ESG rating methodology

Introduction

To assess the contribution of companies to sustainable development, Covalence considers their practices as well as their impact on society and the environment.

ESG practices: assessing how companies operate

ESG ratings describe how companies' practices comply with sustainability standards such as the UN Global Compact or the Global Reporting Initiative (GRI). They allow for the management of risks and the selection of best-in-class companies. To assess companies' ESG practices, Covalence uses a set of 50 criteria inspired by the GRI's sustainability reporting guidelines.

SDG mapping: analysing their impact on society and the environment

Increasingly, investors want to know more than just companies' practices and their level of compliance with ESG criteria. They also want to know about the impact companies have on society and the environment. For the Global Impact Investing Network (GIIN), impact investments are investments made with the intention of generating measurable social and environmental impact alongside a financial return.

While impact investing has historically focused on small, private companies, this approach is increasingly being adopted at the level of large, publicly listed companies. This is in part due to the influence of the Sustainable Development Goals, which call upon the private sector to develop products and services that contribute to solving the world's major challenges. Mapping companies to the SDGs provides insightful material for impact analysis and supports thematic investment strategies.

Approach

The Covalence approach is based on a diversity of sources of information and relies on web monitoring and artificial intelligence together with human analysis.

To produce ESG ratings, we combine a measure of **reputation**, translating the perceptions of stakeholders such as the media and NGOs, both positive (endorsements) and negative (controversies), and a **disclosure** score, based on ESG indicators reported by companies and sourced from an external provider as well as on corporate communications.

Level of analysis		Type of data	Sources	Illustrations
Disclosure	**Reporting**	ESG and SDG indicators disclosed by companies Sourced from provider	Companies	• H&S policy in supply chain? YES/NO • % of women on board • Total water use / Million in revenue $, etc.
	Communications			Positive stories on ESG issues, sustainability, CSR, ethics
Reputation	**Endorsements**	Narrative content Processed using in-house semi-automated analysis	Stakeholders Media, NGOs, trade unions, governments, etc.	
	Controversies			Negative stories on ESG issues, sustainability, CSR, ethics

👥 Reputation: artificial intelligence enabling stakeholder analysis

Stakeholders such as NGOs, governments, trade unions and the media describe the role and activities of companies in positive and negative terms generating either endorsements or controversies. Since 2001, Covalence has specialized in the semi-automated analysis of such narrative content. This expertise materialized in the award-winning EthicalQuote reputation index.

We use data collection and classification tools relying on artificial intelligence techniques (machine learning, natural language processing) in order to analyse the narrative content. This process is reinforced by human interventions to classify the content in terms of polarity (positive/negative) and criteria. Our team of analysts thoroughly checks entries proposed by the software, thus ensuring high curation standards. Only sources that are publicly identified and available online are considered.

✅ Disclosure: integration of indicators published by companies

An increasing number of companies publish ESG indicators. These indicators are communicated in absolute numbers (e.g. CO_2 emissions in tons), in ratios (e.g. % of women on the Board) or in Boolean terms (e.g. existence of a Health and Safety policy in the supply chain: yes / no). Since 2016, companies have also started disclosing indicators relevant to the Sustainable Development Goals (SDGs) to reflect their positive impacts on society and the environment. Covalence acquires this data from external providers and integrates it into its proprietary rating system.

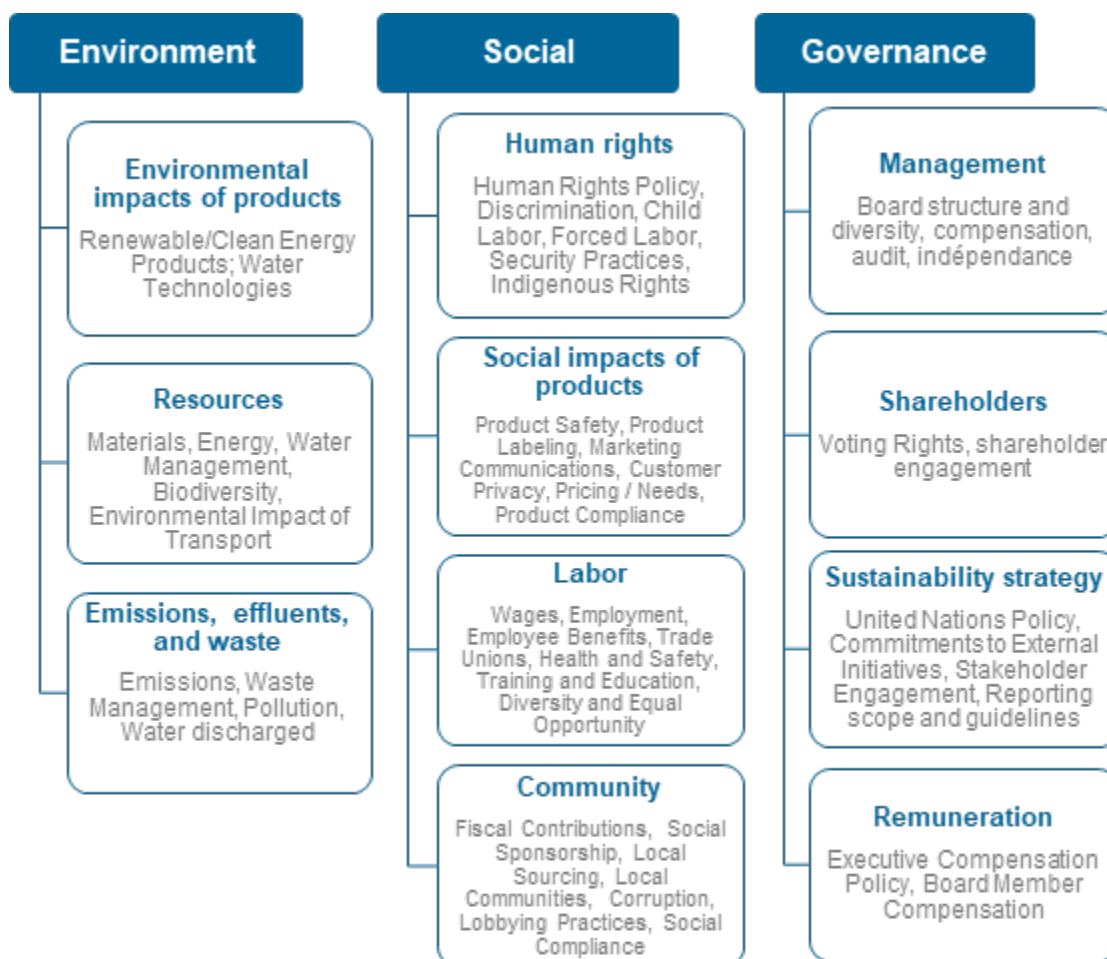| Announced Layoffs	1 127
Strikes	FALSE
Women Employees	35.1%
New Women Employees	41.7%
Women Managers	37.5%
HRC Corporate Equality Index	90
Flexible Working Hours	TRUE

Self-reported ESG and SDG indicators provide useful information on policies, processes and commitments. They respond to increasing demands for more transparency in the way a company conducts its business. However, the disclosed data is not sufficient to produce a balanced assessment. It is usually highly aggregated, mainly reporting global performance while providing little insight on local practices. It can also be positively biased, celebrating achievements and minimizing problems. There are data gaps. The use of additional data from third-party sources is therefore needed to document the perception of stakeholders and shed light on local situations.

Criteria

Covalence first uses a set of 50 criteria inspired by the Global Reporting Initiative's sustainability reporting guidelines. These criteria serve to classify the narrative content which is gathered thanks to our semi-automated search process using a broad set of sources.

The data is then recoded with hundreds of topics and sub-topics and organized into 11 dimensions within 3 categories: Environment, Social, Governance.

The data is classified with the 17 Sustainable Development Goals to show companies' mapping to the SDGs to provide insightful material for impact analysis and to support thematic investment strategies. The data is also mapped with: the UN Global Compact, SASB materiality map, SFDR Principal adverse sustainability impacts, and the Peacebuilding Business Criteria developed by the PeaceNexus foundation.

Environment

Environmental impacts of products
Renewable/Clean Energy Products; Water Technologies

Resources
Materials, Energy, Water Management, Biodiversity, Environmental Impact of Transport

Emissions, effluents, and waste
Emissions, Waste Management, Pollution, Water discharged

Social

Human rights
Human Rights Policy, Discrimination, Child Labor, Forced Labor, Security Practices, Indigenous Rights

Social impacts of products
Product Safety, Product Labeling, Marketing Communications, Customer Privacy, Pricing / Needs, Product Compliance

Labor
Wages, Employment, Employee Benefits, Trade Unions, Health and Safety, Training and Education, Diversity and Equal Opportunity

Community
Fiscal Contributions, Social Sponsorship, Local Sourcing, Local Communities, Corruption, Lobbying Practices, Social Compliance

Governance

Management
Board structure and diversity, compensation, audit, indépendance

Shareholders
Voting Rights, shareholder engagement

Sustainability strategy
United Nations Policy, Commitments to External Initiatives, Stakeholder Engagement, Reporting scope and guidelines

Remuneration
Executive Compensation Policy, Board Member Compensation

Scoring system

Our ESG ratings are based on narrative content reflecting the perceptions of stakeholders such as the media and NGOs (reputation) and on data publicly reported by companies (disclosure).

Reputation score

The basic metrics used by Covalence to measure companies' ESG reputation are quantities of news items gathered on the web (texts, web pages) from third party sources that can be coded as having a positive (endorsements) or a negative orientation (controversies) towards named companies (polarity, sentiment).

Explicit positive or negative words have to be found in the text for demonstrating a polarity and allowing the document to be coded and accounted in the system. Examples of negative words: "predator", "undermining". Examples of positive words: "contributing", "helping".

To be considered, an article must also be related to at least one ESG criterion. Only one criterion is used if there is little information (usually a short document), and two or more criteria are used if the document provides detailed information (longer document). For the purpose of coherence and stability, 5 criteria is the maximum allowed per news item.

Reputation
33

A **historical erosion factor** is applied to the quantities of positive and negative news with recent articles weighting more than older ones. We don't want companies scoring high to rest on their laurels and we want laggards to have a chance to improve. As a convention, each month, positive and negative articles lose 2% of their value. For example, an article published 10 years ago has lost 90% of its information value (weight).

Here is how we calculate reputation scores:

If the sets $\mathcal{P}(d,t)$, $\mathcal{N}(d,t)$ represent the positive and negative news for dimension d aged at time t, where each element is the age in months of the news item, then, with a 2% erosion factor (α=0.98), the eroded positive and negative news for dimension d at time t are, respectively

Sentiment 71% ⓘ Reset chart | Reset All

$$P(d,t) = \sum_{p \,\in \mathcal{P}(d,t)} \alpha^p, \qquad N(d,t) \sum_{n \,\in \mathcal{N}(d,t)} \alpha^n$$

Total news = positive news + negative news. With a 2% erosion factor (α=0.98), this translates to

$$\text{Total news volume} = V_R(d,t) = P(d,t) + N(d,t)$$

In the case of scores relying on a low volume of information, a **threshold**, T is applied to bring scores close to 50% (neutral score). This is to avoid having very high or very low scores based on a small amount of data.

A score is given by the ratio between positive news and total news. For example, if a company has total news = 1622, negative news = 472, positive news = 1150, the score is 1150 / 1622 = 71%.
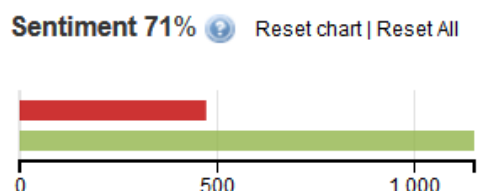
The Reputation score for dimension d at time t is

$$\text{Reputation}(d,t) = Rn(d,t) = \begin{cases} \dfrac{100P(d,t)}{V_R(d,t)}, & V_R(d,t) \geq T \\ \dfrac{V_R(d,t)}{T}\left(\dfrac{100P(d,t)}{V_R(d,t)} - 50\right) + 50, & V_R(d,t) < T \end{cases}$$

Scores are calculated within each of the 11 dimensions. The data underlying the reputation score is accessible using the ESG News Monitor, an online, interactive data visualization tool. Such ESG news data can also be delivered as data feed.

Controversy score

The controversy score reflects the intensity of current controversies naming a company and is on a scale from 0 and 100. A **threshold**, T, is also applied to the controversy volume.

Controversy	76

With a 20% historical erosion factor (α = 0.8), the volume of negative news for dimension d at time t is

$$V_C(d,t) = \sum_{n \in \mathcal{N}(d,t)} \alpha^n$$

The Controversy score is calculated based on this volume and the threshold.

$$\text{Controversy}(d,t) = Contr(d,t) = \begin{cases} 100, & V_C(d,t) \geq T \\ \dfrac{100V_C(d,t)}{T}, & V_C(d,t) < T \end{cases}$$

The average is taken over the 11 dimensions to calculate the final controversy score. D is the set of 11 dimensions.

$$Contr(t) = \frac{\sum_{d \in D} Contr(d,t)}{11}$$

The controversy score is also translated into a grade from a to d. It represents the level of ESG risks faced by the company.

$$\text{Controversy grade}(t) = \begin{cases} a, & 0 \leq Contr(t) < 20 \\ b, & 20 \leq Contr(t) < 40 \\ c, & 40 \leq Contr(t) < 80 \\ d, & 80 \leq Contr(t) \leq 100 \end{cases}$$

Disclosure score

In the disclosure score, we consider corporate communications (narrative content published by companies - web pages, press releases, etc.). As this is positive news, it can be considered as a subset of the total positive news. If

Disclosure
81

$\mathcal{P}_E(d,t) \subseteq \mathcal{P}(d,t)$ is the set of positive news items provided by the company related to dimension d, aged at time t, then the volume of news provided by corporate communications is

$$V_P(d,t) = \sum_{p \in \mathcal{P}_E(d,t)} \alpha^p$$

Where α = 0.98 represents a historical erosion factor of 2%. A **threshold**, T, is applied based on the volume of information so that the corporate communications score for dimension d at time t is given by

$$CC(d,t) = \begin{cases} 100, & V_E(d,t) \geq T \\ \dfrac{100V_E(d,t)}{T}, & V_E(d,t) < T \end{cases}$$

Hundreds of ESG indicators reported by companies are provided to us by a supplier. For each selected indicator, the data is normalised into a 0-100 scale. Reporting scores are calculated for each of the 11 dimensions.

These questions may be qualitative or quantitative. **Qualitative** questions can have favourable or unfavourable answers to yes/no questions. In the normalisation process, favourable answers are awarded 100 points and unfavourable answers are rewarded 0 points. For example, 100 points are awarded to a company who answers "no" to the question "has the company had legal action taken against it by its workers in the last reporting period?" or "yes" to the question "does the company have a policy to improve its energy efficiency?". These are favourable answers. On the contrary, answering "yes" and "no" respectively to the previous questions would award 0 points as these are unfavourable answers.

Quantitative questions may be answered with percentages ("what percentage of the workforce is female?") or other figures ("what are the company's annual CO_2 emissions?"). These numbers are normalised based on industry standards and are given a score between 0 and 100.

Questions to which the answers are unknown are given 50 points, so that the final reporting score is

$$\text{Reporting}(d,t) = Rg(d,t) = \frac{100f + 50u + \sum_{\omega \in W} \omega}{\Psi}$$

Where f represents the number of favourable answers to qualitative questions, u represents the total number of unanswered questions, $\omega \in W$ are the normalised scores for quantitative questions and Ψ is the total number of questions answered.

As a bonus, if it is higher than the reporting score, the corporate communications score is considered and the average is used as the disclosure score. If the corporate communications score is lower than the reporting score, then it is only the reporting score that constitutes the disclosure score.

$$\text{Disclosure} = \text{Disc}(d,t) = \begin{cases} Rg(d), & CC(d,t) \leq Rg(d) \\ \dfrac{Rg(d) + CC(d,t)}{2}, & CC(d,t) > Rg(d) \end{cases}$$

Example: Environment | Resources

Indicator Name	Indicator Definition
Policy Energy Efficiency	Does the company have a policy to improve its energy efficiency?
Land Environmental Impact Reduction	Does the company report on initiatives to reduce the environmental impact on land owned, leased or managed for production activities or extractive use?
Policy Water Efficiency	Does the company have a policy to improve its water efficiency?
Toxic Chemicals Reduction	Does the company report on initiatives to reduce, reuse, substitute or phase out toxic chemicals or substances?
Staff Transportation Impact Reduction	Does the company report on initiatives to reduce the environmental impact of transportation used for its staff?
Resource Reduction Policy	Does the company have a policy for reducing the use of natural resources or to lessen the environmental impact of its supply chain?
Policy Sustainable Packaging	Does the company have a policy to improve its use of sustainable packaging?
Policy Environmental Supply Chain	Does the company have a policy to include its supply chain in the company's efforts to lessen its overall environmental impact?
Environmental Controversies	Is the company under the spotlight of the media because of a controversy linked to the environmental impact of its operations on natural resources or local communities?

For example, to get a score of 100%, a company should respond Yes to the first eights indicators in the above table, and No to the last one.

Rates: combining disclosure and reputation scores

For each of the 11 dimensions, an average is calculated between the disclosure and the reputation scores. We then have final scores, or rates, for each of the 11 dimensions as well as for the Environment, Social, and Governance categories.

	Rate 0-100	Disclosure	Reputation
ESG	76	88	63
Environment	79	86	72
Social	75	96	54
Governance	74	84	64

$$\text{Final score}(d,t) = \frac{\text{Disc}(d,t) + \text{Rn}(d,t)}{2}$$

The final ESG rate is derived from the average of the rates measured for the Environment, Social, and Governance categories. For example, in the table above we have: (79+75+74)/3=76. This is equivalent to taking the average final score over the 11 dimensions.

$$ESG(t) = \frac{\sum_{d \in D} \text{Final score}(d,t)}{11}$$

The ESG rate is then translated into Z-scores (based on standard deviation from the mean value) to generate grades from A to D.

$$Grade = \begin{cases} A, & Z > 1.5 \\ B, & 0 \le Z \le 1.5 \\ C, & -1.5 \le Z < 0 \\ D, & Z < 1.5 \end{cases}$$

$ESG(t)$ represents the overall performance of the company during the reporting period at time t. $Contr(t)$ represents the level of ESG risk faced by the company. In the final grade, we attribute a sign which indicates whether or not the overall ESG performance mitigates the risk.

$$sign = sgn(ESG(t) - Contr(t))$$

Grade risk mitigation
Ac+
A to D: position in ESG rating
a to d: risk (controversy intensity)
+/-: risk mitigation

For example, the ESG risk of Bayer became unmitigated in May 2018, before the acquisition of Monsanto was completed, as the controversy score exceeded the ESG rate.

Date	ESG	E	S	G	Controversy	Mitigation	Mitigation +/-	Grade
2018-04	65	64	64	67	56	9	+	A
2018-05	65	63	64	67	67	-3	-	A
2018-06	64	63	63	67	69	-4	-	A
2018-07	59	55	57	65	74	-15	-	B
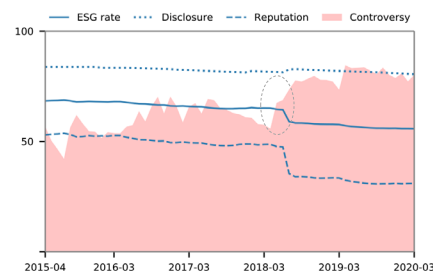
Sensitive activities

Information on sensitive activities is provided to investors applying exclusion filters. It is sourced from an external provider.

If the company generates revenues from a sensitive activity, the latter is bolded in black with an X. A second X signifies that the activity represents more than 5% of total revenues.

Activities	Revenue	> 5%
GMO products	X	
Nuclear		
Nuclear Production		
Alcohol		
Tobacco		
Armaments		
Cluster Bombs		
Landmines		

SDG mapping

To produce SDG mappings, the ESG data gathered for the two levels of analysis, disclosure and reputation, is filtered and recoded with the Sustainable Development Goals (SDGs).

The size of the bubbles represents the volume of reputation data irrespective of the positive or negative sentiment with the 5 most important SDGs being labelled.
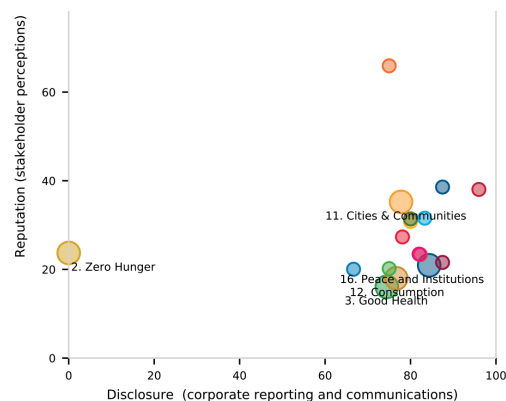
In the news

Each month, the major positive (green) and negative (red) topics and keywords related to a company are highlighted in a bar chart. The lower axis represents the number of mentions in absolute terms, while the upper axis indicates their relative importance in %.