantages that are producing the low-carbon products and technology needed to enable global decarbonization and help society adapt to a hotter world. We

[1] Andersson et al., 2016. "Hedging Climate Risk." *Financial Analysts Journal,* vol. 72, no. 3: 1-20.

believe incorporating GEOS as a hedge against portfolio climate risk can better serve investors in their quest to manage the impacts of climate change on their portfolio value and future performance.

The GEOS team believes investing in climate solutions is the best way to manage portfolio climate risk. Investing in portfolio decarbonization strategies does not guarantee exposure to companies with the best climate-related opportunities. Despite the names of many low-carbon or "net-zero aligned" strategies, these strategies frequently provide little exposure to climate-related opportunities. Instead, these strategies overweight sectors like technology, given the asset light business model and low carbon intensity, and invest in companies with low emissions or future decarbonization targets. From a climate risk perspective, this approach may reduce certain elements of transition risk, such as carbon pricing risk, but provides little exposure to companies providing climate solutions. Furthermore, this approach overstates the utility of carbon metrics and ignores physical risk entirely, which is discussed below. In contrast, GEOS invests solely in companies providing environmental solutions like mitigation and adaptation, providing investors with concentrated exposure to impactful, commercial climate solutions. Companies providing climate solutions should experience increased revenue and earnings growth as climate action and physical climate impacts accelerate, supporting appreciation in their share prices. These climate solutions companies can provide key portfolio benefits for investors seeking to offset the estimated net negative impact of climate change on other investments in their portfolios. This benefit created by incorporating GEOS into an investor's portfolio is not likely to occur with portfolio decarbonization strategies since they pay little attention to whether companies are enabling the low-carbon transition through their products and services.

Another advantage of incorporating GEOS as a hedge against climate risk is the GEOS team does not rely solely on carbon metrics to assess climate risk. Carbon metrics commonly used by portfolio decarbonization strategies to determine eligibility and inclusion, such as carbon intensity or absolute emissions, are imperfect measures of climate risk. Investors can use carbon metrics as an initial tool for assessing transition risk, but they were never intended to function as the backbone of portfolio construction since they ignore relevant financial factors. Companies can generate high operational (scope 1 and 2) or value chain (scope 3) emissions, or have high carbon intensity of revenue, and still face relatively little transition risk. For example, consider companies producing lithium-ion batteries for EVs or energy storage applications. While the lifecycle emissions footprint of battery production is relatively high today, batteries are a significant climate-related growth opportunity given the key role they play in managing the variability of renewable energy and enabling the EV transition. Yet, given their high emissions footprint, companies involved in the battery supply chain may appear exposed to significant transition risks based on many carbon metrics, excluding them from inclusion in low-carbon or "net-zero aligned" strategies. The GEOS team understands that a company's static emissions footprint does not accurately portray their exposure to climate risk. We agree that emissions from battery production and other climate solutions with high lifecycle emissions need to decrease over time, but we believe a company's business model is the most important indicator of climate risk. In particular, the GEOS team evaluates a company's role in the low-carbon transition by analyzing how their products and services enable a low-carbon, resilient society. We believe this approach is a better way to assess climate risk since GEOS does not rely on flawed carbon metrics that do not consider the real-world emissions reductions and resilience benefits of climate solutions.

Finally, decarbonizing a portfolio's carbon footprint fails to address physical climate risk, by far the most ignored aspect of climate risk by investors. Physical risk is higher for some sectors, like utilities or real estate, and is highly dependent on location. Yet, all companies, regardless of emissions, transition risks, and climate-related opportunities, are exposed to some degree of physical climate risk. Physical risk may manifest as water scarcity near a company's manufacturing facility affecting production, flooding affecting the cost of inputs from a key supplier, or another factor. While information relevant to assessing physical risk, such as knowledge of company asset locations, is currently sparse today, the SEC proposal on climate-related financial disclosures will provide useful information for the future. Investors should also consider the hedging benefits of incorporating climate adaptation solutions into their portfolios. As physical climate impacts like droughts, heatwaves, and extreme weather events occur, companies offering adaptation solutions like heat pumps, battery storage, and desalination technology should see increased demand and revenue growth. In essence, companies providing adaptation solutions benefit from the more frequent and intense physical impacts of climate change whereas other companies may be detrimentally impacted through asset impairments, increased operating costs, or disrupted business operations. By incorporating GEOS into an investor's portfolio, the exposure to adaptation solutions can help investors offset the detrimental physical climate impacts on their portfolios, and benefit from efforts to increase global climate resilience.

Given the limitations of using "net-zero aligned" and low-carbon strategies to manage portfolio climate risk, we believe investors should incorporate GEOS into their portfolio as a hedge against portfolio climate risk. GEOS provides concentrated exposure to climate-related opportunities, a significant long-term growth opportunity, that should benefit as the low carbon transition accelerates and physical impacts intensify due to delayed climate action. In contrast, many companies in investors' portfolios, as part of index funds, actively managed strategies, or single stock holdings, are exposed to high transition or physical risk that may result in asset impairments, declining demand for products and services, and higher operating costs, negatively impacting their stock prices. By incorporating GEOS into their portfolios, investors can ensure their portfolios are climate resilient and address the flaws of their existing climate risk management strategies. Overall, GEOS provides investors with concentrated exposure to climate solutions, a long-term megatrend, while also helping investors protect their portfolios against climate risks.

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