ESG Ratings Methodology

MSCI ESG Research LLC

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1 Methodology overview

1.1 Objective

MSCI ESG Ratings provide an opinion of companies' management of financially relevant ESG risks and opportunities. Each rating takes into consideration the company's exposure to potentially material ESG risks, the quality of management systems and governance structures to mitigate potential ESG risks, and where applicable, positioning to meet market demand for the provision of products and services that have a positive environmental or social contribution. For additional details on the definition of rating scales, refer to the "MSCI ESG and Climate Symbols and Definitions" document.

1.1.1 Key features

- MSCI ESG Ratings are industry-relative measures and are determined at the company level. Ratings are on a global seven-band scale from AAA (the highest ESG Rating) to CCC (the lowest ESG Rating).
- Each company is evaluated on a selection of two to seven Environmental and Social Key Issues (out of 33 total Key Issues, see Exhibit 1). The Environmental and Social Key Issues relevant for a given company are selected based on the company's exposure to potentially material ESG risks, which are driven by industry-specific and market-specific factors.
- All companies are evaluated on the Governance Pillar, which is comprised of six Key Issues in the Corporate Governance and Corporate Behavior Themes. The evaluation is based on the gap between best practice and each company's governance practices.
- Where applicable, the ESG Rating takes into consideration a company's positioning to meet market demand for the provision of products and services that have a positive environmental or social contribution.
- MSCI ESG Ratings take into consideration a company's management measures relative to their aggregate ESG risks and opportunities. Management measures are generally evaluated through companies' governance structures, policies and targets, quantitative performance metrics, and relevant controversies.

2 Data, ratings and scores

The core building blocks of the MSCI ESG Ratings methodology can be seen in the hierarchy shown in Exhibit 1.

Exhibit 1: MSCI ESG Ratings Key Issue hierarchy

3 Pillars	10 Themes	33 ESG Key Issues
Environment	Climate Change	Carbon Emissions
		Climate Change Vulnerability
		Financing Environmental Impact
		Product Carbon Footprint
	Natural Capital	Biodiversity & Land Use
		Raw Material Sourcing
		Water Stress
	Pollution & Waste	Electronic Waste
		Packaging Material & Waste
		Toxic Emissions & Waste
	Environmental Opportunities	Opportunities in Clean Tech
		Opportunities in Green Building
		Opportunities in Renewable Energy
Social	Human Capital	Health & Safety
		Human Capital Development
		Labor Management
		Supply Chain Labor Standards
	Product Liability	Chemical Safety
		Consumer Financial Protection
		Privacy & Data Security
		Product Safety & Quality
		Responsible Investment
	Stakeholder Opposition	Community Relations
		Controversial Sourcing
	Social Opportunities	Access to Finance
		Access to Health Care
		Opportunities in Nutrition & Health
Governance	Corporate Governance	Board
		Pay
		Ownership & Control
		Accounting
	Corporate Behavior	Business Ethics
		Tax Transparency

2.1 Rating & scores

The top-level assessment is the overall Company ESG Rating, an industry-relative seven-point letter rating scale from AAA to CCC. These assessments are not absolute but are explicitly intended to be interpreted relative to a company's industry peers. The Company ESG Rating is derived from the final Industry-Adjusted Company Score, based on an assessment of the underlying data available at the last ESG Rating action date.

Exhibit 2: The final Industry-Adjusted Company Score mapped to a letter rating

Letter Rating	Leader/Laggard	Final Industry-Adjusted Company Score
AAA	Leader	8.571* - 10.0
AA	Leader	7.143 – 8.571
A	Average	5.714 – 7.143
BBB	Average	4.286 – 5.714
BB	Average	2.857 – 4.286
B	Laggard	1.429 – 2.857
CCC	Laggard	0.0 – 1.429

**Appearance of overlap in the score ranges is due to rounding error. The 0-to-10 scale is divided into seven equal parts, each corresponding to a letter rating.*

- **Industry-Adjusted Company Score**: This score is calculated by normalizing the Weighted Average Key Issue Score relative to the ESG Rating industry peer group, based on score ranges set by the benchmark values in the peer set.
- **Weighted Average Key Issue Score (WAKIS)**: This is calculated for each company based on the weighted average of the scores received on:
  - All the individual Environmental and Social Key Issues contributing to the rating of the company; and
  - The Governance Pillar Score.
- 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 10, the Governance Pillar Score is based on the sum of deductions derived from Key Metrics included in the Corporate Governance (comprising Ownership & Control, Board, Pay and Accounting) and Corporate Behavior (comprising Business Ethics and Tax Transparency) Themes.
- **Key Issue Scores (Environmental and Social Themes):** 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. These are calculated using the Key Issue Exposure Score and Key Issue Management Score.

2.1.1 Interpreting Environmental and Social Key Issue Scores

Exhibit 3: Risk-based Key Issue Scores (0-10)

10	Companies with a key issue score of 10 on risk-based ESG key issues have very strong management measures relative to their exposure to the ESG risk. A company with very strong management measures may have robust governance structures, improvement targets, better performance on quantitative metrics relative to industry peers, and an absence of controversies. Companies with a key issue score of 10 do not have very high exposure to the ESG risk.

5	Companies with a key issue score of 5 on risk-based ESG key issues have moderate management measures relative to their exposure to the ESG risk.
0	Companies with a key issue score of 0 on risk-based ESG key issues have very poor management measures relative to their exposure to the ESG risk. Typically, companies with a key issue score of 0 also have very high exposure to the ESG risk.

Exhibit 4: Opportunity-based Key Issue Scores (0-10)

10	Companies with a key issue score of 10 on opportunity-based ESG key issues have very strong positioning to meet market demand for the provision of products and services that have a positive environmental or social contribution.
5	Companies with a key issue score of 5 on opportunity-based ESG key issues have moderate positioning to meet market demand for the provision of products and services that have a positive environmental or social contribution.
0	Companies with a key issue score of 0 on opportunity-based ESG key issues do not have initiatives to meet market demand for the provision of products and services that have a positive environmental or social contribution.

2.2 Supplemental scores

Supplemental scores are also calculated that do not directly contribute to the overall ESG Rating, but provide users of ESG Ratings with additional or specific insights.

2.2.1 Pillar Scores

Pillar Scores across the Environmental and Social Pillars are calculated based on the weighted average of Key Issue Scores underlying each Pillar, normalized by the total sum of weights underlying each Pillar.

- The Environmental Score represents the weighted average of all Key Issues that fall under the Environmental Pillar.
- The Social Score represents the weighted average of all Key Issues that fall under the Social Pillar.

2.2.2 Theme Scores

Theme Scores across the Environmental and Social Pillars (8 out of 10 Themes) are calculated based on the weighted average of Key Issue Scores underlying each Theme, normalized by the total sum of weights underlying each Theme.

In the Governance Pillar, for both the Corporate Governance and Corporate Behavior Themes, a Theme Score is calculated.

Theme Scores range from 0 to 10, with lower scores indicating more severe risk.

2.2.3 Governance Key Issue Scores

Each Key Issue represents a broad area of governance risk. For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores indicating more severe risk.

2.2.4 Governance Theme and Key Issue percentiles

To complement the 0-10 Theme Score and Key Issue Scores, percentile rankings are calculated and published for each Theme and Key Issue. The percentiles assess a company's relative performance against other companies, with percentile rankings ranging from 0 to 100. Two types of percentile rankings are published:

- Home Market: percentile rankings calculated against the constituents of a particular Home Market,[1] and
- Global: percentile rankings calculated against the entire coverage universe.

Percentile rankings may be interpreted as set out in Exhibit 5 below, to identify leaders and laggards.

Exhibit 5: Interpreting percentile rankings

Percentile Rankings	Description
96 - 100	Best in class
76 - 95	Above average
26 - 75	Average
6 - 25	Below average
0 - 5	Worst in class

2.3 Pillar, Theme and Key Issue weights

The Key Issue weights used in the calculation of the Weighted Average Key Issue Score are published for the Environmental and Social Key Issues.

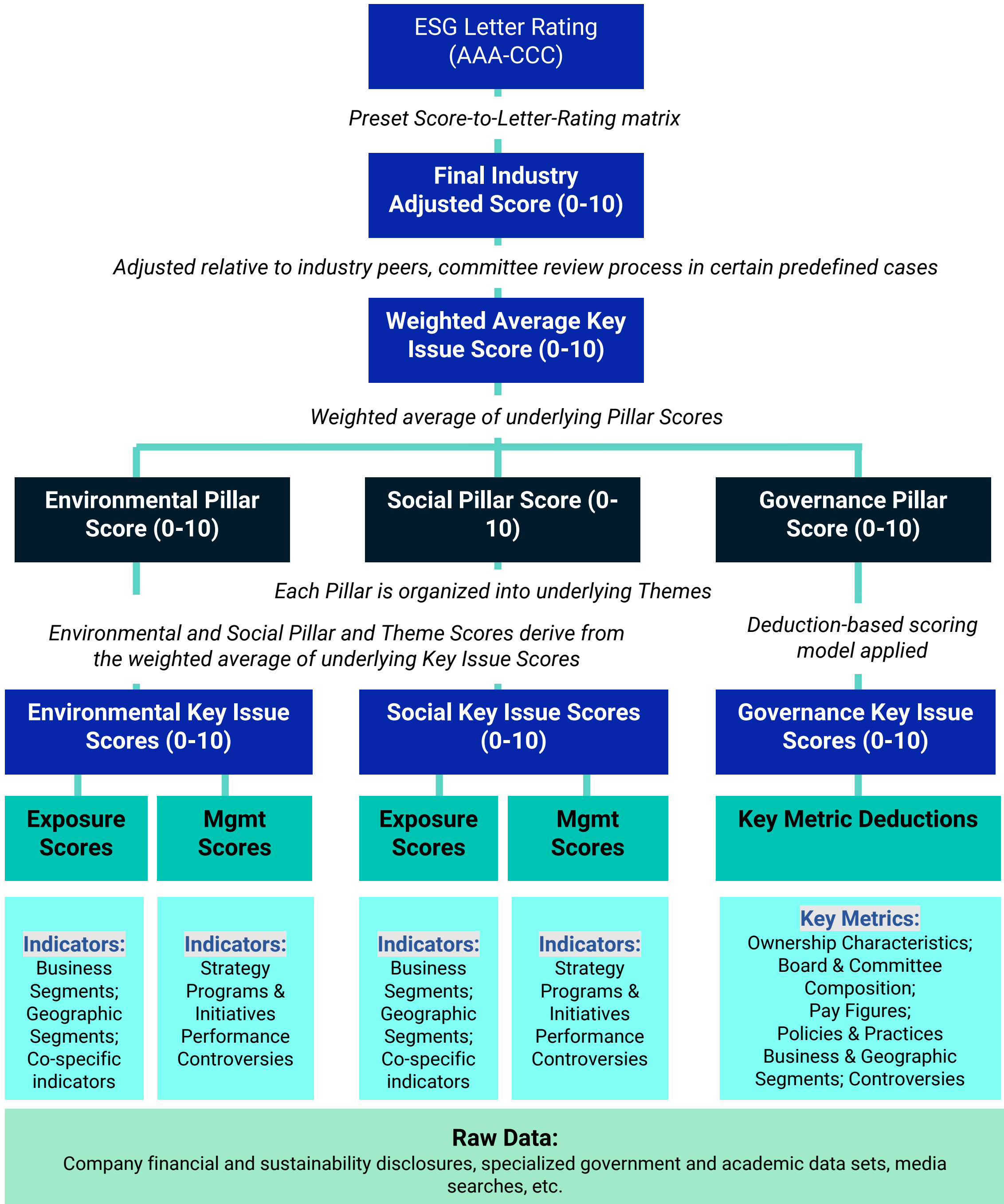
For Governance, as weight-setting is undertaken at the Pillar level, and due to the nature of the deduction-based scoring model in the Governance Pillar, Key Issue weights are not available.

In addition, weights are published for each of the three Pillars.

- The Environmental Weight represents the sum of the weights of all Key Issues that fall under the Environmental Pillar.
- The Social Weight represents the sum of the weights of all Key Issues that fall under the Social Pillar.
- The Governance Weight is a standalone calculation and is floored at 33%.

[1] Home Markets are selected as set out in Appendix 6: Home-Market selection.

Exhibit 6: Hierarchy of ESG Scores



3 Methodological steps

3.1 ESG Key Issues

3.1.1 Determining ESG Key Issues

The research process begins with an in-depth assessment of the ESG risks and opportunities that are relevant to each industry. There are 27 Environmental and Social Key Issues, and industries are evaluated on a selection of two to seven of these key issues. Key Issue selection is based on an annual review of underlying data and review by analytical staff. This process is explained in more detail below.

Universal Key Issues

All companies in all industries are evaluated on the Key Issues under the Governance Pillar, with six governance Key Issues evaluated across two Themes: Corporate Governance and Corporate Behavior (See Section 3.4.5, Determining Governance Scores, for the slightly different treatment of supranationals and development banks). This is based on MSCI ESG Research's view that governance is universally important and should be evaluated in an integrated way, regardless of industry.

Setting industry Key Issues

ESG Key Issues are selected for each of the 163 sub-industries defined by the Global Industry Classification Standard (GICS®).[2] The Environmental and Social Key Issues vary between industries and are selected based on the extent to which the business activities of the companies in each industry generate large environmental- or social-related externalities. The steps are as follows:

- For each company, reported business segments are mapped to a standard business activity. MSCI ESG Research uses the Standard Industrial Classification (SIC) system along with industry-specific adjustments to define business activities.
- Each business activity is assessed on the level of externality generated for each ESG Key Issue to derive a Business Segment Exposure Score.
- For instance, MSCI ESG Research measures the externality for the Health and Safety Key Issue based on the extent to which companies' business segments are prone to injuries and fatalities. The data is based on industry statistics from the International Labour Organization (ILO) and health and safety authorities such as the Occupational Safety & Health Administration (OSHA).
- For a company operating underground coal mines (SIC 1222), the average fatality rate per 1,000 employees is 0.45; for a company operating surface coal mines (SIC 1221), the average fatality rate per 1,000 employees is 0.13. These metrics are converted into a 0-10 score, based on the relative ranking of industry intensities.
- Each company's overall Business Exposure Score is the weighted average of the Segment Exposure Scores of a company's business segments, weighted by the percentage of sales,

[2] GICS is the global industry classification standard jointly developed by MSCI and S&P Global Market Intelligence.

percentage of assets or percentage of operations. This constitutes the company's Business Segment Exposure score.

- MSCI ESG Research ranks all 163 GICS sub-industries on each Key Issue based on the average ESG Business Segment Risk Exposure score of the underlying companies.

The example shown in Appendix 2: Example of industry Key Issue selection illustrates how the carbon intensity of each GICS sub-industry is used to determine whether the Carbon Emissions Key Issue should be considered an industry Key Issue.

Typically, MSCI ESG Research will propose changes to industry Key Issues based on the following:

- The addition of an ESG Key Issue for a GICS sub-industry when the size of the externality (based on the average Business Exposure Score of the companies in that sub-industry) is at or exceeds the 80th percentile of all sub-industries and the average Business Exposure Segment Risk Exposure score is greater than or equal to 5.0.
- The removal of an ESG Key Issue for a GICS sub-industry when the size of the externality (based on the average Business Exposure Score of the companies in that sub-industry) is at or below the 70th percentile of all sub-industries and the average Business Exposure Score is less than or equal to 3.3.

In Q4 of each calendar year, MSCI ESG Research institutes a *30-day client consultation and comment period* during which feedback is solicited on proposed changes to the industry Key Issues.

Company-Specific Key Issues

In some cases, a company may face a unique Environmental or Social Key Issue that is not shared by other companies in its industry. This can arise from several scenarios, ranging from companies with unique or diversified business models to subsets of companies within an industry that face a unique set of risks (see Exhibit 7). In these cases, a Company-Specific Key Issue is added to the analysis and the weights on the remaining Key Issues are reduced proportionally.

In other cases, a company may not share a particular Environmental or Social Key Issue that other companies in its industry face. In such cases, the issue is removed from the analysis and the weights on the remaining Key Issues are increased proportionally.

Exhibit 7a: Guideline for adding Company-Specific Key Issues

Description	Rule	Key Issue Addition	Examples
Company sources significant revenue from secondary industry	>20% revenue or earnings derived from secondary business line	Most relevant key issue facing secondary business line	**Tiffany** (Retail) >20% revenue from fine jewelry, add Controversial Sourcing
Company has large footprint in secondary industry	High absolute size of secondary business line relative to peers	Most relevant key issue facing secondary business line	**Disney** (movies & entertainment) among world's largest toy manufacturers, add Supply-Chain Labor Standards

Description	Rule	Key Issue Addition	Examples
Company has a unique business model	Exception-based, ESG Ratings Methodology Committee approval required	Most relevant key issue	**Herbalife** (personal products) sells weight supplements and is regulated by food safety bodies, add Product Safety & Quality
Company faces a severe or very severe controversy on non-Key Issue	Based on severity, status, and date of controversy	Key Issue mapped to that controversy	**Sysco Corporation** faces severe controversy in Labor Management

Exhibit 7b: Examples of industry-based rules for adding Company-Specific Key Issues

Description	Rule	Key Issue Addition	Examples
Utilities with significant hydro operations	Based on % capacity, absolute capacity (megawatts [MW]), and geographic presence in biodiversity hotspots	Biodiversity & Land Use	**Eletrobras** has total hydro capacity > 35,000 MW, representing 85% of capacity, and operates in biodiversity hotspots in Brazil
Casinos operating hotels in water-stressed regions	>20% revenue from hotels in water-stressed zones	Water Stress	**Las Vegas Sands** derives >20% from hotel operations located in highly water-stressed areas
Semiconductor companies reliant on outsourced manufacturing	Reliance on outsourced production vs. in-house production	Supply-Chain Labor	**Samsung Electronics** outsources most of its production and has significant brand recognition

Note: This list of exceptions is not exhaustive but is intended as illustration only

Analysis of the Company-Specific Key Issue contributes to the company's overall rating but does not contribute to the ratings of industry peers that are not significantly affected by that particular Key Issue. All Company-Specific Key Issues are reviewed and approved by the ESG Ratings Methodology Committee.

Companies in diversified industries such as industrial conglomerates, trading companies & distributors, diversified support services, diversified consumer services, specialty retail, and specialized real estate investment trusts are the most frequently evaluated on Company-Specific Key Issues. For these industries, analysis of each company's business model is undertaken at the outset of industry research.

Company Specific Key Issue adoption rate:

As of March 22, 2024, approximately 21% of companies were evaluated on a Company-Specific Key Issue.

3.1.2 Setting ESG Key Issue weights

Once the Key Issues have been selected for a GICS sub-industry, MSCI ESG Research sets the weights that determine the contribution to the overall rating of:

- Each Key Issue in the Environmental and Social Pillars; and
- The Governance Pillar.

Each Environmental and Social Key Issue typically comprises 5% to 30% of the total ESG Rating. The weights for these Key Issues are determined for each GICS sub-industry based on the sub-industry's contribution to the negative externality associated with the Key Issue and the expected time horizon for the Key Issue to materialize, as illustrated conceptually in Exhibit 8, below.

For the Governance Pillar, the weight is set at the Pillar level rather than at the key issue level. The Governance Pillar weight is determined for all sub-industries assuming a "High Contribution/Long Term" and "Medium Contribution/Long Term" assessment on Corporate Governance and Corporate Behavior, respectively.[3] Additionally, the weight on the Governance Pillar is floored at a minimum value of 33%.

Company-specific Key Issues and weights are permitted, subject to committee approval, for companies with diversified business models, facing controversies or based on predefined rules that apply to certain industries.

Key Issues and weights undergo a formal review and feedback process at the end of each calendar year.

Exhibit 8: Framework for setting Key Issue weights

	Short-term time frame for Risk/Opportunity to Materialize (<2 years)	**Long-term time frame for Risk/Opportunity to Materialize** (5+ years)
Industry is a **major** contributor to environmental or social impact	**Highest Weight**	
Industry is a **minor** contributor to environmental or social impact		**Lowest Weight**

The framework is such that a Key Issue defined as "High-Impact" and "Short-Term" would be weighted three times higher than a Key Issue defined as "Low-Impact" and "Long-Term."

- **Level of contribution to social or environmental externality**: In the process outlined above, each GICS sub-industry is assigned a "High," "Medium," or "Low" impact for each Key Issue, based on MSCI ESG Research's analysis of relevant data (e.g., average carbon emissions

[3] In cases where the Corporate Governance Score cannot be calculated for the Governance Reference Entity due to insufficient disclosure, the Governance Pillar Score is calculated solely by reference to the Corporate Behavior Key Issue.

intensity). For Key Issues where the primary risk materializes via an event such as a controversy, MSCI ESG Research looks at the severity of the controversies to determine the level of contribution to the Environmental or Social externality. For instance, occurrence of severe/very severe controversies is viewed as having a high level of contribution to the concerned externality. Conversely, occurrence of minor controversies is viewed as having a low level of contribution to the concerned externality. Conversely, if many companies in an industry are observed to experience severe controversies in an area, then the level of contribution is determined to be High. At the same time, if many companies in an industry are observed to experience minor or no controversies in an area, then the level of contribution is determined to be Low.

- **Expected time horizon of risk/opportunity**: The time horizon of each Key Issue (Short-Term, Medium-Term, Long-Term) is classified based on the type of risk or opportunity that each Key Issue presents to companies.
- Each Key Issue is assigned a baseline time horizon (for example, depending on whether the risk is driven by pending regulations versus a slower time horizon issue, such as consumer demand shift).
- In some cases, the time horizon of a single Key Issue can vary between industries (for example, Labor Management is defined as a Medium-Term issue when its relevance is to general worker productivity but is considered Short-Term in industries where labor disruptions and stoppages are very common).

The final set of Key Issues and accompanying weights must be approved by the sector team leader and the ESG Methodology Committee before the research process progresses. Weights are set at the beginning of the calendar year and apply throughout that year.

Please see Appendix 3: Weight-setting framework for further information on this process.

3.1.3 Key Issue assessments

Depending on the nature of the Key Issue, one of three evaluation approaches is undertaken:

- **Risk Key Issues**: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue Score. The ESG Risk Exposure Score is calculated referencing a granular breakdown of a company's business: its core product or business segments, the locations of its assets or revenue, and other relevant measures such as outsourced production. See Section 3.2: Analyzing Risk Exposure and Section 3.3: Analyzing Risk Management.
- **Opportunities Key Issues**: A Risk Exposure Score and a Risk Management Score are combined such that a higher level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (out of 10).
- **Governance Key Issues**: For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores indicating more severe risk. See Section 3.4: Analyzing Governance.

3.2 Analyzing risk exposure

In the Environmental and Social Pillars, each Key Issue model consists of two components: risk exposure and risk management.[4] This distinction allows the 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***.

Conversely, the model does not penalize companies with minimal risk management strategies if they face low or minimal exposure to the specific risk.

For Key Issues that assess opportunities rather than risk, MSCI ESG Research evaluates each company's exposure to assess the relevance of those particular business opportunities for a given company.

3.2.1 ESG Risk Exposure model

MSCI ESG Research's assessment of risk exposure may comprise three different areas of analysis, depending on the Key Issue:

- **Business Risk Exposure** — analyzes the breakdown of a company's business in terms of revenue, assets or operations.
- **Geographic Risk Exposure** — analyzes the breakdown of a company's geographic segments in terms of revenue, assets or operations.
- **Company-Level Risk Exposure factors** — such as number of employees, size, reliance on government contracts or reliance on outsourced production.

Business Exposure is a weighted average of the Business Segment Exposure Scores of a company's business segments, adjusted for the proportion of total assets or revenue for which each segment accounts. The Business Segment Exposure score measures the extent of the externality generated by each business activity (for example, the carbon emissions generated per dollar of revenue by cement production).

MSCI ESG Research uses the Standard Industrial Classification (SIC) system along with industry-specific adjustments to define business activities. In some industries where SIC-based industries lack sufficient granularity for an accurate ESG risk assessment, MSCI ESG Research creates business activities that more accurately represent a company's lines of business (see Exhibit 9).

[4] For Raw-Material Sourcing, risk exposure and risk management are assessed at a more granular material level (timber/paper, beef/dairy, seafood/aquaculture, palm oil, cotton, leather). For Corporate Governance (Ownership & Control, Board, Pay, Accounting) a different scoring approach is applied. See Section 3.5.4: Calculating Governance Scores, below

Exhibit 9: Examples of MSCI's business-segment mapping

Official SIC Segment	Additional MSCI Business Activities	Justification
1021 Copper Ores 1031 Lead and Zinc Ores 1041 Gold Ores 1044 Silver Ores 1061 Ferroalloy Ores 1099 Misc. Metal Ores	Each category segmented by **Surface Mining** vs. **Underground Mining**	Varying land disturbance, accident rates
1311 Crude Petroleum & Natural Gas	**Oil Extraction – Onshore:** Conventional, Shale, Artic, Oil Sands – Mining, Oil Sands – In Situ, Oil Sands – Bitumen/SCO, Heavy Oil; **Oil Extraction – Offshore:** Shallow, Deepwater, Arctic **Natural Gas Extraction – Onshore:** Conventional, Shale, Arctic, coal-seam gas (CSG)/coalbed methane (CBM); **Natural Gas Extraction – Offshore:** Shallow, Deepwater, Arctic	Varying land disturbance, carbon emissions, water intensity, accident rates
3674 Semiconductors	**Fab** vs. **Fabless**	Varying water intensity
4911 Electric Services	**Power Generation**: Hard Coal, Lignite, Liquid Fuel, Natural Gas, Nuclear, Hydroelectric, Renewables; **Transmission; Distribution**	Varying land disturbance, carbon emissions, water intensity, toxic emissions
6512 Operators of Buildings 6552 Land Sub-dividers & Developers 6798 Real Estate Investment Trusts	Each category segmented by: **Residential**: Single-Family, Multi-Family; **Retail**: Non-Shopping Mall, Shopping Mall; **Healthcare**: Inpatient, Outpatient; **Office; Recreation; Restaurants; Food & Grocery Markets; Hotels & Residential Care; Warehousing; Other**	Varying energy intensity, green building incentives and regulations

Geographic Exposure is a weighted average of the Geographic Segment Exposure Scores of the countries and regions in which a company operates. The methodology to calculate Geographic Segment Exposure Scores varies and is relevant only for certain Key Issues. Generally, each methodology relies on external data sets and assessments by MSCI ESG Research to differentiate countries on a variety of factors, including:

- Regulatory (ex: stringency of regulations, differences in subsidies).
- Natural (ex: physical hazards, resource availability)

- Social and governance (ex: perceptions of corruption, frequency of employee fatalities)

For certain Key Issues, additional factors are used to evaluate companies' risk exposure, such as the number of employees, the volume of sensitive commodities sourced, and the percentage of sales from private label goods.

Please see individual Key Issue methodology documents for a list of metrics and data sources used to assess the risk exposure of companies on each Key Issue.

3.2.2 Determining Exposure Scores

In the Environmental and Social Pillars, Exposure Scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's level of exposure to this specific Key Issue based on its unique mix of business and geographic segments. The 0-10 score is calculated in the following steps:

1. Weighted average Business Exposure Score, based on 0-10 Business Exposure Scores for each business line weighted by percentage of assets, percentage of revenue or percentage of operations;
2. Combined with company-specific factors, if applicable (e.g., size of workforce, percentage outsourced, etc.); and
3. Multiplied by geographic multiplier, if applicable. The exposure score can increase/decrease by up to 50%, based on the geographic mix of assets or revenue.

The final result is a 0-10 Exposure Score, where 0 indicates lowest exposure to this Key Issue, and 10 indicates highest exposure to this Key Issue.

3.3 Analyzing Risk Management

3.3.1 Components of Risk Management assessment

In the Environmental and Social Pillars, MSCI ESG Research's assessment of a company's ability to manage its risk exposure on a Key Issue typically falls into three broad categories:

- Strategy & Governance
- Initiatives & Programs
- Performance

Although specific indicators differ across Key Issues, the Strategy & Governance section typically evaluates organizational capacity and company management's level of commitment to address the key risks and opportunities, including such aspects as the level and extent of organizational responsibility for the specific risks/opportunities, strength and scope of policy commitments, and strength and scope of commitment to standards.

The Initiatives section typically evaluates the strength and scope of the initiatives, programs and targets in place to improve performance on the Key Issue.

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. As part of the qualitative indication of a company's performance on an ESG Key Issue, MSCI ESG Research incorporates information on controversies in which a company has been implicated.

3.3.2 Controversies cases

MSCI ESG Research has a dedicated team of ESG analytical personnel who identify and assess on an ongoing basis the severity of controversy cases that involve companies in the ratings universe.

A controversy case is defined as an instance or ongoing situation in which company operations and/or products allegedly have a negative environmental, social and/or governance impact. Cases include alleged company violations of existing laws and/or regulations to which they are subject; or an alleged company action or event that violates commonly accepted international norms, including but not limited to norms represented by global conventions such as the United Nations (UN) Global Compact.

A case is typically a single event such as a spill, accident or regulatory action, or a set of closely linked events or allegations such as health and safety fines at the same facility, multiple allegations of anticompetitive behavior related to the same product line, multiple community protests at the same company location or multiple individual lawsuits alleging the same type of discrimination.

Each controversy case is assessed for the severity of its impact on society or the environment and consequently rated Very Severe (reserved for "worst of the worst" cases), Severe, Moderate or Minor.

To reach these assessments, each case is analyzed along two dimensions.

- The nature of harm, on a scale ranging from Very Serious to Minimal harm.
- The scale of impact, on a scale ranging from Extremely Widespread to Low impact.

These assessments are combined in the matrix below to reach an initial determination of severity, with multiple possible scenarios able to yield the same severity assessment through various combinations of scale of impact and nature of harm.

Exhibit 10: Assessment of controversies

	Very Serious Nature of Harm	Serious Nature of Harm	Medium Nature of Harm	Minimal Nature of Harm
Extremely Widespread Scale of Impact	**Very Severe**	Severe	Severe	Moderate
Extensive Scale of Impact	**Very Severe**	Severe	Moderate	Moderate
Limited Scale of Impact	Severe	Moderate	Minor	Minor
Low Scale of Impact	Moderate	Moderate	Minor	Minor

Exacerbating circumstances:

While the initial severity assessment is determined by a controversy case's placement on the matrix, certain circumstances may warrant a final assessment that is more severe. The following rules allow for such adjustments.

- The ESG controversy negatively impacts the most vulnerable demographics. The definition of vulnerable demographics is limited to national, ethnic, racial and religious groups (including indigenous people) currently subject to serious, systemic and prolonged human rights violations as defined by international bodies and standards such as UN Convention on the Prevention and Punishment of the Crime of Genocide or the United Nations Declaration on the Rights of Indigenous Peoples, and investigated by the International Criminal Court and/or international human rights advocacy groups, such as Amnesty International and Human Rights Watch.
- The ESG controversy negatively impacts the most vulnerable ecosystems. MSCI ESG Research defines vulnerable ecosystems as those included on the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List.
- When there are allegations that the company or company's representatives or employees are involved in activities constituting deliberate action with regard to social or environmental harm. These may include deliberate obstruction of investigations, attempts to cover up the event or activity or the punishment or termination of employees voicing their concerns or participating in protests against the company.
- Cases that meet the criteria for exacerbating circumstances may have a final assessment that is more severe than the initial severity assessment derived from the nature and scale of impact alone. As events unfold or additional information becomes available, the severity of a given case may be reassessed as warranted.

Selective incorporation of controversies into the ESG Rating Model

While every controversy case may signal reputational risk, not every controversy is judged to pose material risks; therefore, not every controversy affects the company's overall rating.

MSCI ESG Ratings typically assess whether the controversy case indicates structural problems with a company's risk management capabilities. In the ESG Rating methodology, a controversy case that is deemed by ESG analytical personnel to indicate structural problems that could pose future material risks for the company triggers a larger deduction from the Key Issue Score than a controversy case that is deemed to be an important indicator of recent performance but not a clear signal of future material risk. Conversely, if a case is brought to the ESG Ratings Methodology Committee as per predefined criteria, ESG analytical personnel can propose to exclude a controversy case from the risk management assessment when a controversy case has been addressed by a company's management practices and deemed unlikely to pose future material risk to the company.

3.3.3 Standardization and benchmarking

A key component of the analytical process is to standardize the data that ESG data experts collect with an aim to accurately gauge companies' risk management capabilities.

> **Example**: ESG data experts collect historical data on health and safety rates, which are often not comparable in terms of the units reported or the scope covered (e.g., statistics cover

contractors versus employees only, or joint ventures versus wholly owned subsidiaries only). ESG data experts normalize data across companies that report differently with an aim to allow uniform industry benchmarking.

Analyzing the targets that companies commit to on a Key Issue, such as targets on reducing water consumption in response to operational risks arising from Water Stress, is another example of where ESG analytical personnel compare the strength of companies' commitments.

While the indicators used to score companies on each Key Issue are standardized across industries that face the same Key Issue, which facilitates comparisons across industries on each Key Issue, ESG analytical personnel delve into industry-specific or region-specific information where possible when scoring the indicators with a goal to capture the risks and opportunities companies face in each industry.

Example: Biodiversity & Land Use Key Issue metric: "To what extent do companies minimize disturbances from operations?"

In MSCI ESG Research's Oil & Gas research, ESG data experts collect data on the total barrels of oil spilled and the intensity of the spills (barrels spilled per USD sales); ESG analytical personnel rank the results on oil spills, which are then translated into 0-10 scores for this metric in the Key Issue model.

3.3.4 Variations in disclosure

While the ESG Rating model and analysis process encompasses in-depth analysis of industry-specific data and Key Issues, MSCI ESG Research's ratings methodology has also been designed to accommodate large variations in norms of disclosure, including low to almost no ESG disclosure among companies that are smaller in market capitalization, operate in less environmentally intensive industries, and/or in regions newly aware of ESG Key Issues, without overly penalizing lack of disclosure.

The structure of the model is such that half of the contribution of Environmental and Social Key Issues to the overall ESG Rating comes from an assessment of a company's Risk Exposure. Because company-level inputs required for MSCI ESG Research's assessment of Risk Exposure come from standard financial disclosure, typically, no modification in the model is necessary to accommodate companies with lower ESG disclosure.

For the Risk Management assessment, where analysis is more reliant on ESG-specific company disclosure, MSCI ESG Research has identified, through testing, a set of baseline indicators that meet the dual criteria of being most often disclosed and most likely to differentiate companies from industry peers on Risk Management capabilities on each Key Issue.

Where there is no company disclosure on an indicator falling into the Performance category of Risk Management, the ESG Ratings analytical approach does not assume that the company's performance category is "worst." Instead, the methodology assigns a performance level that is below average in the industry context.

Example: In the Health & Safety Key Issue, data experts collect extensive data points on injury and fatality rates that can be used to discern performance trends. Analysis of this data is used to calculate a score for the indicator: "Rate the company's performance on the above metrics (injury and fatality statistics), in the context of its industry peers?"

A score of 0 indicates worst performance in the industry context, while a score of 10 indicates best performance in the industry context. When lack of disclosure on injury or fatality rates prevents a rigorous performance analysis, the model assigns a score of 3 out of 10.

Where there is no company disclosure on an indicator falling into the Initiatives category of Risk Management on a Key Issue, the ESG Ratings analytical approach depends on where the company has the bulk of its operations and whether risk management initiatives for the Key Issue in question are common.

Example: In the Biodiversity & Land Use Key Issue, ESG analytical personnel assess companies' efforts to minimize disturbances from their operations. For companies that operate primarily in highly regulated markets but lack disclosure on minimizing environmental disturbance, MSCI ESG Research assumes they met at least a basic standard, leading to a score of 3 out of 10.

The existence of mitigation efforts is not assumed for companies mainly operating in markets with limited environmental protections and enforcement.

Example: In contrast, in the case of Supply Chain Labor Standards Key Issue, MSCI ESG Research assumes that the lack of disclosure of an explicit Code of Conduct for suppliers indicates that the company may not have such a policy in place, thereby raising the risks of poor labor standards in its supply chain that can lead to operational disruptions and reputational damage.

When a company's lack of disclosure on specific Key Issues leads to uncertainty in assessing its performance relative to peers, the ESG Ratings company report explicitly points out this uncertainty in assessing the company's performance.

In certain cases, MSCI ESG Research uses estimates when a company-disclosed figure is not available. Estimates are typically derived from industry averages, regional criteria and extrapolation from company disclosures to derive more granular values.

3.3.5 Determining Management Scores

In the Environmental and Social Pillars, management scores ranging from 0 to 10 are calculated for each Key Issue, indicating a company's strategy, programs and proven track record on this Key Issue. The 0-10 score is calculated in the following steps:

- Each underlying indicator collected is transformed into a 0-10 score, where 10 indicates best practice and 0 indicates a lack of management.
- Scores are equally weighted within each management category. For example, if three indicators are assessed to determine a company's Strategy, then these three indicators are equally weighted in determining a Strategy Score.
- Category-level scores are equally weighted to determine an overall management score, before taking Controversies into account. For most Key Issues, Management Score is determined as a simple average of practices (typically comprising indicators related to strategy, policies, programs, initiatives and targets) and performance (including indicators related to performance trends vis-à-vis prior years and vis-à-vis industry peers).

- A controversy deduction ranging from 0 to -5.0 points is subtracted from the overall Management Score, based on the severity and type of controversies facing the company on a particular Key Issue:

Exhibit 11: Controversy deductions from Management Scores

	Structural	Non-Structural
Very Severe	-5.0	-3.0
Severe	-2.5	-1.7
Moderate	-1.3	-0.8
Minor	-0.4	-0.0

3.4 Analyzing Governance

The methodology used to evaluate a company's performance on the Governance Pillar is different from the one used to assess performance on the Environmental and Social Pillars. Environmental and social risks are typically industry-specific (certain Key Issues only matter for certain types of companies) 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. While some governance risks are universal, others may differ based on ownership structure, the dynamics between key stakeholders, and cultural aspects, as well as the evolution of investor protections in the relevant market.

Because Corporate Governance and Corporate Behavior are universally relevant and closely intertwined, governance is assessed through an approach that quantifies the gap between a company's governance practices and what is considered best practice, and identifies the governance risks faced by its investors.

A deduction-based scoring model is applied, whereby each company starts with a perfect 10 score and scoring deductions are applied based on the assessment of the Key Metrics.

3.4.1 Key Metrics

Key Metrics are the foundational unit of the corporate governance scoring model. Each Governance Key Metric evaluates a specific aspect of a company's corporate governance risk profile. A Key Metric may signify the presence of a certain type of ownership structure or governance risk factor, or the absence of a policy or practice that is seen as mitigating pertinent governance risks.

Key Metric flags are pass/fail evaluations that help users of ESG Ratings understand which Key Metrics are influencing a company's Theme Score or Key Issue Scores. In data feeds and in MSCI's Screener tool, these flags are presented as 0 or 1 values, with 1 indicating that the Key Metric is flagged.

While some Key Metrics will be flagged for very few companies, others will be flagged for many companies. This allows the scoring model to isolate both leaders and laggards and present a score distribution across the full 0-10 range.

For each Key Metric, MSCI ESG Research also calculates a points value that is used in the calculation of the Key Issue and Theme Scores. The Key Metric Points are converted into a Score Contribution, which is published.

3.4.2 Controversies and events

A controversy case is defined as an instance or ongoing situation in which company operations and/or products allegedly have a negative environmental, social and/or governance impact.

Other cases may not be classed as being controversial but may provide relevant insights into a company's governance risk profile. Examples of such events might be breaches or waivers of debt covenants, the ability to meet continuing obligations in relation to a listing of securities, or goodwill write-downs that might raise concerns over the quality of past board decisions.

Certain Key Metrics are controversy- or event-based. Some of these Key Metrics apply score deductions that vary based on the severity of the controversy evaluation or based on certain thresholds being met by the event.

3.4.3 Standardization and benchmarking

A key component of the analytical process is to standardize the data that data experts collect with an aim of gauging companies' governance risks.

> **Example**: The independence of directors is assessed based on a standardized set of evaluation criteria that are applied globally. While these standards may differ from those applied in a given market, this approach offers more comparability across boards.

Peer-based Key Metrics use standardized data to generate rules-based peer groups for comparison and evaluation.

> **Example**: The evaluation of CEO Pay uses a standardized methodology for calculating total pay figures and a standardized set of rules for peer group construction, both of which are set out in the individual Key Issue methodology document devoted to the Pay Key Issue.

3.4.4 Variations in disclosure

Disclosure practices vary depending on jurisdictions of incorporation or regulation, securities listings and other factors. MSCI ESG Research assesses instances of nondisclosure based on the significance of that disclosure to the scoring model and based on the significance of that disclosure to an understanding of the company's corporate governance risk profile. Specifically:

- **Board members**: If the company's board members are not disclosed, no Corporate Governance Theme Score is published. This reflects the importance of an assessment of the board to the scoring model.
- **Governance policies and practices**: If the company has not disclosed whether a given policy exists or whether the board has adopted a given practice, MSCI ESG Research assumes that the policy or practice does not exist and/or has not been adopted.

  > **Example**: If a company has not disclosed whether it has adopted a clawback policy that applies to its short- and long-term incentive pay, this nondisclosure will be interpreted as the absence of a clawback policy. The company would therefore be flagged under the Clawbacks & Malus Key Metric.

- **Quantitative data**: If the company has not disclosed quantitative data used to calculate a Key Metric's score, MSCI ESG Research may apply a mid-range score deduction based on the potential range of score deductions under that Key Metric.

  Example: The Auditor Tenure Key Metric provides a variable score based on the disclosed tenure of the company's auditor. Where the auditor's tenure is not disclosed, a default nondisclosure deduction is applied. The value of this deduction is set at 50% of the deduction that would apply for an auditor having served for longer than 20 years.

- Jurisdictional defaults: Some items are scored based on mandatory rules within the company's jurisdiction of incorporation and/or relating to the company's securities listings.

  Example: In markets outside the U.S., the "Shareholder Rights to Convene a Special Meeting" Key Metric is based on the minimum standard set out in the applicable company law, unless there is explicit evidence in the governing documents of a more permissive threshold being applied.

3.4.5 Determining Governance Scores

Key Metrics

Key Metrics are the foundational unit of the governance assessment. Each Key Metric evaluates a specific aspect of a company's governance risk profile and provides a simple pass/fail evaluation. When the metric result is a "fail" evaluation, the Key Metric is "flagged."

Some Key Metrics are relevant only to companies with specific governance characteristics stemming from ownership type, management structure or other factors.

Key Metric Points

For each Key Metric, MSCI ESG Research calculates a points value that is used in the calculation of the Key Issue and Theme Scores. The Key Metric Points are converted into a Score Contribution, which is published. A higher Score Contribution generally signals more-significant governance risk.

Key Issues

Each Key Metric is assigned a Category and organized into Key Issues. Each Key Issue represents a broad area of governance risk. For each Key Issue, an absolute score is provided. Key Issue Scores range from 0 to 10, with lower scores indicating more severe risk.

Corporate Governance and Corporate Behavior Theme Scores

The Key Metric points across all Key Issues are used to calculate the Theme Scores. Theme Scores range from 0 to 10, with lower scores indicating more severe risk.

Governance Pillar Score

The Governance Pillar Score is an absolute assessment of a company's overall governance that uses a universally applied 0-10 scale. A similar approach is taken to the calculation of the Theme Scores, except that the Key Metric points assigned across all Key Issues in all Themes are used to calculate the Pillar Score.

Supranationals and development banks

For supranationals and development banks, the Governance Pillar is comprised of the Corporate Behavior Theme Score (70% weight) and a Government Support Score (30% weight). The Government Support Score is based on the weighted average of member countries' Political Governance Risk Factor Scores, which are an input in MSCI ESG Government Ratings.

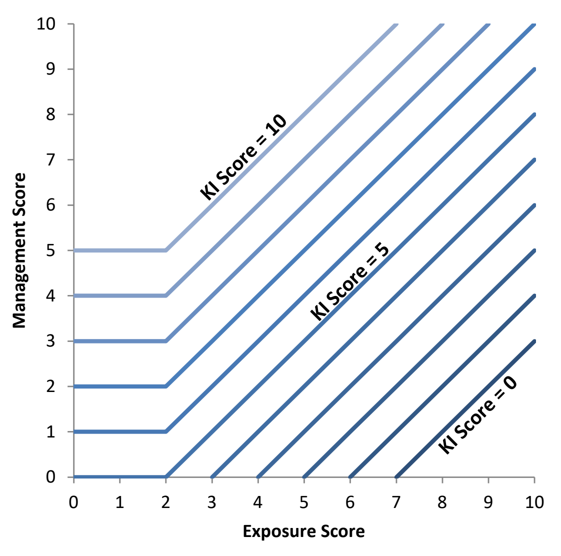
3.5 Calculating Key Issue, Theme and Pillar Scores

3.5.1 Determining Environmental and Social Key Issue Scores – risks

For Key Issues that assess risks, the Risk Exposure Score and Risk Management Score are combined such that a higher level of exposure requires a higher level of demonstrated management capability in order to achieve the same overall Key Issue Score (see Exhibit 12). The scoring model has the following additional features:

- In order to avoid situations in which a company would receive a very high overall Key Issue Score solely as a result of low exposure to that Key Issue, the model requires a minimum management threshold in order to achieve an overall Key Issue Score greater than 5 (see zone where Exposure score is 0-2 in Exhibit 12).
- Furthermore, at very high levels of exposure, the maximum possible Key Issue Score a company can achieve is lower than 10, indicating that regardless of a company's actions or programs to mitigate risk, a certain level of risk persists.

Exhibit 12: Combining Exposure and Management – risk Key Issues



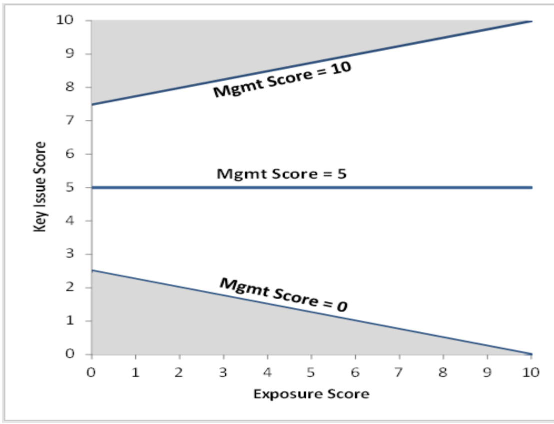
$$Key\ Issue\ Score = 7 - (MAX(exposure, 2) - management)$$

(Constrained 0-10, rounded to one decimal)

3.5.2 Determining Environmental and Social Key Issue Scores – opportunities

For Key Issues that measure opportunity (Opportunities in Clean Tech, Opportunities in Green Building, Opportunities in Renewable Energy, Opportunities in Nutrition & Health, Access to Finance, Access to Health Care, Access to Communications), the model for combining the Exposure Score and Management Score differs. Exposure indicates the relevance of this opportunity to a given company based on its current business and geographic segments. A high level of exposure permits a wider range of outcomes, whereas a low level of exposure constrains the score closer to a value of 5 (see Exhibit 13 below).

Exhibit 13: Combining Exposure and Management – opportunities Key Issues



The reasoning is that, at higher levels of exposure, companies have more to gain from exploiting the opportunity, but they also have more to lose from a competitive standpoint if they fail to capitalize on the opportunity. At low levels of exposure, MSCI ESG Research judges the immediate opportunities the company faces to be less material; however, strong management systems, product innovation or R&D programs may indicate a stronger capacity to take advantage of future opportunities and a competitive advantage for the firm.

$$\boldsymbol{Key\ Issue\ Score = \left(0.5 + \frac{exposure}{20}\right) * management + \left(0.5 - \frac{exposure}{20}\right) * 5.0}$$

(Constrained 0-10, rounded to one decimal)

3.5.3 Calculating Environmental and Social Theme and Pillar Scores

Theme Scores across the Environmental and Social Pillars (8 out of 10 Themes) are calculated based on the weighted average of Key Issue Scores underlying each Theme, normalized by the total sum of weights underlying each Theme. In the absence of a weighted Key Issue under the Climate Change, Natural Capital and Human Capital Themes, the Theme Score is populated using an unweighted Key Issue Score underlying each Theme, even if this score is not considered (weighted) in the overall ESG Rating.[5] For the remaining Environmental and Social Themes (Pollution & Waste, Environmental Opportunities, Product Liability, Social Opportunities, and Stakeholder Opposition), Theme Scores are only calculated if one or more of the underlying Key Issues is weighted.

Pillar scores across the Environmental and Social Pillars are similarly calculated based on the weighted average of Key Issue Scores underlying each Pillar, normalized by the total sum of weights underlying each Pillar.

See Appendix 1: ESG Ratings Model hierarchy for more information.

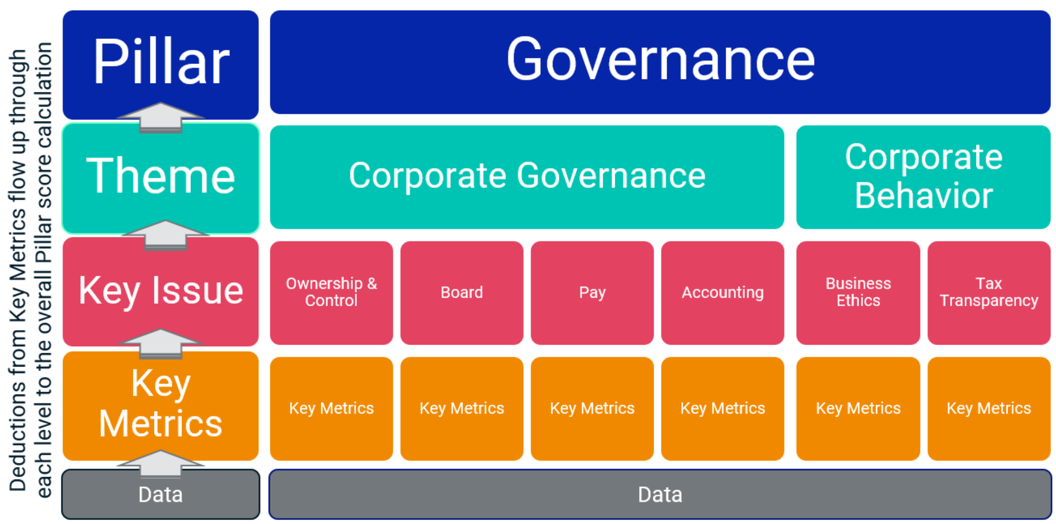
3.5.4 Calculating Governance Scores

Each of the Governance Pillar Scores, the Theme Scores and the Key Issue Scores are independently calculated based on a deduction-based approach in which points are deducted from a perfect 10 based on the triggering of Key Metrics across the underlying Key Issues.

Governance model structure

The Governance model structure is shown in Exhibit 14 below. The Key Metrics for Corporate Governance are grouped into four Key Issues: Ownership & Control, Board, Pay and Accounting. Similarly, the Key Metrics for Corporate Behavior are grouped into two Key Issues: Business Ethics and Tax Transparency.

Exhibit 14: Governance model structure



Governance scoring process

In the Corporate Governance Theme, input data is collected and reviewed by MSCI ESG Research ESG data experts and ESG analytical personnel on an ongoing basis. While the annual update from

[5] Carbon Emissions, Water Stress, and Human Capital Development Key Issue Scores are calculated for certain companies even if these Key Issues carry no weight in the overall ESG Rating. These scores will inform the Climate Change (for the entire ESG Ratings coverage universe), Natural Capital (for the MSCI ACWI Index universe), and Human Capital (for the entire ESG Ratings coverage universe) Theme Scores, respectively, if no other Key Issues are weighted within these themes.

the shareholder meeting documents and annual report is typically the most significant update, ESG data experts also process data such as voting results, director changes, material ownership changes and governance controversies and events throughout the year.

Upon publication of the data changes, the underlying Key Metrics that drive the overall assessments and scores are automatically updated.

Governance scoring steps

1. Each Key Metric is evaluated with a points value, ranging from 0 to the maximum possible points value for that Key Metric. The calculation of the overarching Theme and Key Issue Scores is based on these points values,[6] which vary with Key Metric type, specifically:
    a. Some Key Metrics assess quantitative data or a range of possible assessment outcomes to determine the applicable points value within a defined range.
    b. Other Key Metrics, when flagged, always result in the allocation of a stated points value – that is, they output either zero or a defined points value allocated to that Key Metric, with no variation in between.
2. Each Key Issue's points value is calculated as the sum of the Key Metric points values under that Key Issue (after application of any category-based caps).
3. The Theme points value is calculated as the sum of all Key Issue points values.[7]
4. The Governance Pillar points value is calculated as the sum of the Theme points values.
5. The 0-10 Governance Pillar Score is calculated by applying a score conversion formula (see Exhibit 15 below) to the Pillar points value. Negative 0-10 scores are not permitted; therefore, where the Pillar points value is above the Maximum Value, a 0.0 score is assigned.
6. The 0-10 Theme Scores are calculated by applying the score conversion formula set against the Theme points value. Negative 0-10 scores are not permitted; therefore, where the Theme points value exceeds the Maximum Value,[8] a 0.0 score is assigned.
7. The 0-10 Key Issue Scores are calculated similarly to, but independent of, the 0-10 Theme Scores, using the Key Issue points values, the score conversion formula and referencing the Maximum Value for the respective Key Issue. Negative 0-10 Scores are not permitted; therefore, where the Key Issue points value exceeds the Maximum Value, a 0.0 Score is assigned.
8. The Theme points and Key Issue points are compared against global and Home Market peers to calculate percentile ranks.

[6] Points are internal to MSCI and are not themselves published.

[7] Allegations of securities violations and executive misconduct contribute to the points value of the Business Ethics Controversies Key Metric of the Business Ethics Key Issue, which contributes to the Corporate Behavior Theme and Governance Pillar Score. To avoid duplication in the Corporate Behavior and Corporate Governance Themes, the points values for the Executive Misconduct and Securities Violations Key Metrics are not reflected in the Corporate Governance Theme Score and thus also not in the Governance Pillar Score, however these points values are reflected in the Board Key Issue Score.

[8] The Maximum Value is reviewed upon major methodology changes and is based on the 99.5th percentile of the respective points values as at the time of the introduction of the 0-10 Key Issue scores, in January 2018.

9. For each Key Metric, the Score Contribution against the Theme Score is calculated. A more negative Score Contribution generally signals more significant governance risk.

The scoring calculation process is illustrated in Exhibit 15.

Exhibit 15: Governance Pillar scoring calculations

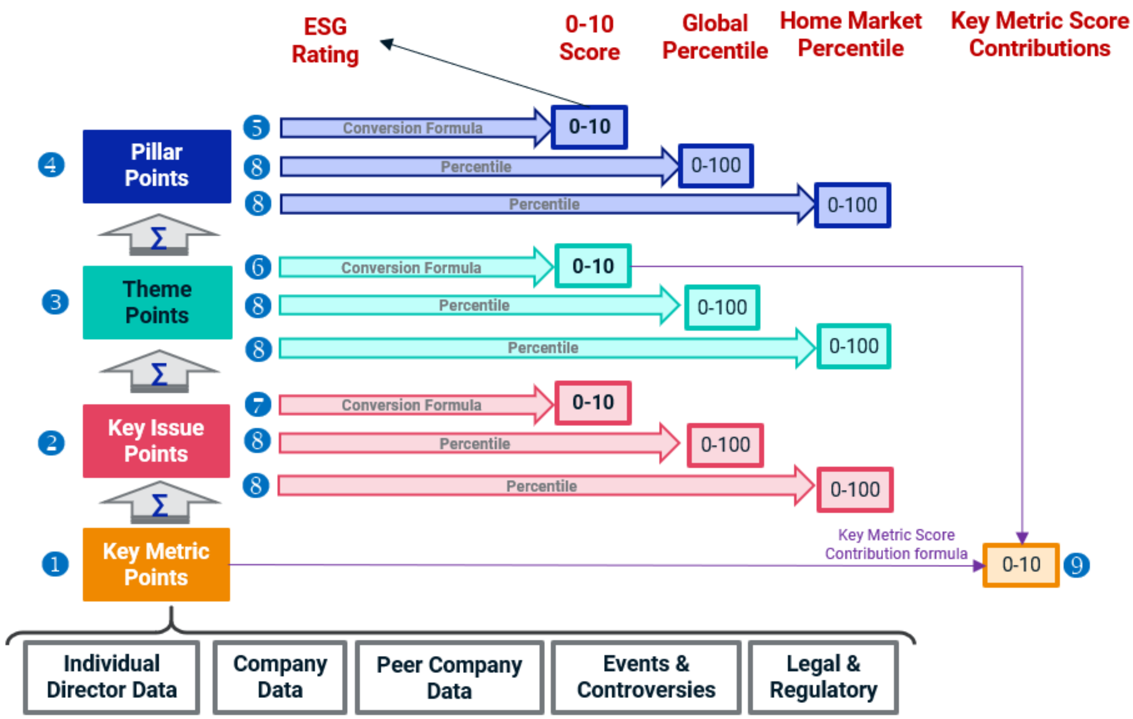


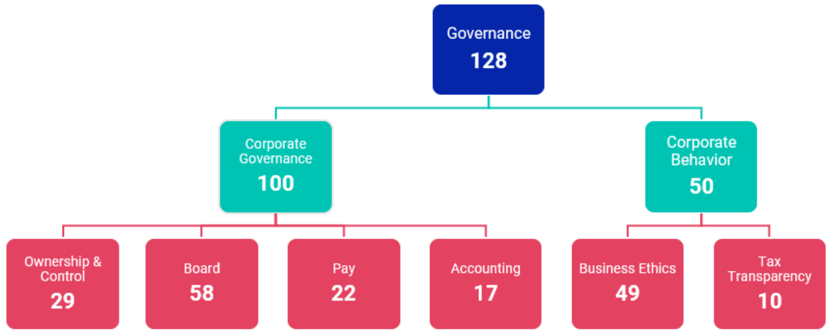
Exhibit 16: Conversion formula for 0-10 Score

0-10 Score	0-10 Score Conversion Formula
Pillar	10 - (10 * (Pillar Points/Pillar Maximum Value))
Theme	10 - (10 * (Theme Points/Theme Maximum Value))
Key Issue	10 - (10 * (Key Issue Points/Key Issue Maximum Value))

Maximum value

The purpose of the Maximum Value in the Score Conversion formula above is to provide a more normalized score distribution and to avoid the long tail of poorly performing companies taking up a large part of the 0-10 score scale. The Maximum Values are obtained as the 99.5th percentile of the range of the relevant points value across the entire coverage universe, as of the last annual calibration date.[9] These are shown in Exhibit 17.

Exhibit 17: Maximum Value[10]



Key Metric score contributions (deductions)

To help users of ESG Ratings understand the impact of an individual Key Metric on a company's overall 0-10 Theme Score, MSCI ESG Research calculates and disclose each Key Metric's individual deduction from the company's initial perfect 10 score.[11]

Each Key Metric's deduction is expressed as a negative number calculated to the first decimal place. A Key Metric's deduction is calculated using the following inputs:

- **Key Metric points**: the number of points provided by that Key Metric, based on an evaluation of the company's governance practices.
- **Theme points**: the sum of all points from all Key Metrics.
- **Theme Score**: the company's 0-10 Theme Score.

Using these inputs, the Score Contribution (deduction) attributable to a given Key Metric is calculated as:

- **Corporate Governance**: (Key Metric Points/Theme Points) * (10 - Theme Score) * -1.

[9] The sum of the Theme Maximum Values is not equal to the Governance Pillar Maximum Value by design. This is because winsorization is applied independently to the unique distribution of each set of points values.

[10] The sum of the individual Key Issue Maximum Values does not sum to the Maximum Value used for the overall Theme Score. This is intentional and reflects the differing distributions of the points values for the individual Key Issues and is intended to provide a better alignment of the Key Issue scores with the overall Theme Score.

[11] Individual **Key Issue-Level Key Metric Score Contribution** — each Key Metric's deduction from each Key Issue's initial perfect 10 score — is neither calculated nor published. However, for the Corporate Governance Key Metrics, and except for companies with a Theme or Key Issue Score of 0.0, these deductions can be approximated by multiplying the Theme Score contribution by the appropriate multiplier: Ownership & Control: 3.42; Board: 1.72; Pay: 4.55; Accounting: 5.88.

Individual **Pillar Key Metric Score Contribution** — each Key Metric's deduction from each Key Issue's initial perfect 10 score — is neither calculated nor published. However, the contribution of each Theme and Key Issue to the Pillar score is presented in the ESG Ratings drill-down. The Governance Pillar-level deductions can be approximated by applying the following multipliers to the Theme-level deductions: For Corporate Governance: 0.78 x the Corporate Governance Theme-level deduction; For Corporate Behavior: 0.39 x the Corporate Behavior Theme-level deduction.

- **Corporate Behavior**: Key Metric Score Deduction = -10 * (Key Metric Points/Theme Maximum Value).

The worked example in Exhibit 18, below, demonstrates how a score deduction is derived from the Oversight for Ethics Issues Key Metric in the Corporate Behavior Theme.

Exhibit 18: Worked example

Oversight for Ethics Issues	Points	Conversion	Deduction from Theme Score
C-suite or executive committee	0	0	0
Board-level committee	0	0	0
Special task force or risk officer	3.5	-10 × (3.5/50)	-0.7
Corporate social responsibility/sustainability team	3.5	-10 × (3.5/50)	-0.7
Minimum practices expected based on domestic industry norms	5	-10 × (5/50)	-1.0
No evidence	7	-10 × (7/50)	-1.4

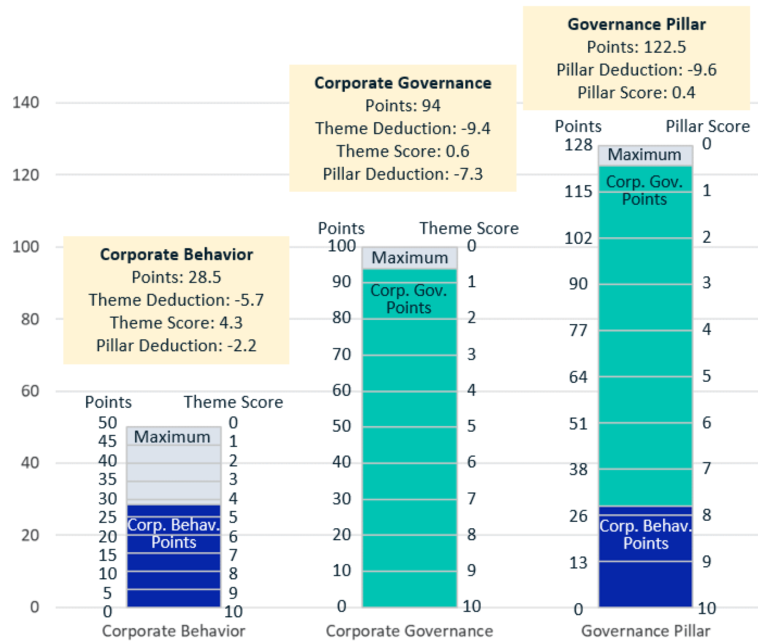
Relationship between Governance Pillar, Theme and Key Issue Scores

The Governance Pillar Score is not directly derived from the 0-10 Corporate Governance and 0-10 Corporate Behavior Scores, but from the conversion of the Governance Pillar Points (being the sum of the Corporate Governance points and Corporate Behavior points) to a 0-10 score using the score conversion formula. This holistic approach prevents strengths in one Theme from offsetting deficiencies in another.

Thus, it is possible for a company to have a lower Governance Pillar Score than either its Corporate Behavior or Corporate Governance Theme Score. This also holds true at the Theme level, where the Corporate Governance Theme Score can be less than all four of the underlying Key Issue Scores (Board, Pay, Ownership, and Accounting).

This is demonstrated in Exhibit 19, where the hypothetical company's Governance Pillar Score (0.4) is less than its Corporate Behavior Score (4.3) and Corporate Governance Score (0.6). The sum of the Corporate Behavior Raw Score (28.5) and the Corporate Governance Raw Score (94) results in a Governance Pillar Raw Score (122.5) that is closer to the Maximum Value (128) than either of the underlying Themes are to their respective Maximum Values (50 and 100, respectively).

Exhibit 19: Example calculation of the Governance Pillar Score



Percentile rank calculations

In calculating the percentile ranking for a Theme or Key Issue, the company with the lowest points value will be assigned a percentile rank of 100, while the company with the highest points value will be assigned a percentile rank of 0. Companies with the same points values are assigned the same percentile ranks. Percentiles are always presented as integers (i.e., rounded to the nearest decimal place).

3.6 Determining final Ratings

To arrive at a final ESG Rating from the selected Key Issue and Pillar scores, several steps are undertaken.

3.6.1 Weighted Average Key Issue Score

The Weighted Average Key Issue Score is calculated as the weighted average of the Governance Pillar Score and the individual Environmental and Social Key Issue Scores.

3.6.2 Industry-Adjusted Score

The Weighted Average Key Issue Score is then normalized relative to ESG Rating Industry peers. A benchmark peer set (comprising all companies rated by MSCI ESG Research within an ESG Industry — please see Appendix 4: ESG Rating Industries for details on the peer set) is used to calculate industry-relative ratings to ensure that companies' relative ratings do not change when other companies are added to or removed from the peer set. See Appendix 5: Normalizing the Weighted Average Score vs. industry peers for details of the normalization process used in the calculation for the Industry-Adjusted Score.

3.6.3 Committee review process

In certain predefined situations, prior to publication of the ESG Rating, additional committee review steps are initiated, as described in the “ESG Ratings Process” document.

These steps include review by the ESG Ratings Methodology Committee and, in certain cases, by the ESG Assessment Committee. The ESG Ratings Methodology Committee presides over company-specific assessments, while the ESG Assessment Committee addresses escalations from the ESG Ratings Methodology Committee and other critical methodology application cases, such as cases resulting from a significant market event.

Depending on the outcome of the committee review process, the respective committees may approve the modification of a company’s Industry Adjusted Score.

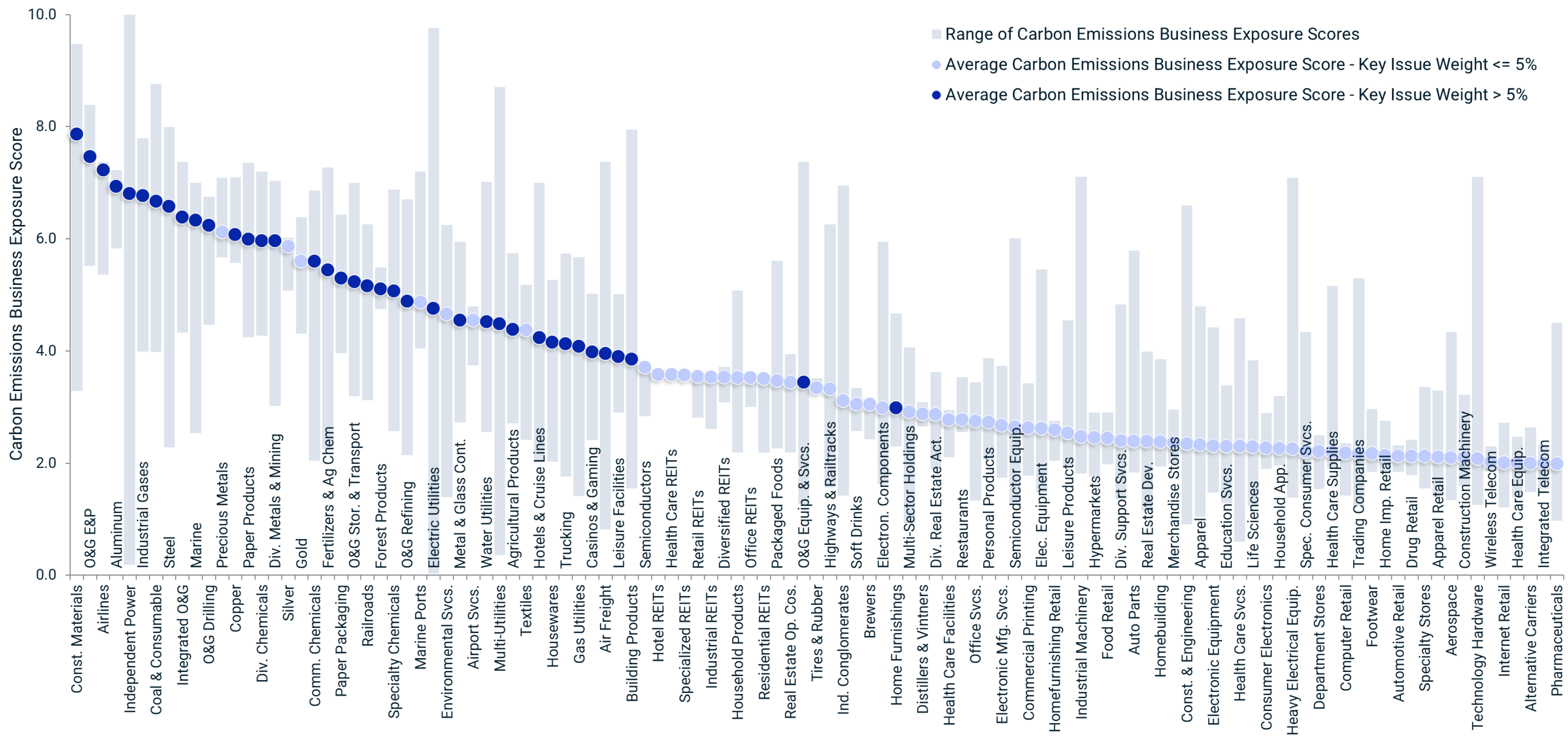
3.6.4 ESG Rating

Each company’s final Industry-Adjusted Score corresponds to a rating between the highest ESG Rating (AAA) and the lowest ESG Rating (CCC). The final Industry-Adjusted Company Score is mapped to a letter rating as shown in Exhibit 2, above.

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. These letter ratings are relative within each ESG Industry.

Appendix 1: ESG Ratings Model hierarchy

Appendix 2: Example of industry Key Issue selection



Notes: Bar length denotes minimum and maximum business segment exposure scores within a GICS sub-industry. Certain GICS sub-industries (25th percentile and below) are not shown in the chart; n = 9,868 companies; Scope includes ESG Ratings coverage as of Nov 16, 2022.

Sources: IERS' Comprehensive Environmental Data Archive (CEDA) data - direct GHG emissions intensity; Eurostat – Air Emissions Accounts by Activity; Refinitiv; IEA (2020), Projected Costs of Generating Electricity 2020; UNECE, Life Cycle Assessment of Electricity Generation Options; GHG emissions intensities compiled by MSCI ESG Research; company disclosures

Appendix 3: Weight-setting framework

TYPE OF RISK/ OPPORTUNITY	TIME HORIZON		
	Short	Med	Long
Operational Event	**Acute Event Risk:** Sudden operational event could limit company's ability to grow (e.g., exploit new reserves, expand to new territories), cause significant liabilities, disrupt key business units, or threaten overall business model	**Emerging Event Risk:** Operational event could threaten ability to grow or license to operate, but will likely manifest over extended time frame (e.g., mounting community opposition to a project; major investigations, settlements, or prosecution)	**Long-Term Event Risk:** Longer-term physical impacts of climate change could cause operational disruptions in the long run.
Regulatory Pressure	**Imminent Regulatory Change:** Regulatory change is pending or imminent in key markets.	**Emerging Regulatory Pressure:** Issue receives increasing scrutiny from mainstream stakeholders; pressure on regulators is mounting but no pending regulatory change yet.	**Growing Stakeholder Awareness:** Issue receives scrutiny from specialized or niche stakeholders, increasing coverage in media and growing presence in public eye.
Resource Scarcity/ Supply Constraint	**Short-Term Supply Constraint:** Acute supply constraint is present or imminent, likely to cause disruption or significant cost increase for companies.	**Medium-Term Supply Constraint:** Supply constraint is forecast, could cause disruption or significant cost increase in 2- to 5-year period.	**Long-Term Resource Scarcity:** Key resource/input is constrained, which may lead to cost increase or operational disruption in 5+ years.

TYPE OF RISK/ OPPORTUNITY	TIME HORIZON		
	Short	Med	Long
Demand Shift	**Acute Demand Shift:** Ongoing demand shift between substitute products/services, old product/service becoming obsolete.	**Demonstrated Demand Shift:** Growing demand in "new" area evidenced by differential growth rates and notable shift in market share between substitutes. **Incentive-Based Demand Shift:** Demand shift over 2- to 5-year period will be led by government incentives.	**Forecast Demand Shift:** Underlying social or environmental pressures (e.g., obese population, climate change) are likely to cause change in demand and consumer preference over time. **Competitor Response:** Major industry player(s) undertake strategic response to environmental or social trends, increasing competitive pressure.

Appendix 4: ESG Rating Industries

ESG Rating Industries are based on GICS sub-industries, where applicable, which MSCI ESG Research groups to form peer sets in which companies face relatively similar Key Issues. As a result, each ESG Rating Industry can be mapped to a GICS sub-industry, a GICS Industry or several GICS sub-industries.[12]

Companies are assigned to ESG Rating Industries based on the company's GICS classification (if available) or based on MSCI ESG Research's determination if no GICS classification is available (e.g., private or unlisted companies).

- Key Issues and Key Issue Weights are determined at the GICS sub-industry level.
- Industry-adjusted scores and ESG letter ratings are relative within each ESG Rating Industry.
- Percentiles, quartiles, averages and score distributions on reports are calculated relative to the ESG Rating Industry.

ESG Rating Industry	GICS	Sub-industry
ENERGY		
Energy Equipment & Services	10101010	Oil & Gas Drilling
	10101020	Oil & Gas Equipment & Services
Integrated Oil & Gas	10102010	Integrated Oil & Gas
Oil & Gas Exploration & Production	10102020	Oil & Gas Exploration & Production
Oil & Gas Refining, Marketing, Transportation & Storage	10102030	Oil & Gas Refining & Marketing
	10102040	Oil & Gas Storage & Transportation
MATERIALS		
Metals and Mining - Non-Precious Metals	10102050	Coal & Consumable Fuels
	15104010	Aluminum
	15104020	Diversified Metals & Mining
	15104025	Copper
Commodity & Diversified Chemicals	15101010	Commodity Chemicals
	15101020	Diversified Chemicals
Specialty Chemicals	15101030	Fertilizers & Agricultural Chemicals
	15101040	Industrial Gases
	15101050	Specialty Chemicals
Construction Materials	15102010	Construction Materials
Containers & Packaging	15103010	Metal, Glass & Plastic Containers
	15103020	Paper & Plastic Packaging Products & Materials

[12] With the exception of supranationals and development banks, which are not covered in the GICS framework.

ESG Rating Industry	GICS	Sub-industry
Metals and Mining - Precious Metals	15104030	Gold
	15104040	Precious Metals & Minerals
	15104045	Silver
Steel	15104050	Steel
Paper & Forest Products	15105010	Forest Products
	15105020	Paper Products
	60108040	Timber REITs
INDUSTRIALS		
Aerospace & Defense	20101010	Aerospace & Defense
Building Products	20102010	Building Products
Construction & Engineering	20103010	Construction & Engineering
Electrical Equipment	20104010	Electrical Components & Equipment
	20104020	Heavy Electrical Equipment
Industrial Conglomerates	20105010	Industrial Conglomerates
Construction & Farm Machinery & Heavy Trucks	20106010	Construction Machinery & Heavy Transportation Equipment
	20106015	Agricultural & Farm Machinery
Industrial Machinery	20106020	Industrial Machinery & Supplies & Components
Trading Companies & Distributors	20107010	Trading Companies & Distributors
Commercial Services & Supplies	20201010	Commercial Printing
	20201050	Environmental & Facilities Services
	20201060	Office Services & Supplies
	20201070	Diversified Support Services
	20201080	Security & Alarm Services
Professional Services	20202010	Human Resource & Employment Services
	20202020	Research & Consulting Services
	20202030	Data Processing & Outsourced Services
Air Freight & Logistics	20301010	Air Freight & Logistics
Airlines	20302010	Passenger Airlines
Marine Transport	20303010	Marine Transportation
Road & Rail Transport	20304010	Rail Transportation
	20304030	Cargo Ground Transportation
	20304040	Passenger Ground Transportation
Transportation Infrastructure	20305010	Airport Services
	20305020	Highways & Railtracks
	20305030	Marine Ports & Services
CONSUMER DISCRETIONARY		
Auto Components	25101010	Automotive Parts & Equipment
	25101020	Tires & Rubber
Automobiles	25102010	Automobile Manufacturers

ESG Rating Industry	GICS	Sub-industry
	25102020	Motorcycle Manufacturers
Household Durables	25201010	Consumer Electronics
	25201020	Home Furnishings
	25201040	Household Appliances
	25201050	Housewares & Specialties
Leisure Products	25202010	Leisure Products
Textiles, Apparel & Luxury Goods	25203010	Apparel, Accessories & Luxury Goods
	25203020	Footwear
	25203030	Textiles
Casinos & Gaming	25301010	Casinos & Gaming
Hotels & Travel	25301020	Hotels, Resorts & Cruise Lines
	25301030	Leisure Facilities
Restaurants	25301040	Restaurants
Diversified Consumer Services	25302010	Education Services
	25302020	Specialized Consumer Services
Retail - Consumer Discretionary	25501010	Distributors
	25503030	Broadline Retail
	25504010	Apparel Retail
	25504020	Computer & Electronics Retail
	25504030	Home Improvement Retail
	25504040	Other Specialty Retail
	25504050	Automotive Retail
	25504060	Home furnishing Retail
CONSUMER STAPLES		
Retail - Food & Staples	30101020	Food Distributors
	30101030	Food Retail
	30101040	Consumer Staples Merchandise Retail
Beverages	30201010	Brewers
	30201020	Distillers & Vintners
	30201030	Soft Drinks & Non-alcoholic Beverages
Food Products	30202010	Agricultural Products & Services
	30202030	Packaged Foods & Meats
Tobacco	30203010	Tobacco
Household & Personal Products	30301010	Household Products
	30302010	Personal Care Products
HEALTHCARE		
Health Care Equipment & Supplies	35101010	Health Care Equipment
	35101020	Health Care Supplies
	35203010	Life Sciences Tools & Services
Health Care Providers & Services	35102010	Health Care Distributors
	35102015	Health Care Services

ESG Rating Industry	GICS	Sub-industry
	35102020	Health Care Facilities
	35102030	Managed Health Care
	30101010	Drug Retail
Health Care Technology	35103010	Health Care Technology
Biotechnology	35201010	Biotechnology
Pharmaceuticals	35202010	Pharmaceuticals
FINANCIALS		
Banks	40101010	Diversified Banks
	40101015	Regional Banks
Diversified Financials	40201020	Diversified Financial Services
	40201030	Multi-Sector Holdings
	40201040	Specialized Finance
	40201050	Commercial & Residential Mortgage Finance
	40201060	Transaction & Payment Processing Services
	40203040	Financial Exchanges & Data
Consumer Finance	40202010	Consumer Finance
Asset Management & Custody Banks	40203010	Asset Management & Custody Banks
	40204010	Mortgage REITs
Investment Banking & Brokerage	40203020	Investment Banking & Brokerage
	40203030	Diversified Capital Markets
Life & Health Insurance	40301020	Life & Health Insurance
Property & Casualty Insurance	40301040	Property & Casualty Insurance
Multi-Line Insurance & Brokerage	40301010	Insurance Brokers
	40301030	Multi-line Insurance
	40301050	Reinsurance
INFORMATION TECHNOLOGY		
Software & Services	45102010	IT Consulting & Other Services
	45102030	Internet Services & Infrastructure
	45103010	Application Software
	45103020	Systems Software
	60108050	Data Center REITs
Technology Hardware, Storage & Peripherals	45201020	Communications Equipment
	45202030	Technology Hardware, Storage & Peripherals
Electronic Equipment, Instruments & Components	45203010	Electronic Equipment & Instruments
	45203015	Electronic Components
	45203020	Electronic Manufacturing Services
	45203030	Technology Distributors
Semiconductors & Semiconductor Equipment	45301010	Semiconductor Materials & Equipment

ESG Rating Industry	GICS	Sub-industry
	45301020	Semiconductors
COMMUNICATION SERVICES		
Telecommunication Services	50101010	Alternative Carriers
	50101020	Integrated Telecommunication Services
	50102010	Wireless Telecommunication Services
	60108030	Telecom Tower REITs
Media & Entertainment	50201010	Advertising
	50201020	Broadcasting
	50201030	Cable & Satellite
	50201040	Publishing
	50202010	Movies & Entertainment
	50202020	Interactive Home Entertainment
Interactive Media & Services	50203010	Interactive Media & Services
UTILITIES		
Utilities	55101010	Electric Utilities
	55102010	Gas Utilities
	55103010	Multi-Utilities
	55104010	Water Utilities
	55105010	Independent Power Producers & Energy Traders
	55105020	Renewable Electricity
REAL ESTATE		
Real Estate Development & Diversified Activities	25201030	Homebuilding
	60201010	Diversified Real Estate Activities
	60201030	Real Estate Development
Real Estate Management & Services	60101010	Diversified REITs
	60102510	Industrial REITs
	60103010	Hotel & Resort REITs
	60104010	Office REITs
	60105010	Health Care REITs
	60106010	Multi-Family Residential REITs
	60106020	Single-Family Residential REITs
	60107010	Retail REITs
	60108010	Other Specialized REITs
	60108020	Self-Storage REITs
	60201020	Real Estate Operating Companies
	60201040	Real Estate Services

Appendix 5: Normalizing the Weighted Average Score vs. industry peers

As set out in section 3.6 above, each company receives a **Preliminary Industry-Adjusted Score (IAS)**, where the WAKIS is normalized based on score ranges set by the benchmark values in the peer set.

Industry peer set benchmark values

The following criteria in setting the industry top and bottom benchmark values applied starting November 2020:

- The top benchmark value ("industry maximum score") falls between the 95th and 100th percentile of modeled WAKIS within an ESG Rating Industry.
- The bottom benchmark value ("industry minimum score") falls between the 0th and 5th percentile of modeled WAKIS within an ESG Rating Industry.

Percentiles were calculated based on the full universe of companies with ESG Ratings (10,052 companies) as of March 13, 2024. The MSCI ESG Ratings coverage universe continually expands to include new companies, which are often companies with low disclosures. Sometimes, such companies can distort the bottom benchmark value by lowering it, thereby leading to upgrades for the rest of the companies in the industry. For such industries, this problem is mitigated by excluding recent coverage additions (companies with less than two years of ratings history) while determining the bottom five percentile range for the WAKIS.

These values are set at the beginning of a year based on the distribution of the WAKIS of an industry until that point in time. However, the distribution of the WAKIS in an industry is expected to change during the year with new disclosures and improvements in the ESG performance of companies, resulting in unidirectional movement of rating changes in an industry. Consequently, the industry maximum and minimum scores for each ESG Rating Industry were selected within the aforementioned percentile ranges to meet the following objectives:

1. Minimize unidirectional changes in ESG Ratings.
2. Ensure that the selected industry minimum and maximum scores with respect to its current industry minimum and maximum scores are moving in the direction of the underlying score distribution.

Exceptions to the 95th and 5th percentile boundaries

If adherence to these boundaries results in strong unidirectional modeled rating changes (upgrade/downgrade ratio beyond 0.7 to 1.3) thereby working against objective 1 or 2 above, the range can be extended to the 90th and 10th percentile of modeled WAKIS for the industry minimum and maximum values, respectively. However, the range of the industry minimum and maximum values will only be extended to the 10th and 90th percentiles if the resulting ESG Rating distribution entails less unidirectional movement than would otherwise be achieved by keeping the minimum and maximum values constant.

Industry minimum and maximum scores update frequency

The benchmark values are reviewed at least once a year. They are updated within a year if either of the following conditions are met:

- If there is a drift in the WAKI score distribution: the mean WAKIS and/or either of the tails are changing by ≥0.2 since the last review.
- If either of the min-max boundaries are breached: The current industry maximum score being less than 90th percentile and/or the current industry minimum score being greater than the 10th percentile of the latest distribution of WAKIS (i.e., beyond a 5% buffer around the aforementioned ranges).

The resulting industry minimum and maximum scores can be accessed in the drill-down section of each company's ESG Rating report.

The adjusted score of 10 is defined at or above the industry maximum score, and the adjusted score of 0 is defined at or below the industry minimum score. The remaining companies' scores are linearly interpolated based on these values using the following formula:

ind_adj_score=

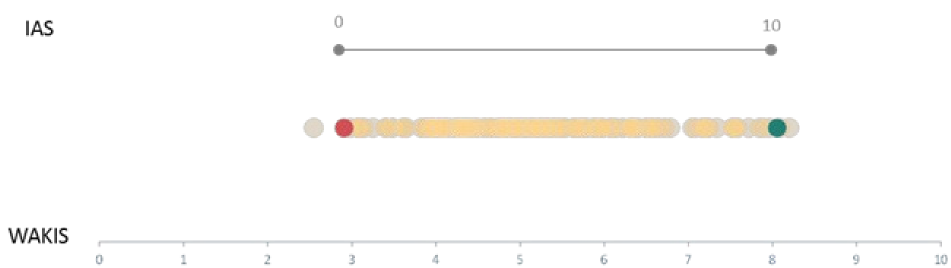
10*(weighted_avg_score-industry_min_score)/(industry_max_score-industry_min_score)

(constrained 0-10, rounded to one decimal)

MSCI ESG Research reviews these benchmark values on an annual basis to reflect changes to underlying company data, methodology updates and fluctuations in industry peer sets.

The relation between the Weighted Average Score and the Industry Adjusted Score is shown in Exhibit 20, below. For instance, if the score distribution in an industry is such that the industry minimum and maximum scores are 2.9 and 8.1, respectively (on a scale of 0-10), these are given a score of 0 and 10 respectively in the Industry Adjusted Scale (IAS).

Exhibit 20: Relation between Weighted Average Score and IAS



Additional steps designed to ensure that the letter ratings provide a consistent and reliable signal:

- Industries with a narrow range of scores may have their ranges extended:
    - If the bottom benchmark value is greater than 4, the industry minimum is truncated at 4. This could result in no companies in that industry receiving a CCC rating.

  - If the top benchmark value is less than 6, the industry maximum is truncated at 6. This could result in no companies receiving an AAA rating.
- Methodology changes are modeled in advance to limit rating volatility:
  - For example, in constructing the rating ranges for 2021, new Governance Pillar scores using the updated methodology and sources were simulated in calculating the minimum and maximum values.

Appendix 6: Home-Market selection

The Theme and Key Issue Percentile Ranks are calculated for a company relative to all other companies within its Home Market. The allocation of a company's peers for assessing executive pay also references a company's Home Market.

Companies are classified into countries as set out in the MSCI Country Classification Standard, with Home Markets reviewed annually in October and any changes effective starting Jan. 1.[13]

Determining Home-Market allocation

Countries with 30 or more companies in governance coverage as of Oct. 1 each year will be allocated their own Home Market for the following calendar year. A Home Market will be deemed to have insufficient companies when it falls to 25 companies in governance coverage or, subject to review by the Corporate Governance Methodology Committee, where it has fewer than 30 companies for two successive years.

Countries with insufficient companies will be allocated a Home Market for the following calendar year that is formed based on:

- MSCI's Markets Classification (Developed, Emerging, Frontier); and
- Geographical Regions (EMEA, Asia Pacific, Americas).

If for any combination of Market Classification and Region, there are still not at least 30 companies, pairings may be combined to form an aggregated grouping that makes the minimum size criterion for Home Markets.

If the combination of Markets Classification and Geographical Region results in insufficient companies for a Home Market for any of the pairings, the Home Market will be formed based on the Market Classification only.

Ad hoc coverage additions

Companies added to coverage outside of the Annual Review will be assigned one of the Home Markets effective at the time of the coverage addition based on the company's MSCI Country Classification.

If an equity issuer has no MSCI Country Classification, and the country of incorporation and the country of the primary listing of the security are the same, then that country is used.

Fixed income – governance reference entity

The corporate governance assessment for Fixed Income Issuers is based on the Governance Reference Entity. Where the Governance Reference Entity has an equity listing, the Home Market of the equity issuer is used. If the Governance Reference Entity does not have an equity listing, then a home market of "N/A" is assigned.

[13] https://www.msci.com/eqb/methodology/meth_docs/MSCI_GIMIMethodology_May2021.pdf at Appendix III.

2021 Home-Market allocation

Following the annual review of Home Markets, for 2021 Kuwait was added to Other EMEA Emerging following the MSCI Market Classification Review where it was reclassified as Emerging Markets.

For 2020, one additional Home Market was added, with Chile moved from Other Americas Emerging to Chile. For 2019, two additional Home Markets were added — Saudi Arabia and Poland. Saudi Arabia was previously allocated to Frontier, while Poland was previously allocated to Other EMEA Emerging. In addition, Argentina was moved from Frontier to Other Americas Emerging.

Exhibit 21: Home-Market classification

Home Market	Classification
Developed Americas	
Canada	Canada
United States	USA
Developed Asia Pacific	
Australia	Australia
Hong Kong	Hong Kong, China
Japan	Japan
New Zealand	New Zealand
Singapore	Singapore
Developed EMEA	
Austria	Austria
Belgium	Belgium
Denmark	Denmark
Finland	Finland
France	France
Germany	Germany
Israel	Israel
Italy	Italy
Netherlands	Netherlands
Norway	Norway
Spain	Spain
Sweden	Sweden
Switzerland	Switzerland
United Kingdom	United Kingdom
Other EMEA Developed	Ireland, Portugal

Home Market	Classification
Emerging Americas	
Brazil	Brazil
Chile	Chile
Mexico	Mexico
Other Americas Emerging	Argentina, Colombia, Peru
Emerging Asia Pacific	
China	China
India	India
Indonesia	Indonesia
Korea	Korea
Malaysia	Malaysia
Philippines	Philippines
Taiwan	Taiwan
Thailand	Thailand
Other APAC Emerging	Pakistan
Emerging EMEA	
Poland	Poland
Russia	Russia
Saudi Arabia	Saudi Arabia
South Africa	South Africa
Turkey	Turkey
Other EMEA Emerging	Czech Republic, Egypt, Greece, Hungary, Kuwait, Qatar, United Arab Emirates
Other	
Frontier	All countries classed as Frontier by MSCI
N/A	n/a (fixed income)

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