LSEG DATA & ANALYTICS

Environmental, Social and Governance scores from LSEG

October 2024

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Contents

Executive summary

LSEG recognises the increasingly critical importance of transparent, accurate and comparable environmental, social and governance (ESG) data and analytics for the financial industry. We strive to be the trusted and preferred partner in the transition to sustainable finance and are committed to bringing to the market an array of best-in-class data, analytics and workflow solutions, which allow customers to use LSEG data as the backbone of their investment processes.

LSEG offers one of the most comprehensive ESG databases in the industry, covering over 90% of the global market cap, across more than 870 different ESG metrics, with history dating back to 2002.

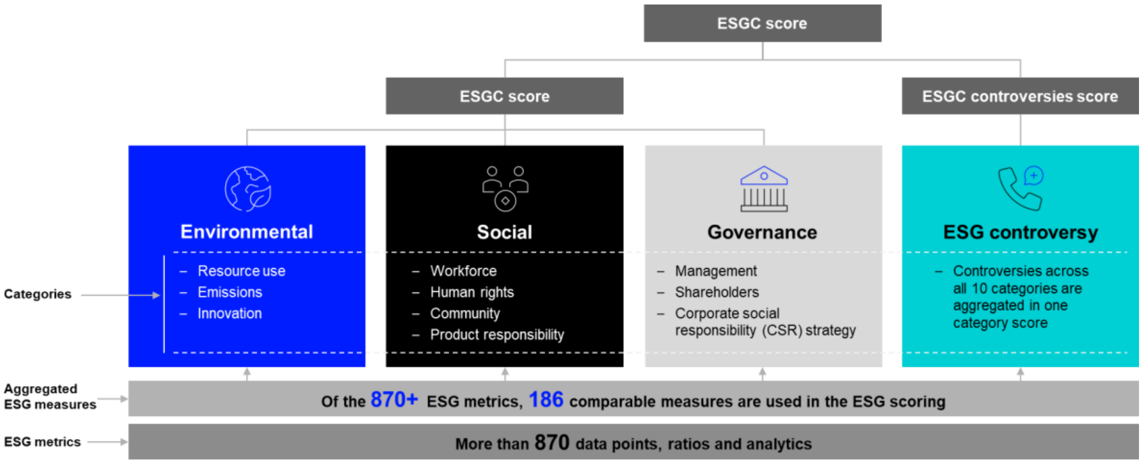
With LSEG, you can easily integrate ESG factors into portfolio analysis, equity research, screening or quantitative analysis. We offer users the possibility to combine and analyse ESG data using cutting-edge applications for in-depth analysis.

ESG scores from LSEG are designed to transparently and objectively measure a company's relative ESG performance, commitment and effectiveness, based on company-reported data. This covers 10 main themes including emissions, environmental product innovation, human rights, shareholders and so on. We also provide an overall ESG combined (ESGC) score, which is discounted for significant ESG controversies impacting the corporations we cover. ESG data is available for close to 16,000 public and private companies globally, with time series data going back to 2002. The percentile rank scores are simple to understand (available in both percentages and letter grades from D- to A+). They are benchmarked against The LSEG Business Classifications (TRBC – Industry Group) for all environmental and social categories, as well as the controversies score. They are also measured against the country of incorporation for all governance categories.

The LSEG ESG scores are data-driven, accounting for the most material industry metrics, with minimal company size and transparency biases.

The scores are based on relative performance of ESG factors with the company's sector (for environmental and social) and country of incorporation (for governance). LSEG does not presume to define what 'good' looks like; we let the data determine industry-based relative performance within the construct of our criteria and data model. LSEG ESG scoring methodology has a number of key calculation principles set out below.

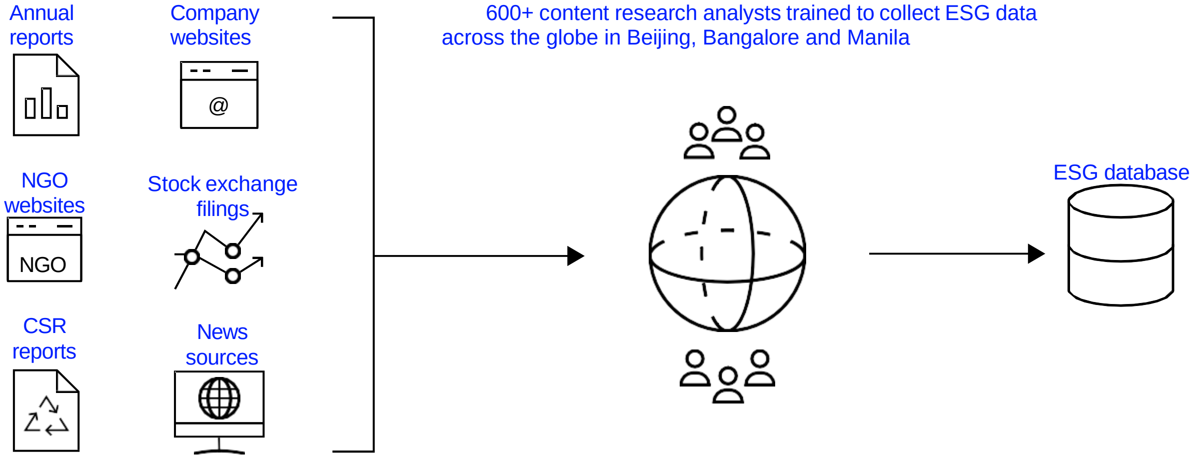
1. **Unique ESG magnitude (materiality) weightings have been included** – as the importance of ESG factors differs across industries, we have mapped each metric's materiality for each industry on a scale of 1 to 10.
2. **Transparency stimulation** – company disclosure is at the core of our methodology. With applied weighting, not reporting 'immaterial' data points doesn't greatly affect a company's score, whereas not reporting on 'highly material' data points will negatively affect a company's score.
3. **ESG controversies overlay** – we verify companies' actions against commitments, to magnify the impact of significant controversies on the overall ESG scoring. The scoring methodology aims to address the market cap bias from which large companies suffer by introducing severity weights, which ensure controversy scores are adjusted based on a company's size.
4. **Industry and country benchmarks at the data point scoring level** – to facilitate comparable analysis within peer groups.
5. **Percentile rank scoring methodology** – to eliminate hidden layers of calculations. This methodology enables LSEG to produce a score between 0 and 100, as well as easy-to-understand letter grades.


ESGC score
ESGC score
ESGC controversies score
Environmental
– Resource use
– Emissions
– Innovation
Social
– Workforce
– Human rights
– Community
– Product responsibility
Governance
– Management
– Shareholders
– Corporate social responsibility (CSR) strategy
ESG controversy
– Controversies across all 10 categories are aggregated in one category score
Categories
Aggregated ESG measures
ESG metrics
Of the 870+ ESG metrics, 186 comparable measures are used in the ESG scoring
More than 870 data points, ratios and analytics

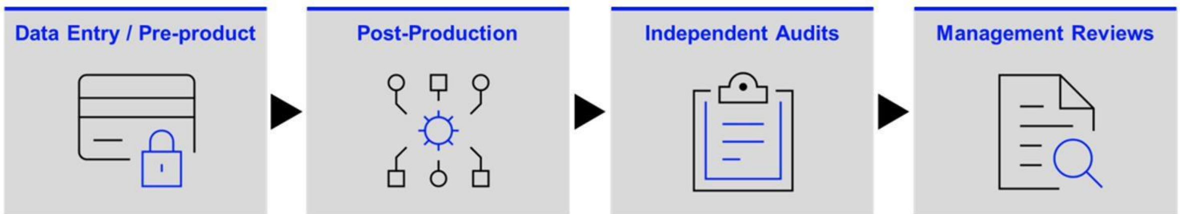
Data process

With over 600 content research analysts trained to collect ESG data, we have one of the largest ESG content collection operations in the world. With local language expertise and operating from different locations across the globe, we process numerous publicly available information sources with the aim of providing up-to-date, objective and comprehensive coverage. There are over 870 ESG measures, which our analysts process manually for each company within the ESG universe. Each measure undergoes a careful process to standardise the information and guarantee it is comparable across the entire range of companies.

The database is updated on a continuous basis – aligned with corporate reporting patterns – and data is refreshed on products every week, including the recalculation of the ESG scores. Updates could include a brand new company being added to the database, the latest fiscal year update or the inclusion of new controversy events. In most cases, reported ESG data is updated once a year in line with companies' own ESG disclosure. We refresh data more frequently in exceptional cases, usually when there is a significant change in the reporting or corporate structure during the year. ESG news and controversies are updated on a continuous basis, as and when such events occur and get picked up by global media.



Data quality is a key part of the collection process; that is why we use a combination of both algorithmic and human processes to make sure we achieve as close to 100% data quality as possible. Below is an overview of the various methods we use to achieve this goal.



Data Entry / Pre-product

- More than 1.7k built-in error check logics applied within our custom made ESG User Interface.
- Error checks can be tailor-made for specific requirements.

Post-Production

- A range of automated quality check screeners run on ESG data collection daily
- Relating to interrelated data points.
- Negative screening
- Inconsistency, or missing quantitative and qualitative data
- Scaling
- Variance within a year
- Sector-based checks (TRBC codes)
- Validating completeness of prior year data

Independent Audits

Sample audits conducted on daily basis.

- Detailed audits
- Critical data point checks
- Product audits

Weekly reporting and root cause analysis:

- Feedback sessions with the production teams

Management Reviews

- Monthly quality deep dives
- Heat map analysis with top areas for concerns
- Measures to address problematic topics and data points.
- New system validation checks and screeners are constantly created based on new learning, insights and feedback to continuously improve the data quality.

Frequency of updates

All LSEG ESG scores, including controversies scores, are updated on a weekly basis.

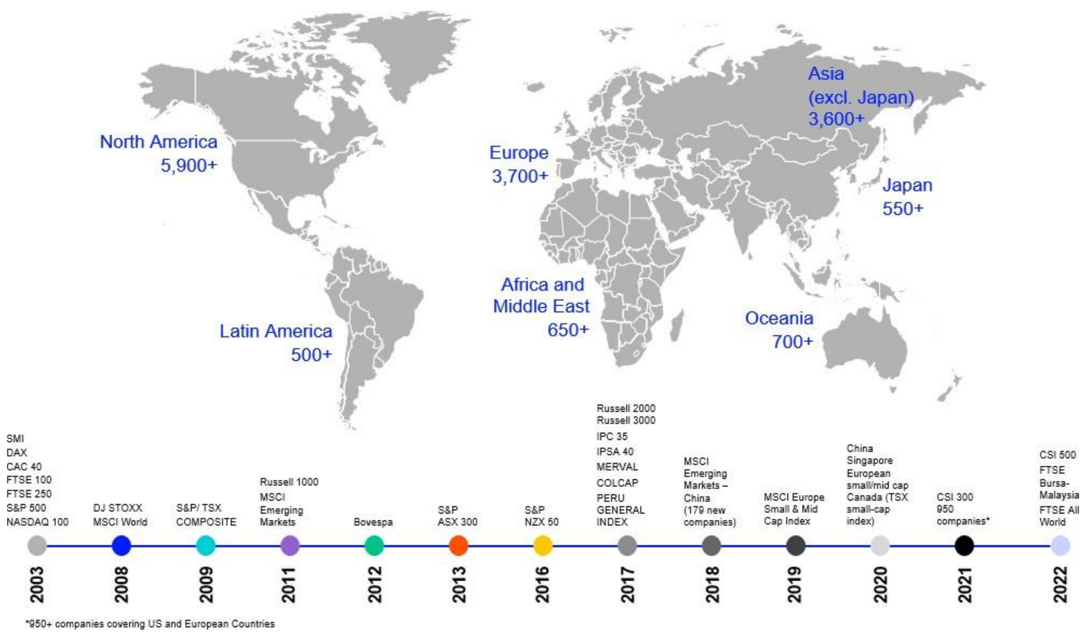
Definitive scores

Scores will be marked as ‘definitive’ for all historical years excluding the five most recent. For instance, if the most recent fiscal year is FY2023, then all historical scores prior to FY2019 will be considered definitive – but not those between FY2023 and FY2019. Definitive scores remain unchanged, even if there are changes to the underlying data due to company restatements or data corrections.

Global coverage

ESG data is available for close to 16,000 public and private companies. ESG scores and metrics are available for circa 14,500 public entities with time series from 2002. ESG metrics are available for 1,300 private companies globally. A regional breakdown of coverage is provided in the illustration below.

Our coverage has evolved over time and is continuously expanding as we include more indices. We review the constituents of these indices on a quarterly basis when additional companies are also included in our coverage. The timeline in the illustration breaks down the various indices’ which form part of our ESG universe and when coverage commenced for them.



Scores overview

LSEG ESG scores reflect the underlying ESG data framework and are a transparent, data-driven assessment of companies' relative ESG performance and capacity, integrating and accounting for industry materiality and company size biases. LSEG ESG scoring methodology follows a number of key calculation principles (set out below). An overall ESGC score is also calculated, which discounts the ESG score for news controversies that materially impact corporations. The underlying measures are granular enough to differentiate effectively between companies that have limited reporting and are not transparent, or deliver minimal implementation and execution, versus companies that 'walk the talk' and emerge as leaders in their respective industries or regions.

ESG scores are calculated and available for all companies and historical fiscal periods in the ESG global coverage, i.e., back to fiscal year 2002 for approximately 1,000 companies (mainly US and European).

The model comprises two overall ESG scores:

1. **ESG score** – measures the company's ESG performance based on verifiable reported data in the public domain.
2. **ESGC score** – overlays the ESG score with ESG controversies to provide a comprehensive evaluation of the company's sustainability impact and conduct over time.

The availability of the two overall scores and underlying category assessments allows users to adopt and apply the scoring that meets their requirements, mandates or investment criteria.

Scores structure

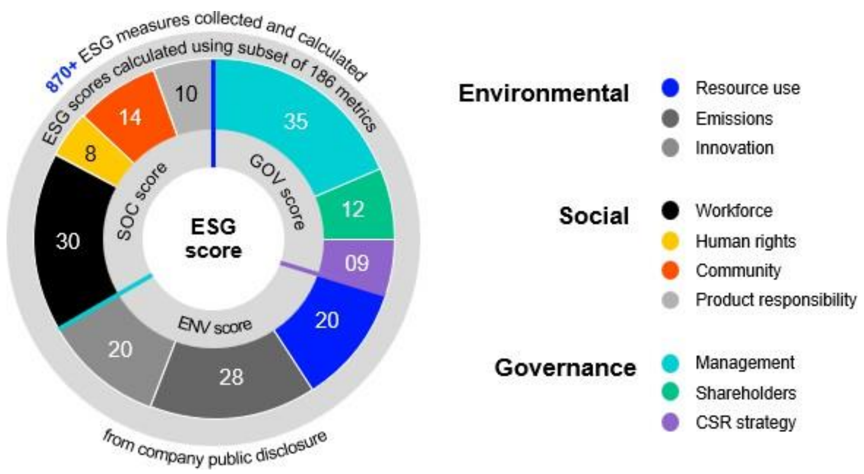
The model is fully automated, data-driven and transparent, which makes it free from subjectivity and hidden calculations or inputs.

ESG score

LSEG captures and calculates over 870 company-level ESG measures, of which a subset of 186 (details in the ESG glossary, available on request) of the most comparable and material per industry, power the overall company assessment and scoring process.

These are grouped into 10 categories that reformulate the three pillar scores and the final ESG score, which is a reflection of the company's ESG performance, commitment and effectiveness based on publicly-reported information.

The category scores are rolled up into three pillar scores – environmental, social and corporate governance. The ESG pillar score is a relative sum of the category weights, which vary per industry for the environmental and social categories. For governance, the weights remain the same across all industries. The pillar weights are normalised to percentages ranging between 0 and 100 (for further details, refer to Appendix C on page 19 of this document).



Category definitions are available in Appendix F.

ESGC score

ESGC scores provide a rounded and comprehensive scoring of a company's ESG performance, based on the reported information pertaining to the ESG pillars, with the ESG controversies overlay captured from global media sources. The main objective of this score is to discount the ESG performance score based on negative media stories. It does this by incorporating the impact of significant, material ESG controversies in the overall ESGC score.

When companies are involved in ESG controversies, the ESGC score is calculated as the weighted average of the ESG scores and ESG controversies score per fiscal period, with recent controversies reflected in the latest completed period. When companies are not involved in ESG controversies, the ESGC score is equal to the ESG score.

ESG controversies category

The ESG controversies score is calculated based on 23 ESG controversy topics. During the year, if a scandal occurs, the company involved is penalised and this affects their overall ESGC score and grading. The impact of the event may still be seen in the following year if there are new developments related to the negative event, for example, lawsuits, ongoing legislation disputes or fines. All new media materials are captured as the controversy progresses. The controversies score also addresses the market cap bias from which large-cap companies suffer, as they attract more media attention than smaller-cap companies.

Easily identify companies with strong ESG practices or exposure to ESG risks

ESG scores are available on LSEG Workspace and Eikon for seamless integration into users' workflows. They are accessible via ESG company views, the Screener app, Workspace/Eikon for Office and the Portfolio Analytics (PORTF) app. The ESG views show the scores letter grades to show at a glance how companies are performing relative to their peers, and where a company's ESG weaknesses and strengths lie.

ESG scores are available on LSEG Workspace, Eikon, the Microsoft® Excel® add-in, LSEG Datastream and via Datastream Data Loader (DDL). Plus, LSEG Quantitative Analytics offers automated processing and integration of all ESG data and scores into users' quant models and analytics tools. The scores, as well as all underlying ESG data and analytics, are also available via a cloud-based delivery solution on the LSEG Data Platform.

The conversion from a percentile score to a letter grade is based on the logic in the table below.

Score range	Grade	Description
0.0 <= score <= 0.083333	D -	'D' score indicates poor relative ESG performance and insufficient degree of transparency in reporting material ESG data publicly.
0.083333 < score <= 0.166666	D	
0.166666 < score <= 0.250000	D +	
0.250000 < score <= 0.333333	C -	'C' score indicates satisfactory relative ESG performance and moderate degree of transparency in reporting material ESG data publicly.
0.333333 < score <= 0.416666	C	
0.416666 < score <= 0.500000	C +	
0.500000 < score <= 0.583333	B -	'B' score indicates good relative ESG performance and above- average degree of transparency in reporting material ESG data publicly.
0.583333 < score <= 0.666666	B	
0.666666 < score <= 0.750000	B +	
0.750000 < score <= 0.833333	A -	'A' score indicates excellent relative ESG performance and high degree of transparency in reporting material ESG data publicly.
0.833333 < score <= 0.916666	A	
0.916666 < score <= 1	A +	

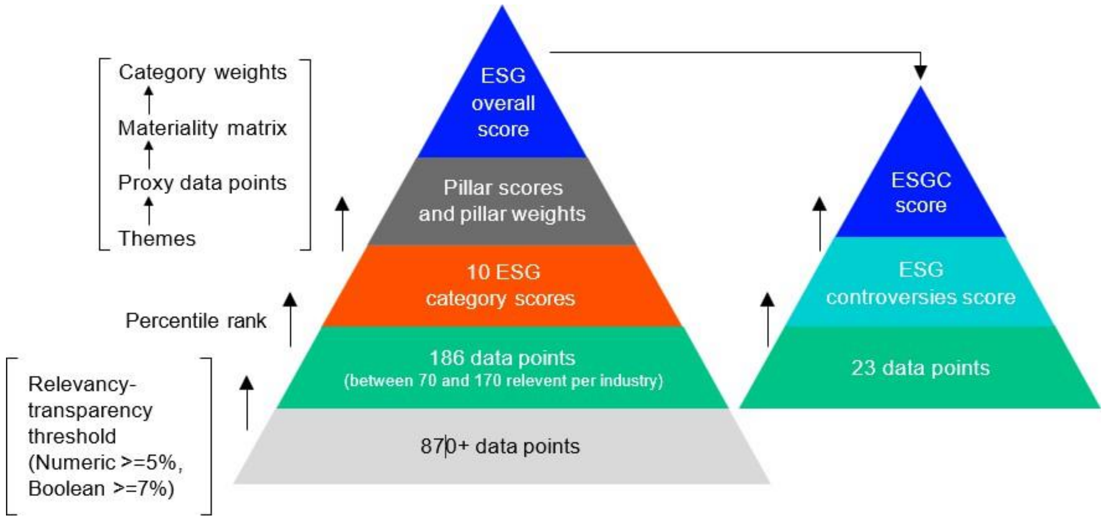
ESG laggards

ESG leaders

Scores calculation methodology

We believe that ESG data is fundamentally relevant to informed investment decision making and as such, transparency is a key component of our customers' trust and confidence in the data we provide to them. This section describes the LSEG ESG scoring methodology in detail.

The LSEG ESG scoring methodology can be summarised and illustrated by means of a five-step process flow.



Step 1: ESG category scores

Treatment of underlying data points – Boolean and numeric

1. Boolean data

Boolean questions are typically answered with 'Yes' 'No' or 'Null'. For instance, the answer to 'Does the company have a water efficiency policy?' can be 'Yes' (which is equal to a value of 1) if this is indeed the case, or 'No' if the company in question does not have such a policy, or if it reports only partial information (which is equivalent to 'No'). In such cases, a default value of 0 is automatically assigned by the system. In other words, a default value of 0 is assigned for Boolean data points when no relevant data is found in the public disclosure of companies.

Each measure has a polarity indicating whether a higher value is positive or negative. For instance, having an emissions reduction policy is positive, but having environmental controversies is negative.

Based on the polarity of the data point (i.e., is having a higher value 'better' or 'worse'?), Boolean data points are converted to numeric values for the percentile score calculation. Details are available in the table below:

Default values		
Positive	Yes = 1	No/Null = 0
Negative	Yes/Null = 0	No = 1

Note: only for TR.CriticalCountry1 is a default value of 1 assigned for 'Null', assuming those companies do not have operations in the listed critical countries.

2. Numeric data

A relative percentile ranking is only applied if a numeric data point is reported by a company, while all the companies in an industry group report that respective data point.

Again, each measure has a polarity indicating whether a higher value is positive or negative. For instance, more water recycled is positive, but more emissions is negative.

Industry group relevancy

Some indicators are industry-specific and thus not relevant for all companies. If an indicator is irrelevant for a particular sector, then it is excluded from the calculation and its value will be deemed not relevant (N/R).

Example: the indicator Environmental Assets Under Management is relevant only for the financial sector.

Category scores calculation methodology

Percentile rank scoring methodology is adopted to calculate the 10 category scores and the ESG controversies score. It is based on three factors:

- How many companies are worse than the current one?
- How many companies have the same value?
- How many companies have a value at all?

Percentile rank score is based on the rank, and therefore is not very sensitive to outliers.

$$score = \frac{no.\,of\ companies\ with\ a\ worse\ value + \frac{no.\,of\ companies\ with\ the\ same\ value\ included\ in\ the\ current\ one}{2}}{no.\,of\ companies\ with\ a\ value}$$

Peer group/category and benchmark

To calculate the environmental and social category scores, as well as the controversies score, the TRBC industry group is used as the benchmark, as these topics are more relevant and material to companies within the same industries.

To calculate the governance categories, the country of incorporation is used as the benchmark, as best governance practices are more consistent within countries.

Step 2: Materiality matrix

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

Introduction to LSEG ESG materiality matrix

Materiality for LSEG 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 theme to each individual industry group. Based on the themes covered in each category, data points with sufficient disclosure are used as a proxy for industry magnitude. Themes and data points have a one-to-one relationship; in other words, there is one data point identified per theme. For some themes, there are no data points that may be used as good proxies of relative importance, due primarily to insufficient disclosure. These themes are not included in the scoring methodology to derive the materiality matrix but are present in corporate ESG reporting and the LSEG ESG database. Listing all the individual themes enables LSEG to identify critical data points across the themes where reporting is sufficient, to use as a proxy of materiality.

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

Pillars	Categories	Themes	Data points	Weight method
Environmental	Emission	Emissions	TR.AnalyticCO2	Quant industry median
		Waste	TR.AnalyticTotalWaste	Quant industry median
		Biodiversity*		
		Environmental management systems*		
	Innovation	Product innovation	TR.EnvProducts	Transparency weights
		Green revenues, research and development (R&D) and capital expenditures (CapEx)	TR.AnalyticEnvRD	Quant industry median
	Resource use	Water	TR.AnalyticWaterUse	Quant industry median
		Energy	TR.AnalyticEnergyUse	Quant industry median
		Sustainable packaging*		
		Environmental supply chain*		
Social	Community	Equally important to all industry groups, hence a median weight of five is assigned to all		Equally important to all industry groups
	Human rights	Human rights	TR.PolicyHumanRights	Transparency weights
	Product responsibility	Responsible marketing	TR.PolicyResponsibleMarketing	Transparency weights
		Product quality	TR.ProductQualityMonitoring	Transparency weights
		Data privacy	TR.PolicyDataPrivacy	Transparency weights
	Workforce	Diversity and inclusion	TR.WomenEmployees	Quant industry median
		Career development and training	TR.AvgTrainingHours	Transparency weights
		Working conditions	TR.TradeUnionRep	Quant industry median
		Health and safety	TR.AnalyticLostDays	Transparency weights
Governance	CSR strategy	CSR strategy	Data points in governance category and governance pillar	Count of data points in each governance category/all data points in governance pillar
		ESG reporting and transparency		
	Management	Structure (independence, diversity, committees)	Data points in governance category and governance pillar	Count of data points in each governance category/all data points in governance pillar
		Compensation		
	Shareholders	Shareholder rights	Data points in governance category and governance pillar	Count of data points in each governance category/all data points in governance pillar
		Takeover defenses		

*No data points available that may be used as a proxy for ESG magnitude/materiality

Category weight highlights

Below are a few highlights regarding how category weights are calculated:

- The category weights are normalised to percentages ranging between 0 and 100
- Across categories of more than one theme and respective data point, the scoring methodology takes the average of each data point per industry group to calculate the weight at a category level
- The default category weights start at five points, which is the median, with the points' distribution ranging from 1 to 10. The adjustment is determined on the basis of the industry group data point median
- For environmental and social categories, a combination of industry medians and transparency (see 1 and 2 below) is applied to arrive at the category weights, based on the weight method described in the table above
- The community category is given equal weight across all industry groups as it is equally important to all of these
- As all the data points are equally important to the calculation of magnitude weights for corporate governance in all industry groups, this calculation is based not on themes but rather on underlying data points. The default category weights are assigned at five points, with the points' distribution ranging from 1 to 10. Since governance comprises three categories, the total points under governance would be 15. To derive the magnitude weight for governance, all data points per category are divided by the total of governance data points (part of scoring) and then multiplied by the total of 15 points. For example, the shareholders' category gains three points, i.e., (12/56) x 15 = 3
- In the innovation category, the availability of 'environmental' R&D expenditure data for roughly half of the industry groups does not meet the 5% transparency threshold; thus, a default weight of one is assigned
- As responsible product marketing is a sector-specific data point, and the data availability for roughly 80% of industry groups does not meet the 7% transparency threshold, a default weight of one is assigned in the product responsibility category

Two methods for calculating the magnitude matrix

The magnitude matrix is calculated using the following two methods for numeric and Boolean data points, used as a proxy of magnitude for environmental and social pillars.

1. Industry median

Primarily used for numeric data points with environmental and social impact. Materiality weighting is to be based on the relative proportion that a particular sector contributes to the overall gross number in the full ESG universe.

- The question of materiality, or in other words, the relative weight, is determined by the relative median value for a company in that industry group. The relative median values for each industry group to which the data point is material are compared, and decile ranks are assigned. The decile rank determines the relative weight assigned to that data point in determining the industry weight – from 1 to 10

2. Transparency weights

Primarily used for Boolean data points. Boolean data points are measures with a value of 'Yes' or 'No' (see page 9). Magnitude weights are based on the level of disclosure of each data point in a given industry group.

- The question of materiality, or in other words, the relative weight, is determined based on the disclosure of relative level in that industry group. The disclosure percentage for each industry group to which the data point is material is identified, and decile ranks are assigned. The decile rank determines the relative weight assigned to that data point in determining the industry weight – from 1 to 10

Category weight calculation

The magnitude weights of all 10 categories are summed up for each respective industry group. Each category's magnitude weight is divided by the sum of the magnitude weights of the respective industry group to derive the category weight.

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

To summarise, below are the steps involved in the calculation of category weights for the environmental and social pillars:

– Data points that are a good proxy for assessing industry impact across environmental and social topics are used for the calculation of materiality (magnitude matrix)

– Industry medians per data point, per industry group, are calculated and a relative median is derived. The relative median is equal to the median value of an industry group, divided by the sum of the medians of all industry groups for the respective data point. Deciles are identified on relative median values and deciles' weights are applied between 0 and 10 accordingly

– If a category has more than one data point, the average of decile weight is considered to derive the magnitude weight for that category

– The magnitude weights for corporate governance are calculated by a count of data points in each governance category/total data points in the governance pillar, multiplied by the default category weights of 15

– Category weights are then derived using the magnitude weights of all the categories for an industry group

Note: relevancy, category weights and pillar weights will be calculated against the latest data for all companies within LSEG ESG coverage (FY0). Once defined, the analysis behind the weights will be run on an annual basis and the results benchmarked against preset thresholds to determine if an adjustment to the weights is required. The revisions will be applied only to active fiscal years (where data collection for fiscal years is still in process). Only large- and mid-cap companies are considered to identify relevancy and category weights, as small-cap companies tend to report less data, which might impact the relevancy percentage and weights.

For further details, refer to Appendix B – magnitude matrix and Appendix C – category weights matrix.

Step 3: Overall ESG score calculation and pillar score

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

Calculation of overall ESG score

ESG scores are aggregated based on the 10 category weights, which are calculated based on the LSEG magnitude matrix. Detailed ESG score calculations are available here.

	Environmental			Social				Governance			
Industry group	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**	**ESG scores**
Water and related utilities	0.15	0.13	0.15	0.05	0.04	0.13	0.09	0.17	0.05	0.03	
ABC	0.66	0.00	0.44	0.05	0.58	0.89	0.34	0.99	0.84	0.56	0.571146184
CBD	0.71	0.96	0.38	0.00	0.69	0.66	0.70	0.37	0.01	0.56	0.547913483
DEF	0.03	0.00	0.00	0.00	0.00	0.57	0.11	0.21	0.14	0.54	0.150536652
EFG	0.00	0.31	0.03	0.00	0.00	0.25	0.59	0.89	0.94	0.00	0.327824384
EMJ	0.87	0.31	0.68	0.20	0.86	0.84	0.98	0.33	0.87	0.68	0.639400132
EMQ	0.00	0.00	0.00	0.00	0.00	0.30	0.02	0.88	0.08	0.01	0.194782046
ENR	0.92	0.81	0.85	0.75	0.97	0.93	0.66	0.40	0.49	0.86	0.756319427
GPQ	0.24	0.31	0.00	0.00	0.17	0.02	0.16	0.56	0.56	0.00	0.223443757
HIJ	0.61	0.31	0.50	0.65	0.42	0.80	0.80	0.48	0.27	0.37	0.54145808
IBD	0.00	0.00	0.00	0.00	0.00	0.07	0.30	0.51	0.49	0.00	0.145398367
JKL	0.50	0.73	0.74	0.00	0.78	0.43	0.93	0.62	0.89	0.26	0.611504799
LMN	0.76	0.31	0.56	0.00	0.47	0.48	0.48	0.17	0.24	0.26	0.415151441
MNO	0.82	0.31	0.91	0.40	0.58	0.61	0.07	0.33	0.52	0.63	0.539888776
MSE	0.55	0.00	0.62	0.85	0.17	0.75	0.84	0.77	0.35	0.91	0.581805891
OPQ	0.29	0.00	0.32	0.00	0.17	0.16	0.48	0.15	0.42	0.08	0.212906948
PQR	0.45	0.65	0.79	0.55	0.78	0.52	0.75	0.76	0.76	0.16	0.640379494
PSF	0.97	0.88	0.97	0.95	0.92	0.98	0.89	0.15	0.73	0.34	0.776142465
RST	0.08	0.31	0.00	0.00	0.17	0.20	0.59	0.42	0.42	0.00	0.228111754
UVW	0.34	0.00	0.26	0.20	0.58	0.70	0.39	0.26	0.16	0.31	0.316400123
VPF	0.16	0.31	0.15	0.00	0.17	0.11	0.25	0.88	0.90	0.00	0.325828115
XYZ	0.39	0.00	0.21	0.40	0.17	0.39	0.48	0.95	0.73	0.51	0.429105164
YQM	0.16	0.00	0.09	0.00	0.36	0.34	0.20	0.69	0.34	0.00	0.25005416

Calculation of pillar scores

ESG pillar scores are the relative sum of the category weights. Calculations to derive pillar scores are illustrated below:

Pillar	Category	Category scores*	Category weights	Sum of category weights	Formula: sum of category weights	New category weights*	Formula: new category weights	Pillar scores	Formula: pillar scores
Environmental	Emissions	0.98	0.15			0.35	(0.15/0.44)		
Environmental	Resource use	0.97	0.15	0.44	(0.15+0.15+0.13)	0.35	(0.15/0.44)	0.94	(0.98*0.35)+ (0.97*0.35)+ (0.85*0.29)
Environmental	Innovation	0.85	0.13			0.29	(0.13/0.44)		
Social	Community	0.89	0.09			0.28	(0.09/0.31)		
Social	Human rights	0.95	0.05	0.31	(0.09+0.05+0.04+0.13)	0.17	(0.05/0.31)	094	(0.89*0.28)+ (0.95*0.17)+ (0.92*0.13)+ (0.98*0.43)
Social	Product responsibility	0.92	0.04			0.13	(0.04/0.31)		

Pillar	Category	Category scores*	Category weights	Sum of category weights	Formula: sum of category weights	New category weights*	Formula: new category weights	Pillar scores	Formula: pillar scores
Social	Workforce	0.98	0.13			0.43	(0.13/0.31)		
Corporate governance	Shareholders	0.73	0.05			0.20	(0.05/0.26)		
Corporate governance	CSR strategy	0.34	0.03	0.26	(0.05+0.03+0.17)	0.13	(0.03/0.26)	0.32	(0.73*0.20)+ (0.34* 0.13)+ (0.19*0.67)
Corporate governance	Management	0.19	0.17			0.67	(0.17/0.26)		

*Decimal places to be considered

See example in Appendix D.

Step 4: Controversies scores calculation

ESG controversies score is calculated based on 23 ESG controversy topics, with recent controversies reflected in the latest complete period (for further details, refer to Appendix G of this document).

- Default value of all controversy measures is 0
- All recent controversies are counted in the latest closed fiscal year and no controversy is double-counted
- Controversies are benchmarked on industry group
- Companies with no controversies will get a score of 100
- Controversy score calculation addresses the market cap bias from which large-cap companies suffer, as they attract more media attention than smaller-cap companies
- Severity weights are applied to address market cap bias and are applicable for the calculation of current and historical periods. The calculation of controversy scores based on the market cap grouping is defined as follows:

Global benchmark	Cap class	Severity rate*
>=10 billion	Large	0.33
>=2 billion	Mid	0.67
<2 billion	Small	1

*Logic to derive weights: large = 1/3 or 0.33, mid = 0.67, small = 0.33+0.67 = 1.

Recent controversies are accounted as follows:

- For instance, the last completed fiscal year for a company is 31 December 2019. If there is one controversy on 1 May 2020, and another on 1 March 2021, both are accounted under ‘recent controversies’ and included in the scoring for FY2019
- Once FY2020 is completed, the two recent controversies are moved to FY2020. The controversy related to 1 May 2020, is moved to the ‘normal’ controversy data point, while the controversy related to 1 March 2021 remains under ‘recent’ but is accounted for in FY2020
- When FY2021 is completed, the controversy related to 1 March 2021 will be removed from ‘recent’ controversy within FY2020 and added to the ‘normal’ controversy data point in FY2021

See example in Appendix H.

Step 5: ESGC score

The ESGC 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 ESGC score.

	Environmental			Social				Governance					
Industry group	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**	**ESG scores**	**Controversy scores**	**Combined scores**
Water and related utilities	0.15	0.13	0.15	0.05	0.04	0.13	0.09	0.17	0.05	0.03			
ABC	0.66	0.00	0.44	0.05	0.58	0.89	0.34	0.99	0.84	0.56	0.571146184	1	0.571146184
CBD	0.71	0.96	0.38	0.00	0.69	0.66	0.70	0.37	0.01	0.56	0.547913483	1	0.547913483
DEF	0.03	0.00	0.00	0.00	0.00	0.57	0.11	0.21	0.14	0.54	0.150536652	1	0.150536652
EFG	0.00	0.31	0.03	0.00	0.00	0.25	0.59	0.89	0.94	0.00	0.327824384	1	0.327824384
EMJ	0.87	0.31	0.68	0.20	0.86	0.84	0.98	0.33	0.87	0.68	0.639400132	0.25	0.444700066
EMQ	0.00	0.00	0.00	0.00	0.00	0.30	0.02	0.88	0.08	0.01	0.194782046	1	0.194782046
ENR	0.92	0.81	0.85	0.75	0.97	0.93	0.66	0.40	0.49	0.86	0.756319427	1	0.756319427
GPQ	0.24	0.31	0.00	0.00	0.17	0.02	0.16	0.56	0.56	0.00	0.223443757	1	0.223443757
HIJ	0.61	0.31	0.50	0.65	0.42	0.80	0.80	0.48	0.27	0.37	0.54145808	1	0.54145808
IBD	0.00	0.00	0.00	0.00	0.00	0.07	0.30	0.51	0.49	0.00	0.145398367	1	0.145398367
JKL	0.50	0.73	0.74	0.00	0.78	0.43	0.93	0.62	0.89	0.26	0.611504799	1	0.611504799
LMN	0.76	0.31	0.56	0.00	0.47	0.48	0.48	0.17	0.24	0.26	0.415151441	0.75	0.415151441
MNO	0.82	0.31	0.91	0.40	0.58	0.61	0.07	0.33	0.52	0.63	0.539888776	1	0.539888776
MSE	0.55	0.00	0.62	0.85	0.17	0.75	0.84	0.77	0.35	0.91	0.581805891	1	0.581805891
OPQ	0.29	0.00	0.32	0.00	0.17	0.16	0.48	0.15	0.42	0.08	0.212906948	1	0.212906948
PQR	0.45	0.65	0.79	0.55	0.78	0.52	0.75	0.76	0.76	0.16	0.640379494	1	0.640379494
PSF	0.97	0.88	0.97	0.95	0.92	0.98	0.89	0.15	0.73	0.34	0.776142465	1	0.776142465
RST	0.08	0.31	0.00	0.00	0.17	0.20	0.59	0.42	0.42	0.00	0.228111754	1	0.228111754
UVW	0.34	0.00	0.26	0.20	0.58	0.70	0.39	0.26	0.16	0.31	0.316400123	1	0.316400123
VPF	0.16	0.31	0.15	0.00	0.17	0.11	0.25	0.88	0.90	0.00	0.325828115	1	0.325828115
XYZ	0.39	0.00	0.21	0.40	0.17	0.39	0.48	0.95	0.73	0.51	0.429105164	1	0.429105164
YQM	0.16	0.00	0.09	0.00	0.36	0.34	0.20	0.69	0.34	0.00	0.25005416	1	0.25005416

Refer to the below table for combined score logics:

Scenario	ESG controversies score	ESG score	ESGC score
If controversies score is >=ESG score, then ESG score = ESGC score	100	89	89
If controversies scores is <ESG score, then ESGC score = average of ESG and controversies score	48	49	48.5

Step 6: Feedback & Changes

How to raise a query

LSEG Data & Analytics clients can raise questions about our ESG scoring model via the link below. Environmental, Social & Governance scores from LSEG are refreshed weekly and any changes applied because of client feedback will be factored into this cycle.

Product and Content Support | MyAccount (refinitiv.com)

Scoring Methodology Changes

The relevance and suitability of our ESG scoring methodology is reviewed periodically to ensure its effectiveness and alignment with the evolving needs of clients and the industry. However, changes to our scoring methodology are implemented cautiously and infrequently, with the aim of maintaining stability and minimizing disruption to the users of the data. This approach is adopted to maintain consistency, allow for accurate trend analysis and to preserve confidence in the scoring model among LSEG D&A customers.

Should any iterations be required to the ESG scoring methodology, we follow a systematic process before releasing. This ensures enhancements are implemented in a thoughtful and responsible manner. As new regulations are introduced and reporting standards evolve, the data metrics and methodology used for scoring is periodically evaluated to ensure its relevance and accuracy. Similarly, when new logic is developed, or existing logic modified, impact analysis is performed to understand the potential effects on the scoring system and its outputs. This analysis helps in identifying any potential limitations, biases, or unintended consequences that may arise from the changes.

Changes, enhancements, and impact analysis is thoroughly documented to maintain transparency and accountability. These documents are shared via client notifications which can be subscribed to via the Product & Content Support url listed above. Client notifications are typically issued with a 30–90-day advance notice depending on the complexity of change introduced. This allows our customers to review and understand changes then make any necessary preparations to accommodate them.

Appendix A

Category scoring example

This section illustrates how a category score is calculated, using the data available in the ESG database as of March 2020 for all water and related utilities industry companies (e.g., the emission category score for FY2017 across the 22 companies in this industry).

Detailed calculations of emission category scores are available here.

Step-by-step illustration

– There are 22 metrics that are considered in calculating emission category scores

– Values are extracted for all 22 metrics

– Numeric metrics are considered only if reported by the company

– Relevant numeric values are assigned and calculated for Boolean metrics

– Percentile score calculation formulas are applied for each measure

The following illustrates how the percentile formula is applied for a numeric data point 'TR.AnalyticCO2', which is a negative polarity data point (i.e., the lower the better).

Description	JKL	ABC
No. of companies with worse value	10	9
No. of companies with same value	1	1
No. of companies with value	11	11

Company name	Eikon code	DFO codes	Value	Score	Percentile score formula applied
JKL	TR.AnalyticCo2	ENERO03V	0.000005	0.954545	(10+(1/2))/11
ABC	TR.AnalyticCo2	ENERO03V	0.000123	0.863636	(9+(1/2))/11
LMN	TR.AnalyticCo2	ENERO03V	0.000182	0.772727	(8+(1/2))/11
PQR	TR.AnalyticCo2	ENERO03V	0.000189	0.681818	(7+(1/2))/11
ENR	TR.AnalyticCo2	ENERO03V	0.00019	0.590909	(6+(1/2))/11
MSE	TR.AnalyticCo2	ENERO03V	0.000211	0.5	(5+(1/2))/11
MNO	TR.AnalyticCo2	ENERO03V	0.000218	0.409091	(4+(1/2))/11
EMJ	TR.AnalyticCo2	ENERO03V	0.000314	0.318182	(3+(1/2))/11
UVW	TR.AnalyticCo2	ENERO03V	0.000438	0.227273	(2+(1/2))/11
CBD	TR.AnalyticCo2	ENERO03V	0.001081	0.136364	(1+(1/2))/11
PSF	TR.AnalyticCo2	ENERO03V	0.001142	0.045455	(0+(1/2))/11

The following illustrates how the percentile formula is applied for a Boolean data point 'TR.PolicyEmissions', which is a positive polarity data point (i.e., the higher the better).

Company name	Eikon code	DFO codes	Value	Default value for Boolean	Percentile score	Percentile score formula applied
JKL	TR.PolicyEmissions	ENERDP0051	Yes	1	0.791666667	(7+(5/2))/12
ABC	TR.PolicyEmissions	ENERDP0051	Yes	1	0.791666667	(7+(5/2))/12
LMN	TR.PolicyEmissions	ENERDP0051	Yes	1	0.791666667	(7+(5/2))/12
PQR	TR.PolicyEmissions	ENERDP0051	Yes	1	0.791666667	(7+(5/2))/12
ENR	TR.PolicyEmissions	ENERDP0051	Yes	1	0.791666667	(7+(5/2))/12
MSE	TR.PolicyEmissions	ENERDP0051	No	0	0	0
MNO	TR.PolicyEmissions	ENERDP0051	No	0	0	0
EMJ	TR.PolicyEmissions	ENERDP0051	No	0	0	0
UVW	TR.PolicyEmissions	ENERDP0051	Null	0	0	0
CBD	TR.PolicyEmissions	ENERDP0051	Null	0	0	0
PSF	TR.PolicyEmissions	ENERDP0051	Null	0	0	0
XYZ	TR.PolicyEmissions	ENERDP0051	Null	0	0	0

- The same steps are applied to all other data points in the category
- After deriving percentile scores at a data point level, percentile scores are summed up at a company level as described in the table below

Company name	Eikon code	DFO codes	Values	Percentile scores
ABC	TR.AnalyticCO2	ENERO03V	0.000166844	0.833333333
ABC	TR.PolicyEmissions	ENERDP0051	1	0.7
ABC	TR.TargetsEmissions	ENERDP0161	1	0.9
ABC	TR.BiodiversityImpactReduction	ENERDP019	1	0.766666667
ABC	TR.WasteReductionInitiatives	ENERDP062	1	0.933333333
ABC	TR.EnvPartnerships	ENERDP070	1	0.766666667
ABC	TR.EnvRestorationInitiatives	ENERDP076	1	0.8
ABC	TR.ClimateChangeRisksOpp	ENERDP089	1	0.733333333
ABC	TR.PolicyWaterEfficiency	ENRRDP0121	0	0
ABC	TR.PolicyEnergyEfficiency	ENRRDP0122	0	0
ABC	TR.TargetsWaterEfficiency	ENRRDP0191	0	0
ABC	TR.NOxSOxEmissionsReduction	ENERDP033	0	0
ABC	TR.eWasteReduction	ENERDP063	0	0
Sum of all percentile scores				**6.433333**

- Percentile scores at company level are sorted from highest to lowest
- Apply percentile scores formula to derive emission category score

Appendix B

The table below provides an indicative ESG magnitude (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		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Aerospace & Defense	521010	4	4	3	7	3	5	5	10	3	2
Automobiles & Auto Parts	531010	6	10	5	9	5	6	5	10	3	2
Banking Services	551010	1	4	1	4	4	8	5	10	3	2
Beverages	541010	8	3	8	9	7	6	5	10	3	2
Biotechnology & Medical Research	562020	4	1	6	1	5	3	5	10	3	2
Chemicals	511010	9	9	9	10	5	6	5	10	3	2
Coal	501010	10	1	10	3	1	5	5	10	3	2
Collective Investments	555010	1	1	1	1	2	3	5	10	3	2
Communications & Networking	571020	2	4	3	2	5	3	5	10	3	2
Computers, Phones & Household Electronics	571060	3	8	2	10	6	6	5	10	3	2
Construction & Engineering	522010	8	8	5	7	3	6	5	10	3	2
Construction Materials	512020	10	8	10	7	3	7	5	10	3	2
Consumer Goods Conglomerates	544010	7	9	7	9	5	6	5	10	3	2
Containers & Packaging	513020	9	6	9	10	5	6	5	10	3	2
Diversified Industrial Goods Wholesale	522020	3	7	4	9	1	6	5	10	3	2
Diversified Retail	534020	6	2	6	2	4	4	5	10	3	2
Electric Utilities & IPPs	591010	10	8	9	4	3	8	5	10	3	2
Electronic Equipment & Parts	571040	7	6	8	5	2	4	5	10	3	2
Financial Technology (Fintech) & Infrastructure	573010	1	1	1	1	4	3	5	10	3	2
Food & Drug Retailing	543010	6	3	4	5	8	6	5	10	3	2
Food & Tobacco	541020	8	2	8	7	8	6	5	10	3	2
Freight & Logistics Services	524050	7	6	6	4	4	7	5	10	3	2
Healthcare Equipment & Supplies	561010	3	3	2	5	6	4	5	10	3	2
Healthcare Providers & Services	561020	3	1	4	3	6	4	5	10	3	2
Homebuilding & Construction Supplies	532030	6	9	6	8	5	6	5	10	3	2
Hotels & Entertainment Services	533010	6	1	7	4	9	5	5	10	3	2
Household Goods	532040	6	10	5	7	5	5	5	10	3	2
Insurance	553010	1	3	1	3	4	6	5	10	3	2
Investment Banking & Investment Services	551020	1	3	1	1	3	4	5	10	3	2

		Environmental			Social				Governance		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Investment Holding Companies	556010	7	2	8	2	1	2	5	10	3	2
Leisure Products	532050	2	3	2	4	9	3	5	10	3	2
Machinery, Tools, Heavy Vehicles, Trains & Ships	521020	5	10	4	6	5	4	5	10	3	2
Media & Publishing	533020	2	2	2	4	6	5	5	10	3	2
Metals & Mining	512010	10	2	10	10	2	7	5	10	3	2
Miscellaneous Educational Service Providers	631010	6	1	6	1	3	4	5	10	3	2
Multiline Utilities	591040	10	9	9	6	4	7	5	10	3	2
Natural Gas Utilities	591020	7	7	8	5	5	8	5	10	3	2
Office Equipment	571050	4	10	3	10	7	5	5	10	3	2
Oil & Gas	501020	7	7	9	10	4	8	5	10	3	2
Oil & Gas Related Equipment and Services	501030	8	3	7	8	2	6	5	10	3	2
Paper & Forest Products	513010	10	9	10	6	1	7	5	10	3	2
Passenger Transportation Services	524060	7	3	7	5	4	8	5	10	3	2
Personal & Household Products & Services	542010	6	4	6	8	10	7	5	10	3	2
Pharmaceuticals	562010	5	2	5	7	5	6	5	10	3	2
Professional & Business Education	631030	4	2	4	1	2	4	5	10	3	2
Professional & Commercial Services	522030	4	3	4	6	4	5	5	10	3	2
Real Estate Operations	601010	6	4	6	2	2	8	5	10	3	2
Renewable Energy	502010	6	6	6	1	3	3	5	10	3	2
Residential & Commercial REITs	601020	8	2	8	1	3	5	5	10	3	2
Semiconductors & Semiconductor Equipment	571010	6	7	6	9	5	6	5	10	3	2
Software & IT Services	572010	1	2	2	2	4	2	5	10	3	2
Specialty Retailers	534030	3	2	3	3	5	4	5	10	3	2
Telecommunications Services	574010	4	4	4	8	9	8	5	10	3	2

The table below provides an indicative ESG magnitude (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		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Telecommunications Services	574010	4	4	4	8	9	8	5	10	3	2
Textiles & Apparel	532020	3	4	4	8	7	8	5	10	3	2
Transport Infrastructure	524070	7	2	7	6	3	9	5	10	3	2
Uranium	503010	10	1	10	1	3	3	5	10	3	2
Water & Related Utilities	591030	9	8	9	3	2	8	5	10	3	2

Note: Materiality matrix is not derived for the below four industry groups as currently there are no ESG companies forming part of these industry groups in our coverage. Once there are sufficient number of companies under these industry groups, materiality matrix would be derived according to the defined methodology.

Integrated Hardware & Software
Institutions, Associations & Organizations
Government Activity
School, College & University

Appendix C

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

		Environmental			Social				Governance		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Aerospace & Defense	521010	0.09	0.09	0.06	0.15	0.07	0.11	0.11	0.22	0.06	0.04
Automobiles & Auto Parts	531010	0.10	0.16	0.08	0.15	0.09	0.10	0.08	0.16	0.05	0.03
Banking Services	551010	0.02	0.10	0.02	0.10	0.09	0.19	0.12	0.24	0.07	0.05
Beverages	541010	0.12	0.04	0.13	0.15	0.12	0.10	0.08	0.17	0.05	0.03
Biotechnology & Medical Research	562020	0.09	0.03	0.14	0.03	0.12	0.08	0.13	0.26	0.08	0.05
Chemicals	511010	0.13	0.13	0.13	0.15	0.07	0.09	0.07	0.15	0.04	0.03
Coal	501010	0.20	0.02	0.19	0.06	0.02	0.10	0.10	0.20	0.06	0.04
Collective Investments	555010	0.03	0.03	0.03	0.03	0.08	0.09	0.17	0.34	0.10	0.07
Communications & Networking	571020	0.05	0.10	0.07	0.05	0.14	0.07	0.13	0.26	0.08	0.05
Computers, Phones & Household Electronics	571060	0.06	0.14	0.04	0.18	0.11	0.11	0.09	0.18	0.06	0.04
Construction & Engineering	522010	0.14	0.14	0.09	0.12	0.05	0.11	0.09	0.18	0.05	0.04
Construction Materials	512020	0.15	0.12	0.15	0.11	0.04	0.11	0.08	0.16	0.05	0.03
Consumer Goods Conglomerates	544010	0.11	0.15	0.11	0.15	0.08	0.09	0.08	0.16	0.05	0.03
Containers & Packaging	513020	0.13	0.09	0.14	0.16	0.07	0.09	0.08	0.16	0.05	0.03
Diversified Industrial Goods Wholesale	522020	0.06	0.14	0.08	0.18	0.02	0.12	0.10	0.20	0.06	0.04
Diversified Retail	534020	0.13	0.03	0.14	0.05	0.10	0.09	0.12	0.23	0.07	0.05
Electric Utilities & IPPs	591010	0.16	0.13	0.14	0.07	0.05	0.13	0.08	0.17	0.05	0.03
Electronic Equipment & Parts	571040	0.13	0.11	0.15	0.10	0.04	0.08	0.10	0.20	0.06	0.04
Financial Technology (Fintech) & Infrastructure	573010	0.03	0.03	0.03	0.03	0.13	0.08	0.16	0.33	0.10	0.07
Food & Drug Retailing	543010	0.11	0.05	0.08	0.10	0.15	0.12	0.10	0.20	0.06	0.04
Food & Tobacco	541020	0.13	0.03	0.13	0.12	0.13	0.11	0.09	0.17	0.05	0.03
Freight & Logistics Services	524050	0.12	0.11	0.10	0.08	0.08	0.12	0.10	0.19	0.06	0.04
Government Activity**	621010	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Healthcare Equipment & Supplies	561010	0.06	0.06	0.05	0.12	0.14	0.09	0.12	0.24	0.07	0.05
Healthcare Providers & Services	561020	0.07	0.02	0.09	0.07	0.15	0.10	0.12	0.25	0.07	0.05
Homebuilding & Construction Supplies	532030	0.09	0.15	0.09	0.14	0.09	0.09	0.09	0.17	0.05	0.03
Hotels & Entertainment Services	533010	0.12	0.02	0.13	0.08	0.18	0.09	0.10	0.20	0.06	0.04
Household Goods	532040	0.10	0.16	0.08	0.12	0.09	0.09	0.09	0.17	0.05	0.03
Institutions, Associations & Organizations**	611010	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

		Environmental			Social				Governance		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Insurance	553010	0.03	0.08	0.03	0.08	0.11	0.15	0.13	0.27	0.08	0.05
Integrated Hardware & Software*	571070	0.06	0.14	0.04	0.18	0.11	0.11	0.09	0.18	0.06	0.04
Investment Banking & Investment Services	551020	0.03	0.08	0.03	0.03	0.08	0.12	0.16	0.31	0.09	0.06
Investment Holding Companies	556010	0.16	0.04	0.19	0.05	0.02	0.05	0.12	0.24	0.07	0.05
Leisure Products	532050	0.04	0.06	0.04	0.10	0.22	0.07	0.12	0.24	0.07	0.05
Machinery, Tools, Heavy Vehicles, Trains & Ships	521020	0.09	0.18	0.08	0.11	0.09	0.08	0.09	0.19	0.06	0.04
Media & Publishing	533020	0.05	0.04	0.04	0.10	0.15	0.12	0.13	0.25	0.08	0.05
Metals & Mining	512010	0.16	0.03	0.16	0.16	0.04	0.12	0.08	0.16	0.05	0.03
Miscellaneous Educational Service Providers	631010	0.13	0.02	0.15	0.02	0.08	0.10	0.12	0.24	0.07	0.05
Multiline Utilities	591040	0.15	0.13	0.14	0.09	0.06	0.10	0.08	0.16	0.05	0.03
Natural Gas Utilities	591020	0.12	0.12	0.13	0.08	0.08	0.13	0.08	0.17	0.05	0.03
Office Equipment	571050	0.06	0.16	0.05	0.17	0.12	0.09	0.09	0.17	0.05	0.03
Oil & Gas	501020	0.11	0.10	0.13	0.16	0.06	0.12	0.08	0.16	0.05	0.03
Oil & Gas Related Equipment and Services	501030	0.15	0.05	0.13	0.15	0.04	0.11	0.09	0.19	0.06	0.04
Paper & Forest Products	513010	0.15	0.14	0.16	0.10	0.02	0.11	0.08	0.16	0.05	0.03
Passenger Transportation Services	524060	0.12	0.06	0.13	0.09	0.08	0.14	0.09	0.19	0.06	0.04
Personal & Household Products & Services	542010	0.09	0.07	0.09	0.14	0.16	0.11	0.08	0.17	0.05	0.03
Pharmaceuticals	562010	0.09	0.03	0.10	0.14	0.10	0.12	0.10	0.21	0.06	0.04
Professional & Business Education	631030	0.11	0.06	0.11	0.03	0.05	0.10	0.14	0.28	0.08	0.06
Professional & Commercial Services	522030	0.08	0.07	0.09	0.13	0.08	0.10	0.11	0.22	0.07	0.04
Real Estate Operations	601010	0.12	0.08	0.12	0.04	0.04	0.16	0.11	0.22	0.07	0.04
Renewable Energy	502010	0.14	0.13	0.13	0.02	0.07	0.07	0.11	0.23	0.07	0.05
Residential & Commercial REITs	601020	0.16	0.04	0.17	0.02	0.07	0.10	0.11	0.21	0.06	0.04
School, College & University**	631020	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Semiconductors & Semiconductor Equipment	571010	0.10	0.12	0.10	0.16	0.09	0.10	0.09	0.17	0.05	0.03
Software & IT Services	572010	0.03	0.06	0.05	0.06	0.11	0.07	0.15	0.31	0.09	0.06
Specialty Retailers	534030	0.08	0.05	0.06	0.08	0.12	0.10	0.13	0.26	0.08	0.05
Telecommunications Services	574010	0.07	0.06	0.07	0.14	0.16	0.14	0.09	0.18	0.05	0.04
Textiles & Apparel	532020	0.05	0.07	0.07	0.15	0.13	0.15	0.10	0.19	0.06	0.04
Transport Infrastructure	524070	0.12	0.04	0.13	0.11	0.06	0.16	0.09	0.19	0.06	0.04
Uranium	503010	0.21	0.02	0.21	0.02	0.07	0.07	0.10	0.21	0.06	0.04
Water & Related Utilities	591030	0.15	0.13	0.15	0.05	0.04	0.13	0.09	0.17	0.05	0.03

* Currently there is no ESG coverage under Integrated Hardware & Software, default weights of Computers, Phones & Household Electronics are assigned until there is sufficient universe to derive category weights as per the defined methodology and both industry groups belong to technology.

**These are newly introduced industry groups and currently there are no ESG companies forming part of these industry groups, hence uniform weights are assigned across all industry groups. Once there are sufficient number of companies under these industry groups, category weights would be derived according to the defined methodology.

Appendix D

Pillar scoring example

In this section is an illustration of how pillar scores are calculated for the water and related utilities industry group, using the data available in the ESG database for FY2017.

Water and related utilities Illustration of calculation of pillar scores

Industry group	Emission	Innovation	Resource use	Environmental pillar scores	Human rights	Product responsibility	Workforce	Community	Social pillar scores	Management	Shareholders	CSR strategy	Governance pillar scores
Pillar weights	0.35	0.29	0.35		0.17	0.13	0.43	0.28		0.67	0.20	0.13	
ABC	0.66	0.00	0.44	0.39	0.05	0.58	0.89	0.34	0.56	0.99	0.84	0.56	0.90
CBD	0.71	0.96	0.38	0.67	0.00	0.69	0.66	0.70	0.57	0.37	0.01	0.56	0.32
DEF	0.03	0.00	0.00	0.01	0.00	0.00	0.57	0.11	0.27	0.21	0.14	0.54	0.24
EFG	0.00	0.31	0.03	0.10	0.00	0.00	0.25	0.59	0.27	0.89	0.94	0.00	0.78
EMJ	0.87	0.31	0.68	0.64	0.20	0.86	0.84	0.98	0.77	0.33	0.87	0.68	0.48
EMQ	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.02	0.13	0.88	0.08	0.01	0.60
ENR	0.92	0.81	0.85	0.86	0.75	0.97	0.93	0.66	0.83	0.40	0.49	0.86	0.48
GPQ	0.24	0.31	0.00	0.17	0.00	0.17	0.02	0.16	0.08	0.56	0.56	0.00	0.49
HIJ	0.61	0.31	0.50	0.48	0.65	0.42	0.80	0.80	0.72	0.48	0.27	0.37	0.43
IBD	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.30	0.11	0.51	0.49	0.00	0.43
JKL	0.50	0.73	0.74	0.65	0.00	0.78	0.43	0.93	0.54	0.62	0.89	0.26	0.63
LMN	0.76	0.31	0.56	0.56	0.00	0.47	0.48	0.48	0.40	0.17	0.24	0.26	0.20
MNO	0.82	0.31	0.91	0.70	0.40	0.58	0.61	0.07	0.42	0.33	0.52	0.63	0.41
MSE	0.55	0.00	0.62	0.41	0.85	0.17	0.75	0.84	0.72	0.77	0.35	0.91	0.71
OPQ	0.29	0.00	0.32	0.22	0.00	0.17	0.16	0.48	0.22	0.15	0.42	0.08	0.20
PQR	0.45	0.65	0.79	0.63	0.55	0.78	0.52	0.75	0.62	0.76	0.76	0.16	0.68
PSF	0.97	0.88	0.97	0.95	0.95	0.92	0.98	0.89	0.94	0.15	0.73	0.34	0.29
RST	0.08	0.31	0.00	0.12	0.00	0.17	0.20	0.59	0.27	0.42	0.42	0.00	0.36
UVW	0.34	0.00	0.26	0.21	0.20	0.58	0.70	0.39	0.52	0.26	0.16	0.31	0.25
VPF	0.16	0.31	0.15	0.20	0.00	0.17	0.11	0.25	0.14	0.88	0.90	0.00	0.77
XYZ	0.39	0.00	0.21	0.21	0.40	0.17	0.39	0.48	0.39	0.95	0.73	0.51	0.85
YQM	0.16	0.00	0.09	0.09	0.00	0.36	0.34	0.20	0.25	0.69	0.34	0.00	0.53

Steps:

- **Sum of category weights:** sum each category weight of respective pillars. The calculation to derive the sum of category weights is illustrated below:
  - Environmental pillar categories = resource use (0.08) + emissions (0.10) + innovation (0.16) = 0.34
  - Social pillar categories = workforce (0.10) + human rights (0.15) + community (0.08) + product responsibility (0.09) = 0.42
  - Corporate governance categories = management (0.16) + shareholders (0.05) + CSR strategy (0.03) = 0.24
- **New category weights:** new category weights are calculated based on the sum of the category weights calculated above. New category weights = category weights divided by the sum of the category weights of the respective pillar. The calculation of new category weights for environmental pillar is as below:
  - New category weight for resource use = 0.08 divided by 0.34 = 0.24
  - New category weight for emissions = 0.10 divided by 0.34 = 0.29
  - New category weight for innovation = 0.16 divided by 0.34 = 0.48
    (new category weights for social and corporate governance are similarly calculated)
- **Pillar score calculation:** category scores multiplied by new category weights = pillar scores.
  The calculation of the environmental pillar score is shown below:
  - (Resource use score*0.24) + (emission score*0.29) + (innovation score*0.48) = 0.91 (environmental pillar score). Social and corporate governance pillar scores are calculated similarly

Appendix E

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

		Environmental			Social				Governance		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Aerospace & Defense	521010	0.36	0.36	0.27	0.34	0.16	0.25	0.25	0.67	0.20	0.13
Automobiles & Auto Parts	531010	0.29	0.48	0.24	0.35	0.21	0.24	0.20	0.67	0.20	0.13
Banking Services	551010	0.17	0.67	0.17	0.19	0.18	0.39	0.24	0.67	0.20	0.13
Beverages	541010	0.42	0.14	0.44	0.33	0.27	0.23	0.18	0.67	0.20	0.13
Biotechnology & Medical Research	562020	0.35	0.10	0.55	0.07	0.34	0.22	0.37	0.67	0.20	0.13
Chemicals	511010	0.32	0.34	0.34	0.39	0.18	0.23	0.20	0.67	0.20	0.13
Coal	501010	0.49	0.05	0.46	0.22	0.07	0.35	0.36	0.67	0.20	0.13
Collective Investments	555010	0.33	0.33	0.33	0.09	0.21	0.25	0.45	0.67	0.20	0.13
Communications & Networking	571020	0.24	0.47	0.29	0.13	0.36	0.17	0.34	0.67	0.20	0.13
Computers, Phones & Household Electronics	571060	0.24	0.60	0.16	0.37	0.22	0.21	0.19	0.67	0.20	0.13
Construction & Engineering	522010	0.38	0.38	0.24	0.34	0.13	0.29	0.24	0.67	0.20	0.13
Construction Materials	512020	0.36	0.28	0.36	0.33	0.12	0.32	0.23	0.67	0.20	0.13
Consumer Goods Conglomerates	544010	0.30	0.41	0.30	0.37	0.19	0.24	0.20	0.67	0.20	0.13
Containers & Packaging	513020	0.37	0.24	0.39	0.39	0.18	0.23	0.20	0.67	0.20	0.13
Diversified Industrial Goods Wholesale	522020	0.21	0.50	0.29	0.43	0.05	0.29	0.24	0.67	0.20	0.13
Diversified Retail	534020	0.42	0.12	0.46	0.13	0.28	0.26	0.33	0.67	0.20	0.13
Electric Utilities & IPPs	591010	0.37	0.29	0.33	0.21	0.15	0.38	0.26	0.67	0.20	0.13
Electronic Equipment & Parts	571040	0.33	0.28	0.38	0.31	0.12	0.26	0.31	0.67	0.20	0.13
Financial Technology (Fintech) & Infrastructure	573010	0.33	0.33	0.33	0.08	0.32	0.20	0.40	0.67	0.20	0.13
Food & Drug Retailing	543010	0.46	0.21	0.33	0.21	0.32	0.26	0.21	0.67	0.20	0.13
Food & Tobacco	541020	0.45	0.09	0.45	0.27	0.30	0.24	0.19	0.67	0.20	0.13
Freight & Logistics Services	524050	0.36	0.33	0.31	0.21	0.21	0.33	0.26	0.67	0.20	0.13
Government Activity**	621010	0.33	0.33	0.33	0.25	0.25	0.25	0.25	0.33	0.33	0.33
Healthcare Equipment & Supplies	561010	0.36	0.36	0.29	0.25	0.30	0.19	0.25	0.67	0.20	0.13
Healthcare Providers & Services	561020	0.40	0.13	0.47	0.17	0.33	0.22	0.28	0.67	0.20	0.13
Homebuilding & Construction Supplies	532030	0.28	0.44	0.28	0.34	0.21	0.23	0.21	0.67	0.20	0.13
Hotels & Entertainment Services	533010	0.44	0.07	0.48	0.18	0.40	0.20	0.22	0.67	0.20	0.13
Household Goods	532040	0.30	0.48	0.23	0.31	0.24	0.23	0.22	0.67	0.20	0.13
Institutions, Associations & Organizations**	611010	0.33	0.33	0.33	0.25	0.25	0.25	0.25	0.33	0.33	0.33
Insurance	553010	0.20	0.60	0.20	0.17	0.23	0.31	0.29	0.67	0.20	0.13

		Environmental			Social				Governance		
TRBC Industry Group Name	**Industry Group code**	**Emission**	**Innovation**	**Resource use**	**Human rights**	**Product responsibility**	**Workforce**	**Community**	**Management**	**Shareholders**	**CSR strategy**
Integrated Hardware & Software*	571070	0.24	0.60	0.16	0.37	0.22	0.21	0.19	0.67	0.20	0.13
Investment Banking & Investment Services	551020	0.22	0.56	0.22	0.08	0.21	0.32	0.39	0.67	0.20	0.13
Investment Holding Companies	556010	0.41	0.09	0.50	0.20	0.10	0.22	0.49	0.67	0.20	0.13
Leisure Products	532050	0.27	0.45	0.27	0.19	0.43	0.13	0.24	0.67	0.20	0.13
Machinery, Tools, Heavy Vehicles, Trains & Ships	521020	0.25	0.53	0.22	0.31	0.24	0.20	0.25	0.67	0.20	0.13
Media & Publishing	533020	0.40	0.30	0.30	0.20	0.30	0.24	0.25	0.67	0.20	0.13
Metals & Mining	512010	0.44	0.09	0.47	0.41	0.09	0.29	0.20	0.67	0.20	0.13
Miscellaneous Educational Service Providers	631010	0.44	0.08	0.48	0.07	0.25	0.31	0.37	0.67	0.20	0.13
Multiline Utilities	591040	0.35	0.31	0.33	0.28	0.19	0.30	0.23	0.67	0.20	0.13
Natural Gas Utilities	591020	0.33	0.33	0.35	0.22	0.22	0.35	0.22	0.67	0.20	0.13
Office Equipment	571050	0.22	0.59	0.19	0.37	0.26	0.19	0.18	0.67	0.20	0.13
Oil & Gas	501020	0.32	0.30	0.39	0.37	0.15	0.29	0.19	0.67	0.20	0.13
Oil & Gas Related Equipment and Services	501030	0.46	0.14	0.40	0.38	0.11	0.28	0.23	0.67	0.20	0.13
Paper & Forest Products	513010	0.33	0.32	0.35	0.32	0.05	0.37	0.26	0.67	0.20	0.13
Passenger Transportation Services	524060	0.39	0.18	0.42	0.23	0.20	0.35	0.23	0.67	0.20	0.13
Personal & Household Products & Services	542010	0.37	0.27	0.37	0.27	0.33	0.22	0.17	0.67	0.20	0.13
Pharmaceuticals	562010	0.41	0.14	0.45	0.31	0.21	0.26	0.22	0.67	0.20	0.13
Professional & Business Education	631030	0.40	0.20	0.40	0.09	0.15	0.31	0.45	0.67	0.20	0.13
Professional & Commercial Services	522030	0.33	0.29	0.38	0.31	0.19	0.23	0.26	0.67	0.20	0.13
Real Estate Operations	601010	0.38	0.24	0.38	0.12	0.12	0.45	0.30	0.67	0.20	0.13
Renewable Energy	502010	0.35	0.32	0.32	0.08	0.25	0.25	0.42	0.67	0.20	0.13
Residential & Commercial REITs	601020	0.43	0.11	0.46	0.07	0.24	0.34	0.36	0.67	0.20	0.13
School, College & University**	631020	0.33	0.33	0.33	0.25	0.25	0.25	0.25	0.33	0.33	0.33
Semiconductors & Semiconductor Equipment	571010	0.31	0.39	0.31	0.36	0.20	0.23	0.20	0.67	0.20	0.13
Software & IT Services	572010	0.22	0.44	0.33	0.15	0.28	0.17	0.39	0.67	0.20	0.13
Specialty Retailers	534030	0.40	0.27	0.33	0.18	0.28	0.24	0.30	0.67	0.20	0.13
Telecommunications Services	574010	0.35	0.30	0.35	0.27	0.31	0.26	0.17	0.67	0.20	0.13
Textiles & Apparel	532020	0.26	0.37	0.37	0.29	0.25	0.28	0.18	0.67	0.20	0.13
Transport Infrastructure	524070	0.42	0.13	0.45	0.26	0.13	0.38	0.22	0.67	0.20	0.13
Uranium	503010	0.48	0.05	0.48	0.08	0.26	0.26	0.40	0.67	0.20	0.13
Water & Related Utilities	591030	0.35	0.29	0.35	0.17	0.13	0.43	0.28	0.67	0.20	0.13

*Currently there is no ESG coverage under Integrated Hardware & Software, default weights of Computers, Phones & Household Electronics are assigned until there is sufficient universe to derive category weights as per the defined methodology and both industry groups belong to technology.

**These are newly introduced industry groups and currently there are no ESG companies forming part of these industry groups, hence uniform weights are assigned across all industry groups. Once there are sufficient number of companies under these industry groups, category weights would be derived according to the defined methodology.

Appendix F

Category scores

The table below lists the category scores and their definitions.

Score	Definition
LSEG ESG resource use score	The resource use score reflects a company's performance and capacity to reduce the use of materials, energy or water, and to find more eco-efficient solutions by improving supply chain management.
LSEG ESG emissions reduction score	The emission reduction score measures a company's commitment and effectiveness towards reducing environmental emissions in its production and operational processes.
LSEG ESG innovation score	The innovation score reflects a company's capacity to reduce the environmental costs and burdens for its customers, thereby creating new market opportunities through new environmental technologies and processes, or eco-designed products.
LSEG ESG workforce score	The workforce score measures a company's effectiveness in terms of providing job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
LSEG ESG human rights score	The human rights score measures a company's effectiveness in terms of respecting fundamental human rights conventions.
LSEG ESG community score	The community score measures the company's commitment to being a good citizen, protecting public health and respecting business ethics.
LSEG ESG product responsibility score	The product responsibility score reflects a company's capacity to produce quality goods and services, integrating the customer's health and safety, integrity and data privacy.
LSEG ESG management score	The management score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
LSEG ESG shareholders score	The shareholders score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.
LSEG ESG CSR strategy score	The CSR strategy score reflects a company's practices to communicate that it integrates economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

Appendix G

Controversy measures

List of all controversy measures that make up the ESG controversy category score.

Category	Name (N)	Label (L)	Description (D)
Community	TR.ControvAntiCompetition	Anti-competition controversy	Number of controversies published in the media linked to anti-competitive behaviour (e.g., anti-trust and monopoly), price-fixing or kickbacks.
Community	TR.ControvBusinessEthics	Business ethics controversies	Number of controversies published in the media linked to business ethics in general, political contributions or bribery and corruption.
Community	TR.ControvCopyrights	Intellectual property controversies	Number of controversies published in the media linked to patents and intellectual property infringements.
Community	TR.ControvCriticalCountries	Critical countries controversies	Number of controversies published in the media linked to activities in critical, undemocratic countries that do not respect fundamental human rights principles.
Community	TR.ControvPublicHealth	Public health controversies	Number of controversies published in the media linked to public health or industrial accidents harming the health and safety of third parties (non-employees and non-customers).
Community	TR.ControvTaxFraud	Tax fraud controversies	Number of controversies published in the media linked to tax fraud, parallel imports or money laundering.
Human rights	TR.ControvChildLabor	Child labour controversies	Number of controversies published in the media linked to use of child labour issues.
Human rights	TR.ControvHumanRights	Human rights controversies	Number of controversies published in the media linked to human rights issues.
Management	TR.ControvMgtComp	Management compensation controversies count	Number of controversies published in the media linked to high executive or board compensation.
Product responsibility	TR.ControvConsumer	Consumer controversies	Number of controversies published in the media linked to consumer complaints or dissatisfaction directly linked to the company's products or services.
Product responsibility	TR.ControvCustomerHS	Customer health and safety controversies	Number of controversies published in the media linked to customer health and safety.
Product responsibility	TR.ControvPrivacy	Privacy controversies	Number of controversies published in the media linked to employee or customer privacy and integrity.
Product responsibility	TR.ControvProductAccess	Product access controversies	Number of controversies published in the media linked to product access.
Product responsibility	TR.ControvRespMarketing	Responsible marketing controversies	Number of controversies published in the media linked to the company's marketing practices, such as over-marketing of unhealthy food to vulnerable consumers.
Product responsibility	TR.ControvResponsibleRD	Responsible R&D controversies	Number of controversies published in the media linked to responsible R&D.
Resource use	TR.ControvEnv	Environmental controversies	Number of controversies related to the environmental impact of the company's operations on natural resources or local communities.
Shareholders	TR.ControvAccounting	Accounting controversies count	Number of controversies published in the media linked to aggressive or non- transparent accounting issues.
Shareholders	TR.ControvInsiderDealings	Insider dealings controversies	Number of controversies published in the media linked to insider dealings and other share price manipulations.

Category	Name (N)	Label (L)	Description (D)
Shareholders	TR.ControvShareholders	Shareholder rights controversies	Number of controversies published in the media linked to shareholder rights infringements.
Workforce	TR.ControvDiversityOpportunity	Diversity and opportunity controversies	Number of controversies published in the media linked to workforce diversity and opportunity (e.g., wages, promotion, discrimination and harassment).
Workforce	TR.ControvEmployeesHS	Employee health and safety controversies	Number of controversies published in the media linked to workforce health and safety.
Workforce	TR.ControvWorkingCondition	Wages or working conditions controversies	Number of controversies published in the media linked to the company's relations with employees or relating to wages or wage disputes.
Workforce	TR.Strikes	Strikes	Has there has been a strike or an industrial dispute that led to lost working days?

Appendix H

Controversies scoring example

This section illustrates how a controversy score is calculated for a water and related utilities industry group, using the data available in the ESG database for FY2017.

Company name	Market cap class	TRBC industry group name	Count of controversies per company	Severity weight	Value after applying severity weight	Controversies score	Grade
PSF	Large	Water and related utilities	0	0.33	0	100%	A+
ENR	Mid	Water and related utilities	0	0.67	0	100%	A+
MNO	Mid	Water and related utilities	0	0.67	0	100%	A+
CBD	Small	Water and related utilities	0	1	0	100%	A+
ABC	Mid	Water and related utilities	0	0.67	0	100%	A+
HIJ	Mid	Water and related utilities	0	0.67	0	100%	A+
MSE	Mid	Water and related utilities	0	0.67	0	100%	A+
JKL	Mid	Water and related utilities	0	0.67	0	100%	A+
PQR	Large	Water and related utilities	0	0.33	0	100%	A+
XYZ	Mid	Water and related utilities	0	0.67	0	100%	A+
UVW	Small	Water and related utilities	0	1	0	100%	A+
OPQ	Small	Water and related utilities	0	1	0	100%	A+
GPQ	Small	Water and related utilities	0	1	0	100%	A+
VPF	Small	Water and related utilities	0	1	0	100%	A+
RST	Small	Water and related utilities	0	1	0	100%	A+
EMQ	Mid	Water and related utilities	0	0.67	0	100%	A+
IBD	Small	Water and related utilities	0	1	0	100%	A+
YQM	Small	Water and related utilities	0	1	0	100%	A+
DEF	Mid	Water and related utilities	0	0.67	0	100%	A+
EFG	Small	Water and related utilities	0	1	0	100%	A+
LMN	Mid	Water and related utilities	1	0.67	0.67	75%	B+
EMJ	Small	Water and related utilities	1	1	1	25%	D+

Steps:

- Extract values pertaining to controversies for all companies of FY2017 and get the count of controversies per company
- Based on the market cap class, multiply the count of controversies by the severity weight
- Sort the companies from lowest to highest (lowest being better) considering the values after applying the severity weights
- Apply percentile rank formula to derive the ESG controversies scores

Company name	Market cap class	Count of controversies per company	Severity weight	Value after applying severity weight	Controversies score	Percentile formula applied only for companies with controversies	Grade
PSF	Large	0	0.33	0	100%	100%	A+
ENR	Mid	0	0.67	0	100%	100%	A+
YQM	Small	0	1	0	100%	100%	A+
DEF	Mid	0	0.67	0	100%	100%	A+
EFG	Small	0	1	0	100%	100%	A+
LMN	Mid	1	0.67	0.67	75%	(1+(1/2))/2	B+
EMJ	Small	1	1	1	25%	(0+(1/2))/2	D+