SUSTAINALYTICS

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METHODOLOGY

THE ESG RISK RATINGS

METHODOLOGY

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About Sustainalytics

Sustainalytics, a Morningstar Company, is a leading independent ESG and corporate governance research, ratings and analytics firm that supports investors around the world with the development and implementation of responsible investment strategies. For more than 25 years, the firm has been at the forefront of developing high-quality, innovative solutions to meet the evolving needs of global investors. Today, Sustainalytics works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. Sustainalytics also works with hundreds of companies and their financial intermediaries to help them consider sustainability in policies, practices and capital projects. With 16 offices globally, Sustainalytics has more than 650 staff members, including more than 200 analysts with varied multidisciplinary expertise across more than 40 industry groups. For more information, visit www.sustainalytics.com.

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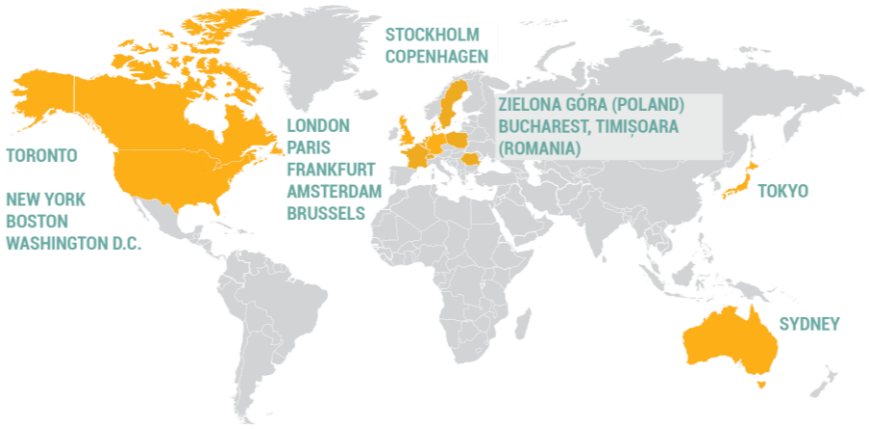

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This document is an overview of the methodological aspects of the ESG Risk Ratings that was launched in September 2018 and updated in November 2019. Readers that are interested to go beyond the methodology can refer to our three-volume White Paper series that was published since the product launch.[1]

The series began in October 2018 with the publication of 'Moving up the Innovation Curve: White Paper – Volume 1'. The report offered a detailed description of the methodology behind the ESG Risk Ratings, analysis of rating outcomes, and introduced the results of our empirical testing.

The second volume, entitled 'Exploring the Internet Software and Services Subindustry, White Paper – Volume 2', was published in November 2018. The second volume moved the reader step by step through a complete subindustry-specific discussion of the rating and concluded with a case study of Facebook.

In the third volume, entitled 'Potential Applications tor Investors, White Paper – Volume 3', published in May 2019, we shifted the discussion from a description of the ESG Risk Ratings to one focused on application, with a view to demonstrating how investors might be able to make use of Sustainalytics' new flagship ratings product across different use cases.

This methodology document update mainly comprises the introduction of so-called Beta Indicators and E/S/G Cluster Ratings.

Our Perspective on ESG Research

Supporting more informed investment decisions

We believe that environmental, social, and governance (ESG) information is a critical part of corporate and investment strategy, and that embedding sustainability into corporate and investment decisions is integral to long-term success from both a financial and sustainability perspective.[2] The ESG Risk Ratings' objective is to enable investors to make more informed decisions by providing materially relevant insights about sustainability risks and opportunities in line with Sustainalytics' overall mission.

What the ESG Risk Ratings Measure

Assessing the unmanaged ESG risks of a company

The ESG Risk Ratings measure the degree to which a company's economic value (enterprise value) is at risk driven by ESG factors or, more technically speaking, the magnitude of a company's unmanaged ESG risks.[i,3] The ESG Risk Ratings comprise two dimensions, Exposure and Management, to assess how much unmanaged ESG risk a company is exposed to.

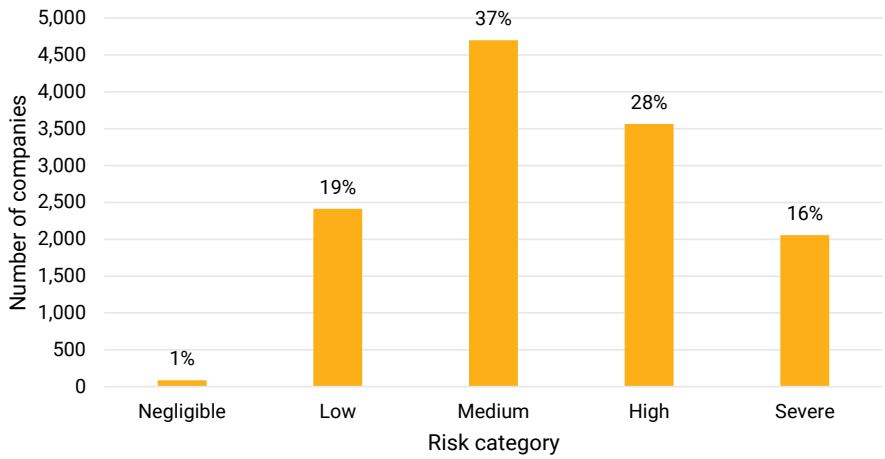
[i] All terms printed in capital letters in teal and bold are explained in the Glossary of Terms, which is included in the Appendix of this document.

For each company, unmanaged risk is measured by evaluating a unique set of material ESG issues based on both the company's exposure to and management of those issues. The resulting unmanaged risk for each issue is then summed to provide one score that represents the company's overall ESG risk.

Creating a single currency of ESG risk

A company's ESG Risk Rating is comprised of a quantitative score and a risk category. The quantitative score represents units of unmanaged ESG risk with lower scores representing less unmanaged risk. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) and, for 95% of cases, a maximum score below 50. Based on their quantitative scores, companies are grouped into one of five risk categories (negligible, low, medium, high, severe). These risk categories are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered. This means that a bank, for example, can be directly compared with an oil company or any other type of company. One point of risk is one point of risk (equivalence principle), no matter which company or which issue it applies to, and points of risk add up across issues to create overall scores. With the ESG Risk Ratings' scores, we have introduced a 'single currency' for ESG risk.

Exhibit 1: Distribution of Companies in Our Ratings Plus Universe Across Risk Categories*



*as of October 2020

Source: Sustainalytics

How Clients Can Use the ESG Risk Ratings

Our rating addresses a wide array of different use cases

Our institutional investor clients can use the ESG Risk Ratings in multiple ways. Those who are interested in gauging portfolio risk can use the rating to compare risks for one sector, industry group or subindustry relative to each other (e.g., does pharma appear to be riskier from an ESG perspective than chemicals). Our clients can also use the ratings to gauge the relative ESG risk of companies within a subindustry, comparing Exxon to Chevron, for example (best-in-class perspective). In doing this, they can explicitly distinguish the two dimensions, by just looking at how effectively these companies manage their ESG risks, for example.

In addition, clients can use the rating from a thematic perspective, i.e. comparing unmanaged risks on Human Capital or Emissions, Effluents and Waste, for example, across a wide array of companies. The rating is specifically designed to speak to multiple use cases, assuring its potential to add value in a variety of ESG integration approaches.

Defining Materiality and Risk

Influence on the decisions made by a reasonable investor

An issue is considered to be material within the ESG Risk Ratings if its presence or absence in financial reporting is likely to influence the decisions made by a reasonable investor. To be considered relevant in the ESG Risk Ratings, an issue must have a potentially substantial impact on the economic value of a company and, hence, its financial risk- and return profile from an investment perspective. It is important to distinguish the ESG Risk Ratings' use of materiality as a concept from narrower legal or accounting-focused definitions. Not every issue we consider as material in the rating is legally required to be disclosed in company reporting.[4]

Underlying premise is the transitioning to a more sustainable economy

Note that an underlying premise of the ESG Risk Ratings is that the world is transitioning to a more sustainable economy and that the effective management of ESG risks should, therefore, be associated with superior long-term enterprise value, ceteris paribus. Some issues are considered material from an ESG perspective even if the financial consequences are not fully measurable today.[ii]

Two Frameworks, One Rating

Extending the coverage universe

We use two research frameworks to calculate the ESG Risk Ratings for companies within our coverage universe. The so-called Comprehensive Framework forms the methodological foundation of the ESG Risk Ratings. It comprises all features, is very granular in nature, and provides additional qualitative analyst insights.

The Core Framework was created to extend the coverage universe of the ESG Risk Ratings. It is derived from the full ESG Risk Ratings model and uses a reduced indicator set and structure to approximate the Comprehensive framework's outcomes. The high predictive power of the streamlined model (see below) assures the comparability of final rating outcomes independent of the framework used.

The Core framework does not breakdown risks to the ESG issue level

The most important difference between the two frameworks is that the Core framework does not break down risk by material ESG issues. As certain model parameters like the Manageable Risk Factor (see page 26), Events Weight Shift (see page 32) and Betas (see page 17)are applied at the material ESG issue level

[ii] Note: Since ESG risks materialize at an unknown time in the future and depend on a variety of unpredictable conditions, no predictions on financial or share price impacts, or on the time horizon of such impacts, are intended or implied by the ESG Risk Ratings' outcomes.

in the Comprehensive framework; these elements have been slightly modified so that they can be applied at the overall company level in the Core framework.

Companies with overall highest market attention are covered by Comprehensive framework

Our Comprehensive framework is applied to companies that are in Sustainalytics' Ratings Universe, while our Core framework is applied only to those companies that have been added to it to form the augmented Ratings Plus Universe. The Ratings universe is predominantly comprised of large and mid-cap companies in developed markets and large-cap companies in emerging markets. The Ratings Plus universe also encompasses small-cap companies in developed markets and mid-cap companies in emerging markets. This methodology document speaks to the Comprehensive framework unless otherwise noted. More information about the adaptations to the methodology that are specific to the Core framework can be found in a separate chapter that starts on page 35.

Key Features of the Methodology

Focus on materiality and comparability

The ESG Risk Ratings methodology comprises the following key features:

- **Financial materiality:** Assessment focuses on ESG issues that present the most material risks to the economic value of a company.
- **Two-dimensional lens:** Exposure lens informs investors about what material ESG risks a company is facing and the management lens assesses how well the company is managing material ESG risks.
- **Multiple exposure factors**: The exposure dimension reflects factors such as a company's business model (including geographical aspects), financial strength and event history.
- **Comparability**: The 'single-currency-of-risk' approach allows comparability of companies across industries at both the overall ESG and issue-specific risks levels.
- **Fully integrated:** Corporate Governance ratings are fully integrated into the ESG Risk Ratings as the baseline for all companies.
- **Responsive to events**: Discounting effect on management scores increases with event severity, giving controversies a higher impact on the rating and making it more dynamic.
- **Forward-looking**: The ESG Risk Ratings are driven and determined by the underlying notion and concept of exposure that is forward-looking by its very nature; quantitative and qualitative factors that go into the exposure assessment are designed to capture trends and anticipate future developments.

Transparency

Engagement with our clients is a foundational element of our effort to continuously improve our products

Our goal is to provide as much transparency regarding our methodology and research processes as possible to our clients and the issuers we cover. This methodology document is considered an important part of delivering on this promise. Many more accompanying materials are provided covering different uses cases (please reach out to you client advisor for details). Engaging with and

seeking feedback from our clients on all aspects of our research is a foundational element of our effort to continuously improve and optimize our products.

Annual Review of Subindustry Assessments and Model Components: ESG RR Review

Aligning our research with changing fundamentals and perceptions; adapting to best practices around emerging ESG risks

While our rating model and the indicators it is based on are designed for continuity, we do also acknowledge that ESG risks are inherently dynamic and change over time driven by changes in regulation, societal perception and preferences, as well as new scientific insights, just to name a few significant influence factors. We are taking this reality into account by reviewing the subindustry level assessments of our ESG Risk Ratings model and the definition and design of model components like our indicators on an annual basis. In particular, our model review comprises the selection and scoring of material ESG issues (MEIs) at the subindustry level, the selection and weighting of indicators that are linked to these MEIs and the degree to which the identified risks can potentially be managed by companies (represented by our manageable risk factors, see page 26). Our annual review also allows us to align our research with evolving best practices around managing emerging ESG risks. In addition, we periodically strengthen the methodology behind our indicators to ensure that it remains relevant and substantive. Such enhancements are extensively tested for their impact on scores and need to stay in certain, pre-defined boundaries.

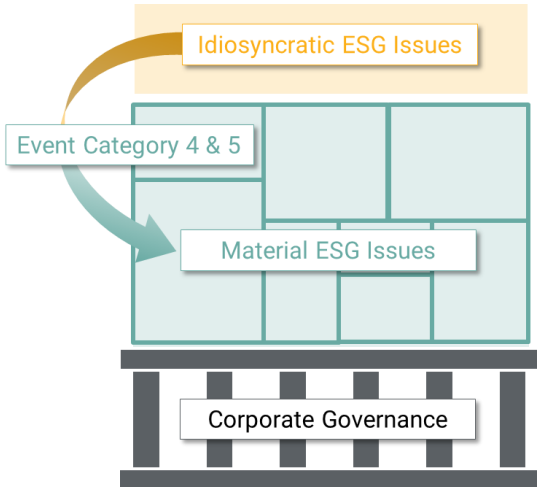
Structural changes communicated in advance

Clients are given advance notice of upcoming structural changes, like the addition of new data points, that can be implemented once a year and are supported in integrating these into their own research and investment analysis processes. Assessment changes and research of new data points is rolled-out on a company-by-company basis in combination with the regular annual profile update.

ESG Risk Ratings Building Blocks

The ESG Risk Ratings are composed of three building blocks that contribute to the overall rating score for a company. These building blocks include Corporate Governance, Material ESG Issues, and Idiosyncratic Issues.

Exhibit 2: The Three Building Blocks of the ESG Risk Ratings



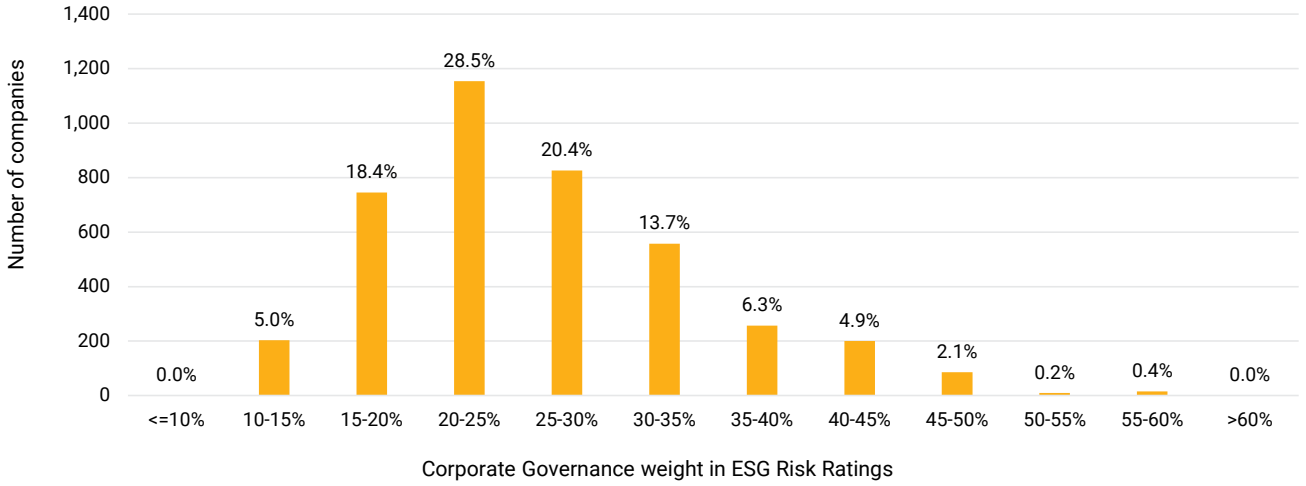
Source: Sustainalytics

Building Block #1: Corporate Governance

A foundational element in the ESG Risk Ratings

Corporate Governance is a foundational element in the ESG Risk Ratings and reflects our conviction that poor Corporate Governance poses material risks for companies.[5] It applies to all companies in our rating universe, irrespective of the subindustry they are in. This is also why we like to speak of it as the baseline of our rating. On average, unmanaged Corporate Governance risk contributes to about 20% to the overall unmanaged risk score of a company. Its final weight varies in accordance with a company's overall ESG exposure. For a company that has no other material ESG issue, the contribution of Corporate Governance risk to the final rating would be 100%.

Exhibit 3: Distribution of Corporate Governance Weights within ESG Risk Ratings*



* as of October 2020

Source: Sustainalytics

A compelling data point

Our Corporate Governance methodology provides deep insights about the extent to which a company's corporate governance practices detract from or add to the company's ability to execute on its business strategy, including its ESG strategies. Some research studies also indicate that companies with strong corporate governance practices may outperform the market, which makes Corporate Governance a compelling data point in any materiality-focused rating.[6]

The Special Role of Corporate Governance

Special role of Corporate Governance – Not just like any other MEI

Corporate Governance is certainly a material issue like Carbon or Human Capital, for example. But it is also more than that given its explicit or implicit omnipresence in all ESG issues we assess. Within the ESG Risk Ratings, Corporate Governance is considered foundational and is handled separately, i.e. not as a part of material ESG issues that form the second building block of the ESG Risk Ratings. Material ESG issues are subindustry specific, and therefore may appear for some subindustries and not for others. Additionally, they have exposure scores that vary by subindustry, as well as company-specific betas. Corporate Governance, however, applies to all companies within the ESG Risk Ratings, and the pillars that comprise it do not vary by subindustry. It is its own building block in the ESG Risk Ratings. It has a fixed exposure score of 9 that applies to all public companies in the ESG Risk Ratings.[iii] The default exposure score is reduced to 5 for non-public companies to reflect the generally reduced principal-agent risks and the differences in management requirements.

[iii] This means that Corporate Governance, different from the material ESG issues in the second building block, does not have a fully fleshed out indicator-based approach to beta (for more information on beta assessments, see page 17).

The Six Corporate Governance Pillars

Corporate Governance is composed of six Corporate Governance Pillars as shown in Exhibit 4. Each pillar includes a set of relevant Corporate Governance Indicators.

Exhibit 4: Overview of the Six Corporate Governance Pillars

Board and Management Quality and Integrity	Do the board's experience, track record and behaviour demonstrate its ability to provide strategic leadership and oversight?
Board Structure	Do the organization and structure of the board provide sufficient oversight, representation and accountability to shareholders?
Ownership and Shareholder Rights	Do the constitution of the company and its ownership structures respect the right of outside shareholders relative to the board, management and major shareholders?
Remuneration	Do the company's remuneration policies and practices provide appropriate incentives for management to build value?
Financial Reporting	Are the company's financial reports reliable and subject to appropriate oversight?
Stakeholder Governance	Does the company have appropriate structures in place to manage ESG issues generally and is the company transparent about these?

Source: Sustainalytics

Using a regionally based weighting scheme

The Corporate Governance Management score ranges from 0 to 100, with 0 indicating no (evidence of) management of the issue and 100 very strong management of the issue. The score is calculated as a weighted average of the underlying six Corporate Governance pillar scores, using a regionally based weighting scheme. Corporate Governance practices tend to have significant regional variations because they are determined in part by regional regulations.

Building Block #2: Material ESG Issues

The ESG Risk Ratings assess companies on material ESG issues. Exhibit 5 shows the definition of a material ESG issue in the ESG Risk Ratings.

Exhibit 5: Definition – Material ESG Issue

Material ESG Issue (MEI): A core building block of the ESG Risk Ratings. An ESG issue is considered to be material within the rating if it is likely to have a significant effect on the enterprise value of a typical company within a given subindustry and its presence or absence in financial reporting is likely to influence the decisions made by a reasonable investor.

Material ESG issues form the core and centre of our rating

Material ESG issues are focused on a topic, or set of related topics, that require a common set of management initiatives or a similar type of oversight. For example, the topics of employee recruitment, development, diversity, engagement and labour relations are all encompassed by the material ESG issue of Human Capital because they are all employee-related and require human resources initiatives and oversight. The common thread behind all human capital topics is attracting and retaining qualified employees.

Occupational Health and Safety also concerns employees, but the common thread here is to ensure the health and safety of employees at their workplace. The business risks associated with this are different from general Human Capital risks, and it is managed through a different set of activities.

Determining Material ESG Issues

Assessment at subindustry level; annual review

Our assessment of material ESG issues occurs at the subindustry level and is reviewed annually through a comprehensive and structured process (see page 9). We identified 20 material ESG issues (MEIs) across all subindustries.[iv] Their definitions do not vary across different subindustries. The differentiation between subindustries occurs via the assessment of the issues' materiality for each subindustry. In the design of our set of material ESG issues we applied some basic structural principles, of which the most important one is a clear separation between the different stages of a company's value creation chain (supply chain, production and the customer use phase) into separate MEIs.[v] For this reason, the ESG Risk Ratings comprises some related issues, such as:[vi]

Pairs of related MEIs; differentiation alongside the value creation chain

- Carbon – Products and Services
- Carbon – Own Operations
- Human Rights – Supply Chain
- Human Rights – Own Operations
- Resource Use – Supply Chain
- Resource Use – Own operations
- Land Use and Biodiversity – Supply Chain
- Land Use & Biodiversity – Own Operations

Deactivisation of subindustry-specific MEIs at the individual company level

ESG issues that are considered material at the subindustry level can be removed from an individual company's rating if considered not relevant in this company's context. We talk about the disabling of an issue in such a case. An example would be an issue that is linked to a subindustry typical geographic exposure but does not apply to the company at hand because it is not operating in the affected region. Technically speaking, disabling cases like this are equivalent to setting a company's issue beta to zero (see page 18).

[iv] A full list with definitions can be found in the Appendix.
[v] There is one exception to this principle: ESG Integration – Financials. For this issue, there were too many practical barriers in company reporting to allow further splitting of these issues.
[vi] See the Exposure section within the next chapter (page 15) for more information on how material ESG issues are selected.

Distinguishing between systematic and unpredictable ESG issues

The Material ESG Issues building block of the ESG Risk Ratings forms the core and center of our methodology. It rests on the assumption that ESG issues can influence the economic value of a company in a given subindustry in a fairly predictable manner. Our rating is forward looking in the sense that it identifies these issues based on the typical business model and business environment a company is operating in. However, there are issues that may become significant or material in an unpredictable manner. We take these kinds of issues into account as 'Idiosyncratic Issues'. They form the third building block of the ESG Risk Ratings.

Building Block #3: Idiosyncratic Issues

Driven by Category 4 or 5 events

Idiosyncratic Issues are 'unpredictable' or unexpected in the sense that they are unrelated to the specific subindustry and the business model(s) that can be found in that subindustry. For example, an accounting scandal is certainly nothing that is more predictable in some industries than in others. It could happen at any company across all sectors and, hence, falls outside of the logic with which we capture subindustry-specific material ESG issues. Typically, issues like this are event-driven; some might call them 'black swans'. Idiosyncratic issues, therefore, become material ESG issues if the associated event assessment passes a significance threshold. This threshold has been set at a Category 4 or 5 level. Note that idiosyncratic issues become material issues only for the specific company in question, not for the entire subindustry that company is part of. This is another differentiator to the second building block of the risk ratings, the material ESG issues.

The Two Dimensions of the ESG Risk Ratings

Exposure and Management – the two dimensions of the risk ratings

The ESG Risk Ratings' approach to materiality required a departure from the traditional, one-dimensional rating concepts. We introduced a two-dimensional architecture with the first dimension, Exposure, reflecting the extent to which a company is exposed to material ESG risks at the overall and the individual MEI level, and the second one, Management, reflecting how well a company is managing its exposure.

First Dimension: Exposure

Determined by a set of ESG-related factors that pose potential economic risks for companies

Exposure can be considered as a set of ESG-related factors that pose potential economic risks for companies. Another way to think of exposure is as a company's sensitivity or vulnerability to ESG risks. Material ESG issues and their exposure scores are assessed at the subindustry level and then refined at the company level.

Exposure helps to determine the importance we assign to material ESG issues. An issue with higher exposure will have a higher contribution to the overall risk exposure of a company, and an issue with a lower exposure will have a lower contribution to a company's overall risk exposure. In other words, issues that are financially more material to a company weigh more heavily in the balance of a company's rating, as we consider unmanaged risk on highly material issues to have a higher impact on enterprise value than unmanaged risk on less material issues.

Assessing Exposure

Running through a top-down, 4-step process to arrive at final company exposure

The assessment of a company's exposure is done in four steps. As a starting point, the exposure of companies that operate in a given subindustry (as characterized by roughly similar products and business models) vis-à-vis a set of potentially relevant ESG issues is determined. The assessment at the subindustry level is done in a centralized and guided manner leveraging the expertise of our sector research teams and is updated annually. Issue disabling and the beta assessment are part of the regular company research update process executed by the individual analyst researching a company. All three are key for making the ESG Risk Ratings company specific, i.e. assuring that the rating properly reflects the environment a company is operating in.

To summarize, the 4 steps to arrive at company-specific exposure are:

- **Step 1 - Subindustry Exposure Assessment:** Analysts determined the exposure of companies that operate in a given subindustry.
- **Step 2 - Issue Disabling:** The analyst exercises professional judgement to decide if the issue is applicable to a company or if it should be disabled.
- **Step 3 - Beta Assessment:** For issues that have been identified to be material for a given subindustry, a beta is assessed at the individual company level, reflecting company-specific deviations from the subindustry norm.
- **Step 4 - Issue Exposure Score Calculation:** The exposure score is multiplied by the issue beta to arrive at final exposure score for a company vis-à-vis a material ESG issue.

Subindustry Exposure Assessment

Factors taken into account when assessing subindustry exposure

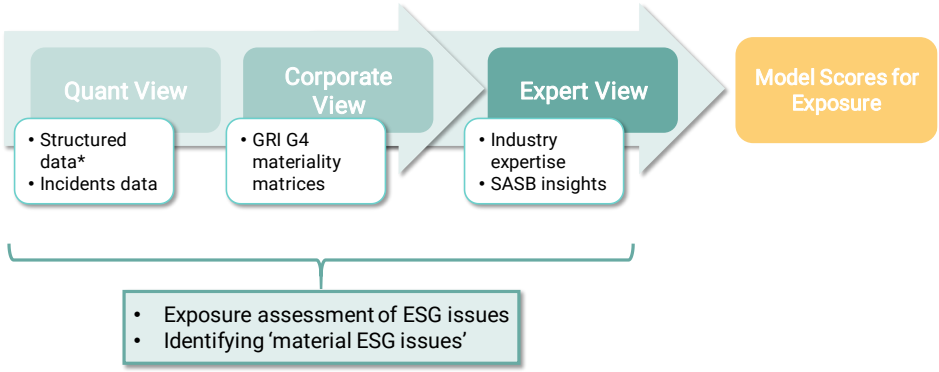
In order to set exposure scores at the subindustry level, our sector teams considered companies' incidents/events track record, structured external data (e.g. CO_2 emissions), company reporting, and third-party research (e.g. regulatory news and third-party data).

Subindustry exposure scores get updated on an annual basis as a part of our ESG Risk Ratings Review process which comprises an annual review of the model parameters of the ESG Risk Ratings to ensure that the ratings reflect the dynamics in the underlying macro-factors.

As a part of the guided process, our analysts are asked to provide examples that explain:

- why each issue was material to a given subindustry;
- which type of impacts a business might experience from the issue;
- factors affecting exposure (risk drivers);
- whether the issue primarily affected revenues (top line) or costs (bottom line),
- over which time horizon the issue is expected to materialize; and
- the probability of expected impact.

Exhibit 6: Subindustry Exposure Assessment Process

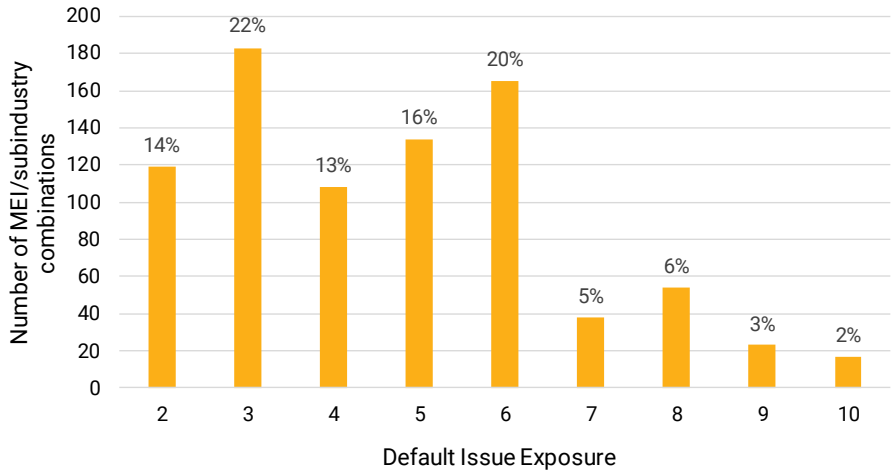


* for example: GHG emissions, water use, etc.

Source: Sustainalytics

Based on this input, sector teams then determined the Subindustry Exposure score, which assesses a subindustry's average exposure to a material ESG issue. The score ranges from 2 to 10 for issues considered material, with 2 indicating a low level of exposure and 10 indicating a high level of exposure for a subindustry. ESG issues with a score of below 2 are considered immaterial. Exhibit 7 shows the distribution of subindustry exposure scores in the ESG Risk Ratings at the issue level (across all material ESG issues and all subindustries; issues not regarded material are not taken into account).

Exhibit 7: Distribution of Subindustry Exposure Scores per MEI and Across All Subindustries*



* as of October 2020

Source: Sustainalytics

Beta Assessment

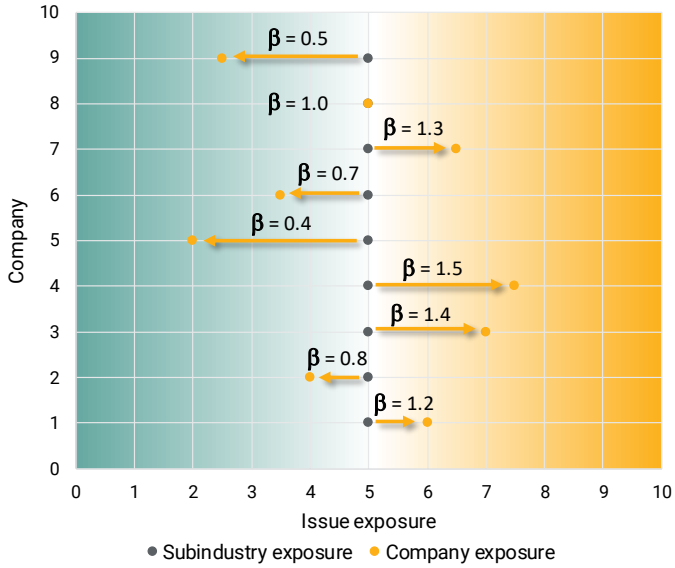
Making the ESG Risk Ratings company specific

In mainstream finance, beta measures the risk of a security relative to a market benchmark. The concept of beta has been figuratively applied in the ESG Risk Ratings, in which betas determine a company's exposure to an ESG issue relative to its subindustry's exposure to the same issue.

In our rating approach, exposure is defined against a set of ESG-related risk factors that pose potential financial risks to certain groups of companies. As described above, we determined exposure at a subindustry level by running through a guided process with sector teams. However, it is only with the use of betas that we are able to adjust subindustry exposure scores so that these more accurately reflect different companies' levels of exposure. It is a way of sharpening or refining the ESG risk signal.

In scoring terms, this means that betas are used to reflect how a company's exposure score (either for an issue or overall) deviates from its subindustry's exposure score. A subindustry exposure score is multiplied by a company's Issue Beta to derive the company's own issue exposure score, as shown in Exhibit 8.

Exhibit 8: Using the Beta Concept to Arrive at Company-specific Exposure Assessments



Source: Sustainalytics

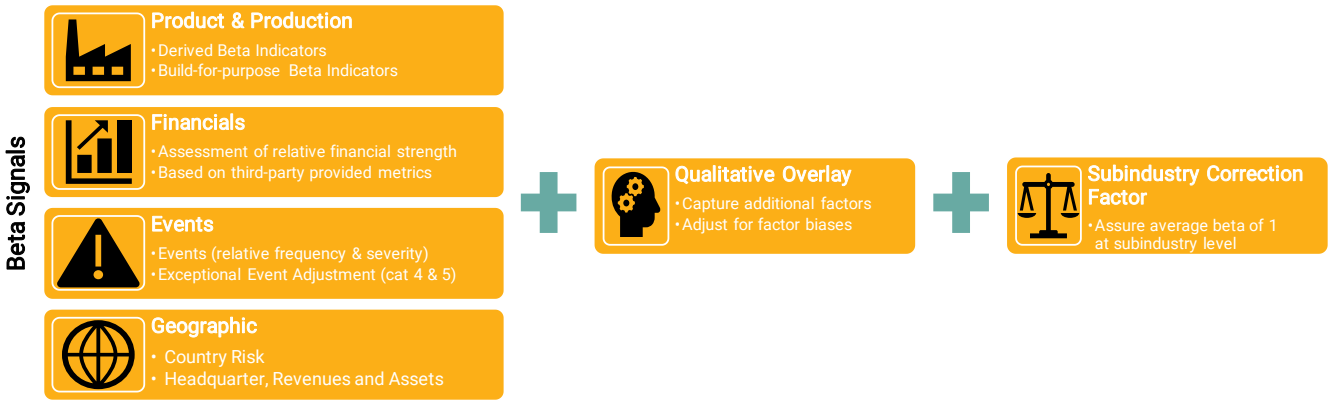
Betas are measured on an open-ended scale that starts at zero

In the ESG Risk Ratings, issue betas are measured on an open-ended scale that starts at zero and rarely goes beyond 2. A beta of zero means that the company is not exposed to an issue. Such an issue would disappear from this company's rating model, or in other words gets disabled (see page 13). A beta of 2 means doubling the subindustry exposure score, i.e. if the subindustry exposure score is at 10, the company-specific exposure score would reach 20. This would also double a company's unmanaged risk on the issue (ceteris paribus).

Beta is calculated in a three-stage process

The beta for a company vis-à-vis an ESG issue is calculated in a three-stage process (as shown in Exhibit 9). The starting point of our model is a list of subindustry and MEI specific Beta Indicators (see page 19). The assessment of these indicators constitutes the first step in the process. The outcomes of this assessment, Beta Signals (see page 20), get added to the subindustry default beta value of 1 together with the Qualitative Overlay (see page 23) and the Subindustry Correction Factor (see page 23). Beta indicators have been created for four distinct thematic areas, the so-called Beta Components: Product & Production, Financials, Events, and Geographic. Each of these can comprise multiple signals but may also not provide any signal at all. The exact components' specification depends on the MEI/subindustry combination at hand.

Exhibit 9: Model for Calculating Issue Betas



Source: Sustainalytics

In a second step, a qualitative overlay may be applied by our analysts when updating a company profile to reflect company specific factors that are not reflected in the standard model. Finally, a technical correction factor is applied to assure that the average beta within a subindustry is one.

Beta Indicators, Beta Signals & Beta Components

The selection or set of beta indicators is dependent on subindustry and MEI

Similar to management indicators, Beta Indicators provide the lowest level of defined scoring within the rating and provide a systematic and consistent assessment of clearly delineated and standardized criteria.[vii] For each material ESG issue, beta indicators have been selected so that together they provide the strongest signal to explain and measure how significantly a company is exposed to the respective material ESG issue relative to its subindustry (excluding events-based beta indicators which are absolute and not compared to the subindustry). The selection or set of beta indicators is dependent on subindustry and MEI, which is technically represented in the Beta Matrix with binary values {1, 0}. Beta indicators may be applied to any issue where they are considered relevant and may therefore appear across multiple material ESG issues.

All beta indicators have the same structure and are similar with regard to the set of sources that are used to feed them

All beta indicators have the same structure. They are all based on a set of outcome categories similar to management indicators. Beta indicators have either been built for purpose and are directly researched by our analysts (i.e. they choose the proper outcome category) or are fed from several different sources, depending on the thematic area being assessed. These sources are:

- Management indicators,
- ESG metrics,
- Product involvement/sustainable products metrics,
- Financial metrics,
- Event indicators AND
- Country Risk Ratings combined with geographic segment metrics (such as headquarter information, and asset and revenue distribution).

[vii] Please consult Sustainalytics' Indicator Methodology document for further details.

Before we go into the details of the scoring algorithms[viii] used to calculate betas, Exhibit 10 briefly summarizes the definitions of the most important terms used in the beta assessment context.

Exhibit 10: Definitions - Beta Indicator, Beta Signal, and Beta Component

Beta Indicator: Forms the lowest level of defined scoring within the exposure dimension of the ESG Risk Rating. Beta indicators provide a systematic and consistent assessment of clearly delineated and standardized criteria at individual company level. Beta indicators comprise a set of outcome categories with the outcome of the assessment forming the beta signal.

Beta Signal: Provides the outcome (score) of the associated beta indicator that typically ranges between -1 and +1. The scoring algorithm applied to a beta indicator (and therefore the beta signal) can be MEI- and subindustry-specific. Individual beta signals add up and, together with the qualitative overlay, the subindustry correction factor, the beta default value of 1 form the final issue beta.

Beta Component: Refers to the four main thematic areas that Sustainalytics considers when adjusting a company's exposure to material ESG issues by using betas: Product & Production, Financials, Events, and Geographic. The sum of beta signals that belong to a beta component is called component outcome (or score). Beta components provide just another layer of analysis, but do not play any specific role in scoring.

Beta Signals – The Scoring Algorithm

How we arrive at a beta signal

Based on the outcomes of the source metrics/indicators/ratings, the respective outcome categories of the beta indicators are selected and then translated into a beta signal. As an illustrative example, Exhibit 11 shows how event indicator outcomes are translated into beta signals within our model.

[viii] Note: The formula used to calculate individual indicator scores is called Scoring Algorithm. The sum of the scoring algorithms used to arrive at a rating, e.g. the unmanaged risk score, is called Scoring Model (for more detailed definitions, see Appendix).

Example 1: Event-based beta signals

Exhibit 11: Translation of Event Indicator Outcomes into Beta Signals, Illustrative Example*

Event Category	Beta Signal
Cat 0	0.00
Cat 1	0.01
Cat 2	0.02
Cat 3	0.03
Cat 4	0.12
Cat 5	0.20

*Note: The beta signals for category 4 and category 5 are exponentially larger than for category 1 to category 3 events due to the significantly higher risks we believe companies are subject to when they experience this level of controversy.

Source: Sustainalytics

In this example, a beta indicator uses an event indicator as its source. There is a well-defined beta signal for each potential event indicator outcome. The same principle also applies to all other potential sources of beta indicators. Similar to management indicators, we use two different types of scoring scales for beta indicators: linear and non-linear.

Linear and Non-linear Scoring Scales

Linear scoring scales

The linear scoring scale means that the beta signals lie along a continuum with equal distances between the underlying indicator's outcome category scores. An example for this is shown in Exhibit 12, in which the beta indicator is sourced from a product involvement indicator.

Exhibit 12: Example - Fossil Fuel Involvement Indicator for the Integrated Oil & Gas Subindustry

Beta Signal	Description
+0.15	The level of fossil fuel involvement at the company indicates higher exposure to this issue.
+0.10	The level of fossil fuel involvement at the company indicates moderately higher exposure to this issue.
+0.05	The level of fossil fuel involvement at the company indicates slightly higher exposure to this issue.
±0.00	Information is insufficient to determine whether the company has any fossil fuel involvement.
-0.05	The level of fossil fuel involvement at the company indicates slightly lower exposure to this issue.
-0.10	The level of fossil fuel involvement at the company indicates moderately lower exposure to this issue.
-0.15	The level of fossil fuel involvement at the company indicates lower exposure to this issue.

Source: Sustainalytics

Non-linear scoring scales

Deviations from the linear scoring scale standard are possible but need to be well justified based on the characteristics of the underlying research question and of the measurable outcome increments. Examples of ideal-typical patterns are convex, concave, S-form, and U-form. Content and data availability finally determine the choice of the pattern. Exhibit 13 provides an example for a non-linear scoring scale. In this example, outcome categories are asymmetrically positioned around zero.

Exhibit 13: Example - Stranded Assets Indicator for the Integrated Oil & Gas Subindustry

Beta Signal	Description
+0.15	The company's production and reserves signal that it is at very high risk from stranded assets.
+0.10	The company's production and reserves signal that it is at high risk from stranded assets.
±0.00	The company's production and reserves signal that it is at medium risk from stranded assets.
-0.10	The company's production and reserves signal that it is at low risk from stranded assets.

Source: Sustainalytics

Non-disclosure translates into a beta signal of 0

The default score for beta signals in case of non-disclosure is 0. This means, when we are unsure about the company's characteristics, we neither increase nor decrease its exposure to an issue. Beta signals can change due to events, changes in underlying/linked indicator scores, raw data uploads (changing the values of underlying/linked metrics) or analyst-driven qualitative overlays.

Exceptional Event Adjustment

A special beta indicator

The so-called Exceptional Event Adjustment is a special beta indicator that we'd like to dedicate some attention to in this document. The term refers to the exceptionality of category 4 or 5 events and the scoring algorithm we are applying in this case has been designed to reflect the additional order of magnitude in exposure that is implied by the occurrence of these events. The beta signal that we derive from this indicator differs from others in that it is calculated based on our notion of a 'single currency of risk' (see page 6). One point of risk is one point of risk no matter where and at what level it gets generated within our rating model.

In the context of the exceptional event adjustment, a company's exposure increases by points of risk that are linked to the frequency of category 4 and 5 events. The respective mapping is shown in Exhibit 14.

Exhibit 14: Exceptional Event Adjustment – Mapping Table

Event Category	Categorie 0-3	Category 4	Category 5
Exposure Score MEI	default score	+1 (min 6)	+2 (min 8)

Source: Sustainalytics

The beta signal that is generated based on this mapping divides the points of risk by the subindustry exposure score. For example, assume a subindustry exposure score of 4. The company to be assessed has a category 4 event and a category 5 event within the issues, which equates to 3 additional points of risk according to the mapping shown in Exhibit 14 below. As a consequence, the company-specific exposure increases to 7 points of risk, ceteris paribus, and the beta signal for the exceptional event adjustment would be +0.75 (3 additional exposure points / starting exposure of 4).

Qualitative Overlays

Qualitative overlays are optional; they are provided at the MEI level only

An optional Qualitative Overlay is either applied by individual analysts to arrive at the final issue beta for a company. Potential reasons for a qualitative overlay include, for example, **(1)** situations in which company-specific factors are not reflected in the beta signals or **(2)** situations in which the beta signals, either individually or collectively, do not yet reflect recent developments (e.g. M&A activity). Overlays can be done at the MEI-level only, not at the overall level. Analysts must provide a written rationale to explain their overlay.

Subindustry Correction Factor

Calculated for every MEI in every subindustry to ensure an average beta of 1

The Subindustry Correction Factor (SCF) is calculated for every MEI in every subindustry to ensure an average beta of 1 at the respective subindustry level as required by the theoretical beta concept. The SCF will be calculated and applied automatically and will not require (or allow) any analyst intervention.

Adjust common drifts in bottom-up generated beta signals and qualitative overlays

The SCF is a calibration mechanism that is needed to control and adjust for common drifts in beta signals or qualitative overlays that can drive the average issue beta away from the theoretically correct value of 1 for a given subindustry. The fact that all correction factors are calculated annually for a given date and then feed into company-specific ratings step by step means that actual average issue betas will never exactly equal the theoretical value of 1, but will be reasonably close to it (will stay within a tolerable error margin). Furthermore, correction factors are only applied when the subindustry average beta deviates from 1 by a margin of at least 0.05.

Idiosyncratic Issues

An idiosyncratic issue becomes a material ESG issue and enters a company's rating equation when the event is assessed at a category 4 or 5 (see page 14). In case of such an event, the (now) material issue receives a predetermined exposure score of six or eight respectively. These scores can still be adjusted by the analyst through an issue beta. However, there is no signal-based issue beta for idiosyncratic events, and the only beta mark-up would come from the qualitative overlay in this case.

Arriving at the Final Issue Beta

Adding everything up

As shown in Exhibit 9, beta signals, the qualitative overlay, and the subindustry correction factor add up to form the final markup that is added to the theoretical average beta of 1 which then forms the final issue beta for a given company. Beta signals also get aggregated to four beta components (reflecting the respective thematic areas). Beta components are used as additional levels of information aggregation. They do not serve any particular purpose in the calculation of the issue beta. Exhibit 15 provides an illustrative example for a full beta calculation.

Calculation example for a car producer regarding the Carbon – Products & Services issue

Exhibit 15: Arriving at the Final Issue Beta for a Company, Illustrative Example (Carbon – Products & Services, Automobiles)

Beta Indicator	Beta Signal*	Beta Component	Beta Component Signal**
Fleet Emissions	+0.15	Product & Production	+0.15
Operating Performance	+0.03	Financials	+0.05
Solvency	-0.02		
Financial Flexibility	+0.02		
Asset Performance	+0.02		
Env. Impact of Products Events	+0.04	Events	+0.14
Carbon Impact of Products Events	+0.03		
Exceptional Event Adjustment	+0.07		
Headquarters Location	±0.00	Geographic	+0.01
Sales Location	+0.01		
Sum of Beta Signals	**+0.35**		**+0.35**
Qualitative Overlay	-0.05		
Correction Factor	+0.01		
Baseline***	+1.00		
Issue Beta	**+1.31**		

* Increments of 0.01 at the beta signal, qualitative overlay, subindustry correction factor level; final Beta rounded to the nearest 0.05 increment
** Beta component signal = sum of beta signals for each component
*** Subindustry default value

Source: Sustainalytics

With the final beta calculated, everything is now in place to calculate a company's exposure to an issue

Please note, that markups can be either positive or negative (individually as well as in aggregate), signaling that a company's exposure to an issue is either below or above the subindustry average. Please note again that beta signals are not weighted, they are simply summed up.

Once the final beta calculation is done, everything is in place to determine a company's exposure to a material ESG Issue, which provides one of the two dimensions of our ESG Risk Ratings. Before we get to the discussion of the second dimension, which is Management, we will describe a step that we make in between the two dimensions: the concept and application of the manageable risk factor.

Distinguishing between Manageable and Unmanageable Risks

Achieving more realistic and comparable rating outcomes by distinguishing manageable from unmanageable risks

Within the ESG Risk Ratings we distinguish between two types of risk, manageable and unmanageable risks. Our intention for doing this is to achieve more realistic rating outcomes and to ensure the comparability of ratings across subindustries. Unmanageable risks are those risks that are outside the boundaries of a company management's control based on the assumption that the company continues its inherent business, i.e. doesn't fundamentally change what it is doing.

We consider five areas to systematically drive the manageability of ESG risk

Below we are providing some illustrative examples for our understanding of the manageability of risk. All of them speak to the following five drivers that we consider systematic and ask our analysts to include in their assessments:

- Inherent product characteristics;
- Technological boundaries & innovation;
- Human error;
- Outside actors and
- System complexities.

Manageability of Risk – Some Illustrative Examples

Example: Inherent product characteristics

Take an integrated oil company, for example. As long as the company continues to be an oil company, i.e. sells fossil-fuel based products to its customers, a part of the company's exposure to our Carbon – Products & Services MEI is not manageable.

Example: Technological boundaries & innovation

Another example is airlines. For them, one of the most material ESG issues is the CO_2-emissions of their fleet, which is covered in our rating under the Carbon – Own Operations MEI. In this case the boundaries of manageability are set by technological constraints. Based on today's technology, an airline company cannot fully avoid the use of fossil fuels and, hence, some of these risks are considered unmanageable.

Obviously, the notion of unmanageable risk is based on the world of today and of the foreseeable future. At some point in the future, technology may provide solutions to issues that are currently considered unmanageable. For example, at some point in time, it is conceivable that emission free flights are possible. Hence, our assessments of manageability can change over time. But they are expected to do so to varying degrees. Relative to technological innovation, for example, other drivers of manageability such as human error and misconduct are inherently more stable.

Example: Human error and criminal minds' impacts

As long as people work in factories, for example, a company may have perfect health & safety policies and programs but will never be able to fully avoid the occurrence of accidents. The impact of human error, however, can be expected to shrink, driven by increasing digitalisation. New sources of 'unmanageability' may arise instead. One example would be cybersecurity. Outside actors strive to illegally gain access to confidential information or sabotage a company's systems. Of course, much can be done to manage these risks, but to some degree criminal-minds-driven impacts remain unavoidable.

Example: System complexities

Finally, our global economic system still relies on integrated global supply chains, although this has been threatened by trade conflicts and the political developments in the more recent past. A company's management does of course have the choice to reduce the depths and complexities of its supply chains. But to remain competitive in certain industries it often has no choice and works with many suppliers around the world. Supplier relationships can be managed well with the enhanced tools that are available today. But the reality is, that even with best practices applied, companies do face boundaries in managing their supply chain risks. Some of these are unmanageable.

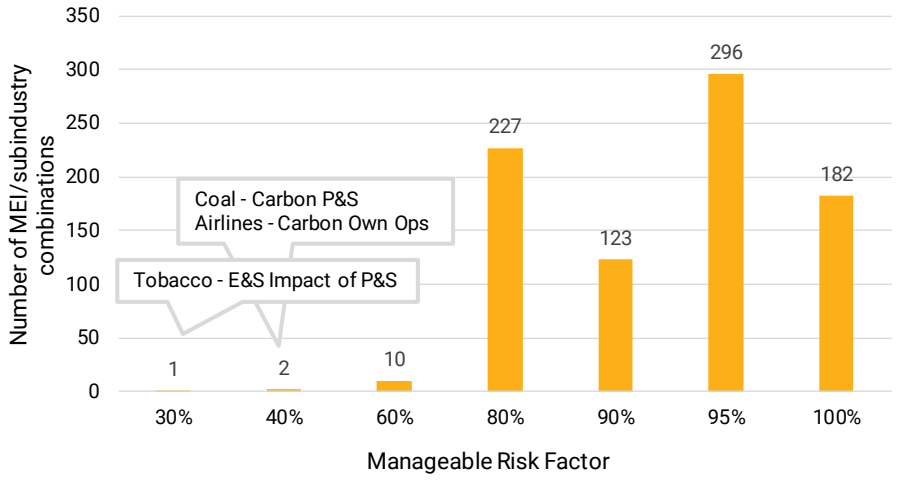
The Manageable Risk Factor

Manageable Risk Factors are determined at the issue and subindustry levels; they are updated on an annual basis

Technically speaking, the share of risk that is manageable vs. the share of risk that is unmanageable is determined at a subindustry level by a Manageable Risk Factor (MRF). MRFs range from 30% to 100% and represent the share of exposure to a material ESG issue that is deemed to be (at least theoretically) manageable by the company. Every MRF score that we publish is accompanied by an analyst write-up that provides the rationale behind the score. MRFs get updated as a part of our annual ESG Risk Ratings review (see page 9). They are generated based on a structured and coordinated consultation process our analyst teams need to go through.

Exhibit 16 gives some insight into how MRFs are currently distributed. The highest degree of unmanageability is currently seen for Tobacco with regard to E&S Impact of Products and Service, where we consider only 30% of the exposure to this issue being manageable by the companies, followed by Coal regarding Carbon – Products & Services, and Airlines with regard to Carbon – Own Operations (both with manageable risk factors of 40%).

Exhibit 16: Distribution of Manageable Risk Factors per Subindustry and MEI*



* as of October 2020

Source: Sustainalytics

Second Dimension: Management

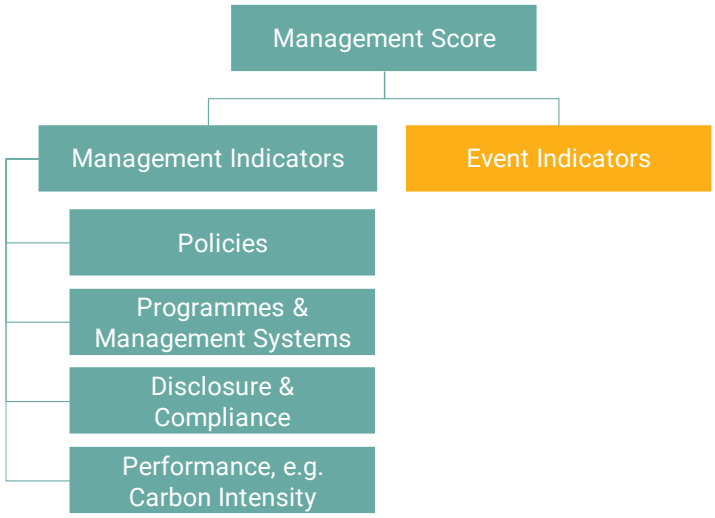
How well is a company managing its material ESG risks

The ESG Risk Ratings' second dimension is Management. It can be considered as a set of company commitments, actions and outcomes that demonstrate how well a company is managing the ESG risks it is exposed to.

The Overall Management score for a company is derived from a set of management indicators (policies, management systems, certifications, etc.) and outcome-focused indicators. Outcome-focused indicators measure management performance either directly in quantitative terms (e.g. CO_2 emissions or CO_2 intensity) or via a company's involvement in controversies (represented by the company's event indicators).

Distinguishing between management, (quantitative) performance, and event indicators

Exhibit 17: Types of Indicators that Feed the Management Score



Source: Sustainalytics

Indicators are not exclusively linked to just one issue

For each material ESG issue/subindustry combination, management- and event indicators have been selected and weighted so that they collectively provide the strongest signal to explain and measure how well a company manages an issue. They may be applied to any issue where they are considered relevant and may therefore show up in the context of several material ESG issues.

Exhibit 18: Definition - Management and Event Indicator

Management Indicator: An indicator that provides a signal about how effectively a company is managing (a part of) its exposure to a material ESG issue through policies, programs or quantitative performance, for example. Management indicators comprise a set of outcome categories with the one getting selected by the analyst determining the final indicator score. The score ranges between 0 (indicating no management) and 100 (indicating best practice).

Event Indicator: An indicator that provides a signal about a potential failure of management as reflected by an involvement in controversies. Events have a dilution effect on a company's management score for the respective material ESG issue. Any event indicator has a raw score of 0. The dilution effect is achieved by giving this score a weight in the overall management score calculation that increases with the severity of occurred events and their frequency. If the event indicator relates to an ESG issue that was not previously selected as material for a company, the issue becomes material if there is a category 4 or 5 event (see Idiosyncratic Issues).

Management Indicators

Systematic and consistent assessment

Management indicators are the smallest assessment unit used to measure a company's performance in managing its material ESG issues. They provide a systematic and consistent way of assessing clearly delineated and standardized criteria. These criteria speak to key areas of risk and benchmark a company's performance against relevant best practices. Management indicators are scored on a scale between 0 and 100.

Types of Management Indicators

Policy indicators

Policy indicators measure the strength and quality of an issuer's policy commitment to addressing a material ESG issue. One often-used policy indicator is Environmental Policy. It is part of the Management Indicator sets for several MEIs, in particular: Carbon – Own Operations, Emissions, Effluents and Waste, and Resource Use.

Programmes & Management Systems indicators

Programmes and Management Systems indicators evaluate a company's operational systems for managing its material ESG issues. These indicators are aligned with and reflective of recognized management systems, such as the ISO 9001 quality standard or the ISO 14001 environmental management standard. Their assessment is based on the following criteria:

Assessment criteria

- Managerial responsibility;
- Risk/impact assessment;
- Training or other initiatives to ensure compliance with policies;
- Objectives or targets;
- Monitoring & measurement and
- Incident investigation and corrective action.

Disclosure & Compliance indicators

Disclosure & Compliance indicators assess whether companies are sufficiently transparent to investors about their ESG risks and management practices. Typically, they assess companies' use of generally recognized practices, such as reporting using the Global Reporting Initiative structure and including the fulfillment of respective requirements (e.g. providing transparency on pay structures associated with ESG targets).

(Quantitative) Performance indicators

(Quantitative) Performance indicators measure the effectiveness of policies, programs and management systems and are tracked yearly to show a trend over time. For example, carbon intensity trend tracks a company's carbon emissions over time to provide information regarding the effectiveness of its carbon emissions reduction programs.

Scoring of Management Indicators

Scoring Schemes

We use three different types of scoring schemes: binary, linear and non-linear. A scoring scheme is defined as a set of Outcome Categories that are comprised of a numerical value and a verbal description of what is behind the numerical value and how it needs to be interpreted. The outcome category that gets chosen by the analyst based on the available information determines the final Indicator Score.

Binary scoring schemes

The first and simplest one is the binary scheme, with just two possible outcome categories and one numerical value {0, 100} linked to each of them. Obviously, this scheme can only be applied to very simple, Yes/No type of underlying research questions. Classical examples are indicators that reflect the membership of an organisation in an initiative or ask whether an organisation has signed a treaty or any kind of commitment or not (e.g. UN Global Compact or Principles for Responsible Investment).

Linear scoring schemes

Most often used for indicators within the management dimension of our rating are linear scoring schemes. For them, the outcome category scores lie on a continuum with equal distances between the individual outcome categories. The number of equidistant score levels varies depending on the underlying research question. Usually, either a three-step scheme {0, 50, 100} or a five-step scheme is used {0, 25, 50, 75, 100}. Examples for linear scoring schemes are shown in Exhibit 19.

Exhibit 19: Linear Scoring Scales

A. Policy, Programme & Management System Indicators (Example: E.1.1 Environmental Policy)

Score	Outcome Category
100	The company has a very strong policy
75	The company has a strong policy
50	The company has an adequate policy
25	The company has a weak policy
0	Based on available evidence, the company does not have a policy

B. Performance Indicators (Example: S.1.6.6 Employee Fatality Rate)

Score	Outcome Category
100	No fatalities have occurred in the last three years
75	The company's fatality rate is low
50	The company's fatality rate is average
25	The company's fatality rate is high
0	The company's fatality rate is very high

C. Disclosure Indicators
(Example: E.1.1.1 Environmental Reporting)

Score	Outcome Category
100	The company discloses high quality data on key environmental performance indicators
50	The company discloses some data but disclosure on some key environmental performance indicators is missing
0	The company's disclosure on key environmental performance indicators is considered weak

Source: Sustainalytics

Non-linear scoring schemes

We consider the linear scoring scheme as a kind of default solution. Deviations from it occur infrequently but are not ruled out. The obvious complements to linear scoring schemes are the non-linear ones. We generally allow these schemes to take on a convex-, concave-, S- or U-shape. The application of non-linear schemes needs to be well justified based on the characteristics of the underlying research question. Data availability may also play a role. One example for a non-linear (in this case convex) scoring scheme is our Water Management Programme indicator (see Exhibit 20).

Exhibit 20: Non-linear Scorings Scales
(Example: E.1.3.4 Water Management Programme)

Score	Outcome Category
100	The company has a strong programme
50	The company has an adequate programme
25	The company has a weak programme
0	Based on available evidence, the company does not have a programme

Source: Sustainalytics

Selection of Outcome Categories

Analysts directly select an outcome category

Our management indicators are assessed in two different ways. For one group of indicators, our analysts directly select an outcome category for the respective indicator and thereby determine its final score. The choices made are qualitative assessment calls by our analysts, but they are based on clearly defined and delineated criteria and, hence, are done in a structured and systematic manner.

Tick-box based selection of an outcome category

For the second group of indicators, the selection of the outcome category is more formally structured with the help of a set of criteria (represented as tick boxes) which our analysts need to check when researching an indicator.

Event Indicators

Reflecting a track record of management failures

Event Indicators is the second type of indicators used for the assessment of Management, the second dimension of the risk rating. An event indicator provides a signal about the severity of a company's involvement in media-reported controversial activities. The indicator outcome typically reflects (potential) management failures or a track record of failures. In that sense event indicators are similar to performance indicators by nature.

Incident Assessments

Stakeholder impact and reputational risk

Technically speaking, an Event is based on a group or series of isolated or related incidents that pertain to the same material ESG issue. In turn, an Incident reflects a company's involvement in cases of specific alleged misconduct with negative environmental and/or social impacts. Incidents form the most granular level of analysis we conduct. They are identified based on a comprehensive daily media analysis. Our analysts provide two assessments at the incident level, a stakeholder impact assessment and a reputational risk assessment. Incidents typically inform the event indicator outcome for a period of three years (can be longer in exceptional cases).

Event Assessments

Additional layer of analysis

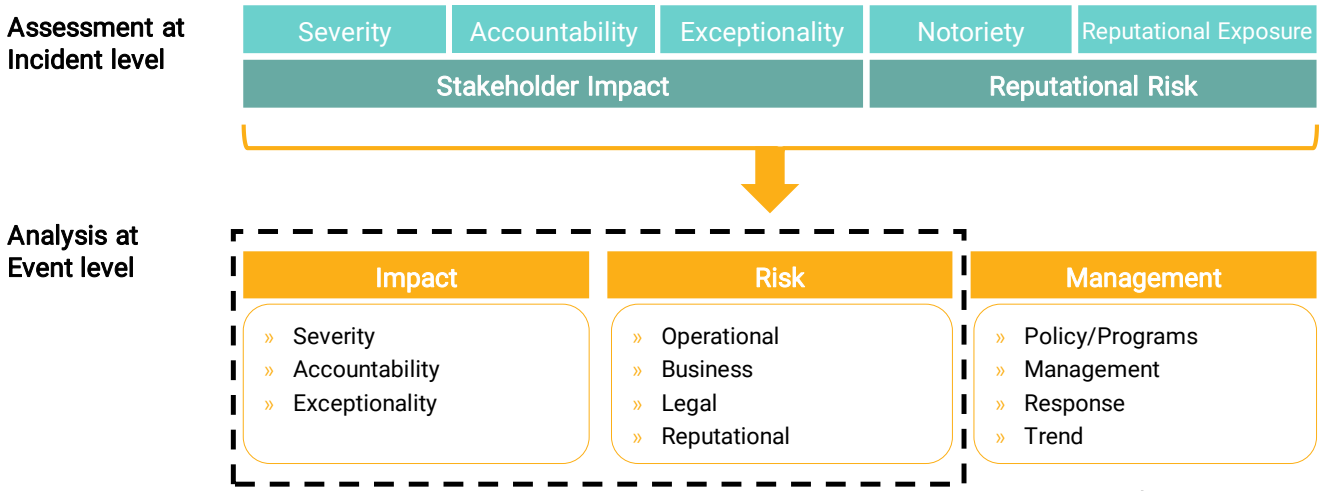
Events are classified into 40 thematic groups, each of which is represented by an event indicator. For example, a series of employee strikes in various locations of a company's operation forms an event under the event indicator EV.22 Labour Relations. To assess an event, we ask our analysts to look at following three aspects:

- **Impact:** Negative impact that the incidents have caused to the environment and society;
- **Risk:** Business risk to the company as a result of the incidents;
- **Management:** A company's management systems and response to incidents.

In their event assessment, our analysts apply an additional layer of analysis, which means that the underlying incident scores are not the only and final determinant of the event indicator outcome. In particular, they may get overridden because of company's response to incidents or a broader business risk identified by the analyst.

Events are scored on a scale of 0 (no evidence of relevant incidents) to 5 (impact and risks are severe and irreversible). These 5 levels are called Event Categories. Exhibit 22 displays how we derive the event assessments based on incidents analysis.

Exhibit 22: Event Assessment – Criteria and Factors



Source: Sustainalytics

Use of Event Indicators in the Risk Ratings

Material ESG issues can be supported by multiple event indicators

Event indicators are assigned to material ESG issues based on their relevance. Each individual MEI can be supported by as many event indicators as necessary to maximize the power of the model. Any given event indicator may be used for multiple MEI/subindustry combinations, if this helps to improve the model's quality. The use of this modeling option, however, is an exception, not the rule.

Dilution mechanism

Within the ESG Risk Ratings, event assessments enter the management score calculation via a dilution mechanism that we've called Events Weight Shift and is described in Exhibit 23. Together with management indicator scores, event scores get rolled up in a weighted manner to form the overall management score for a given MEI. Technically speaking, this is accomplished by assigning a raw score of 0 to each event (independent of its category) and combining it with a weight that depends on the event category. The weight of the event in the scoring algorithm increases as the severity increases, acting as a discount to the other management indicators. In this way we distinguish severe management failures from minor ones while acknowledging that any incident reflects weaknesses in company management. Severe events also trigger increases to issue exposure scores (as the exceptional event adjustment, see Exhibit 14).

Exhibit 23: Events Weight Shift

Event category	Category 0	Category 1	Category 2	Category 3	Category 4	Category 5
Event indicator raw score	0	0	0	0	0	0
Weight shift per event indicator*	0%	5%	10%	25%	50%	75%

* more than one event: addition of weight shift according to events category up to cap at 90%

Source: Sustainalytics

Calculating the ESG Risk Ratings

Combining Exposure and Management

Designing a measure of unmanaged risk

The fundamental idea that underlies our ESG Risk Ratings is to provide investors with a signal that reflects to what degree their investments (single assets or portfolios) are exposed to ESG risks that are not sufficiently managed by companies. Hence, the final rating outcome has been designed as a measure of Unmanaged Risk, in which the two dimensions of the rating, Exposure and Management are charged up against each other at both the MEI level and the overall level. Based on the unmanaged risk scores, companies are assigned to one of five categories of ESG risk.

Exhibit 24: Definition - The Five ESG Risk Categories

- **Negligible risk** (overall score of 0-9.99 points): Enterprise value is considered to have a negligible risk of material financial impact driven by ESG factors;
- **Low risk** (overall score of 10-19.99 points): Enterprise value is considered to have a low risk of material financial impact driven by ESG factors;
- **Medium risk** (20-29.99 points): Enterprise value is considered to have a medium risk of material financial impact driven by ESG factors;
- **High risk** (30--39.99 points): Enterprise value is considered to have a high risk of material financial impact driven by ESG factors;
- **Severe risk** (40 points and above): Enterprise value is considered to have a severe risk of material financial impact driven by ESG factors.

General Principle of ESG Risk Ratings Scoring

Introducing a 'single currency' for ESG risk

The five categories of risk in our rating are absolute, meaning that a 'high risk' assessment reflects a comparable degree of unmanaged ESG risk across all subindustries covered. This means that a bank, for example, can be directly compared with an oil company or any other type of company. One point of risk is one point of risk (equivalence principle), no matter which company or which issue it applies to, and points of risk add up across issues to create overall scores. With the ESG Risk Ratings' scores, we have introduced a 'single currency' for ESG risk.

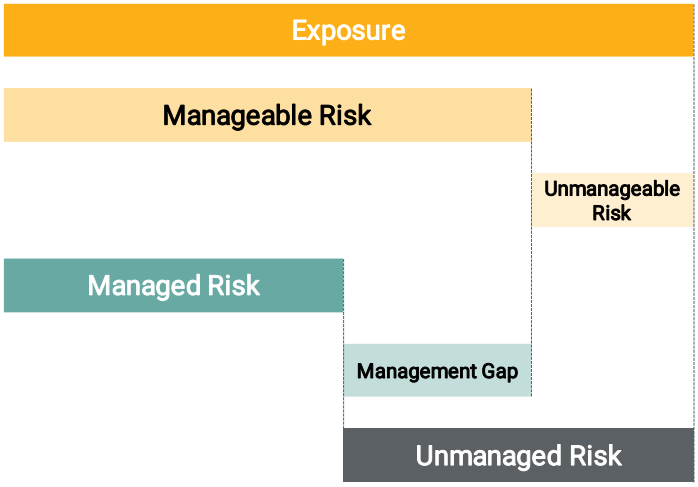
Modular architecture

The fundamental concept of points of risk allowed us to give the ESG Risk Ratings a fully modular structure. Issue-level exposure scores can be aggregated to arrive at an overall exposure score, for example, or to arrive at scores for combinations of issues that might be of interest for investors from a thematic perspective (carbon risk, for example). Management scores for individual issues can be aggregated to arrive at combined-issue level management scores or an overall management score.

Risk Decomposition & Scoring Structure

The final ESG Risk Ratings scores are a measure of unmanaged risk, which is defined as the portion of material ESG risk that is not (yet) managed by a company. The ESG Risk Ratings scoring system for a company is best thought of as a waterfall with four levels (applies to MEI- as well as overall level). Exhibit 25 shows an example for single material ESG issue, such as Carbon – Products & Services. The starting point at the top is a company's exposure to that issue, calculated as the product of the company's subindustry exposure and its issue beta.

Exhibit 25: Risk Decomposition – Issue Level



Company Exposure	=	Subindustry Exposure	*	Issue Beta		
	=	8	*	1.5	=	**12**
Manageable Risk	=	Company Exposure	*	MRF		
	=	12	*	90%	=	**10.8**
Managed Risk	=	Manageable Risk	*	Management score (as %)		
	=	10.8	*	75%	=	**8.1**
Unmanaged Risk	=	Company Exposure	-	Managed Risk		
	=	12	-	8.1	=	**3.9**

Source: Sustainalytics

Distinguishing between manageable and unmanageable risks

At the second level, Manageable Risk is separated from unmanageable risk with the help of the manageable risk factor (see page 26). In the example above 90% of the risk associated with the ESG issue at hand is considered manageable. Multiplied with exposure, this gives us the manageable risk for this issue and this company.

Deriving managed risk from manageable risk

At the third level, the Managed Risk score is derived from the manageable risk score by multiplying the latter with the management score (interpreted as a percentage number) that is based on a set of management and event indicators outcomes (see page 26). The part of manageable risk that's not managed is called Management Gap and is calculated by subtracting managed risk from manageable risk.

Subtracting managed risk from exposure

Finally, at the fourth level, Unmanaged Risk is calculated by either subtracting managed risk from exposure or by adding the management gap to the portion of risk that has been deemed unmanageable. In the example above, 3.9 points of risk out of a total of 12 remained unmanaged. After having evaluated all material ESG issues for a company, its final ESG Risk Ratings score is calculated by summing up all individual issue-related unmanaged risk scores.

The Core Framework

Two Frameworks, One Rating

Extending our coverage universe; differentiating between the Comprehensive framework and the Core framework

The Core Framework was created to extend the coverage universe of the ESG Risk Ratings from the so-called Ratings universe, whose constituents are rated based on the Comprehensive Framework that has been described in detail in previous chapters, to the so-called Ratings Plus universe (see page 8). The most important difference between the two frameworks is that Core framework does not break down a company's ESG risk to the material ESG issue level. Instead it provides an overall risk score that is based on a focused indicator set and an optimization algorithm that assures alignment and comparability with the overall risk scores of Comprehensive. This approach required some adjustment to the rating's architecture. As the manageable risk factor, events weight shift and betas are all applied at the material ESG issue level in Comprehensive, these elements have been slightly modified so that they can be applied at the overall level in Core.

Exposure

The principle logic of the two frameworks is the same; the difference is that the Core framework focuses on the overall level

The definition of exposure is identical in both frameworks: Exposure is a set of ESG-related risk factors that pose financial risks for companies. However, as said above, the Core framework does not include issue-level assessments of exposure. But how do we then arrive at an overall score? After all, one of the features of the Comprehensive framework is that it can be looked at both from a top-down and/or a bottom-up perspective.

Step one: Determine overall subindustry exposure

The Core framework is more top-down only. The waterfall logic with the risk decomposition (see Exhibit 25) remains untouched but is applied only to the overall level (different from the example provided). The starting point for calculating a company's overall exposure are the issue-level exposure scores for the subindustry the company is operating in. The exposure scores for those issues that are considered material for a company's subindustry get simply summed up in the first step.

Step two: Determine overall beta

In the second step, this score gets adjusted by an overall beta to reflect company-specific deviations from the subindustry norm. Again, this logic is not at all different from the Comprehensive framework besides the fact that it is applied only at the overall level and not at the individual issue level.

Beta Assessment

A single beta is applied to arrive at the final overall company exposure score

As in the Comprehensive framework, the beta assessment is a key part of ensuring that the Core framework accurately measures ESG risks specific to each company. Betas determine a company's exposure to ESG risk relative to its subindustry's exposure.

Beta signals, qualitative overlay, subindustry correction factor

In the Core framework, there is a single beta for each company, not multiple ones that speak to individual MEIs. Its calculation is not different from the procedure applied in the Comprehensive framework in principle. Here as well, the markup to the average beta of 1 is calculated as the sum of beta signals (equally weighted), the qualitative overlay (applied only in exceptional cases), and the subindustry correction factor (see Exhibit 9). To calculate a company's overall exposure, the overall subindustry exposure score is multiplied by the company's overall beta.

Beta Signals

Comparing a fictive automotive company's overall beta across the two frameworks

Exhibit 26 shows how beta signals get aggregated in the Core framework to arrive at the final beta for a fictive company.

Exhibit 26: Beta Signals – Aggregation to Overall Beta in Core*; Illustrative Example

Beta Indicator	Beta Signal**	Beta Component	Beta Component Signal***
Carbon Emissions	-0.02	Product & Production	-0.01
Carbon Solutions Offering	+0.01		
Operating Performance	+0.03	Financials	+0.05
Solvency	-0.02		
Financial Flexibility	+0.02		
Asset Performance	+0.02		
Env. Impact of Products Events	+0.04	Events	+0.13
Carbon Impact of Products Events	+0.02		
Exceptional Event Adjustment	+0.07		
Regional Water Stress	±0.00	Geographic	+0.05
Regional Corruption	+0.05		
Sum of Beta Signals	**+0.22**		**+0.22**
Qualitative Overlay	-0.05		
Correction Factor	+0.01		
Baseline****	+1.00		
Issue Beta	**1.18**		

* Note for Core, all beta indicators are combined and applied to the overall exposure as there is no MEI structure in the Core framework. Although you will typically see many event beta indicators for Core companies, for demonstration purposes this exhibit only included event indicators with beta signals other than zero
** Increments of 0.01 at the beta signal, qualitative overlay, subindustry correction factor level; final mark-up rounded to the nearest 0.01 increment
*** Sum of beta signals for each component
**** Subindustry default value

Source: Sustainalytics

Scoring algorithms are typically different for the two frameworks even for the same beta indicator

Again, similar to the Comprehensive framework, beta indicators in the Core framework get translated into beta signals with the help of a well-defined scoring algorithms. Scoring algorithms are indicator- and subindustry-specific and also specific to Core. The latter means that for a given beta indicator, the scoring algorithm that is applied in Core typically is different from the one that is applied in the Comprehensive framework, even for the same beta indicator, to reflect the fact that the beta signal now speaks to the overall level rather than to an individual MEI level (which implies that signals need to have smaller values in Core). Practically speaking, a subindustry- and indicator-specific scaling factor is applied to the respective beta indicator.

Manageable Risk Factors

Overall Manageable Risk Factor replaces issue-specific ones

In contrast to the comprehensive framework, the Core framework applies a Manageable Risk Factor (MRF) at the overall level rather than the issue level. The level of overall manageable risk for each subindustry is determined by the subindustry exposure and manageable risk factors that are used within the Comprehensive framework. The MRF is calculated by dividing the overall manageable risk for a subindustry by the overall subindustry exposure, with the ultimate result rounded to two decimal places. An example of the calculation of the overall MRF for the Consumer Finance subindustry is shown in Exhibit 27.

Exhibit 27: Core Framework – Overall Manageable Risk Factor Calculation Illustrative Example: Tobacco

Baseline / Material ESG Issue	Subindustry Exposure	Manageable Risk Factor	Manageable Risk
Corporate Governance	9.0	1.00	9.0
Business Ethics	6.0	0.95	5.7
E&S Impact of Products and Services	9.0	0.30	2.7
Human Capital	4.0	0.95	3.8
Human Rights - Supply Chain	4.0	0.80	3.2
Land Use and Biodiversity - Supply Chain	3.0	0.80	2.4
Resource Use	4.0	0.80	3.2
Resource Use - Supply Chain	4.0	0.80	3.2
Sum	**43.0**	**-**	**33.2**
Overall MRF (=Manageable Risk/Subindustry Exposure)	**-**	**-**	**0.77**

Source: Sustainalytics

Management

Similar to the Comprehensive framework, the second dimension in the Core framework is Management. Management is defined identically in both frameworks. It speaks to how well a company is mitigating its ESG exposure through suitable policies and initiatives and how these efforts are reflected in the actual ESG performance of a company.

The selection of indicator sets is done with the help of a regression model that minimizes prediction errors

The management score is determined by aggregating the weighted individual management and event indicator scores and a constant value. Indicator selection, weights, and the constant value were determined at the subindustry level by a regression model that aimed to minimize the difference between the known company scores (as determined by the Comprehensive framework) and the predicted company scores (as determined by the Core framework). Other differences in the management calculations in the Core framework include the application of weights for events and manageable risk factors, as further explained below.

The Constant

The constant represents those indicators that have not been selected

As the Core framework relies on a focused indicator set, the rating includes a constant value that is added to the management scores to improve the predictive power of the model. The constant value represents the contribution to

to enter the Core framework's equation

the management score that would be expected from indicators that are not in the Core framework's focused indicator set but are used in Comprehensive. The constant is set at the subindustry level. It varies between subindustries because the ability to explain the scores from the reduced indicator set varies between subindustries. Its value can change at the company level as a result of events and in accordance with our ESG Risk Ratings' events weight shift (see page 32), whereby some of the weight of the constant and the management indicators is shifted to the event indicator(s).

Event Indicators

Similar to Comprehensive framework, the dilution effect of events increases with their severity

As within the Comprehensive framework, event indicators in the Core framework always receive a raw score of 0. The differentiation kicks in via the weight of the respective event indicator in the management score calculation. And this weight increases with the severity of an event, diluting the contributions of all management indicator scores.

However, the Core framework applies event indicator weights at the overall-level rather than the issue-level, which necessitates an adjustment to the weights we assigned to each event category in the Comprehensive framework (see Exhibit 23). The weights attributed to each event category approximate the average contribution to overall weight that each respective event category has within the Comprehensive framework. For example, in the Comprehensive rating a Category 1 event translates into an events weight shift of 0.5% at the overall level but the exact amount would vary depending on the relative subindustry exposure of the issue.

Exhibit 28: Events Weight Shift in the Core Framework

Event Category	Category 0	Category 1	Category 2	Category 3	Category 4	Category 5
Event indicator raw score	0	0	0	0	0	0
Weight per event indicator (in MEI)	0.00%	0.50%	1.50%	3.50%	8.00%	13.00%

Source: Sustainalytics

Idiosyncratic Issues

Category 4 and 5 events trigger the inclusion of event indicators in the rating equation even though the issue they are linked to is not considered material for the company's subindustry

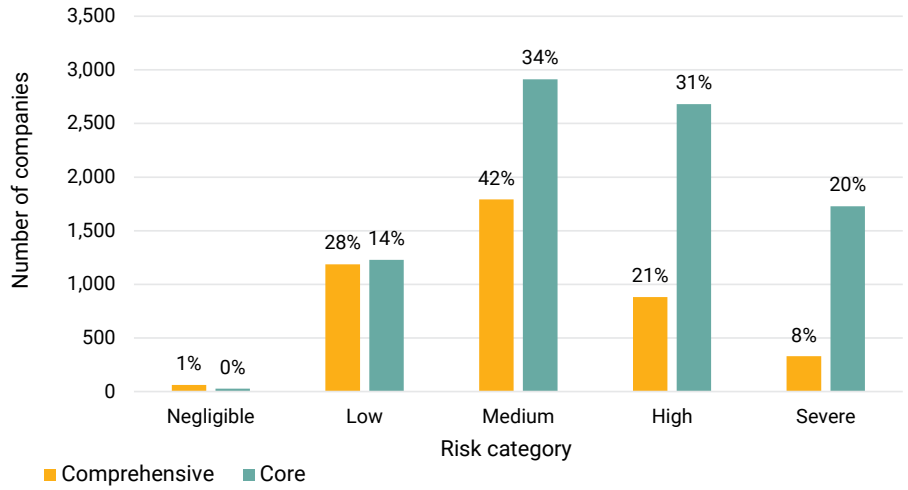
Within the Comprehensive framework, idiosyncratic issues become material ESG issues if a category 4 or 5 event occurs (see page 23). We introduced the concept of an idiosyncratic issue to reflect an individual company's deviation from the subindustry norm. Again, the same logic is applied to the Core framework and the implementation of it is even simpler: If an event indicator is not part of a company's rating equation, because the issue this event indicator is linked to has not been considered material for the company's subindustry, it gets included in the rating equation as soon as the company experiences a Category 4 or 5 event. In such a case, the respective event indicator gets a score and weight assigned in accordance to the above explained weight-shift and dilution logic.

Unmanaged Risk

Arriving at the final ESG Risk Ratings using the Core framework

As said above already, the waterfall logic of the ESG Risk Ratings applies to both frameworks. Risks can be decomposed and reassembled in the same manner. And this is also true for how exposure and management scores are pulled together to form the unmanaged risk score (i.e. the final rating) for a company. Again, unmanaged risk scores generated with the Core framework are fully comparable with the ones generated with the Comprehensive framework. Hence, the same thresholds for assigning companies to our five risk categories (negligible, low, medium, high, severe) are applied. It might come as a bit of a surprise that the empirical score distributions of the two frameworks differ in shape, as shown in Exhibit 29. The reason for that can be found in the fact that Core companies tend to be smaller companies with lower levels of disclosure. This creates uncertainty for stakeholders which can be interpreted as risk and, hence, explain why the distribution of Core companies across risk categories is markedly skewed to the left.

Exhibit 29: Risk Categories – Comparison between Comprehensive and Core Distributions*



* data as of October 2020

Source: Sustainalytics

How the Scoring Model for the Core Framework has been determined

Optimization Approach

Subindustry-specific selection and weighting of indicators

As explained above already, the Core framework uses a focused set of indicators to generate outcomes that are consistent and comparable with those that are generated based on the Comprehensive framework. In order to arrive at this focused set of indicators, we have been using advanced regression modeling techniques that provide us with an optimized selection of indicators and indicator weights for each subindustry.

Indicator Selection

Combined predictive power of indicators is key

Indicators have not been selected for inclusion in the model individually but rather as a set that together achieves the strongest correlation between a company's predicted score and its known score. This method was preferable to choosing individual indicators that have a strong correlation with the overall score, as often it is combination of indicators that creates correlation.

Special case: Corporate Governance indicators

Corporate Governance indicators have been selected separately but in a similar fashion with the only additional constraint that the choice has to be the same across all subindustries. The two indicators with the strongest combined predictive power proved to be Board Independence and Board Diversity. Corporate Governance indicators have only been selected for public companies. We don't research these indicators for non-public companies. For them the indicator weights of the management and event indicators and the constant have been adjusted accordingly.

The optimization process yielded an average of 19 indicators (Management and Corporate Governance indicators) selected for public companies, ranging from 15 to 24 across the different subindustries. This compares to an average of 85 indicators and a range of 47 to 102 for the Comprehensive framework. For non-public companies the number of selected indicators drops by two for each subindustry due to missing Corporate Governance indicators.

Annual review of model parameters

We have been running the above described optimization procedure based on our Ratings universe, that comprises all companies to which our Comprehensive framework is applied. The parameters of the Core model are reviewed on an annual basis and indicator weights get recalibrated, if necessary. Our general process for optimizing weights is described in the following section.

Weight Optimization

Minimizing deviations between predicted and known scores

The weights of indicators in our Core model are optimized for each subindustry using an iterative optimization approach. Weight combinations were tested to find the weights that minimize the deviation between the predictive and the known scores. In some cases, similar subindustries were combined for this analysis to obtain a reasonable sample size.

The weight optimization was subject to a condition that no single indicator should account for more than 20% of a public company's overall score. For four subindustries (Restaurants, Consumer Services, Automotive Retail and Food Distribution) this rule was relaxed to a maximum weight of 35% per indicator to account for the fact that that these subindustries have very few ESG issues and therefore very few indicators available.

Accuracy of the Model

At the risk category level, the average accuracy of the Core framework is above 88%

Technically, the Core model has an average R-squared value of 92%, with a variation between 86% and 97% depending on the subindustry. At the risk category level, the average accuracy of the model is above 88%. No company

using the predictive model was more than one risk category away from the known risk category. These results provide confidence in the robustness of the Core model and support our claim that rating outcomes are consistent and comparable across the two research frameworks we use.

Exhibit 30: Deviations Between Predicted and Known Rating Outcomes

		Risk Category as predicted by Core Model				
		Negligible Risk	Low Risk	Medium Risk	High Risk	Severe Risk
Known Outcome of Risk Category	Negligible Risk	73%	27%	0%	0%	0%
	Low Risk	2%	91%	7%	0%	0%
	Medium Risk	0%	8%	85%	6%	0%
	High Risk	0%	0%	13%	81%	6%
	Severe Risk	0%	0%	0%	9%	91%

Source: Sustainalytics

Appendix

E/S/G Cluster Scores

Some use cases require the ability to report on the 'E', the 'S' and the 'G' separately

In the creation of the ESG Risk Ratings, we did not focus on traditional environment, social, and governance distinctions. Instead we used a rigorous issue-based approach. However, some use cases require the ability to analyze and report on the 'E', the 'S' and the 'G' separately. This is why we introduced what we call the E/S/G Cluster scores for the ESG Risk Ratings. Note that the clusters do not play any role in the risk ratings' architecture and scoring model.

Typically, material ESG issues are mixed bags of the three clusters

The ESG Risk Ratings are based on an absolute notion of risk and are structured around material ESG issues (MEIs) to which companies are exposed to in varying degrees. These material ESG issues may have a pure environmental, social, or governance character. Typically, however, they are mixed bags or combinations of two or all three of these. Below we explain how the E/S/G cluster scores are calculated and how they are empirically distributed.

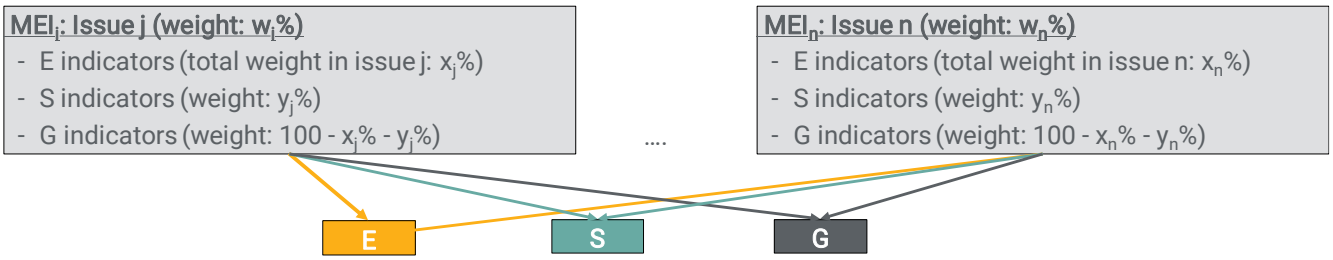
The E/S/G Cluster Scoring Model

Measuring to what degree the company's economic value is at risk driven by environmental, social or governance factors

We calculate E/S/G cluster scores as linear combinations of company-specific MEI unmanaged risk scores, exposure scores, and management scores. They add up to the final ESG Risk Ratings scores at the overall level, ensuring that the ESG Risk Ratings remain a closed and fully consistent system. The interpretation of the cluster unmanaged risk scores is just the same as for a single MEI or for the overall level; i.e. they are measuring to what degree the company's economic value is at risk driven by environmental, social or governance factors.

Exhibit 31 shows how we create E/S/G cluster scores based on individual indicator weights within the different material ESG issues. Please note that G cluster scores are a combination of scores for the Corporate Governance building block in the Risk Ratings and the Governance-related scores within the MEI building block; they are not equal to the Corporate Governance baseline.

Exhibit 31: E/S/G Cluster Scores as Linear Combinations of MEI Scores



Source: Sustainalytics

Preserving the modular architecture of our rating

The three cluster scores can be added up to arrive at the overall unmanaged risk score for a company.[ix] The E/S/G cluster methodology does preserve the modular architecture of the rating.

Our E/S/G cluster scores are different

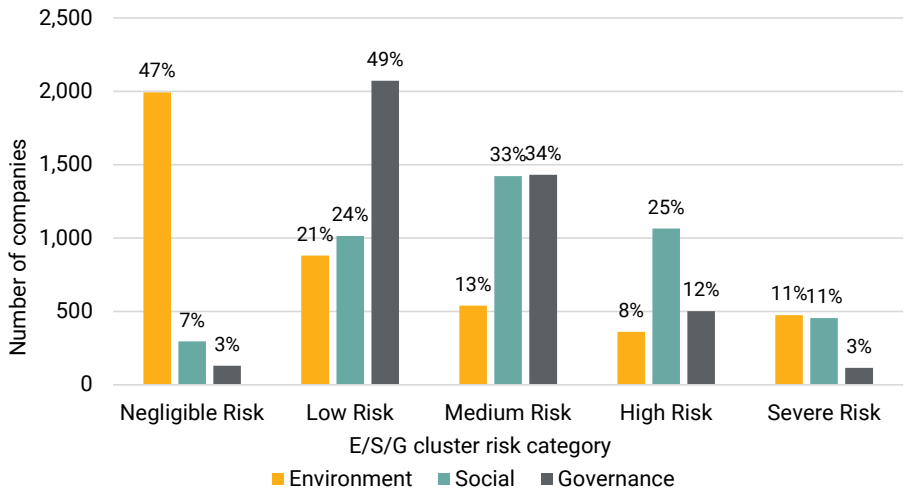
It is important to note, that the E/S/G cluster scores are different from what is typically available in the market and also different from the E/S/G theme scores that we provided with our traditional ESG Ratings – different in terms of both, their calculation and their interpretation. Within the ESG Risk Ratings the clusters are created from decomposing the set of material ESG issues for a company and then recombining their parts according to their E, S or G affiliation.

The E/S/G Cluster Score Distribution

Empirical distributions diverge across clusters

Exhibit 32 shows the empirical distribution of the E/S/G cluster scores across our ratings universe. Please note some interesting patterns in these distributions that reflect differences in the financial materiality of E-, S-, and G-prone issues. One particularly notable effect that has come through is that the more generic and broader relevance of S-prone issues leads to more normally distributed scores, while the distribution of environmental risk scores is much more skewed.

Exhibit 32: Distribution of E/S/G Cluster Risks scores per Risk Category*



* data as of October 2020

Source: Sustainalytics

[ix] Note: weights for calculating risk scores are adjusted by respective manageable risk factors (see page 26).

Glossary of Terms[x]

Baseline	Refers to Corporate Governance as the foundational building block in the ESG Risk Ratings.
Beta	Assesses the degree to which a company's exposure deviates from its subindustry's exposure. For companies in the Comprehensive Framework, betas are set at the issue level (see Issue Beta). For Core companies, they are set at the overall level (see Overall Beta).
Beta Component	Refers to the four main thematic areas that Sustainalytics considers when adjusting a company's Exposure to material ESG issues by using Betas: Product & Production, Financials, Events, and Geographic. The sum of Beta Signals that belong to a beta component is called component outcome (or score). Beta components provide just another layer of analysis, but do not play any specific role in scoring.
Beta Indicator	Forms the lowest level of defined scoring within the Exposure dimension of the ESG Risk Rating. Beta indicators provide a systematic and consistent assessment of clearly delineated and standardized criteria at individual company level. Beta indicators comprise a set of Outcome Categories with the outcome of the assessment forming the Beta Signal.
Beta Signal	Provides the outcome (score) of the associated Beta Indicator that typically ranges between -1 and +1. The scoring algorithm applied to a beta indicator (and therefore the beta signal) can be MEI- and subindustry-specific. Individual beta signals add up and, together with the qualitative overlay, the subindustry correction factor, the beta default value of 1 form the final Issue Beta.
Beta Matrix	Technical representation of the selection or set of Beta Indicators per subindustry and issue, using binary values {1, 0} with 1 indicating the indicator is selected and 0 it is not selected. A Beta indicator may be applied to any issue for which it is considered relevant and may therefore appear across multiple material ESG issues.
Category	Refers to Event Indicator Category.
Cluster	Refers to E/S/G Cluster.
Comprehensive Framework (Comprehensive)	Refers to the research framework that forms the methodological foundation of the ESG Risk Ratings. It comprises all features, is very granular in nature, and provides additional qualitative analyst insights. The related Scoring Model is called Comprehensive Model.
Comprehensive Model	Quantitative Scoring Model that describes how the scores are aggregated to form the final ESG Risk Ratings result for companies in the Comprehensive Framework.
Constant	Refers to a constant value that is used in the Core Model. It is added to the management scores to improve the predictive power of the Core model and represents the contribution to the management score that would be expected from indicators that are not in the Core framework's focused indicator set but are used in the Comprehensive framework.
Contribution	Refers to Issue Contribution
Core Framework (Core)	Refers to a simplified research framework that has been created to extend the coverage universe of the ESG Risk Ratings. It is derived from the full ESG Risk Ratings model and uses a reduced indicator set and structure to approximate the Comprehensive framework's outcomes. The related Scoring Model is called Core Model.
Core Model	Quantitative Scoring Model that describes how the scores are aggregated to form the final ESG Risk Ratings result for companies in the Core Framework.

[x] This glossary is a selection of terms used in the context of the ESG Risk Ratings. All terms can be found in our Comprehensive Glossary.

Corporate Governance	A foundational building block (baseline) in the ESG Risk Ratings that applies to companies across all sectors and in every subindustry. A company's Corporate Governance practices can affect its ability to execute on its business strategy as well as its ESG strategy. Corporate Governance comprises six pillars (corporate governance pillars), indicating foundational structures that can contribute to the management of environmental and social risks. Like material ESG issues, Corporate Governance is assessed via two dimensions: the Exposure dimension (see Corporate Governance Exposure) and the Management dimension (see Corporate Governance Management).
Corporate Governance Exposure	Measures a company's exposure to Corporate Governance risks and is expressed as a score. As Exposure to Corporate Governance issues is not considered to be subindustry or company specific, a fixed exposure score of 9 applies to all public companies regardless of subindustry.A company-specific adjustment of the Corporate Governance exposure score is applied via a beta factor that takes only significant events (event category 4 or 5) into account.
Corporate Governance Indicator	Refers to a special type of management indicators that provide signals about how effectively a company is managing (a part of) its exposure to a Corporate Governance issue. The related indicator scores range between 0 (indicating no management) and 100 (indicating best practice).
Corporate Governance Management	Measures a company's management of Corporate Governance risks. It is expressed as a score that ranges from 0 to 100, with 0 indicating no (evidence of) management of the issue and 100 very strong management of the issue. The score for public companies is calculated as a weighted average of the underlying six Corporate Governance pillar scores, using a regionally based weighting scheme. Non-public companies are assessed using only the 6th pillar (Stakeholder Governance).
Corporate Governance Pillar	Refers to a structural element of the Corporate Governance rating and, hence, the baseline of the ESG Risk Ratings. The six pillars that comprise the Corporate Governance assessment include: Board/Management Quality & Integrity; Board Structure; Ownership & Shareholder Rights; Remuneration; Audit & Financial Reporting; and Stakeholder Governance.
Disclosure & Compliance	A type of Management Indicators that assess whether companies are sufficiently transparent to investors about their ESG risks and management practices. Typically, they assess companies' use of generally recognized practices, such as reporting using the Global Reporting Initiative structure and including the fulfillment of respective requirements.
E/S/G Cluster	Structural element that allows to analyze and report on results from the ESG Risk Ratings referring to "E" (Environment), "S" (Social) or "G" (Governance) separately. **Note:** E/S/G cluster scores are only available for companies in the Comprehensive framework.
E/S/G Cluster Exposure	Refers to the Exposure dimension of the respective E/S/G cluster. It is expressed as a score that is calculated by summing up shares of Issue Exposure (and baseline) scores. These shares are derived from the aggregated weight of management and event indicators that speak to the respective E, S, or G cluster within those issues. **Note:** The Overall Exposure score calculated using the cluster exposure scores is equivalent to the overall exposure score that is calculated adding up MEI level and baseline scores.
E/S/G Cluster Management	Refers to the Management of the respective E/S/G cluster. It is expressed as a score that is calculated by summing up shares of Issue Management (and baseline) scores. These shares are derived from the aggregated weight of management and event indicators that speak to the respective E, S, or G cluster within those issues. **Note:** The Overall Management score calculated using the cluster management scores is equivalent to the overall management score that is calculated using MEI level and baseline scores.

E/S/G Cluster Unmanaged Risk (E/S/G Cluster Risk)

Refers to the Unmanaged Risk of the respective E/S/G cluster. It is expressed as a score that is calculated by summing up shares of Issue Unmanaged Risk (and baseline) scores. These shares are derived from the aggregated weight of management and event indicators that speak to the respective E, S, or G cluster within those issues.

Note: The Overall Unmanaged Risk score calculated by adding up the cluster unmanaged risk scores is equivalent to the overall unmanaged risk score that is calculated adding up MEI level scores and baseline scores.

ESG Risk Category

A company's ESG Risk Ratings score is assigned to one of five ESG risk categories in the ESG Risk Ratings:

- negligible risk (overall score of 0-9.99 points): enterprise value is considered to have a negligible risk of material financial impacts driven by ESG factors;
- low risk (10-19.99 points): enterprise value is considered to have a low risk of material financial impacts driven by ESG factors;
- medium risk (20-29.99 points): enterprise value is considered to have a medium risk of material financial impacts driven by ESG factors;
- high risk (30-39.99 points): enterprise value is considered to have a high risk of material financial impacts driven by ESG factors;
- severe risk (40 and higher points): enterprise value is considered to have a severe risk of material financial impacts driven by ESG factors.

Note: Because ESG risks materialize at an unknown time in the future and depend on a variety of unpredictable conditions, no predictions on financial or share price impacts, or on the time horizon of such impacts, are intended or implied by these risk categories.

ESG Risk Ratings

Sustainalytics' rating framework that measures the extent to which enterprise value is at risk, driven by environmental, social and governance (ESG) factors. The rating takes a two-dimensional approach. The exposure dimension measures a company's exposure to ESG risks, while the management dimension assesses a company's handling of these ESG risks.

A company's ESG Risk Rating applies the concept of Risk Decomposition to derive the level of Unmanaged Risk for a company and is comprised of a quantitative score and a related ESG Risk Category. The quantitative score represents units of unmanaged ESG risk with lower scores representing less unmanaged risk. Unmanaged Risk is measured on an open-ended scale starting at zero (no risk) and, for 95% of cases, a maximum score below 50. It is calculated as the difference between a company's overall Exposure score and its overall Managed Risk score. For companies in the Comprehensive Framework, it can alternatively be calculated by adding the Corporate Governance Unmanaged Risk score to the sum of the company's Issue Unmanaged Risk scores.

ESG Risk Ratings Review

An annual review of the subindustry level assessments and model components of the ESG Risk Ratings to ensure that the ratings reflect the dynamics in the underlying macro-factors, which drive the significance of exposure to material ESG issues on enterprise value. Typically, these factors are socio-economic, geopolitical or technology-driven in nature and include hard aspects (e.g. changes in regulation) and soft ones (e.g. shifts in societal perception and political sentiment).

ESG Risk Score

Refers to ESG Risk Ratings score.

Event

A controversial activity of a company that is reported by the media. Typically, an event is based on a group or series of isolated or related Incidents that pertain to the same ESG issue.

Event Category

Refers to Event Indicator Category.

Event Indicator	An indicator that provides a signal about a potential failure of management as reflected by an involvement in controversies. Events have a dilution effect on a company's management score for the respective material ESG issue. Any event indicator has a raw score of 0. The dilution effect is achieved by giving this score a weight in the overall management score calculation that increases with the severity of occurred events and their frequency. If the event indicator relates to an ESG issue that was not previously selected as material for a company, the issue becomes material if there is a category 4 or 5 event (see Idiosyncratic Issues). Together with Management Indicators, event indicators form the Management dimension of the ESG Risk Ratings.
Event Indicator Category (Event Category, Category)	Sustainalytics categorizes events that have resulted in negative ESG impacts into five event categories: Category 1 (low impact); category 2 (moderate impact); category 3 (significant impact); category 4 (high impact); and category 5 (severe impact).
Events Weight Shift	The dilution mechanism of Management Indicators that is applied in the Management dimension of the ESG Risk Ratings and triggered by Events. Technically speaking, this is accomplished by assigning a raw score of 0 to each event (independent of its category) and combining it with a weight that depends on the Event Category. The weight of the event in the scoring algorithm increases as the severity increases, acting as a discount to the other management indicators.
Exceptional Event Adjustment	Refers to a special Beta Indicator that has been designed to reflect the additional order of magnitude in exposure that is implied by the occurrence of category 4 or 5 events to reflect the exceptionality of these events. According to the scoring algorithm, an event category 4 triggers an increase of exposure of 1 score or (at least) to a level of 6, an event category 5 triggers an increase of exposure of 2 scores or (at least) to a level of 8.
Exposure	One of the two dimensions of the ESG Risk Rating, this dimension reflects the extent to which a company is exposed to material ESG risks. Exposure can be considered as a sensitivity or vulnerability to ESG risks. Its final outcome is expressed in the Overall Exposure score. Also used as short form for Issue Exposure Score.
Idiosyncratic Issue	An idiosyncratic issue is an issue that was not deemed material at the subindustry level but becomes a Material ESG Issue for a company based on the occurrence of a Category 4 or 5 event. Idiosyncratic issues are represented only by the respective event indicator and receive an exposure score according to a specific predetermined scheme.
Incident	Reflects a company's involvement in cases of specific alleged misconduct with negative environmental and/or social impacts. Incidents form the most granular level of analysis we conduct. They are identified based on a comprehensive daily media analysis. Our analysts provide two assessments at the incident level, a stakeholder impact assessment and a reputational risk assessment. Incidents typically inform the Event Indicator outcome for a period of three years.
Indicator Score (Indicator Raw Score, Raw Score)	The score that corresponds to the respective Outcome Category selected by the analyst during indicator research and applies to different types of indicators, e.g. Management Indicators, Event Indicators and Beta Indicators.
Issue Contribution (Contribution)	Used to express the contribution of an issue (or the baseline) to the overall ESG Risk Rating in percentage terms. It refers generally to the Unmanaged Risk score, setting the unmanaged risk scores of the issue (or the baseline) in relation to the overall unmanaged risk score. Contributions can also be calculated based on Exposure scores or any other risk scores. **Note**: We differentiate between issue contributions that are used on the risk/exposure side and Issue Management Weights that are used on the management side.
Issue Disabling	Part of the regular update of a company assessment where the analyst exercises professional judgement to decide if the issue is applicable to a company or if it should be disabled (technically equal to setting an Issue Beta to 0).

Issue Beta (Beta, β)	A factor that assesses the degree to which a company's exposure deviates from its subindustry's exposure on a material ESG issue. It is used to derive a company-specific Issue Exposure score for a material ESG issue. It ranges from 0 to 10, with 0 indicating no exposure, 1 indicating the subindustry average (as represented by the subindustry exposure score), and 2 indicating exposure that is twice the subindustry average. Betas above 2 are extreme cases and very rare. The Beta is calculated as the sum of beta signals, qualitative overlay and subindustry correction factor plus the beta default value of 1.
Issue Exposure (Exposure)	A company's Exposure to a single Material ESG Issue, expressed as score. It is determined by the Subindustry Exposure Score for the issue and the company-specific Issue Beta. Issue exposure scores are displayed on an open-ended scale that starts at 0, meaning the issue is not material (and therefore not impacting the rating) while a score of above 8 indicates that the issue is highly material.
Issue Manageable Risk	Refers to the part of Issue Exposure that can potentially be influenced and managed by a company through suitable policies, programs and initiatives. It is determined by the Issue Manageable Risk Factor and expressed as a score ranging between 0 (indicating no manageable risk) and the issue exposure score.
Issue Manageable Risk Factor (Manageable Risk Factor, MRF)	A factor that assesses how much of a company's Issue Exposure is (theoretically) manageable by the company. The issue manageable risk factor is predetermined at the subindustry level. The factor ranges between 0% and 100%, with a low percentage indicating that a high level of the issue risk is considered unmanageable and 100% indicating that the issue risk is considered fully manageable. **Note**: Fully manageable does not mean that Sustainalytics believes there are no challenges or difficulties to managing the issue – rather, fully manageable indicates that there are no evident physical or structural barriers that make it impossible to fully manage the issue.
Issue Managed Risk	Refers to the part of the Issue Manageable Risk that the company has demonstrated to actually manage through suitable policies and programs or initiatives as determined by the Issue Management and expressed as a score that ranges between 0 and the manageable risk score.
Issue Management Gap	The difference between what the company has actually managed through suitable policies and programs or initiatives (Issue Managed Risk) and what is (theoretically) possible for the company to manage (Issue Manageable Risk).
Issue Management (Management)	Measures a company's handling of a single material ESG issue and is used to calculate the Issue Managed Risk. It is expressed as a score that is calculated as the sum of all indicator weighted scores in an issue and ranges from 0 to 100, with 0 indicating no (evidence of) management of the issue and 100 very strong management of the issue.
Issue Management Weight	To arrive at the Overall Management score, we must weight each Issue Management score by the issue management weight. The issue management weight is calculated by dividing the Issue Manageable Risk score by the Overall Manageable Risk score.
Issue Unmanageable Risk	Refers to the amount of issue exposure that is deemed "unmanageable" and which cannot be mitigated by the company through management initiatives; it is expressed as a score that's calculated by subtracting the Issue Manageable Risk score from the Issue Exposure score. The score ranges from 0 to the issue exposure score, with 0 indicating that the issue risk is fully manageable, and a score equaling to the issue exposure score indicating that none of the issue risk is manageable.
Issue Unmanaged Risk	The portion of the issue exposure that a company either cannot manage (because it is unmanageable) or has not yet addressed through management initiatives (as demonstrated in relevant policies and programs and proven track record). It is expressed as a score that's calculated by subtracting the Issue Managed Risk score from the Issue Exposure score and ranges from 0 (indicating no unmanaged risk) to the issue exposure score.

Manageable Risk	Refers to Issue Manageable Risk and Overall Manageable Risk.
Manageable Risk Factor	Refers to Issue Manageable Risk Factor and Overall Manageable Risk Factor.
Managed Risk	Refers to Issue Managed Risk and Overall Managed Risk.
Management	One of the two dimensions of the ESG Risk Rating, this dimension measures a company's handling of Material ESG Issues through policies, programs, quantitative performance and involvement in controversies, as well as its management of Corporate Governance. Its final outcome is expressed in the Overall Management score. Also used as short form for Issue Management score.
Management Gap	Refers to Issue Management Gap and Overall Management Gap.
Management Indicator	An indicator that provides a signal about how effectively a company is managing (a part of) its exposure to a material ESG issue through policies, programs or quantitative performance, for example. Management indicators comprise a set of Outcome Categories with the one getting selected by the analyst determining the final Indicator Score. The score ranges between 0 (indicating no management) and 100 (indicating best practice). Together with the Event Indicators, management indicators are used to form the Management score of a company.
Material ESG Issues	A core building block of the ESG Risk Ratings. An ESG issue is considered to be material within the rating if it is likely to have a significant effect on the enterprise value of a typical company within a given subindustry and its presence or absence in financial reporting is likely to influence the decisions made by a reasonable investor. Material ESG issues were determined at a subindustry level through a structured consultation process with analysts but can be disabled for a company if the issue is not relevant to the company's business. **Note:** There are no specific predictions about financial impacts at the company level implied by the presence or absence of an issue as a material ESG issue.
Outcome Category	Refers to one out of several possible indicator outcomes. Sustainalytics indicators provide a systematic and consistent assessment of clearly delineated and standardized criteria at individual company level that are assessed by the analysts. The outcome category consists of a standardized text and an outcome score. For management indicator and event indicators, that score that is mapped to the finally selected outcome category is also called Indicator Score, for beta indicators it forms the Beta Signal.
Overall Beta	A factor that assesses the degree to which a company's overall exposure deviates from its subindustry's overall exposure. For companies in the Comprehensive framework it is calculated by dividing the company's Overall Exposure by the Overall Subindustry Exposure. For Core companies, it is calculated by summing up the beta signals, the qualitative overlay and the Subindustry Correction Factor plus the default beta value of 1.
Overall Exposure	Relates to the Exposure dimension and measures the extent to which a company is exposed to ESG risks. It is expressed as a score on an open-end scale starting at 0, indicating no material exposure and scores beyond 40 indicating high exposure. For companies in the Comprehensive framework, the score is calculated by adding a company's Corporate Governance exposure score to the sum of its Issue Exposure scores (including any idiosyncratic issues). For Core companies, it is calculated by multiplying the Overall Subindustry Exposure score with the Overall Beta for the company.

Overall Manageable Risk	Refers to the material ESG risk that can be influenced and managed through suitable policies, programs and initiatives. It is expressed as a score that is calculated by multiplying the Overall Exposure score by the Overall Manageable Risk Factor. For companies in Comprehensive framework, it can also be calculated as the sum of the manageable risks at the issue level. The score ranges from 0 to the company's overall exposure score with 0 indicating that no risk is manageable and the score equaling the company's overall exposure score indicating that the company's exposure is fully manageable.
Overall Manageable Risk Factor (Overall MRF)	Refers to the overall percentage of risk that can be managed by a company. It is calculated as a weighted average of the Issue Manageable Risk Factors as well as Corporate Governance manageable risk factor (fixed at 100%), or alternatively by dividing the Overall Manageable Risk score by the Overall Exposure score. The Overall MRF ranges between 0% and 100%, with a low percentage indicating that a high level of material ESG risks is considered unmanageable and 100% indicating that these risks are considered fully manageable.
Overall Managed Risk	Refers to material ESG risk that has been managed by the company through suitable policies, programs, or initiatives. It is calculated by multiplying the Overall Manageable Risk score by the Overall Management score and dividing by 100, or alternatively by subtracting the Overall Unmanageable Risk score and the Management Gap score from the Exposure score. For Comprehensive companies, it can also be calculated by adding the Corporate Governance managed risk score to the sum of the company's Issue Managed Risk scores. The score ranges from 0 to a company's overall exposure score, with 0 indicating that none of the company's ESG risks have been managed, and a score equal to the company's exposure score indicating that the company's ESG risks are fully managed.
Overall Management	Relates to the management dimension and measures a company's handling of ESG risks across issues. It is expressed as a score that ranges from 0 and 100, with 0 indicating no (evidence of) management and 100 very strong management. For Comprehensive companies, it is calculated by adding the weighted Corporate Governance management score to the sum of all weighted Issue Management scores (see also Issue Management Weight). For Core companies, it is calculated as weighted sum of the Indicator Raw Scores (including management and event indicators) plus the Constant.
Overall Management Gap	Represents the total amount of risk which the company could be managing but which it is not yet managing. It is expressed as a score that is calculated by subtracting the Overall Managed Risk score from the Overall Manageable Risk score, or alternatively for Comprehensive companies, by adding the Corporate Governance management gap score to the sum of the company's issue management gap scores. The score ranges from 0 to a company's overall manageable risk score, with 0 indicating that all of a company's manageable risk has been managed, and a score equaling a company's overall manageable risk score indicating that none of the company's manageable risk has been managed.
Overall Subindustry Exposure	Sustainalytics' assessment of a subindustry's overall exposure to material ESG issues, expressed as a score and calculated by summing up the Subindustry Issue Exposure scores. They can be interpreted as reflecting the overall exposure of a representative company in the respective subindustry.

Overall Unmanageable Risk	Refers to material ESG risk inherent from the intrinsic nature of products or services of a company and/or the nature of a company's business, which cannot be managed by the company if the company continues to offer the same type of products or services and remains in the same line of business. It is expressed as a score and calculated by subtracting the Overall Manageable Risk score from the Overall Exposure score. For Comprehensive companies, alternatively, it is derived by adding the Corporate Governance unmanageable risk score to the sum of the company's issue unmanageable risk scores. The score ranges from 0 to the overall exposure score of the company, with 0 indicating that all of the company's ESG risks are fully manageable and a score equal to overall exposure indicating that no ESG risks are manageable.
Overall Unmanaged Risk (ESG Risk)	Refers to a company's overall score in the ESG Risk Ratings that measures the extent to which enterprise value is at risk driven by ESG factors. It is assessed as that part of exposure that a company does not manage based on available information regarding policies, programs, quantitative performance and event track record. The overall unmanaged risk score is measured on an open-ended scale starting at zero (no risk) and, for 95% of cases, a maximum score below 50.
Qualitative Overlay	A special Beta Indicator that is optionally and applied by an analyst to arrive at the final Issue Beta for a company. Potential reasons for a qualitative overlay include, for example, **(1)** situations in which company-specific factors are not reflected in the beta signals or **(2)** situations in which the beta signals, either individually or collectively, do not yet reflect recent developments (e.g. M&A activity). Overlays can be done at the MEI-level only, not at the overall level. Analysts must provide a written rationale to explain their overlay.
Quantitative Performance (Performance)	A type of Management Indicator that measure the effectiveness of policies, programs and management systems and are tracked yearly to show a trend over time.
Policy	A type of Management Indicator that measure the strength and quality of an issuer's policy commitment to addressing a material ESG issue.
Programme & Management Systems	A type of Management Indicator that evaluate a company's operational systems for managing its material ESG issues. These indicators are aligned with and reflective of recognized management systems, such as the ISO 9001 quality standard or the ISO 14001 environmental management standard.
Ratings Universe	Refers to the coverage universe of the ESG Risk Ratings to which the Comprehensive Framework is applied to.
Ratings Plus Universe	Refers to the coverage universe of the ESG Risk Ratings to which the Comprehensive or the Core Framework is applied to.
Risk Decomposition	Describes the logic that distinguishes different types of risk that contribute to Exposure to derive Unmanaged Risk scores and is applied on the overall level (Comprehensive and Core model) as well as on the issue level (Comprehensive model only). The ESG Risk Ratings differentiate Unmanageable Risks, which cannot be addressed through company initiatives, from Manageable Risks, which can be addressed. Manageable risks are assessed as either managed by companies through suitable policies and programs, etc. (Managed Risk), or as not managed by companies (Management Gap). Unmanageable risk and management gap can be added up to arrive at the unmanaged risk of a company at the issue- or overall level.
Scoring Model	Refers to the quantitative model behind a rating. The scoring model uses a scoring algorithm that combines indicator scores and model parameters (such as indicator weights) to arrive at the final rating outcome. For the ESG Risk Ratings, we distinguish between the Comprehensive Model that's applied for companies in the Comprehensive Framework and the Core Model that used for companies in the Core Framework.
Subindustry Correction Factor (SCF)	A technical correction factor that is applied to assure that the average Issue Beta within a subindustry is one.

Subindustry Issue Exposure (Subindustry Exposure)	Sustainalytics' assessment of a subindustry's Exposure to a Material ESG Issue and expressed as a score. The scores have been determined through a structured consultation process and form the starting point from which analysts derive company-specific Issue Exposure scores using Issue Betas. They are updated as part of the annual ESG Risk Ratings Review and range from 2 to 10, with 2 indicating a low level of exposure and 10 indicating a high level of exposure.
Sustainalytics Subindustry (Subindustry)	Sustainalytics subindustries are defined as part of Sustainalytics' own classification system; the number of subindustries in the Sustainalytics subindustry classification system is 138.
Unmanageable Risk	Refers to Issue Unmanageable Risk and Overall Unmanageable Risk.
Unmanaged Risk	Refers to Issue Unmanaged Risk and Overall Unmanaged Risk.

Material ESG Issues (MEIs)

Access to Basic Services (MEI.1)[xi]	Access to Basic Services focuses on the management of access to essential products or services such as health care services and products to disadvantaged communities or groups.
Bribery and Corruption (MEI.3)	Bribery and Corruption focuses on the management of risks related to alleged or actual illicit payments, such as kickbacks, bribes and facilitation payments to government officers, suppliers or other business partners, as well as the receipt of those payments from suppliers or business partners. If these are not material in their own right for a subindustry, these issues are handled within MEI.4 Business Ethics.
Business Ethics (MEI.4)	Business Ethics focuses on the management of general professional ethics, such as taxation and accounting, anti-competitive practices and intellectual property issues. Business Ethics may include Bribery and Corruption for subindustries that do not have Bribery and Corruption as a separate material ESG issue. Additional subindustry-specific topics – such as medical ethics and ethics regarding the provision of financial services, etc. – may also be included in this issue. In additional, ethical considerations related to customer selection may also be included here for some subindustries if products or services may be used to violate human rights, for example.
Community Relations (MEI.5)	Community Relations focuses on how companies engage with local communities (including indigenous peoples) through community involvement, community development and/or measures to reduce negative impacts on local communities.
Data Privacy and Security (MEI.6)	Data Privacy and Security focuses on data governance practices, including how companies collect, use, manage and protect data. The emphasis is on measures taken to ensure safe and secure use and/or maintenance of customers' personally identifiable data.
Emissions, Effluents and Waste (MEI.7)	Emissions, Effluents and Waste focuses on the management of emissions and releases from a company's own operations to air, water and land, excluding GHG emissions. Depending on the subindustry, emphasis is put on one or several of these waste streams.
Carbon – Own Operations (MEI.8)	Carbon – Own Operations refers to a company's management of risks related to its own operational energy use and GHG emissions (scope 1 and 2). It also includes parts of scope 3 emissions, such as transport and logistics. It does not include emissions in the supply chain or during the use phase/end-of-life cycle of a product.
Carbon – Products and Services (MEI.8.PS)	Carbon – Products and Services refers to a company's management of the energy efficiency and/or GHG emissions of its services and products during the use phase. This does not include carbon risks related to financial services, which are considered within MEI.17 ESG Integration – Financials.
E&S Impact of Products and Services (MEI.9)	E&S Impact of Products and Services refers to the management of environmental or social impacts of products or services, including inherent characteristics of input materials, both positive and negative, and impacts during use, disposal and recycling. E&S Impact of Products and Services may include carbon impacts if MEI.8.PS Carbon – Products and Services is not regarded as a material ESG issue for the subindustry.
ESG Integration – Financials (MEI.17)	ESG Integration – Financials includes all ESG integration activities by financial institutions that are either driven by financial downside risk considerations or by business opportunity considerations. This issue includes an institution's own current assets, including direct investments, corporate credits or stakes in project financing, as well as assets managed for clients. Product offerings can span a wide spectrum of product types, starting with ESG investment funds, microfinance products, etc. The issue also includes the consideration of ESG criteria in real estate investments, such as green building initiatives.

[xi] Internal code in parantheses.

Human Capital (MEI.13)	Human Capital focuses on the management of human resources. It includes the management of risks related to scarcity of skilled labor through retention and recruitment programs and includes career development measures such as training programs. Additionally, it includes labor relations issues, such as the management of freedom of association and non-discrimination, as well as working hours and minimum wages.
Human Rights (MEI.12)	Human Rights focuses on how companies manage and respect fundamental human rights within their own operations. Emphasis is on measures taken to protect civil and political rights as well economic, social and cultural rights, including child and forced labor.
Human Rights – Supply Chain (MEI.12.SC)	Human Rights – Supply Chain focuses on a company's management of fundamental human rights issues occurring in its supply chain. For subindustries that rely on conflict minerals, this also includes a company's handling of conflict minerals in its supply chain.
Land Use and Biodiversity (MEI.14)	Land Use and Biodiversity focuses on how companies manage the impact of their operations on land, ecosystems and wildlife. Topics covered include land conversion, land rehabilitation and forest management, as well as the protection of biodiversity and ecosystems.
Land Use and Biodiversity – Supply Chain (MEI.14.SC)	Land Use and Biodiversity – Supply Chain focuses on how companies manage the impact of their suppliers' operations on land, ecosystems and wildlife.
Occupational Health and Safety (MEI.16)	Occupational Health and Safety focuses on the management of workplace hazards affecting a company's own employees and on-site contractors. Where relevant, the issue may also include HIV/AIDS programs.
Product Governance (MEI.18)	Product Governance focuses on how companies manage their responsibilities vis-à-vis clients (quality and/or safety of their products and services). Emphasis is put on quality management systems, marketing practices, fair billing and post-sales responsibility. For media companies, this issue also includes the management of content-related standards, such as journalistic standards and the protection of sources (media ethics).
Resilience (MEI.19)	Resilience focuses on the financial stability and the management of related risks in the financial services industry, with emphasis on compliance with capital requirements. This issue applies to financial institutions that pose systemic risks and therefore potential external costs to society in case of bailouts by taxpayers.
Resource Use (MEI.20)	Resource Use focuses on how efficiently and effectively a company uses its raw material inputs (excluding energy and petroleum-based products) in production and how it manages related risks. Though water use is a main focus, the issue can also include the management of critical raw materials that are either scarce or difficult to access, through recycling programs, the substitution of less scarce materials and/or eco-design.
Resource Use – Supply Chain (MEI.20.SC)	Resource Use – Supply Chain focuses on how efficiently and effectively a company manages risks related to water scarcity and raw material inputs (excluding energy and petroleum-based products) within its supply chain.

Endnotes

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a Morningstar company