Pull your weight*

*An ESG Performance Score Weighted Strategy Evaluation.

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Introduction

As labeling rules from regulatory bodies including the SEC, FCA, and the EU are being finalized, there is growing scrutiny on what defines a "sustainable" portfolio. The challenge for asset managers and investment product builders looking to improve the sustainability profile of their portfolios using ESG scores is to do so with scoring systems that encompass:

i) Transparency
ii) An Established Framework
iii) Full Data Disclosure

With a transparent, data-driven assessment of corporate sustainability performance inspired by SASB's materiality framework, the ESG Performance Score (EPS[1]) provides a new solution to current market concerns around existing ESG scores and ratings.

In this analysis, we present a practical method for enhancing the sustainability profile of a portfolio by adopting an EPS weighted approach. We review this empirically using the S&P 500 Equal Weight Index as a benchmark.

Ultimately, our analysis shows that the EPS Weighted Strategy consistently outperforms the S&P 500 Equal Weight Index across sustainability, performance, and risk over a sample period of five and a half years.

Strategy Design

There are many ways to improve the sustainability profile of a portfolio. While some opt for a selection/exclusion-based approach, there is a risk of depriving companies with poor sustainability credentials from the financing or engagement they need to improve their profile. While we acknowledge the value of using selection/exclusion-based methods, this study focuses on a score-based weighting approach, where benchmark companies are weighted proportionally to their EPS to enhance the sustainability profile of the S&P 500 Equal Weight Index between 2017-07-01 and 2022-12-31. This approach may be particularly useful for asset managers looking to retain their existing portfolio/watch lists of assets with promising investment prospects.

Figure 1. Strategy Design Overview

Strategy Parameter	Value
Score type	EPS (Core) 1100
Universe	S&P 500 Equal Weight Index
Rebalance Frequency	Quarterly
Weighting regime	EPS weighted
Analysis Period	2017-07-01 to 2022-12-31

Performance & Risk

We see consistent outperformance of the S&P 500 EPS Weighted Strategy relative to the S&P 500 Equal Weight Index. Since inception, the benchmark has delivered an annualized performance of 9%, while the strategy has generated a higher annualized performance of 10%.

[1] In this analysis EPS refers to ESG Performance Score, not earnings per share.

The score-based weighting strategy achieves its outperformance by capturing upside and avoiding downside as demonstrated by the Up and Down Capture ratios. For periods in which benchmark performance was positive, the strategy captured 102% of the benchmark's returns.

Similarly, for periods in which benchmark performance was negative, the strategy only captured 96% of the benchmark's losses, indicating a lower decline in down markets.

With respect to the volatility of portfolio returns, we find that the annualized standard deviation of returns are very similar between the strategy and the benchmark. Indeed, in reviewing the portfolio Sharpe ratios, it is evident that outperformance persists on a risk-adjusted basis, with the strategy achieving a Sharpe ratio of 58% compared to 52% for the benchmark.

Figure 2. Cumulative portfolio performance

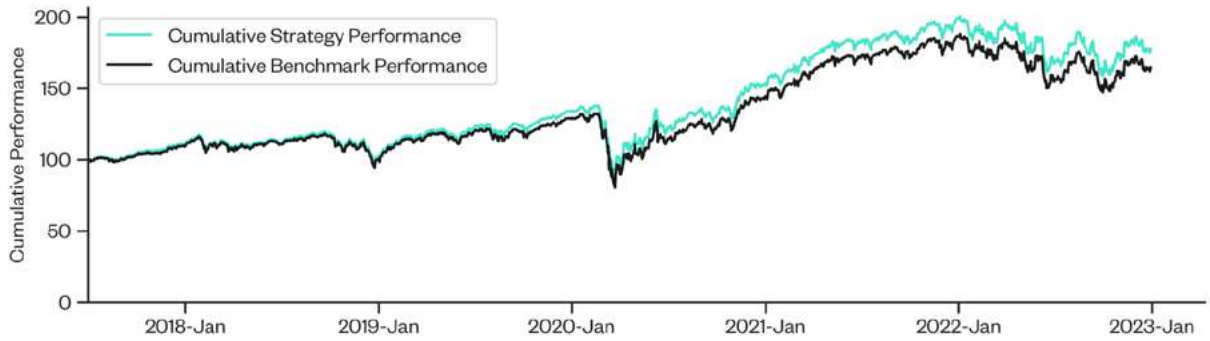


Figure 3. Performance Overview

					Annualized Performance		
	MTD	**QTD**	**YTD**	**Inception**	**3 Year**	**5 Year**	**From Inception**
S&P 500 EPS Weighted Strategy	-4.67%	11.61%	-10.91%	77.23%	9.57%	9.52%	10.41%
S&P 500 Equal Weight Index	-4.85%	10.17%	-12.02%	64.01%	8.21%	8.17%	9.08%

Figure 4. Risk Overview

	Std Dev	**Sharpe Ratio**	**Max Draw-down**	**Tracking Error**	**Beta**	**Up Capture Ratio**	**Down Capture Ratio**
S&P 500 EPS Weighted Strategy	21.08%	58.25%	37.96%	0.99%	0.99	101.73%	95.94%
S&P 500 Equal Weight Index	21.26%	51.59%	39.06%	-	-	-	-

Fama-French Factor Adjusted Performance

The Fama-French three-factor model considers the impact of market risk, size (a company's market capitalization), and value (book-to-market ratio) on asset returns, while the Fama-French five-factor model adds profitability and investment factors to provide a more comprehensive explanation of asset pricing.

To assess the extent to which the strategy outperformance can be explained by the three and five factor models, we conducted regressions using daily excess returns of the strategy against the Fama-French North American three and five factors (Daily)[2]. Subsequently, we deducted the Fama-French factor coefficients multiplied by the corresponding factor values from the strategy's excess returns.

The resultant Fama-French three and five factor adjusted performance is depicted in the plotted results.

On a Fama-French (three and five) factor adjusted basis, outperformance relative to the benchmark persists. From inception, we note an 8% outperformance of the S&P 500 EPS Weighted Strategy relative to the S&P 500 Equal Weight Index for both the three and five factor adjusted returns. On an absolute basis, we see that the S&P 500 EPS Weighted Strategy delivers an 11% and 6% return from inception following the three and five factor adjustments, respectively. This is an early indication of the presence of additional sources of performance beyond the Fama-French (three and five) factors.

Figure 5. 3-Factor-adjusted returns



Figure 6. 5-Factor-adjusted returns



[2] Factor data sourced from Kenneth R. French - Data Library (Kenneth R. French - Data Library (dartmouth.edu)).

Composition

Many ESG scores providers tend to assign top scores to names in sectors known for their low carbon footprints, such as Technology and Communications. This ESG "Sector bias" can lead to portfolio level ESG outperformance being primarily associated with only a few sectors.

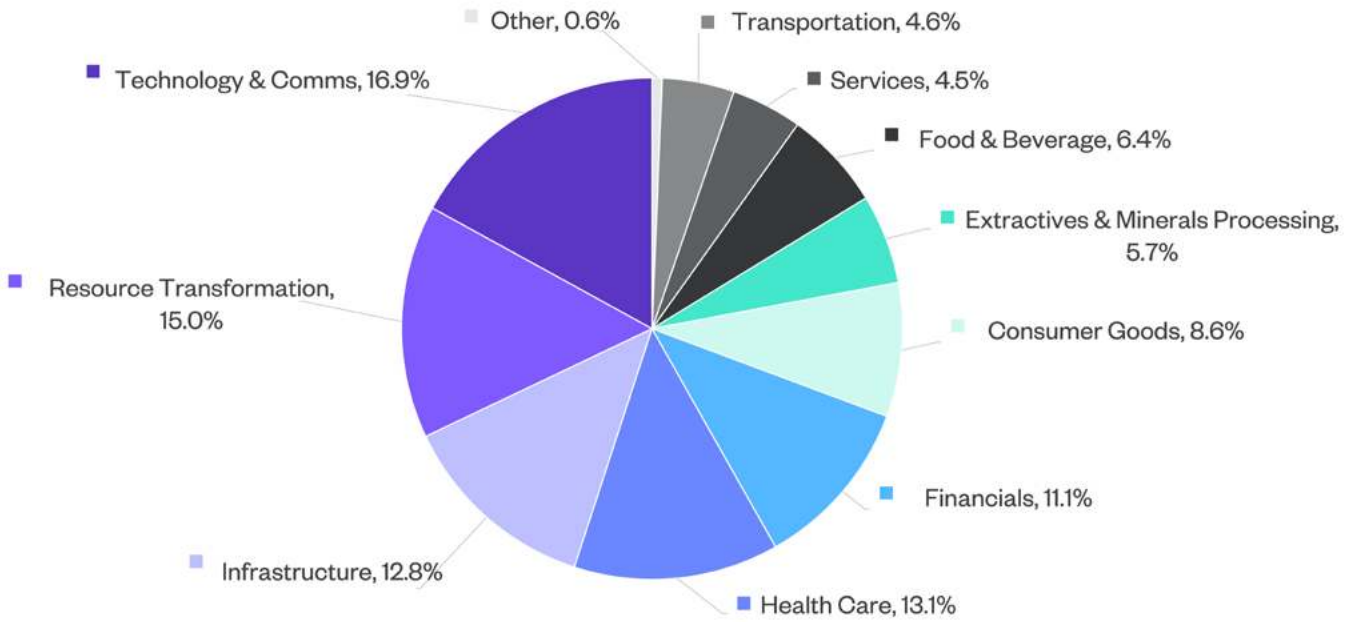
Therefore, one might expect that an EPS Weighted Strategy will show high active weightings in less carbon-intensive sectors, for example. Empirically, this is not the case.

As shown in the Active Weight Table[3], all sectors[4] have an active weight well below 5%[5] , with 8/11 Sectors maintaining an active weight lower than 1%. Indeed, such a result is in-line with expectations partly owing to the industry-specific materiality used in the EPS methodology[6].

Figure 7. Active Weight Table

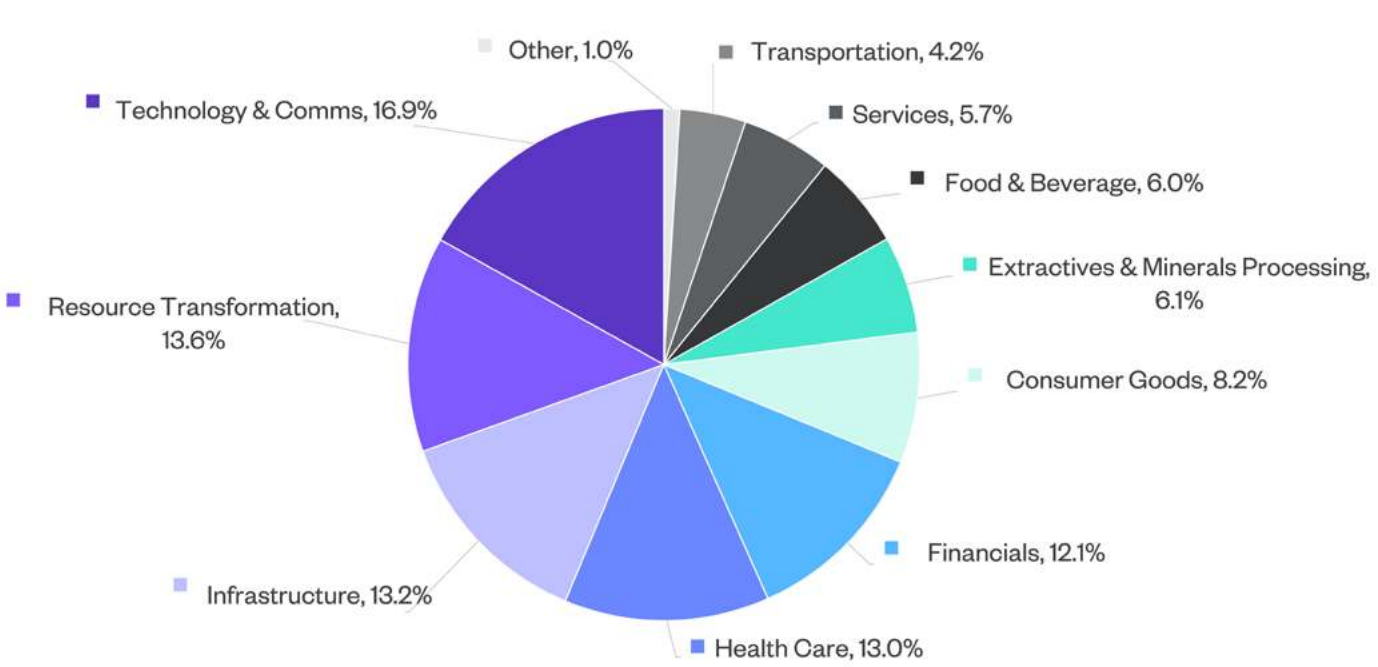
Sector	Active Weight (%)
Services	-1.13%
Financials	-1.08%
Extractives & Minerals Processing	-0.41%
Infrastructure	-0.38%
Renewable Resources & Alternative Energy	-0.11%
Technology & Communications	0.01%
Health Care	0.19%
Consumer Goods	0.34%
Food & Beverage	0.37%
Transportation	0.45%
Resource Transformation	1.35%

Figure 8a. S&P 500 EPS Weighted Strategy



[3] Active weighting shown as of 2022-12-31.
[4] Based on SASB'S Sustainable Industry Classification System® (SICS®).
[5] All active sector exposures are below +/-5%, consistent with industry-standard ESG indices.
[6] https://www.esgbook.com/esg-performance-score/

Figure 8b. S&P 500 Equal Weight Index



Sustainability

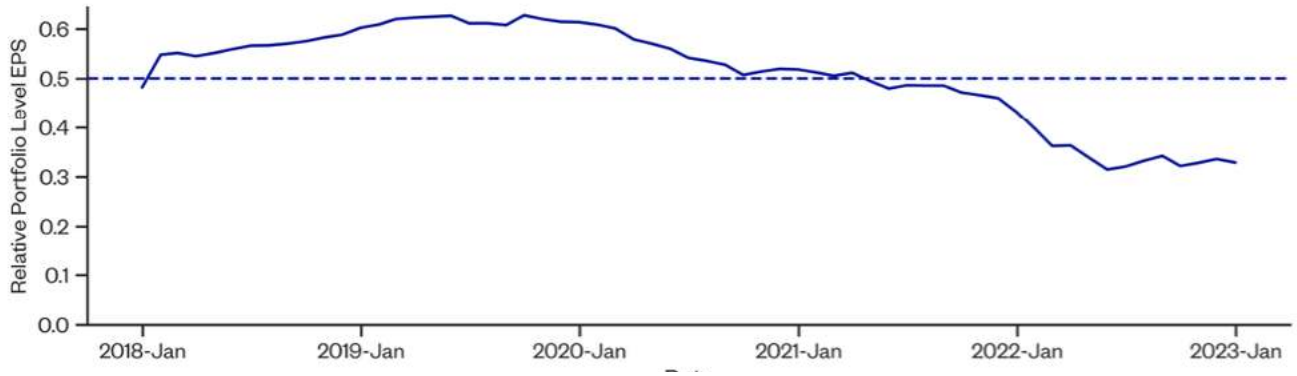
In constructing a strategy that assigns weights to constituents proportionally to their EPS, we anticipate a consistent EPS improvement at the portfolio level. To review this empirically, we evaluate the relative portfolio level EPS to control for fluctuations in the S&P 500 Equal Weight Index portfolio level EPS over time.

Figure 9. Relative Portfolio Level EPS Calculation

$$\sum_i EPS_{i,t} * w_{i,t} - \sum_j EPS_{j,t} * w_{j,t} = EPS_{Strategy,t} - EPS_{Benchmark,t}$$

Where $EPS_{i,t}$ represents the EPS for constituent i at time t, and $w_{i,t}$ represents the weight of constituent i at time t. To mitigate volatility and emphasize trends in portfolio level sustainability profiles, the results in this section are displayed as 6-month rolling averages. Sample means are overlayed as dashed lines.

Figure 9. Relative Portfolio Level EPS



Over the analysis sample period, we observe a positive mean portfolio level EPS increase of 0.5[7] relative to the S&P 500 Equal Weight Index.

This translates to a 7% improvement in percentile ranking within a peer group comprised of US Equity Exchange Traded Funds (ETFs). We reviewed the percentile ranking of the benchmark and strategy within ESG Book's universe of 1200+ US Equity ETFs with high EPS coverage[8] (See US Equity ETF EPS Descriptive Statistics Table).

As of the last date of analysis, the S&P 500 Equal Weight Index has a portfolio level EPS of 55.8, resulting in a percentile rank of 48%, indicating that it ranked higher than approximately 48% of the ETFs in the dataset. With a portfolio level EPS of 56.1, however, the S&P 500 EPS Weighted Strategy secures a higher percentile rank of 55%.

Figure 10. US Equity ETF EPS Descriptive Statistics Table

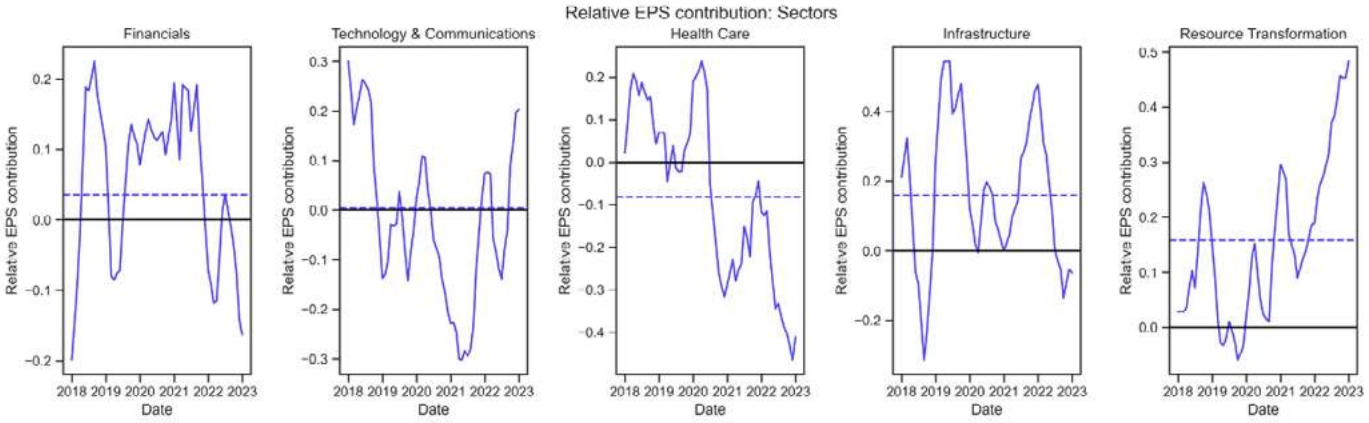
	Portfolio Level EPS
Count	1253
Mean	55.13
Standard Deviation	2.56
Minimum Value	44.01
Lower 25% Percentile	53.67
Median	55.89
Upper 75% Percentile	56.69
Maximum Value	62.79

Ultimately, improvement in portfolio level sustainability is a function of the benchmark universe's EPS profile. To better understand how this improvement materializes and to address prevailing biases in the wider ESG ratings space, we evaluate two common bias-related drivers of outperformance:

i) Sector bias.
Wherein portfolio level ESG outperformance is driven by a targeted allocation to a small number of sectors with exceptional ESG profiles. To gain a comprehensive understanding of any ESG strategy, it is crucial to thoroughly assess the presence of such biases[9] . To review this effect, we evaluate the relative contribution to Portfolio level EPS of the top 5 Sectors[10] by weight at the last date of analysis (Technology & Communications, Resource Transformation, Infrastructure, Health Care and Financials).

[7] It's important to note that portfolio level differences in EPS tend to be smaller than differences at the company level. This regression to the mean can occur when the high and low EPS at the company level tend to get averaged out, resulting in a portfolio EPS that is closer to the overall mean EPS of the companies in the portfolio.
[8] I.e., at least 85% of the fund's market-value is covered by EPS.

Figure 11. Relative EPS Contribution: Sectors

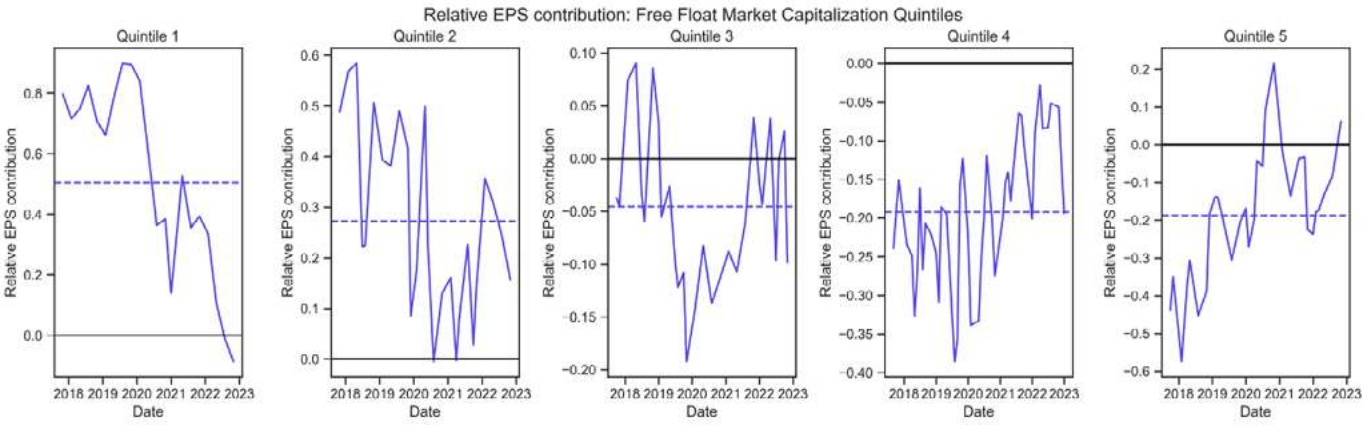


At the Sector level, Infrastructure delivered the highest mean contribution of 0.16 to relative portfolio level EPS. Though this is a positive contribution, it does not fully explain the mean portfolio level EPS improvement of 0.5. Moreover, no sector demonstrated a consistent positive contribution over the entire sample period (Infrastructure inclusive). This indicates that positive EPS outperformance is not driven by contributions in only one sector. Indeed, 8/11 sectors contributed positively to EPS outperformance on average, suggesting that EPS outperformance is more likely to be driven by small changes across a large number of sectors vs. major changes in a small number of sectors.

ii) Size bias.

Wherein portfolio level ESG outperformance is driven by a concentrated allocation to names with higher market capitalization[11]. To review this effect, we evaluate the relative contribution to portfolio level EPS of free-float market cap quintiles (USD). To control for the impact of asset price fluctuations between rebalance dates on portfolio level EPS, this contribution is reviewed at the beginning of every quarter.

Figure 12. Relative EPS Contribution: Free Flat Market Capitalization Quintiles



[9] Honey-I-Shrunk-the-ESG-Alpha.pdf (ihsmarkit.com) "Even if ESG strategies have higher returns, investors do not gain if these returns are due to sector biases or exposure to standard factors".

[10] Based on SASB'S Sustainable Industry Classification System® (SICS®).

[11] ESG Investing: Practices, Progress and Challenges (oecd.org) "there is evidence of an ESG ratings bias against SMEs for some providers, such that firms with much higher market capitalization and revenues consistently receive higher ESG scores than those with very low market capitalizations."

We find some evidence that higher market cap names are positive drivers of sustainability outperformance as shown in the charts of quintiles 1 and 2, with mean contributions of 0.5 and 0.27, respectively. However, this relationship is volatile and weakening over time, particularly between 2020 and 2021, where a significant drop in contribution from these top quintiles is observed. Additionally, quintiles 3 and 5 show mixed contributions, while quintile 4 consistently exhibits a negative contribution.

Ultimately, our findings indicate that the observed sustainability outperformance is not solely driven by biases commonly observed in other ESG ratings providers, including sector and size bias.

Conclusion

We have demonstrated one way in which the EPS can enhance the sustainability profile of a portfolio using a score-based weighting approach.

Throughout the analysis sample (2017-07-01 to 2022-12-31) the S&P 500 EPS Weighted Strategy delivers consistent outperformance of returns relative to the S&P 500 Equal Weight Index, both on a risk and Fama-French three and five factor adjusted basis. Crucially, this approach leads to a sustained improvement in portfolio level sustainability relative to the benchmark while maintaining a similar sectorial composition.

Moreover, we demonstrate that this sustainability outperformance is not solely driven by biases seen in other ESG ratings providers such as sector and size bias.

There is a growing need for asset managers and investment product builders to clearly articulate how they are assessing, measuring, and monitoring the sustainability characteristics of their portfolios. By delivering transparent, data-driven assessments of corporate sustainability performance inspired by SASB's materiality framework, the ESG Performance Score is a next generation solution to meet increasingly complex market requirements.





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