Vanguard

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Explaining ESG equity index fund performance

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Introduction

Many ESG equity index funds show substantial, persistent deviations in industry allocations relative to the broad market although the trend is declining. The impact of these deviations on performance, however, has been less persistent: Depending on the time period, the impact can be positive or negative, accounting for the majority of return differences between an ESG fund and the market in some periods and the minority in others.

Treating industry returns as a possible factor in explaining environmental, social, and governance (ESG) fund returns, we find that only a few industries have had a statistically significant impact on fund returns, both before and after controlling for style factors. What's more, we find substantial variations in industry allocations among individual ESG funds, so investors are best served by assessing them on a fund-by-fund basis.

As ESG investment products continue to grow in popularity, investors may be curious about what drives the performance of ESG funds relative to the performance of the broader market.

Can the growing number of investors considering these products find any discernible patterns in performance?

To help answer this question, we investigated whether returns are driven by over- and underweights of industries in ESG equity index funds compared with the weightings in the broader equity market. We looked at equity index funds and ETFs with a U.S. investment focus that indicated that ESG factors were used in their investment process, according to Morningstar, Inc., from January 1, 2006, through December 31, 2020.

Our previous research, based on a similar range of ESG funds, found that the performance of many of the funds deviated from that of the broader market and that part of the performance difference could be explained by exposures to style factors.[1] What we did not explore in that study was the role of industry allocations.

Many ESG funds under- or overweight companies based on their business activities, such as tobacco production or oil and gas extraction or distribution. ESG funds that apply an exclusionary screening approach explicitly (and often solely) focus on such business activities. As a result, these funds should have industry allocations that differ systematically from those of the broader market.

[1] Research originally published in the Journal of Portfolio Management: Plagge, J.-C. and D.M. Grim, 2020. Have Investors Paid a Performance Price? Examining the Behavior of ESG Equity Funds. Journal of Portfolio Management 46(3): 123–140. Performance of U.S. index and active equity mutual funds and ETFs that indicate the use of ESG factors, as determined by Morningstar, Inc. Time period observed: January 1, 2004, through December 31, 2018. The original research was conducted in 2019 and was then updated with data through the end of 2021.

Funds that apply inclusionary approaches, which often select companies by assessing their exposure to ESG risks, also tend to have different industry allocations than their non-ESG peers because ESG risks are often industry-specific.

Substantial deviations have declined over time

In our most recent investigation, we first composed an "ESG market portfolio" as an asset-weighted aggregate of all funds in our sample. For this ESG market portfolio, we found substantial, persistent deviations in industry allocations across our review period. Industries that were the most heavily over- or underweighted were quite stable over time. Financial services and technology were the two most heavily overweighted industries, while energy and industrials were the most heavily underweighted in absolute terms.

These deviations from the broader market shrank markedly over time, however. The underweighting of energy, for example, shrank from 4.7 percentage points on average in January 2006 to just 0.9 percentage points in December 2020. It seems likely that this was driven, at least in part, by the overall decline in this industry's weight in the U.S. market over that time.

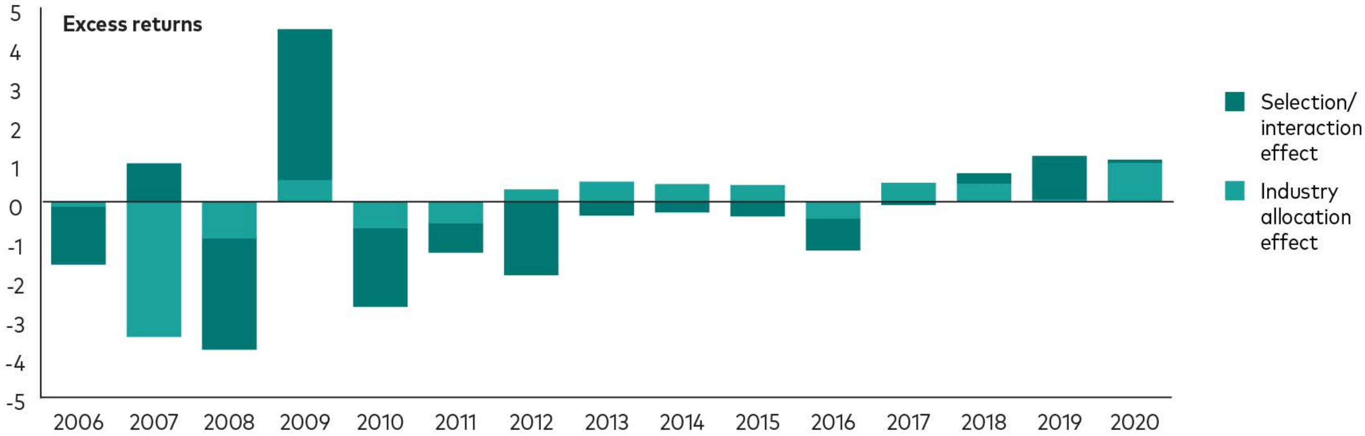
Next, we looked at the impact of deviations in industry allocation between our ESG market portfolio and the U.S. equity market on the total return of the ESG market portfolio. For this, we decomposed return differences into two elements: the "industry allocation" effect and the "selection/interaction" effect. As its name indicates, the industry allocation effect tells us which part of the performance difference is due to differences in industry allocations. The second effect simply captures the remainder (which could be driven by differences in the way individual stocks are weighted within industries). The left-hand side of the chart below shows both effects on an annual basis.[2]

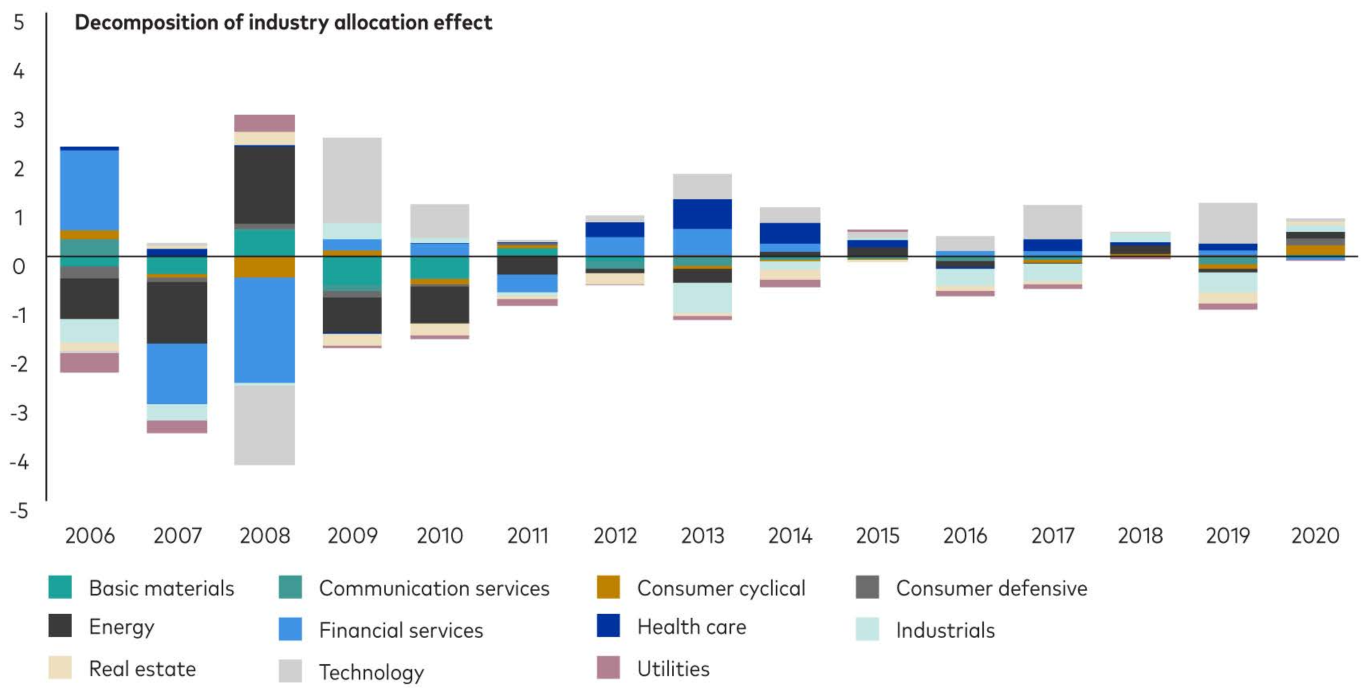
The effect of industry allocations on performance varied significantly from year to year: Depending on the time period, the effect was positive or negative, accounting for the majority of return differences between the ESG market portfolio and the broader market in some periods and for the minority in others.

But we noticed variability not only for the entire industry allocation effect but also for the contribution of individual industries (see the right-hand side of the chart below). The 2008 global financial crisis and the response by policymakers produced particularly hefty gyrations. As might be expected, the overweight in financials hurt relative performance in 2008. This overweight then contributed positively in the following years as markets rebounded. The opposite was true for energy. The underweight in energy had a positive impact on relative performance in 2008 and a negative impact in the following years.

[2] We conducted a performance attribution based on Brinson, G., R. Hood, and G. Beebower, 1986. Determinants of Portfolio Performance Financial Analysts Journal 42. 39–44.

Return attribution by industry





Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.

Notes: The proxy used for the U.S. equity market was the Morningstar US Market Index, which measures the performance of U.S. securities and targets a coverage of 97% of the investable market. Industry returns were based on 11 Morningstar industry indexes, which, if weighted according to each industry's portion of the U.S. market's capitalization, represent the Morningstar US Market Index.

Sources: Vanguard analysis, based on U.S. equity index funds and ETFs that indicated the use of ESG factors in their investment process, according to Morningstar, Inc., from January 1, 2006, through December 31, 2020. The analysis was based on monthly gross returns in USD. Gross returns were used to better isolate ESG risk–return factors.

Industries as a factor

Next, we explored the extent to which the performance of our ESG market portfolio can be explained by variables such as the market factor, style factors such as size, value, profitability, and investment, and market-neutral industry returns. After controlling for the market and style factors, we found that only a handful of our industry "factors" played a statistically significant role in explaining the ESG market portfolio's performance.

Among these, energy was one of the most persistent. The relationship between the performance of the energy sector and the performance of our ESG market portfolio was negative. Hence, when the energy sector outperformed the broader market, the ESG market portfolio underperformed, and vice versa. This makes intuitive sense, given that the energy sector was underweighted in the ESG market portfolio compared with the market.

Variability in individual funds

Having analyzed the characteristics of the ESG market portfolio, we next looked at the underlying individual funds. Given the almost limitless ways to construct ESG funds, we expected to find significant dispersion in our findings, and we were not disappointed.

The level of "disagreement" in representation was higher for some industries than for others. In line with observations made at the aggregate level, the majority of ESG funds underweighted energy and overweighted technology. For other industries, however, it was less clear. With financials, for example, we found a roughly 50-50 split in funds under- or overweighting the industry.

In terms of performance, we found similarly diverse results across the various ESG funds. When some funds underweight an industry and others overweight the same industry in a given year, it is not surprising that these positions have opposing effects on performance.

That said, and when looking across all industries, the allocations of the median ESG fund tended to converge with that of the broad market over time, an outcome that agreed with the findings at the aggregate level.

Understand the specifics of each fund

So what are investors to take from our findings? Our results revealed that deviations in industry allocations between ESG funds and the broader market did have an impact on relative ESG fund performance. However, the impact is very time-dependent and less systematic than many investors may expect.

If the trend of declining industry deviations persists, it seems reasonable to expect that the impact of industry deviations on relative returns will become smaller.

That said, we did see significant variability at the level of single funds and trends based on aggregates or medians reveal little when it comes to a specific fund. Therefore, investors should always assess the investment implications of industry allocations on a fund-by-fund basis.

Notes:

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