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## PRACTITIONER'S DIGEST

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### **CARBON EMISSIONS AND ASSET MANAGEMENT**

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*Ashwin Alankar and Myron Scholes*

The objective of portfolio managers is generally to maximize the expected compound return of the portfolio subject to a risk constraint. Additional constraints such as tracking error constraints, geographical, yield, short-selling, size and other constraints are costly if the shadow cost of the constraint is positive; or in other words, investors value these constraints and hence are willing to give up returns or assume additional risks.

The same holds true for ESG constraints. For example, not all investors in pooled investments such as mutual funds or ETFs have the same views or utility as to whether securities with low ESG scores (e.g., high carbon emitter firms) should be included in their portfolios. Yet, many asset managers have teams that judge whether to exclude or underweight firms (e.g., exclude coal, oil, and gas producers) from portfolios based on low ESG scores. Moreover, portfolio managers, in particular, index fund managers who cannot assume tracking error from benchmarks, might expend resources to cajole or engage (through voting or influencing their boards) companies of underlying holdings to move more quickly to decarbonize. The societal benefits and costs of both approaches are opaque and uncertain.

We propose a third approach to address divergent investor concerns for “green” or low carbon portfolios that separates the portfolio construction from the carbon objective. Rather than adjust portfolio holdings, the portfolio manager would create a “green” clone portfolio by purchasing and porting carbon credits to neutralize the CO<sub>2</sub> emissions of their optimal portfolio. The cost of buying carbon credits and their climate benefits would be known ex-ante. And at today’s prices, the cost is far from prohibitive. For example, to neutralize the full carbon footprint of the S&P 500 costs about 7 basis points per year. Given their preferences and the market cost to neutralize the carbon footprint of the portfolio, investors would select a convex combination of the “green” clone and original portfolio.

Carbon credits are generated by projects that reduce carbon emissions or remove carbon from the atmosphere, which include nature-based projects, such as planting and preserving forests, and technology-based projects, such as carbon capture and alternative energies. While nascent, the market for voluntary carbon credits is growing and surprisingly liquid with hundreds of billions transacted in 2021. Asset managers can contribute to this growth by gaining expertise in identifying high quality credits and buying them to decarbonize portfolio holdings.

For those who concentrate on net carbon emissions, we estimate that the carbon credit approach is superior to others for the costs and benefits are known. And through the power of market forces, the market price of credits incentivizes both the supply and demand of credits to facilitate the reduction of global emissions, which is the ultimate goal.

## **ESG INVESTMENT PERFORMANCE EVALUATION: AN INTEGRATED APPROACH**

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*Stephen Horan, Elroy Dimson, Clive Emery and Kenneth Blay*

ESG investment strategies have experienced massive inflows of capital over the past decade despite investors not having effective means of communicating their ESG preferences, values, and objectives to investment managers or methods to evaluate their performance outcomes relative to those objectives. The investment management industry has yet to adopt portfolio performance metrics that considers traditional dimensions of investment performance evaluation (return and risk) alongside objectives aspired to by ESG investors (responsibility). In fact, it is curious this massive allocation of capital has occurred without evidence that ESG investing delivers on its promises.

An ESG-adjusted performance evaluation metric that incorporates both financial and non-financial elements could provide evidence that this seismic shift in capital toward ESG investments is worthwhile. It would also allow investors to compare performance over time or across investment managers, thereby holding investment managers accountable for their marketing claims. Frameworks and methods to demonstrate the value of ESG investing in a way that stands up to criticism will do more to benefit people and the planet than glossy marketing brochures.

This paper presents R3, a three-dimensional performance evaluation framework that incorporates return, risk, and responsibility. It is predicated on an investor's willingness to trade off financial gain for non-financial gain and can accommodate any traditional risk-adjusted performance measure. While a return-responsibility tradeoff may not be necessary in capital markets, an investor's willingness to make that tradeoff does provide guidance to the investment manager to make investment decisions. Alternatively, it can be articulated in an ESG fund's investment mandate to set appropriate investor expectations. Performance evaluation is a critical aspect of investment management that helps to ensure investors get what they pay for and can compare performance across managers. This paper is an important step to guiding the practice of ESG investing in that direction.

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## **FACTOR INVESTING IN PARIS: MANAGING CLIMATE CHANGE RISK IN PORTFOLIO CONSTRUCTION** **PAGE 35**

*Janina Kolle, Harald Lohre, Erhard Radatz and Carsten Rother*

The Paris Agreement is an important step forward to address the mitigation of climate change risks, and different financial regulations require investors to manage climate risks and to increase transparency on the climate effects of their investments.

This paper highlights how to measure and manage climate change risk in equity portfolio management, aiming to align a portfolio's temperature in line with limiting global warming to 1.5°C. Specifically, we propose a net zero portfolio construction framework that brings temperature alignment together with a reduction in carbon intensity while harvesting equity factor premia.

The proposed framework advocates a two-step portfolio optimization that would 1. Minimize the temperature score and 2. Overlay an optimal exposure to equity factors such as value, momentum, and quality. One can thus address both, climate and return objectives, in a risk-controlled manner that allows for clean performance attribution.

## **CLIMATE-AWARE RISK BUDGETING** **PAGE 52**

*Brian Jacobsen, Eddie Cheng and Wai Lee*

Investment mandates are increasingly integrating climate change and other environmental, social, and governance considerations. Investors need to know how these considerations should inform their asset allocations. In this paper, we outline two approaches that incorporate asset allocation analysis with security selection in a coherent framework.

One approach is to modify expected risks and returns in light of climate change information. The other approach is to modify risk-budgets-how much portfolio risk an investor wants to source from a given exposure. We emphasize the risk-budgeting approach with an illustration of how to aggregate climate change information on countries to form climate change risk resilience scores. Using those scores and the economic exposures of investments, investors can then modify their risk budgets as appropriate.

To have a holistic approach to asset allocation, investors need to consider the unique risk-return-diversification properties of the building blocks used to build a portfolio. A broad-based market index will have different factor and idiosyncratic risks compared to a portfolio that is climate or ESG-aware.

## **ESG SCREENING IN THE FIXED-INCOME UNIVERSE** **PAGE 65**

*Fabio Alessandrini, David Baptista Balula and Eric Jondeau*

Systematic inclusion of sustainability criteria is less advanced in corporate bond markets, especially with respect to equities. We contribute to fill this gap by implementing screening strategies based on environmental, social, and governance (ESG) scores for an otherwise passive portfolio of worldwide investment grade corporate bonds. We find that a global exclusion strategy improves the targeted score

with no deterioration of the financial performance but generates undesirable regional and sectoral exposures.

To address these exposures, we describe a best-in-class strategy at the region-sector levels that delivers similar performance while maintaining the same exposures as the benchmark portfolio. We find that best-in-class screening at region-sector level reduces the exposure to risk factors. Most ESG portfolios are less exposed to downside risk than the conventional benchmark. In addition, ESG portfolios are negatively exposed to the credit risk factor, suggesting that they typically overweight high-quality securities. The reduction in the exposure to both downside and credit risks is the greatest for the screening based on the E score, making this pillar particularly relevant from the perspective of creating more defensive portfolios.