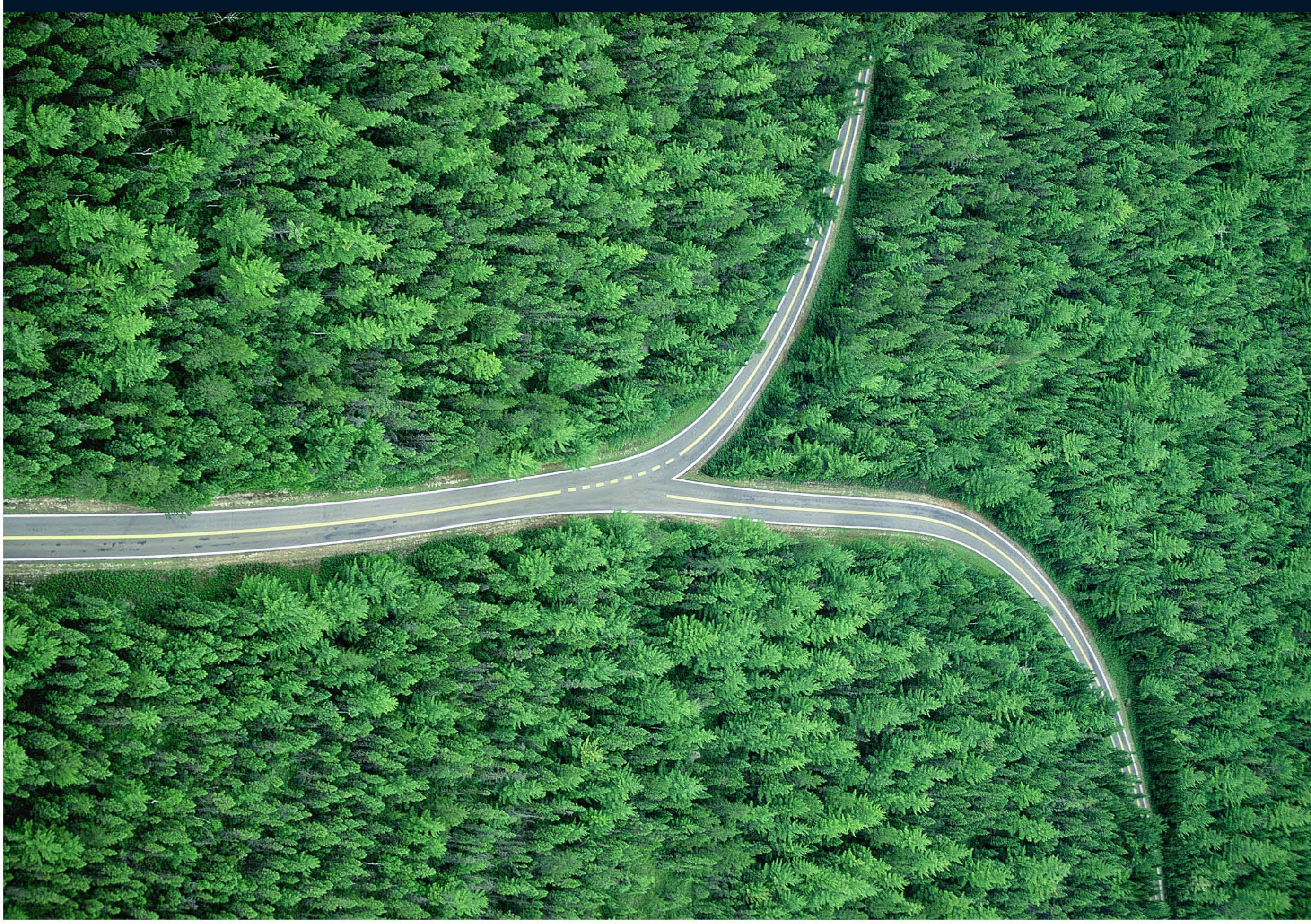
RESEARCH INSIGHT

How ESG Risk Management Can Impact Security Risk

Stronger ESG risk management may contribute to lower stock-specific risk

April 2023



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Contents

Executive summary

Following extensive research on the relationship between companies' overall ESG ratings and financial performance,[1] which has generally shown an improvement in risk-adjusted returns for companies with higher ESG ratings, we assess how much of this may have been due to the company's *management* of its key ESG risks and opportunities, rather than just its *exposure* to them. Due, that is, not to what the ESG issues were, but to how individual companies dealt with them.

Overall, we found that companies with higher environmental and social (E and S) key-issue risk management scores, and consequently higher MSCI ESG Ratings, than their peer groups had lower stock-specific risk than their peer groups over the past five years. This is in line with MSCI's previous research that found that companies with higher MSCI ESG Ratings had better performance using the three main transmission channels: cash flow and valuation, idiosyncratic risk and systematic risk.[2]

Company-level ESG risk management

To assess companies' management of their ESG risks and opportunities, we separated out MSCI ESG Ratings into two components — risk-exposure and risk management scores. The risk-exposure score reflects how much a company's ESG risk is due to mainly external factors, such as location or industry, over which the company's management itself may have little direct influence. By contrast, the risk management score reflects how each company's management tackles these financially material environmental and social key issues, based on its related company policies, performance and practices.

For example, if a company in an industry with high water consumption, such as beverages, is also located in a water-stressed region, does it have water-consumption reduction targets, executive oversight of this issue and a good track record of reducing the water intensity of its operations?

Higher ESG risk management has been reflected in lower stock-specific risk.

We assessed the company-level E and S key-issue risk management scores against a company's idiosyncratic, or stock-specific, risk using the Barra factor model to illustrate whether higher ESG risk management contributed to lower financial risk (through lower stock-price volatility). We found that constituents of the MSCI ACWI Index with lower E and S risk management had higher stock-specific risk than their peer groups over our analysis period from 2017 through 2022, with a consistent relationship throughout.[3]

While this is only one aspect of the total ESG risk profile, with a company's ESG risk exposure and more systematic risks potentially being reflected more fully through other channels,[4] this analysis indicates that how a company itself manages its financially material ESG risks and opportunities may make an important contribution to an individual company's financial risk.

[1] Ulrich Atz, Tracy Van Holt, Zongyuan Liu, and Christopher Bruno. "Does Sustainability Generate Better Financial Performance? Review, Meta-analysis, and Propositions." *Journal of Sustainable Finance and Investment* 13 (1).
[2] Guido Giese, Zoltan Nagy, and Linda-Eling Lee. "Deconstructing ESG Ratings Performance: Risk and Return for E, S And G by Time Horizon, Sector and Weighting." MSCI Research Insight, March 30, 2021.
[3] The 2017-2022 time period was used to ensure a consistent key issue methodology was applied to calculate the E and S risk management and risk exposure scores.
[4] Guido Giese, Zoltan Nagy, and Linda-Eling Lee. "Which ESG Issues Mattered Most? Defining Event and Erosion Risks." MSCI Research Insight, June 22, 2020.

Introduction

The use of environmental, social and governance metrics to assess financially material risks and opportunities in addition to more conventional financial analysis has become well-established in investment management and company valuation.[5] MSCI has published extensive research on how ESG risks and opportunities have been translated into companies' financial and portfolio performance through three main transmission channels: (1) cash flows, (2) idiosyncratic risk and (3) systematic risk.[6] This can then be shown to have translated into better risk-adjusted returns over the long term, using the MSCI ESG Ratings model.

These analyses of the relationship between ESG assessments and financial performance have either focused on the top-level MSCI ESG Rating, which includes all aspects of a company's financially material ESG risk profile, or has looked at the individual environmental, social and governance pillars or key issues to determine which of these was the most important for a company's long-term performance and risk profile.[7]

An alternative way to consider how ESG metrics relate to financial risk and performance is to break them down into two components:

- First, the company's *exposure* to financially material environmental, social and governance risks and opportunities that are largely externally driven. These are analogous to fundamental factor models, which define a set of factors, such as market, country, industry and style.
- Second, the company's *management* of these ESG risks and opportunities at an individual level, including whether the company's management has appropriate mechanisms in place to identify, mitigate or benefit from these ESG issues.

ESG risk management versus risk exposure

To capture these two elements of a company's environmental and social profile, a key feature of MSCI ESG Ratings is that they assess the E and S key issues with two different, and very distinct, scores — the risk exposure and risk management.

- The risk-exposure score for each E and S key issue is designed to assess which industry, geographic or other ESG-related risks or opportunities each company faces on that particular E and S key issue, be it "climate change vulnerability," "labor management" or "toxic emissions and waste." Conceptually, it measures the external risk that the company faces by virtue of the business lines and geographies of its chosen market(s).
- The risk management score for each E and S key issue is designed to assess how the company itself is managing the ESG-related risks or opportunities that it faces, such as company initiatives and management to promote energy efficiency for the "carbon emissions" key issue. This allows the MSCI ESG Ratings model to adjust the strength of management systems required to achieve a given key-issue score: Companies facing higher risk exposure must have stronger management practices in place to mitigate their risks.

[5] Ulrich Atz, et al. "Does Sustainability Generate Better Financial Performance? Review, Meta-analysis, and Propositions."
[6] See "Foundations of ESG Investing" on msci.com.
[7] Guido Giese, et al. "Deconstructing ESG Ratings Performance: Risk and Return for E, S And G by Time Horizon, Sector and Weighting."

Importantly, these are assessed for the 157 Global Industry Classification Standard (GICS®)[8] sub-industries only if they are determined to be financially significant for the specific industry. That is, not all E and S issues are considered important for a company's financial performance, and those that are not deemed significant do not carry a weight in a company's rating (see page 11 for a more detailed explanation on how E and S risk exposure and management are assessed).

To assess a company's overall E and S risk management and risk exposure on all of its financially significant key issues, we combined each environmental and social key issue's risk management and risk exposure scores into a new aggregate E and S risk management and risk-exposure score, based on their industry and company-specific weighting (outlined in the Appendix).

How ESG risk management may translate into financial risk

The process of splitting out the E and S risk management elements from the total ESG score gives investors an indication of how much of the overall E and S risks and opportunities of a company are determined by external and often longer-term issues, such as the company being in a higher-E and -S risk sector, business line or country, and how much they are determined by the specific attributes of an individual company.

We therefore wanted to test whether a company's E and S risk management translated into higher or lower risk at a security level. Based on MSCI's Foundations of ESG Investing papers,[9] we found that companies with higher MSCI ESG Ratings than the companies' peer groups had above-average performance on overall ESG-related risk control, including elements such as compliance standards across the companies, human capital and environmental management and evidence of benefiting from and capitalizing on ESG-related opportunities.

We also found that companies with higher MSCI ESG Ratings than their peer groups suffered less frequently from severe incidents such as fraud or litigation cases that can seriously impact the value of a company and therefore a company's stock price, leading to lower idiosyncratic risk.

Building on these results, we analyzed how the E and S risk management scores and the governance-pillar score, rather than the overall MSCI ESG Ratings score, can be assessed against idiosyncratic, or stock-specific, risk.

We grouped constituents of the MSCI ACWI Index in quintile portfolios according to their E and S risk management scores, with companies with low risk management scores in the bottom quintile (Q1) and companies with high risk management scores in the top quintile (Q5).[10] Our data starts with January 2017 and spans to September 2022. We apply equal weights inside quintiles.

To understand if E and S risk management was linked to stock-specific risk, we used two measures of specific risk. The first is measured by the residual capital asset pricing model (CAPM) volatility and the second by specific risk as defined by the MSCI Barra Global Equity Model (GEMLT). This model contains the global equity market factor (as part of the CAPM equation), as well as currency, country, industry and style factors as systematic risk factors.

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[8] GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence.
[9] See "Foundations of ESG Investing" section of msci.com.
[10] We observed that E and S risk management and risk exposure scores exhibited size bias during the study period, and we applied size adjustment to E and S risk-exposure and risk management scores to remove this bias.

Over the five-year period, we observed that companies with higher E and S risk management scores had lower specific risk, as measured through residual CAPM volatility, as well as lower GEMLT-specific risk, indicating that, overall, there was lower idiosyncratic risk for these companies.

Examining the results for all quintiles over the entire period from January 2017 to September 2022 shows that the relationship between E and S risk management and stock-specific risk showed a consistent long-term trend.

To establish the strength of the relationship between E and S risk management and stock-specific risk, we ran a cross-sectional regression analysis, which showed that the relationship was significant throughout the 2017-2022 period (p-value ~0.0).

Exhibit 1: E and S risk management scores vs. residual CAPM volatility

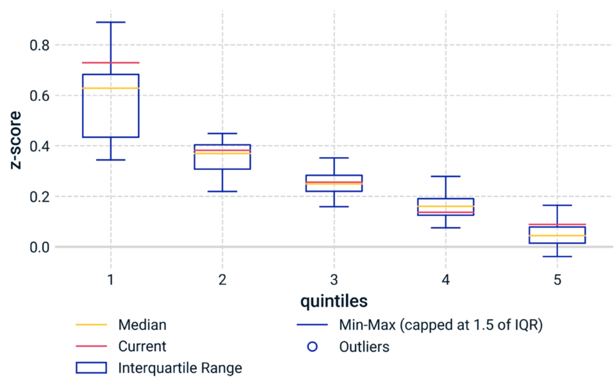
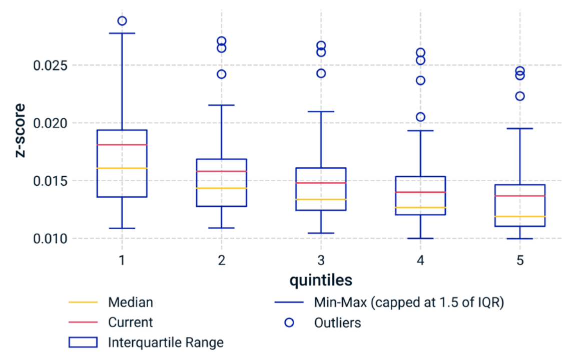
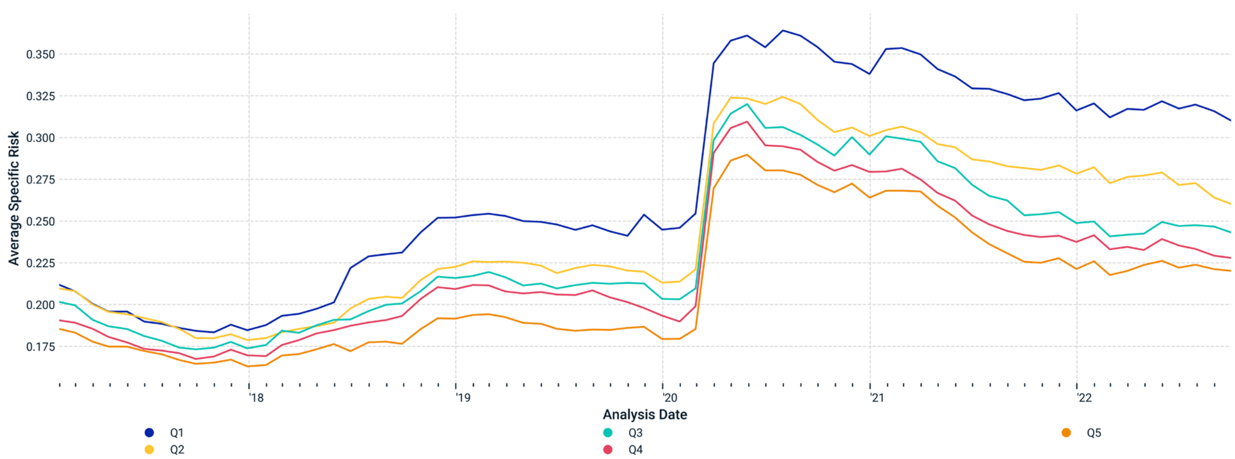


Exhibit 2: E and S risk management scores vs. GEMLT-specific risk



Residual CAPM volatility (z-score) is defined as the volatility of the residual returns from the CAPM regression used in calculating historical beta. GEMLT specific risk is specific risk as defined by GEMLT. IQR = interquartile range. Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

Exhibit 3: E and S risk management scores vs. GEMLT-specific risk



The pronounced rise in overall market risk in March 2020 was due to the significant volatility in the global equity market at the outbreak of the COVID-19 epidemic and can be seen across all the Barra Global Equity Model risk factors, not just specific risk. Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

Exhibit 4: E and S risk management scores vs. GEMLT-specific risk, cross-sectional regression

Intercept	Beta coefficient	Adjusted R^2
0.23**	-0.02**	7%

Stars indicate statistical significance of estimated parameters, with two stars representing 5% significance level. Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

The governance-pillar score

The second element of ESG risk management at an individual company can be seen through the governance-pillar score, which is applied to all companies in all sectors, although there are different weightings depending on sub-industry.

In line with the E and S risk management score, the governance-pillar score is intended to reflect the quality, consistency and resilience of the company management's policies and practices, although in this case, mainly at the board level. In addition, the governance-pillar score is mostly driven by individual company metrics, such as board composition and accounting practices, although there are also external, more systematic, features that contribute to the assessment, such as the legal and regulations around corporate governance in the company's county of domicile.

Similar to E and S risk management scores, we found a significant relationship between governance-pillar scores and stock-specific risk (both residual CAPM and GEMLT-specific risk, as shown in Exhibit 5) that was consistent throughout the entire five-year period. This result is in line with the findings from our previous research.[11]

Exhibit 5: Governance-pillar scores vs. residual CAPM volatility

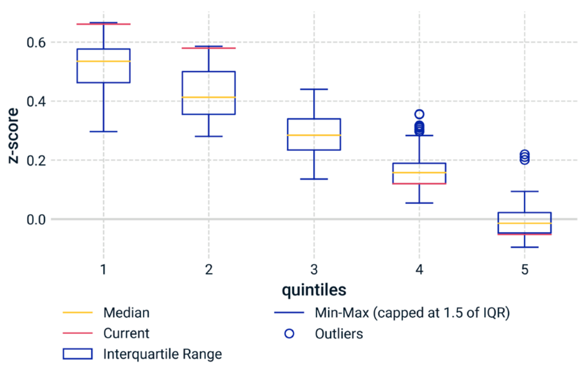
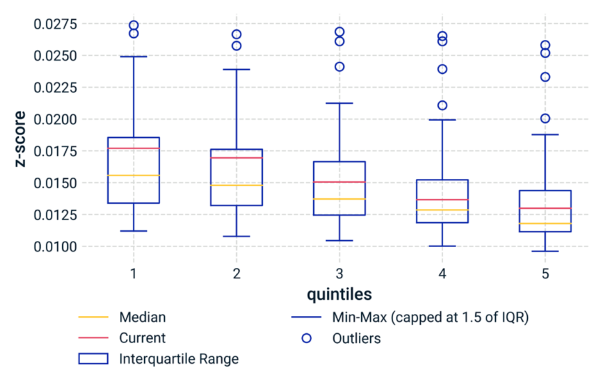


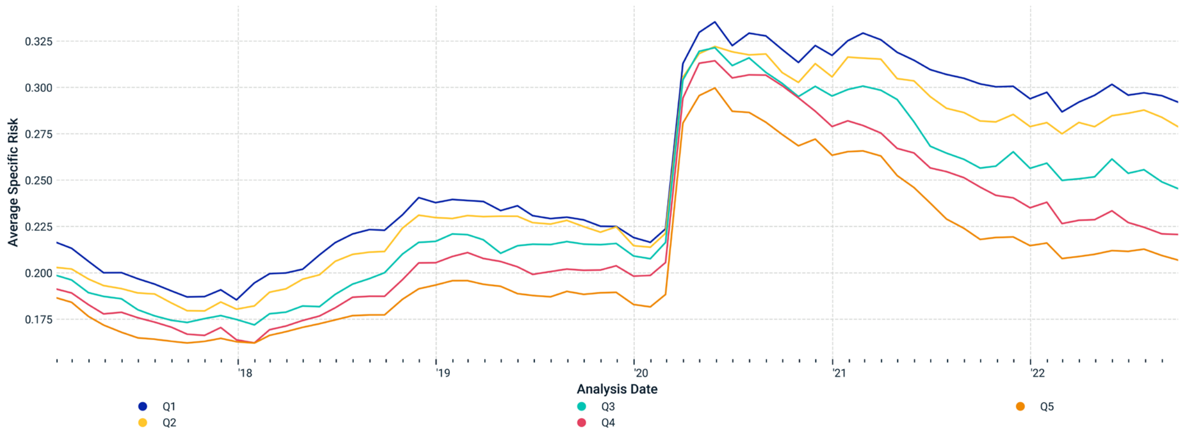
Exhibit 6: Governance-pillar scores vs. GEMLT-specific risk



Residual CAPM volatility (z-score) here is defined as the volatility of the residual returns from the CAPM regression used in calculating historical beta. GEMLT-specific risk is specific risk as defined by GEMLT. IQR – interquartile range. Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

[11] Guido Giese, et al. "Deconstructing ESG Ratings Performance: Risk and Return for E, S And G by Time Horizon, Sector and Weighting."

Exhibit 7: Governance scores vs. GEMLT-specific risk



Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research.

Exhibit 8: Governance-pillar scores vs. GEMLT-specific risk, cross-sectional regression results

Intercept	Beta coefficient	Adjusted R^2
0.23**	-0.02**	5%

Stars indicate statistical significance of estimated parameters, with two stars representing 5% significance level.

Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

ESG Ratings and stock-specific risk

With two components of a company's MSCI ESG Rating, E and S risk management and governance, closely related to stock-specific risk, we would expect to find a significant relationship with ESG Ratings as well. As illustrated below, did see a relationship between ESG Ratings scores (which underlie the ESG letter rating — see Exhibit 14) and stock-specific risk based on quintile analysis, with this showing a consistent trend over the entire five-year period, as well as being significant based on the regression analysis. This is in line with our previous findings that companies with higher ESG Ratings had lower idiosyncratic risk overall.[12]

[12] Guido Giese, Linda-Eling Lee, Dimitris Melas, Zoltan Nagy, and Laura Nishikawa. "Foundations of ESG Investing Part 1: How ESG Affects Equity Valuation, Risk and Performance." MSCI Research Insight. November 2017.

Exhibit 9: ESG Ratings scores vs. residual CAPM volatility

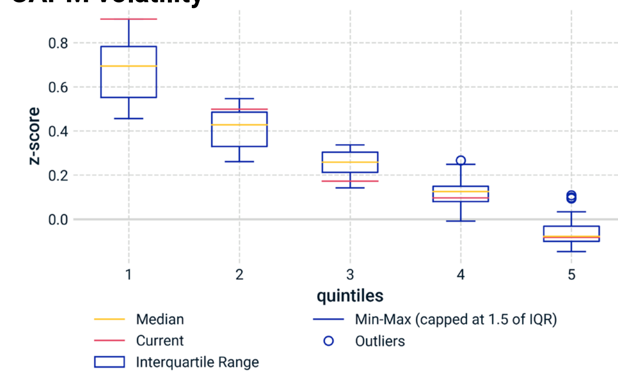
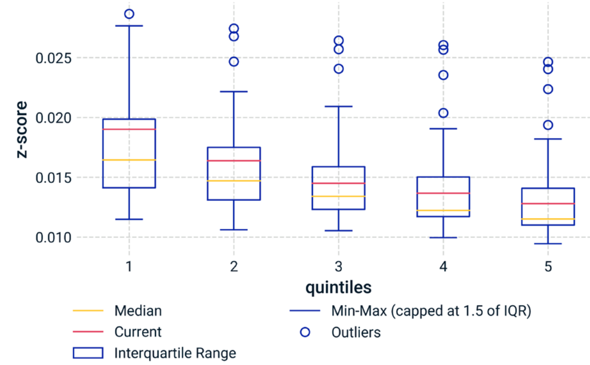


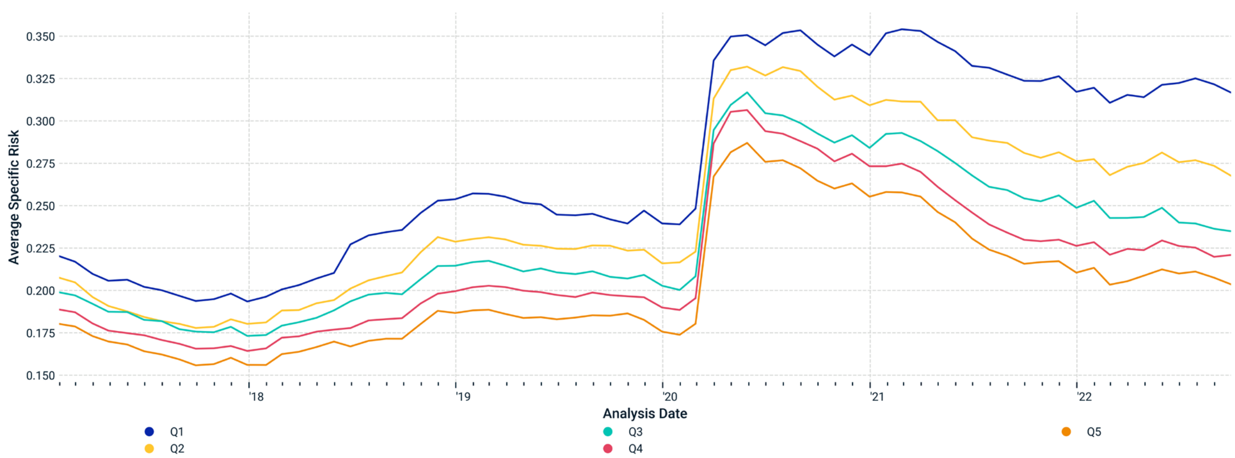
Exhibit 10: ESG Ratings scores vs. GEMLT-specific risk



Residual CAPM volatility (z-score) here is defined as the volatility of the residual returns from the CAPM regression used in calculating historical beta. GEMLT-specific risk is specific risk as defined by GEMLT.

Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

Exhibit 11: ESG Ratings score versus GEMLT-specific risk



Data from Jan. 31, 2017, to Sept 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

Exhibit 12: ESG Ratings scores vs. GEMLT-specific risk, cross-sectional regression results

Intercept	Beta coefficient	Adjusted R^2
0.23**	-0.01**	11%

Stars indicate statistical significance of estimated parameters, with two stars representing 5% significance level.

Data from Jan. 31, 2017, to Sept. 30, 2022, using constituents of the MSCI ACWI Index. Source: MSCI ESG Research

ESG risk management, risk exposure and ratings

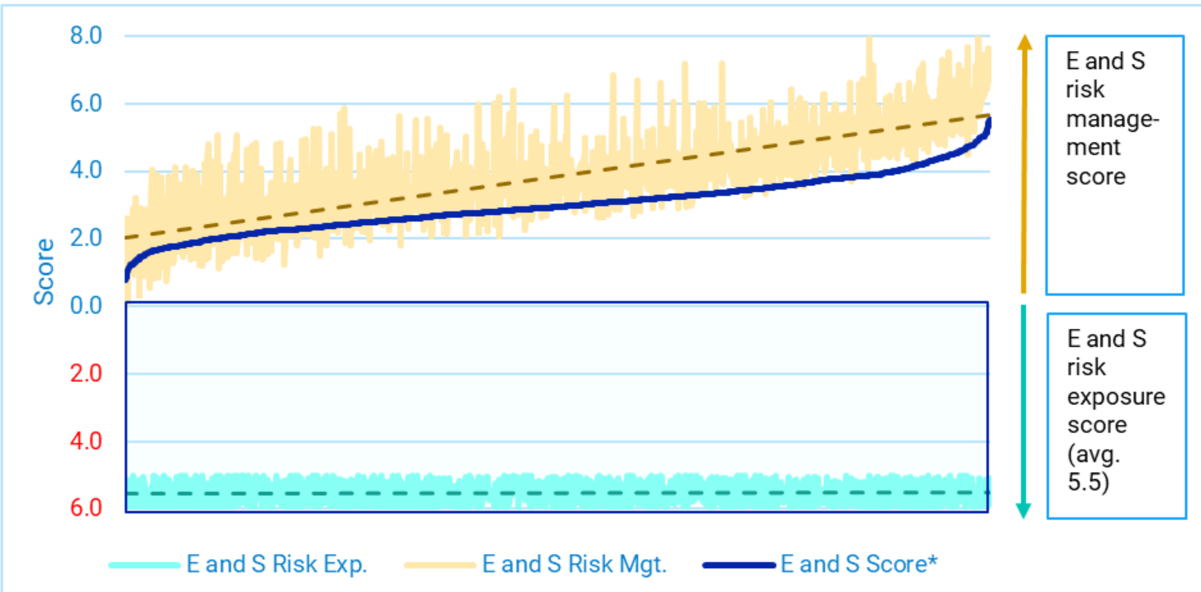
As described above, a key feature of MSCI ESG Ratings is that they assess the E and S key issues with a risk exposure score and the risk management score for each key issue. In order to assess these two elements for a company overall, rather than on each key issue, we calculated a new aggregate weighted-average risk-exposure and risk management score for each company from the individual environmental and social key-issue risk-exposure and risk management scores.

How ESG risk management offset ESG risk exposure

Looking at how these two E and S key-issue scores feed into the total company ESG score in the MSCI ESG Ratings model, the first consideration is the extent of a company's risk exposure to its E and S key issues in terms of industry, geography or other factors. This E and S risk-exposure score is then compared to the company's E and S risk management score, with higher risk exposure requiring higher levels of risk management to reach a higher total E and S score.

The difference this has made for companies with the same level of E and S risk exposure is illustrated in Exhibit 13, which shows constituents of the MSCI ACWI Investable Market Index (IMI) with an E and S key-issue risk-exposure score between 5 and 6 (average 5.5) out of 10. The E and S key-issue risk management scores for this group range from 0.1 to 8.4, leading to a difference in the total E and S score from 0.8 to 5.5.

Exhibit 13: E and S key-issue risk-exposure scores vs. E and S key-issue risk management scores and total E and S scores

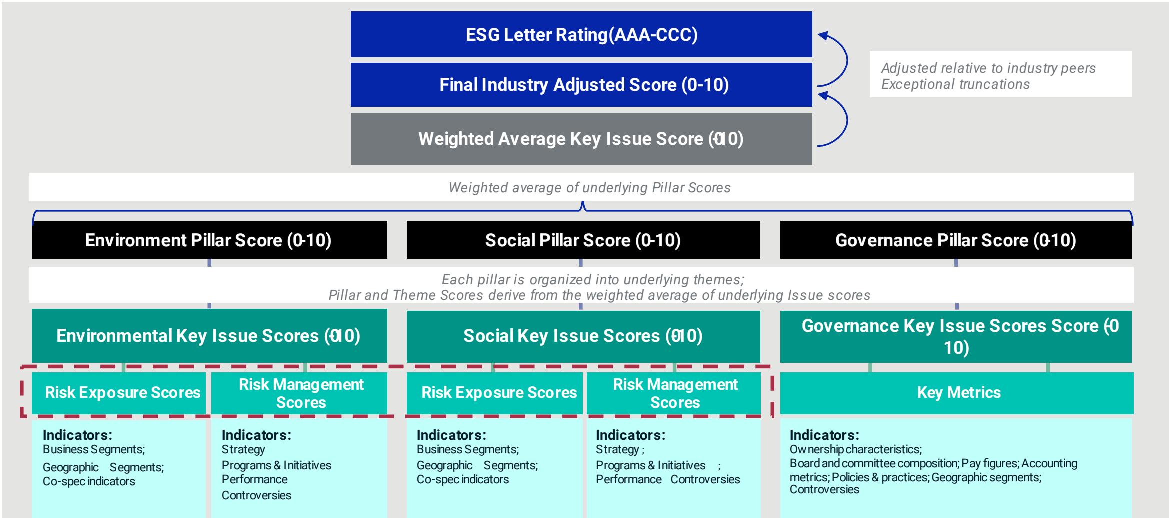


**E and S Score is the weighted-average score for each company's environmental and social key issues, normalized to 100%. The calculation of E and S risk management and risk-exposure scores is outlined in the appendix. The dotted trend lines show the linear average for the E and S risk-exposure and E and S risk management scores.*

Data as at Sept. 30, 2022, for constituents of the MSCI ACWI IMI with an ESG key-issue risk-exposure score of between 5 and 6 out of a range of 0-10 (for illustrative purposes). Source: MSCI ESG Research

This is then combined with the governance-pillar score to arrive at the final ESG score and rating, illustrating the importance of a company's ESG risk management to the overall ESG assessment.

Exhibit 14: How the scores roll up to the final ESG rating



As of March 2021. Source: MSCI ESG Research

Company-level E and S risk management

Many of the environmental and social risks, particularly those arising from climate change and regulation around labor management and health and safety, are manifested over a multiyear time horizon. How they impact a company's performance can be seen through a more long-term systematic risk assessment, as outlined previously in MSCI's research on long-term erosion versus event risk.[13]

At an individual company level, however, how well the company's management evaluates, monitors and addresses these financially material risks on a day-to-day basis can yield an important insight into the overall performance of the company's management. It also reflects the ability to effectively manage associated ESG risks, as well as opportunities, from an operational and board perspective.

For the environmental and social key issues, our assessment of a company's ability to manage its risk exposure on a key issue typically falls into three broad categories: strategy and governance, initiatives and programs and performance.

- The strategy and governance section typically evaluates organizational capacity and company management's level of commitment to address the key risks and opportunities, including organizational responsibility for the specific risks/opportunities, policy commitments and commitment to standards.

  Using the "water stress" key issue as an example, this includes assessments of whether the board has direct oversight over water management issues and if it is engaging with the local community on water access rights and usage.

[13] Guido Giese, Zoltan Nagy, and Linda-Eling Lee. "Which ESG Issues Mattered Most? Defining Event and Erosion Risks." MSCI Research Insight. June 22, 2020.

- The initiatives and programs section typically evaluates the strength and scope of the initiatives, programs and targets in place to improve performance on the key issue.

  For water stress, this includes assessments such as whether the company has a water reduction target and how that compares to its industry peer group.

- The performance section evaluates the company's track record on managing the specific risk or opportunity. Performance involves collecting, standardizing and benchmarking a range of quantitative indicators where applicable, as well as an evaluation of qualitative indications of performance.[14]

  For water stress, this includes assessments of whether a company has reduced its water consumption, water intensity (i.e., water usage per unit of sales or production) or proportion of freshwater usage and whether it has met its previous targets.

Exhibit 15: 'Water stress' key-issue company management assessment

	EXAMPLE METRIC	COMPANY 1	COMPANY 2
PRACTICES	Oversight of Water Management	Board-level Committee BEST PRACTICE	No evidence of oversight WORST PRACTICE
	Water Reduction Target	5% annual reduction in water intensity BEST PRACTICE	No evidence of target WORST PRACTICE
	Practices Score	**8.5/10**	**2.0/10**
PERFORMANCE	Water Intensity vs. Industry Peers	21,450 m3/mil USD sales 2.1x industry average	7,150 m3/mil USD sales 0.7x industry average
	Water Intensity Trend	+2.1% CAGR (2016-2019)	-7.8% CAGR (2016-2019)
	Performance Score	**3.5/10**	**8.0/10**
CONTROVERSIES	Severity of Ongoing Controversies	No ongoing controversies	One Severe Controversy
	Controversy Deduction	**0.0**	**-2.5**
MANAGEMENT SCORE	**Average (Practices, Performance) - Controversies**	**6.0 / 10**	**2.5 / 10**

How strong are the company's programs and policies?

How effective are its programs and policies?

Do ongoing controversies indicate potential lapses in oversight?

As of March 2021. Source: MSCI ESG Research

[14] For more details on how environmental and social key-issue risk-exposure and risk management scores are calculated, please refer to the MSCI ESG Ratings Methodology available on msci.com.

Conclusion

Our findings indicate that companies with higher E and S risk management and governance scores, and consequently higher ESG Ratings, than their peer groups had lower stock-specific risk than their peers during the 2017-2022 time period. This is in line with MSCI's previous research that found that companies with higher ESG Ratings had better performance using the three main transmission channels: cash flow and valuation, idiosyncratic risk and systematic risk.

A key element behind this lower risk profile is not, however, just which ESG risks the company was exposed to, such as climate change, environmental regulation or labor management issues, which many investors may assume will account for the greatest component of the company's overall ESG risk score. It is, instead, *how the company itself managed these risks*, which was then reflected in lower stock-specific risk, according to our analysis. While stock-specific risk is an important component in asset selection for financial portfolios, our findings demonstrated that E and S risk management adds valuable informational content in portfolio management.

This connection can be explained by the fact that the assessment of the management of the environmental and social key issues is done through a variety of quantitative and qualitative indicators, such as policies, practices and performance related to the key issue, which reflect on the companies' ability to manage these risks.

- For environmental key issues, this depends on the company's sector and includes management metrics such as credible carbon emissions-reduction targets, robust toxic-waste disposal and management programs for companies in high-polluting sectors, board-level responsibility for the company's biodiversity impacts for companies in land-intensive industries and evidence of past performance on these metrics in line with objectives.
- For social key issues, management metrics include elements such as the promotion of training and development of the workforce for companies in knowledge-intensive industries, transparency and visibility over the supply chain for companies in the retail industry, robust health and safety policies for companies in the consumer-durables sector and positive community relations for companies in the mining industry.

While the governance pillar weighs both external factors and internal company management metrics, the latter are the most important in the overall assessment and include elements such as the strength and diversity of the company's board, the avoidance of bribery, corruption and fraud and responsibility towards external shareholders.

Considering the importance of many of these factors in assessing a company's overall quality and management profile, as well as its long-term growth prospects, it may therefore not be surprising that companies that had better performance on these ESG key issues also show signs of having stronger company management overall and, by extension, lower financial risks.

Appendix

The E and S risk management and E and S risk-exposure scores were calculated using the individual Environmental and Social Key Issue risk management and risk exposure scores, multiplied by the key-issue weighting for each company, to arrive at an aggregate weighted average E and S key-issue risk management and risk exposure score for the combined environmental and social pillars. Given the difference in E and S key-issue weightings for each company, these were then normalized to 100% to provide a standardized and comparable score for each company.

These scores are designed to provide an alternative assessment of a company's ESG performance based on its total ESG key-issue risk exposure and its total ESG key-issue risk management, rather than its performance on individual environmental, social and governance issues.

Exhibit A1: Illustrative example of E and S risk management and E and S risk-exposure score calculation, oil & gas company

Key Issues	Risk-exposure score	Risk management score	Total key-issue score	Weighting
Environmental Pillar				
Biodiversity & Land Use	7.5	5.2	4.7	14%
Carbon Emissions	7.5	6.7	6.2	14%
Social Pillar				
Community Relations	6.5	6.2	6.7	13%
Health & Safety	6.5	6.6	7.1	13%
Toxic Emissions & Waste	7.5	5.8	5.3	13%
Weighted average E and S Key Issue score	4.8	4.1	4.0	67%
Normalized weighted average E and S Key Issue scores	**7.1**	**6.1**	**6.0**	**100%**
Governance Pillar			6.8	33%
Total weighted average ESG Key Issue score			**6.3**	

Based on an integrated oil & gas constituent of in the MSCI ACWI Index, as of March 2023. Source: MSCI ESG Research

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