Calvert

April 2022

Calvert Leading-Edge Insights

How Accounting for Impact Can Deliver the Real Value of ESG

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This paper draws from the findings of product-impact research sponsored by Calvert and conducted by KKS Advisors for, and in collaboration with, Calvert. KKS Advisors received compensation for the product-impact research completed in October 2021.

- In today's market, the great majority of ESG metrics concerns *operations*: activities that happen within the company's control.
- The next major milestone for ESG metrics, in our view, involves *impact*: how companies affect society and the environment through their employees, customers and products.
- This paper outlines a promising path for understanding and quantifying corporate ESG impact through **impact-weighted accounts** — line items on financial statements designed to supplement traditional financial reporting.
- Our analysis shows how positive impact, as disclosed in impact-weighted accounts, can be a material driver for key financial metrics and stock performance.
- Just as the growth of a financial accounting infrastructure enabled development of large-scale capital markets, impact-weighted accounts have the potential to be a similar catalyst for sustainability investing.

Company reporting of metrics for environmental, social and governance (ESG) factors has come a long way in recent years, as issuers have responded to investors who have poured billions of dollars into responsible investment strategies. At the same time, ESG data has gained widespread prominence through investment services like Bloomberg, Factset and Morningstar.

But for all the new abundance of information, there is a large qualitative gap in what is being reported. The majority of ESG metrics concerns *operations*: activities that happen within the company's control, like water consumption, waste generation, carbon emissions, employee health and safety, or diversity and inclusion efforts.

The next major milestone for ESG metrics, in our view, involves *impact*. All companies have an impact on society and the environment through their employees, customers, products and operations. ESG integration into financial reporting cannot be considered complete until such "externalities" are part of the picture. These are largely downstream of the company's products or services.

Indeed, investors are increasingly demanding that managers show evidence of positive impact in portfolios from ESG investing. In Europe, for example, regulators have taken notice. They are requiring disclosure of metrics expressing positive ESG impact, for funds that position themselves as sustainable investment funds.

This paper outlines a promising path for understanding and quantifying corporate ESG impact and is adapted from new research by KKS Advisors that was commissioned by Calvert. KKS lays the groundwork for impact-weighted accounts — line items on financial statements designed to supplement traditional financial reporting. The accounts use metrics for quantifying a company's positive and negative impacts on employees, customers, the environment and the broader society.

A framework for impact

Impact-weighted accounts are built on a framework known as "real impact in financial terms" (RIFT), developed by Richmond Global Sciences (RGS), which estimates a dollar value on the impact from products and services, as itemized in Exhibit A.

As a practical example of how the RGS methodology is used in the impact-weighted accounts framework, consider the beverage industry, specifically applied to soft drinks. Companies in this group include producers of nonalcoholic beverages, such as Coca-Cola and PepsiCo. Product impact estimations for these companies are calculated based on the analysis of their sugar-sweetened beverages, as well as other nonalcoholic beverages such as juices, bottled water, and dairy-based drinks. Impact for beverage products falls into two social categories and two environmental categories:

Consumer welfare - direct category comprises the benefits of drinking the beverage for the consumer.[1]

Customer welfare - indirect is the social cost associated with overconsumption of sugar, including the health care and productivity costs from treating lifestyle diseases like coronary heart disease. Data inputs required to monetize the impact include tons of sugar sold (at the company level). Key assumptions include the relative risk of developing heart disease from sugar consumption and the prevalence of the disease in society.

Environmental use for the soft drink subindustry is captured looking at the emissions generated by cooling beverages in retail outlets, bars, restaurants and at consumers' homes. The estimated CO_2 emitted is based on the percentage of total greenhouse gas emissions that can be traced back to product use and the social cost of CO_2 per kilogram emitted.

Exhibit A

Categories for capturing "real impact in financial terms." (RIFT)

Social Impact

- **Customer welfare - direct** — Addresses individual benefits from the consumption of goods or services, taking into account consumer satisfaction, given prices and income.
- **Customer welfare - indirect** — Addresses qualities inherent to the design and delivery of products and services where customer welfare may be in question.
- **Product quality and safety** — Addresses unintended manufacturing errors that create health or safety risks to end users.
- **Optionality** — Addresses whether customers can freely choose alternative products on a fully informed basis. Includes circumstances such as product addiction, selling practices, labeling and monopolistic behavior.

Environmental Impact

- **Environmental use** — Captures environmental costs or benefits from product use, including contribution to and reduction of air and water pollution, and greenhouse gas emissions.
- **End of life** — Addresses environmental costs or benefits from product disposal (e.g., recycling, costs of microplastics, etc.).

Sources: Calvert, KKS Advisors, Richmond Global Sciences (RGS), as of March 2022.

[1] The need of a product is captured using the economic concept of consumer surplus, which measures the benefits to the consumer. Consumer surplus = willingness to pay price. Since the willingness to pay (monetized utility) is not observable, consumer surplus can be restated as a function of the product's price and the price elasticity of demand, which reflects how much a consumer will change his/her product consumption if the price changes.

End of life considerations for soft drinks can be traced back to the social cost of plastic packaging waste. Based on a study published by WWF in September 2021, there are three major quantifiable costs related to plastic packaging: direct and indirect costs to conduct formal and informal waste management activities; costs of CO2 emissions from waste management processes; and costs associated with unmanaged waste and marine plastic pollution including the lifetime impact of lost marine ecosystem service costs. Data inputs to monetize the end of life category include tons of plastic packaging (at the company level), the proportion of plastic products that becomes waste and enters the oceans, and the lifetime cost per ton of plastic waste.

Industry as a driver of impact

The beverage industry also serves as an example of a key broader finding of the KKS research: Industry membership is a big driver — for better or worse — of total product impact. Exhibit B shows the variation in social and environmental impact, summed as total impact, across different industries. While industry membership contributes a lot to product impact in beverages, electric utilities and food product, it does less so for retail banks, telecommunications and airlines. Factors like size of companies, region and age also contributed to product impact, but the contributions did not vary as much with industry.

Impact on financial performance

Our study examined from two perspectives how the social and environmental impact categories, as defined and quantified by RGS in Exhibit A, correlated with financial performance.

- First, we considered the relationship of product impact with key financial indicators like return on sales (ROS), return on assets (ROA), asset turnover, one-year sales growth and price-to-book ratio.
- Second, we compared stock performance of two portfolios: one comprising top-tercile companies as ranked by impact scores and the other comprising the bottom tercile.

Impact on key metrics

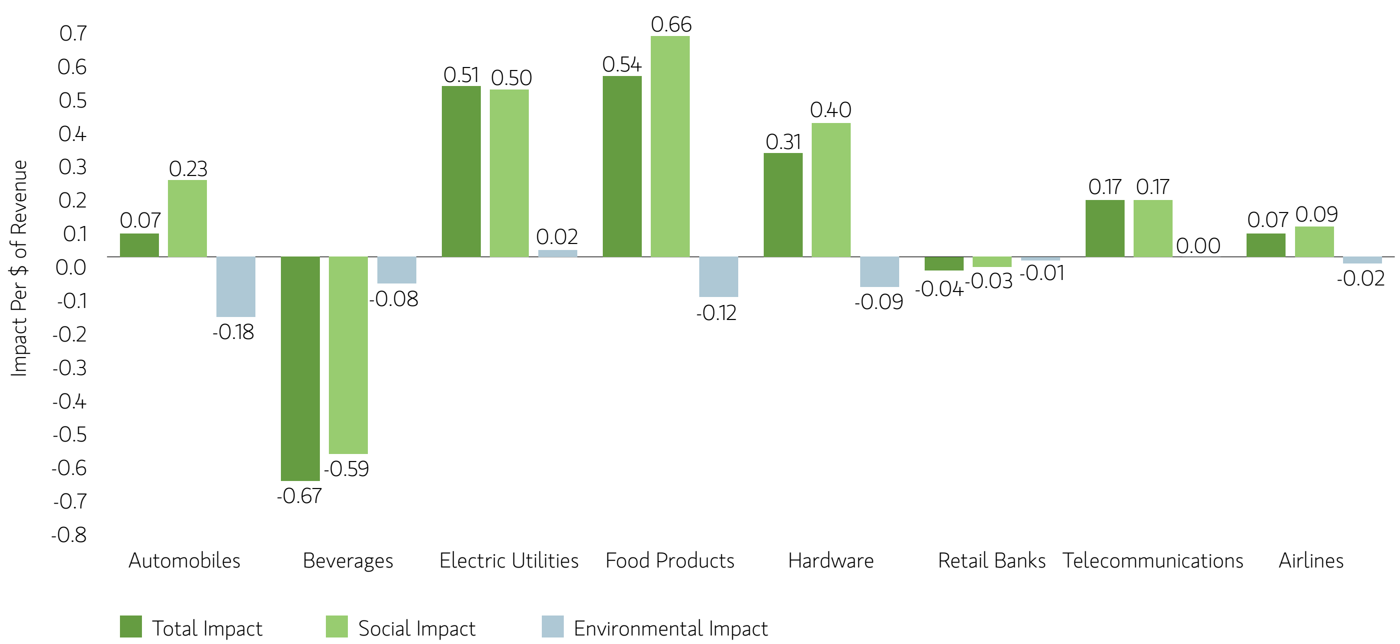
Exhibit C offers a sampling of the results of the first perspective, showing the relationship between environmental and social impact scores and financial metrics for various industries (green shading indicates a material, positive correlation and red a negative one). The table is based on yearly regressions using data for 118 companies between the years 2016 and 2020. The size of the sample was constrained by availability of product impact data -- we view it as a limited but diverse universe. For example, while constituent companies represent approximately 20% of the aggregate market capitalization of the S&P 500 and FTSE EuroFirst 300 indexes, it excludes big tech companies, with the exception of Apple.

Exhibit C shows that the industry relevance across financial performance metrics varies. In industries like automobiles or food products, where being able to match the demand for sustainable consumer products is key to maintain growth, the data reveals several positive signals with respect to key metrics. For example, for airlines, strong scores on consumer welfare - direct correlated positively with return on assets and return on sales, product quality and safety were tied to stronger asset turnover (which is the ratio of revenue to assets — a measure of efficient use of assets).

Exhibit B

Impact varied widely across different industries.

Avg. contribution of industry membership to company product impact, per $ of revenue



Sources: Calvert, KKS Advisors as of March 2022. Chart universe consists of 118 publicly listed companies with product impact data available between the years 2016 and 2020. These companies represent approximately 20% of aggregate market capitalization of the S&P 500 and FTSE EuroFirst 300 indexes and represent eight GICS industries shown. .

Exhibit C

Impact was strong for the airline, auto, food and telecom industries.

	Airlines	Automobiles	Retail Banks	Beverages	Electric Utitlies	Food Products	Telecomm.
Total Product Impact							
	ROA, ROS AT	AT, P/B, 1Y Sales G ROS	ROS		ROS AT	AT	ROA, ROS, P/B
Social Product Impact							
Customer Welfare - Direct	ROA, ROS	AT, ROS	ROA, ROS, P/B	P/B		AT	ROA, AT, P/B
Customer Welfare - Indirect		ROA, ROS	ROA, ROS, P/B	AT		ROA, AT, P/B	
Product Quality & Safety	AT					1Y Sales G	1Y Sales G
Optionality			P/B ROA, AT				ROA, AT, P/B
Environmental Product Impact							
End of Life	AT	ROA, ROS P/B, 1Y Sales G	AT ROS	AT			
Environmental Use		ROS			AT	P/B	

Sources: Calvert, KKS Advisors as of April 2022. Return on assets (ROA), return on sales (ROS), price to book (P/B), asset turnover (AT) and one-year sales growth (1Y Sales G) are common equity valuation indicators. Table universe consists of 118 publicly listed companies with product impact data available between the years 2016 and 2020. These companies represent approximately 20% of aggregate market capitalization of the S&P 500 and FTSE EuroFirst 300 indexes.

Positive Correlation

Negative Correlation

AT - Asset Turnover
ROA - Return on Assets
ROS - Return on Sales
P/B - Price/Book Ratio
1Y Sales G - 1 Yr. Sales Growth

Exhibit D

Social impact was especially strong over time.

	Levels	1Y Change	2Y Change	4Y Change
Total Product Impact				
	ROS	1Y Sales G		ROS
Social Product Impact				
Customer Welfare - Direct	AT			
Customer Welfare - Indirect	ROA, AT		1Y Sales G	
Product Quality & Safety	AT			P/B
Optionality	ROS			1Y Sales G
Environmental Product Impact				
End of Life	ROA, ROS AT		P/B	P/B
Environmental Use	P/B, 1Y Sales G AT	P/B	P/B, AT	

Sources: Calvert, KKS Advisors as of April 2022. Return on assets (ROA), return on sales (ROS), price to book (P/B), asset turnover (AT) and one-year sales growth (1Y Sales G) are common equity valuation indicators., Table universe consists of 118 publicly listed companies with product impact data available between the years 2016 and 2020. These companies represent approximately 20% of aggregate market capitalization of the S&P 500 and FTSE EuroFirst 300 indexes.

In contrast, for an industry like retail banking, there is a strong economically cyclical component to the top line and profit margin benefits gained from sustainable product and service offerings. Thus, we find a mostly negative relationship between product impact and financial performance indicators.

Exhibit D presents the results for the entire 118-company. universe, at the baseline and the change over four years. Social product impact categories had a positive impact on a wide range of financial metrics across companies, while the results for environmental category impacts show more mixed signals. Environmental end of life and environmental use categories were linked to higher profitability and sales growth at the baseline, but did not persist at a statistically significant level over the four-year window.

Impact on stock performance

Next, we turn to our second perspective: How social and environmental impact categories correlated with stock performance over the same five years. The goal was to test whether a portfolio of product impact leaders would outperform a portfolio of product impact laggards. Product impact leaders were selected for both social and environmental categories by running regression analyses that controlled for the contribution to impact from industry, size and region. The "residuals" from the regression equations represented the isolated contributions from each company on product impact and were used to rank the firms.

The portfolios illustrated in Exhibit E are weighted by the market value of companies within their industries. Those weightings are scaled so that the sum of all company weights in a given industry adds up to the industry's relative market cap in the 118-company sample.[2] The top and bottom tercile of companies in each industry were selected to produce four portfolios: "leaders" and "laggards" portfolios for both social product impact and environmental impact.

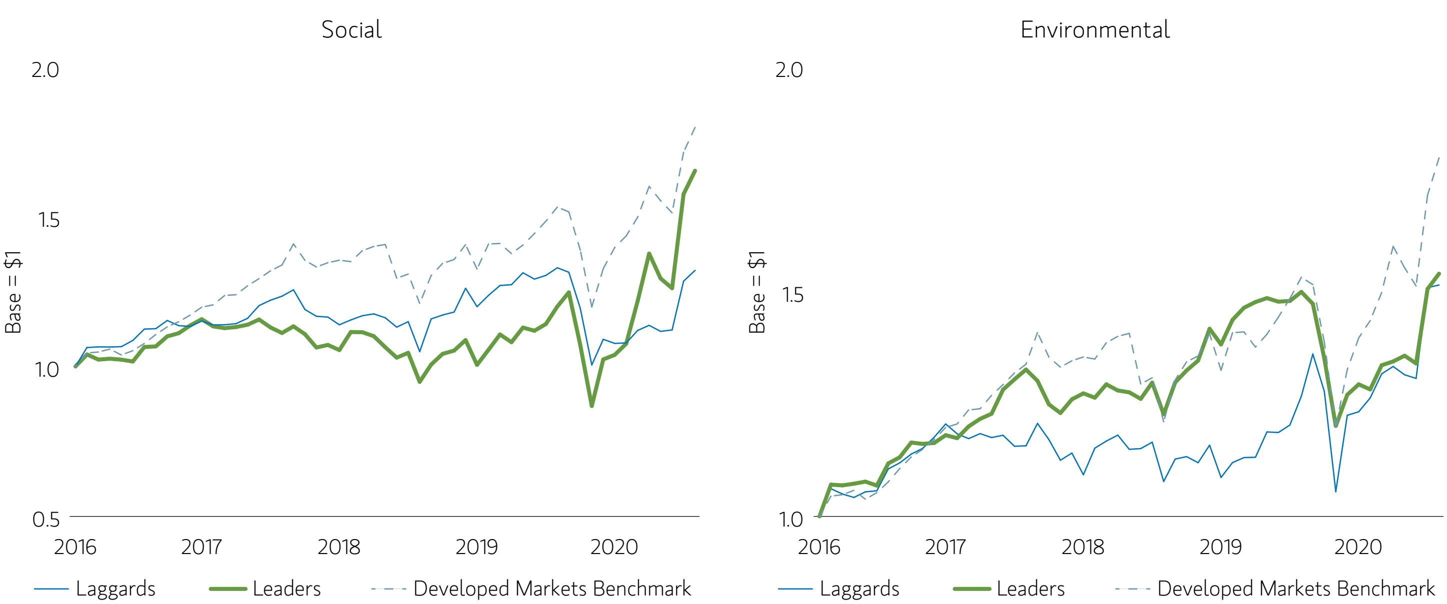
The cumulative return between 2016 and 2020 of the social impact leaders portfolio was $1.65 compared with $1.32 for the laggards, with the base set at $1.00. The advantage for the environmental leaders was more modest — $1.49 versus $1.46. Note that both social and environmental leaders still underperformed the Fama and French Developed Markets Benchmark. This can be explained by the current exclusion of big tech companies, as noted earlier, with the exception of Apple, from the impact data sample.

This analysis was designed to keep industries as the focus, ensuring that all were represented in the leaders and laggards portfolios. We also performed a complementary analysis, in which the top- and bottom-tercile stocks were selected from the 118-company distribution. In this analysis, we chose absolute top and bottom performers from the entire range, thus deprioritizing the industry makeup of the final portfolios.

Exhibit E

Impact "leaders" delivered stronger stock performance than "laggards"

Impact portfolio performance for value-weighted firms within value-weighted industries



Sources: Calvert, KKS Advisors as of April 2022. Chart universe consists of 118 publicly listed companies with product impact data available between 2016 and 2020. These companies represent approximately 20% of aggregate market capitalization of the S&P 500 and FTSE EuroFirst 300 indexes. The Developed Market Benchmark is represented by the Fama and French Developed Markets Benchmark, a value-weighted global index comprising 23 developed markets, commonly used in academic research as a proxy for overall global stock market performance. Composition of "laggards" and "leaders" portfolios is described in text. Past performance is no guarantee of future results. You cannot invest directly in any index.

[2]The RGS dataset is still under construction and thus focuses on a limited but diverse set of industries. The 118-company universe comprises mostly large-cap companies that are established global players for which annual product impact data was available between 2016 and 2020.

[3]Both industry focused and non-industry-focused analyses were applied to four portfolio weighting methods: value-weighted firms within value-weighted industries (as in Exhibit E, which was industry focused), equally weighted firms within value-weighted industries, equally weighted firms within equally weighted industries and value-weighted firms within equally weighted industries. The multiple portfolio weighting methods allowed us to assess how the greater contributions of larger firms with higher impact scores biased the results.

For both industry-focused and non-industry-focused analyses, we employed four portfolio weighting methods including "value-weighted firms within value-weighted industries," as described above.[3] By applying industry-focused and non-industry-focused analyses and using four kinds of weighting methods, we arrived at a grand total of 16 pairs of leaders and laggards portfolios — eight for social impact categories and eight for environmental impact.

Impact leaders stood out

Looking at results across 16 portfolio pairs, a number of observations stand out:

- Overall, the top tercile portfolios seemed to outperform bottom tercile portfolios with 14 of the 16 spreads shown being positive.
- Environmental metrics tended to contribute to more consistent portfolio performance, as all spreads are positive independent of weight and within/across industries' stock selection.
- In six out of the eight social metrics scenarios, there was a positive spread for the impact leaders portfolio.
- Within social impact portfolios, value-weighting companies yielded higher cumulative returns overall, suggesting that the equal-weighting methodology may be suboptimal in building strategies that use these social categories.

Our study of the social and environmental impact of company operations revealed some other interesting trends:

Persistence of leaders and laggards. For social impact, many companies had strong scores in 2016 and maintained them through 2020. The leaders and laggards remained largely the same. This makes sense as it takes time for companies to develop and implement product strategies, and for meaningful product impact changes to materialize.

On the environmental side, most companies had weak impact scores in both 2016 and 2020, but a number made marked improvements, and leader/laggard positioning did not show large change.

Balancing social and environmental impact. Interestingly, we found a significant negative relationship between environmental and social product impacts in most industries. In other words, improvement in one appears to be at the expense of the other, suggesting that companies face a level of compromise in achieving positive environmental or social product impact.

An impactful future

Through impact-weighted accounts, we seek to create a framework based on a systematic methodology applicable to different companies across a wide range of industries. This enables transparency, comparability and scalability within product impact reporting and integration.

Working with a limited sample of companies, our initial analysis has shown how positive impact can be a material driver for key financial metrics and stock performance. We believe the preliminary insights point the way to further development of a promising tool for investors and corporate management.

Just as the growth of a financial accounting infrastructure enabled development of large-scale capital markets, impact-weighted accounts have the potential to be a similar catalyst for sustainability investing.

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40486 | 04.14.22