SUSTAINALYTICS

SUSTAINALYTICS' ESG RISK RATING

RESEARCH METHODOLOGY

Version 1.4

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Introduction

What does the ESG Risk Rating measure?

The ESG Risk Rating measures the degree to which a company's economic value is at risk driven by ESG factors OR, more technically speaking, the magnitude of a company's unmanaged ESG risks. It sorts companies into 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 the research universe, whether it refers to an agriculture company, a utility or any other type of company. One point of risk is equivalent, no matter which company or which issue it applies to, and points of risk add up across issues to create overall scores. With the Risk Rating scores, we have created a single currency of ESG risks.

Why did we create the ESG Risk Rating?

Clients have appreciated the value of Sustainalytics' company rating for many years. However, as ESG integration processes are becoming more sophisticated, client requirements and needs are changing. Products need to become more versatile and to support more use cases. As the ESG market matures, and data quality improves, clients are now seeking ESG ratings that are more focused on the specific ESG risks that companies are facing, and whether companies are effectively managing these risks.

Furthermore, an increasing number of studies are suggesting that companies that manage material ESG issues well may outperform in the market, ceteris paribus. In other words, strong management of material ESG issues may bring higher risk-adjusted returns for investors. This idea is powerful – that sustainability may also be linked to greater long-term business value, if management is focused on issues that truly matter to a business. In short, many clients want an ESG rating that is more focused on materiality and delivers clear signals regarding excess return potentials.

How do we expect clients to use the ESG Risk Rating?

We expect that clients will use the ESG Risk Rating in multiple ways. Clients who are interested in gauging portfolio risk can use the rating to compare risks for one sector, industry group or subindustry to another. For example, clients could decide whether pharma appears to be riskier from an ESG perspective than chemicals, or vice versa.

We also expect that clients will use the rating to gauge the relative ESG performance of companies within a subindustry, comparing Exxon to Chevron, for example, in terms of how effectively these companies manage ESG risk. Some clients may also focus on momentum, considering changes in risk assessments over time and how they may affect share prices.

In addition, we expect that clients will use the rating thematically, 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 allow multiple use cases, which offers clients more flexibility in their ESG integration approaches.

Defining materiality and risk within the ESG Risk Rating

An issue is considered to be material within the ESG Risk Rating 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 Risk Rating, an issue must have a potentially substantial impact on the economic value of a company and, hence, the financial risk and return profile of an investor investing in the company. It is important to distinguish the ESG Risk Rating's 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. Note that an underlying premise of the **ESG Risk Rating** is that the world is transitioning to a more sustainable economy, and that superior management of **ESG risks** should in general be associated with superior long-term enterprise value, ceteris paribus. Assessments of materiality within the ESG Risk Rating are in part qualitative and require judgement, which has been provided by our experienced sector research teams in a structured and guided process. Some issues are material from an ESG perspective even if the financial consequences are not fully measurable today.

How does the ESG Risk Rating align with Sustainalytics' mission and values?

Our mission is to provide the insights required for investors and companies to make more informed decisions that lead to a more just and sustainable global economy. The ESG Risk Rating provides relevant information on companies' ESG risk profiles to help investors incorporate longer-term risk perspectives into their investment strategies, which contributes to a more sustainable economy. The ESG Risk Rating supports our core conviction that strong management of ESG issues, and transparency on ESG reporting, are aligned with better risk assessment generally, and are likely to lead to greater long-term value for investors.

The two dimensions of the ESG Risk Rating

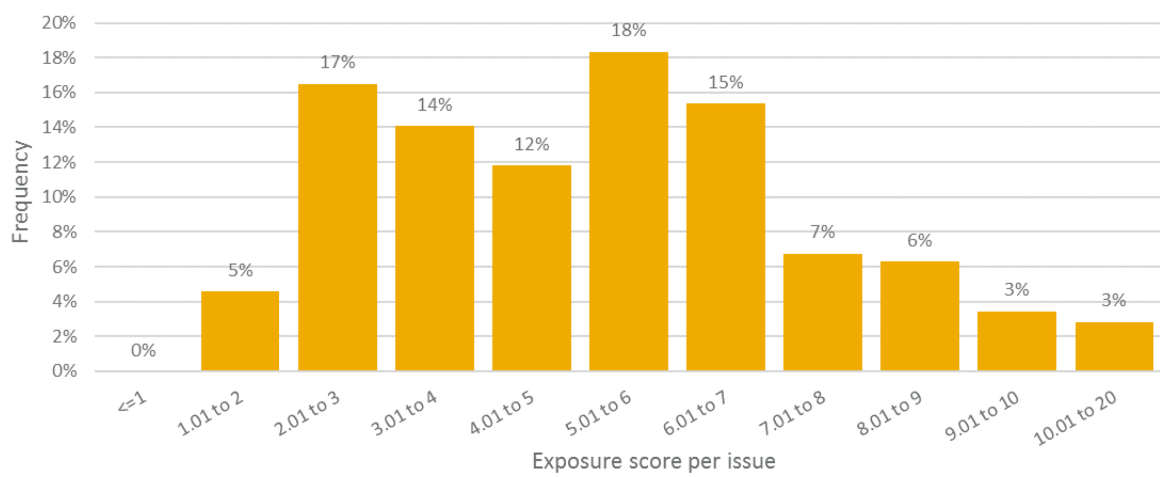
Exposure

The ESG Risk Rating's emphasis on materiality required the addition of a new dimension to our rating - the **Exposure dimension**. It reflects the extent to which a company is exposed to material ESG risks and affects the overall rating score for a company as well as its rating score for each **material ESG issue**.

Exposure can be considered as a set of ESG-related risk factors that pose *potential* financial risks for companies. Another way to think of exposure is as a company's sensitivity or vulnerability to ESG risks. Very low exposure suggests that an issue is not material to a company; higher exposure suggests that the issue is material.

Exposure helps to determine the weight we assign to material ESG issues; this weight contributes to a company's overall management score as well as its overall ESG Risk Rating score. An issue with higher exposure will have a higher weight, and an issue with a lower exposure will have a lower weight, in a company's overall rating. In other words, issues that are more financially 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.

Figure 1. Frequency of exposure scores per issue and across all subindustries (October 2017)



The graph above shows the distribution of exposure scores from companies in the ESG Risk Rating, with 0 representing no exposure and 20 representing the highest possible issue exposure for a company. The graph shows, for example, that the likelihood that a company has an exposure score between 10 and 20 is 1%. We may see some changes to this distribution over time.

The assessment of a company's exposure is done in five 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 (**Subindustry Exposure Assessment**). The assessment at the subindustry level has been done in a centralized and guided manner leveraging the expertise of our sector research teams. See the section below "The Consultation Process" to gain more insight into our process. Steps 2 to 5 are part of the regular company research update process executed by the individual analyst researching a company. These comprise:

- **Step 1:** **Subindustry Exposure Assessment** and determination of indicator sets and weights (**Indicator Selection**).
- **Step 2:** The analyst exercises professional judgement to decide if the issue is applicable to a company or if it should be disabled (**Issue Disabling**).
- **Step 3:** 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 (**Beta Assessment**).
- **Step 4:** 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 (**Issue Exposure Score Calculation**).

Subindustry Exposure Assessment, Indicator Selection, and Issue Disabling

Our sector teams considered their 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). Analysts provided examples explaining 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), and described the time horizon (when the issue was expected to materialize, in the near term or in the longer term) and the probability of expected impact. Based on this input, sector teams then determined the **subindustry exposure score**, a score that assesses a subindustry's average exposure to a material ESG issue and ranges from 2 to 10, with 2 indicating a low level of exposure and 10 indicating a high level of exposure for a subindustry.

Sector analysts also assigned the set of indicators and **indicator weights** for each material ESG issue within each subindustry. This means that Human Capital, for example, may have different indicators for software companies than for construction companies. It also means that the same indicator (e.g. Human Capital Development) may be weighted differently for different subindustries, depending on its overall importance as a signal for a specific subindustry.

At the individual company level, analysts use their professional judgement to disable the issue or an indicator if it is not regarded as adding value to assess material risks for a company, guided by rules that ensure consistency across companies. If an indicator is disabled, its weight goes to 0, and the weights of the remaining indicators are proportionally redistributed to account for the missing weight. Weights of management indicators always sum to 100% within material ESG issues.

Beta Assessment

One important step in the process is the Beta Assessment. Betas are a key part of making the ESG Risk Rating company specific. They also provide a key opportunity for an analyst to use professional judgement to influence a company's final rating.

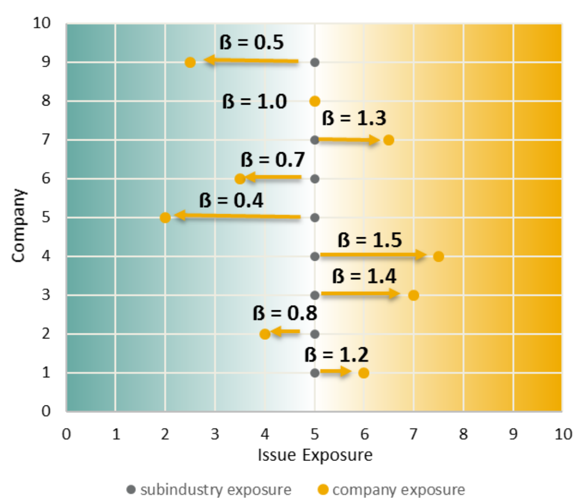
In mainstream finance, beta measures the risk of a security relative to a market benchmark. It reflects the portion of a security's total risk that is systematic (as opposed to unsystematic), meaning that it cannot be "diversified away". Technically speaking, the average beta (i.e. the beta of the market) is always 1, with a larger deviation from the average signifying a larger difference between the security and the overall market. A beta of less than 1 signals a level of systematic risk that is below market average, and a beta greater than 1 signals a level of systematic risk that is above market average.

The concept of beta has been figuratively applied in the ESG Risk Rating, 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 consultation process with sector teams. The beta concept is used to adjust subindustry exposure scores so that these more accurately reflect different companies' levels of risk. It is a way of sharpening or refining an 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 the following graphic.

Figure 2. Using the beta concept to arrive at company-specific exposure assessments



In the ESG Risk Rating, betas can theoretically range between 0 and 10, with 0 indicating no exposure and 10 indicating an exposure that is well above the subindustry average. A beta of 2, for example, would double an exposure score of 10, which is the maximum exposure score at the subindustry level, to a company-specific exposure score of 20, and would also double a company's unmanaged risk on the issue (ceteris paribus).

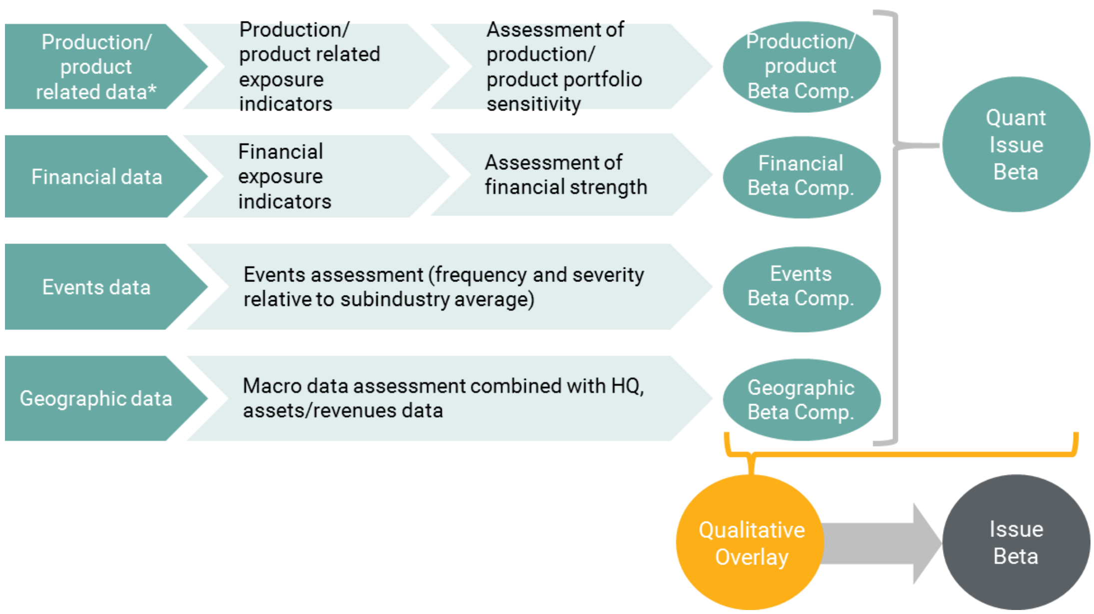
The final beta for a company vis-à-vis an ESG issue is calculated in a two-stage process within the ESG Risk Rating. The "default" beta is purely driven by quantitative factors and is calculated automatically. Subsequently, a qualitative overlay may be applied to reflect factors not reflected in the quantitative modelling. Typically, default betas range between 0.5 and 1.5, to leave room for qualitative upward or downward adjustments. Qualitative overlays are usually done by our analysts when they update a profile.

The final beta score (including all qualitative overlays) is applied to the subindustry exposure score, resulting in a company-specific issue exposure score. For example, a subindustry exposure score of 6 multiplied by a beta of 1.5 results in a company-specific exposure score of 9.

Quantitative Betas

For each issue, up to **four beta components** (see figure below) are equally weighted and averaged to automatically calculate the quantitative beta for a company.

Figure 3. Module for Quantitative Betas



Quantitative betas will become more meaningful and precise over time, with the addition of new exposure indicators, for example. Furthermore, quantitative beta calculations are likely to benefit and "learn" from patterns that we see in the qualitative overlays applied by analysts (see below) over time. We may also weight the beta components differently once we have more information about the relative importance of each component for each subindustry.

Qualitative Overlays

An (optional) qualitative overlay is either applied by individual analysts or centrally to arrive at the final beta for a company. Potential reasons for a qualitative overlay include, for example, **(1)** situations in which a significant exposure factor is not reflected in the beta components or **(2)** situations in which the quantitative beta component score is not yet reflecting recent developments (e.g. M&A activity).
For every material ESG issue in each subindustry, we have developed principles that identify common factors that impact exposure. These principles are maintained and further developed by a "Beta Committee" that meets on a regular basis.

Management

The ESG Risk Rating's second dimension is **Management**. ESG management can be considered as a set of company commitments and actions that demonstrate how a company approaches and handles an ESG issue through policies, programmes, quantitative performance and involvement in controversies, as well as its management of Corporate Governance. Sustainalytics' current rating considers a single dimension to arrive at a rating score. We continue to consider management in the ESG Risk Rating, as company commitments and actions provide signals about whether companies are managing ESG risks.

Numerically, management scores at the issue level continue to range from 0 to 100 just as in the current rating, with 0 indicating no (evidence of) management of the issue and 100 very strong management of the issue.

The overall management score for a company is derived from management indicators (policies, management systems, certifications, etc.) as well as event indicators. For each material ESG issue, those management and event indicators have been selected and weighted so that together they provide the strongest signal to explain and measure how well a company manages an issue.

Indicators may be applied to any issue where they are considered relevant, and may therefore appear within several material ESG issues. For example, environmental policy may appear for Carbon – Own Operations, Emissions, Effluents and Waste, and Resource Use, as it is a relevant signal for all of these issues.

Figure 4. Definition of Management and Event Indicators

Management Indicator: An indicator that provides a signal about a company's management of an ESG issue through policies, programmes or quantitative performance, for example. Management indicator raw scores range from 0 to 100, with 0 indicating no (evidence of) management of the issue and 100 indicating very strong management.

Event Indicator: An indicator that provides a signal about a potential failure of management through involvement in controversies. Events have a discounting effect against the company's management score on an issue. An event indicator for a **material ESG issue** has a management score of 0, and its weight within an issue increases as the event category rises.

The management assessment is done in 5 steps:

- **Step 1:** The management indicators that provide the best possible signals regarding a company's management of a material ESG issue are selected (**Indicator Selection**).
- **Step 2:** The analyst uses professional judgement to disable indicators that are not applicable to the company (**Indicator disabling**).
- **Step 3:** These indicators are weighted according to their significance (**Indicator Weighting**).
- **Step 4:** The indicators are assessed based on the information that is available for a company (**Indicator Assessment**).
- **Step 5:** The final management score is calculated by aggregating the weighted individual indicator scores (**Issue Management Score Calculation**).

Combining Exposure and Management

In the ESG Risk Rating, exposure and management scores contribute to form an **unmanaged risk score** for each **material ESG issue**, and an overall unmanaged risk score for each company, which is the final output of the rating, the **ESG Risk Rating score**.

Based on these scores, companies are assigned to one of five **ESG risk categories**.

Figure 5. 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 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;

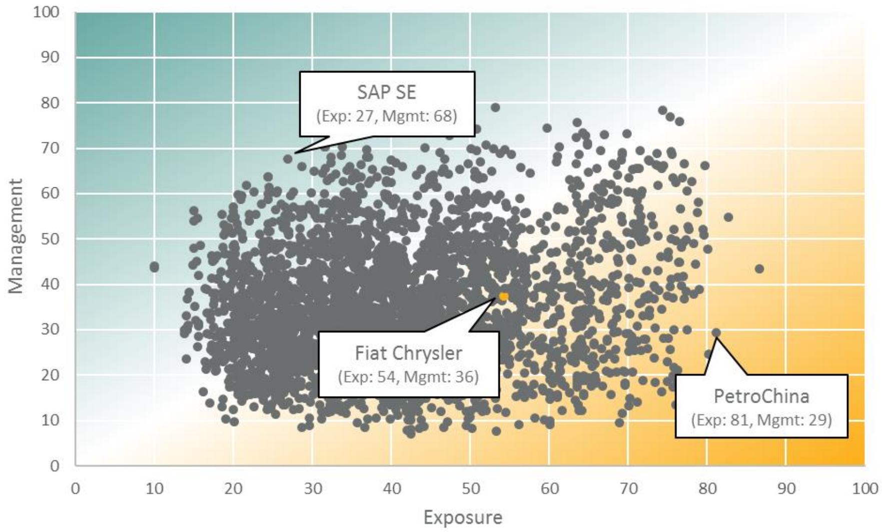
medium risk (20-29.99 points): **enterprise value** is considered to have a medium risk of material financial impacts driven by ESG factors;

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 points and above): **enterprise value** is considered to have a severe risk of material financial impacts driven by ESG factors.

Note that 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.

Figure 6. Exposure vs. Management for companies in our testing & validation universe



The graph above shows how the companies in our testing and validation universe are positioned in the two-dimensional space spanned by the two dimensions of the ESG Risk Rating. The orange dot represents Fiat-Chrysler's exposure and management. The grey dots behind Fiat-Chrysler's orange dot represent other companies within the universe. The "teal zone" in the graph indicates that a company is toward the lower-risk end of the spectrum; the "gold zone" indicates that a company is toward the higher-risk end of the spectrum.

Calculating the ESG Risk Rating

General Principle of ESG Risk Rating scoring

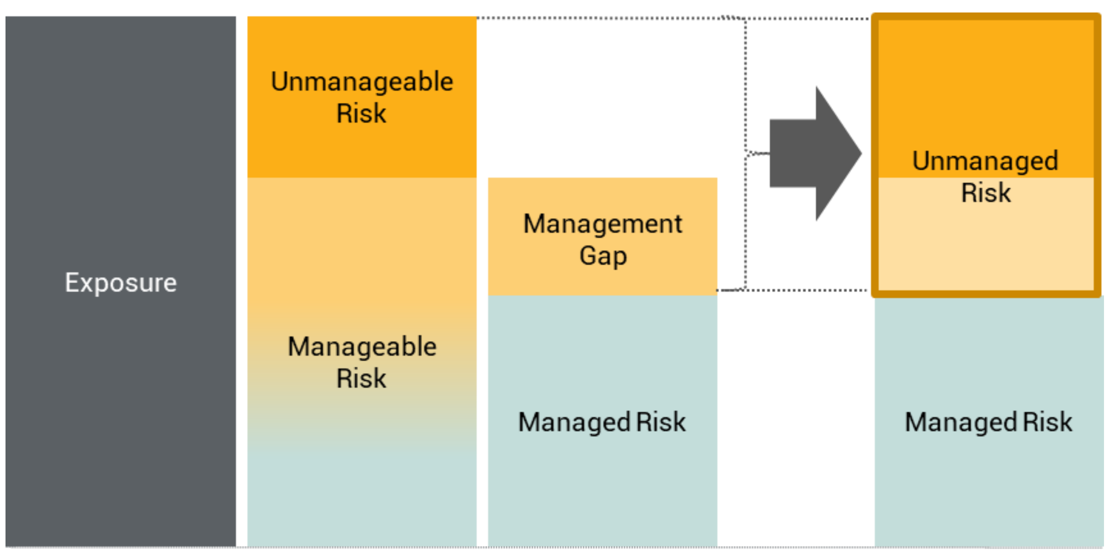
The fundamental concept of points of risk within the ESG Risk Rating allows smaller components to be aggregated to derive larger ones. Issue-level exposure can be aggregated to arrive at overall scores, for example, or to arrive at scores for combinations of issues that might be of interest for investors 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 as well.

Unmanaged Risk – How we arrive at the final ESG Risk Rating score

The ESG Risk Rating scoring system for a company is best thought of as occurring in three stages on the issue level. The starting point is **Exposure**, the next stage is **Management**, and the final stage is calculating **Unmanaged Risk**, using the concept of **Risk Decomposition**.

Our final ESG Risk Rating score is a measure of unmanaged risk, which is defined as material **ESG risk** that has not been managed by a company. It includes two types of risk: **unmanageable risk**, which cannot be addressed by company initiatives, as well as the **management gap**, which represents risks that could be managed by a company through suitable initiatives but which may not yet be managed.

Figure 7. Risk Decomposition



When looking for "the story" behind this picture, note that it starts on the left-hand side with exposure, which reflects a company's sensitivity or vulnerability to different types of risk. We then break down or "decompose" exposure into various types of risk.

Some risks are manageable, like the risk of on-the-job injuries, which can be managed through establishing stringent safety procedures, having emergency response plans, safety drills, promoting a safe culture, etc. Some risks are not (fully) manageable, such as the carbon emissions of airplanes in flight. An airline can manage some of the issue, by modernizing aircraft, installing winglets, working on ICT systems to minimize time that airplanes spend idling on the runway, etc., but it cannot easily manage all of an airplane's flight emissions. This means that an airline has some **unmanageable risk** on Carbon – Own Operations, which should contribute to its unmanaged risk score on that issue.

Unmanageable risk is only one of the two components of unmanaged risk as shown in the graphic above. The second component is the management gap. It speaks to the manageable part of the material ESG risks a company is facing and reflects the failure of the company in managing these risks sufficiently, as reflected in the company's management score.

Manageable Risk Factors

The share of risk that is manageable vs. the share of risk that is unmanageable on a **material ESG issue** is predefined at a subindustry level by a **manageable risk factor**. Every material ESG issue has an **issue manageable risk factor** (MRF), ranging from 30% (indicating that a high level of the issue risk is unmanageable) to 100% (indicating that the **issue risk** is considered fully manageable). We have defined values and accompanying rationales for each assigned manageable risk factor at the subindustry level.

The ESG Risk Rating is fairly restrictive in its interpretation of unmanageable risks. We considered three primary factors when setting MRFs: the ability of a company to ensure compliance by its employees (e.g. occupational health and safety), the effect of outside actors on the ability of a company to manage an issue (e.g. cybersecurity) and the physical limitations on innovation or technology (e.g. airplanes and carbon use).

For example, human capital is difficult to manage. A company can employ hundreds of thousands of people, and it is very hard to imagine management programmes that can eliminate all risk of sexual harassment, low morale, or high turnover. But we do expect that the company has *full control* over these policies. Moreover, we have confidence that strong policies can effectively promote a working culture that limits material risk from rampant sexual harassment or a workplace with destructive low morale and turnover. Contrast this to the social impact of tobacco. No policy or management initiative can make tobacco products safe. Therefore, a manageable risk factor is applied so that issues where company *cannot* manage risk are comparable to issues where they *can* manage risk.

MRFs are intended to achieve more realistic rating outcomes and to achieve full comparability. Though they are not easily quantified, they add value to the final rating output, and deliver a more realistic picture of the degree to which material ESG risks can potentially be managed by a company.

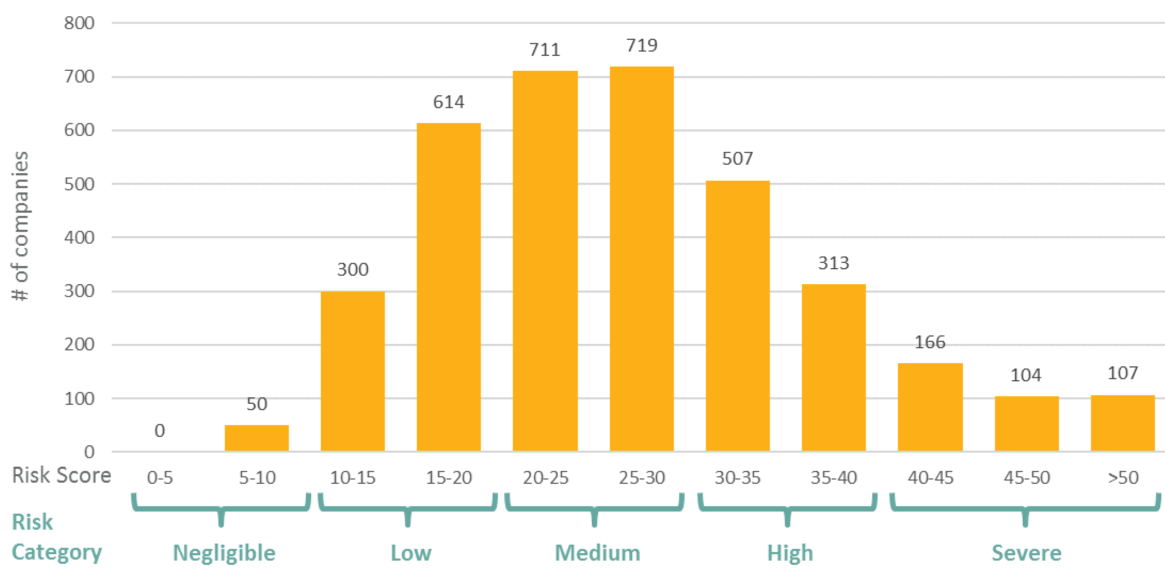
Calculating the final Unmanaged Risk score

The assessment of Unmanaged Risk (the final ESG Risk Rating score) is done in three steps:

- **Step 1:** The share of the overall exposure of companies vis-à-vis a material ESG issue in a given subindustry that can be managed by a company is assessed (**Manageable Risk Assessment**).
- **Step 2:** At the company level, the degree to which a company has managed the manageable risk portion of its overall exposure vis-à-vis an issue is calculated based on the management assessment (**Overall Management Score Assessment**).
- **Step 3:** Finally, the unmanaged risk score is calculated by subtracting managed risks from a company's overall exposure score vis-à-vis a material ESG issue (**Final Unmanaged Risk Score Calculation**).

The following graph shows how the companies that we have used for testing and validation are allocated across the five ESG risk categories that we have defined for the ESG Risk Rating.

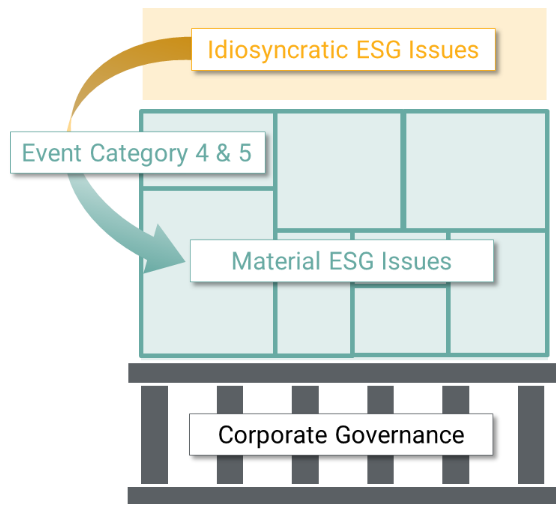
Figure 8. Allocation of companies across ESG risk categories (October 2017)



Risk Rating Building Blocks

The ESG Risk Rating is 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.**

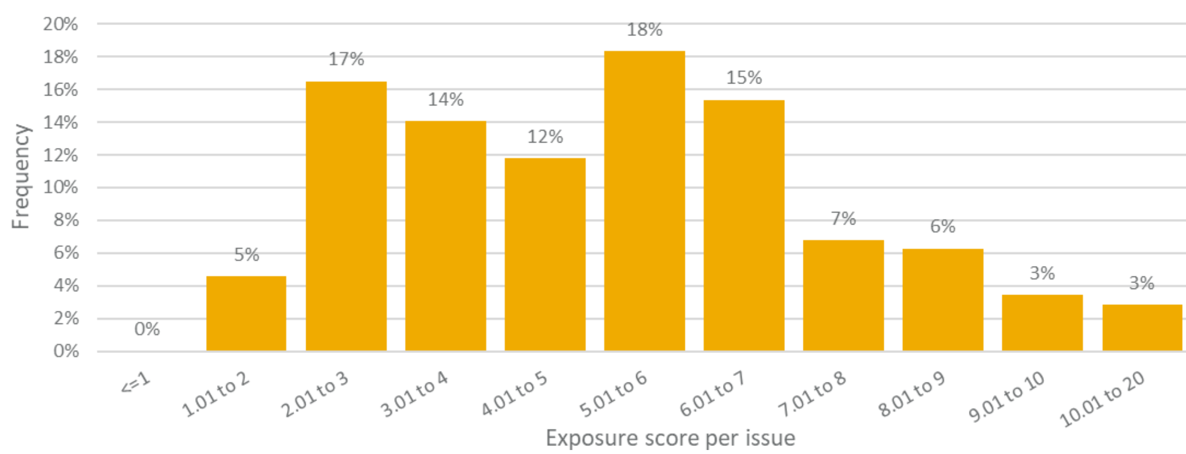
Figure 9. The three building blocks of the ESG Risk Rating



Building Block #1: Corporate Governance

Corporate Governance is a foundational element in the ESG Risk Rating and reflects our conviction that poor Corporate Governance poses material risks for companies. It applies to all companies within the rating and forms an average of 20% of the overall rating score for a company. The final weight varies depending on the full selection of material ESG issues for a company.

Figure 10. Distribution of Corporate Governance weights within the ESG Risk Rating (October 2017)



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 company ESG strategies. Some research studies also indicate that companies with strong corporate governance practices may outperform the market, which makes the Corporate Governance a compelling data point in a materiality-focused rating.

Why is Corporate Governance treated separately?

Corporate Governance is material; however, within the ESG Risk Rating model, it 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 risk rating. 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 Rating, and the pillars that comprise it do not vary by subindustry. It is its own building block in the ESG Risk Rating, has a fixed exposure score of 9 that applies to all companies in the ESG Risk Rating, and does not have company-specific betas.

The Six Corporate Governance Pillars

Corporate Governance is composed of six pillars. Each pillar includes a set of relevant corporate governance indicators.

Figure 11. 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?

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. It is also assigned a corresponding category (Leader, Outperformer, Average performer, Underperformer, or Laggard). 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 Rating assesses companies on material ESG issues. But how do we define a material ESG issue?

Figure 11. Definition – Material ESG Issue

Material ESG Issue (MEI): A core building block of the **ESG Risk Rating**. 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 are focused on a topic or set of related topics that require a common set of management initiatives or require 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 HR initiatives and HR oversight. Occupational Health and Safety is also about employees, but the risks to a business are different from general Human Capital risks, and it is managed through a different set of activities. **Management indicators** provide signals about these management activities, and **event indicators** provide signals about potential management failures.

Why do we include event indicators within material ESG issues?

Events provide a signal that a company has not yet managed risks on an issue. It would be one-sided to discuss management systems without balancing this discussion with observations on whether these management systems had worked in practice, from reported events. It becomes problematic to claim, for example, that a company has a strong health and safety management system, if it has experienced a significant event resulting in multiple workplace fatalities.

Determining Material ESG issues

We determined which ESG issues were material for each subindustry during a structured and guided analyst **consultation process**, which is described in detail above (see page 5).

All in all, we have identified 20 material ESG issues (MEIs) across all subindustries. A full list with definitions can be found in Appendix #2. The issues are common in the sense that 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 construction or 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.[1]

[1] 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.

For this reason, the ESG Risk Rating contains some related issues, such as:

- Carbon – Own Operations AND Carbon – Products and Services
- Human Rights – Supply Chain AND Human Rights *(own operations)*
- Resource Use – Supply Chain AND Resource Use *(own operations)*
- Land Use and Biodiversity – SC AND Land Use and Biodiversity *(own operations)*

Building Block #3: Idiosyncratic Issues

As discussed previously, material ESG issues have been predetermined for each subindustry, and can be disabled if not relevant for a company. But what about issues that have not been pre-selected as material ESG issues? What if a company has a severe **Bribery and Corruption** scandal (a Cat 4 or 5), but doesn't have **Bribery and Corruption** as a material ESG issue? Is it excluded from the rating?

The ESG Risk Rating recognizes that unforeseeable events of significance can happen to companies, and that issues that were previously considered as immaterial can suddenly and dramatically become material and, hence, should be considered within the company's rating. The ESG Risk Rating calls these **Idiosyncratic Issues**. These issues become a material ESG issue if a Category 4 or 5 event occurs.

###

Appendix 1: Glossary of Terms

Beta: See **Issue Beta**.

Corporate Governance: A foundational building block (baseline) in the **ESG Risk Rating** 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** and the **management dimension**. However, 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, and company-specific **betas** are not applied to Corporate Governance exposure scores.

Corporate Governance Pillar: 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.

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

- 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 Rating Score (Overall Unmanaged Risk Score) (ESG Risk Rating): The company's overall score in the **ESG Risk Rating**; it applies the concept of **risk decomposition** to derive the level of **unmanaged risk** for a company, which is assigned to one of five **risk categories**. The score ranges from 0 and 100, with 0 indicating that risks have been fully managed (no unmanaged **ESG risks**) and 100 indicating the highest level of unmanaged risk. It is calculated as the difference between a company's **overall exposure score** and its overall **managed risk score**, or alternatively by adding the **Corporate Governance unmanaged risk score** to the sum of the company's **issue unmanaged risk scores**.

Event Category: See **Event Indicator Category**.

Event Indicator Category (Event 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).

Event Indicator: An indicator that provides a signal about a potential failure of management through involvement in controversies. An event indicator for a **material ESG issue** has an increased weight within the **issue management score** as the **event category** rises (see **events logic**). If it 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**).

Excess Exposure – Absolute: See **Issue Excess Exposure – Absolute**, or **Overall Excess Exposure Score**.

Excess Exposure – Relative: See **Issue Excess Exposure – Relative**.

Exposure Dimension (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.

Exposure Score (Exposure): A score between 0 and 100 to assess the **Exposure Dimension** of the ESG Risk Rating.

Idiosyncratic Issue: An idiosyncratic issue is an issue that was not deemed material at the **subindustry** level during the **consultation process** 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 (see **idiosyncratic issue exposure score** or **events logic**).

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.

Issue Excess Exposure – Absolute **(Excess Exposure – Absolute)**: The absolute excess exposure measures the difference between a company's **issue exposure score** and the **subindustry exposure score**; it is calculated by subtracting the subindustry exposure score from the issue exposure score. An absolute excess exposure score below 0 signals that the company's exposure is below the subindustry's exposure, and a score above 0 that the company's exposure is above the subindustry's exposure.

Issue Excess Exposure – Relative **(Excess Exposure – Relative)**: The relative excess exposure measures the degree (expressed as a percentage) to which a company's **issue exposure score** deviates from the **subindustry exposure score** and corresponds directly to the **issue beta**. It is calculated by subtracting 1 from the issue beta. A relative excess exposure score below 0 signals that the company's exposure is below the subindustry's exposure, and a score above 0 that the company's exposure is above the subindustry's exposure.

Manageable Risk: Material **ESG risk** that can be influenced and managed through suitable policies, programmes and initiatives. Note that 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. Furthermore, fully managed does not mean that there is never a problem; rather, it means that a problem can be dealt with proactively to avoid material risks.

Managed Risk: Material **ESG Risk** that has been managed by a company through suitable policies, programmes or initiatives.

Issue Management Gap Score (Issue Management Gap, Management Gap)
Refers to the **management gap** for a company on a **material ESG issue**; it is calculated by subtracting the **issue managed risk score** from the **issue manageable risk score**. The score ranges from 0 to a company's **issue manageable risk score** (maximum of 20), with 0 indicating that all of a company's **manageable risk** pertaining to a material ESG issue has been managed, and a score equaling a company's issue manageable risk score indicating that none of the company's manageable risk pertaining to a material ESG issue has been managed.

issue management gap score = issue manageable risk score – issue managed risk score

Management Dimension **(Management):** One of the two dimensions of the **ESG Risk Rating**, this dimension measures a company's handling of **material ESG issues** through policies, programmes, quantitative performance and involvement in controversies, as well as its management of **Corporate Governance**.

Management Indicator: An indicator that provides a signal about a company's management of an ESG issue through policies, programmes or quantitative performance, for example. Management indicator raw scores range from 0 to 100, with 0 indicating no (evidence of) management of the issue and 100 indicating very strong management.

Material ESG Issue: A core building block of the **ESG Risk Rating**. 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 in the **consultation process**, but can be disabled for a company if the issue is not relevant to the company's business. A disabled material ESG issue has a weight of 0. Note that no specific predictions about financial impacts at the company level are implied by the presence or absence of an issue as a material ESG issue.

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 147.

Unmanageable Risk: Material **ESG Risk** inherent from the intrinsic nature of the 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. For example, a coal company cannot fully manage the carbon emission risks of coal without exiting the coal business, as coal will continue to emit carbon when burned, regardless of a company's management initiatives. The only option to fully manage this risk would be to diversify out of the coal business. This risk cannot be meaningfully modelled by assessment of **management indicators** and is therefore regarded as unmanageable.

Unmanaged Risk: Material **ESG risk** that has not been managed by a company, and includes two types of risk: **unmanageable risk**, which cannot be addressed by company initiatives, as well as the **management gap**, which represents risks that could be managed by a company through suitable initiatives but which may not yet be managed.

Appendix 2: Descriptions of Material ESG issues and Corporate Governance

MEI.0 Corporate Governance

Corporate Governance comprises six pillars: Board/Management Quality & Integrity; Board Structure; Ownership & Shareholder Rights; Remuneration; Audit & Financial Reporting; and Stakeholder Governance. These six pillars represent foundational structures for the management of ESG risks.

MEI.1 Access to Basic Services

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.

MEI.3 Bribery and Corruption

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.

MEI.4 Business Ethics

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.

MEI.5 Community Relations

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.

MEI.6 Data Privacy and Security

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.

MEI.7 Emissions, Effluents and Waste

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.

MEI.8 Carbon – Own Operations

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.

MEI.8.PS Carbon – Products and Services

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.

MEI.9 E&S Impact of Products and Services

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 Carbon – Products and Services is not regarded as a material ESG issue for the subindustry.

MEI.12Human Rights

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 labour.

MEI.12.SC Human Rights – Supply Chain

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.

MEI.13 Human Capital

Human Capital focuses on the management of human resources. It includes the management of risks related to scarcity of skilled labour through retention and recruitment programmes, and includes career development measures such as training programmes. Additionally, it includes labour relations issues, such as the management of freedom of association and non-discrimination, as well as working hours and minimum wages.

MEI.14Land Use and Biodiversity

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.

MEI.14.SC Land Use and Biodiversity – Supply Chain

Land Use and Biodiversity – Supply Chain focuses on how companies manage the impact of their suppliers' operations on land, ecosystems and wildlife.

MEI.16Occupational Health and Safety

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 programmes.

MEI.17ESG Integration – Financials

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.

MEI.18Product Governance

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).

MEI.19Resilience

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.

MEI.20Resource Use

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 programmes, the substitution of less scarce materials and/or eco-design.

MEI.20.SC Resource Use – Supply Chain

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.

Appendix 3: References

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