

ESG Ratings

Methodology

Executive Summary

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ESG Enterprise Executive summary

ESG Enterprise understands the crucial need for analytics and the significance of precise, error-free ESG (Environmental, Social, and Governance) data. As a pioneer in ESG data sector, we help transition our clients to a future of sustainability and positive ESG outlook. We provide the foundational basis needed, such as ESG solutions, analytics, and world-class data that can be used to make informed and accurate decisions regarding investing.

For many years, ESG Enterprise has provided extensive ESG database service across 50 distinct metrics, covering 90% of the global market. ESG Enterprise serves in various areas such as screening or quantitative analysis, portfolio analysis, and equity research using various ESG factors. ESG enterprise offers their services for extensive analysis in which users, by incorporating innovative applications based on the latest technological advancements, can effectively collect and evaluate ESG data.

ESG scores are designed based on company stored data that aids in measuring the organization's relative ESG performance, efficiency, and dedication, without bias. 10 main KPIs can be measured: human rights, biodiversity, climate change, human capital and governance, and many more—overall combined ESG score of organizations that we accommodate. We have ratings of almost 60,000 companies worldwide to date as of 2021. The scores are available in both percentage and letter grades that start from D and end at AAA. This type of scoring is similar to credit ranking scoring, and it is easily understood. Their criterion is made in comparison by accommodating all environmental and social categories of U.N SDG standards. The result is reflective and inclusive of all governance categories.

The ESG Enterprise ESG scores are cognizant of transparency bias and depend on derived data covering almost all material industry metrics.

The relative performance of the company's sector regarding the social and environment are compared with their home country. Therefore, the two factors that help determine the score are based on the specific industry and country to which scores are made. ESG does not explain the idea of "good." Instead, it uses the data to evaluate the relative performance of the respective company, whether they were able to meet the defined criteria

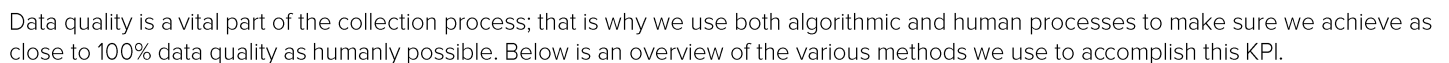
and model. Our methodology takes a principled approach by using various calculations but also specific rules as outlined below. Our methodological approach allows for a degree of flexibility without any compromise on our high standards outlined below:

1. Different weightings have been added for each ESG magnitude (materiality). We assigned values from 1 to 1000 for every industry as the impact of these factors varies according to the industry.
2. Transparency stimulation – We report relevant company data alongside an applied weighting score. Thereby we do not account for insignificant or "immaterial" data points, having no effect on the overall score, but rather focus on "high material" data points that can resentfully impact a company's score.
3. ESG controversies overlay - We identify company KPIs and run through their current progress to verify their statements and emphasize the effect of crucial controversies on scoring. We take into account that more prominent companies often benefit from greater market bias and we have initiated severity weights. These weights use the size of the company to tune the controversy scores accordingly.
4. To allow for comparative interpretation with various groups of information, we use country and industry benchmarks at the data point scoring level.
5. We use the Percentile Rank Scoring scoring approach to remove hidden layers of various calculate, allowing us to produce easily understandable letter grades and a scoring scale from 0 to 1000.



Globally, we have the most system extensive ESG operations to collect data with the help of professionally trained analysts and AI systems in place. We offer the most current exhaustive coverage of data in over 22 localized languages. We process every possible information data set from various sources and through our 50 ESG measures. Each measure is investigated deliberately to ensure accurate and standardized information comparable to a wide range of other companies.

The data set is modified and refreshed daily consistent with industry standard reporting patterns. ESG scores are also recalculated daily based on companies last process date. Each day, there may be a brand new company being added with updated controversy events. Based on the industry practices, most of the time, the ESG data is modified once a week. In some situations within a year, if there is a rapid modification in reporting or corporate structure, data is also reflective of the changes. As soon as new controversy or news occurs, the databases are frequently and regularly updated.



Frequency of updates

The data updated daily includes ESG scores and controversies scores.

ESG historical scores

The score methodology are subjected to change over time and historical scores will not be retrospectively adjusted. In rare occasions, ESG data team will amend scores in the past for correctness purposes.

Global coverage

Over 60,000 companies worldwide are included in the ESG database. The regional breakdown is demonstrated in the diagram below:

Over time we are adapting globally to include several countries, thereby dramatically enhancing our coverage. Two weeks after a company is included in our coverage, we thoroughly check the complete components and merit of the scores. Our extensive market indexes comprises OTC companies, private companies, non-profits and government entities as well.



ESG Scores overview

To understand the accurate ESG score and potential of a company, many factors have to be intertwined and considered, two of which are industry and country materiality and company size biases. As previously noted, this is accomplished by strictly adhering to the calculation principles shown below. Additionally, our exhaustive framework ensures transparency and a truly data-driven approach and methodology. An overall ESG is calculated to balance news controversies score that materially impact big and small companies. These underlying aspects are examined determined to the authenticity and materiality of the controversies.

ESG Enterprise global coverage dating back 2019, ESG scores started from the United States and Europe and followed by other continents.

There are two aspects of ESG scores:

- 1. It compares the ESG performance of a company with the factual data available in the public domain.
- 2. It shows the combined data of ESG score by measures by industry and country and add ESG controversies with regards to time. The overall scores and categories allow users the flexibility to determine their best course of action based on their own requirements and situation, allowing them to adjust and adapt accordingly.

The model is entirely automated, based on data, and transparent. The final scores are then benchmarked and checked for anomalies.

Human judgment is involved when the scores are in questions or lack of supporting data are subjected to further reviews. Reviews take the form of interviews, questionnaires and combination of methods to get clarity on specific measures.

ESG score

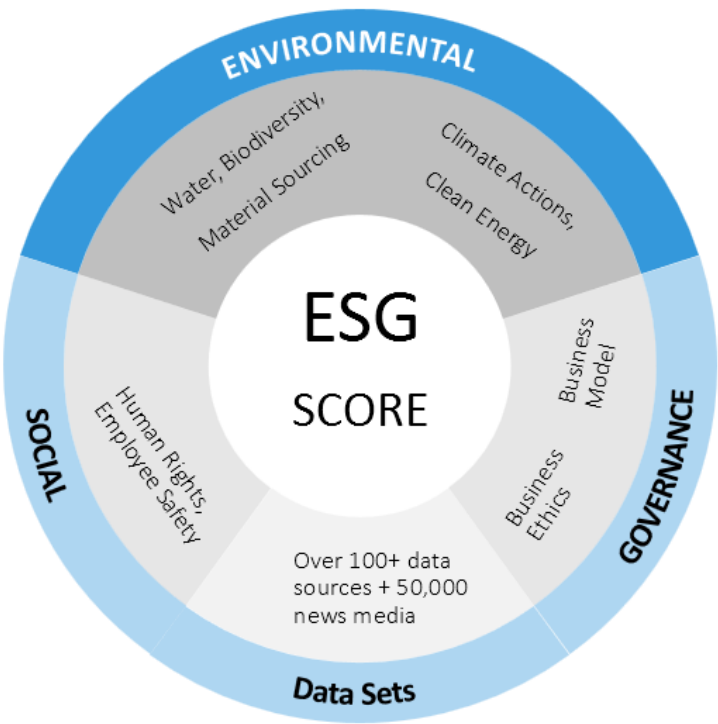
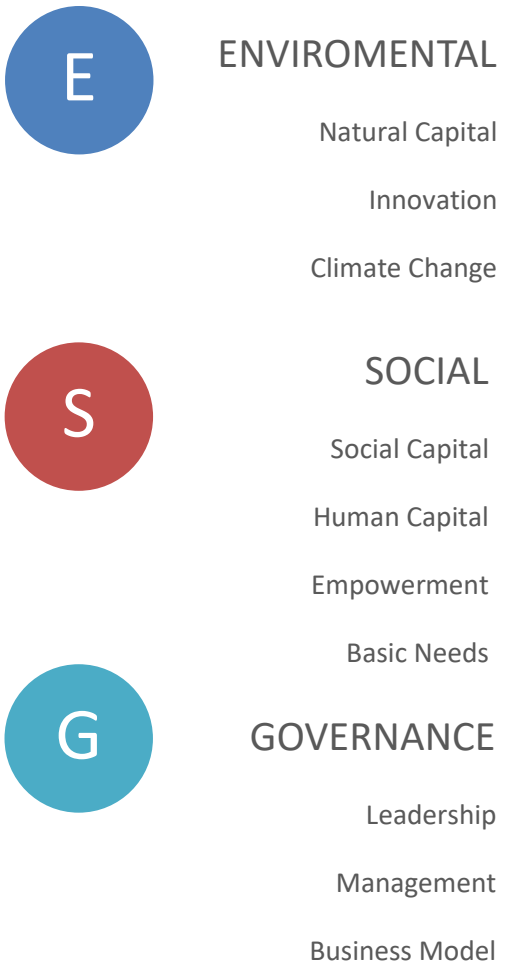
We cover and calculate over 50 company-level ESG measures that empower the ESGs' scoring process. These are further divided into 10 categories which establish the final score and three pillar scores. It reflects the company's ESG efficiency, commitment, and performance based on publicly available information.

The three pillars are

- 1) Environmental
- 2) Social
- 3) Corporate Governance

It is a relative sum of category weights that changes from industry to industry for all three categories. The weights of these pillars are normalized from score of 0 to 1000 and assign letter grade from D to AAA based on the numeric scores.

Scores structure



ESG score

ESG scores are a holistic account of a company's ESG performance. The ESG performance is based on two main factors: the ESG pillars and controversy overlay from media sources. Media sources are considered, in particular, to undermine ESG performance score because of local negative press. On the other hand, significant material ESG controversies are included to balance and included in the overall ESG score.

When there are ESG controversies of any company, the score is calculated by taking the average overall ESG score and the company's score during the financial year. The ESG score remains the same when a company is not involved in any ESG controversies.

ESG controversies category

ESG controversy topics are based on key measures. The company's overall grading and score are negatively affected if the company is involved in a scandal. This adverse event may impact grading and scores for upcoming years as the scandal progresses. For example, fines, disputes, ongoing legislation, or lawsuits. As the scandal progresses, each media material is noted. As companies involved in such cases attract more media

attention than smaller cap industries, the score is normalized based on the market cap bias from which large-cap companies suffer.

Viewing ESG Scores

ESG Enterprise cloud-based delivery solution provides users to effectively check all 60,000 companies ESG scores for free. This data is accessible via ESG Enterprise Data API Services and other 3rd party data brokers. These sources include, but are not limited to, E/S/G scores, scores by measures and ESG Rating reports in PDF format that displays strengths and weaknesses of a company's ESG outlook.

ESG global scores are available on ESG Enterprise Big Data analytics serves as a fully automated analytical tool that allows users to analyze ESG data from financial lens. Finally, ESG enterprise also has a cloud-based delivery solution that aggregates ESG ratings from vendors like MSCI, Sustainalytics, ISS and many others.

The aggregated scores are then normalized by weighted average with the options of benchmarking.

E/S/G Score Range	Grade	Level	Description
0 ≤ score < 24	D	Low	"D" score indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly and privately.
25 ≤ score < 49	DD	Low	
50 ≤ score < 74	DDD	Low	
75 ≤ score < 99	C	Low	"C" score indicates satisfactory relative ESG performance and a moderate degree of transparency in reporting material ESG data publicly and privately.
100 ≤ score < 149	CC	Low	
150 ≤ score < 199	CCC	Low	
200 ≤ score < 299	B	Medium	"B" score indicates good relative ESG performance and an above-average degree of transparency in reporting material ESG data publicly and privately.
300 ≤ score < 399	BB	Medium	
400 ≤ score < 499	BBB	High	
500 ≤ score < 599	A	High	"A" score indicates excellent relative ESG performance and a high degree of transparency in reporting material ESG data publicly and privately.
600 ≤ score < 899	AA	Excellent	
900 ≤ score ≤ 1000	AAA	Excellent	

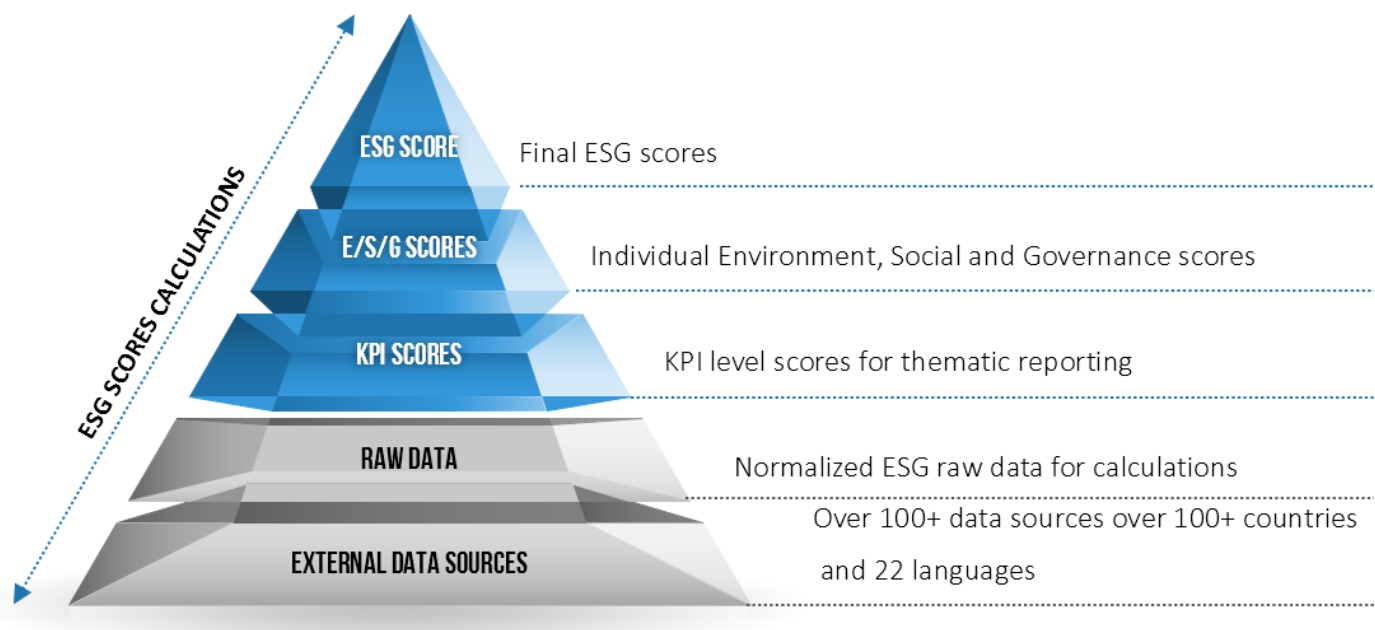
The combined ESG scores is the total aggregated E/S/G with the classification as follows:

ESG Total Score Range	Grade	Level	Description
0 ≤ score < 74	D	Low	"D" score indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly and privately.
75 ≤ score < 149	DD	Low	
150 ≤ score < 224	DDD	Low	
225 ≤ score < 299	C	Low	"C" score indicates satisfactory relative ESG performance and a moderate degree of transparency in reporting material ESG data publicly and privately.
300 ≤ score < 449	CC	Low	
450 ≤ score < 599	CCC	Low	
600 ≤ score < 749	B	Medium	"B" score indicates good relative ESG performance and an above-average degree of transparency in reporting material ESG data publicly and privately.
750 ≤ score < 899	BB	Medium	
900 ≤ score < 1199	BBB	High	
1200 ≤ score < 1799	A	High	"A" score indicates excellent relative ESG performance and a high degree of transparency in reporting material ESG data publicly and privately.
1800 ≤ score < 2699	AA	Excellent	
2700 ≤ score ≤ 3000	AAA	Excellent	

Scores calculation methodology

By ensuring transparency, the hallmark of our success is customer conviction and hope in our ESG data. Our customers are assured and convinced that the data we provide is accurate and pivotal to data-driven and informative investment decision-making.

Our propriety ESG scoring methodology is described in detail below, consisting of a comprehensive, easy-to-follow 5-step process.



Step 1: ESG industry scores

Data points – Pre-Calculations

Data collection process occurs on daily basis and segmented to industry groups for quick processing. Each data point is sorted and grouped by industry identifier for optimal speed. The calculations start with industry group scores.

Data relevancy

Few indicators are not relevant for every company as they are industry-specific. The value will be irrelevant if the indicator is not applicable for a particular sector. For instance, Waste Water Management is the not relevant to the software sector.

Numeric data

All the companies in industry group are calculated based in industry measures determined by materiality. The polarity of each measure indicates if the higher value is negative or positive. For example, more GHG emissions are negative but more water saved in a water recycling process is positive.

The higher value can be either positive or negative. For example, if a policy responsible for reducing emissions is positive and if there are environmental controversies, it is considered negative.

To calculate the percentage, the polarity of data points are converted into numbers and segmented into percentile from 0% to 100%. Companies with top quarter percentile is considered has high value and companies with bottom quarter percentile is considered as low value.

Once all companies are assigned values, the below calculation is applied to derive the industry score.

Industry score =

sum of values of all companies

number of companies with a value

Scoring example

This section illustrates how a industry score is calculated, using the data available in the ESG database as of March 2020 for all industry companies

Step-by-step illustration

- Start utilities industry for all countries
- Get metrics for the utilities industry
- Calculate the metric value for each company
- Calculate the industry score

Description	Utilities	Construction Materials
No. of companies with low value	11	4
No. of companies with high value	12	5
No. of companies with value	74	19

Industry	Country	Metrics	Low Value	High Value	Industry Scores
Utilities	United States	47	11	12	41
Construction Materials	United States	40	4	5	51
Telecommunications	United States	42	12	14	65
Managed Care	United States	41	31	28	78
Home Builders	United States	35	24	31	81
IT & Software	United States	28	120	201	75
Sports & Recreation	United States	34	12	5	37
Education	United States	26	20	65	52

Hotel & Lodging	United States	41	40	31	64
Airlines	United States	47	3	3	48
Agricultural Products	United States	44	10	12	46

Step 2: Materiality

To apply an objective, impartial, and trusted assessment of the importance of each ESG pillars to different industries, the ESG materiality matrix was developed as a proprietary model and is applied at the category level. Notably, the magnitude values are automatically and dynamically adjusted as ESG corporate disclosure evolves and matures.

Introduction to ESG materiality matrix

Materiality for ESG is defined in the form of category weights. Category weights are calculated based on an objective and data-driven approach to determine the relative importance of each KPI to each individual industry group. Based on the KPIs covered in each category, data points with sufficient disclosure are used as a proxy for industry magnitude. KPIs and data points have a one-to-one relationship; in other words, one data point is identified per KPI. There are no data points that may be used as good proxies of relative importance for some KPIs due primarily to insufficient disclosure. These KPIs are not included in the scoring methodology to derive the materiality matrix but incorporate ESG reporting and the ESG database. Listing all the individual KPIs enables ESG Enterprise to identify critical data points across the KPIs where reporting is sufficient to use as a proxy of materiality.

The table below provides a detailed view of the ESG KPIs covered in each category, with the respective data points evaluated as proxies of ESG magnitude per industry group.

Pillars	Categories	KPIs	Data points	Weight method
Environmental	Natural Capital	Water	Data points in the environmental data set	See section below
		Land	Data points in the environmental data set	See section below
		Biodiversity	Data points in the environmental data set	See section below
		Responsible Consumption & Production	Data points in the environmental data set	See section below
	Innovation	Product innovation	Data points in the environmental data set	See section below
		Supply Chain	Data points in the environmental data set	See section below
		Material Sourcing	Data points in the environmental data set	See section below
	Climate Change	Physical Impots of Climate Change	Data points in the environmental data set	See section below
		Climate Action	Data points in the environmental data set	See section below
		Affordable Clean Energy	Data points in the environmental data set	See section below
Governance	Leadership	Business Ethics	Data points in the governance data set	See section below
		Risk Management		
	Management	Board Structure (independence, diversity, committees)	Data points in the governance data set	See section below
		Competition & Partnership		
		Employee Engagement, Diversity & Inclusion		
	Business Model	Business Model Resilience	Data points in the governance data set	See section below
		Legal & Regulatory		

		Sustainable Cities & Communities	Data points in the governance data set	See section below
Social	Social Capital	Customer Privacy	Data points in the social data set	See section below
		Data Security		
		Product Quality & Safety		
	Human Capital	Human Rights	Data points in the social data set	See section below
		Community Relations		
		Employee Safety & Health		
		Labor Practices		
	Empowerment	Quality Training & Education	Data points in the social data set	See section below
		Reduce Inequality		
		Work & Economic Growth		
	Basic Needs	Zero Hunger	Data points in the social data set	See section below
		No Poverty		
		Clean Water & Sanitation		
		Sustainable Cities & Communities		
		Good Health & Well-Being		

Weight methods

Category weights can be calculated by following steps:

- The category weights are based on category, industry and country of origin
- The category weights have a normal range of 0 and 100
- The default category weights start at fifty points, the median, with the points' distribution ranging from -5 to 5. The adjustment is determined based on the industry group top and low values and materiality impact to the country of origin
- The country category to country materiality has a weight of -5 to 5 to which is applicable to the overall adjustment
- For environmental and social categories, a combination of industry values and country adjustment applied to arrive at the category weights based on the weight method described
- For governance category, the weights are applied to all countries uniformly with no adjustment by category to country materiality
- The magnitude weight of every industry group is calculated below:

$$\text{Category weight of an industry group} = \frac{\text{Sum weight of a category}}{\text{Sum of weights of all categories}}$$

The table below provides an indicative ESG materiality matrix based on assessment of sample ESG data. It is not a definitive matrix to be used in the final scoring.

	Environmental			Social				Governance		
Industry group	Natural Capital	Innovation	Climate Change	Social Capital	Human Capital	Basic Needs	Empowerment	Leadership	Management	Business Model
Healthcare	0.8	0.51	0.7	0.65	0.76	0.87	0.56	0.56	0.78	0.45
Refining & Marketing	0.15	0.72	0.3	0.73	0.76	0.87	0.65	0.54	0.78	0.42
Extractives & Minerals Processing - Services	0.2	0.5	0.16	0.45	0.65	0.78	0.57	0.58	0.67	0.37
Asset Management & Custody Activities	0.5	0.8	0.7	0.67	0.76	0.67	0.54	0.62	0.78	0.78
Consumer Finance	0.7	0.8	0.6	0.8	0.78	0.67	0.45	0.63	0.81	0.76
Insurance	0.8	0.9	0.89	0.86	0.67	0.78	0.67	0.7	0.83	0.78
Investment Banking & Brokerage	0.75	0.95	0.6	0.45	0.34	0.45	0.57	0.8	0.89	0.9

Step 3: ESG Materiality Matrix Scores

To calculate the overall pillar and ESG scores, category weights per industry are applied using data-driven and objective logic.

Calculation of overall ESG material matrix scores

ESG material scores are aggregated based 10 category weights, which are calculated based on the formula.

	Environmental			Social				Governance			
Industry group	Natural Capital	Innovation	Climate Change	Social Capital	Human Capital	Basic Needs	Empowerment	Leadership	Management	Business Model	Average Scores
Healthcare	0.59	0.51	0.54	0.54	0.56	0.46	0.51	0.59	0.57	0.58	0.54
Company A	0.7	0.6	0.8	0.7	0.8	0.6	0.7	0.8	0.6	0.7	0.7
Company B	0.4	0.6	0.7	0.2	0.5	0.3	0.4	0.6	0.7	0.9	0.53
Company C	0.6	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.5	0.7	0.67
Company D	0.7	0.5	0.3	0.4	0.5	0.4	0.8	0.5	0.4	0.3	0.48
Company E	0.8	0.8	0.4	0.5	0.4	0.5	0.7	0.6	0.5	0.4	0.56
Company F	0.9	0.2	0.6	0.7	0.5	0.6	0.4	0.7	0.8	0.5	0.59
Company G	0.2	0.4	0.7	0.9	0.6	0.2	0.3	0.9	0.3	0.6	0.51
Company G	0.3	0.9	0.2	0.3	0.7	0.3	0.4	0.2	0.4	0.9	0.46
Company I	0.6	0.3	0.3	0.4	0.2	0.4	0.5	0.4	0.5	0.2	0.38
Company J	0.8	0.1	0.6	0.5	0.3	0.5	0.6	0.5	0.9	0.7	0.55
Company K	0.4	0.9	0.8	0.6	0.4	0.8	0.3	0.6	0.3	0.8	0.59
Company L	0.6	0.5	0.3	0.7	0.5	0.7	0.4	0.8	0.4	0.3	0.52
Company N	0.8	0.4	0.4	0.9	0.6	0.5	0.5	0.2	0.6	0.5	0.54
Company M	0.5	0.5	0.5	0.2	0.9	0.4	0.2	0.3	0.9	0.6	0.5
Company O	0.3	0.6	0.6	0.1	0.7	0.3	0.3	0.9	0.7	0.6	0.51
Company P	0.9	0.2	0.7	0.8	0.6	0.2	0.9	0.8	0.6	0.5	0.62

E/S/G Material Matrix Factor

ESG factor are the relative sum of the category weights and materiality average score. Calculations to derive scores are illustrated below:

Environment Material Maxtrix = (category material score / sum of materiality score) * category weight

Example.

Environment Material Maxtrix for Natural Capital = (0.7/2.1) * 0.8 = 0.26

Environment Material Maxtrix for Innovation = (0.7/2.1) * 0.51 = 0.17

Environment Material Maxtrix for Climate Change = (0.7/2.1) * 0.7 = 0.23

E factor is 0.66

Step 4: Controversies scores calculation

ESG controversies score is calculated based on 50 ESG controversy topics and any recent material current events. Default value of all controversy measures is 1

- Controversies are scored against on industry group
- Companies with no controversies will get a score of 100
- Controversy score calculation are adjusted by company sizes and news
- The calculation of controversy scores based on the market cap grouping is defined as follows:

Headcount	Media Coverage	Adjustments
>= 10,000	Conventional	0.2
< 10,000	Conventional + Some Social	0.8
< 100	Convential + Social	1

Step 5: ESG score

The ESG score is calculated as the average of the ESG score and ESG controversies score when there are controversies during the fiscal year. When the controversies score is greater than the ESG score, then the ESG score is equal to the ESG score.

	Environmental					
Industry group	Natural Capital	Innovation	Climate Change	ESG Materiality Matrix Scores	Controversy	Total Environmental Scores
E-Commerce	700	700	700			
Company A	700	700	700	0.66	0.9	416
Company B	700	700	700	0.9	0.9	567
Company C	700	700	700	0.9	0.8	504
Company D	700	700	700	0.9	1	630
Company E	700	700	700	0.9	1	630
Company F	700	700	700	0.9	0.9	567
Company G	700	700	700	0.9	1	630
Company G	700	700	700	0.9	1	630
Company I	700	700	700	0.9	1	630
Company J	700	700	700	0.9	0.9	567
Company K	700	700	700	0.9	1	630
Company L	700	700	700	0.9	1	630
Company N	700	700	700	0.9	0.8	504
Company M	700	700	700	0.9	1	630
Company O	700	700	700	0.9	1	630
Company P	700	700	700	0.9	1	630

	Social						
Industry group	Social Capital	Human Capital	Basic Needs	Empowerment	ESG Materiality Matrix Scores	Controversy	Total Social Scores
E-Commerce	700	700	700	700			
Company A	700	700	700	700	0.9	0.9	567
Company B	700	700	700	700	0.9	0.9	567
Company C	700	700	700	700	0.9	0.8	504
Company D	700	700	700	700	0.9	1	630
Company E	700	700	700	700	0.9	1	630
Company F	700	700	700	700	0.9	0.9	567
Company G	700	700	700	700	0.9	1	630
Company G	700	700	700	700	0.9	1	630
Company I	700	700	700	700	0.9	1	630
Company J	700	700	700	700	0.9	0.9	567
Company K	700	700	700	700	0.9	1	630
Company L	700	700	700	700	0.9	1	630
Company N	700	700	700	700	0.9	0.8	504
Company M	700	700	700	700	0.9	1	630
Company O	700	700	700	700	0.9	1	630
Company P	700	700	700	700	0.9	1	630

	Governance					
Industry group	Leadership	Management	Business Model	ESG Materiality Matrix Scores	Controversy	Total Governance Scores
E-Commerce	700	700	700			
Company A	700	700	700	0.66	0.9	416
Company B	700	700	700	0.9	0.9	567
Company C	700	700	700	0.9	0.8	504
Company D	700	700	700	0.9	1	630
Company E	700	700	700	0.9	1	630
Company F	700	700	700	0.9	0.9	567
Company G	700	700	700	0.9	1	630
Company G	700	700	700	0.9	1	630
Company I	700	700	700	0.9	1	630
Company J	700	700	700	0.9	0.9	567
Company K	700	700	700	0.9	1	630
Company L	700	700	700	0.9	1	630
Company N	700	700	700	0.9	0.8	504
Company M	700	700	700	0.9	1	630
Company O	700	700	700	0.9	1	630
Company P	700	700	700	0.9	1	630

The combined scores for E/S/G is the total ESG score for the company:

	ESG Score			
Industry group	Environmental	Social	Governance	Total ESG Scores
E-Commerce	700	700	700	
Company A	416	416	416	1248
Company B	567	567	567	1701
Company C	504	504	504	1512
Company D	630	630	630	1890
Company E	630	630	630	1890
Company F	567	567	567	1701
Company G	630	630	630	1890
Company G	630	630	630	1890
Company I	630	630	630	1890
Company J	567	567	567	1701
Company K	630	630	630	1890
Company L	630	630	630	1890
Company N	504	504	504	1512
Company M	630	630	630	1890
Company O	630	630	630	1890
Company P	630	630	630	1890