

# Understanding our Environmental Risk Indexes

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# Facilities' ERI: Metrics and descriptions

## Facility Environmental Impact Ranking - Activity

The "FER-Activity" index is a number that ranges from 0 to 100. It reflects the percentage of facilities with the same industrial activity that have a lower environmental impact score.

The "FER-Activity" index measures the environmental impact of the analyzed facility depending on its main industrial activity (eg. a 60 means that the environmental impact of the analyzed facility is higher than that of 60% of its competitors).

## Facility Environmental Impact Ranking - Activity & Region

The "FER-Activity & Region" index is a number that ranges from 0 to 100. It reflects the percentage of facilities with the same industrial activity, and in the same region, that have a lower environmental impact score.

The "FER-Activity & Region" index measures the environmental risks of the analyzed facility depending on its main industrial activity and region. (eg. a 60 means that the environmental impact of the analyzed facility is higher than that of 60% of its competitors in the same region).

## Facility Environmental Impact Improvement

The numbers in the "FEI" index are either positive or negative and reflect the percentage of variation in the environmental impact score for the analyzed facility. This index compares the current score with the average score of the same facility in the three previous years.

The "FEI" index reflects in percentages the amount of variation in the environmental impact score of a facility. An increase in this percentage would mean that the environmental impact has increased too.

# Facilities' ERI: How understand It

## Facility Environmental Impact Ranking-Activity

The "FER-Activity" index ranks a facility's environmental risks by comparing it with others in the same field of industrial activity. Facilities with higher environmental risks have higher values in the index (e.g. an 80 means that the environmental impact score of the analyzed facility is higher than that of 80% of facilities in the same field). This index acquires an added value if you use it for comparing the historical ranking within the facility, or comparing different facilities in the same company.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final score of a facility (e.g. their volume of operations). However, a facility with a high score deserves close attention because it has a higher environmental impact than its competitors.

## Facility Environmental Impact Ranking - Activity & Region

The "FER-Activity & Region" index ranks a facility's environmental risks by comparing it with others in the region that are in the same field of industrial activity. Facilities with higher environmental risks have higher values in the index (e.g. an 80 means that the environmental impact score of the analyzed facility is higher than that of 80% of facilities in the same field). This index acquires an additional value if you use it for comparing the historical ranking within the facility, or comparing different facilities of the same company.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final score of a facility (e.g. their volume of operations). However, a facility with a high score deserves close attention because it has a higher environmental impact than its competitors.

## Facility Environmental Impact Improvement

The "FEI" index assesses the evolution of the environmental risks of a facility. The lower the value, the lower the environmental risks (eg. a +20 would mean that the environmental impact of the facility is 20% higher than the average impact in the three past years; while a -15 would mean that the environmental impact score has decreased 15% in that time frame). This index acquires an additional value if you use it for comparisons with other facilities, among other possibilities.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution (e.g. reinforced volume of operations). However, a facility with a high "FEI" score deserves close attention because of its increasing environmental risks.

# Facilities' ERI: Metrics and descriptions

## Facility-Activity Environmental Impact Improvement

The numbers in the "FAEI" index are either positive or negative and reflect the percentage of variation in the environmental impact score for all facilities in the same field of industrial activity. This index compares the current score with the average score of the same facility in the three previous years.

The "FAEI" index reflects in percentages the average percentage of change on the environmental impact score for all the facilities in our database that pertain to the same industrial activity. An increase in this percentage would mean that the environmental impact has increased too.

## Facility Benchmarking of Environmental Impact Improvement

The numbers in the "FBEI" index are either positive or negative and reflect the difference between two values: the percentage of variation in the environmental impact score for the analyzed facility; and the percentage of the average variation for the industry regarding the same score.

The "FBEI" is the difference between the "Facility Environmental Impact Improvement (FEI)" and the "Facility-Activity Environmental Impact Improvement" (FAEI)

## Facility Predictability of Environmental Impact

The numbers in the "FPE" index are either positive or negative and reflect the relative difference between two values: the facility's actual environmental impact score and the predicted score for the same year. The predicted score results from a panel data that includes the environmental impact scores for all the facilities in our database and the control variables of activity, country, and year.

The "FPE" index is the relative difference between two values: the facility's actual environmental impact score and the predicted score for the same year.

# Facilities' ERI: How understand It

## Facility-Activity Environmental Impact Improvement

The "FAEI" index assesses the evolution of the environmental risks of the facilities in the same industrial activity. The lower the value, the lower the environmental risks (eg. a +20 would mean that the environmental impact of the field, this current year, is 20% higher than the average impact in the three past years; while a -15 would mean that the environmental impact score has decreased 15% in that time frame). This index acquires an added value if you use it for comparing different fields.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution (e.g. reinforced volume of operations). However, a field with a high "FAEI" score deserves close attention because of its increasing environmental risks.

## Facility Benchmarking of Environmental Impact Improvement

The "FBEI" index assesses the evolution of the environmental risks in a facility by comparing it with the rest of the facilities in our database that are part of the same field of industrial activity. The lower the value, the greater the reduction in environmental risks compared to its competitors (eg. a -20 would mean that, this year, the facility has reduced their environmental impact score 20% more than the average facility in the same field). This index acquires an added value if you use it for comparing different fields.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution (e.g. reinforced volume of operations). However, a facility with a high "FBEI" score deserves close attention because of poses higher environmental risks than its competitors.

## Facility Predictability of Environmental Impact

The "FPE" index assesses the volatility of the environmental risks in a facility. This index is a proxy of what continue to be unpredictable changes regarding the environmental risks of a facility. The "FPE" index also can be used to measure whether the facility's environmental impact was higher or lower than expected when compared to a similar facility.

# Companies' ERI: Metrics and description

## Company Environmental Impact Ranking-Total

The "CER-Total" index is a number that ranges from 0 to 100. It reflects the percentage of companies in our database that have a lower environmental impact score than the analyzed company.

The "CER-Total" index measures the environmental impact of the analyzed company comparing it with others in our database (eg. a 60 means that the environmental impact of the analyzed company is higher than that of 60% in our database)

## Company Environmental Impact Ranking-Activity Benchmarking Average

The "CER-Activity Benchmarking Average" index is a number that ranges from 0 to 100. It reflects the percentage of facilities in our database that have a lower environmental impact score than those in the analyzed company.

The "CER-Activity Benchmarking Average" index measures the environmental impact of the facilities in the company, comparing it to the average impact of facilities in the same industrial activity (eg. a 60 means that the environmental impact of the company's facilities is higher than that of 60% of its competitors).

# Companies' ERI: How understand It

## Company Environmental Impact Ranking-Total

The "CER-Total" index ranks the environmental risks of a company by comparing it with others. Companies with higher environmental risks have higher values in the index (e.g. an 80 means that the environmental impact score of the analyzed company is higher than that of 80% of companies in the database). This index acquires an additional value if you use it for comparing the historical ranking within the company, or comparing different companies in the same industry.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final score of a company (e.g. their volume of operations). However, a company with a high "CE(I)R-Total" score deserves close attention because it has a higher environmental impact than other companies.

## Company Environmental Impact Ranking-Activity Benchmarking Average

The "CER-Activity Benchmarking Average" index assesses the average environmental risks of the company's facilities and compares it to other facilities in the industry. The higher the value, the higher the environmental risks present in the company's facilities (e.g. an 80 means that the facilities in this company have a higher environmental impact than 80% of the facilities in our database that are in the same industry). This index acquires an additional value if you use it for comparing the historical ranking within the company, or comparing different companies in the same industry.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final impact score of a facility (e.g. companies with operations in dirty industries will have a higher environmental impact than other companies with more environmentally friendly operations). However, a company with a high "CE(I)R-Average" score deserves close attention because it has a higher environmental impact than its competitors.

# Companies' ERI: Metrics and description

## Company Environmental Impact Improvement

The "CEI" index is either a positive or negative number that reflects the percentage of variation in the environmental impact score of the company's facilities. This index compares the current score with the average score of the facilities in the company from the three previous years (i.e. percentage of increase-decrease in the environmental score for the analyzed company).

The "CEI" index measures the percentage of average variation in the environmental impact score of all the facilities in a company.

## Company Activity Environmental Impact Improvement

The "CAEI" index is either a positive or negative number that reflects the percentage of average variation in the environmental score for all the industrial activities in which the company operates (i.e. average percentage of increase-decrease).

The "CAEI" index measures the average percentage of change in the environmental impact score for all the industries in which the company operates (i.e. percentage of increase-decrease in the score for all the facilities in our database operating in the same industrial activities that the analyzed company).



# Companies' ERI: How understand It

## Company Environmental Impact Improvement

The "CEI" index assesses the evolution of the environmental risks of a company. The lower the value, the lower the environmental risks (eg. a 20 would mean that the environmental impact of the facility is 20% higher than the average impact in the three past years; while a -15 would mean that the environmental impact score has decreased 15% in that time frame). This index acquires an additional value if you use it for comparing different companies.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution (e.g. reinforced volume of operations). However, a facility with a high "CEI" score deserves close attention because of its increasing environmental risks.

## Company Activity Environmental Impact Improvement

The "CAEI" index assesses the average evolution of the environmental risks of the industrial field(s) in which the company operates. The lower the value, the lower the environmental risks (eg. a 20 would mean that, this year, the environmental impact of the field(s) is 20% higher than the average impact in the three past years; while a -15 would mean that the environmental impact score has decreased 15% in that time frame). This index acquires an additional value if you use it for comparing different companies.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution. However, a company operating in a field with a high "CAEI" score deserves close attention because of its increasing environmental risks.

# Companies' ERI: Metrics and description

## Company Benchmarking Environmental Impact Improvement

The "CBEI" index is either a positive or negative number that reflects the difference in variation in the environmental impact score between the company's industrial activity (or activities) and the industry as a whole.

The "CBEI" is the difference between the "Company Environmental Impact Improvement (CEI)" and the "Company-Activity Environmental Impact Improvement" (CAEI)

## Company Environmental Impact Improvement-Activity Benchmarking Average

The "CEI-Activity Benchmarking Average" is a number, positive or negative, that accounts for the percentage of change in the "CER-Activity Benchmarking Average" for the company. The "CEI-Activity Benchmarking Average" compares the current positions in impact rankings of the company's facilities environmental scores for their respective activities with the average in the same value from the three immediate previous years, i.e., the percentage of increase-decrease in rankings of the environmental score for the analyzed company's facilities.

The "CEI-Activity Benchmarking Average" represents the evolution of the company over time, considering the relative positions of its factories in the respective activities in which they operate.

# Companies' ERI: How understand It

## **Company Benchmarking Environmental Impact Improvement**

The "CBEI" index assesses the evolution of the environmental risks of a company by comparing it to the average evolution in the field(s) in which the company operates. The lower the score, the lower the environmental risks that the company has in comparison with its competitors (e.g. a -20 would mean that the company reduced its environmental risks 20% more than its average competitors). This index acquires an additional value if you use it for comparing different companies.

Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the evolution (e.g. the company might have increased its volume of operations while its competitors have reduced it). In any case, a company with a high "CBEI" score deserves close attention because of its increasing environmental risks as opposed to its competitors.

## **Company Environmental Impact Improvement- Activity Benchmarking Average**

The "CEI-Activity Benchmarking Average" allows us to evaluate whether the company is improving or worsening the impact ranking of its facilities in their respective activities over time. A value of -100 means that the company has gone from having all of its facilities in the worst possible position to the best possible position. Any negative value means a positive evolution, and any positive value means that the ranking of the company's facilities, on average, are worse off in their respective activities. Zero means no change in the relative positions of its facilities. For example, if the company's facilities currently have an average position of 50 and in the past (average of the previous three years) it was 60, the index will be  $= -10 \cdot 100 / 60 = -16.67\%$  (i.e., the companies' facilities, on average, are improving their relative positioning by 16.67%).

# Companies' ERI: Metrics and description

## **Company Predictability of Environmental Impact**

The "CPEI" results from the percentage of differences between the actual environmental score for a certain company in the year and the predictive value for the same score . We calculate these differences by aggregating the differences in the actual and predictive values of all the company facilities. The predictive value comes from a panel data analysis that includes the environmental scores for all the facilities in our database and the control variables of activity, country, and year.

The "CPEI" is the relative difference between the company's actual value of the environmental score and the predictive values of the environmental score for the company in the year .

# Companies' ERI: How understand It

## **Company Predictability of Environmental Impact**

The "CPEI" is meaningful to assess the volatility of the environmental risks in a certain company. The "CPEI" is a proxy of the unexpected changes in the environmental risks of a certain company. From a different perspective, the "CPEI" shows the difference between the environmental score in the company and the expected environmental score in a similar company.

# Regions' ERI: Metrics and description

## Region Environmental Impact Ranking- Total

The "RER-Total" index is a number that ranges from 0 to 100. It reflects the percentage of regions in our database that have a lower environmental impact score than the analyzed region.

The "RER-Average" index measures the percentage of facilities in our database that have a lower environmental impact than those in the analyzed region in the same industrial activity (eg. a 60 means that the environmental impact of the region's facilities is higher than that of 60% of the rest of their competitors in our database).

## Region Environmental Impact Ranking- Average

The "RER-Average" index is a number that ranges from 0 to 100. It reflects the percentage of facilities in our database that have a lower environmental impact score than those in the analyzed region.

The "CEI-Activity Benchmarking Average" represents the evolution of the company over time, considering the relative positions of its factories in the respective activities in which they operate.

# Regions' ERI: How understand It

## Region Environmental Impact Ranking- Total

The "RER-Total" index ranks the environmental risks of a region by comparing it with others. Regions with higher environmental risks have higher values in the index (e.g. an 80 means that the environmental impact score of the analyzed region is higher than that of 80% of regions in the database). This index acquires an additional value if you use it for comparing the historical ranking within the region, or comparing different regions. Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final score of a region (e.g. the industrial sector of a region may generate a higher environmental impact than that of regions with more environmentally friendly industries). In any case, a region with a high "RE(I)R-Total" score should pay extra attention to its environmental risks.

## Region Environmental Impact Ranking- Average

The "RE(I)R-Average" index ranks the environmental risks of a region comparing its facilities to others in the same industry. Regions with higher environmental risks have higher values in the index (e.g. an 80 means that the environmental impact score of the facilities in the analyzed region is higher than that of 80% of facilities in the database). This index acquires an additional value if you use it for comparing the historical ranking within the region, or comparing different regions with similar industrial activities. Bear in mind, a high score in this index does not necessarily carry negative implications. This is because many factors may influence the final score of a region (e.g. a region with a high number of dirty industries may generate a higher environmental impact than that of regions with more environmentally friendly industries). In any case, a region with a high "RE(I)R-Total" score should pay extra attention to the environmental risks of its facilities.

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