

MSCI

ESG Research

Executive Summary: Intangible Value Assessment (IVA) Methodology

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Contents

1 Overview	3
1.1 Product Features.....	4
1.2 Coverage.....	5
2 Rating Process and Methodology	5
2.1 Industry Analysis – Determining the Key Issues and Weights...7	
2.2 Collection of Data on Key Issues.....	8
2.3 Analyzing Risk Exposure.....	10
2.4 Analyzing Risk Management.....	12
2.5 Determining Final Ratings.....	13
2.6 Reality Check & QA.....	16
2.7 Ongoing Monitoring & Update Cycle.....	18
2.8 Report Writing.....	19
Appendix 1: IVA Model Hierarchy	21
Appendix 2: EXCERPT of MSCI ESG Industry Key Issues Map.....	22
Appendix 3: Example of How Industry Key Issues Are Selected: ‘Carbon Emissions’	23
Appendix 4: MSCI ESG Research Policy on Communication with Corporates	24
Appendix 5: EXCERPT of IVA Key Issues	25
Contact Us.....	27
Notice and Disclaimer.....	27
About MSCI ESG Research.....	27
About MSCI.....	28

1 Overview

MSCI ESG Research Intangible Value Assessment (IVA) provides research, ratings, and analysis of companies' risks and opportunities arising from environmental, social, and governance (ESG) factors. Through an in-depth analysis of material issues for the industry and rigorous benchmarking against industry peers, MSCI ESG IVA can reveal hidden risks or opportunities that may not be captured by conventional financial analyses.

Investors are becoming increasingly aware of the potential risk and value impact on their investments from macro ESG trends. From natural resource scarcity to changing governance standards, from global workforce disputes to a rapidly evolving regulatory landscape, ESG factors can impact the long-term risk and return profile of investment portfolios.

MSCI ESG IVA is designed to help investors understand ESG risks and opportunities and integrate these factors into the portfolio construction and management process. Our global team of research analysts assesses ESG data points across 34 ESG issues for over 5,000 companies, focusing on the relationship between a company's core business and the key industry ESG issues that can create ESG risks and opportunities for the company.

The IVA company rating is expressed on a seven-point scale ('AAA–CCC'). Through a quantitative analysis of a company's exposure to ESG-driven risks and opportunities and in-depth comparison against industry peers on how well companies are managing their exposures, the IVA rating is designed to differentiate companies' positioning on medium- to long-term value or risks that may not be captured by conventional financial metrics. To the extent that identifying long-term risks and opportunities is a strategic imperative for companies, IVA research and analysis assesses a company's management quality with respect to ESG issues.

The MSCI ESG IVA Rating is intended to be style-neutral and can be applied either to equity portfolios or to bond portfolios through MSCI's extensive securities mapping.

MSCI ESG IVA applies a three-stage approach:

- **Step 1: Identify Key ESG Drivers of Risks and Opportunity for Each Industry**

MSCI ESG IVA identifies four to seven key ESG trends and issues where companies in that industry currently generate large environmental or social externalities; these are issues where some companies in those industries may be forced to internalize unanticipated costs associated with those externalities in the future.

- **Step 2: Evaluate Risk Exposure and Risk Management**

MSCI ESG IVA analysts calculate the size of each company's exposure to key ESG risks based on a granular breakdown of a companies' business: its core product segments or business activities, the locations of its assets or revenues, and other relevant measures for specific issues such as the percentage of production outsourced to a supply chain.

The analysis then takes into account the extent to which a company has developed robust strategies and demonstrated a strong track record of performance in managing its specific level of risks or opportunities. By weighing a company's strategy and performance against its specific level of risk or opportunities, MSCI ESG IVA ratings model is designed to measure any gaps in companies' risk management systems.

- **Step 3: Rank and Rate Each Company against Industry Peers**

Using an industry-specific key issue weighting model, companies are rated and ranked in comparison to their industry peers. The companies in each industry undergo an annual review and are updated on a rolling basis as well as in response to major events.

For a full list of the ESG Issues on which we currently assess companies, please see [Appendix 1 – IVA Model Hierarchy](#).

For a mapping of the Industry Key Issues on which we assess companies in each GICS subindustry, please see [Appendix 2 – MSCI ESG Industry Key Issues Map](#).

1.1 Product Features

MSCI ESG Research IVA clients receive access to a database of company reports and industry reports. Each company report includes relevant ESG performance data as well as an analysis of possible ESG risks and opportunities facing the company in absolute terms and relative to industry peers. Industry reports provide updates on changes to the ESG risk and opportunities landscape of each industry, and allows for benchmarking on how well each of the key global players is positioned to anticipate challenges and to tap opportunities relative to competitors.

MSCI ESG Research IVA clients also receive scores for each company that include final company rating and industry-adjusted score; weights and scores for each of the E, S, and G pillars; weights and scores for each of the industry Key Issues that contribute to the overall rating; weights and scores for additional ESG issues that clients may mix and match for their own analysis (Carbon Emissions, Water Stress, Toxic Emissions & Waste; Labor Management; Health & Safety; Corporate Governance; Business Ethics; Anticompetitive Practices).

MSCI ESG Research IVA scores and reports are currently available on MSCI's proprietary platform, MSCI ESG Manager, as well as through FactSet, StyleResearch, and MSCI's BarraOne and Barra Portfolio Manager platforms.

When used in conjunction with conventional financial analysis and valuation methods, IVA is designed to help clients:

- Screen portfolios and trades for emerging and overlooked risks;
- Generate investment ideas based on top and bottom ratings and scores on specific ESG issues;
- Generate investment ideas based on ESG developments impacting key industry drivers;
- Conduct due diligence for transactions;
- Determine opportunities for positive engagement with company management;
- Support implementation of the **UN Principles for Responsible Investment (PRI)**:
 - Smoothly integrate ESG considerations into their investment processes by focusing on the most financially material issues – Principle 1 of the PRI*
 - Supports clients' efforts to engage companies on ESG issues by providing performance benchmarking against industry peers and best practices on mitigating ESG-driven risks affecting the company's core business – Principle 2 of the PRI*

- Supports clients' efforts to encourage companies to make financially material ESG-related disclosure by providing performance benchmarking against industry peers on key ESG performance metrics – Principle 3 of the PRI*
- Help asset owners to monitor their implementation of ESG principles and help asset managers to execute and report on their ESG mandates in an effective and seamless process – Principle 4 and Principle 6 of the PRI*

*Source: <http://www.unpri.org/about-pri/the-six-principles/>

1.2 Coverage

The IVA coverage universe comprises the following as of December 2014:

- MSCI World Index
- MSCI Emerging Markets Index
- MSCI US Investable Market Index (IMI)
- MSCI UK IMI *(new)*
- MSCI Nordic IMI *(new)*
- MSCI Australia IMI *(new)*
- MSCI South Africa IMI
- MSCI Canada IMI
- Fixed Income: ESG Ratings coverage of over 84% of the market value of a widely used global fixed income benchmark, including:
 - Approximately 90% of the corporate investment grade (listed and non-listed)
 - Approximately 90% of the covered bonds
 - Approximately 99% of the Treasuries/Sovereign*
 - Approximately 85% of the government related (ex-Sovereign)*

*The overall ESG Rating for government-related bond issuers will be either in the IVA or Sovereign rating framework.

- More than 8,000 issuers linked to 280,000 individual securities including selected Agencies and Supranationals

Additions to the MSCI World Index and the US IMI will be rated within two quarters from their addition to the relevant index. Company ratings are updated on an annual cycle; however, company ratings may be re-evaluated mid-cycle under certain circumstances. See [2.7 Ongoing Monitoring & Update Cycle](#) for more details.

2 Rating Process and Methodology

IVA ratings research aims to answer the following questions:

- Of the negative externalities that companies in an industry generate, which issues may turn into unanticipated costs for companies in the medium to long term?
- Conversely, which ESG issues affecting an industry may turn into opportunities for companies in the medium to long term?

The analytical process undertaken to address these questions is summarized as follows:



2.1 Industry Analysis – Determining the Key Issues and Weights

2.1.1 Setting Industry Key Issues

Our research process begins with an in-depth assessment of the competitive dynamics of the industry, with particular emphasis on the special risks and opportunities created by environmental, social, and governance factors. This is the point at which we identify the Key Issues of material impact for each industry, which are chosen from a list of ESG issues maintained by the research team.

The list of ESG issues fall into ten macro environmental, social, and governance Themes of concern to investors. Effective January 2015, the ten Themes are Climate Change; Natural Capital; Pollution & Waste; Environmental Opportunities; Human Capital; Product Liability; Stakeholder Opposition; Social Opportunities; Corporate Governance; and Corporate Behavior¹.

The ten macro Themes in turn, fall into three pillars of Environment, Social, and Governance.

For a list of Key Issues, please refer to [Appendix 1 – IVA Model Hierarchy](#).

ESG Key Issues are selected for each of the 156 General Industry Classification Standard (GICS) subindustries (8-digit) to maximize the comparability of companies' core businesses. The Environmental and Social Key Issues vary between industries, but all companies in all industries are evaluated on the Corporate Governance theme. ESG Key Issues are selected based on ***the extent to which the business activities of the companies in each industry generate large environmental, social, or governance-related externalities.***

We undertake an annual review of the ESG Issues that should be considered Key Issues for each of the 156 GICS subindustries. At that time, we review the IVA Business Segment Risk Exposure data for each industry, which may have shifted through the course of the year due to periodic updates to the exposure data that increase the accuracy of our exposure estimates.

In Q4 of each calendar year, we institute a ***30-day client consultation and comment period*** during which we solicit feedback on our proposed changes to the industry Key Issues.

2.1.2 Company-Specific Key Issues

In some cases, a company may face a unique environmental, social, or governance Key Issue that is not shared by other companies in its industry. This can arise from several scenarios ranging from companies with unique or diversified business models to sub-sets of companies within an industry that face a unique set of risks. In these cases a Company-Specific Key Issue is added to the analysis and the weights on the remaining Key Issues are reduced proportionally.

Analysis of the Company-Specific Key Issue contributes to the company's overall rating but does not contribute to the ratings of industry peers that are not materially impacted by that particular Key Issue. All Company-Specific Key Issues are reviewed and approved by the IVA Methodology Committee.

¹ Prior to January 2015, the ten themes were Climate Change, Natural Resource Use, Waste Management, Environmental Opportunities, Human Capital, Product Safety, Social Opportunities, Corporate Governance, Business Ethics, and Government & Public Policy. In Q1 2015, we merge the themes Business Ethics and Government & Public Policy into "Corporate Behavior" and add a new theme, "Stakeholder Opposition".

Please see the full IVA Methodology Document for the list of criteria used to assess the addition of Company-Specific Key Issues.

2.1.3 Setting Key Issue Weights

Once the Key Issues have been selected for a GICS subindustry, we set the weights that determine each Key Issue’s contribution to the overall rating. Each Key Issue typically comprises 5-30% of the total IVA rating. The weightings take into account both the contribution of the industry, relative to all other industries, to the negative or positive impact on the environment or society; and the timeline within which we expect that risk or opportunity for companies in the industry to materialize, as illustrated conceptually below.

Figure 2: Framework for Setting Key Issue Weights

Level of Contribution to Environmental or Social Impact		Expected Time frame for Risk/Opportunity to Materialize	
		Short-Term (<2 years)	Long-Term (5+ years)
	Industry is <u>major</u> contributor to impact	Highest Weight	
	Industry is <u>minor</u> contributor to impact		Lowest Weight

The framework is such that a Key Issue defined as “High Impact” and “Short-Term” would be weighted three times higher than a Key Issue defined as “Low Impact” and “Long-Term”.

2.2 Collection of Data on Key Issues

On each Key Issue, the analyst collects a wide range of data to address the question: “To what extent is risk management commensurate with risk exposure?”

2.2.1 Data Sources

We measure the level of risk exposure each company faces by combining company-specific data on the company’s operations with macro-level data relevant to each Key Issue.

- Data sources used to determine characteristics of a company’s operations include its corporate reporting (annual reports, investor presentations, financial and regulatory filings).
- Data sources used to map macro-level risk exposure to companies’ geographies of operation and business segments (SIC) include: Comprehensive Environmental Data Archive (CEDA); US Department of Energy; International Council on Clean Transportation; Lamont-Doherty Earth Observatory, Columbia University; OECD; Canadian Industrial Water Survey; University of New Hampshire's Water Systems Analysis Group (country data); Hoekstra, A.Y. and Mekonnen, M.M. (2011);Ecorisk; Global Environment Facility of Biodiversity (World Bank WDI); Regulations and Political commitments (World Bank WDI); Annual Change of Forest Resources (FAO); World Wildlife Fund; US EPA’s Toxics Release Inventory (TRI); Risk-Screening Environmental Indicators (RSEI) databases; US Bureau of Labor Statistics; US Bureau of Labor Statistics; International Labour Organization;US Occupational Health & Safety Administration

(OSHA); UK Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR); International Chemical Secretariat (ChemSec) Substitute It Now (SIN) List; International Monetary Fund; World Health Organization; World Bank, Selin, N.E. et al. (2009); UN Principles for Responsible Investments; World Resource Institute; Consultative Group to Assist the Poor; US Census Bureau Current Population Survey Supplement; World Bank Governance Indicators; Bribe Payers Index (Transparency International); Corruption Perception Index (Transparency International); World Bank; SNL Financial; Thomson Financial.

In assessing company risk management capabilities, we obtain information from the following sources:

- **Corporate documents:** annual reports, proxy filings, environmental and social reports, securities filings, websites, and Carbon Disclosure Project responses.
- **Government data:** central bank data, U.S. Toxic Release Inventory, Comprehensive Environmental Response and Liability Information System (CERCLIS), RCRA Hazardous Waste Data Management System, etc. We continue to assess the value of other, similar information sources, particularly for European companies.
- **Popular, trade, and academic journals:** accessed through websites, subscriptions, and searches of online databases.
- **News media:** Major news publications globally, including local language sources across a range of markets.
- **Relevant organizations and professionals:** reports from and interviews with trade groups, industry experts, and nongovernmental organizations familiar with the companies' operations and any related controversies.

2.2.2 Data Verification and Company Communication

Please refer to [Appendix 4 – MSCI ESG Research Policy on Communication with Corporates](#).

Corporate Communications:

MSCI ESG Research is committed to answering questions from companies concerning their IVA company report in a timely fashion.

All companies are provided with their latest published IVA company report upon request.

Data Verification:

Companies are invited to participate in the data verification process prior to the annual update of their IVA rating. Companies have the opportunity to comment on a formal Data Verification Company Report that contains ESG data that MSCI ESG Research has collected for use in the IVA company report and in other MSCI ESG products. During this process, companies have the opportunity to provide MSCI's ESG Research team any additional ESG information if they wish. In addition, MSCI ESG Research analysts may follow-up directly with a company to clarify questions concerning ESG performance data.

Due to publication schedules, feedback provided to MSCI ESG Research after a stated Data Verification deadline may not be incorporated by the specified publication date. However, any feedback provided to MSCI ESG Research after the annual research publication will be reviewed and incorporated in a timely fashion. Please note that updates to ESG data will not necessarily result in changes to a company's IVA rating.

2.3 Analyzing Risk Exposure

Each Key Issue model consists of two components: risk exposure and risk management. This distinction allows the model to adjust the strength of management systems required to achieve a given Key Issue score: companies facing higher risk exposure must have stronger management practices in place to mitigate their risks. Conversely, the model does not penalize companies with minimal management strategies if they face low or minimal exposure to the specific risk. For Key Issues that assess opportunities rather than risk, we evaluate each company's exposure in order to assess the relevance of those particular business opportunities for a given company.

Our assessment of exposure may be comprised of three different areas of analysis, depending on the Key Issue:

- **Business Segment Risk Exposure** – analyzes the breakdown of a company's business in terms of revenues, assets, or operations
- **Geographic Segment Risk Exposure** – analyzes the breakdown of a company's geographic segments in terms of revenues, assets, or operations
- **Additional Company-Level Risk Exposure** factors

To assess **Business Segment Exposure**, we collect data on the breakdown of a company's revenues and/or operations by Standard Industry Classification (SIC) Code. Each of over 1,000 SIC Codes receives a risk (or opportunity) score based on our analysis of large amounts of data relevant to each Key Issue. SIC risk scores typically measure the expected external impact of a given business activity, e.g. expected carbon emissions per dollar of revenue, expected accident or fatality rate, expected water consumption per dollar of revenue, expected toxicity of output, etc.

The company's overall Business Segment Exposure Score is the weighted average of the individual segment risk scores, weighted by the percentage of sales, percentage of assets, or percentage of operations (defined as reserves, generation capacity, etc.) – depending on the nature of the Key Issue.

To allow for more granular analysis of risk exposure, we further break down SIC Codes in a number of industry-specific ways, for example:

- Oil & Gas – onshore vs. offshore drilling; oil sands mining vs. in situ; shallow, deep-water or ultra-deep-water offshore; Arctic drilling; etc.
- Metals & Mining – surface mining vs. underground
- Electric Utilities – transmission, distribution, or generation; nuclear, hydro, coal, lignite, oil, gas, renewable
- Semiconductors – fab vs. non-fab
- Real Estate Investment Trusts – office, residential, industrial, health care, etc.

To assess **Geographic Segment Exposure**, we analyze the geographic segmentation of sales, assets, and operations. In general, segments are defined as countries of operations, but for some Key Issues we assess geographic exposure at a sub-national level, for example mapping facilities to distinct water basins. Furthermore, when country-level segmentation is not available, we estimate country exposure by using the GDP-weighted breakdown of regions.

Geographic Segment Exposure Scores are assigned to each country for Key Issues where we observe differences across countries in the level of risk or opportunity, based on factors such as:

- Stringency and expected change in regulations

- Country-level risk factors such as differential employee fatality rates or corruption levels
- For opportunities, differences in incentive structures and subsidies by country

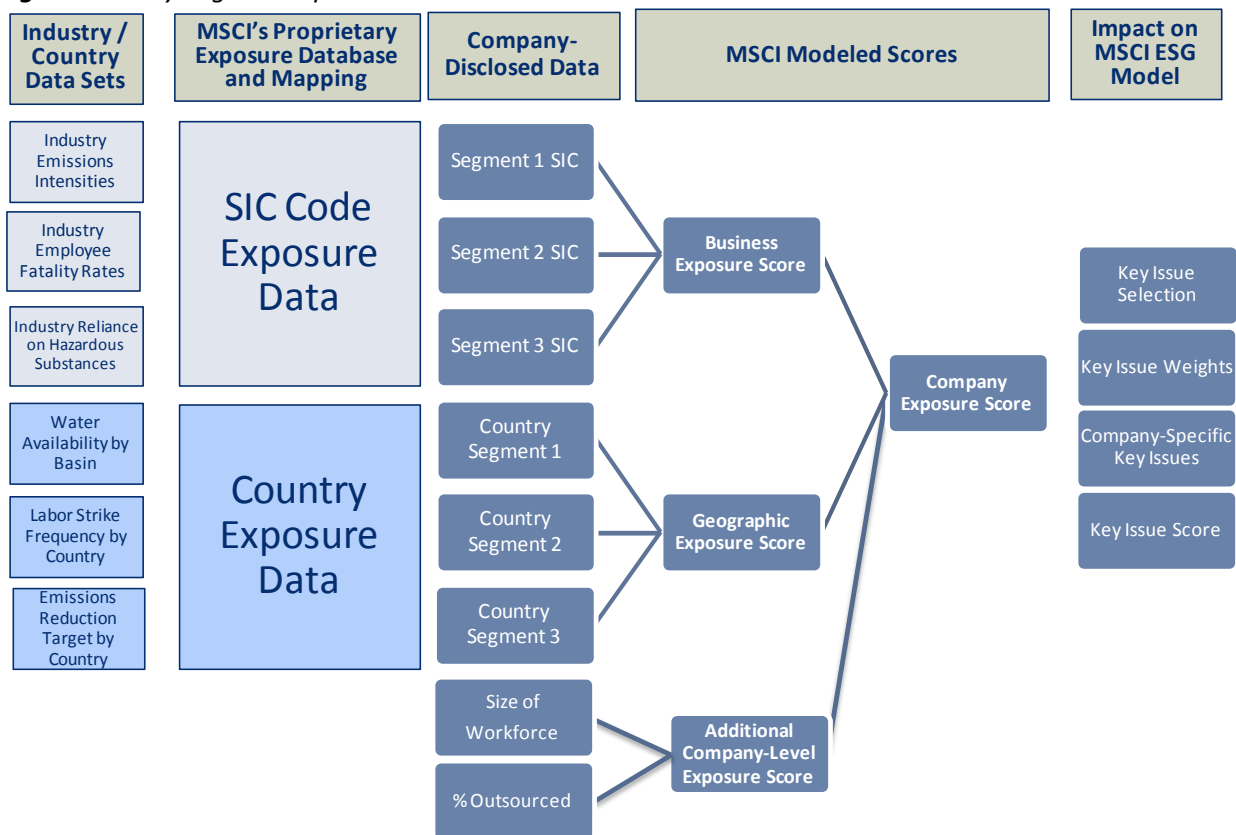
The overall **Geographic Exposure** score for a company is the weighted average of the individual geographic segment scores.

Geographic Segment Exposure is combined with Business Segment Exposure through a multiplicative relationship, where a high level of geographic exposure will always increase a company’s overall Exposure Score, and a low level of geographic exposure will always decrease a company’s overall Exposure Score.

Finally, for certain Key Issues we assess **additional measures of exposure**, including number of employees, reliance on government contracts, volume of sensitive commodities sourced, estimated percentage of production that is outsourced, etc.

Please see the full IVA Methodology Document for a comprehensive list of metrics and data sources used to assess the Risk Exposure of companies on each Key Issue.

Figure 3: Analyzing Risk Exposure



2.4 Analyzing Risk Management

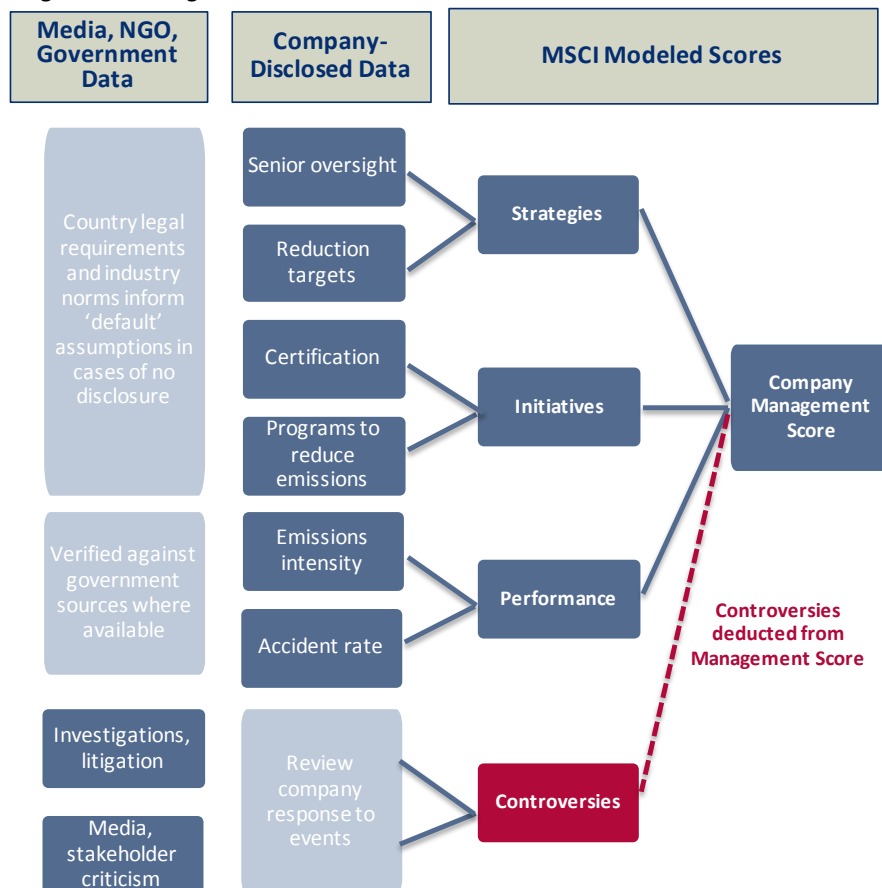
2.4.1 Components of Risk Management Assessment

Our assessment of company’s ability to manage its risk exposure on a Key Issue typically falls into three broad categories:

- Strategy & Governance
- Initiatives
- Performance

Although specific indicators differ across Key Issues, the ‘Strategy & Governance’ section typically evaluates organizational capacity and company management’s level of commitment to address the key risks and opportunities, including such aspects as the level and extent of organizational responsibility for the specific risks/opportunities, strength and scope of policy commitments, and strength and scope of commitment to standards. The ‘Initiatives’ section typically evaluates the strength and scope of the initiatives, programs, and targets in place to improve performance on the issue. The ‘Performance’ section evaluates the company’s track record on managing the specific risk or opportunity. ‘Performance’ involves collecting, standardizing, and benchmarking a range of quantitative indicators where applicable, as well as an evaluation of qualitative indications of performance. As part of the qualitative indication of a company’s performance on an ESG Issue, we incorporate information on controversies in which a company has been implicated.

Figure 4: Analyzing Risk Management



2.4.2 Controversies Cases

MSCI ESG Research has a dedicated team of analysts who identify and assess the severity of controversies cases that involve companies in our ratings universe on an ongoing basis. A controversy is defined as alleged violations of laws and regulations, as well as alleged actions that violate commonly accepted norms, including but not limited to norms represented by global conventions such as the UN Global Compact. Controversies cases that cross a threshold for severity – typically ‘moderate’, ‘severe’, and ‘very severe’ -- are incorporated as part of the analysis of company’s risk management on that Key Issue. The definition of severity levels is as follows:

- **Very Severe:** Indicates a controversy that has resulted in a very large negative impact on society and/or the environment
- **Severe:** Indicates a controversy that may result in a large negative impact on society and/or the environment
- **Moderate:** Indicates a controversy that may result in a moderate negative impact on society and/or the environment

IVA analysts typically assess whether the controversies case indicates structural problems with a company’s risk management capabilities. In the IVA scoring model, a controversies case that is deemed by an analyst to indicate structural problems that could pose future material risks for the company triggers a larger deduction from the Key Issue score than a controversies case that is deemed an important indicator of recent performance but not a clear signal of future material risk. Conversely, analysts can propose to the IVA Methodology Committee (see [2.6 Reality Check & QA](#)) to exclude a controversies case from the risk management assessment when a controversies case has been well-addressed by a company’s management practices and deemed unlikely to pose future material risk to the company.

Appendix 5: EXCERPT of Key Issues lists all the indicators collected for assessment of one Key Issue. Please refer to the IVA Methodology Document for a list of indicators collected for all 34 Key Issues in the IVA Model.

2.5 Determining Final Ratings

Each company receives a score on each Key Issue ranging from 0 to 10. The scores evaluate the companies’ risk or opportunity exposure and ability to manage that exposure.

2.5.1 Determining Key Issue Score

For Key Issues that assess risks, the Risk Exposure Score and Risk Management Score are combined such that a higher level of Exposure requires a higher level of demonstrated Management capability in order to achieve the same overall Key Issue Score.

For Key Issues that measure opportunity (Opportunities in Clean Tech, Opportunities in Green Building, Opportunities in Renewable Energy, Opportunities in Nutrition & Health, Access to Finance, Access to Health Care, Access to Communications), the model for combining the Exposure Score and Management Score differs. Exposure indicates the relevance of this opportunity to a given company based on its current business and geographic segments. A high level of Exposure permits a wider range of outcomes, whereas a low level of Exposure constrains the score closer to a value of five.

The reasoning is that at higher levels of Exposure, companies have more to gain from exploiting the opportunity, but they also have more to lose from a competitive standpoint if they fail to capitalize on the opportunity. At low levels of Exposure, we judge the immediate opportunities facing the company to be less material; however, strong management systems, product innovation, or R&D programs may indicate a stronger capacity to take advantage of future opportunities, and a competitive advantage for the firm.

Effective January 2015, the Corporate Governance Score utilizes a different calculation methodology, to account for the fact that Corporate Governance risks face all companies regardless of Industry, Business Segments, or Geographic Segments. All companies begin with a perfect score of 10.0 and deductions are applied based on a company's performance across 96 governance metrics covering the areas of Board, Pay, Ownership & Control, and Accounting.

For more details and illustrations on the calculation of the Key Issue score, please refer to the full IVA Methodology Document.

2.5.2 Interpreting Key Issue Scores

Key Issue Scores range from 0 to 10. For the 'Risk' Key Issues, the scores can be interpreted as follows:

- 10 – Indication that risk management is anticipating future risks, limited probability of adverse impact to company.
- 7 – Indication that risk management is anticipating future risks, still some probability of adverse impact to company.
- 5 – Risk management is commensurate with current level of risk exposure, but not anticipating future risks; some probability of adverse impact to company.
- 3 – Risk management is not commensurate with current level of risk exposure; unmitigated risk could adversely affect the company.
- 0 – Serious gap in risk management of current level of risk exposure, high level of unmitigated risk that could adversely affect the company.

For the 'Opportunities' Key Issues, the scores can be interpreted as follows:

- 10 – Indication that the company's innovation programs are anticipating future opportunities in its markets, where a high level of opportunities is anticipated.
- 7 – Indication that the company's innovation programs are anticipating future opportunities in its markets, where a moderate level of opportunities is anticipated.
- 5 – Indication that the company's innovation programs are commensurate with the current level of opportunities in its markets, where a low level of opportunities is anticipated.
- 3 – Indication that the company's innovation programs are not commensurate with the current level of opportunities in its markets, where a moderate level of opportunities is anticipated.
- 0 – Serious gap in the company's innovation programs and the current level of opportunities in its markets, where a high level of opportunities is anticipated.

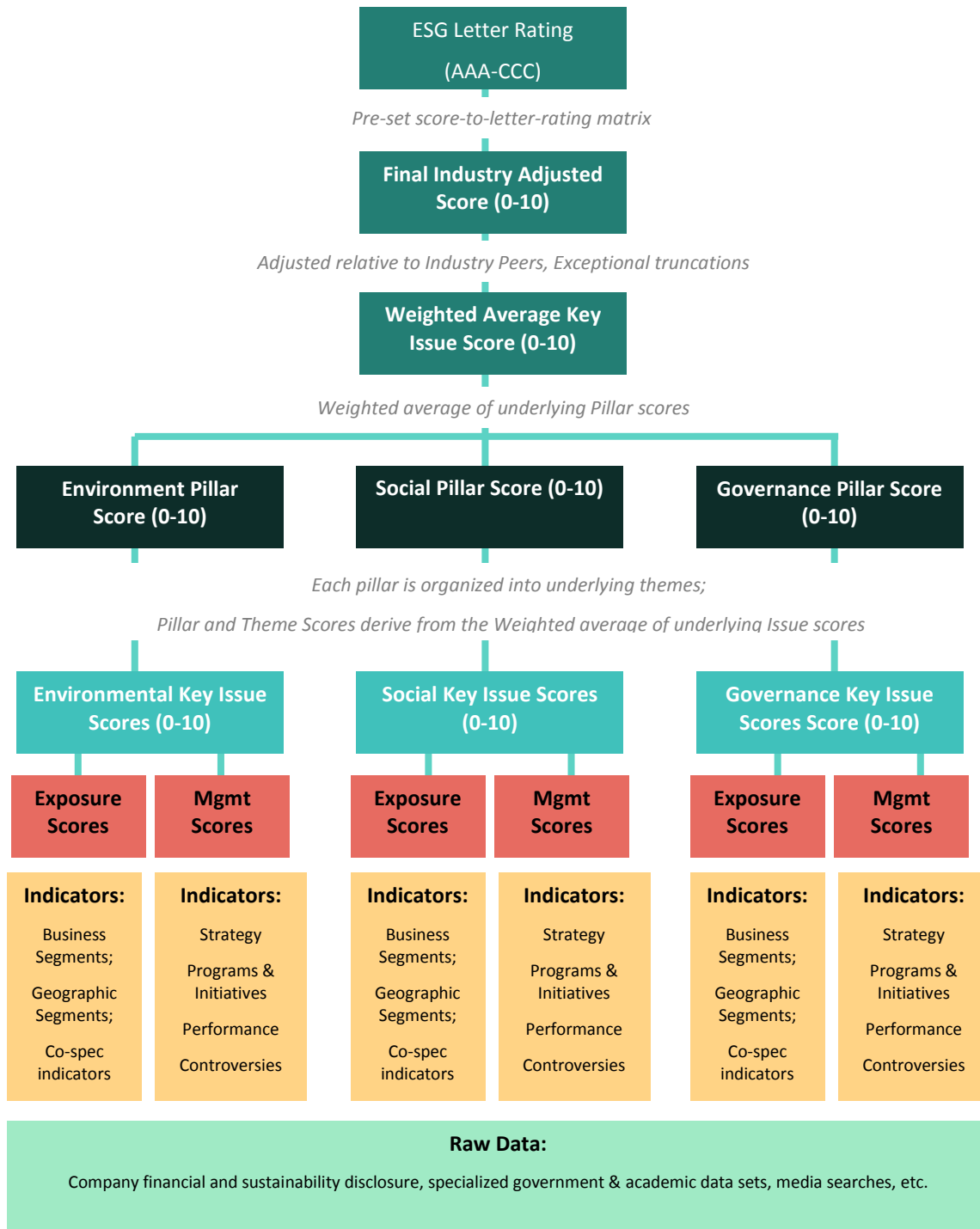
2.5.3 Determining Final Ratings

To arrive at a final letter rating, the weighted averages of the Key Issue Scores are aggregated and companies' scores are normalized by their industries. A benchmark peer set (comprised of MSCI World and MSCI EM Index constituents within an IVA Industry – please see [Appendix 8: Letter Ratings](#) for details on the peer set) is used to calculate industry-relative ratings to ensure that companies' relative ratings do not change when other companies are added to or removed from the peer set. The highest scoring benchmark company receives a 10 as its **Preliminary Industry-Adjusted Score** and the lowest scoring benchmark company receives a 0. Any company outside the official benchmark peer set that receives a score higher than the highest benchmark company in its industry, or lower than the lowest benchmark company, receives a score of 10 or 0 respectively.

After any override considerations are factored in, each company's **Final Industry-Adjusted Score** corresponds to a rating between best (AAA) and worst (CCC).

These assessments of company performance are not absolute but are explicitly intended to be relative to the standards and performance of a company's industry peers.

Figure 5: Hierarchy of IVA Scores



2.6 Reality Check & QA

2.6.1 Key Steps in Quality Review Process

The IVA ratings process has built in multiple steps to assure the quality of the analysis as well as the consistency of the methodology and the ratings signal. Three groups are responsible for quality assurance: Industry and Team Leads; the IVA Methodology Committee; and the ESG Ratings Review Committee.

In 2014, the IVA Methodology Committee is composed of the Global Head of ESG Research; the Head ESG Fixed Income Research; the Head of IVA Methodology; and rotating members of the IVA Research Team representing the North American, European, and Asia-Pacific teams.

The ESG Ratings Review Committee is composed of the Managing Director of Index and ESG Research; Managing Director of MSCI Index Research – APAC; Executive Director of ESG Product Development; Global Head of ESG Research; and two other senior members of the ESG business.

2.6.2 Ratings and Committee Review

In the course of ratings research for company, the following quality assurance processes are in place:

- **Industry Ratings Review:** Ratings and scores for companies in an industry peer group are reviewed by a group of senior analysts – typically the Industry Lead and the Regional Team Lead -- before analysts can finalize the ratings and commence writing company reports. At this point of the process, any ratings movements and the ratings distribution across industries are reviewed, and analysts defend their assessment to Industry and Team Leads. Any significant issues are escalated to the IVA Methodology Committee for further review and resolution.
- **IVA Methodology Committee Review:** On a weekly basis, analysts bring company research to the IVA Methodology Committee Review when they encounter triggers that include the following:
 - Proposal to add a Company-Specific Key Issue in a company's assessment (see Company-Specific Key Issues)
 - Ratings jump of more than two notches
 - New 'AAA' or 'CCC' rated company
 - Requests for truncation of company rating
 - Requests for deviations from the weights for Industry Key Issues due to significant differences in business model from the industry peer set
 - Requests to deviate from standard methodology for including or excluding controversies cases in a company's ratings analysis
- **ESG Ratings Review Committee:** This committee considers proposals for methodological changes across the ESG Research Group. IVA Ratings research issues that are typically considered at the RRC level include the following:
 - Upgrade, downgrade, or requests for truncation of IVA ratings of the highest profile companies
 - Event-driven mid-cycle ratings review of the highest profile companies
 - Annual proposal of changes to Industry Key ESG Issues or weighting methodology

- Changes to IVA ratings methodology
- **Quality Review Committee:** aims to conduct data quality checks on all companies prior to the IVA publication that occurs twice every month. The QRC's model is built on query extracts from internal databases. The QRC has also instituted automated quality checks in these databases that flag the Committee whenever pre-specified conditions relating to ratings/score changes are triggered, or in case of any suspect values. The reports that do not meet the quality standards are sent back to analysts for review/correction.

2.6.3 Thought Leaders Council

The goal of the MSCI ESG Research Thought Leaders Council is to stay on the leading edge in research methodology by regularly seeking feedback and opinions from external experts in key industries and relevant ESG issue areas. The MSCI ESG Research Thought Leaders Council consists of a series of about four panels annually, with three to six members on each panel. We aim to assemble international experts with recognized leadership and expertise on the topic area related to the panel. The first panel was held on February 2014 on the Pharmaceuticals industry. The topic areas for the future panels include clean technologies and ESG issues in the mining and energy sectors.

2.7 Ongoing Monitoring & Update Cycle

Company ratings are updated on an annual cycle. For companies in the MSCI World Index, ratings are updated with their industry peers. All other companies are updated within a twelve-month timeframe of their previous rating assessment, typically with their industry peers. When a company drops out of IVA's official coverage universe – for example, due to turnover in index constituents or due to corporate actions – the company's rating and report will no longer be updated, and its rating and report will be removed from the MSCI ESG Manager platform the following day, and from data feeds at the next scheduled data feed delivery (usually the 1st of the following month).

Exceptions to the annual review may occur in the following circumstances:

- The company is implicated by an ESG-related controversy that is assessed by MSCI ESG Research to be 'Very Severe.'
- The company faces financial risks from involvement in an extraordinary 'ESG Event' with substantial negative social or environmental impact, including but not limited to contribution to large number of injuries, deaths, or imminent health/safety threats; environmental damage requiring government intervention; or serious allegations of breaches of business ethics, or corrupt or anticompetitive practices coming to light.
- The company's Corporate Governance assessment changes substantially (defined based on the magnitude of the overall score change) due to material governance events or filings.

In these cases, a mid-cycle review is initiated and approved by the Ratings Review Committee.

2.8 Report Writing

2.8.1 Company Reports

Companies vary in the complexity of their businesses and of the ESG issues they face. The amount of text that analysts write to communicate concerns and other analysis will vary widely depending on the nature and size of the companies being analyzed. IVA company reports across our coverage, however, cover the following areas:

- **Final Rating:** Company's final rating, how it has changed from the previous year, and the key reasons for any rating change;
- **E, S, G Pillar Weights and Scores:** How the company performs on the Key Issues underlying the Environment, Social, and Governance pillars, and the weight each of these pillars contributes to the final rating;
- **Overall Performance on Key Issues:** How the company performs on each Key Issue overall and relative to its industry peers, and the weight that each Key Issue contributes to the final rating;
- **Level of Risk Exposure on Each Key Issue:** An assessment of the company's level of risk exposure relative to peers, and the reasons for its higher or lower risk relative to peers, often based on its types of products/services, geographic locations of operation, other business characteristics (e.g. type of physical assets, size of workforce) relevant to risks associated with each Key Issue;
- **Strength of Risk Management on Each Key Issue:** An assessment of the company's ability to manage its risks relative to peers, providing details on performance metrics wherever possible, and taking into account policies and commitments where performance metrics are not available;
- **Controversies relevant to each Key Issue:** A summary of the controversies cases that contribute to the assessment of a company's Risk Management capabilities on each Key Issue is included. A controversy case typically has to clear a threshold of being considered at least a 'Moderate' level controversy to be included in the report;
- **Headline Indicators:** A list of the key data indicators contributing to an assessment of a company's Risk Management capabilities are included for each Key Issue contributing to the company's overall rating;
- **Other Risks or Opportunities:** A brief summary and assessment of additional risks or opportunities not covered under the Key Issues. These are typically additional areas on watch by analysts, such as emerging issues that may increase in importance in future or legacy issues that could still cause ongoing concerns.

2.8.2 Industry Reports

For each IVA industry, analysts publish an updated industry report on an annual basis that feature at-a-glance highlights of the most significant trends in risks and opportunities related to ESG factors. Industry Reports are typically published within one month of when the rating and analysis of companies in the MSCI World Index on a given industry are updated. Industry Reports include high impact graphics and charts based on rigorous benchmarking analysis for the peer set of companies in the MSCI World Index, plus other selected global peers, in an industry.

Each report covers the follow areas:

- **Summary of Key Trends in the Industry:** Major regulatory developments in key markets affecting the peer set; significant ESG events and developments affecting the risk and opportunities profiles of companies in the peer set; significant trends and performance changes over the past year among companies in the peer set;
- **Summary of Overall Company Ratings, Ratings Changes, Key Issue Performance, and Key Issue Weights** for companies in the peer set;
- **Analysis and Benchmarking for Each Industry Key Issue:** Rationale for how the Key Issue presents material risks and opportunities for companies in the in peer set; Competitive dynamics, regulatory and other changes affecting the financial materiality of the Key Issue for the peer set; Performance trends among peer set on the Key Issue; Comparison of drivers of Risk Exposure on the Key Issue for the peer set; Comparison of Risk Management capabilities on the Key Issue for the peer set; Benchmarking of performance metrics for the peer set, where applicable; Examples of company Best Practices and Biggest Concerns, where applicable;
- **Ratings Methodology:** Determinants of weights associated with each industry Key Issue; List of Indicators used to assess Risk Exposure and Risk Management on each Key Issue.

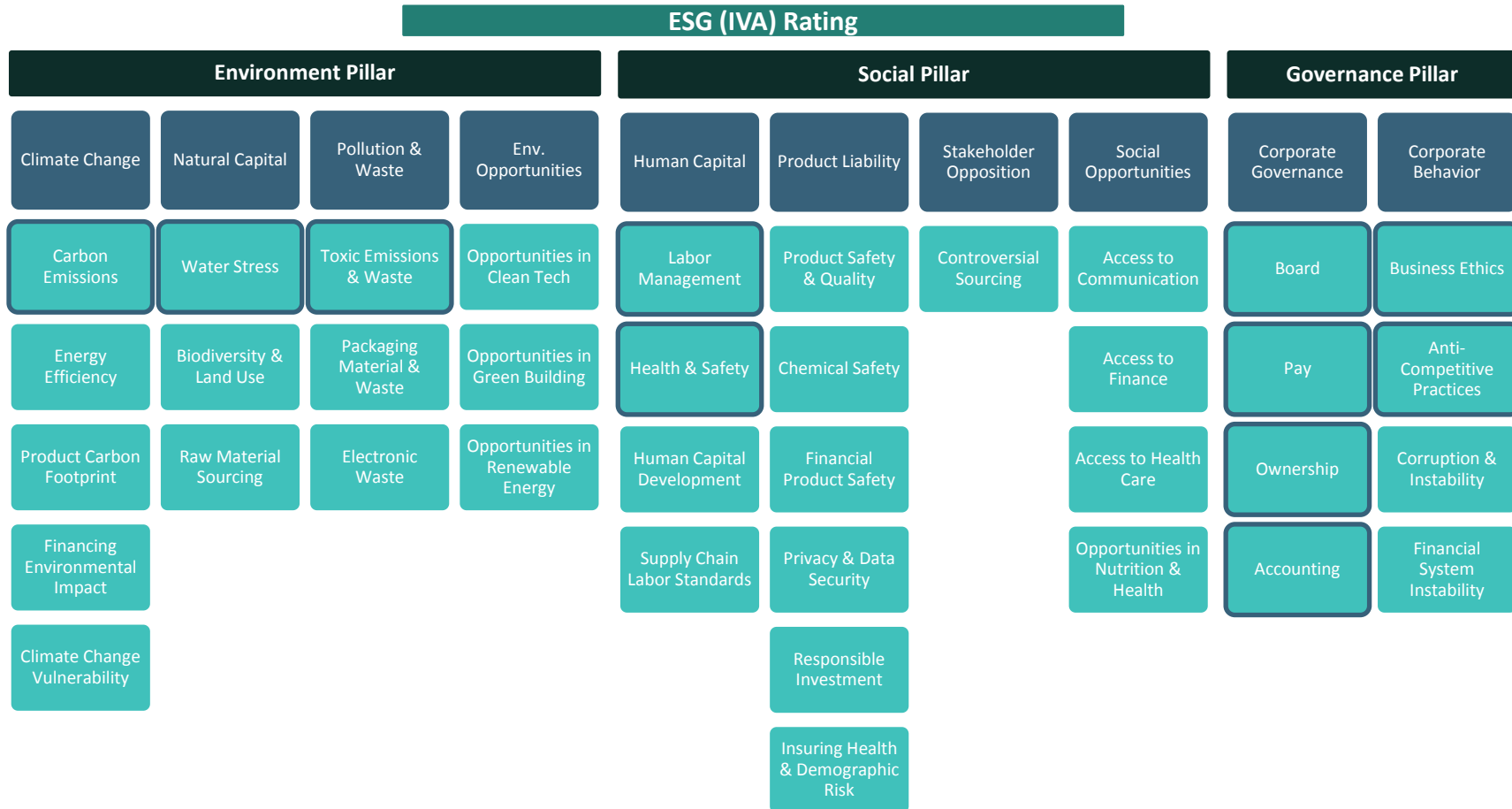
2.8.3 Thematic Reports

MSCI ESG Research publishes approximately ten thematic reports per year, which are made available to IVA clients to provide an in-depth, cross-industry look at topics of particular interest. Thematic reports cover both specific issue areas (e.g. Water Stress, Carbon Emissions, Clean Technology, Supply Chains, Cost of Corruption, etc.) and regional themes (e.g. South Africa, Canada, China, Latin America, and Japan).

Shorter Issue Briefs are also published on an ad hoc basis to address timely topics of concern.

Appendix 1: IVA Model Hierarchy

ESG Hierarchy Effective Q1 2015

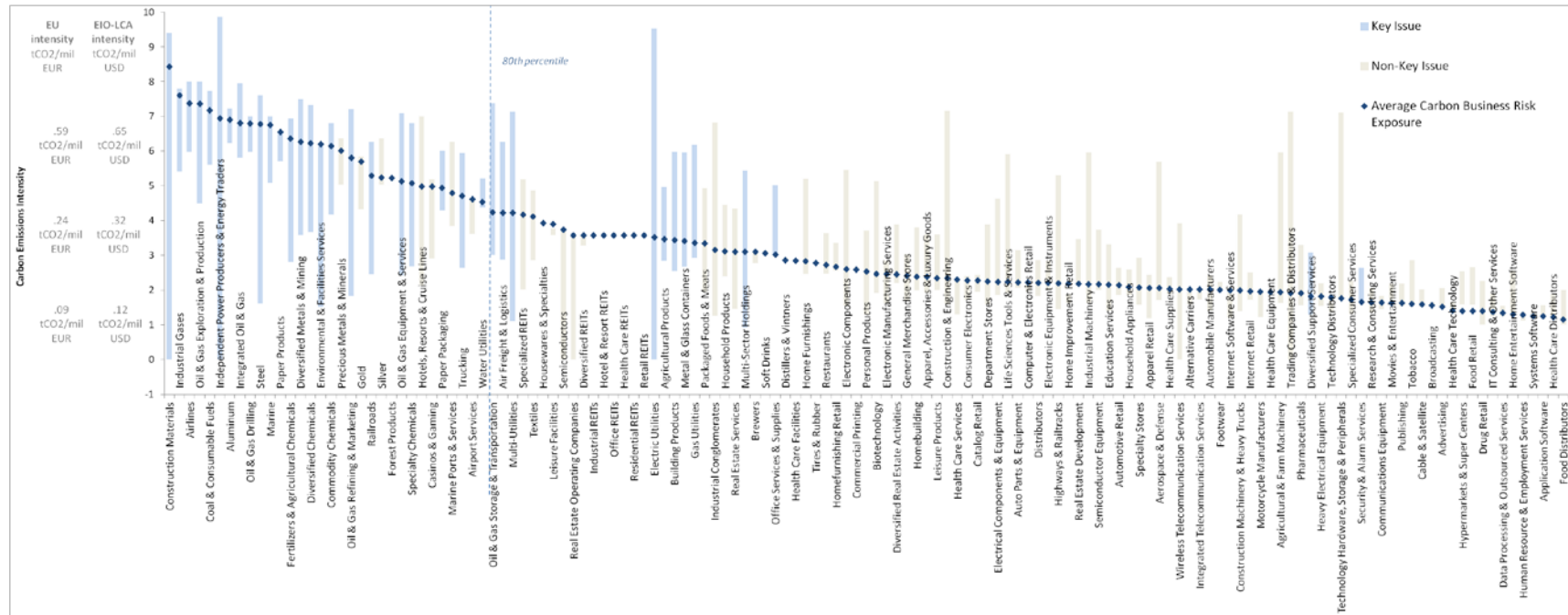


Appendix 2: EXCERPT of MSCI ESG Industry Key Issues Map

For a mapping of 2015 Key Issues for all 156 GICS Subindustries, please see the full IVA Methodology Document.

Pillar		Environmental											Social								Governance																			
Theme		Climate Change		Natural Capital			Pollution & Waste		Environmental Opportunities			Human Capital			Product Liability			Stakeholder Opp.	Social Opportunities		Corp. Gov.		Corporate Behavior																	
GICS Sub-Industry	Key Issue (2014) Company-specific KI Added in 2015 Removed in 2015	Carbon Emissions	Energy Efficiency	Product Carbon Footprint	Climate Change Vulnerability	Water Stress	Biodiversity & Land Use	Raw Material Sourcing	Financing Environmental Impact	Toxic Emissions & Waste	Packaging Material & Waste	Electronic Waste	Opportunities in Clean Tech	Opportunities in Green Building	Opportunities in Renewable Energy	Labor Management	Health & Safety	Human Capital Development	Supply Chain Labor Standards	Product Safety & Quality	Chemical Safety	Financial Product Safety	Privacy & Data Security	Insuring Health & Demographic Risk	Responsible Investment	Controversial Sourcing	Access to Communications	Access to Finance	Access to Health Care	Opportunities in Nutrition & Health	Board	Pay	Ownership & Control	Accounting	Business Ethics and Fraud	Anticompetitive Practices	Corruption & Instability	Financial System Instability		
		10101010	Oil & Gas Drilling	■							■							■																						
10101020	Oil & Gas Equipment & Services								■							■																								
10102010	Integrated Oil & Gas								■							■																								
10102020	Oil & Gas Exploration & Production								■							■																								
10102030	Oil & Gas Refining & Marketing								■							■																								
10102040	Oil & Gas Storage & Transportation								■							■																								
10102050	Coal & Consumable Fuels	■							■							■																								
15101010	Commodity Chemicals	■							■											■																				
15101020	Diversified Chemicals	■							■											■																				
15101030	Fertilizers & Agricultural Chemicals	■							■											■																				
15101040	Industrial Gases	■							■											■																				
15101050	Specialty Chemicals	■							■											■																				
15102010	Construction Materials	■							■											■																				
15103010	Metal & Glass Containers	■							■											■																				
15103020	Paper Packaging	■							■											■																				
15104010	Aluminum	■							■											■																				
15104020	Diversified Metals & Mining	■							■											■																				
15104030	Gold								■											■																				
15104040	Precious Metals & Minerals								■											■																				
15104045	Silver								■											■																				
15104050	Steel	■							■											■																				
15105010	Forest Products	■							■											■																				
15105020	Paper Products	■							■											■																				

Appendix 3: Example of How Industry Key Issues Are Selected: 'Carbon Emissions'



Exceptions: Precious Metals, Gold, Silver, Marine Ports, Hotels & Cruise Lines, Casinos & Gaming, Airport Services, Diversified Support Services, Security & Alarm Services, Mortgage REITs, Asset Management

Notes: Bar length denotes minimum and maximum business risk scores within a GICS Sub-Industry. Certain GICS Sub-Industries (15th percentile and below) are not shown in the chart; n = 2,412 companies; Scope includes IVA coverage of MSCI World and MSCI Emerging Markets Indices as of 09/30/2014.

Sources: CEDA, Eurostat, MSCI ESG Research

Appendix 4: MSCI ESG Research Policy on Communication with Corporates

MSCI ESG Research is committed to robust and transparent communication with all issuers in our coverage universe. This commitment includes:

- A data verification process that allows companies to verify the accuracy of company data for all MSCI ESG Research reports.
- Free access for issuers to published versions of all their MSCI ESG Research company reports.
- Direct communication with a company concerning specific company ESG performance.
- A timely response to company-initiated requests to discuss their MSCI ESG Research reports.

Appendix 5: EXCERPT of IVA Key Issues

For details on metrics used to assess all Key Issues, please see the full IVA Methodology Document.

Key Issue: Carbon Emissions

This key issue evaluates the extent to which companies face increased costs linked to carbon pricing or regulatory caps. Companies that proactively invest in low-carbon technologies and increase the carbon efficiency of their facilities or products score higher on this key issue. Companies that allow legal compliance to determine product strategy, focus exclusively on activities to influence policy setting, or rely heavily on exploiting differences in regulatory frameworks score lower.

Social or Environmental Impact	<ul style="list-style-type: none"> Contribution to climate change
Risk/Opportunity to Company	<ul style="list-style-type: none"> Increased costs linked to carbon pricing or trading Facility retrofits Potential operational disruptions related to regulatory caps
Exposure Metrics	<ul style="list-style-type: none"> Extent to which companies emit GHG in jurisdictions where regulations on carbon emissions are stringent or becoming more stringent Extent to which companies' main business activities are carbon-intensive based on economic input-output model estimating total GHG emissions relative to sales

Management Metrics Efforts to reduce exposure through comprehensive carbon policies and implementation mechanisms, including carbon reduction objectives, production process improvements, installation of depollution or emissions capture equipment, and/or switch to cleaner energy sources.

Category	Management Metrics
Targets*	<p>Aggressiveness of target in the context of current performance*</p> <ul style="list-style-type: none"> Carbon Improvement Targets* Target Year* Target Reduction (%)* Baseline, Baseline Year* Target Description* Highest Overall Target Year Highest Overall Carbon Improvement Target Highest Overall Target Description Highest Overall Target Percentage <p>Demonstrated track record of achieving carbon reduction targets</p>
Mitigation*	<p>Programs or actions to reduce the emissions intensity of core operations*</p> <ul style="list-style-type: none"> Use of cleaner sources of energy* Capture GHG emissions Energy consumption management and operational efficiency enhancements* Reduce future energy consumption (e.g. demand-side management programs)

	Other initiatives (e.g. carbon offsets) CDP disclosure
Performance*	<p>Trend in GHG emissions intensity*</p> <p>GHG emissions intensity vs. peers*</p> <p><i>GHG Emissions - metric tons CO₂e*</i></p> <p><i>Year*</i></p> <p><i>Scope 1 GHG emissions*</i></p> <p><i>Scope 2 GHG emissions*</i></p> <p><i>Scope 1 plus 2 GHG emissions*</i></p> <p><i>Scope 3 (upstream) GHG emissions*</i></p> <p><i>Scope 3 (downstream) emissions*</i></p> <p><i>Scope 3 (undefined) emissions*</i></p> <p><i>GHG emissions details*</i></p> <p><i>Scope 1 Estimated</i></p> <p><i>Scope 2 Estimated</i></p> <p><i>Scope 1+2 Estimated</i></p> <p><i>Estimate Key</i></p> <p><i>GHG Emissions Intensity - metric tons CO₂e / USD million sales*</i></p> <p><i>Year*</i></p> <p><i>Company Sales*</i></p> <p><i>GHG Intensity*</i></p> <p><i>GHG Intensity Details*</i></p> <p><i>Intensity Key</i></p> <p><i>GHG Intensity – Reported</i></p> <p><i>GHG Intensity – Reported Details</i></p>

* Baseline Indicators. Please see the **Variations in Disclosure** section above for information on Baseline Indicators.

Industry Groups Using Key Issue	<ul style="list-style-type: none"> • Energy • Materials • Capital Goods • Commercial & Professional Services • Transportation • Food Beverage & Tobacco • Diversified Financials • Real Estate • Utilities
Data Sources	<ul style="list-style-type: none"> • Company disclosure and news searches • Carbon Disclosure Project (CDP) • Environment regulatory agencies (EPA, EEA) • Comprehensive Environmental Data Archive (CEDA) • Eurostat – Air Emissions Accounts by Activity

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¹ As of September 30, 2013, as reported on January 31, 2014 by eVestment, Lipper and Bloomberg

May 2014