

CAN ESG ADD ALPHA?

An Analysis of ESG Tilt and Momentum Strategies

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EXECUTIVE SUMMARY

Institutional investors’ interest in Environmental, Social and Governance (ESG) criteria has grown considerably over the past few years, but some remain concerned that the inclusion of ESG factors in their investment process comes at the cost of weaker risk-adjusted returns.

In this paper, we find that this performance trade-off does not always necessarily occur. We analyze stock returns of two strategies constructed using MSCI’s ESG data:

- The “ESG Tilt” strategy overweights stocks with higher ESG ratings.
- The “ESG Momentum” strategy overweights stocks that have *improved* their ESG rating over recent time periods.

We find that both of these strategies outperformed the global benchmark over the last eight years, while also improving the ESG profile of the portfolios.¹

Furthermore, a significant part of their outperformance was not explained by style factors, and thus may have been attributable to ESG factors. However, some of the less significant active factor exposures were quite stable and persistent, and thus also contributed to the performance of the portfolios.

The historical results presented in this paper show an example of how investors with the tolerance to take some active risk, while at the same time looking to improve the ESG profile of their portfolios on a systematic basis, could incorporate such strategies into their investment processes.

¹ ESG investment practices and the corresponding ESG datasets have evolved quickly over the last decade. Limiting our backtest period to eight years ensures a high level of data in the investment universe as well as a consistent methodology for the entire period.

INTRODUCTION

In an earlier paper,² we presented several approaches for integrating Environmental, Social and Governance (ESG) considerations into the portfolio construction process. The strategies we focused on aimed to raise the ESG standards of the resulting model portfolios, without necessarily betting on the existence of long-run alpha associated with the ESG ratings. The portfolios experienced very low tracking error with respect to a global benchmark, the MSCI World Index.

The small deviations in terms of style, industry and country tilts that we permitted for our model portfolios, coupled with high risk aversion, led to minimal differences in performance during the relatively short sample period. At the same time, our earlier paper found that these low-risk portfolios (relative to the benchmark) realized a notable improvement in the ESG profile of the portfolios.

The present paper extends our earlier work along several dimensions:

First, we extend the time series by two more years to improve statistical confidence in the results. Second, we deliberately treat ESG data as an indicator of potential outperformance (or alpha) in the portfolio construction process. Finally, we study higher risk strategies, as implied by our alpha-seeking stance. These higher risk strategies allow for larger active weights, and can help uncover the relationship of ESG ratings with other factors. We are thus able to study more closely the effect of intended and unintended bets on portfolio performance.

In this paper, we analyze two strategies that use MSCI ESG Ratings.³ Both strategies assume a link between ESG ratings and future returns, but differ implicitly in the time horizon for the strategy.

The “ESG Tilt” strategy assumes that ESG scores are linked to future stock performance; companies that integrate ESG considerations into their operations are able to avoid some financial losses related to ESG issues, such as environmental fines or labor disputes. On the upside, such companies are also able to more quickly take advantage of new ESG-related opportunities, e.g., clean technologies. These potential advantages are expected to

² Nagy, Zoltan, Doug Cogan, Dan Sinnreich, [Optimizing Environmental, Social, and Governance Factors in Portfolio Construction](#). (2013). MSCI Research Insight.

³ MSCI ESG Ratings (formerly known as Intangible Value Assessment), assess companies’ exposure to and management of ESG risks and opportunities, based on macro data, company disclosures and government databases. For more detail, see Appendix 1.

influence the strategy's performance over the long run, but it is clear that tilting towards higher ESG scores should immediately raise the portfolio's overall ESG profile.

The second strategy, "ESG Momentum", is more short term in nature. The Momentum model portfolio assumes that future stock performance is linked to the *change* in the ESG quality of the company. An improvement in ESG scores signals that a company is better equipped to avoid ESG-related risks; this reduction in potential future liabilities is quickly discounted by market participants and built into the share price. This strategy not only takes a shorter-term perspective than the Tilt strategy, but also does not explicitly aim to raise the ESG profile of the resulting portfolio because stocks with the largest increase in ESG scores are not necessarily the best-rated stocks at the time.

The performance of these higher risk portfolios relative to the MSCI World benchmark is displayed in Exhibit 1. The annualized active returns of the Tilt and Momentum strategies were 1.1% and 2.2%, respectively. The Momentum strategy performed consistently well through the sample period (which starts one year later⁴), while the Tilt strategy saw roughly two-thirds of its outperformance come in the last two years of the eight-year sample period.

⁴ The sample period is shorter due to the 12-month lag needed to construct the signal.

Exhibit 1: ESG Tilt and Momentum Strategy Active Performance vs. MSCI World Index



As Exhibit 2 shows, both strategies also achieved on average an improvement in the ESG score of the portfolio. The ESG Tilt strategy (which was specifically designed to attain high scores) realized an improvement of 4 on a scale of 0 to 10. The ESG Momentum strategy also raised the ESG score of the resulting portfolio, by 1.7 points.

Exhibit 2: ESG Tilt and Momentum Strategies Raised ESG Scores

	ESG Tilt	ESG Momentum
Average benchmark score	5.8	5.7
Average portfolio score	9.8	7.4
Improvement in score	4.0	1.7

Time series average of ESG scores for the two portfolios over the corresponding sample period. Portfolio score is calculated as the weighted average ESG score of portfolio holdings

Apart from constructing their own ESG Tilt strategy using MSCI’s risk models, ESG data and optimizer, investors can also use MSCI’s suite of ESG Indexes to help gain systematic global exposure to higher ESG-rated companies. These indexes are members of the MSCI Global

Sustainability Index family, a set of capitalization-weighted indexes that overweight companies with high ESG performance relative to their sector peers.

In the following sections, we analyze in more detail the sources of the outperformance of these two strategies.

ESG TILT STRATEGY

The goal of the ESG Tilt strategy is to tilt towards better-rated names (using MSCI ESG Ratings) while minimizing the active risk of the model portfolio. The strategy is implemented in a global setting, using the MSCI World Index as the investment universe and benchmark, and the Barra Global Equity Model (GEM3) for portfolio construction and return and risk attribution. In the portfolio construction process, we impose only mild holding constraints to avoid highly concentrated portfolios but otherwise allow for a relatively large active risk to capture the potential return associated with better ESG ratings. Our sample period runs between February 2007 and March 2015.⁵ The details of the strategies are described in the Appendix 2.

The relatively large active risk limit helps us understand the factor exposures incurred by a portfolio with a tilt towards better rated names, as well as the interplay between ESG and other systematic factors and their combined effect on portfolio behavior.

In Exhibit 3, we show a high-level breakdown of the realized return and risk of the strategy into systematic and stock-specific contributions. Almost 90% of the portfolio's active risk comes from stock-specific sources, and the correlation between the portfolio's active return and the stock-specific contribution is 0.93. The risk coming from systematic sources is minimal.

When looking at returns, the picture is different. The model portfolio delivered a positive active return over the sample period (1.06% per year), but the high proportion of stock-specific risk contribution did not translate into a similarly high return contribution from stock-specific, and consequently possibly ESG-related, sources. The 43 basis point (bp) stock-specific contribution was nearly 40% of the overall outperformance. Style factors added 76 bps to the outperformance, while country and currency tilts resulted in a 19 bps drag on the active performance. Finally, industries made only a minimal contribution to active return. This is not surprising if we consider that the ESG Ratings scores we used already reflect the ESG performance of companies relative to their industry peers, so the proportion of better or worse rated companies in each industry should be similar.

⁵ As we explained in the Executive Summary, we limited our sample period to eight years to have a homogeneous dataset both in terms of asset coverage and methodological consistency.

Exhibit 3: Decomposition of Active Risk and Return of ESG Tilt Strategy

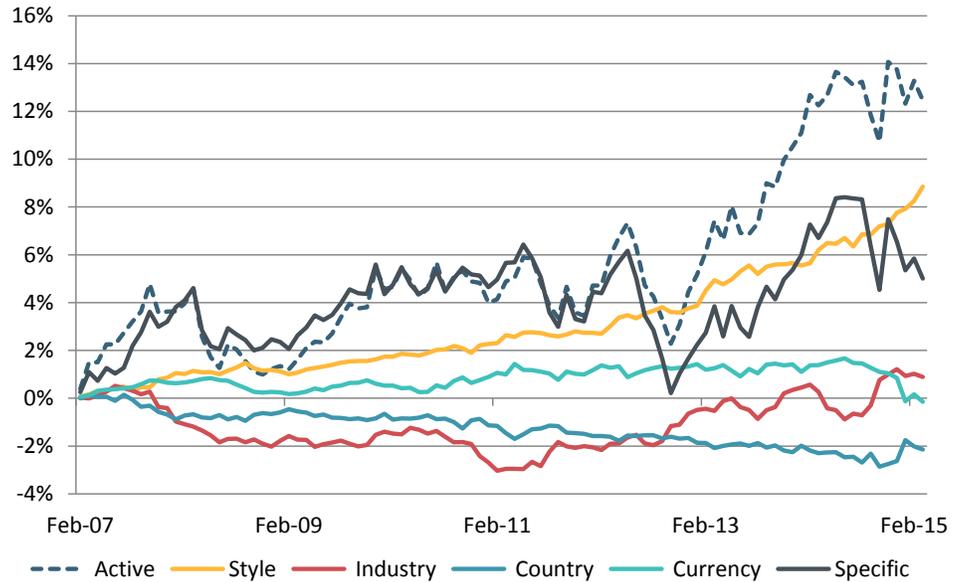
Source of Return	Active Return (%)	Active Risk Contribution (%)
Style	0.76	0.00
Industry	0.08	0.21
Country	-0.18	0.01
Currency	-0.01	0.02
Specific	0.43	2.32
Total Active	1.06	2.55

Annualized figures, February 2007 – March 2015

Exhibit 3 reveals that systematic tilts (styles, countries) can play an important role in the performance of ESG-tilted portfolios. Now, we use the GEM3 model to learn more about their roles in portfolio return.

In Exhibit 4, we plot the active performance of the Tilt strategy relative to the MSCI World Index to gain an insight on how return contributions to portfolio performance might have changed over the sample period. The strategy delivered a 12% outperformance over the last eight years. Overall contributions from systematic risk factors are small in the first part of the sample period; stock-specific contributions drove performance as factor contributions were either negligible or tended to cancel each other out. After 2012, this pattern changed and systematic factors tended to contribute more.

Exhibit 4: Active Performance of ESG Tilt Strategy vs. MSCI World Index



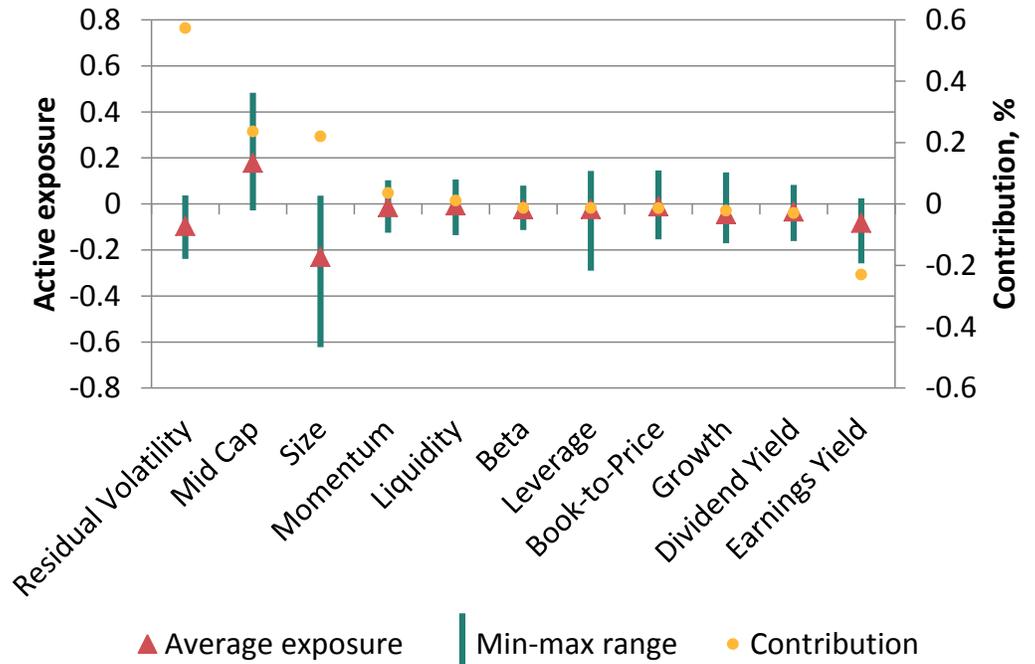
February 2007 – March 2015

The fact that Style showed a quite persistent positive contribution over the whole sample period suggests that there might be stable active factor exposures in the ESG Tilt strategy. We drill down into style contributions, and identify three types of significant factor exposures in Exhibit 5:

- The Residual Volatility factor provided the largest contribution (57 bps annually), due to the small negative exposure to the factor. Better rated stocks, which dominated the strategy, tended to have lower idiosyncratic volatility
- Size and Non-linear Size (Mid-Cap exposure) factors contributed 22 bps and 24 bps, respectively. The small positive exposure to the Mid-Cap factor together with a negative exposure to the Size factor points to a mid-cap tilt in the ESG Tilt portfolio.
- The Earnings Yield factor produced a 23 bps annual drag on performance. The strategy had a small negative exposure (0.08) to this factor.

These results show that a strategic tilt towards higher ESG-rated assets led to a persistent bias in favor of lower idiosyncratic volatility and mid-cap stocks and to a tilt away from value stocks. Furthermore, these tilts correspond to factors which had persistent positive or negative performance over the sample period.

Exhibit 5: Factor Exposures Contribute to ESG-Tilt Strategy Performance



Average active style exposure (left axis) and annualized active contribution (right axis), ESG Tilt strategy, February 2007 – March 2015

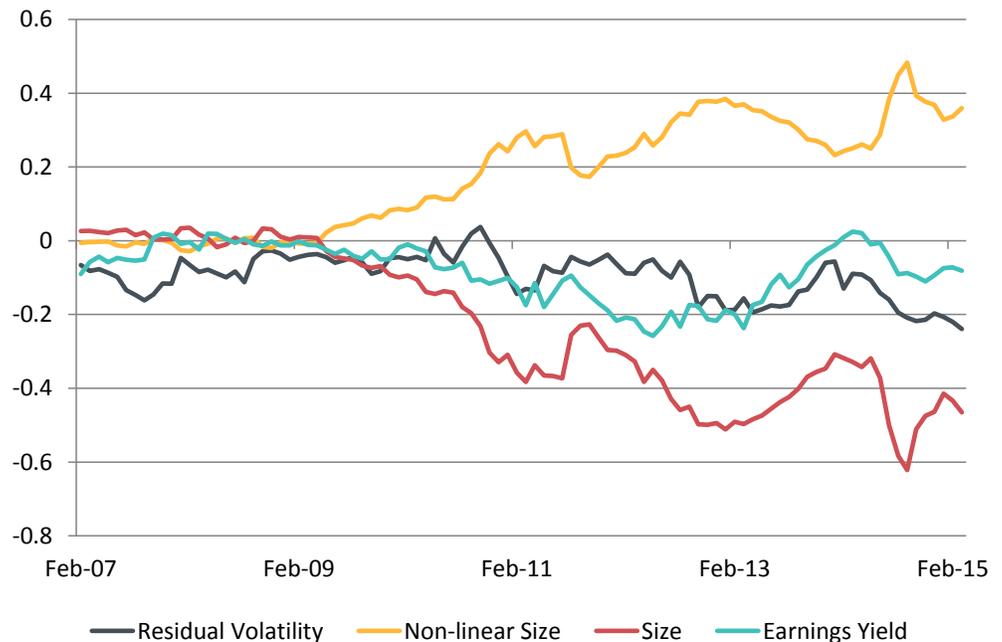
These style factor exposures varied through time, as can be seen in Exhibit 6. The strategy’s exposure to Residual Volatility was quite stable around -0.1. The negative exposure to Earnings Yield moved around more, and was particularly pronounced between 2011 and 2013. The strategy’s exposure to Size-related factors varied by time period: In the first part of the sample period, roughly until mid-2009, the exposure to the Size and Mid-Cap factors was close to zero. After that time, Mid-Cap exposure started to rise and Size exposure started to decrease to reach stable levels around 0.4 and -0.6, respectively. In other words, the smaller stocks in the MSCI World Index tended to have better ratings in this later period.

This effect may have been due to one or more of the following three causes:

- 1) Since 2009, mid-cap companies may have started to follow the larger-cap ESG leaders in paying attention to managing ESG risks, as environmental, social and governance issues gained more traction among the public, policymakers and investors. This trend would have been reflected in improved ratings among companies beyond the largest cap companies.

- 2) The largest companies (mega-cap) have been exposed to more ESG-related controversies and regulatory shifts in recent years which may have weighed on their ratings in this period. The public sentiment post- financial crisis may have put greater regulatory pressure on large corporations, as well attracting greater media attention to ESG-related controversies and regulatory shifts.
- 3) Larger-cap companies have always tended to disclose more ESG information and thus historically have enjoyed higher ratings. However, the MSCI ESG Ratings model explicitly takes account of the size of company exposure to ESG issues, and hence attempts to offset this disclosure bias. This risk exposure estimate component of the ESG Ratings model has steadily improved over time (especially since improvements were accelerated in 2009 with better data inputs enabling more consistent methodology) and may have been more effective in correcting a market-cap bias.

Exhibit 6: Factor Exposures Vary Over Time in ESG Tilt Strategy

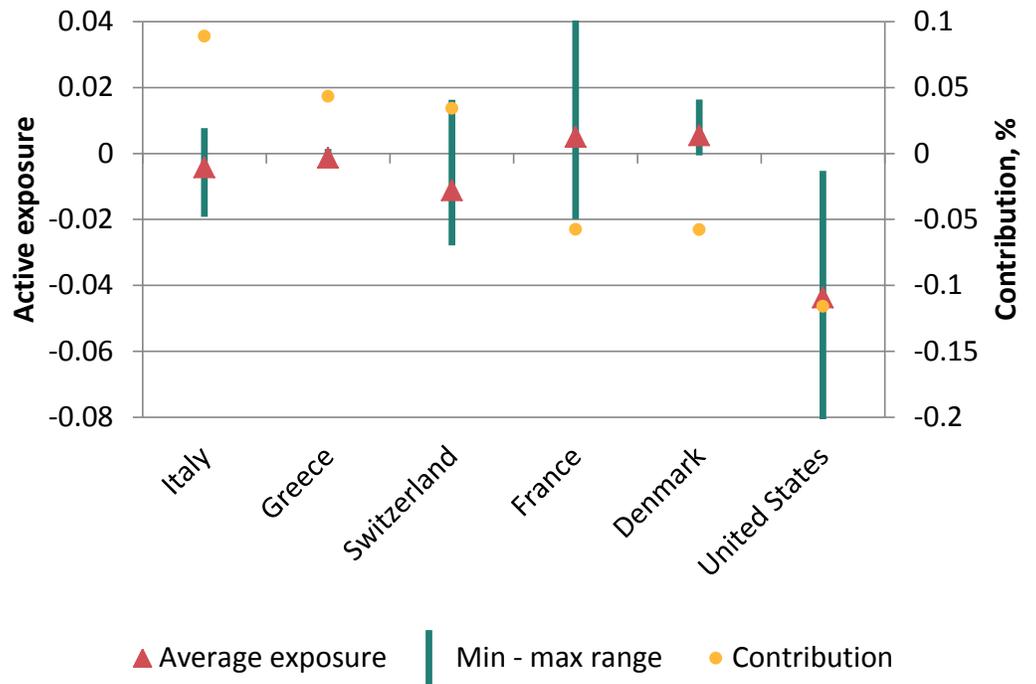


Active exposure of the ESG Tilt model portfolio to select style factors, February 2007 – February 2015

With regard to other factors, industry contributions were small and did not show a clear trend during the sample period. Countries and currencies also contributed a small amount, but in contrast to industries, their contributions were persistent. This data indicate that the

tilt towards higher-rated stocks led to stable country bets as well. A drill-down into country sources of returns reveals a simple picture: A 4% underweight in U.S. stocks (Exhibit 7) — which outperformed the benchmark during the sample period — led to a significant drag on the portfolio’s performance.⁶

Exhibit 7: Active Exposures and Contributions of Countries



Top three and bottom three country contributions (right axis) and average active exposures (left axis), February 2007 – March 2015

ESG MOMENTUM STRATEGY

Instead of tilting the portfolio towards companies with higher ESG ratings, the ESG Momentum strategy aims to overweight companies that increased their rating during the last 12 months. This strategy is more short-term focused than the ESG Tilt strategy. The

⁶ ESG-related regulations in the United States are less stringent than in Europe, so U.S. companies on average have tended to be less attentive to ESG-related issues, resulting in lower ESG ratings and thus possibly lower portfolio weightings.

market could be expected to react to a change in rating in a relatively short time period, while the advantages of a better-rated portfolio are expected to manifest themselves over the longer run.

Besides the difference in the alpha source of the model portfolio, the rest of the constraints and the construction process are the same as for the Tilt portfolio. The sample period, however, is one year shorter, due to the 12-month lag needed to construct the signal.

Over the last seven years, the strategy delivered 2.2 percentage points annually over the benchmark (Exhibit 8). Most of this performance came from stock-specific return (132 bps), but styles and industries also had significant contributions of 72 and 44 bps, respectively.

Similarly to the Tilt strategy, most of the active risk in the Momentum strategy came from stock-specific sources (although stock-specific risk is not as dominant), with Industry active risk a distant second. Overall, most of the portfolio’s risk and return came from picking the right stocks, but factor tilts also played a role.

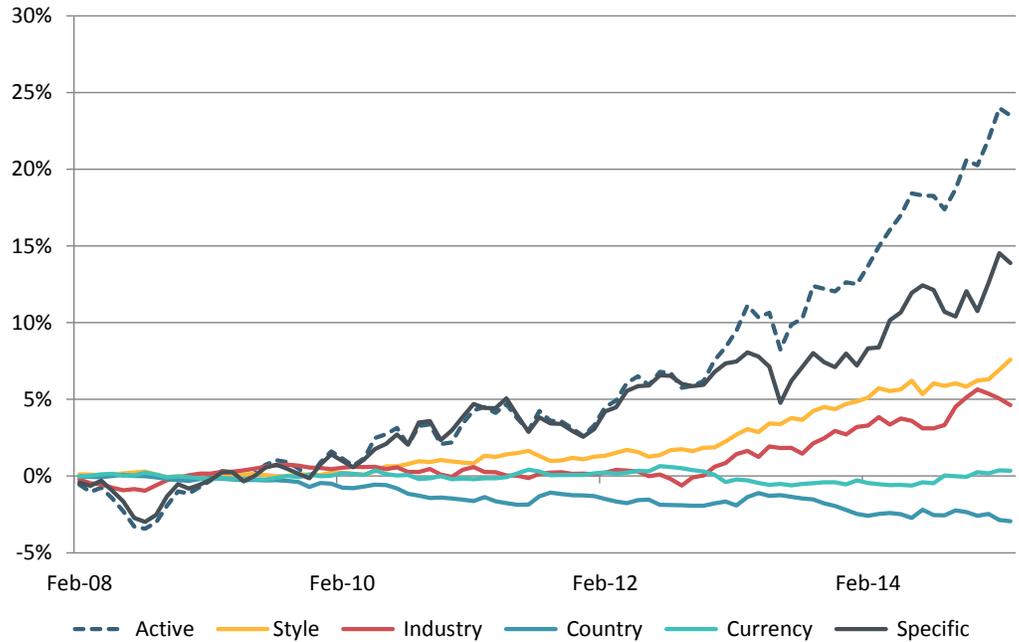
Exhibit 8: Active Return and Risk of ESG Momentum Strategy

Source of Return	Active Return (%)	Active Risk Contribution (%)
Style	0.72	0.08
Industry	0.44	0.35
Country	-0.28	0.14
Currency	0.03	-0.05
Specific	1.32	2.07
Total Active	2.23	2.59

Decomposition of the active return and risk of the ESG Momentum portfolio, annualized figures, Feb 2007 – Mar 2015

When we look at the contributions of different factors over time, we find that stock-specific returns were almost entirely responsible for the performance of the portfolio in the early part of the sample period (Exhibit 9). From 2013, however, systematic bets also started to play a significant role, especially industries, whose contribution was almost flat before 2012. Similar to the Tilt strategy, styles also made a persistent contribution throughout the whole sample.

Exhibit 9: Factor Contribution to ESG Momentum Strategy Over Time

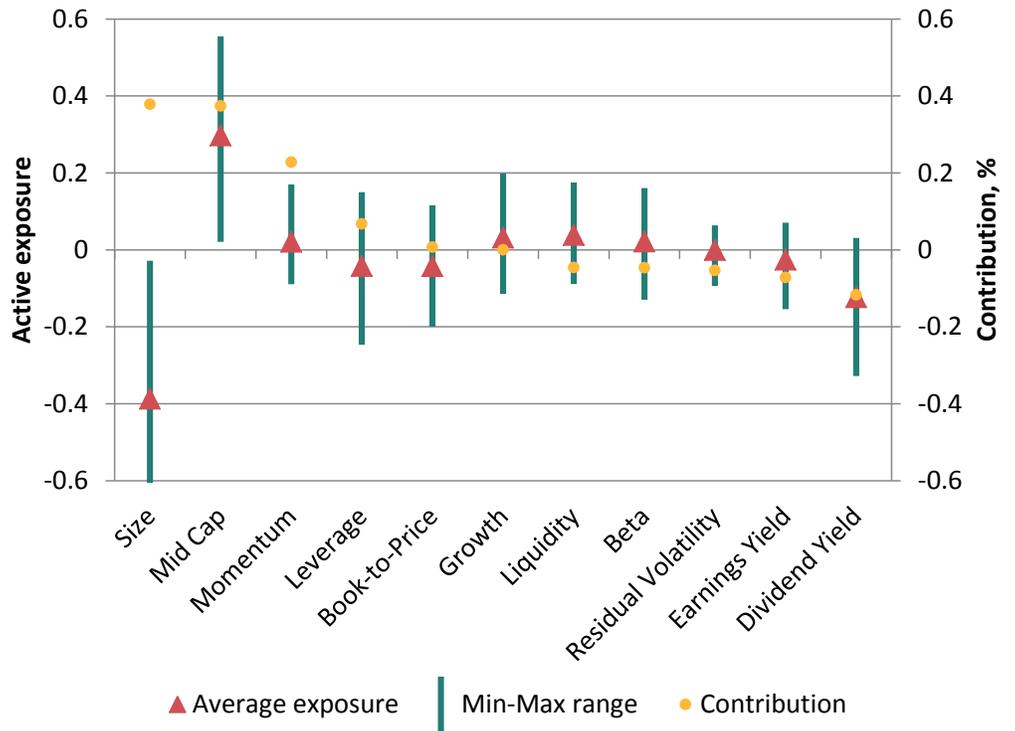


Active performance of the ESG Momentum strategy relative to the MSCI World Index, February 2008 – March 2015

The largest contributions to performance came from Size related and Momentum tilts, as can be seen in Exhibit 10. The positive tilt to the Mid-Cap and negative tilt to the Size factor again point to an overweight of mid-cap stocks in the portfolio. As Exhibit 11 shows, the exposure to the Momentum factor varied over time, but after 2012 was mostly positive (albeit small). This period coincided with the time when the Momentum factor delivered a 5% annualized return, hence its noticeable contribution.

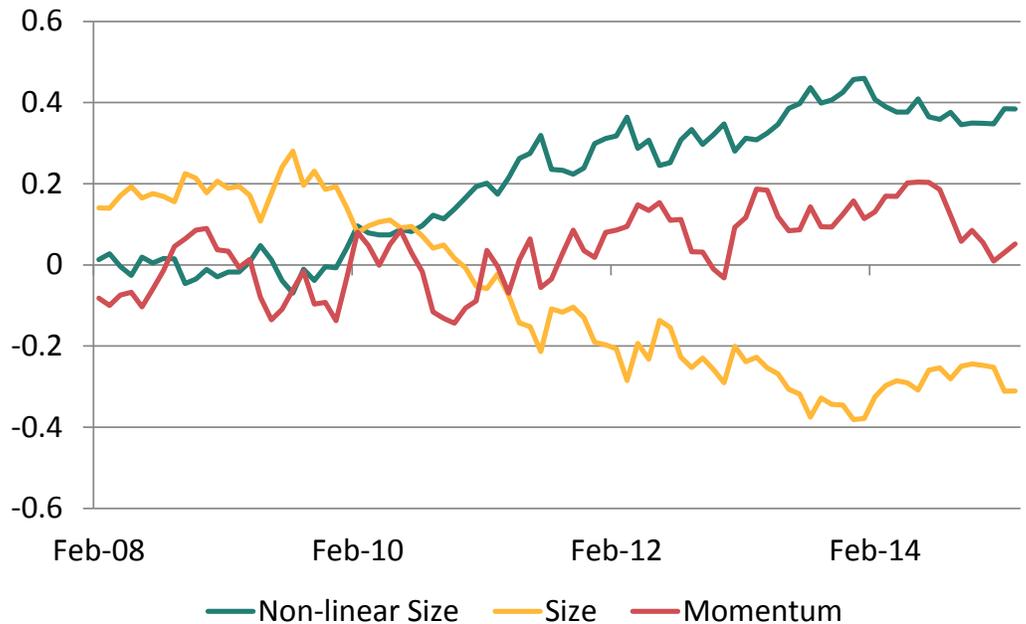
Without exaggerating the strength of this relationship, these findings mean that stocks which increased their ESG rating over the last 12 months also tended to perform well over the last (overlapping) 12-18 month period. So the strategy also captured some of the positive performance associated with the Momentum factor, especially over the past four years. Exposures to other style factors were on average small, thus showing that increasing ESG rating was not strongly associated with the beta, volatility or valuation of the stock.

Exhibit 10: Factor Exposures Contribute to ESG Momentum Strategy



Average active style exposure (left axis) and annualized active contribution (right axis), ESG Momentum strategy, February 2008 – March 2015

Exhibit 11: Factor Exposures Vary Over Time in ESG Momentum Strategy

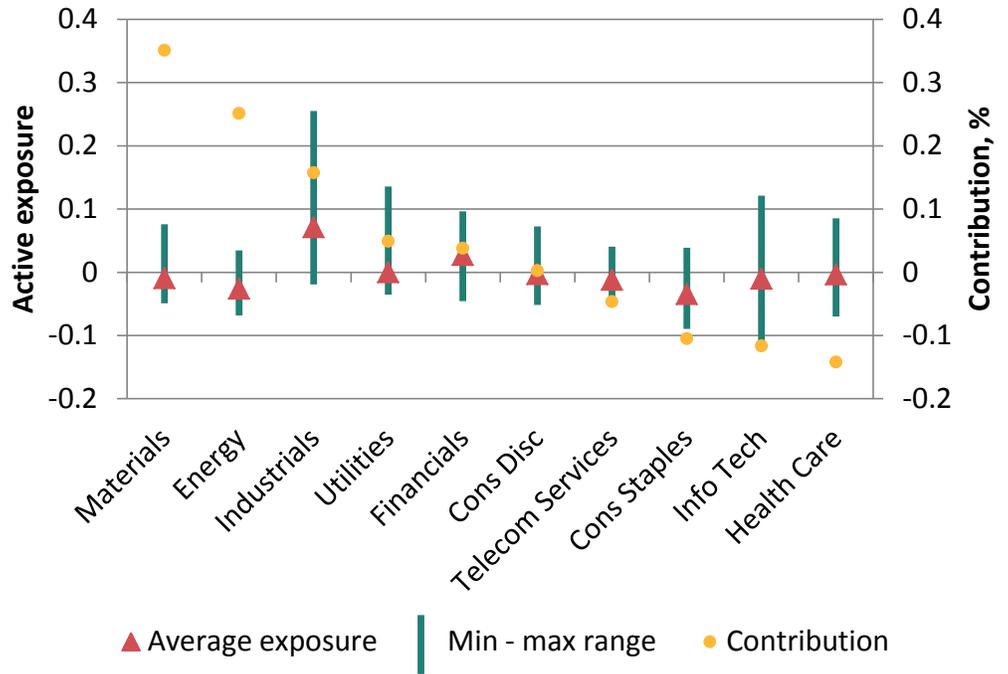


Active exposure of the ESG Momentum portfolio to select style factors, February 2008 – March 2015

In Exhibit 12, we look at industry contributions, grouped into GICS® sectors.⁷ The average active sector exposures were relatively small, but sometimes varied substantially over the sample period. The largest contributions came from the Energy and Materials sectors. Within the Energy sector, all industry factors experienced negative performance over the sample period; the ESG Momentum strategy had a significant underweight, especially in the Oil Gas and Consumable Fuels industry containing the large oil conglomerates, which were disproportionately downgraded over this period. The combination of industry underperformance and the underweight led to a positive contribution to performance. Similarly, an underweight of the Materials sector, especially in the Steel, and Aluminum and Diversified Metals industries, was coupled with the underperformance of the industries due to slowing global demand for these materials.

⁷ GICS is the global industry classification standard jointly developed by MSCI and Standard & Poor’s.

Exhibit 12: Sector Exposures for ESG Momentum Strategy



Industry contributions grouped by GICS sectors (right axis) and average active exposures (left axis), February 2008 – March 2015

CONCLUSION

Do institutional investors sacrifice risk-adjusted returns by incorporating ESG considerations? In this paper, we analyzed two relatively high tracking error global strategies constructed using ESG data. The Tilt strategy used an alpha signal that was proportional to the current ESG score, whereas the Momentum strategy's signal was proportional to the change in the ESG score.

Both global model portfolios outperformed the MSCI World Index over the sample period while also increasing their ESG profile. When looking at the sources of outperformance, we found that in both cases a significant portion came from stock-specific sources which could indirectly be attributed to the ESG signals. This observation was clearest with the Momentum strategy.

At the same time, systematic contributions were also significant and revealed interesting patterns. Both model portfolios incurred an increasing tilt towards mid-cap stocks since the end of 2011, which contributed to the portfolios' outperformance. Furthermore, on average, the ESG Tilt portfolio also experienced a persistent tilt towards lower volatility stocks (and away from value stocks), and the ESG Momentum portfolio towards stocks with positive price momentum. Furthermore, for the ESG Tilt portfolio, a persistent underweight in U.S. stocks detracted from performance during the sample period.

These results are important for a number of reasons:

- 1) They show that it is possible to employ systematic strategies that both improve ESG ratings and outperform a global benchmark;
- 2) The strategies we explore have tended to derive most of their active risk from specific (non-systematic) sources; but
- 3) Their active return has come from both specific and systematic sources, including systematic style tilts.

These backtested model portfolios show an example of how institutional investors with the tolerance to take some active risk, while at the same time looking to improve the ESG profile of their portfolios on a systematic basis, could incorporate such strategies in their investment processes.

APPENDIX 1: MSCI ESG RATINGS PROCESS OVERVIEW

DATA SOURCES

To assess companies' exposure to and management of ESG risks and opportunities, we collect data from the following sources:

- Macro data at segment or geographic level from academic, government, NGO datasets
- Company disclosure (10-K, sustainability report, proxy report, AGM results, etc.)
- Government databases, 1600+ media, NGO, other stakeholder sources

Companies are invited to participate in a formal data verification process.

MONITORING AND QUALITY REVIEW

Companies are monitored on a systematic and ongoing basis, including daily monitoring of controversies and governance events. New information is reflected in reports on a weekly basis and significant changes to scores trigger analyst review and re-rating. Companies receive an in-depth review at least annually.

Formal in-depth quality review processes take place at each stage of analysis, including automated and quality checks of data and rating publication; industry and market led oversight of ratings and reports; Methodology Committee approval of any exceptions, truncations, or major (2+) rating changes; and a Ratings Review Committee to review contentious cases.

RISK EXPOSURE AND RISK MANAGEMENT ANALYSIS

MSCI ESG Ratings calculate each company's exposure to key ESG risks based on a granular breakdown of a company's business: its core product or business segments, the locations of its assets or revenues, and other relevant measures such as outsourced production.

The analysis then takes into account the extent to which a company has developed robust strategies and demonstrated a strong track record of performance in managing its specific level of risks or opportunities. Ongoing or structural controversies occurring within the last three years lead to a deduction from the overall management score on each issue.

KEY ISSUE SCORES AND WEIGHTS

MSCI ESG Ratings identify six to ten key ESG issues where companies in that industry currently generate large environmental or social externalities; these are issues where some companies may be forced to internalize unanticipated costs associated with those externalities in the future. Corporate Governance is assessed for all companies.

Weights are set at the GICS Sub-Industry level (8-digit) based on each industry’s relative impact and the time horizon associated with each risk. Key issues and weights undergo a formal review and feedback process at the end of each calendar year.

Company-specific exceptions are allowed, subject to committee approval, for companies with diversified business models, facing controversies, or based on industry rules.

Exhibit 13: MSCI ESG Key Issue Hierarchy

3 Pillars	10 Themes	37 ESG Key Issues	
Environment	Climate Change	Carbon Emissions* Energy Efficiency Product Carbon Footprint	Financing Environmental Impact Climate Change Vulnerability
	Natural Resources	Water Stress* Biodiversity & Land Use	Raw Material Sourcing
	Pollution & Waste	Toxic Emissions & Waste* Packaging Material & Waste	Electronic Waste
	Environmental Opportunities	Opportunities in Clean Tech Opportunities in Green Building	Opp’s in Renewable Energy
Social	Human Capital	Labor Management* Health & Safety*	Human Capital Development Supply Chain Labor Standards
	Product Liability	Product Safety & Quality Chemical Safety Financial Product Safety	Privacy & Data Security Responsible Investment Health & Demographic Risk
	Stakeholder Opposition	Controversial Sourcing	
	Social Opportunities	Access to Communications Access to Finance	Access to Health Care Opp’s in Nutrition & Health
Governance	Corporate Governance*	Board** Pay**	Ownership** Accounting**
	Corporate Behavior	Business Ethics* Anti-Competitive Practices*	Corruption & Instability Financial System Instability

* indicates “universal” issues assessed for all companies in MSCI World

** Board, Pay, Ownership, and Accounting carry weight in the ESG Rating model for all companies. Currently, they contribute to the Corporate Governance score directly and 0-10 sub-scores are not available.

ESG RATINGS

To arrive at a final letter rating, the weighted averages of the Key Issue Scores are aggregated and companies’ scores are normalized by their industries. After any overrides are factored in, each company’s Final Industry-Adjusted Score corresponds to a rating between best (AAA) and worst (CCC). These assessments of company performance are not absolute but are explicitly intended to be relative to the standards and performance of a company’s industry peers.

APPENDIX 2: ESG TILT STRATEGY CONSTRAINTS

Strategy element	Setting
Benchmark and universe	MSCI World
Risk Model	GEM3S
Tracking error bound	2.50%
Alpha	Standardized IVA score (Tilt)
	Standardized 12m change in IVA score (Momentum)
Rebalancing	Monthly
Turnover limit	8%
Country tilt bounds	+/-5% to benchmark
Style, Industry tilt bounds	none
Holding bounds	max. 5% weight
	+/- 2% to benchmark weight
Sample period	Feb 2007 - Mar 2015 (Tilt)
	Feb 2008 - Mar 2015 (Momentum)

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