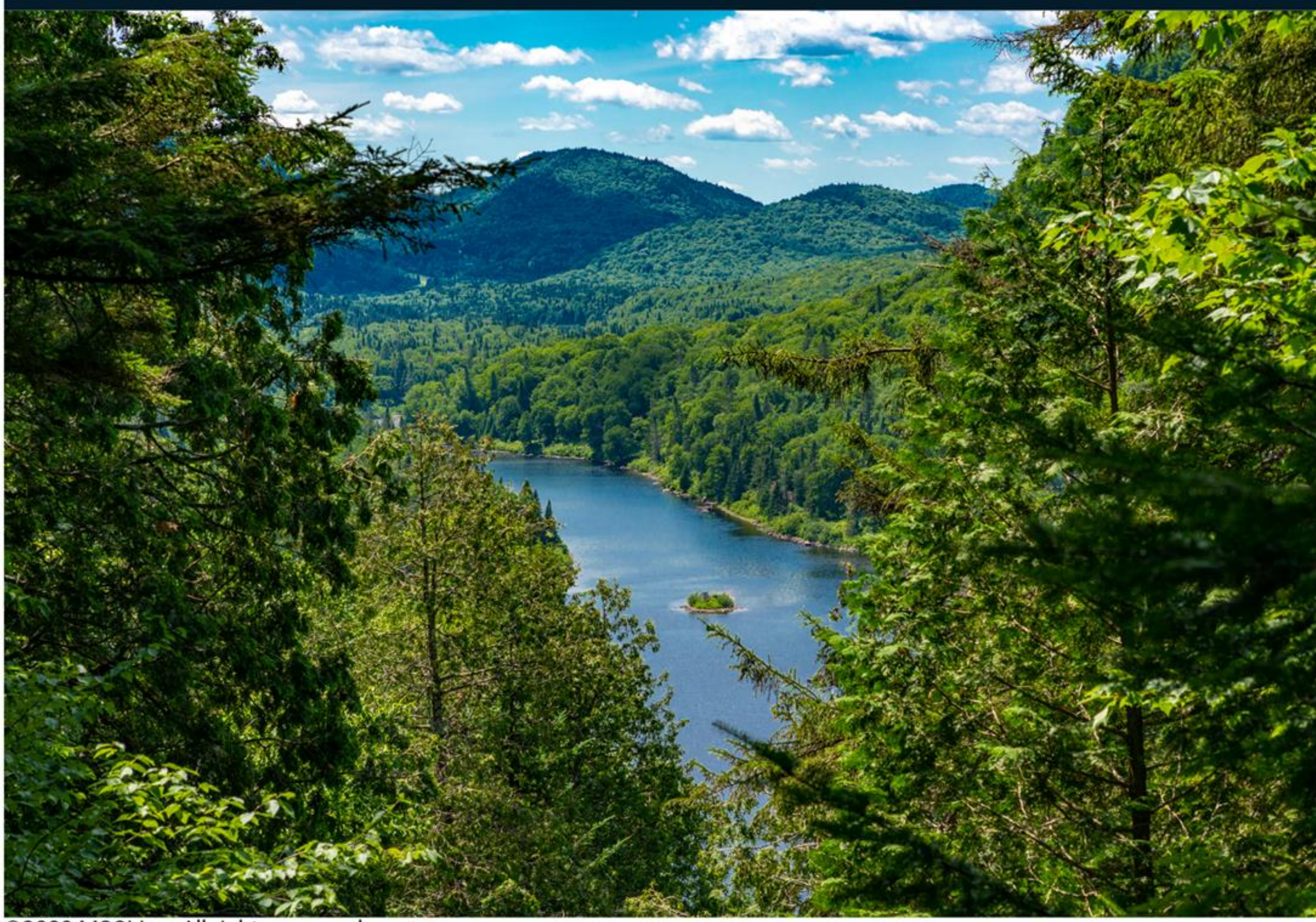
RESEARCH INSIGHT

Understanding Institutional Investors' Perspective on ESG Ratings

December 2023



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Executive summary

Today, institutional investors are subject to greater scrutiny around how they deploy the capital entrusted to them — beyond mere financial returns. In addition to traditional financial analysis, investors are paying closer attention to the ESG risks and opportunities associated with their investee companies, which in turn may (along with other factors) impact the sustainability of the financial performance of these companies over the long term.

As a result, investors are increasingly integrating ESG factors into their investment process, evident from the rapid growth in ESG-related assets under management (AUM) globally. ESG integration influences the strategic objective setting, portfolio management, risk management and stewardship and engagement efforts of investors.

Many corporate issuers across regions are therefore expecting more scrutiny from their investors and boards on their ESG and sustainability strategies. Understanding ESG risks and opportunities from the perspective of investors could therefore be valuable for issuers. This paper aims to provide issuers with a sense of how investors may think about ESG factors across the entire investment process.

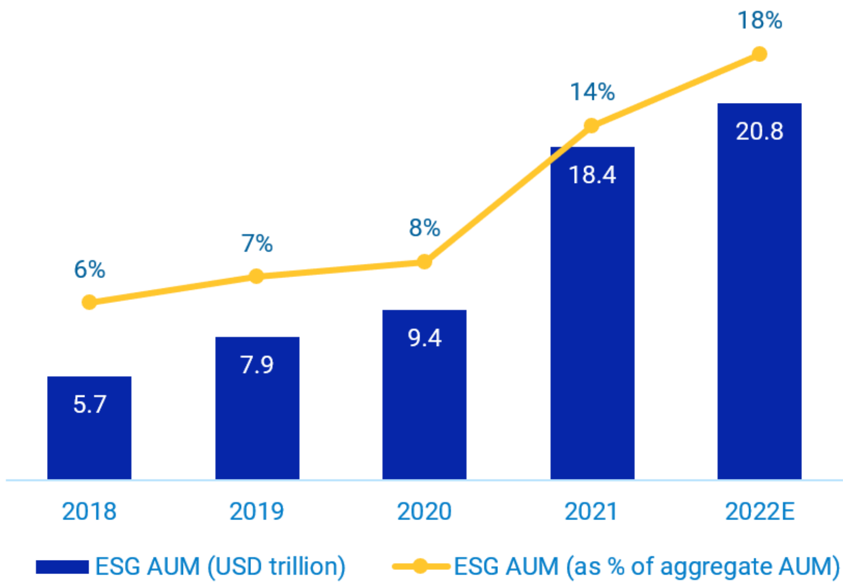
In this paper, we highlight how:

- ESG integration into the investment process has accelerated in the past decade, driven primarily by a growing consensus that ESG risks and opportunities affect long-term stock performance.
- Investors are increasingly looking to leverage ESG ratings across the entire investment process including objective setting, portfolio construction, risk management, stewardship and engagement.
- Several academic studies have found MSCI ESG Ratings to be at the forefront of capturing potentially financially material ESG risks and opportunities in equities and corporate bonds.
- According to our research, MSCI ESG Ratings have positively correlated with company profitability and stock performance:
    - For the period from Dec. 31, 2012 to May 31, 2023, companies that had the highest quintile MSCI ESG Ratings were found to have lower levels of company-specific risks affecting their stock price.
    - Over this period, companies that had high MSCI ESG Ratings were found to have lower levels of exposure to systematic risks — such risks can negatively affect a company's stock price.
- Issuers can benefit from seeing investors' perspectives on ESG and sustainability to inform their business strategies and engage in a meaningful dialogue with investors on these topics.

ESG integration in the investment process

ESG investing has gained significant traction in recent years with AUM in this area now exceeding USD 20 trillion globally (Exhibit 1). The growing investor interest in ESG integration stems, in part, from a better understanding within the investment community of how ESG risks and opportunities can affect the long-term performance of investment portfolios. Institutional investors are increasingly making ESG considerations a core part of how they invest, assess value and manage risks. Acceleration in ESG integration into investment processes has resulted in ESG-related AUM growing at a much faster pace than the overall market size. According to a recent report from PwC, this trend is expected to continue for the foreseeable future.[1]

Exhibit 1: Growth in global ESG AUM



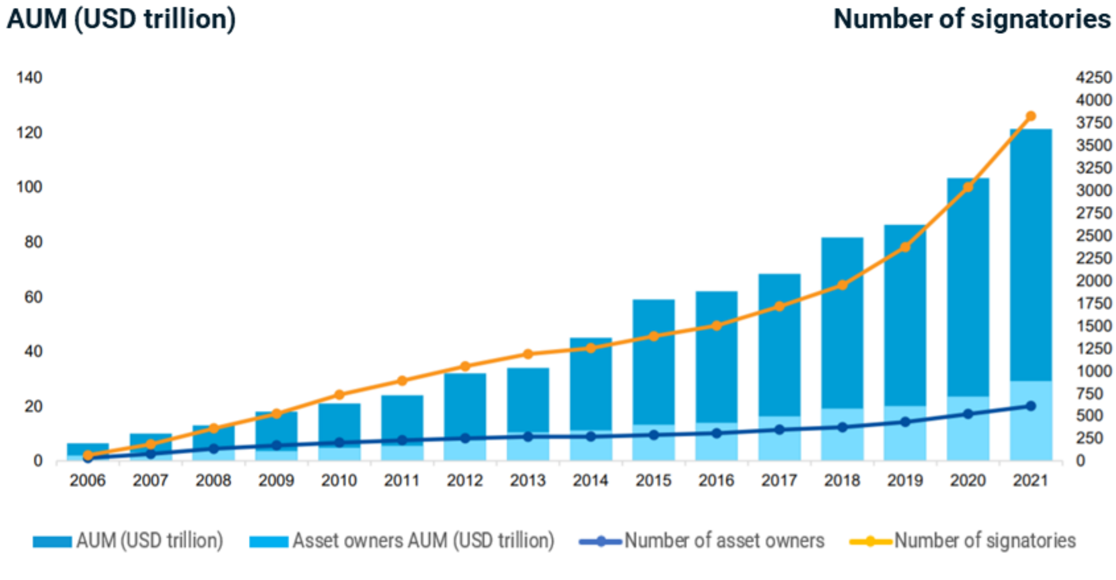
Based on PwC research methodology, ESG fund figures in this study are based on Refinitiv Lipper's classification, i.e., SFDR Article 8 and 9 funds for Europe, and responsible funds (as broadly defined in the Lipper database) for the rest of the world. 2022 estimates are derived by using the base scenario growth rate as per the report. Data as of November 2023. Source: MSCI ESG Research, PwC

Acceleration in ESG integration is visible beyond mere AUM trends. We have seen a steep growth in the number of signatories to the United Nations-supported Principles for Responsible Investing (PRI) in recent years (Exhibit 2). These signatories acknowledge their duty to act in the best long-term interests of their beneficiaries and are aligned on their understanding that ESG factors can affect the performance of investment portfolios to a varying degree across companies, sectors, regions, asset classes and through time. PRI signatories commit to incorporate ESG issues into investment analysis and decision-making processes, be active owners and seek appropriate disclosure on ESG issues from their portfolio companies.[2] The growing number of PRI signatories across markets could suggest further growth in ESG AUM globally.

[1] "Asset and wealth management revolution 2022: Exponential expectations for ESG," PwC, 2022.

[2] "What are the Principles for Responsible Investment?" PRI, accessed Nov. 1, 2023

Exhibit 2: Growth in PRI signatories



Source: PRI (Total AUM includes reported AUM and AUM of new signatories provided in sign-up sheet as of end of March of that year.)

The growth in the number of PRI signatories has continued beyond the period captured in Exhibit 2. As of Sept. 30, 2023, there were 5,337 signatories, including 734 asset owners.[3]
This acceleration in the number of signatories and the growth in ESG AUM has also attracted greater scrutiny from a range of stakeholders across the investment ecosystem. Potential risks of greenwashing have led to a growing need within the industry to further evolve ESG investing practices to meet stakeholders' expectations. It is also important to address the recent views regarding ESG in some markets, particularly the U.S., where questions have been raised about the effectiveness of ESG and sustainable investing. Many investors are however aligned on the view that ignoring ESG risks, like any other risks, could affect a portfolio's long-term performance.[4] As per our survey of institutional investors, ESG and climate change are firmly established as top priorities for funds all over the world. Growing demand for ESG products along with increasing scrutiny has resulted in investment managers integrating ESG considerations across the entire investment process. The sustained growth in the number of PRI signatories, highlighted above, underscores the relevance of ESG for the investment community in their role as long-term stewards of clients' assets.

How investors use ESG ratings for ESG integration

With acceleration in ESG integration, investors are increasingly using ESG data across their investment process including asset allocation, portfolio construction and risk management. Understanding the role that ESG ratings play across the entire investment process could help corporate issuers better understand the overall direction that many investors have taken with respect to ESG integration and provide context for their engagement with investors.

[3] "Signatory Update July to September 2023," PRI, September 2023.

[4] "The state of play in ESG," MSCI ESG Research, 2021. There have also been multiple industry and academic research papers on the topic — please refer to the appendix.

Exhibit 3: ESG integration into the investment process

Source: MSCI ESG Research

The approach to ESG integration is likely to vary across investors, yet the overarching process can be summarized along the three stages outlined in Exhibit 3 and detailed below.

1. **Define objectives and policy:** Investors typically outline their long-term objective and strategic asset allocation along with the target ESG profile. This may take various forms like policy-benchmark, exclusion criteria or target ESG performance at the portfolio level (e.g., portfolio ESG score, carbon-emissions intensity).

2. **Integrate into portfolio management:** Active investors can choose to use an ESG index as a primary or secondary benchmark and/or define the eligible universe of investable securities for their portfolios. Many investors rely on ESG ratings to identify potential financially relevant ESG risks and opportunities as part of their ongoing investment evaluation process. For passive portfolios, investors may replicate ESG indexes based on their stated ESG objectives and preferences.

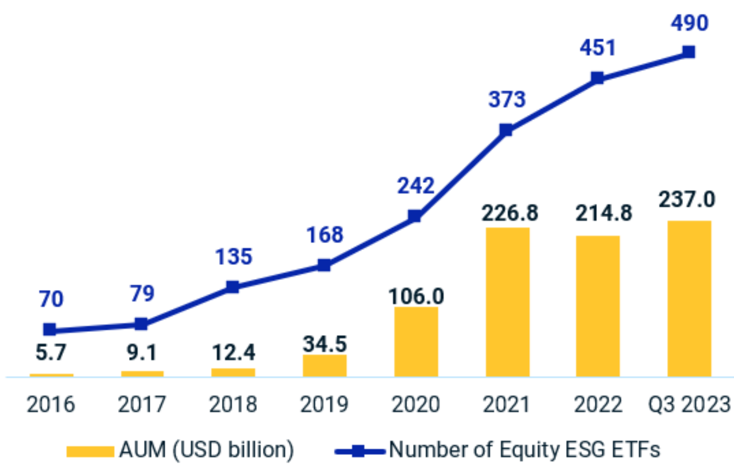
3. **Engage and report:** Investment managers have a fiduciary duty to be active stewards of capital and exert influence on companies in which they invest.[5] These investors generally have exposure to issuers across markets and sectors, exposing them to a variety of ESG risks and potential opportunities. To navigate this, they may need to rely on a standardized assessment of ESG factors to manage their investments in line with their stated ESG objectives. Stewardship teams of investment managers typically use ESG ratings, among other inputs, to determine which companies to engage with and which to prioritize in their engagement agenda. Further, investors also use ESG ratings and indexes to measure and report their progress and performance vis-à-vis their stated ESG objectives to the ultimate beneficiaries.

[5] "The modern interpretation of fiduciary duty," PRI, Nov. 6, 2020.

Adoption of MSCI ESG Ratings across the financial market ecosystem

Asset owners, investment managers and participants across the financial-market ecosystem use MSCI ESG Ratings to manage potential financially material ESG risks and gain exposure to ESG opportunities. In recent years, we have seen significant growth in the adoption of the MSCI ESG Ratings and the associated ESG indexes across markets. Exhibit 4 captures one such trend, highlighting growth in the ETFs and AUM linked to MSCI ESG and Climate Equity Indexes globally.[6]

Exhibit 4: Number of ETFs and AUM linked to MSCI ESG and climate equity indexes



Source: Total assets benchmarked to MSCI indexes comprised of (1) actively managed AUM as of Dec. 31, 2022, reported on or before March 31, 2023, using data from eVestment for active institutional funds, Morningstar for active retail funds and internal MSCI data; (2) indexed non-ETF AUM as of Dec. 31, 2022 using data directly collected by MSCI; and (3) indexed ETF AUM as of Dec. 31, 2022. ETF AUM based on data from Refinitiv and MSCI for periods on or after April 26, 2019 and from Bloomberg and MSCI for periods prior to April 26, 2019. ETF is defined as each share class of an exchange traded fund, as identified by a separate ticker; only primary listings, and not cross-listings, are counted. MSCI does not guarantee the accuracy of third-party data.

MSCI ESG Ratings are designed to measure a company's resilience to potential financially material ESG risks and opportunities for its specific industry. In addition to company disclosures, MSCI ESG Ratings leverage a range of alternative data sources as part of the process. As we do not administer survey questionnaires to issuers and use only publicly available information to ensure traceability and verifiability of data, these alternative data sources have often led to more comprehensive assessments. Please refer to Appendix 3 for more details on examples of these alternative data sources.

Additionally, there are several academic studies that have analyzed ESG ratings' ability to identify financially material risks and opportunities. One such study analyzed the excess returns for ESG portfolios for the U.S., European and Japanese stock markets, using ESG scores from several ESG ratings providers.[7] It further quantified the excess returns for these portfolios with respect to the capital asset pricing model (CAPM) and several Fama-French factor models for the time-period

[6] MSCI ESG and climate ratings, research and data are produced by MSCI ESG Research LLC, a subsidiary of MSCI Inc. MSCI ESG Indexes, Analytics and Real Assets are products of MSCI Inc. that utilize information from MSCI ESG Research LLC. MSCI Indexes are administered by MSCI Limited (UK).

[7] Florian Berg et al., "Quantifying the Returns of ESG Investing: An Empirical Analysis with Six ESG Metrics," MIT Sloan Research Paper No 6930-23, Feb. 27, 2023.

between 2014 and 2020. The study also found that a long-short portfolio that went long the top quartile of stocks with the highest ESG ratings based on MSCI ESG Ratings and short the bottom quartile, statistically achieved significant excess returns over the period, while other ESG ratings showed much lower or neutral excess returns.

Effect of ESG characteristics on company risk and performance

ESG characteristics can affect how well a company does financially, how risky it is for investors and how it fits into the broader economy. These considerations are also known as the "financial materiality" of ESG. Issuers may also be keen to know if companies with high ESG ratings make more money or have higher valuations. Historically, it has been hard to identify if there is a direct link between ESG and financial performance.

MSCI ESG Research's Foundations of ESG Investing – Part1: How ESG Affects Equity Valuation, Risk and Performance shows how ESG considerations have affected companies' financial performance and risk in three ways — the cash-flow channel, the idiosyncratic-risk channel and the valuation channel.

The **cash-flow channel**: As per our analysis, companies with a strong ESG profile were found to be more competitive than their peers. These companies were able to use their competitive advantage to generate outperformance that ultimately led to higher profitability and, in turn, higher dividends.

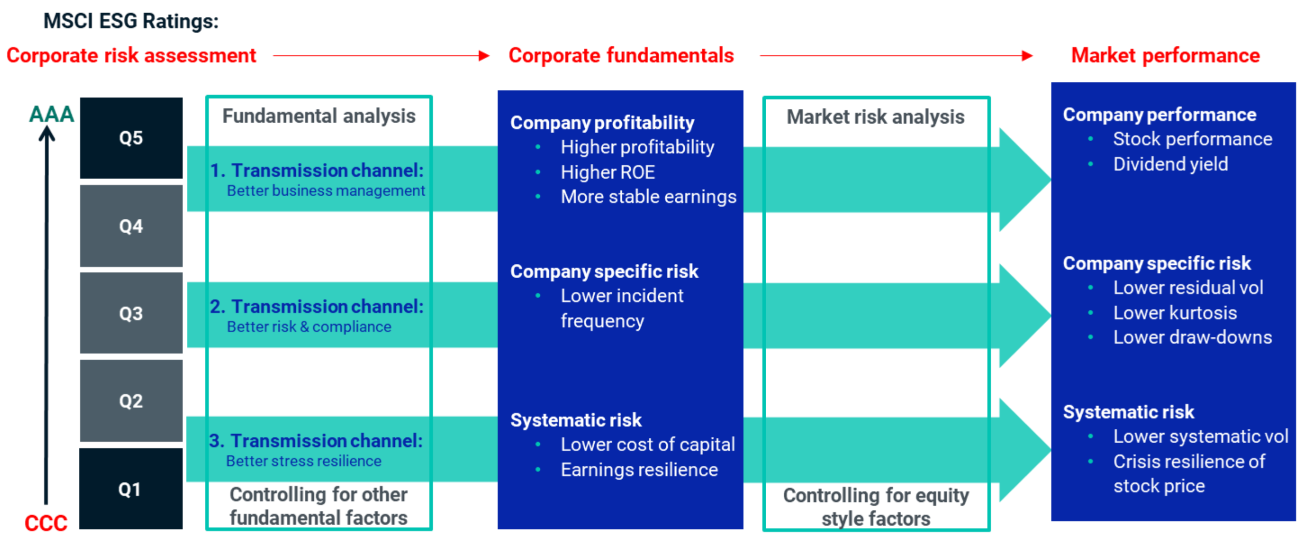
The **idiosyncratic-risk channel**: As per our analysis, companies with strong ESG characteristics were found to typically have above-average risk controls and compliance standards across the company and within their supply-chain management. As a result, these companies tended to suffer less frequently from severe incidents such as fraud, embezzlement, corruption or litigation cases — events that can seriously impact the performance of the company and therefore its stock price. Less-frequent risk incidents ultimately led to less stock-specific downside or tail risk in the company's stock price.

The **valuation channel**: As per our analysis, companies with a strong ESG profile were found to be less vulnerable to systematic market shocks and therefore showed lower systematic risk. Lower systematic risk generally translates into a lower cost of capital for a company.

Exhibit 5 summarizes the transmission channels and the financial variables we tested in terms of fundamental corporate and market-risk characteristics.[8] Our research showed that ESG has affected the valuation and performance of companies, both through their systematic risk profile (lower costs of capital and higher valuations) and their idiosyncratic-risk profile (higher profitability and lower exposures to tail risk). MSCI ESG Ratings can effectively help identify corporate issues that can potentially feed into market risks. This means that ESG is important for companies as well as investors.

[8] Guido Giese et al., "Foundations of ESG Investing – Part 1: How ESG Affects Equity Valuation, Risk and Performance," MSCI ESG Research, Nov. 29, 2017.

Exhibit 5: Transmission channels of how ESG characteristics may affect financial performance and risk



Source: MSCI ESG Research

In the following sections, we briefly outline the key evidence as to why ESG factors as measured by ESG ratings are potentially financially material.

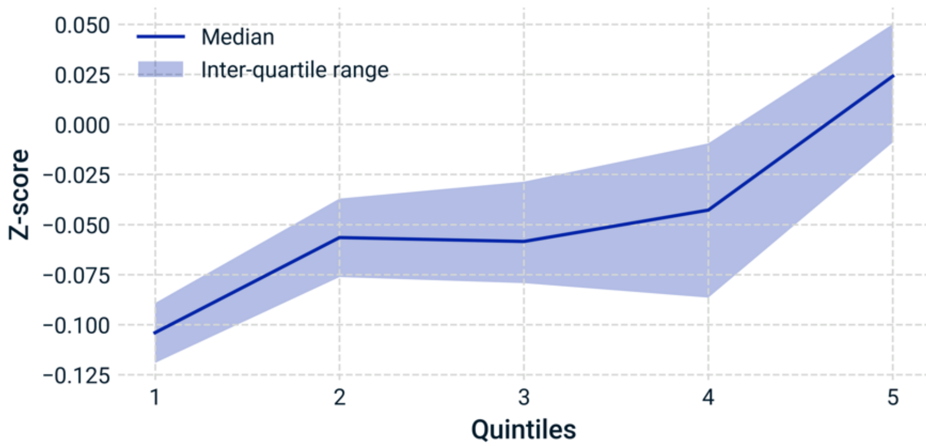
How ESG may affect a company's profitability and stock performance

We analyzed the potential company-specific competitive advantage of strong ESG characteristics, as measured by MSCI ESG Ratings, and fundamental returns following the hypothetical cash-flow transmission channel (Exhibit 5). High dividend yields play an essential role in our analysis because sustainability investors typically have longer-term investment horizons.

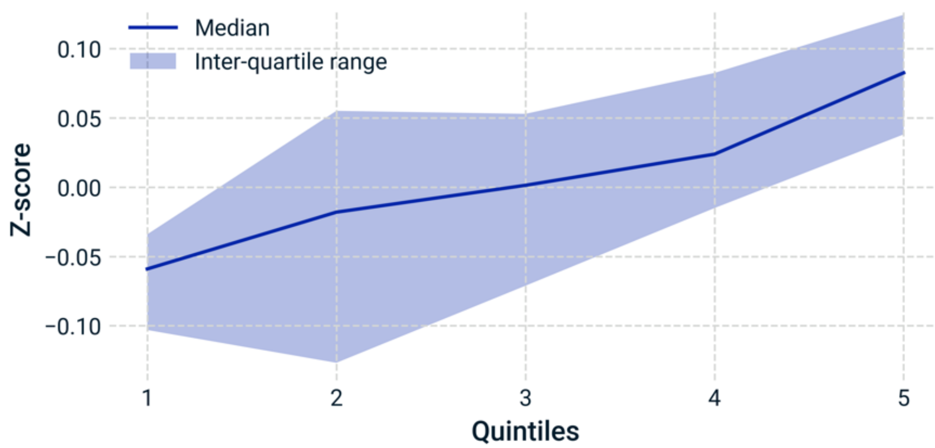
In "Foundations of ESG Investing – Part 1: How ESG Affects Equity Valuation, Risk and Performance," where we discussed a link between ESG information and the valuation and performance of companies, our data findings supported the assertion that higher ESG rated companies were more profitable and paid higher dividends for the period of January 2007 to May 2017. We updated the analysis to Sept. 30, 2023 (Exhibit 6).

Exhibit 6: Profitability and dividend yield by ESG quintiles in the MSCI ACWI Index

Gross profitability



Trailing dividend yield



Quintiles are created every month based on adjusted scores: pillar scores are first z-scored[9] by Global Industry Classification Standard (GICS®) sector and region (North America, Europe, Pacific and emerging market sub-indexes of MSCI ACWI Index) then size adjusted. Quintile 1 indicates the companies with the lowest ESG rating and quintile 5 indicates the highest-rated companies. ESG score is only z-scored by region, then size-adjusted. The average value of the fundamental data, shown in a z-score format, by quintile is calculated every month, and the distribution of the monthly averages is plotted in the box plots. Data from Dec. 31, 2012, to Sept. 30, 2023. GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence. Source: MSCI ESG Research

[9] Z-scores are normalized values, calculated by first subtracting the cross-sectional mean from all values and then dividing the difference by the cross-sectional standard deviation. Z-scores have zero mean and unit standard deviation. Following the methodology for MSCI's Global Equity Model for Long Term Investors (GEM LT) methodology, for risk-related variables, we subtract cross-sectional global means; for fundamental data-related variables, we subtract cross-sectional country means to control for potential country biases in fundamental data. Standard deviation is calculated globally.

Exhibit 7 below shows that the highest ESG rated quintile of companies in the MSCI ACWI Index have consistently outperformed the lowest ESG rated companies for the last decade. Additionally, this outperformance of the highest ESG rated quintile is also observed for the individual E, S and G pillars, providing a more detailed understanding of the impact of each ESG component on portfolio performance.

It is worth highlighting that while all three pillars — E, S and G — showed a positive performance effect over the study period, the aggregate MSCI ESG Ratings showed the strongest performance effect. This indicates that the industry-specific aggregation of E, S and G key issues has added value.

Exhibit 7: Performance of highest- vs. lowest-rated ESG quintiles in the MSCI ACWI Index

Quintiles are created every month based on adjusted scores: pillar scores are first z-scored by GICS sector and region (North America, Europe, Pacific and EM sub-indexes of the MSCI ACWI Index) then size-adjusted. ESG score is only z-scored by region, then size-adjusted. The next month's performance (in local return) of the quintiles is calculated. The graph shows the cumulative difference between the top and bottom quintiles' performance. Data from Dec. 31, 2012, to Sept. 30, 2023. Source: MSCI ESG Research

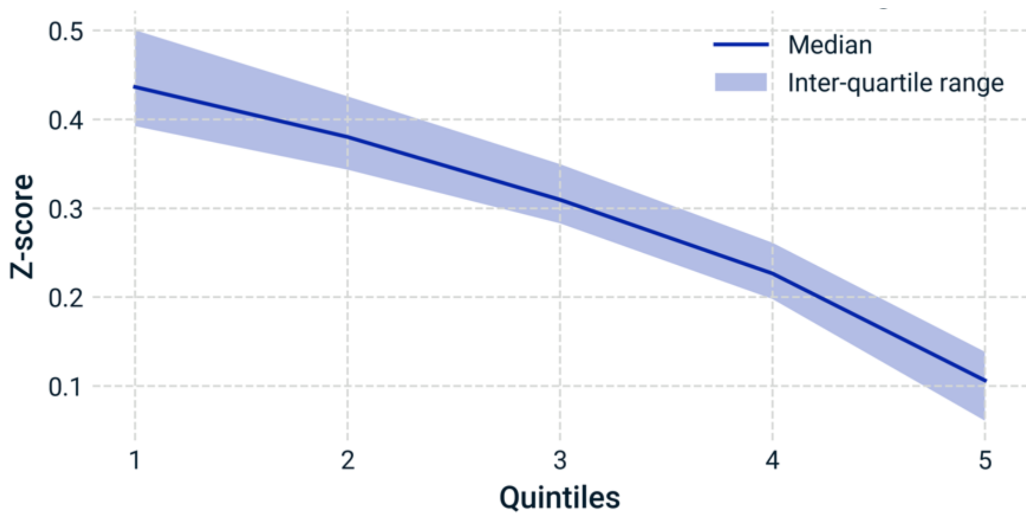
How ESG may affect company-specific risks

Better risk-management practices are expected to ultimately translate to reduced stock-specific risk of the corresponding stock price, especially stock-specific tail risk. To understand how ESG characteristics are linked to tail risks, we compared the residual volatility of companies across MSCI ESG Ratings quintiles. In other words, the volatility that is not explained by the common factors in the MSCI Barra Global Equity Model.[10]

[10] Factor models are financial tools that help investors identify and manage investment characteristics that influence the risks and returns of stocks and portfolios. While the mathematics of factor models may be unfamiliar to some, the underlying concepts are straightforward. Factor models help investors classify and estimate equity risk and assess the relationships between securities and returns to help guide investment decisions. The models are commonly used to construct portfolios by targeting specific dimensions and to attribute investment performance across multiple factor characteristics. The Barra Global Equity Model is a global multi-factor equity model that provides a foundation for investment decision support tools via a broad range of insightful analytics for developed, emerging market and frontier market portfolios.

In "Foundations of ESG Investing – Part 1: How ESG Affects Equity Valuation, Risk and Performance," where we discussed a link between ESG information and the valuation and performance of companies, our data findings supported the assertion that higher ESG rated companies showed lower levels of issuer-specific stock price volatility for the period of December 2012 to May 2017. We updated the analysis to Sept. 30, 2023 (Exhibit 8).[11]

Exhibit 8: Residual CAPM volatility of ESG quintiles in the MSCI ACWI Index



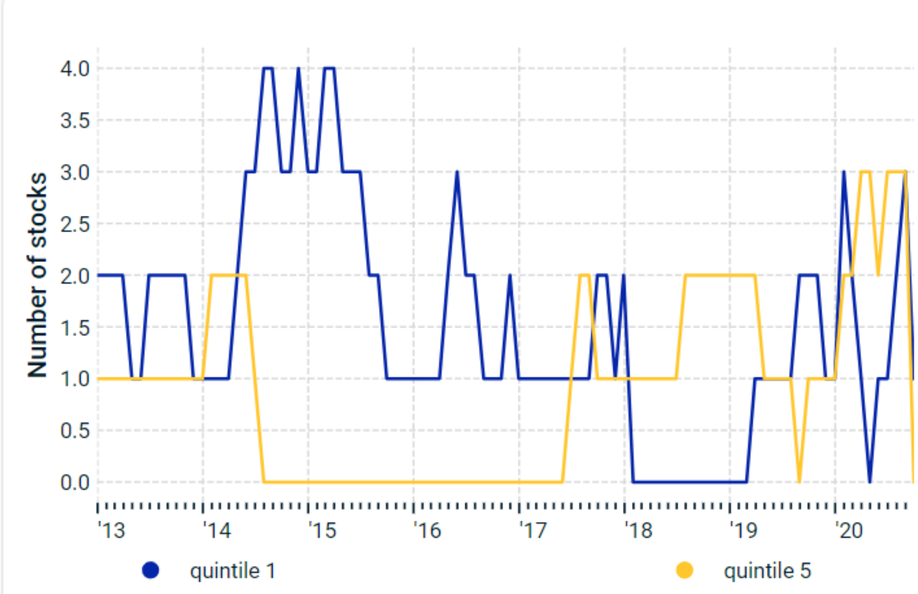
Quintiles are created every month based on adjusted scores: pillar scores are first z-scored by GICS sector and region (North America, Europe, Pacific and emerging market sub-indices of MSCI ACWI Index) then size-adjusted. Data from Dec. 31, 2012 to Sept. 30, 2023. Source: MSCI ESG Research

Idiosyncratic incident frequency of top and bottom ESG rating quintiles

We tracked the number of idiosyncratic-risk incidents in a company's stock price over the study period. Exhibit 9 shows how often these incidents happened for companies in both the highest and lowest MSCI ESG Ratings quintiles. We observed that companies with a higher ESG rating were on average less likely to experience a large drawdown in their stock price than those with lower ratings. This suggests that companies with higher ESG ratings are better at mitigating serious business risks.

[11] The results are neutralized for industry exposure and size. And financial variables are in the format of z-scores.

Exhibit 9: Larger than 95% max drawdowns in the next 36 months following analysis



Quintiles are created every month based on adjusted scores: pillar scores are first z-scored by GICS sector and region (North America, Europe, Pacific and emerging market sub-indexes of the MSCI ACWI Index) then size-adjusted. ESG score is only z-scored by region, then size-adjusted. Change in systematic volatility (also known as common factor risk) is computed using the volatility predicted by all the factors of the responsive variant of the GEMLT model. The difference is calculated between the volatility 36 months after the analysis date and the volatility as of the analysis date. The maximum drawdowns over the next rolling 36 months are calculated for each stock. The number of drawdowns larger than 95% are counted and plotted for quintiles 1 and 5. Data from Dec. 31, 2012, to Sept. 30, 2023. Source: MSCI ESG Research

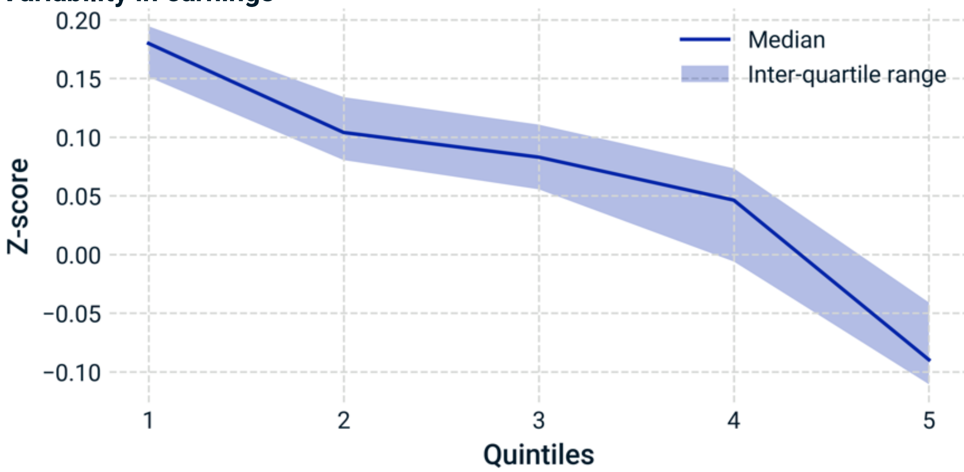
How ESG may affect a company's exposure to systematic risks

In earlier studies, MSCI ESG Research identified various systematic risk effects of ESG characteristics as measured by MSCI ESG Ratings. For example, companies with higher ratings exhibited lower earnings variability, a lower cost of capital (Exhibit 10) and lower systematic stock-price volatility. They also showed resilience in their stock prices during crisis situations such as the COVID-19 pandemic or the Russia-Ukraine war. Historically, stronger ESG profiles and ratings have positively correlated to higher valuations through lower systematic risk and lower cost of capital.[12]

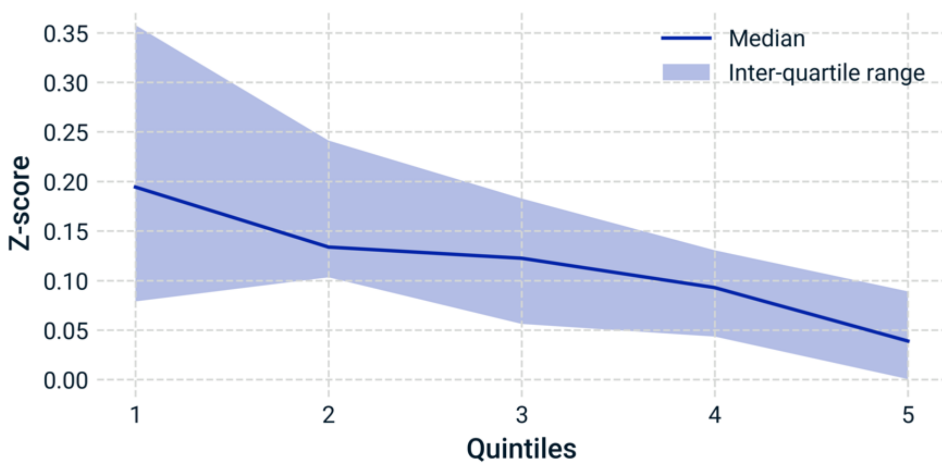
[12] Any historical information, data or analysis should not be taken as an indication or guarantee of any future performance, analysis, forecast or prediction. Past performance does not guarantee future results.

Exhibit 10: Earnings variability and cost of capital by MSCI ESG Ratings quintiles in the MSCI ACWI Index

Variability in earnings



Weighted average cost of capital



Quintiles are created every month based on adjusted scores: pillar scores are first z-scored by GICS sector and region (North America, Europe, Pacific and emerging market sub-indexes of the MSCI ACWI Index) then size-adjusted. ESG score is only z-scored by region, then size-adjusted. The average value of the fundamental data, shown in a z-score format, by quintile is calculated every month, and the distribution of the monthly averages is plotted in the boxplots. Data from Dec. 31, 2012, to Sept. 30, 2023 (except for WACC where data starts on Aug. 31, 2015). Source: MSCI ESG Research

Stewardship and engagement: Improving issuers' dialogue with their investors

As we have seen, investors are increasingly focused on integrating ESG factors into their investment processes and they continue to rely on MSCI ESG Ratings to identify financially material ESG risks and opportunities. One of the key implications of this for issuers is a growing emphasis on investor stewardship and engagement on ESG topics.

From an investor's perspective, engagement is an active dialogue with a specific objective of preserving and enhancing the value of assets on behalf of beneficiaries and clients. The approach adopted by investors may vary based on their investment philosophy, time horizon or the expectations of their end-clients. There are several MSCI ESG Research tools and resources that all market participants, including issuers, can leverage at various stages of this engagement process.[13]

1. **Prioritize financially material ESG risks and opportunities:** Companies face different ESG risks and opportunities based on their business segments and their operational footprint. Understanding financially material risks and opportunities can help issuers drive more meaningful engagement by focusing on these areas. Issuers can leverage the MSCI ESG Ratings Methodology and the MSCI ESG Industry Materiality Map along with MSCI ESG Ratings to identify these focus areas for engagement with investors. Please refer to Appendix 1 for further details on the key issues that form part of the MSCI ESG Ratings methodology.

2. **Gain an understanding of ESG assessment criteria:** Investors across markets have developed different frameworks for ESG assessment, yet there are some common underlying themes. MSCI ESG Ratings encompass three key aspects:[14]

    - **Exposure**: Within a key issue, the kind of risks and opportunities an issuer is exposed to is based on their business segments and geographical exposure in terms of revenue, assets or operations.
    - **Strategy:** It's important to understand whether an issuer has an effective strategy to address the risks and opportunities they are exposed to and governance to execute such strategy.
    - **Programs and performance:** Investors seek to understand the programs being put in place, as well as the degree and pace of progress made by issuers to execute their defined strategy to address the specific ESG risks and opportunities.

Issuers can leverage the MSCI ESG Issuer Academy to obtain a detailed overview of various key issues relevant to them and the key assessment aspects of these issues.

3. **Seek to identify market best practices:** While investors often engage with their investee companies on a one-to-one basis, the eventual decision to invest, stay invested or exit are

[13] All the MSCI tools mentioned in this section are available to issuers at no cost except for MSCI Corporate Sustainability Insights which requires a subscription.

[14] The methodology used to evaluate a company's performance on the environmental and social pillars is different from the one used to assess performance on the governance pillar. Environmental and social risks are typically industry-specific and a company's risk-management strategy is evaluated in the context of its exposure to the environmental or social risk under consideration. In contrast, the two themes under the governance pillar, corporate governance and corporate behavior, are relevant to all companies. Please refer to the detailed MSCI ESG Ratings Methodology.

rarely made in isolation. As a result, ESG assessments are often conducted relative to peers, rather than as an absolute assessment. Issuers are therefore often benchmarked against industry peers on various ESG criteria as part of the MSCI ESG Ratings or investment process. Issuers may improve their dialogues and shape their engagement with investors by forming a better view of their ESG and climate exposure, proactively identifying disclosure gaps and analyzing their ESG and climate risks vis-à-vis peers. The MSCI ESG Ratings Report and MSCI Corporate Sustainability Insights[15] are some of the tools that issuers can leverage to support this analysis and engagement.

Tools and resources referenced above are part of MSCI ESG Research's strategic priority to drive engagement with issuers, which may in turn enable issuers to better understand their MSCI ESG Ratings. You can find a summary of MSCI ESG Research's engagement framework in Appendix 2. The approach and tools outlined above can help issuers see their MSCI ESG Ratings from the perspective of the investor and help set better context for engagement.

Conclusion

In this paper, we have aimed to provide issuers with an overview of how investors might approach ESG investing. While there are ongoing debates around ESG in some markets, ESG integration into the investment process continues globally. As long-term stewards of their clients' assets, investment managers are ramping up their engagement efforts to understand their investee companies' ESG challenges and opportunities, and the execution of their strategies.

We have further analyzed the effect of ESG characteristics on the profitability, stock performance and exposure to company-specific and systematic risks. MSCI ESG Ratings can identify financially material risks and opportunities. As a result, many investors across markets continue to leverage these ratings across their investment process.

Lastly, we argue that issuers can deepen their understanding of MSCI ESG Ratings to enhance the effectiveness of their dialogue with investors. There are several MSCI ESG Research resources and tools that issuers can leverage to understand ESG and sustainability from the investors' perspective.

[15] All the MSCI tools mentioned in this section are available to issuers at no cost except for the MSCI Corporate Sustainability Insights which requires a subscription.

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Florian Berg et al., "Quantifying the Returns of ESG Investing: An Empirical Analysis with Six ESG Metrics," MIT Sloan Research Paper No 6930-23, Feb. 27, 2023.

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Appendix

Appendix 1: MSCI ESG Ratings model key issues

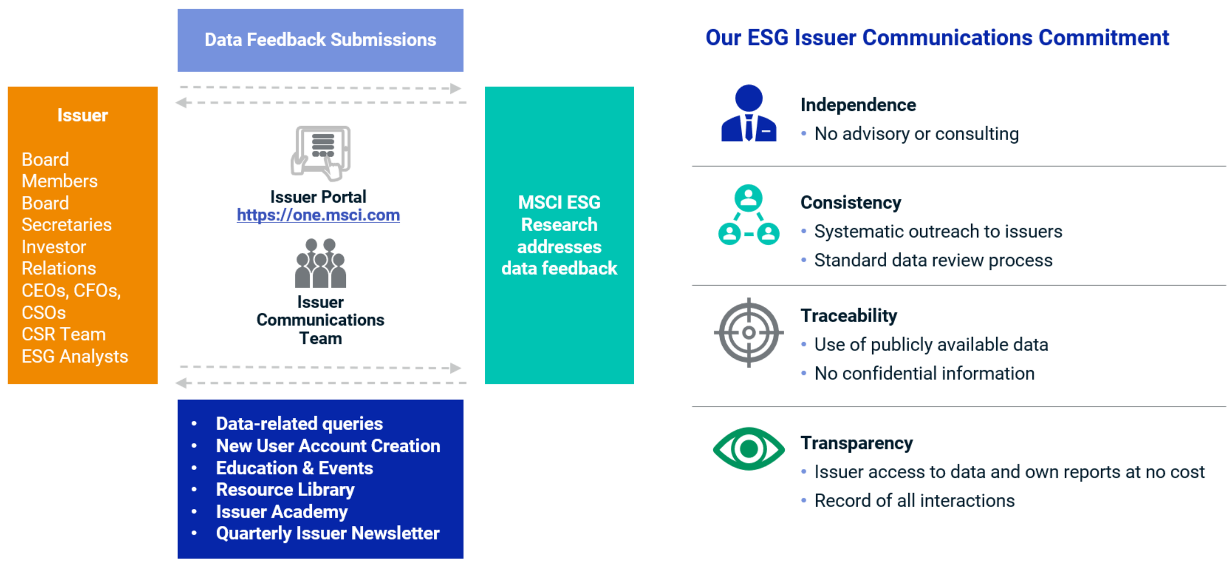
The core building blocks of the MSCI ESG Ratings methodology can be seen in the hierarchy below. There are 33 key issues across the environment, social and governance pillars. Each company receives a score on each selected key issue ranging from 0 to 10. In the environmental and social pillars, the scores evaluate the company's exposure to risks or opportunities and its ability to manage that exposure. The governance pillar score is an absolute assessment of a company's overall governance that uses a universally applied 0-10 scale. Starting with a score of 10, the governance pillar score is based on the sum of deductions derived from key metrics included in the corporate governance and corporate behavior themes.

Exhibit A1: Key issues by pillar

Appendix 2: MSCI ESG Research's issuer-engagement framework

MSCI ESG Research's engagement with issuers across markets and sectors is governed by the key principles of independence, consistency, traceability and transparency. Our ESG issuer communication team acts as the main point of contact for all issuers within MSCI ESG Research coverage.

Exhibit A2: How MSCI Research engages with issuers



Appendix 3: Alternative data helps minimize reliance on voluntary disclosures

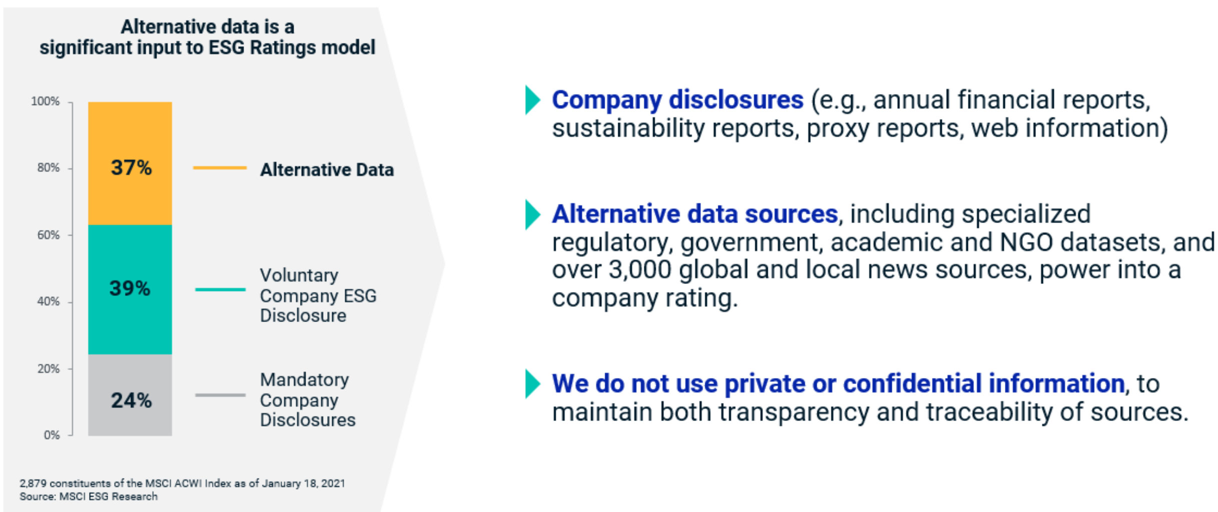
Rationale for looking beyond company disclosures:

- The company may not self-disclose sufficient information to gauge its risk management capabilities on the topic
- Risks may emerge at the macro level, requiring information external to the company

Alternative data sets are information about a company published by sources outside of the company. We use them to:

- Deliver insight not captured with company disclosures
- Identify unexplored risks and opportunities
- Create innovative signals

Exhibit A3: Benefits of alternative data



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