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Thomson Reuters ESG Scores

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Executive Summary

Investors have long recognized that environmental, social and governance (ESG) factors are important measures for company valuation, risk management and even regulatory compliance. Now we are seeing more and more managers incorporating ESG into their asset allocation process, utilizing a holistic approach in a more holistic way, as well as more thematic investment vehicles emerging that appeal to investors who have specific investment objectives.

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

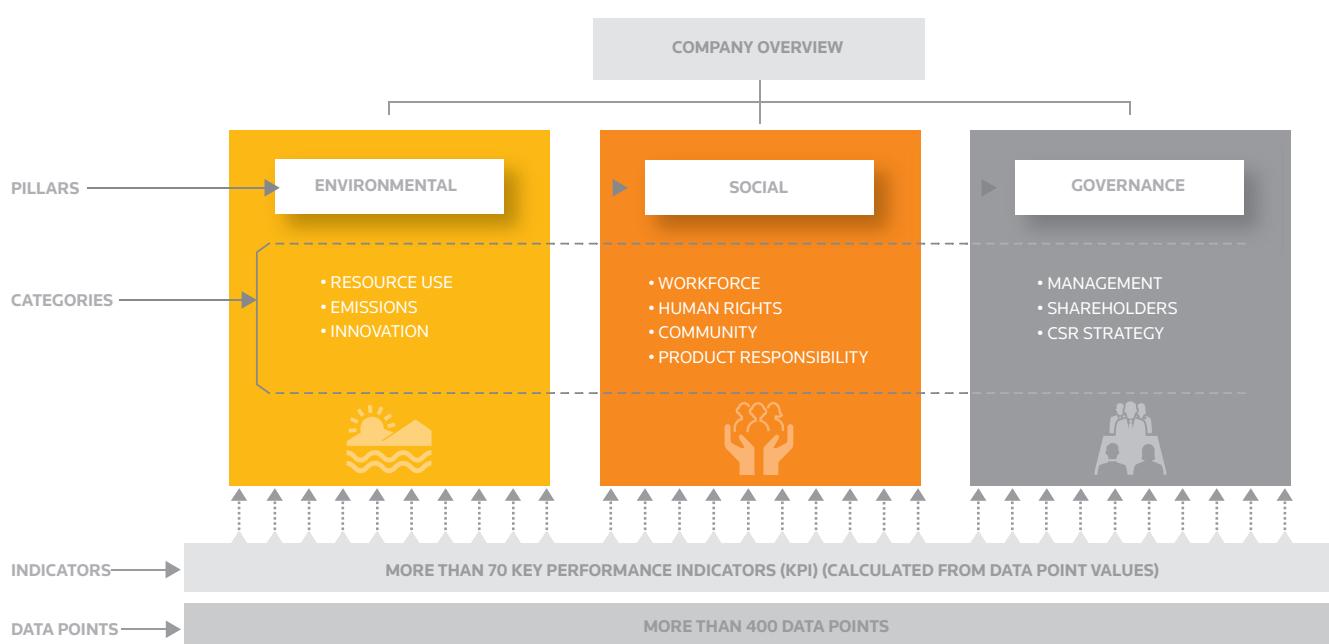
The Thomson Reuters ESG Scores were designed to transparently and objectively measure a company's relative ESG performance across ten themes (emissions, environmental product innovation, human rights, shareholders, etc.) based on company reported data. We also provide an overall score which is discounted for ESG controversies that materially impact the

corporations. The scores are available on over 6,000 companies globally. They are simple to understand percentile rank scores (available in both percentages and letter grades from D- to A+) benchmarked against TRBC Industry Group for all Environmental and Social categories, and against the Country for all Governance categories.

Thomson Reuters ESG scores, an enhancement and replacement to the existing ASSET4 ratings, reflect our strategic ESG framework, and are a robust indicator of companies' ESG performance where company size and transparency biases are minimal. Key enhancements over the legacy equal weighted ASSET4 ratings are:

- 1 ESG controversies overlay
- 2 Industry and Country benchmarks at the data point scoring level
- 3 Automatically adjusted Category scores based on the size and impact of each category
- 4 Percentile Rank scoring methodology where hidden layers of calculations are eliminated

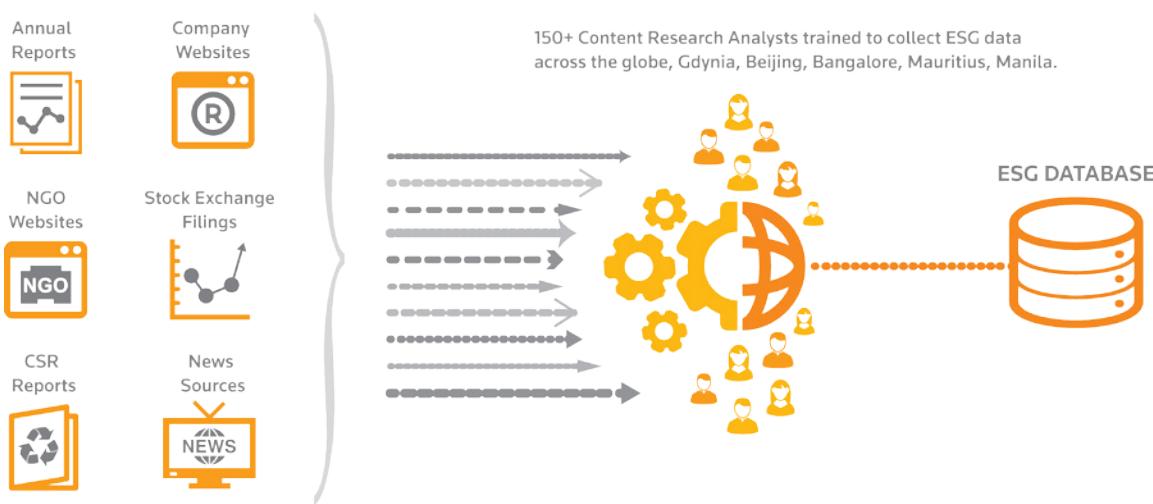
Thomson Reuters offers one of the most comprehensive ESG databases in the industry covering over 6,000 public companies, across more than 400 different ESG metrics, with history going back to 2002.



Thomson Reuters ESG Data Process

With over 150 content research analysts that are 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 400 ESG measures, which our analysts process manually for each company within the Thomson Reuters ESG universe, with each measure going through a careful process to standardize the information and guarantee it is comparable across the entire range of companies.

The database is updated on a continuous basis with data refreshed on products every 2 weeks, which includes 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 a new controversy event.



Data quality is a key part of the collection process which 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.



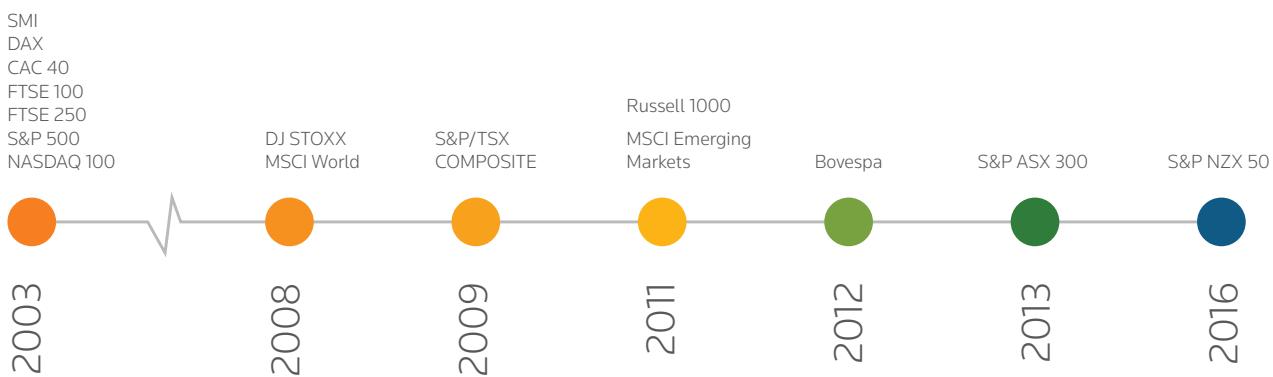
Thanks to our quality assurance processes we deliver the most reliable, comprehensive and trusted **ESG data** to our customers

Thomson Reuters ESG Global Coverage

Thomson Reuters ESG universe of companies for which ESG data is maintained and ESG Scores are calculated consists of 6,000+ public companies globally. Regional breakdown is provided in the illustration below:



Our coverage has evolved over time and is continuously expanding as we include more indices. Semi annually, we review the constituents of these indices and add any newly included companies to our coverage. We are in the process of adding all Russell 2000 Index companies to the coverage, with a tentative completion date of Q1 2018. The illustration below shows a timeline of the index inclusion in the Thomson Reuters ESG universe.



Thomson Reuters ESG Scores Overview

Thomson Reuters ESG Scores are an enhancement and replacement to the existing equally weighted ASSET4 ratings. They are a representation of our strategic ESG framework and were designed to transparently and objectively measure company's relative ESG performance across ten main ESG themes. The ten ESG categories make up the overall ESG Score which is also overlaid with ESG Controversies score to derive a comprehensive ESGC Score. The underlying measures are granular enough to differentiate effectively between companies that report some issues on a high level but lack proof of actual implementation and execution, versus companies that "walk the talk" and emerge as leaders in their respective industries or regions.

Thomson Reuters ESG scores are calculated and available for all companies and historical fiscal periods in the ESG Global Coverage. In other words, historical ESG Scores are available going back to fiscal year 2002 for approximately 1,000 companies (mainly US and European).

There are two overall ESG Scores calculated per company, per fiscal year in the model:

- 1 Thomson Reuters ESG Score – measures a company's ESG performance based on reported data in the public domain

- 2 Thomson Reuters ESG Controversy (ESGC) Score – overlays the Thomson Reuters ESG Score with ESG controversies to provide a comprehensive evaluation on the company's sustainability impact and conduct.

The availability of both evaluations allows users to adopt and apply the score that meets their process, assessment or investment criteria.

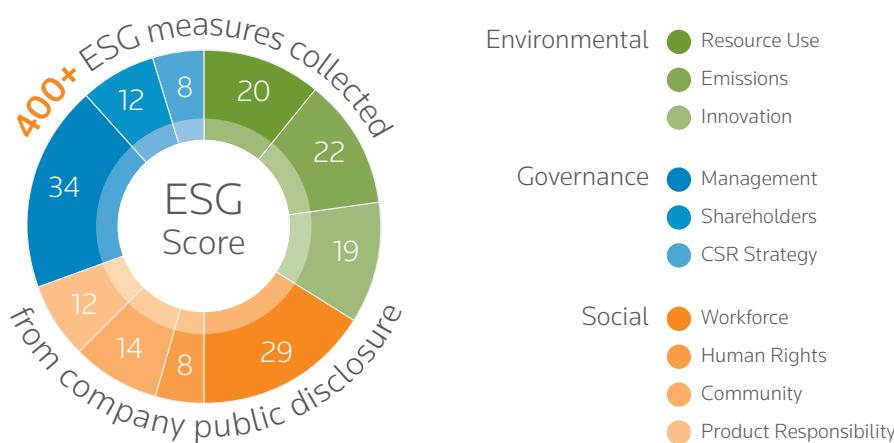
Thomson Reuters ESG Scores Structure

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

Thomson Reuters ESG Score (ESG Score)

Thomson Reuters captures and calculates over 400 company level ESG measures, of which we have carefully selected a subset of 178 most relevant data points to power the overall company assessment and scoring process. The underlying measures are based on considerations around materiality, data availability, and industry relevance.

They are grouped into 10 categories. A combination of the 10 categories formulates the final ESG score, which is a reflection of the company's ESG performance based on publicly reported information.



Category scores and definitions can be found in the appendix.

Thomson Reuters ESG Controversy Score (ESGC score)

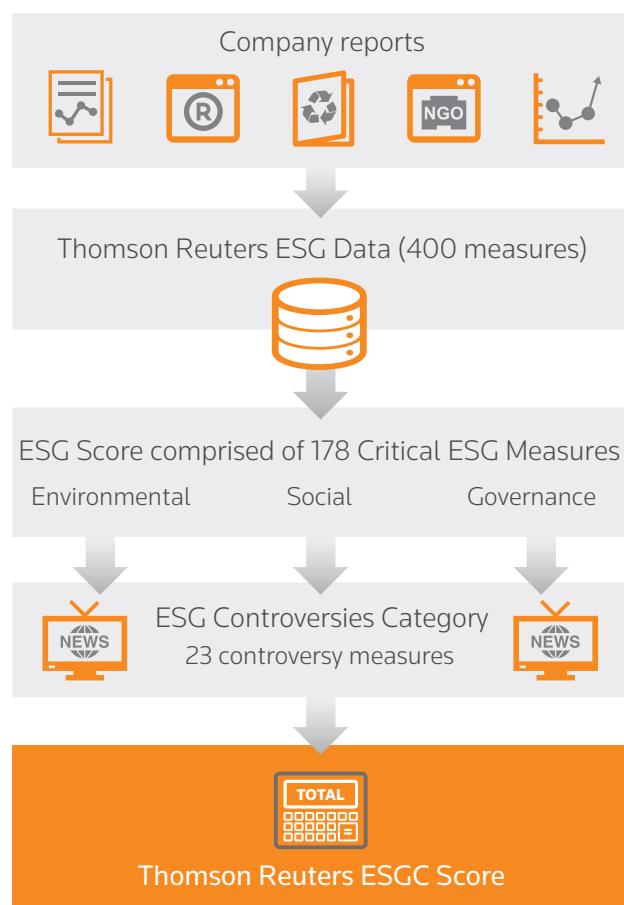
The ESGC Scores provide a rounded and comprehensive evaluation of a company's ESG performance based on the reported information in the ESG pillars with an ESG controversies overlay captured from global media. The main objective of this score is to discount the ESG performance score based on negative media stories as it increases the impact of significant, material ESG controversies in the overall ESGC score.

The ESGC Scores are calculated as the weighted average of the two component scores per fiscal period, with recent controversies being reflected in the latest complete period.

ESG Controversies Category

The ESG Controversy Category Score is calculated based on 23 ESG controversy topics (the list of which is available in the appendix) and measures a company's exposure to environmental, social and governance controversies and negative events reflected in global media. During the year, if a scandal occurs, the company involved is penalized and this affects their overall ESGC scores 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.

All Controversy scores are fully automated and objective. We calculate an aggregated controversy percentile rank across E, S and G, using all 23 controversy topics.



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

Thomson Reuters ESG Scores are available on Thomson Reuters Eikon for seamless integration into users' workflows. They are accessible via the new ESG company views, the Screener App, Eikon for Office and Portfolio Analytics App. The new ESG views render the percentage scores to letter grades to interpret quickly how companies are performing relative to their peers and where a company's ESG weaknesses and strengths lie.

The conversion from a score to a letter grade is based on the logic to the right:

Score Range	Grade
0.0 <= score <= 0.083333	D -
0.083333 < score <= 0.166666	D
0.166666 < score <= 0.250000	D +
0.250000 < score <= 0.333333	C -
0.333333 < score <= 0.416666	C
0.416666 < score <= 0.500000	C +
0.500000 < score <= 0.583333	B -
0.583333 < score <= 0.666666	B
0.666666 < score <= 0.750000	B +
0.750000 < score <= 0.833333	A -
0.833333 < score <= 0.916666	A
0.916666 < score <= 1	A +

Thomson Reuters ESG Scores Calculation Methodology

Thomson Reuters ESG Scores calculation methodology is described in the section below.

1 Category Scores Calculation

Percentile Rank scoring methodology is adopted to calculate the 11 category scores. 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 it is not very sensitive to outliers. The distribution of the scores generated with percentile rank score is almost flat, for this reason average and standard deviation of the scores generated with percentile rank score are not overly useful.

$$\text{Score} = \frac{n. \text{ of companies with a worst value} + \frac{n. \text{ of companies with the same value included the current one}}{2}}{n. \text{ of companies with a value}}$$

Each category score is the equally weighted sum of all the indicators used to create it. The normalized weights are calculated excluding indicators with no data available in the public domain.

2 Category Benchmarks

To calculate the Environmental and Social category scores, we have used the [TRBC Industry Group](#) as the benchmark because such issues tend to be more relevant and similar to companies within the same industries.

To calculate the Governance categories, we have used country as the benchmark because best governance practices tend to be more consistent within countries.

3 Category Weights

To calculate the overall Thomson Reuters ESG Score, we have applied an automated, factual logic that determines the weight of each category.

The driver is the number of measures that make up a category in comparison to all indicators used in the TR ESG Score framework. As a result categories that contain multiple issues like Management (composition, diversity, independence, committees, compensation, etc.) will have higher weight than lighter categories such as Human Rights.

Each category consists of a different number of measures. The count of measures per category determines the weight of the respective category. Detailed counts and weights are provided in the table below:

Pillar	Category	Indicators in Scoring	Weights
Environmental	Resource Use	20	11%
	Emissions	22	12%
	Innovation	19	11%
Social	Workforce	29	16%
	Human Rights	8	4.50%
	Community	14	8%
	Product Responsibility	12	7%
Governance	Management	34	19%
	Shareholders	12	7%
	CSR Strategy	8	4.50%
TOTAL		178	100%

Thomson Reuters ESG Score Availability and Delivery

Thomson Reuters ESG Scores are available through Thomson Reuters Eikon for easy integration into your workflow.

Bulk feed delivery will be released later in the year.

Thomson Reuters ESG Data and Scores Update Frequency

All ESG data and scores are updated annually based on fiscal year and aligned with corporate reporting patterns. We refresh data more frequently in exceptional cases, 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.

All updated ESG data is refreshed, in products, on a bi-weekly basis which triggers the recalculation of the analytics and scores.

Appendix

CATEGORY SCORES

The table below lists the Category scores and their definitions:

Score	Definition
TRESG 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.
TRESG Emissions Score	The Emission Reduction Score measures a company's commitment and effectiveness towards reducing environmental emission in the production and operational processes.
TRESG Innovation Score	The Innovation Score reflects a company's capacity to reduce the environmental costs and burdens for its customers, and thereby creating new market opportunities through new environmental technologies and processes or eco-designed products.
TRESG Workforce Score	The Workforce Score measures a company's effectiveness towards job satisfaction, a healthy and safe workplace, maintaining diversity and equal opportunities, and development opportunities for its workforce.
TRESG Human Rights Score	The Human rights category score measures a company's effectiveness towards respecting the fundamental human rights conventions.
TRESG Community Score	The Community Score measures the company's commitment towards being a good citizen, protecting public health and respecting business ethics.
TRESG 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.
TRESG Management Score	The Management Score measures a company's commitment and effectiveness towards following best practice corporate governance principles.
TRESG Shareholders Score	The Shareholders Score measures a company's effectiveness towards equal treatment of shareholders and the use of anti-takeover devices.
TRESG CSR Strategy Score	The CSR Strategy Score reflects a company's practices to communicate that it integrates the economic (financial), social and environmental dimensions into its day-to-day decision-making processes.

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 behavior (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 & 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 Labor Controversies	Number of controversies published in the media linked to use of child labor issues.
Human Rights	TR.ControvHumanRights	Human Rights Controversies	Number of controversies published in the media linked to human rights issues.
Management	TR.ControvMgtComp	Mgt 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	Controversies Customer Health & Safety	Number of controversies published in the media linked to customer health & safety.
Product Responsibility	TR.ControvPrivacy	Controversies Privacy	Number of controversies published in the media linked to employee or customer privacy and integrity.
Product Responsibility	TR.ControvProductAccess	Controversies Product Access	Number of controversies published in the media linked to product access.
Product Responsibility	TR.ControvRespMarketing	Controversies Responsible Marketing	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	Controversies Responsible R&D	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 Count	Number of controversies published in the media linked to insider dealings and other share price manipulations.
Shareholders	TR.ControvShareholders	Shareholder Rights Controversies Count	Number of controversies linked to shareholder rights infringements published in the media.
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	Employees Health & Safety Controversies	Number of controversies published in the media linked to workforce health and safety.
Workforce	TR.ControvWorkingCondition	Wages Working Condition Controversies Count	Number of controversies published in the media linked to the company's relations with employees or relating to wages or wage disputes.
Workforce	TR.MgtDepartures	Management Departures	Has an important executive management team member or a key team member announced a voluntary departure (other than for retirement) or has been ousted?

How do Thomson Reuters ESG Scores compare?

How do Thomson Reuters ESG Scores compare to the Equal Weighted Ratings from ASSET4?

	TR ESG Scores	ASSET4 Equal Weighted Ratings (EWR)	Further details on the TR ESG Scores
Scoring Methodology	Percentile Rank	Z-scoring	
Industry Benchmarks	Yes	No	Environmental and Social categories
Country Benchmarks	Yes	No	Governance categories
Industry Specific Weights	Yes	No	At the category level
Economic Pillar	No	Yes	On Eikon, combine ESG scores with StarMine Analytic Models
Controversies in a separate category	Yes	No	Separate category and separate overall score
Industry Relevant Measures	Yes	Yes	Yes includes industry specific measures
Standard Pillar Scores (E, S, G)	No	Yes	10 category scores which can easily be aggregated in pillar scores
Outcome/Driver indicators	No	Yes	TR ESG scores use only Driver indicators to remove hidden layers of calculations
Uses the strategic TR ESG data model	Yes	No	Uses only strategic measures which are available on Eikon (EWR uses some stale fields)