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# Thomson Reuters Corporate Responsibility Ratings (TRCRR)

## Rating and Ranking
## Rules and Methodologies

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# The ESG Decision Tree
## By Herb Blank

Over the past six months, I have led the team that developed the Thomson Reuters Corporate Responsibility Ratings.  Our goal was to establish common standards for rating the environmental, social, and governance of corporate entities. These ratings have been engineered to be actionable for comparative decisions - not only for investment purposes but to provide objective guidance to everyone who cares about Corporate and Social Responsibility. In short, we aim for the ratings to be an engine of transparency that encourages more consistent and actionable disclosure from all types of organizations.

Our primary resource in developing, constructing, and maintaining the ratings is ASSET4, a Thomson Reuters business that provides objective, relevant and systematic environmental, social and governance (ESG) information based on 250+ key performance indicators (KPIs) and 750+ individual data points along with their original data sources.   Since its founding in 2003 and acquisition in 2009, ASSET4 has been recognized globally as a premier source of ESG data.  More than 100 analysts use their experience to collect relevant, comparable (companies often report in different units, scopes and formats) and up-to-date information utilizing publicly available sources (e.g. annual reports, NGO websites, CSR reports).

ASSET4 classifies these data into categories within each major pillar.  The Thomson Reuters Corporate Responsibility Ratings follow this convention in data aggregations.  For example, the environmental pillar consists of three category groupings: emission reduction, product innovation, and resource reduction.  The governance pillar has five categories: board functions, board structure, compensation policy, shareholders policy, and vision-and-strategy.  The social pillar is the most complex with seven categories: community, diversity, employment quality, health-and-safety, human rights, product responsibility, and training-and-development.

Utilizing models we have based upon the primary ESG data underlying the aforementioned 15 categories, we are now able to provide environmental, social, governance and composite ESG ratings and rankings on over 4600 public companies worldwide.  This universe is expected to expand by approximately 300 companies per year moving forward.

In order to make these universally comparable baselines, we adopt the lowest common denominator approach.  All data are quantitative.  No subjective assessments or overrides are used.  No public companies are eliminated or penalized for populating industries considered "bad' by some constituencies or for producing products that some consider detestable. Similarly, companies that have been involved in environmental, social or governance controversies will only find their scores affected within the pillar where the controversy occurs and even there according to objective metrics that are applied uniformly.

Satisfying the goal of providing standardized ESG ratings required a huge amount of data, data cleansing, data analysis, research, and quantitative modelling.   We worked closely with the team at ASSET4 for the better part of a year to bring these ratings to fruition.

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In attempting to transform data into ratings that were objective and meaningful, we arrive at the following conclusions:

1. There can be no definitive and universally accepted right or wrong way to weight and model the Key Performance Indicators, or KPIs, collected and measured by ASSET4. That said, hard decisions had to be made in order to produce deterministic ratings. The data speak volumes but grouping them and interpreting them properly require a massive amount of data massaging and reconciliation of exceptions.

2. The ratings are designed to provide the most appropriate peer-to-peer comparisons. At the same time, we endeavor to avoid over-fitting so the relationships remain robust over time. To accomplish this, each ASSET4 pillar is handled and modelled differently. Environmental KPIs tend to be very global-industry-specific. Alternatively, corporate governance practices are best benchmarked by region. Our attempts at getting more granular by investigating region-specific models within each industry-specific environmental model led to preliminary results with little stability from year-to-year so this pursuit was abandoned. The same was true in trying to further break down the region-specific governance models to make them more industry specific.

3. The social practices pillar was the most challenging of the three. Product-responsibility and health-and-safety practices were best benchmarked by industry sector but employment quality and community citizenship practices were most differentiated by region, and human rights issues are benchmarked universally.

4. Each KPI is scored within each industrial, regional, or universal model between zero and one. Denominators for each metric KPI are calculated accordingly. We also classify each KPI in terms of "polarity" meaning whether a higher score was "bad" or "good." If it is classified as "bad", it needs to be subtracted from one. Our modelling efforts and weighting coefficients are driven by analysis of the data distributions. KPIs that seem to repeat the same information are weighted less. KPIs that are only reported by a relative handful of companies are generally weighted less than those reported by at least 20% of industry or regional peers. After much research and deliberation, we have decided to treat non-reporters of a KPI identically to the worst reported KPI within the peer group.

5. Policy indicators are weighted less than observed practices. With some exceptions, Boolean (Yes =1/No=0) variables were generally given less weighting than reported metrics. That said, metrics where the grouping of responses tend to be clustered tightly get lower weightings than highly-dispersed metrics. For example, within the environmental pillar, hard metrics related to emissions and usage of non-renewable resources together constitute 45% of that pillar while policy-driving statements combined for only 5% of that pillar's weight. In the governance pillar, vision and strategy KPIs have lower weights than key metrics related to shareholder rights, board structure, and disparities in firm compensation packages. Within the social pillar KPIs related to measurable product-responsibility and health-and-safety metrics carry higher weightings than diversity-and-opportunity policy drivers.

6.  Each KPI weighting is checked against academic literature, where applicable, for consistency of results.  If our statistical analysis shows no differentiation for something that has been documented as a key variable, we wish to make sure that we do not underweight that KPI due to a temporal aberration.  The fact that we now have more than six years of ASSET4 data has helped to provide us with an increasing amount of stability in this regard but we consider this an evolving process to be checked at each ratings reconstitution.

This entire process produces three numeric values for each company screened.  These are:

**1.  Raw Score**.  Every company with at least one reported KPI in a given year is scored from 0 to 1 for each pillar.  These scores are driven by ASSET4 data, which in turn is driven by company financial reporting.  For current scores, the most recent year available is used with the fiscal year clearly delineated.  The scores are calibrated to be robust over time while also be relative to each company's peer group.

**2.  Ratings**.  The raw scores are normalized and adjusted for skewness and the differential between the mean and the median, then fitted to a bell curve to derive ratings between 0 and 100 for each company.  The ratings are centered and comparable across pillars.  The result is a consistent, objective and finely calibrated standard of rating every company's environmental, social, governance and combined ESG practices.

**3.  Percentile Rank**.  Based on a company's raw scores as defined above, percentile ranks are calculated for all companies screened.

Distinct time series of ratings for each pillar for every company provides bases for many potential applications. These include: input for risk factor models; customized peer group analysis; loss mitigation policies; compliance; due diligence; and many different types of strategic analysis.  It also allows the subscriber to reformulate overall ratings based upon his or her own viewpoint since our ratings equally weight each pillar.  These are objective building blocks – tools that can be deployed as needed and tailor-made to apply overlays such as negative screening as desired.

I believe the products of these labors now constitute fair, objective, and replicable methods for baseline comparisons of ESG corporate responsibility for each pillar separately and in combination.   I make no claims that these ratings are "better" or more robust than other ESG ratings or assessments.  I can say that they provide objective standards for comparison that are being made available to all.

# Rating and Ranking Rules and Methodologies

## I. General Description

The Thomson Reuters Corporate Responsibility Ratings ("TRCRR") measure the environmental, social, governance and composite Environmental/Social/Governance ("ESG") performance of over 4,600 companies worldwide.

The TRCRR are based on data provided by ASSET4, a leading global provider of ESG data. Ratings are derived by company comparisons for a total of 226 Key Performance Indicators ("KPI"). The 226 KPIs are derived from over 500 separate data points to facilitate accurate and transparent ESG screening.

Environmental Ratings are derived from a total of 70 KPIs; Social Ratings are derived from a total of 88 KPIs; and Governance Ratings are derived from a total of 68 KPIs.

Ratings are designed to offer a "best in breed" measure.  Accordingly, ethical exclusions are not part of the process.

Environmental ratings are assigned based on a company's relative performance within 52 separate industries.  *Tables showing the 70 KPIs and the 52 Industries are available at* **[Environmental KPIs & Industries.xlsx](#)***.*

Social ratings are assigned in part based on a company's relative performance within 52 industry groups, in part based on a company's relative performance within nine regions and in part universally. *Tables showing the 88 KPIs, the nine regions and the 52 Industries are available at* **[Social KPIs, Industries & Regions.xlsx](#)***.*

Governance ratings are assigned based on a company's relative performance within nine separate regions. *Tables showing the 68 KPIs and nine regions are available at* **[Governance KPIs & Regions.xlsx](#)***.*

Ratings are updated monthly.

## II. The Ratings Committee

The TRCRR Ratings Committee ("The Committee") is comprised of not less than three members. The Committee Chairman will have extensive experience with and expertise in responsible and/or ethical investing. The other members will have experience in corporate investor relations, financial markets, corporate governance, the environment and/or corporate ethics.  The number of committee members may be expanded from time to time.

The Committee will be responsible for 1) overseeing the role of the calculation agent (Thomson Reuters); 2) overseeing the production of the ratings pursuant to the rules contained in this document; and 3) voting on changes to the rules and/or methodologies defined in this document.

The Committee will meet on a quarterly basis, either in person or via telephone conference call.

## III. Data Sources

The ASSET4 unit of Thomson Reuters provides the data used to calculate the ratings.

This unit employs over 120 analysts who compile ESG data on 4,600 companies worldwide. Data is collected on over 500 separate data points from multiple sources, including a) company reports, b) company filings, c) company websites, d) NGO websites, e) CSR Reports and f) established and reputable media outlets.

These 500+ data points roll up into 226 KPIs. The KPI values form the basis for the rating process.

The KPI fall into three pillars:

**1. The Environmental Pillar.** Examines factors including resource usage and reduction; emissions and emissions reductions; environmental activism and initiative and product or process innovation.

**2. The Social Pillar.** Examines factors including employment quality, health and safety issues, training, diversity, human rights, community involvement and product responsibility.

**3. The Corporate Governance Pillar.** Examines factors including board structure, compensation policy, board functions, financial and operational transparency, shareholder rights and vision and strategy.

Data as of publication is currently available for the following numbers of companies by region:

| | |
|---|---|
| USA & Canada | 1629 |
| Europe | 1165 |
| Asia (ex Japan) | 652 |
| Japan | 438 |
| Oceania | 395 |
| Latin America | 163 |
| Africa | 158 |
| Middle East | 57 |
| Russia & Ukraine | 36 |

## IV. Timing of Ratings Updates

Ratings are updated monthly on a dynamic basis.  Ratings updates occur on the last business day of each month.

The most recent company data available are used to populate the KPIs.  Data typically start to become available shortly after a company makes its year-end filings.  Until new data are made available, the most recent existing data are used to populate the KPIs.  If data are unavailable for a specific KPI two years following the release of the data being used, then the company is not given a rating for that particular KPI.

## V.    Environmental Weightings

The following considerations were applied to determine the weights assigned to the 70 KPIs across the 52 industries.

   i)    relevance to the KPI to the industry;
   ii)   percentage of companies in industry reporting that KPI;
   iii)  range, skewness, and standard deviation of that KPI;
   iv)   independent information content;
   v)    objective measurability of the KPI; and
   vi)   ability to confirm statistical results with published research.

In the environmental pillar only, preliminary analysis led us to establish 10 factors of KPIs and to assign each one an attribution percentage.

On an industry-by-industry basis, each KPI is examined and assigned a Relative Level of Importance (RLI) on a scale of 0-5 which may be zero if a KPI is deemed irrelevant to a given industry group.  Next, dynamic adjustments are applied monthly on an industry-by-industry basis to each RLI based on the percentage of companies in that industry reporting data for its corresponding KPI.  For the environmental pillar, the following formula is used:

- If < 10% of companies in a given peer group have data for the KPI, then a multiplier of 0 modifies the RLI unless <10% with data is true for all KPIs in the category.

- If between 10% and 30% of companies in a given peer group have data for the KPI, then a multiplier of .5 modifies the RLI.

- If more than 30% of companies in a given peer group have data for the KPI, then a multiplier of 1 modifies the RLI.

Within each industry, the next step in determining weights is done on a category-by-category basis.  For each factor, the dynamically modified RLIs are summed to form a divisor. Each KPI's weight equals its RLI divided by the divisor and then multiplied by that factor's weight[*]. Together all the KPI weights in a factor sum to that factor's attribution percentage and all 70 KPI weights sum to one.  Next, each KPI is scaled dynamically against its peer group such that one is the best score and zero is the worst score for each KPI.

*A matrix of the base weightings for each KPI across the 52 industries can be found at* **Environmental KPI Weights.xlsx***.*

# VI. Environmental Scoring

The environmental pillar consists of 70 KPIs.  Scores for each KPI are modeled within 52 separate industries.  There are two types of KPIs:  Boolean and Metric.  There are 53 Boolean indicators and 17 metric indicators.

Polarity is the term used to define whether a higher response in a given KPI is more positive or more negative in terms of environmental performance.  Boolean indicators have two polarities, positive and negative.  In addition, certain Boolean indicators have two-part questions and thus require two yes/no answers.  Boolean indicators for the environmental pillar are scored as follows:

a)    Positive Polarity Possibilities:

| Response | Value |
|---|---|
| Yes | 1 |
| Yes/Yes | 1 |
| Yes/No | .5 |
| No/Yes | .5 |
| N/R (Not Relevant) | .5 |
| No/No | 0 |
| No | 0 |
| NA (Not Available) | 0 |

b)    Negative Polarity Possibilities:

| Response | Value |
|---|---|
| No | 1 |
| No/No | 1 |
| No/Yes | .5 |
| Yes/No | .5 |
| N/R (Not Relevant) | .5 |
| Yes/Yes | 0 |
| Yes | 0 |
| NA (Not Available) | 0 |

Metric indicators have two polarities, positive and negative.  Metric indicators for the environmental pillar are scored as follows:

a)    Positive Polarity:
   i)    $0.6 + 0.4*((x - Min) / (Max - Min)^{*}$ – Specific to Industry
   ii)   If KPI is Not Relevant (N/R) to Industry, set value to 0.5
   iii)  If KPI is Not Available (N/A or NA), set value to 0.4

b)    Negative Polarity:
   i)    $0.6 + 0.4*(1-((x - Min) / (Max - Min)))^{*}$ – Specific to Industry
   ii)   If KPI is Not Relevant (N/R) to Industry, set value to 0.5
   iii)  If KPI is Not Available (N/A or NA), set value to 0.4

\* x = specific company data; Min = lowest number reported among industry peers; Max = highest number reported among industry peers

The following process is used to score environmental by industry.

I)      All KPI Environmental will sum to 1 for each industry,
II)     Apply weights to numeric data,
III)    Each company's environmental raw score equals the sum of the products of each KPI's score and weight.

# VII.   Social Weightings

The following considerations were applied to determine the weights assigned to the 88 KPIs across the fifty-two industries.

i)      relevance of the KPI to the industry;
ii)     percentage of companies in industry reporting that KPI;
iii)    relevance of KPI to the region;
iv)     percentage of companies in industry reporting that KPI;
v)      range, skewness, and standard deviation of that KPI;
vi)     independent information content;
vii)    objective measurability of the KPI;
viii)   ability to confirm statistical results with published research.

There are 88 KPIs in the Social Pillar that are benchmarked by Asset4 in one of three ways: 38 are benchmarked according to industry; 41 are benchmarked according to region; and 9 are benchmarked to the entire universe.  Each KPI is assigned a Relative Level of Importance (RLI) from 0 to 5 (most important) based on the aforementioned factors.  The RLIs are reviewed annually to test for potential adjustments. Next, dynamic adjustments are applied monthly on an industry-by-industry basis to each RLI based on the percentage of companies in its peer group reporting data for its corresponding KPI.  For the social pillar, peer groups correspond to the benchmarking system used and the following formula is used:

- If < 0.5% of companies in a given peer group have data for the KPI, then a multiplier of 0 modifies the RLI.

- If between 0.5% and 15% of companies in a given peer group have data for the KPI, then a multiplier of .5 modifies the RLI.

- If more than 15% of companies in a given peer group have data for the KPI, then a multiplier of 1 modifies the RLI.

The modified RLIs are then summed across peer groups to create divisors.  Each KPI's weight equals its modified RLI divided by its peer group divisor.  Next, each KPI is scaled dynamically against its peer group such that one is the best score and zero is the worst score for each KPI.

*A matrix of the base weightings for each KPI across the 52 industries, 9 regions and the universe can be found at **Social KPI Weights.xlsx**.*

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# VIII. Social Scoring

The social pillar consists of 88 KPIs.  Scores for 38 social KPIs are modeled within 52 separate industry groups, of which 30 are Boolean and 8 are Metric; scores for 41 social KPIs are modeled within 9 regions, of which 28 are Boolean and 13 are metric; and 9 KPIs are modeled universally.

Polarity is the term used to define whether a higher response to a KPI is more positive or more negative in terms of environmental performance.  Moreover, there are two types of KPIs: Boolean and Metric.  There are nine Boolean indicators for the social pillar that apply to the nine KPIs that are modeled universally.  Boolean indicators have two polarities, positive and negative.  In addition, certain Boolean indicators have two-part questions and thus require two yes/no answers.  Boolean indicators for the social pillar are scored as follows:

a)      Positive Polarity Possibilities

| Response | Value |
|---|---|
| Yes | 1 |
| Yes/Yes | 1 |
| Yes/No | .5 |
| No/Yes | .5 |
| N/R (Not Relevant) | .5 |
| No/No | 0 |
| No | 0 |
| NA (Not Available) | 0 |

b)      Negative Polarity Possibilities:

| Response | Value |
|---|---|
| No | 1 |
| No/No | 1 |
| No/Yes | .5 |
| Yes/No | .5 |
| N/R (Not Relevant) | .5 |
| Yes/Yes | 0 |
| Yes | 0 |
| NA (Not Available) | 0 |

There are 21 metric indicators for the social pillar and these metric indicators have two polarities, positive and negative.  Metric indicators for the social pillar are scored as follows:

a)      Positive Polarity Possibilities:
  i)       (x - Min)/(Max - Min) – Specific to Industry (38 of 88 KPI) ; Specific to Region (41 of 88 KPI)
  ii)      If KPI is Not Relevant (N/R) to Industry/Region, set value to 0.5
  iii)     If KPI is Not Available (N/A or NA), set value to minimum value of any reporting company specific to Industry/Region

b)  Negative Polarity Possibilities:
    i)    $1-((x - Min)/(Max - Min))$ – Specific to Industry (38 of 88 KPI) ; Specific to Region (41 of 88 KPI)
    ii)   If KPI is Not Relevant (N/R) to Industry/Region, set value to 0.5
    iii)  If KPI is Not Available (N/A or NA), set value to maximum value of any reporting company specific to Industry/Region.

\* $x$ = specific company data; Min = lowest number reported among industry, regional or universal peers; Max = highest number reported among industry, regional or universal peers.

The following process is used to determine a company's social raw score:

    I)    All Social KPIs will sum to 1 across peer groups,
    II)   Apply weights to numeric data,
    III)  Each company's social raw score is then determined by the sum of the products of each KPI's dynamically scaled value and its weight

## IX.   Governance Weightings

Governance KPIs are benchmarked regionally.  The following considerations were applied to determine the weights assigned to the 68 KPIs across the nine regions.

    i)    relevance to the KPI to the region;
    ii)   percentage of companies in region reporting that KPI;
    iii)  range, skewness, and standard deviation of that KPI;
    iv)   independent information content;
    v)    objective measurability of the KPI;
    vi)   ability to confirm statistical results with published research.

Each KPI is assigned a Relative Level of Importance (RLI) from 0 to 5 (most important) based on the aforementioned factors.  The RLIs are reviewed annually. Next, dynamic adjustments are applied monthly on a region-by-region basis to each RLI based on the percentage of companies in that region reporting data for its corresponding KPI.  The following formula is used:

- If < 0.5% of companies in a given peer group have data for the KPI, then a multiplier of 0 modifies the RLI.

- If between 0.5% and 15% of companies in a given peer group have data for the KPI, then a multiplier of .5 modifies the RLI.

- If more than 15% of companies in a given peer group have data for the KPI, then a multiplier of 1 modifies the RLI.

The weight for each KPI by region is determined by dividing the modified RLI by the modified total potential relevance score.  Next, each KPI is scaled dynamically against its peer group such that one is the best score and zero is the worst score for each KPI.

*A matrix of the maximum weightings for each KPI across the nine can be found at **Governance KPI Weights.xlsx.***

# X.    Governance Scoring

The governance pillar consists of 68 KPIs.  All governance KPIs are modeled within 9 regions.

Polarity is the term used to define whether a higher response to a KPI is more positive or more negative in terms of environmental performance.  Moreover, there are two types of KPIs: Boolean and Metric.  There are 51 Boolean indicators for the governance pillar.  Boolean indicators have two polarities, positive and negative.  Boolean indicators for the governance pillar are scored as follows:

a)    Positive Polarity Possibilities:

| Response | Value |
|---|---|
| Yes | 1 |
| Yes/Yes | 1 |
| Yes/No | .5 |
| No/Yes | .5 |
| N/R (Not Relevant) | .5 |
| No/No | 0 |
| No | 0 |
| NA (Not Available) | 0 |

b)    Negative Polarity Possibilities:

| Response | Value |
|---|---|
| No | 1 |
| No/No | 1 |
| No/Yes | .5 |
| Yes/No | .5 |
| N/R (Not Relevant) | .5 |
| Yes/Yes | 0 |
| Yes | 0 |
| NA (Not Available) | 0 |

There are 17 metric indicators for the governance pillar and these metric indicators have two polarities, positive and negative.  Metric indicators for the social pillar are scored as follows:

a)    Positive Polarity:
    i)      $(x - Min)/(Max - Min)$ – Specific to Region[*]
    ii)     If KPI is Not Relevant (N/R) to Region, set value to 0.5
    iii)    If KPI is Not Available (N/A or NA), set value to minimum value of any reporting company specific to Region

b)    Negative Polarity:
    i)      $1-((x - Min)/(Max - Min))$ – Specific to Region[*]
    ii)     If KPI is Not Relevant (N/R) to Region, set value to 0.5
    iii)    If KPI is Not Available (N/A or NA), set value to maximum value of any reporting company specific to Region

[*] x = specific company data; Min = lowest number reported among regional peers; Max = highest number reported among regional peers.

The following process is used to determine a company's governance score:

I)      All Governance KPIs will sum to 1 across peer groups,
II)     Apply weights to numeric data,
III)    Each company's governance raw score is then determined by the sum of the products of each KPI's dynamically scaled value and its weight.

# XI. Conversion of Scores to Ratings

The process described in sections V through XI result in the creation of *raw scores* that represent the environmental, social and governance practices of each company. To eliminate idiosyncratic characteristics and assure comparability the *raw scores* were converted into *ratings* using the following procedure.

Here is the step-by-step algorithm to convert raw scores to Thomson Reuters Corporate Responsibility Ratings:

1. Calculate the individual z-scores using the formula:

   Z-score = (raw score – Mean (raw scores))/Population Standard Deviation (raw scores);

2. Adjust the distribution for outliers:

   Adjusted z-score = z-score unless Absolute Value(z-score)>3; If z-score < -3; adjusted z-score = the minimum z-score in the distribution that satisfies the condition z-score >=-3; if z-score >3; adjusted z-score = the maximum z-score in the distribution that satisfies the condition z-score >=3

3. Calculate skewness for the adjusted z-score distribution:

   Skew = (1/number of values) × ∑ ((adjusted z-score–Mean (adjusted z-score))/Standard Deviation of Population)$^3$

4. Calculate the scaling divisor that will be needed to create interim ratings from the adjusted z-score distribution:

   Scaling divisor = Ceiling (2 × Max (Abs (Min (adjusted z-score)), Max (adjusted z-score))) were Ceiling (x) rounds x up to the next largest integer value;

5. Next, calculate the interim rating for each raw score using the following formula:

   Interim Rating = 0.5 + (adjusted z-score - skew –median adjusted z-score)/scaling divisor;

6. Fit the interim ratings to approximate a bell curve using rectangles through the following procedure:
   - Let $R0_0$=lower bound of interim distribution; $R4_0$=upper bound of interim distribution; $R2_0$=median of interim distribution;
   - Calculate $R1_0$=($R0_0$+ $R2_0$)/2 and $R3_0$=($R2_0$+ $R4_0$)/2 to determine the right bound of rectangle one (also left bound of rectangle 2) and the right bound of rectangle 3 (also the left bound of rectangle 4) in the interim distribution;
   - Next calculate the target rectangle boundaries for the ratings distribution; the lower bounds and upper bounds will be preserved so $R0_1$= $R0_0$ and $R4_1$= $R4_0$; $R2_1$ is set to 0.5 to center the distribution. Once again, we calculate $R1_1$=($R0_1$+ $R2_1$)/2 and $R3_1$=($R2_1$+ bell curve;

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- Next, every point in the interim distribution is defined by its position relative to the upper bound of its rectangle as being in Rectangle 1, 2, 3, or 4; each point will be in the corresponding rectangle in the target distribution;
- Next each point of the interim distribution becomes a rating by shifting it to a corresponding point in the corresponding rectangle in the target distribution. This is done by adjusting for the ratio of the distances between that the upper and lower bounds of the target rectangle and the upper and lower bounds of the interim rectangle through the use of the equation:
  $$rating = 100 * (L_1 + (interim\ rating - L_0)*((U_1-L_1)/(U_0-L_0)))$$,
  where $U_1$ is the upper bound of the target rectangle, $L_1$ is the lower bound of the target rectangle; $U_0$ is the upper bound of the interim rectangle, $L_0$ is the lower bound of the interim rectangle; and $U_1$ is one of $R1_1$, $R2_1$, $R3_1$, or $R3_4$ while $L_1$ is correspondingly $R0_1$, $R1_1$, $R2_1$, $R3_1$ and $U_0$ is one of $R1_0$, $R2_0$, $R3_0$, or $R4_0$ while $L_0$ is correspondingly $R0_0$, $R1_0$, $R2_0$, $R3_0$ depending on whether the interim point had been in interim rectangle 1,2,3,or 4.

7. Publish *rating* as the Thomson Reuters Corporate Responsibility Rating for that pillar (Environmental, Social, and Governance)

8. The composite ESG rating is then calculated for each company by:
   ESG rating = 1/3* Environmental Rating + 1/3* Social Rating + 1/3 * Governance Rating

As a result of the above algorithm, the Thomson Reuters Corporate Responsibility Ratings distributions all vary between 0 to 100 and have medians and means engineered to be reasonably close to 50.

# XII. Assigning Percentile Ranks

Percentile ranks are assigned to each company based on their environmental, social, governance and ESG ratings.

# XIII. Suspension of Ratings

The Ratings Committee may vote to suspend a company's ratings under the following circumstances:

**1. Acquisitions**. A companies rating and or ratings may be suspended if a company is acquired and the ratings of the two companies are materially different. In this case materiality is defined as being when a rating differential between the two companies is greater than 30% and when the market value of the acquired company is 40% or more of the market value of the acquiring company.

**2. Mergers**. A companies rating and or ratings may be suspended if two companies merge and the ratings of the two companies are materially different. In this case materiality is defined when the rating differential between the two companies is greater than 30% and when the market values of the merged companies are within 75% of each other.

**3. Companies Becoming Private.** If a company becomes privately held and delists its shares, its ratings will be suspended.

**4. Significant Controversies**.  If a company has played a central role in a significant controversy, it may have its rating suspended based on two separate factors:  culpability and materiality. Culpability is defined as there being a high likelihood of an official regulatory body imposing a fine or similar punitive measure.  Materiality is defined as when the controversy has an adverse impact greater than 20% on a company's revenues, cost of goods sold, cash flow, profits and/or share price.

Ratings suspensions will be announced on the TRCRI website.

## XIV. Changes to Ratings Methodologies

From time to time, the Rating Committee may decide to amend one or more of the rating rules or methodologies.  Under such circumstances, the rule change will be announced on the TRCRR website sixty days in advance of the implementation of the rule change.

## XV. Comments and Questions

Comments and/or questions related to these rules should be submitted to:

**S-Network Global Indexes LLC**
info@snetworkllc.com

**Thomson Reuters Indices**
index_queries@thomsonreuters.com

# REFERENCE SOURCES

1. Agrawal, Anup, and Chadha, Sahiba, "Corporate Governance and Accounting Scandals," *Journal of Law and Economics,* Volume 48, Number 2, October 2005

2. Bauer, Rob; Derwall, Jeroen; Guenster, Nadja; Koedijk, Kees, "The Eco-Efficiency Premium Puzzle," *Financial Analysts Journal*, Volume 61, Number 2; 2005

*3.* Bauer, Rob; Derwall, Jeroen; Guenster, Nadja; Koedijk, Kees, "The Economic Value of Corporate Eco-Efficiency," *Academy of Management Research Paper, 25 July 2005*

4. Bauer, Rob and Hamm Daniel, "Corporate Environmental Management and Credit Risk," Working Paper – Maastricht University European Centre for Credit Risk, *http:responsiblebusiness.haas.berkeley.edu*, 2010

5. Blank, Herbert and Daniel, Wayne, "The Eco-Efficiency Anomaly Updated," *http://www.kellogg.northwestern.edu/faculty/mazzeo/htm/sp_files/021209/(4)%20Innove st/Studies%20Using%20Innovest%20Data/Eco_Anomaly_7_02.pdf,* QED International; 2002

6. Bebchuk, Lucian A., Cohen, Alma, and Wang, Charles C. Y., "Learning and the Disappearing Association between Governance and Returns," Discussion Paper – Harvard Law School (forthcoming *Journal of Financial Economics),* August 2012

7. Brickley, James A.; Coles, Jeffrey L.; Jarrell, Gregg; "Leadership Structure: Separating the CEO and the Chairman of the Board" *Journal of Corporate Finance,* March 1997

8. Burnett, Royce; Skousen, Christopher; Wright, Charlotte; "Eco-Effective Management: An Empirical Link between Firm Value and Corporate Sustainability." *Accounting and the Public Interest*." December 2011, Vol. 11, No. 1, pp. 1-15.

9. Christmann P, Taylor G. "Firm Self-Regulation through International Certifiable Standards: Determinants of Symbolic versus Substantive Implementation," *Journal of International Business Studies,* Volume 37, Number 6, June 2006

10. Davis, Stephen; Lukomnik, Jon; and Pitt-Watson, David, "Active Shareowner Stewardship: A New Paradigm for Capitalism," *Rotman International Journal of Pension Management,* Vol. 2, No. 2, Fall 2009

11. De, Indrani and Clayman, Michelle, "Are All Components of ESG Scores Equally Important?" *NYSSA Financial Professionals Post*,  July 2010

12. EFFAS (European Federation of Financial Analysts Societies) and DVFA (*Deutsche Vereinigung für Finanzanalyse und* Asset Management), "KPIs for ESG: A Guideline for the Integration of ESG into Corporate Analysis and Financial Valuation – Version 3.0", Working Paper, http://www.dvfa.de, DVFA/EFFAS, 2010

13. Fleisher, Andrei, and Vishny, Robert, "A Survey of Corporate Governance," *Journal of Finance*, Volume 52, Number 2; June 1997

14. Hawn, Olga, and Ioannou, Yioannis "Do Actions Speak Louder Than Words?:  The Case of Corporate Social Responsibility (CSR)", Working Paper SSRN-id2101775.pdf, October 2012

15. Hespenheide, Eric and Koehler, Dinah, "Disclosure of Long-Term Business Value: What Matters?", Deloitte Research Publication, January 2012

16. Lowson, Linda M., "SEC ESQ Noncompliance: Where the Rubber Meets the Road," *Journal of Applied Corporate Finance*, Vol. 24, Issue 2, pp. 57-64, 2012

17. QSG Research Team, "The Asset4 Framework: Adding Value with Environmental, Social, and Corporate Governance Information", *QSG Investment Insights*, Quantitative Services Group, 2009

18. Ribando, Jason and Bonne, George, "A New Quality Factor: Finding Alpha with Asset4 ESG Data," Starmine Research Note, Thomson Reuters, 2010

19. Shrivastava, Paul, "Environmental Techonologies and Competitive Advantage", *Strategic Management Journal,* Summer 1995, p. 183 - 200

20. Smith, Stuart, et al., "Measuring Eco-Efficiency in Business: Feasibility of a Core Set of Indicators", <u>Pamphlet</u> – (National Round Table on the Environment and the Economy, Canada 1999)

21. Wheeler, David; Colbert, Barry; and Freeman, R. Edward, 'Focusing on Value: Reconciling Corporate Social Responsibility, Sustainability, and a Stakeholder Approach in a Network World", *Journal of General Management*, Volume 28, No.3, Spring 2003