

Emissions Accounting Education 2: Company Data & Emissions

Overview for Education Sessions

What education sessions will be available and who will be best placed to attend? (1-hour sessions)

We have organised education session to ensure all market participants have a foundation to feed into product interviews – we want to hear from as many market participants as possible and have offered guidance below, summarising the education and who we think may be best placed to attend.

Workstream	Activity	Heads of ...	Technical Analysts	Underwriters	Brokers	Investment Managers
Baseline	Introduction to the Emissions Baseline and PCAF Methodology	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Baseline	Company Data & Emissions: Name Matching, Enrichment, Estimating Emissions		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Transition	Ad-hoc education sessions possible topics: Scenarios, Portfolio Alignment, Taxonomies	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Planned

For consideration - due to unexpected levels of engagement we are planning to include separate sessions for the wider-insurance industry

9

Session 2: Company Data & Emissions

Speakers



Justin Whitehouse

Associate Director
Insurance Practice
Introduction and Q&A



Gaetano Marrone

Associate Product Consultant
Data Solutions
Company Matching



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Data Solutions
Project Management



Fatima Lokhandwala

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Data Solutions
Moody's Orbis -Financial Data



Amanda Lebic

AVP – ESG and Climate data
Data Solutions
GHG Emissions Data



Jose Luis Luna Alpizar

Associate Dir. Mgr. Data Science
Predictive Analytics.
GHG Emissions Data

Contact the team: LloydsLabMoodysPoC@moodys.com

Agenda: Company Data and Emissions:

1. Introduction (5 mins)

- Recap of PCAF Standard and IAE calculation

2. Company Matching (15 mins)

- Matching inputs and rules
- Matching results and insights

3. Financial Data (15 mins)

- Coverage and sources
- Financial data for the PCAF standard
- Additional firmographic data

4. GHG Emissions Data (15 mins)

- Company GHG emissions approach and coverage
- Building the machine learning model for proxy emissions

5. Q&A (10 mins)

2. Name Matching – Agenda & Key Learnings

1. Overview:

- The Matching step is a critical pre-processing step checking for corresponding records to client entities in the Moody's Orbis data universe.
- The better the input data coming from the client, the better the quality of matches, the more client records can be populated with Carbon Emission Scores.

2. Matching process:

- Mandatory input fields are Company Name and Country
- Custom rules are applied to give more or less weight to specific fields
- Quality indicators (A-E) and Match Status (Validated, To Be Validated, Not matched) are separate classifications.

3. Matching output:

- Identified record on Orbis Database and attach Orbis identifier (main identifier: Orbis ID)
- Matching Results contains entities & Matching Detailed review includes stats and breakdown
- Matching Dashboard contains easy access overview on matching stats

4. Matching & Enrichment:

- Only records that are “Validated” through the matching are eligible for PCAF calculation
- Custom enrichment process creates unique record with financials up to the reporting date provided

3. Orbis Financial data

1. Data sourcing and update frequency

- Our data comes from an extensive network of over 200 information providers, each supplying us with data at different intervals. We rely on distinct sources for data related to Corporates, Banks, and Insurance companies.

2. Coverage

- Our database encompasses over 250 million entities with financial data.
- The financial data we have ranges from detailed to limited financials.

3. Orbis data treatment process

- The data we receive from our providers undergoes a thorough process of treatment and quality checks before it is made available on Moody's Orbis. This process is noteworthy because it contributes to understanding the data update timeline on the product

4. Type of financials

- Depending on the legislative environment of different countries and jurisdictions, companies with financial data may present either detailed or limited financials

5. Financial fields used for attributed emission calculation

- To compute the attributed emission data, we need specific financial fields. While these fields are readily available in our standard formats for Corporates, they need to be extrapolated using equivalent items for Banks and Insurances

6. Company profile information

- The firmographic data stems from the financial statements on Moody's Orbis.
- This data gives a comprehensive overview of the entity profile on Moody's Orbis

4. Emissions Data – Agenda & Key Learnings

1. Overview:

- Moody's Analytics Emissions Data for corporates is a snapshot of companies' greenhouse gas (GHG) emissions. Two data types:
 - › **Collected** corporate disclosures following the definitions of the Greenhouse Gas (GHG) Protocol. We gather Scope 1, 2 and 3 GHG emissions data
 - › **Estimated** emissions (in-house developed estimation methods and models) when companies do not publicly disclose GHG emissions
- We provide transparency through **Data Quality Scores** designed to be aligned to **PCAF Financed Emissions** standard, and emission estimation details

2. Collected Emissions Data:

- Screening of monthly batches. Quality checks by Subject Matter Experts to verify outliers and consistency

3. Estimated Emissions Methodology Overview:

- Analyst Estimation Models
 - › A set of estimation methods used by analysts when companies do not report GHG emissions, but report other company information (energy consumption, economic data) and sector specific factors are known
- Machine Learning Models
 - › A set of models trained on 7 years of reported carbon emissions data covering 3k firms. They provide emission estimates for companies in 600+ industries in 220 countries

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Recap of PCAF standard
and IAE calculation

PCAF Insurance Associated Emissions Standard

In November 2022, PCAF published Part C of their GHG Accounting and Reporting Standard, covering emissions associated with *insurance contracts*

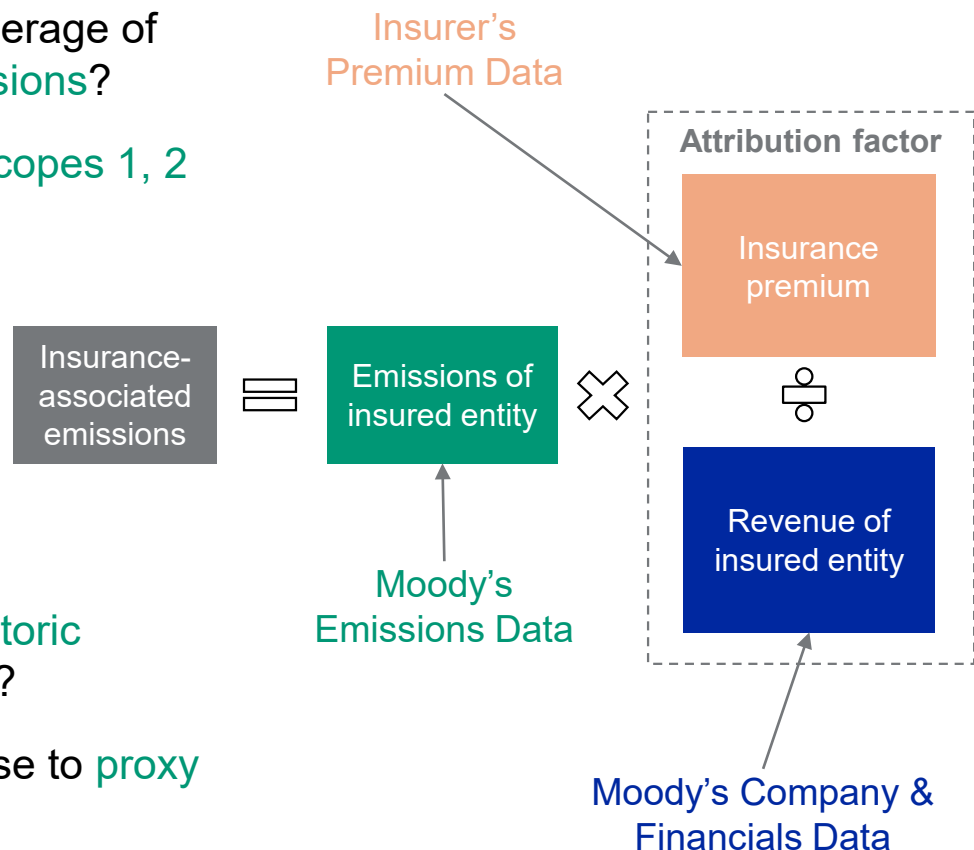
- » Current in scope lines of business
 - **P&C Commercial lines** (directly insured & facultative reinsurance) with some exceptions (e.g. construction all-risks)
 - **P&C Personal motor lines**
- » Current **out of scope** lines of business include
 - Treaty reinsurance
 - Life & health
- » Covers Scope 1 & 2 emissions of insured and (separately) Scope 3 emissions of insured “where significant and where data allows”



[The Global GHG Accounting and Reporting Standard Part C: Insurance Associated Emissions, First Version, PCAF \(November 2022\)](#)

PCAF Baseline Calculation

1. What is the coverage of disclosed **emissions**?
2. Does it cover **scopes 1, 2 and 3**?
3. Do we have **historic** emissions data?
4. What can we use to **proxy** emissions?



5. Is there sufficient coverage of financials for **private companies**?
6. Is there sufficient coverage across company **sizes** and domicile **countries**?

Bringing it all together:
Moody's Name Matching

7. How do we reliably **join** company and emissions data with insurers **policy data**?

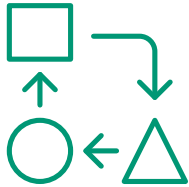
Workflow:



2

Name Matching

Name Matching for Emissions Accounting



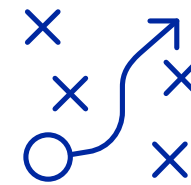
Relevance

The company name and firmographics are the foundational data points for any measurement



Challenge

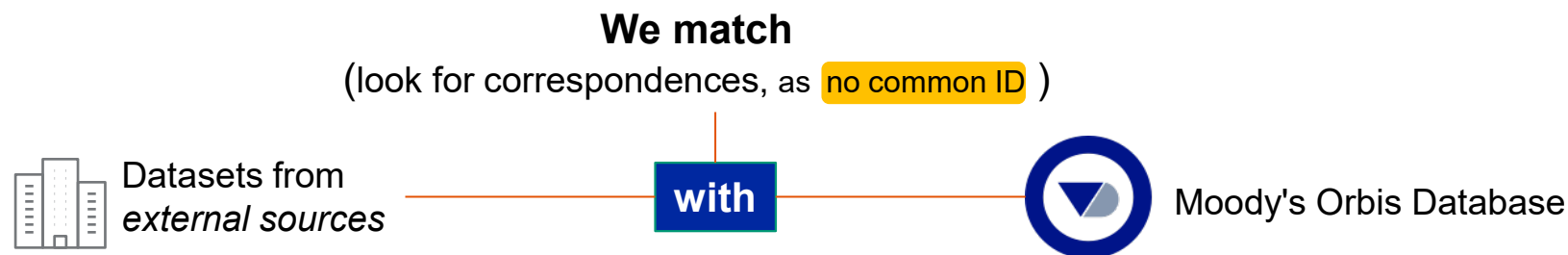
We know data quality of insured names in the market is low



Approach

Establish a methodology for standardising insured names to enable enrichment

Overview



- » **The Matching** service is a critical pre-processing step for **External clients** before enriching their database with Orbis data.
- » Moody's Analytics Matching Software is designed to support the automatic matching functionality typically used to link records found in client's systems to records in our database in order to retrieve the corresponding Orbis ID; only then clients can start the enrichment phase to extract relevant data from Moody's Orbis.
- » Usage:
 - › **New clients** can match their entire database to get the Orbis ID
 - › **Existing clients** can still match their new entries to get the Orbis ID

(No re-matching necessary for previously matched companies. However, in case of new matching tasks, clients are required to supply the Orbis ID, preferably in a distinct column).
- » Matching software helps external clients streamline the integration of their data with Orbis, providing a more comprehensive and accurate view of their portfolio.

Custom rule



- » Is a **set of criteria** to customize the process of matching according to specific requirements or conditions.
- » Provides a strategic approach to matching, allowing for greater flexibility and efficiency in the process, and minimizing the amount of manual effort required to match records.

Rule:

SELECT candidates **WHERE** (Match quality \geq B AND Number of matched fields \geq 3)

All candidates are filtered according to the rule criteria and then the system selects the candidate corresponding to the target chosen.

Example:

First candidate selected where:

Company Name \geq 60% / Street \geq 90% / City \geq 90% / Postal = 100% / Country = 100%

Company Name \geq 70% / City \geq 90% / Postal = 100% / Country = 100%

Company Name \geq 80% / City = 100% / Country = 100% / \geq B Quality (85% overall)

Company Name \geq 90% / Website = 100%

National/Tax ID = 100%

Input data fields

- » The fields listed below are essential to provide high quality service, as they are used to compare the client data/input file with the matching software:

Mandatory fields

- Company Name
- Country (or ISO code)

Fields to raise matching accuracy

- Street
- City
- Postal code
- State or Province (in US or Canada)
- National ID (i.e. Trade register number, VAT/Tax number, LEI, etc.)

Optional fields

- Phone or Fax
- Email
- Website
- ISIN number
- Ticker symbol

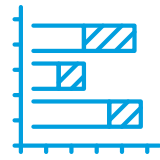
An Excel matching template with the above fields will be provided before any matching exercise. In this template **other mandatory fields** are highlighted which are required for the PCAF calculation.

- » Once data is uploaded and processed in the Matching Software a match score is calculated using a complex algorithm which returns an (A) through (E) grade for match scoring and quality.

Quality Indicators: a weighted approach



Using a proximity calculation, we determine the accuracy of the matching between Moody's Orbis and Customer data for each field.



Weights are automatically calculated depending on the probability that a comparable company will be found in the Moody's Orbis database.



Each record is given a matching score by the BMS, with higher scores indicating higher data matches and lower scores denoting candidates who may not be relevant.

A	Excellent	Total score \geq 95%
B	Good	Total score between 85 and 94%
C	Fair	Total score between 75 and 84%
D	Weak	Total score between 60 and 74%
E	Poor	Total score $<$ 60%

****The strength of the match is dependent on the input data****

Outputs

A. Match Results file



It contains all the fields/records from the input file + Moody's Orbis exported fields from BMS with info as would appear in Moody's Orbis to facilitate further analysis. List of fields that can be exported as per below.

Identifiers	Orbis ID, BvD ID
Match Status	Auto, Custom Rules, Potential, etc.
Match Quality	A-E
Custom Rule	Name >=80%, Street >=90%, etc.
Legal Name	Previous, Also Known As, DBA
Full Address	Legal, Trading, Postal, etc.
Status	Active, Dormant, Inactive, etc.

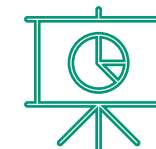
B. Detailed Review file



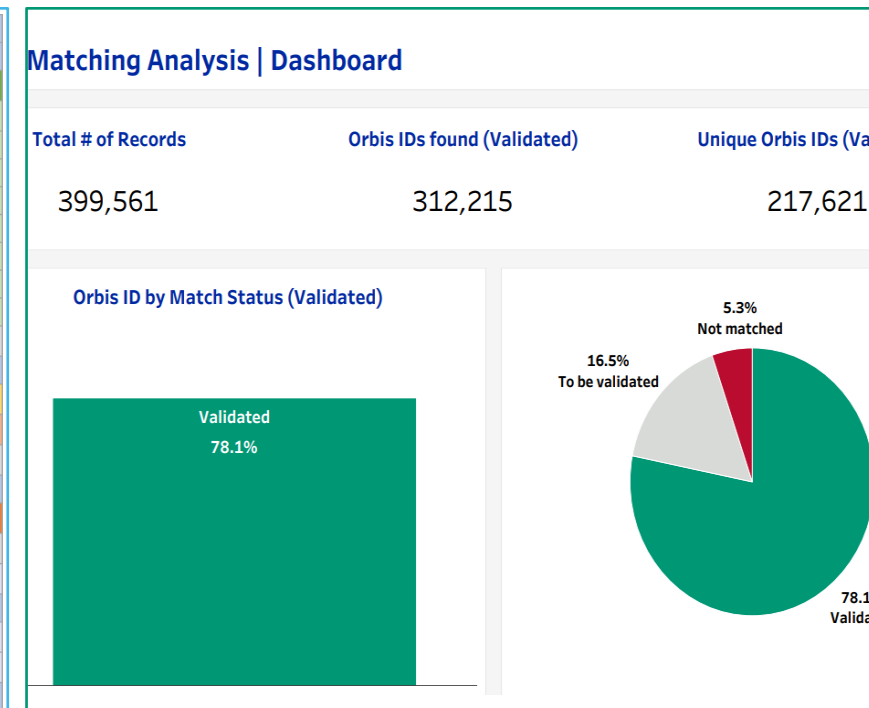
It provides a **summary** of the results about different types of matches, their counts, and percentages, and a **breakdown** of records based on country and match status in a second tab.

Type of match	No. of matches	%
Validated	1925	74.0
Automatically selected	590	22.7
Selected from custom rules	1335	51.3
Selected from 'Name 90% / Country 100%'	857	33.0
Selected from 'Name 85% / Country 100%'	151	5.8
Selected from 'Name 80% / Country 100%'	110	4.2
Selected from 'Name 75% / Country 100%'	132	5.1
Selected from 'Name 90%'	59	2.3
Selected from 'Name 85%'	26	1.0
Selected from 'Overall Score >=85%	0	0.0
Manually selected	0	0.0
To be validated	554	21.3
Potential	81	3.1
Unlikely	473	18.2
Undecided	0	0.0
Not matched	121	4.7
Automatically, using software	121	4.7
Manually rejected	0	0.0
Not yet processed	0	
TOTAL	2600	
All records without a given/valid country	196	7.5
All duplicates	225	
TOTAL less duplicates	2375	

C. Matching Dashboard (pdf)



A data visualization (in pdf) will be provided after each match exercise to easily get stats/ insights about the matching of your portfolio against **Moody's Orbis**.



Matching & Enrichment

Processing the raw data

» Validated entities are enriched

Only *Validated* entities are enriched and are eligible for PCAF calculation. *To-be-validated* entities or *Not matched* entities **do not** receive any attributed emissions.

» Custom enrichment flow

Enrichment takes place by pulling together data from different sources such as company firmographic data, financial data, emission data and client data to produce a unique record for each entity provided by the client in one file.

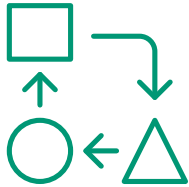
» Reporting Date

The “reporting date” provided by the client is the cut-off date for financial accounts. The latest accounts **up to** that cut-off date are used, priority is towards consolidated accounts.

3

Financial Data

Financial Data for Emissions Accounting



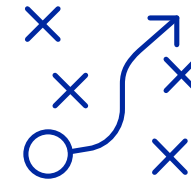
Relevance

A large and maintained repository of data is required to ensure substantial coverage across underwriting portfolios.



Challenge

Underwriting portfolios tend to include a variety of private and public entities, majority private.



Approach

Ensure coverage of underwriting portfolio's is large enough for credible measurement.

Financial data coverage



70K

publicly listed companies with detailed financials



47M

private companies with detailed financials



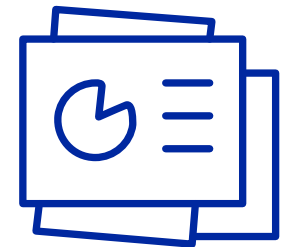
> 240M

entities with financial data in total



194M

private companies with limited financials



Detailed financials vs limited financials

Detailed financials

Detailed information available for the company

Publicly listed and private companies

Consolidation codes: C1/ C2, U1/U2 , C*/ U*

Limited financials

Selected items and estimates or ranges

Private companies

Consolidation code: LF

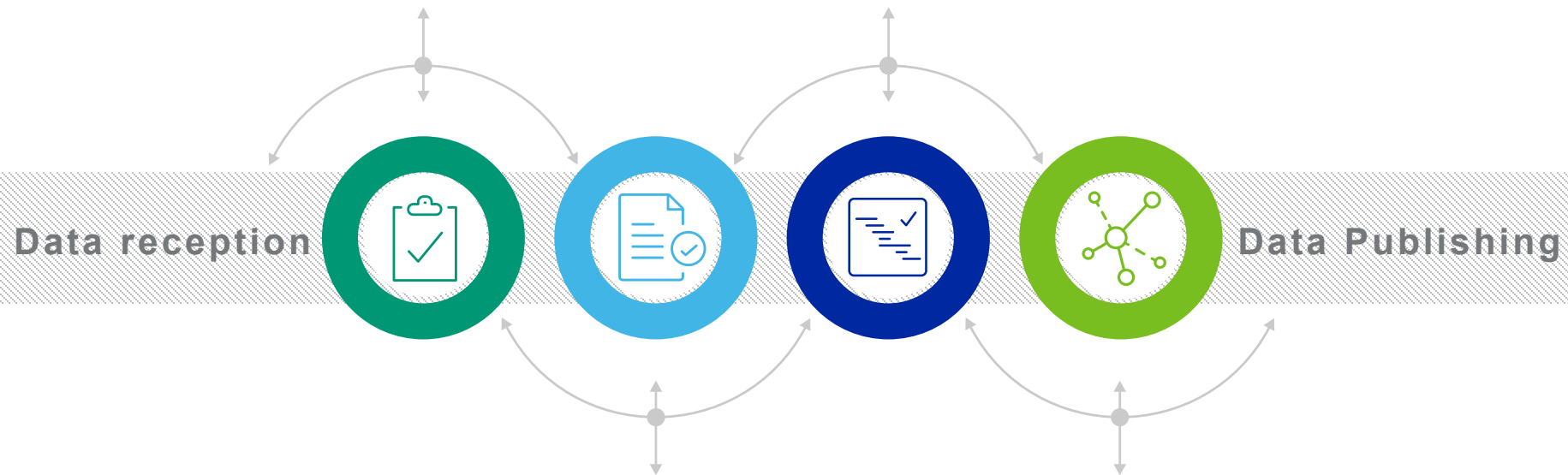
Orbis data treatment process

Initial QA check

Listed corporates, Banks, Insurances, Private companies have independent QA checks

Final QA checks

Moody's Orbis exports from national products are tested and compiled with private company data feeds



National/International products update

Banks, Insurances, Listed companies' national products are updated and Moody's Orbis export is generated

Moody's Orbis Updated

The compiled data is 'indexed' and Moody's Orbis is updated

Operating Revenue

Comprehensive picture of a company's total revenue, accounting for both its core and non-core business activities, as well as changes in its inventory value. Can be found in the Global Standard format



125M

Corporates

'Operating revenue' (*OPRE*)



26K

Banks

Equivalent field is 'Operating income'
(*94400*)



9K

Insurances

Equivalent field is 'Gross premium
written' (*8835*)

Enterprise value

Estimates the total market value of the company operations. Can be found in the Global Standard format for corporates.



46K

Corporates

- 'Enterprise value' (*ENVA*)
- Mainly for listed companies
- Derived by adding Market cap (*KF_MARCAP*) and Net debt (*21215*)
- Net debt is can be found in our Global detailed format



1K

Banks

No equivalent field, but can be derived by adding:

- 'Market Cap' (*KF_MARCAP*)
- 'Other deposits and short-term borrowings' (*91500*)
- 'Long term funding' (*91900*)
- (-) 'Cash & balances with central banks' (*91010*)



500

Insurances

No equivalent field, but can be derived by adding:

- 'Market Cap' (*KF_MARCAP*)
- 'Total creditors' (*8909*)
- (-) 'Total investments & Liquid assets' (*7851*)

Cash

Comprehensive picture of a company's Cash & cash equivalents. Can be found in the Global Standard format.



19M
Corporates

'Of which cash and cash equivalent'
(20070)



26K
Banks

'Cash & balances with central banks'
(91010)



9K
Insurances

No equivalent field, but closest proxy is
'Total investments & Liquid assets'
(7851)

Values for financial items

A financial item will always have one of the following values:

- » A number
- » NA = not available
- » NS = not significant (for ratios)
- » 0 = considered as a value

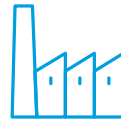
Company profile

Comprises of the firmographics data



Identifiers

- All entities and people have unique identifiers.
- National and other important identifiers



Industry & activities

- Primary and secondary industry codes in international (NACE, NAICS) and local classifications
- Business description



Company contact information

Address, phone number, URL, domain, email address, etc.



Legal information

- Legal status and events
- Listing status
- Date of incorporation



Public tenders

Public tenders for EU & USA



Accounting information

- Types of accounts
- Number of years available
- Availability on Moody's Orbis



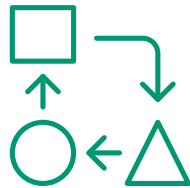
Country profile

Socio-economic data of the country

4

Emissions Data

Emissions Data for Emissions Accounting



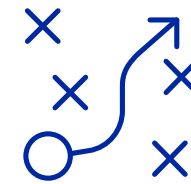
Relevance

A fundamental component of PCAF attributed emissions.



Challenge

Emissions data is limited but disclosure requirements are coming.



Approach

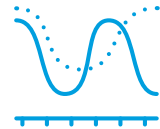
Supplement disclosed emissions with emissions proxies for estimates and models

Corporate GHG Emissions



What

- **Collected** Scope 1, 2, and 3 data as well as **Estimated** Carbon Footprint (Scope 1 + 2) and Scope 3 emissions data.
- We provide **transparency** in our data by providing the source of collected data, Data Quality Scores aligned to PCAF standards, and estimation justification when Scope 1, 2, and 3 are estimated.
- Coverage across **~300** million companies



Why

- Increasing pressure for investors and companies to **report and monitor** their portfolio's GHG emissions
- Larger market need for all emissions data to **align with PCAF Standards**.
- Our Corporate GHG emissions data enables users to **differentiate companies' real impacts** and meet the needs of disclosure regimes.



Who

- For **insurers** to monitor and align their portfolios to PCAF insured-emissions standards.
- For **banks** to assess climate risk in their underwriting, scenario analysis, and reporting climate risk disclosures.
- For **asset managers** to quantify and monitor emissions across their portfolios.

GHG Emissions Data

Easy-to-use, raw emissions data with transparency and with datapoints deigns to be aligned with PCAF standards

- Carbon Footprint (Scope 1 & 2)
- Scope 1 (tCO2eq)
- Scope 2 (tCO2eq)
- Scope 3 (tCO2eq)
- Scope 3 Category 1 : Purchased goods and services
- Scope 3 Category 2 : Capital goods
- Scope 3 Category 3 : Fuel and energy related activities
- Scope 3 Category 4 : Upstream transportation and distribution
- Scope 3 Category 5 : Waste generated in operations
- Scope 3 Category 6 : Business travel
- Scope 3 Category 7 : Employee commuting
- Scope 3 Category 8 : Upstream leased assets
- Scope 3 Category 9 : Downstream transportation and distribution
- Scope 3 Category 10 : Processing of sold products
- Scope 3 Category 11 : Use of sold products
- Scope 3 Category 12 : End of life treatment of sold products
- Scope 3 Category 13 : Downstream leased assets
- Scope 3 Category 14 : Franchises
- Scope 3 Category 15 : Investments
- Scope 3: Total Upstream Categories
- Scope 3: Total Downstream Categories
- Scope 1 & 2 assumed or without breakdown
- Carbon Footprint Grade
- Source
- Carbon Footprint Reporting year
- 3rd Party Verification
- Estimated Scope 1 & 2
- Estimated Scope 3
- Estimation Justification
- Data Quality Score



Reported GHG data

Greenhouse Gases and Emission Scopes

Our methodology considers the accounting and reporting of seven Greenhouse Gases, in line with the GHG Protocol and UNFCCC:

- Carbon Dioxide (CO₂),
- Methane (CH₄),
- Nitrous Oxide (N₂O),
- Hydrofluorocarbons (HFCs),
- Perfluorocarbons (PFCs),
- Sulphur Hexafluoride (SF₆),
- Nitrogen trifluoride (NF₃)

Measurements of these different gases are consolidated under a single unit : **tonnes of CO₂ equivalent (tCO₂eq)**, which we collect following the GHG Protocol definitions for emission scopes:

Scope 1



Scope 2



Scope 3
15 Categories



We collect GHG emissions reported by companies for their chosen organizational boundary, selected between the organizational boundaries allowed by the GHG Protocol's Corporate Accounting and Reporting Standard.

Sources



Company's own reporting and documents

(Company's website, AR, ESG Report, TCFD reports, ...)

UNIVERSAL REGISTRATION DOCUMENT AND ANNUAL FINANCIAL REPORT 2020

Environmental report 2021

- PDF Environmental report 2021 (5,244KB)
- PDF Table of contents/About this report (36KB)
- Updated in Nov 2021
 - Environmental Sustainability Vision 2050 (P02)
 - Initiatives to Realize a Decarbonized Society (P05)
 - Mitsubishi Electric Group Environmental Policy (P40)



Environmental sustainability vision

- PDF Environmental Sustainability Vision 2050 (602KB)
- PDF Environmental Vision 2021(ended in fiscal 2021) (1,352KB)



Strategy for climate change

- PDF The Mitsubishi Electric Group's Materiality (596KB)
- PDF Initiatives to realize a decarbonized society (596KB)



The structure of our environmental management system

- PDF Scope of environmental management (38KB)

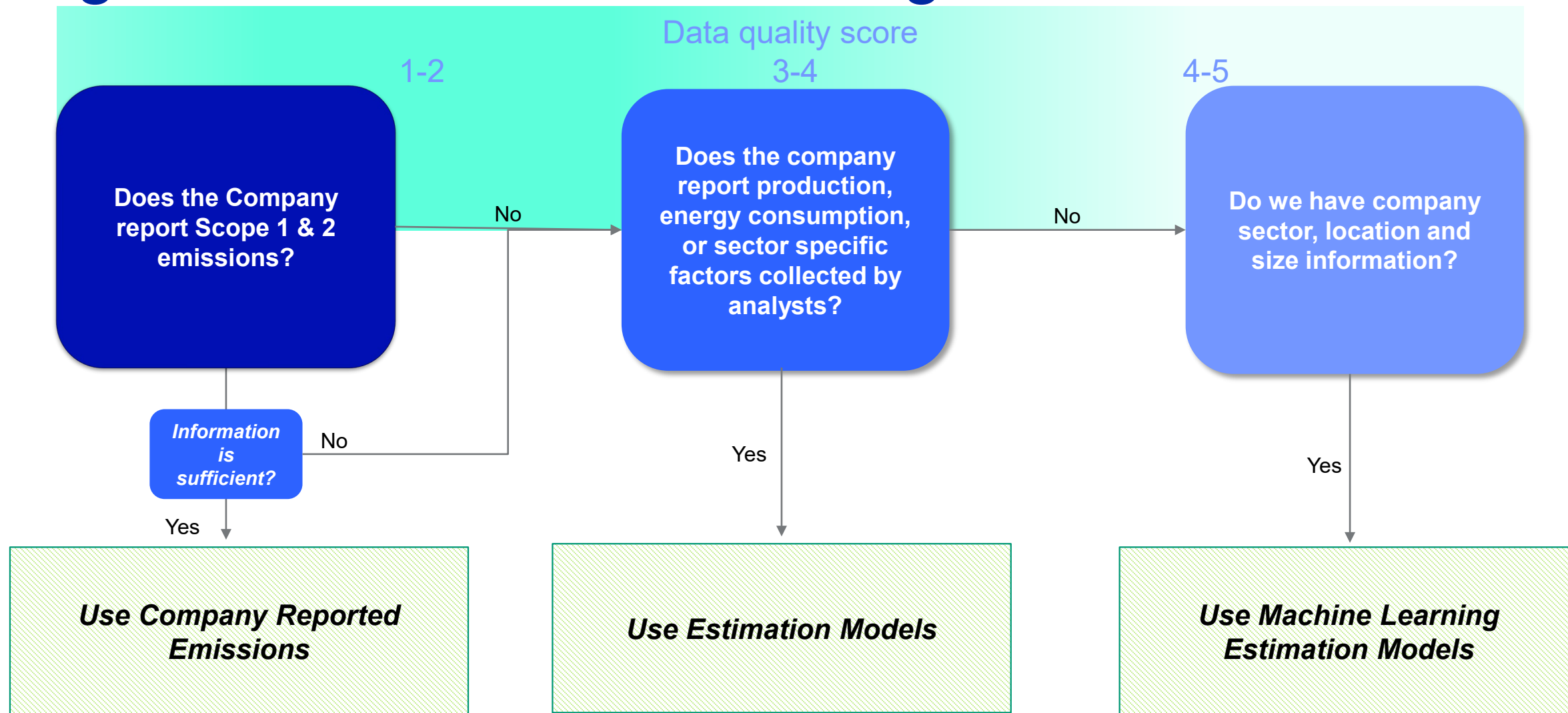


Reducing greenhouse gas (GHG) emissions

We have long been committed to reducing climate-altering emissions: results show the effectiveness of our low-carbon strategy.

22 MAY 2021 | 7 min read

High-Level Decision Tree Logic



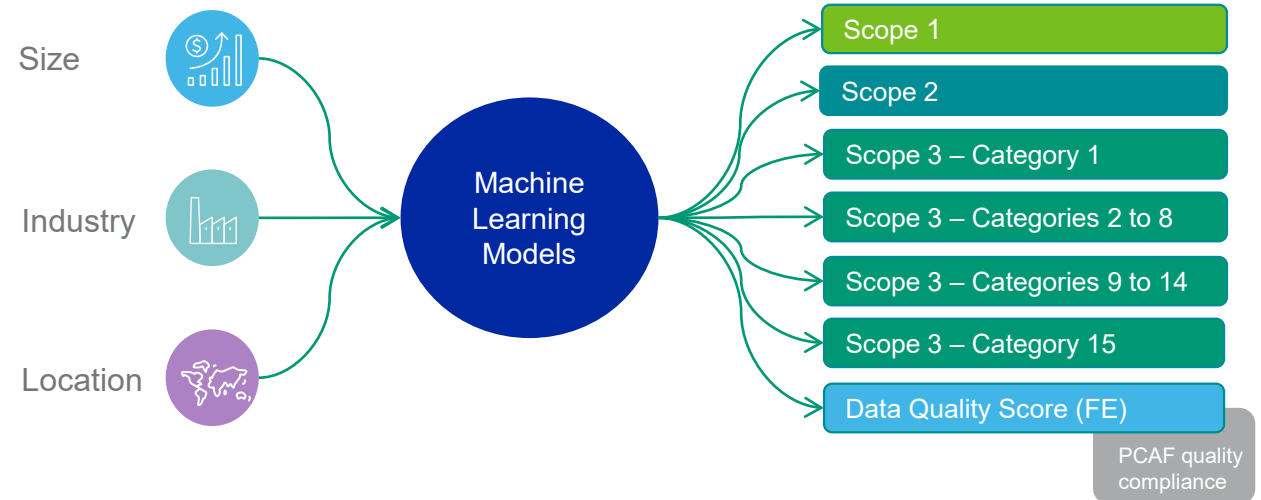
Machine Learning Estimation Models

Scope 1, 2 & 3 emissions for the full portfolio

Firm	CO2
A	
B	xxx
C	
D	
E	xxx
F	

→

Firm	CO2
A	xxx
B	xxx
C	xxx
D	xxx
E	xxx
F	xxx

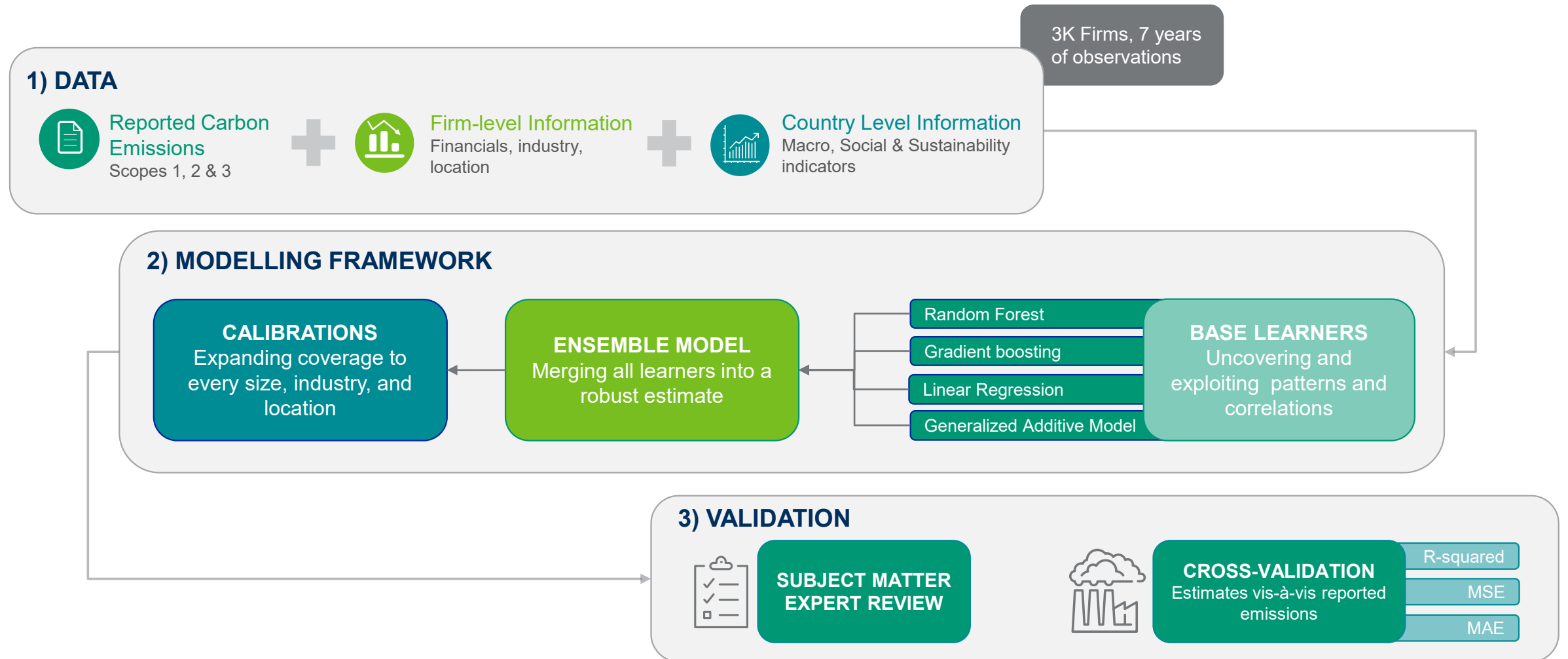


- » A set of Machine Learning models trained on **7 years** of reported carbon emissions data covering **3k firms**
 - » **Scopes 1, 2 & 3 emission estimates** for companies in 600+ industries in 220 countries
 - » Model drivers: firm's **size, industry, and location** + macroeconomic, sustainability, development, and freedom indicators

Full carbon emissions profile coverage for **virtually any firm**

Building the Machine Learning Models

Top-quality Carbon Data & State-of-the-art modelling



5

Q&A

Summary *and* Q&A

- » Email us: LloydsLabMoodyPoC@moodys.com
- » Visit us at our office hours
 - 10:00-16:00 on Tuesdays in the Lloyd's Lab

2

Name Matching

- The Matching step is a critical pre-processing step checking for corresponding records to client entities in the Moody's Orbis data universe.
- The better the input data coming from the client, the better the quality of matches, the more client records can be populated with Carbon Emission Scores.
- Mandatory input fields are Company Name and Country.

3

Financial Data

- Moody's Orbis database encompasses over 250 million entities with financial data.
- Depending on the legislative environment of different countries and jurisdictions, companies with financial data may present either detailed or limited financials.
- Firmographic data from financial statements gives a comprehensive overview of the entity profile.

4

Emissions Data

- Moody's Analytics Emissions Data for corporates is a snapshot of companies' greenhouse gas (GHG) emissions. Two data types:
- **Collected** corporate disclosures according to the Greenhouse Gas (GHG) Protocol standards. We gather the most recent Scope 1, 2 and 3 company emissions data
- **Estimated** emissions (in-house developed estimation methods and models) when companies do not publicly disclose GHG emissions

MOODY'S
ANALYTICS

*Better
Faster
Decisions*

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