



Overcoming ESG Data Challenges

Key Ideas

- As ESG takes its place in the investing mainstream, managers must confront the challenges involving ESG data, including reliability, frequency, breadth, and depth.
- Focusing on portfolio-level outcomes and stable ESG characteristics can help mitigate the effects from data shortcomings in achieving investor objectives.
- A closer look at the data from a leading provider shows that even portfolios derived from simple filtering by individual stock ESG ratings can result in a stable score boost over time, and that the pillar ratings are largely independent of each other.

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Introduction

ESG investing is establishing itself as a topic of far-reaching importance. While the forms it takes vary, industry trends demonstrate a clear increase in interest in and adoption of ESG considerations, both in breadth and depth, from institutional investors. Managers are motivated to introduce, or expand, their integration of ESG within their investment processes, or risk missing out on the increasing number of new business opportunities for which ESG integration is a minimum requirement.

ESG integration comes with a significant and evolving challenge: ESG data. No matter the investment style, proper implementation requires reliable and current data to both construct ESG portfolios and confirm they've succeeded in meeting investor ESG objectives. For quantitative investment methodologies, ESG data must also be comprehensive and have an extensive history.

In this paper, we'll explore:

- Requirements for useful ESG data
- Best practices for overcoming ESG data challenges
- Changes in portfolio positioning associated with various ESG tilts

“...industry trends demonstrate a clear increase in interest in and adoption of ESG considerations, both in breadth and depth, from institutional investors.”



Data requirements

Reliable

At the simplest level, data reliability means that the data sources must be trustworthy, i.e., they have low frequency of errors and high internal consistency (e.g., changes in pillar scores are reflected in overall composite ESG scores). Ideally, the metrics should also be clearly defined such that the figures can be independently verified, at least in principle. However, at both the simplest and more demanding levels, ESG data present severe challenges.

For one thing, as investors' interest in ESG is booming, new databases are regularly introduced, while older databases continue to evolve. This often negatively impacts the consistency of the data.

Also, unlike standard company fundamentals which have been reported and analyzed for many decades, there's still little consensus on how to define or quantify ESG data. Even within the dataset of any single vendor, there are often inconsistencies due to changes in the raw-data sources, calibration methodologies, or *ad hoc* manual adjustments.


Finally, ESG data are unavoidably subjective to a large degree: all three pillars (Environment, Social, and Governance) reflect implicit value systems, and their quantification depends on each provider's judgement regarding which issues to consider, how to calibrate the rating scale, or how to distill the underlying ratings to a small number of figures. This opens the door to further inconsistencies at each step of this manual process.

Current

For non-ESG types of data, the time interval between news or company announcements and when they are accurately reflected by data vendors has been generally compressed to a matter of days or hours. This is not the case for ESG data, partly because of the amount of manual labor involved in procuring the data, cleaning them up, or curating them in other ways; also because the impact of news can be hard to ascertain at the time it becomes public knowledge. This results in analysts updating ESG data on a weekly or monthly basis, at best. And even at this low frequency, it is often the case that analysts revisit only a fraction of the companies in the database at each update, so that many months (sometimes more than a year) are required for a full refresh of the database.

Comprehensive

ESG data are difficult to access at high quality for broad index universes. Ratings for typical multidimensional ratings models are very resource intensive for this many securities because of the lack of similarity in the raw data sources (e.g., company filings, news, regulatory action, etc.) and the thorough cleaning required. Usually, only larger data vendors can afford to support the large teams that need to be employed for such a task.



Normalization¹ poses special challenges for ESG data, and it can have unintended consequences. For example, if normalization does not include an industry adjustment, specific industries will often have a uniform and persistent poor rating, and there will be little incentive for companies within these industries to improve. Also, if normalization does not result in a compact range of scores, then a few companies will exhibit such extremely high or extremely low scores that including or excluding them respectively can be used to ‘greenwash’ portfolios through quite small tweaks in the holdings that don’t materially affect the ESG profile, but which nevertheless result in big shifts in the headline figures.

Extensive

ESG considerations have only been the focus of broad attention for a short period of time, so there is a lack of historical datasets that can be reliably used to extend the present rating systems far into the past. Subjective aspects of the data, which require a high degree of manual intervention, exacerbate this challenge which is both costly to apply over large datasets and hard to do in a way that ensures internal consistency.

Furthermore, ESG considerations by their very nature tend to evolve considerably over time. For example, the rating of a company’s environmental credentials is unavoidably affected by the prevailing consensus at the time as to what issues materially affect the environment, by technological progress, and by regulations that can dramatically shift the boundaries of what is legally permissible, etc.

Best practices

No silver bullets

In the face of such formidable challenges, what are investors to do? Considering that no approach can single-handedly and fully address these issues, investors are well advised to seek a variety of complementary approaches among their managers. That said, there are some practices that work well on their own, and even better in combination.


No black boxes

Managers can benefit greatly from undertaking deep dives into third-party ESG data. This will allow them to understand first-hand the limitations of the data and help prevent unpleasant surprises after the data have been already integrated into their process. For the same reason, it is important to evaluate thoroughly the exposures and risks inherent in ESG tilts and compensate for them through appropriate constraints or risk controls.

Portfolio focus

Early approaches to ESG integration tended to rely heavily on negative screens in order to exclude offending companies from the investable universe. While this can be effective, it may be more constructive to concentrate on the outcome of the investment methodology, and express ESG goals in portfolio terms.

¹ Normalization is processing of data to allow for more uniform treatment in later stages of the analysis. For example, it can involve techniques to reduce the impact of outliers (e.g., truncation of extreme values) or adjustments that try to avoid inappropriate comparisons (e.g., ensure all data have compatible reporting periods). Normalization requires a large degree of judgement, and its appropriateness depends on the specific application of the data.



For example, including a stock with an exceptionally low ESG score into the portfolio may seem counterintuitive in a positive ESG tilt strategy. Nevertheless, there are scenarios where such an inclusion in turn allows for a greater overall tilt towards highly rated stocks, such that the ultimate portfolio-weighted rating as a whole ends up being higher than it otherwise would have been. The surprisingly high frequency of such scenarios requires managers to keep their eyes on the big picture.

Moreover, this portfolio-centric approach directly helps address the issues of subjectivity and timeliness plaguing ESG data: if individual stocks' ratings matter less, then uncertainties, errors and inconsistencies will often cancel out "in the wash," assuming the broad outlines of the ESG ratings have been properly considered.

Look for stability

Proper consideration includes analyzing the ESG ratings for stable characteristics. For example, does a particular sector have a predictably low rating, or does incorporating a heavy E, S, or G tilt likely result in persistent exposure to a specific common risk factor?

Identifying stable characteristics in this manner allows for much more thorough and extensive backtesting of the integration of ESG considerations into an investment process, as the available ESG data can be extrapolated to a longer history (but not a wider investable universe) than is available from the ESG data providers themselves.

Also, stability allows for building consensus *across* different ESG ratings models: even though the ESG scores from different vendors for the same companies exhibit low correlations, stable ESG characteristics are much more portable. For example, tilting a portfolio in a way that directly targets a boost in the ESG profile measured by the MSCI ESG ratings, through identification and use of these stable characteristics, will also tend to boost the ESG profile of the portfolio as measured by Sustainalytics. This is not necessarily the case if a manager uses only the stock-specific ratings instead.

Sample analysis

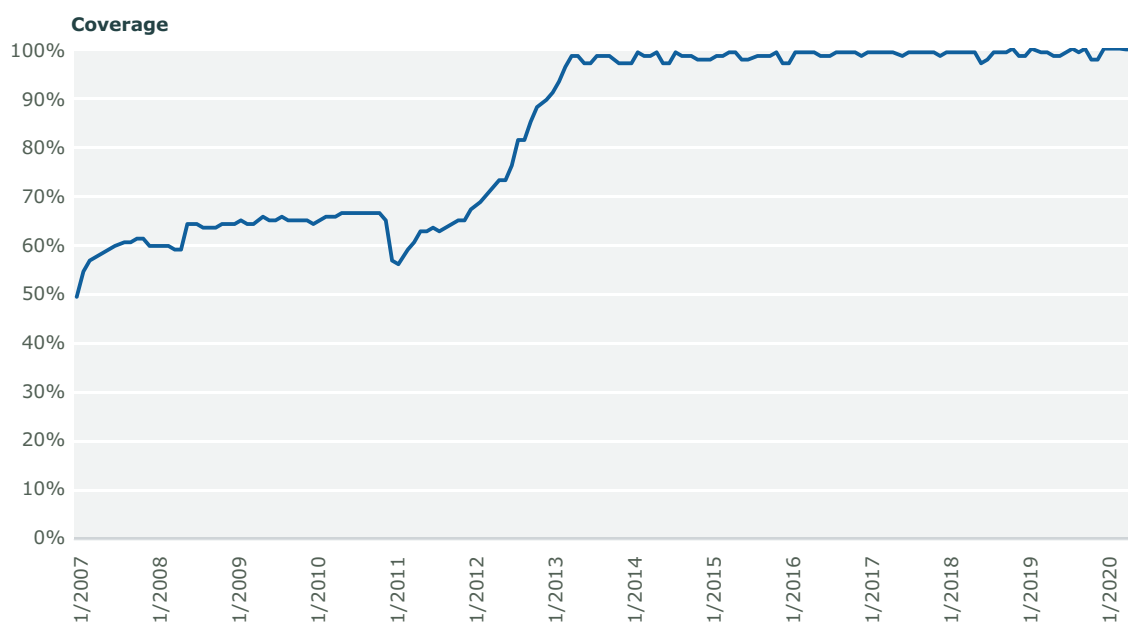
In this section, we present a simple study that will help demonstrate many of the observations made above regarding data challenges and analyzing the available data to identify stable characteristics. In this case, we find that:

- Even a naïve pillar filtering can boost overall scores.
- The pillars are largely independent of each other.
- Most of the risk is due to systematic factors.

Data and methodology

We look at the MSCI ESG ratings, widely employed by many investors, partly because it is one of the most reliable, comprehensive, and extensive datasets available. Even so, the data only start in 2007 and really only reach a high degree of coverage by 2013 (see Figure 1). The plateau in coverage setting in then suggests that there was a change in the implementation of the overall model.

FIGURE 1
PERCENTAGE OF STOCKS IN THE MSCI ALL COUNTRY WORLD INDEX WITH AVAILABLE DATA IN THE MSCI ESG RATINGS
Source: MSCI

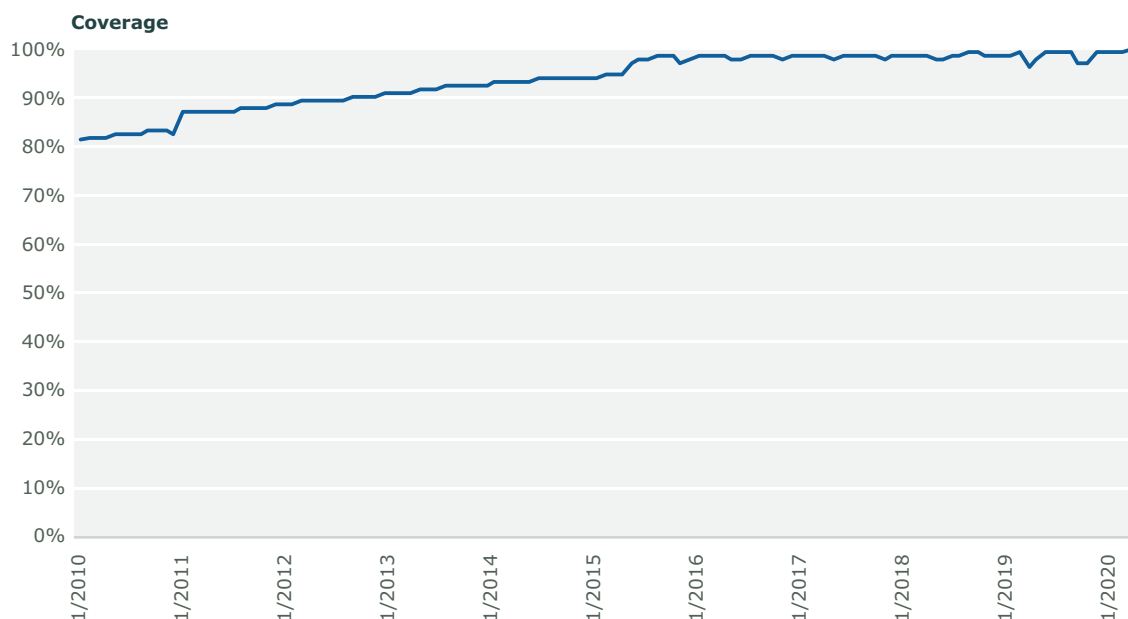


Data reflects the period from January 2007 – June 2020.

While MSCI's ESG analysis does include a deeper, more granular assessment of each of the ESG-related 'issues', we will limit ourselves to a focus on the higher-level scores for the three pillars (E, S, G) and the composite ESG score. All four scores take values in the range of 0-10, with 10 being the best.

In addition, we look at the MSCI Carbon-Intensity data, which start in 2009, and reach a high degree of coverage by 2015 (see Figure 2). Carbon Intensity represents carbon emissions normalized by a measure of the size of the company, so that large companies are not penalized just for being large. As in Figure 1, the plateau in 2015 suggests a change in the implementation at that time.

FIGURE 2
PERCENTAGE OF STOCKS IN THE MSCI ALL COUNTRY WORLD INDEX WITH AVAILABLE DATA
IN THE MSCI CARBON-INTENSITY PACKAGE
Source: MSCI



Data reflects the period from January 2010 – June 2020.

The Carbon Intensity (CI) data do not represent a grade but normalized carbon emissions, so they have no upper bound; in fact, the range of values spans many orders of magnitude, with some stocks being extremely high outliers in the universe.

On a monthly basis for each of the 5 metrics (the composite ESG rating, the 3 individual 'E', 'S' and 'G' pillars, and the Carbon Intensity), we construct hypothetical portfolios containing the 'best' rated half of the stocks in the MSCI All Country World Index (ACWI) for each measure, weighted by capitalization.

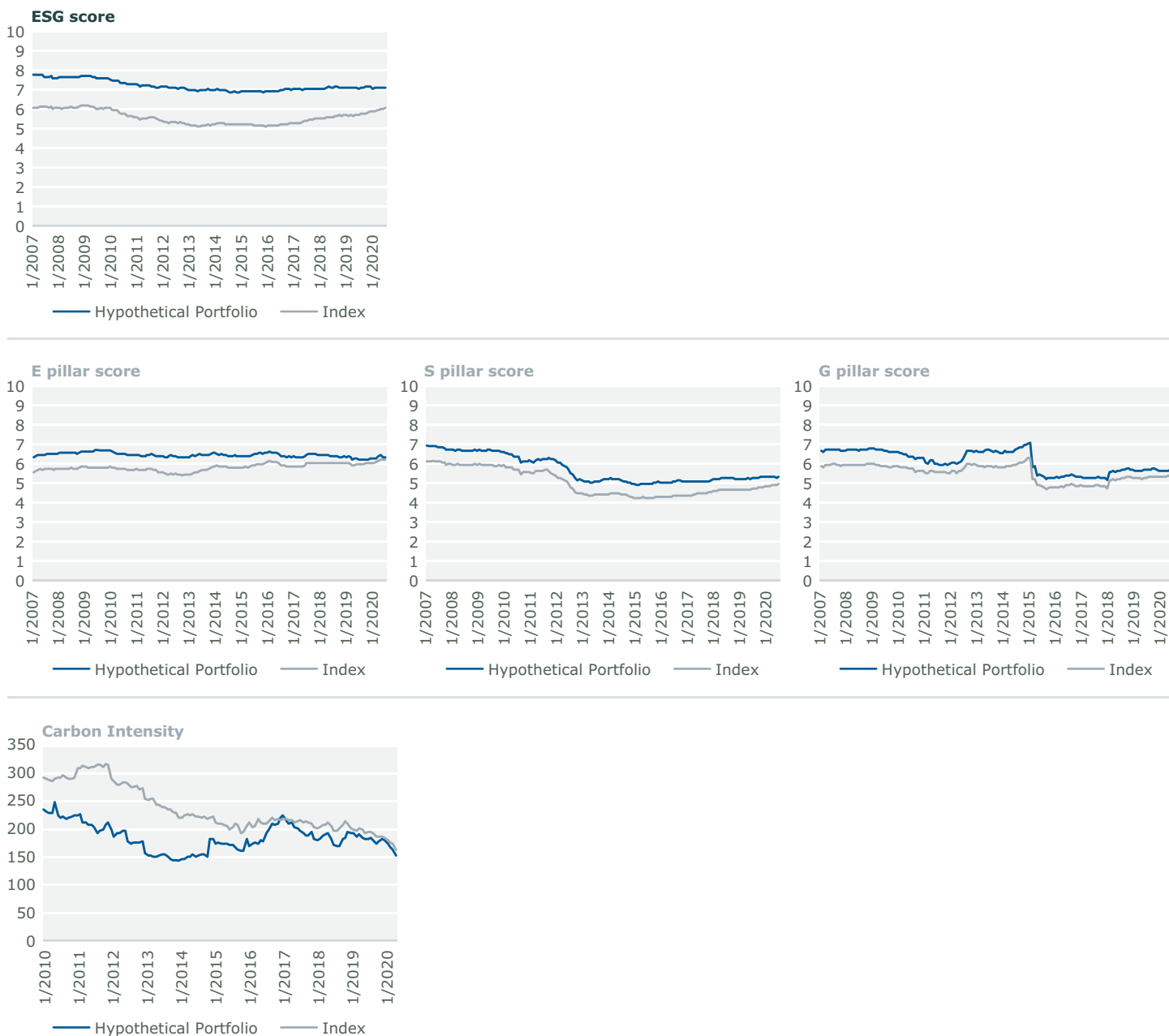
Ratings boost

As you might expect, keeping only the top half of the index stocks by ESG score boosts the ESG rating of the resulting portfolio (by 1-2 units relative to the index on the rating scale of 0-10), but also boosts all the three pillar scores and suppresses CI, albeit by differing amounts and with varying consistency (see Figure 3).

FIGURE 3

BOOST IN THE SCORES WHEN RESTRICTING TO THE TOP HALF OF INDEX STOCKS BY COMPOSITE ESG SCORE

Source: MSCI

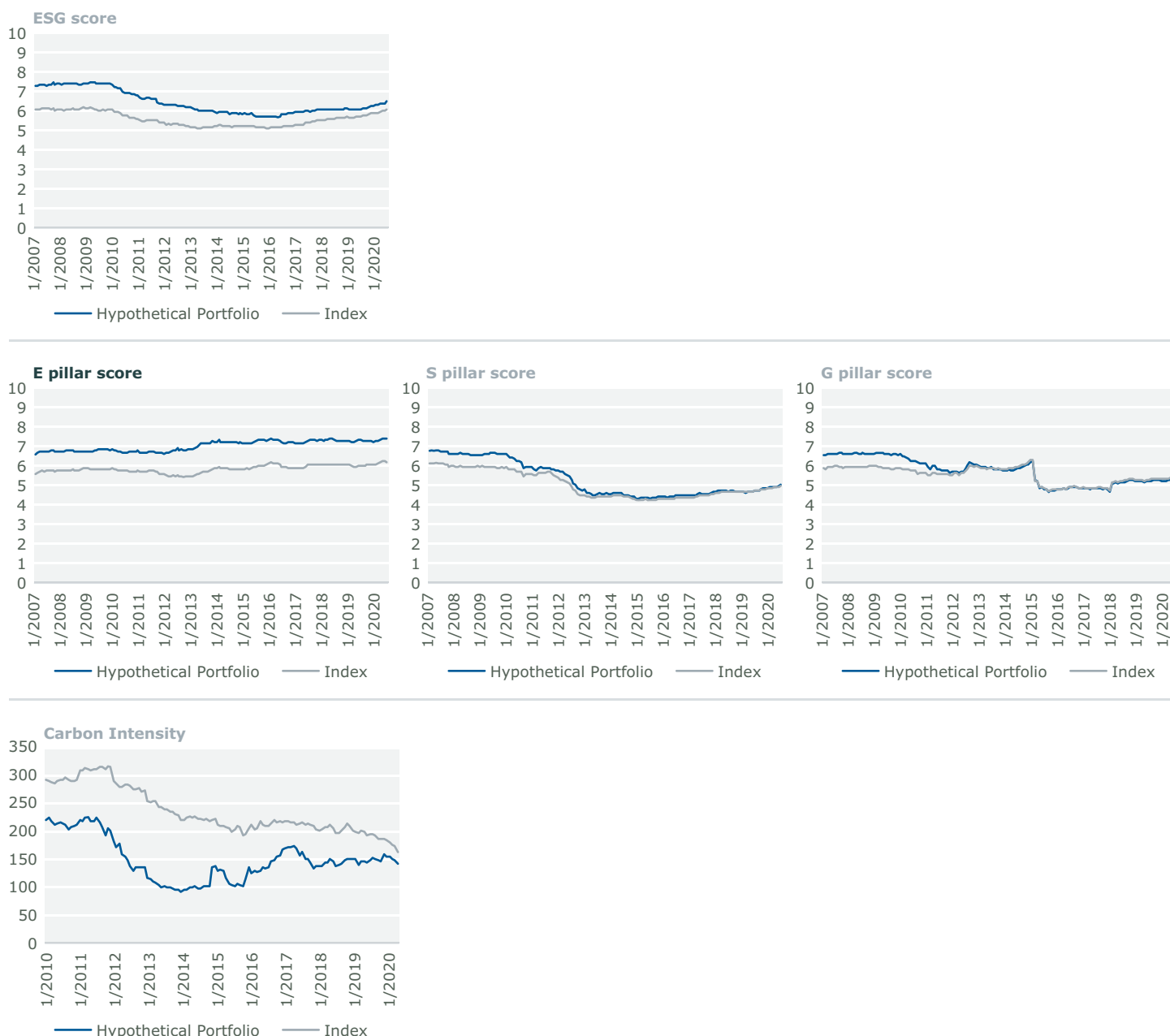


ESG and pillar data reflects the period from January 2007 – June 2020, Carbon Intensity data reflects the period from January 2010 – June 2020.

It is worth pointing out that the sharp change in the benchmark-weighted G score in 2015, which cannot be explained by intrinsic market changes, is due to a model change, demonstrating again the self-consistency issues we mentioned earlier.

Keeping the top half of the index stocks by 'E' score boosts the 'E' rating of the portfolio relative to the index by about 1 unit, but it also boosts the composite ESG score and suppresses CI (see Figure 4). However, it doesn't consistently boost the 'S' or 'G' scores.

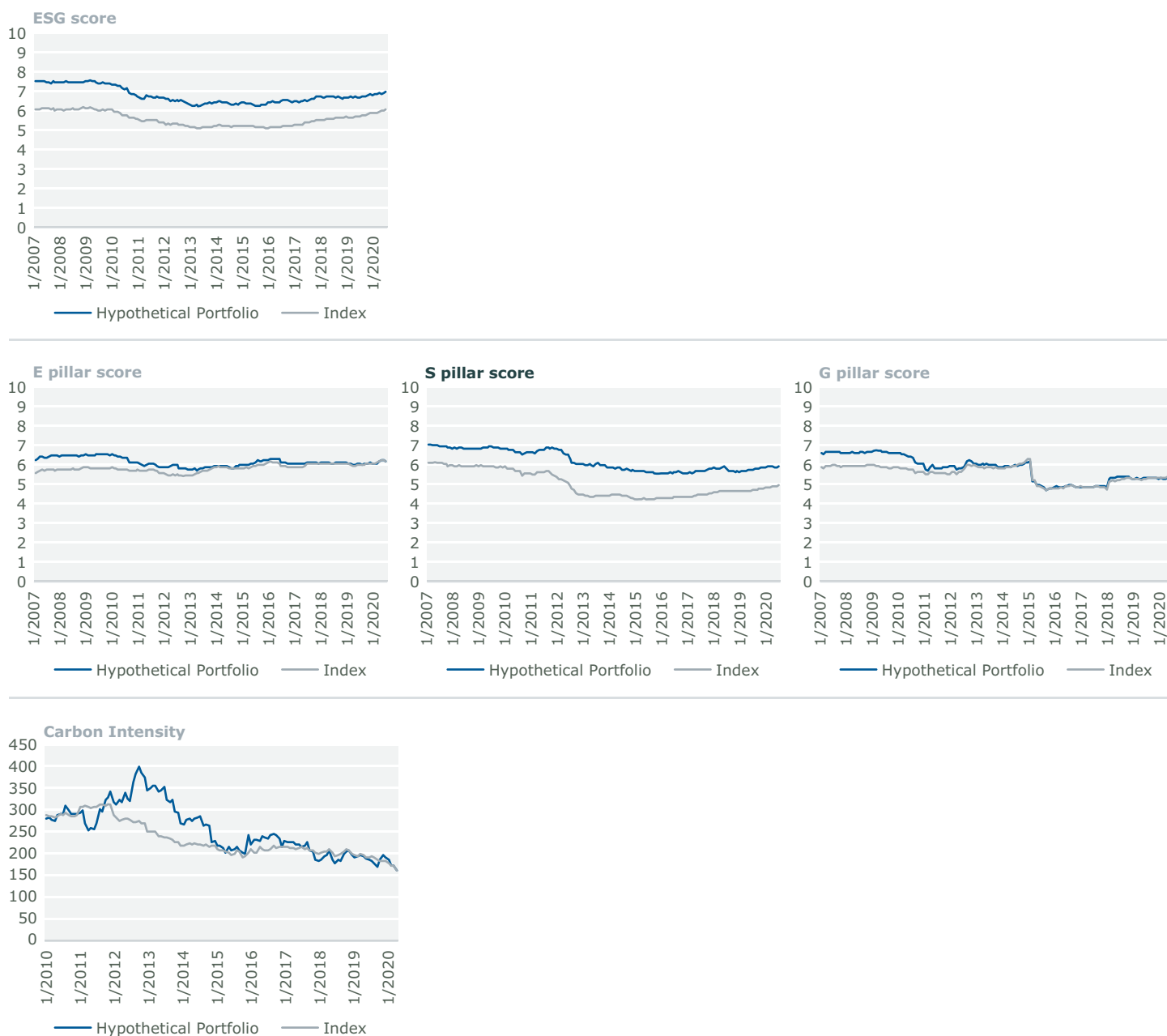
FIGURE 4
BOOST IN THE SCORES WHEN RESTRICTING TO THE TOP HALF OF INDEX STOCKS BY 'E' SCORE
Source: MSCI



ESG and pillar data reflects the period from January 2007 – June 2020, Carbon Intensity data reflects the period from January 2010 – June 2020.

Keeping the top half by 'S' score boosts the 'S' rating of the portfolio relative to the index by about 1 unit on average, and it also boosts the composite ESG score (see Figure 5). It doesn't consistently affect the 'E' or 'G' scores, or CI.

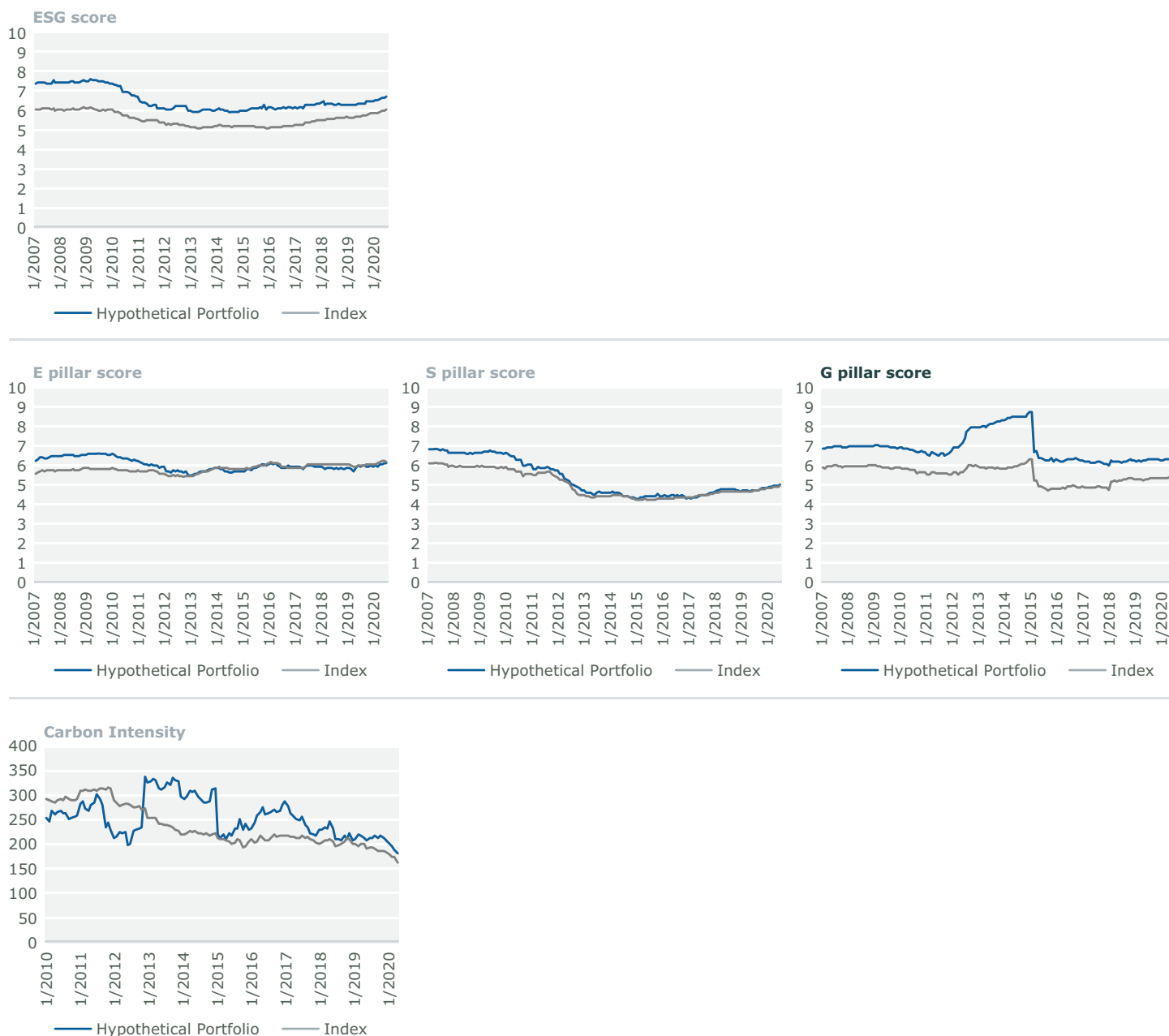
FIGURE 5
BOOST IN THE SCORES WHEN RESTRICTING TO THE TOP HALF OF INDEX STOCKS BY 'S' SCORE
 Source: MSCI



ESG and pillar data reflects the period from January 2007 – June 2020, Carbon Intensity data reflects the period from January 2010 – June 2020.

Keeping the top half by 'G' score boosts the 'G' rating of the portfolio by about 1 unit relative to the index, and it also boosts the composite ESG score (see Figure 6). However it doesn't consistently boost the 'E' or 'S' scores or suppress CI.

FIGURE 6
BOOST IN THE SCORES WHEN RESTRICTING TO THE TOP HALF OF INDEX STOCKS BY 'G' SCORE
 Source: MSCI



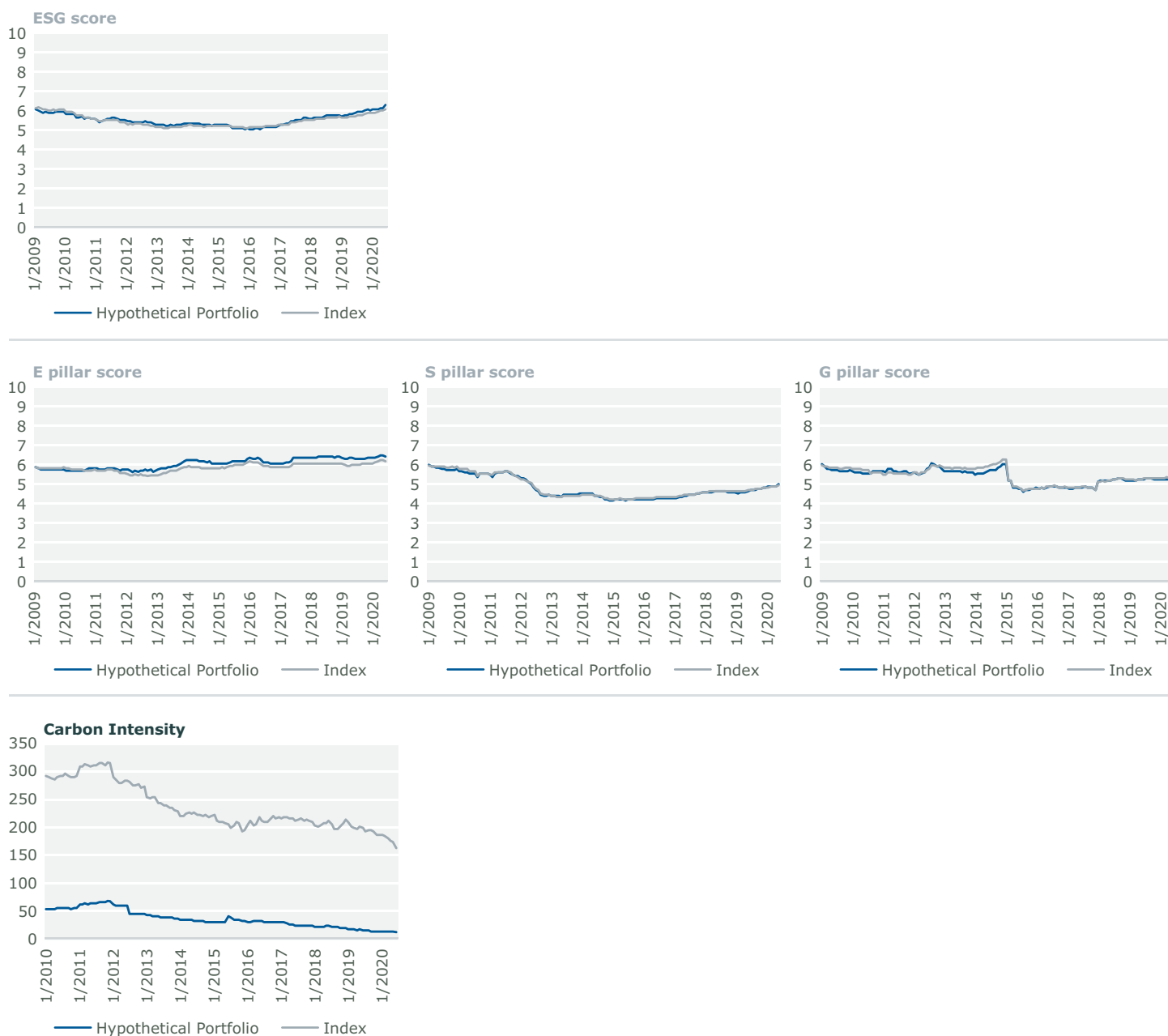
ESG and pillar data reflects the period from January 2007 – June 2020, Carbon Intensity data reflects the period from January 2010 – June 2020.

Keeping the bottom half of stocks by CI suppresses the CI of the portfolio by 80-90% relative to the index and boosts the 'E' score (see Figure 7), albeit not consistently. It doesn't significantly affect the composite ESG, 'S' or 'G' scores.


FIGURE 7

BOOST IN THE SCORES WHEN RESTRICTING TO THE BOTTOM HALF OF INDEX STOCKS BY CARBON INTENSITY

Source: MSCI



ESG and pillar data reflects the period from January 2007 – June 2020, Carbon Intensity data reflects the period from January 2010 – June 2020.



Unsurprisingly, concentrating the portfolio in stocks of a particular type boosts the rating used for the sorting. However, it is important that, in all cases of even this simple approach of keeping the top half of the stocks, it results in a *stable* boost (a relatively consistent difference from the total benchmark rating over time).

This analysis also demonstrates that the individual ESG pillars are quite independent of each other e.g., a stock with a high 'E' score doesn't necessarily exhibit a high 'S' score. This is particularly the case in the recent past, which is partially a reflection of the continued evolution of the MSCI ratings model, and its increased coverage.

A deeper look at the characteristics associated with these simple portfolios exhibiting ESG composite and pillar tilts reveals the persistency and dominance of some systematic factors. This is further evidence that a portfolio-level approach can encapsulate most of the important insights, and that stock-specific information, while meaningful, is not as vital for ESG integration. In particular, expressing the stable characteristics of the ESG ratings in *non-ESG* terms allows for a reliable extrapolation over a more extensive history than is available through the MSCI database.

Conclusion

The proliferation of quantitative strategies and overall advancements in information technology has led to substantial advancements in the variety, quality, and availability of financial data in recent decades. Investors need to be aware that ESG data are in a relatively nascent stage and are far more subjective. For this reason, they lag behind more traditional financial data and most likely will permanently do so. As managers work to satisfy investor demand for ESG-integrated strategies, they cannot ignore or sidestep the associated ESG data issues. They must be cognizant of the challenges and risks associated with bad data and avail themselves of best practices in order to deliver results consistent with investors' ESG goals. Institutional investors should also be aware of these challenges and consider diversifying ESG-centric exposures across multiple strategies.

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