Session I – Climate metrics for physical and transition risks Discussion

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The opinions expressed are those of the presenter and do not necessarily reflect the views of the Deutsche Bundesbank or the Eurosystem.

Alessi and Battiston (2023): Taxonomy-alignment and transition risk: a country-level approach - Summary

- Methodology
  - Alessi and Battiston (2022) propose a top-down methodology to estimate sector-specific coefficients for greenness (Taxonomy Alignment Coefficients, TAC) and exposure to climate-related transition risk (Transition risk Exposure Coefficients, TEC) for financial portfolios.
  - Alessi and Battiston (2023) refine this methodology by calculating country-sector-specific coefficients for EU Member States and several non-EU countries, enhancing estimate precision.

- Empirical application
  - Using confidential data on EU investors' stock and bond holdings, the authors estimate each investor category's exposure in each country to green and harmful activities.
  - Findings: An average Taxonomy-alignment of ca. 3% and an average exposure to transition risk of ca. 11%, with significant variation across sectors and countries. Exposure to transition risk for less regulated financial institutions has tripled from 2014 to 2023, reaching ca. 18% of total exposure and 20% of their portfolio holdings.

Alessi and Battiston (2023): Taxonomy-alignment and transition risk: a country-level approach - Highlights

- The paper proposes country-sector-specific coefficients for greenness and transition risk exposure for a number of sectors in EU Member States and several non-EU countries.
- The study provides a methodology to estimate financial institutions' portfolio greenness and exposure to transition risk, when firm-level information is unavailable.
- Transparency of the methodology through standardized coefficients and an open-source tool.
- The practicality of the approach is evidenced by its use by regulatory bodies such as ESMA, EBA, ESRB, and the Sustainable Finance Platform.
- Possible use-cases:
  - Financial institutions can use the proposed coefficients to assess their exposures or to design their transition plans (voluntary disclosure)
  - Assessments of financial institutions’ exposures can be used as inputs to scenario analyses or stress-testing exercises
  - For micro- and macro-prudential supervisors the proposed coefficients provide market benchmarks for greenness and transition risk exposure

Alessi and Battiston (2023): Taxonomy-alignment and transition risk: a country-level approach – Questions

- With the gradual implementation of the CSRD, data on taxonomy alignment and transition risk for large and capital market-oriented EU companies are expected to become available over the next years. In the mid-term, will the proposed coefficients become especially relevant for financial portfolios for which no firm-level data will be available (e.g. SME loan portfolios, non-EU portfolios)? How transferable are the coefficients to such portfolios?
- The paper focuses on climate change mitigation as a measure of greenness. How do you expect the results to change if (i) other environmental objectives from the Taxonomy, (ii) the principle of 'do no significant harm' (DNSH) and (iii) the minimum social safeguards (MMS) were considered for the definition of greenness?
- Your methodology includes coefficients for some sectors but not all. How critical is it to develop coefficients for the remaining sectors?
- Transition risk is increasingly found in less regulated financial sectors. How do you interpret this trend, and do you foresee a need for more regulation in these areas?
- Given the lack of firm-level production data per country, could EU public Country-by-Country Reporting (pCbCR) data, which discloses the number of full-time equivalent (FTE) employees, be helpful to estimate plant-level efficiency?

Blasco Vázquez and Carrión Moneo (2024): Strategic Climate Metrics: Prioritizing key factors for enhanced decision-making - Summary

- Critical discussion of the GHGP
  - The authors critique the GHGP as a standard for measuring corporate GHG emissions and assessing climate-related transition risk, identifying three areas where improvement is needed: cost effectiveness, comparability, and contextual accuracy.

- Methodology
  - They propose a new approach to account for GHG emissions inventory at the company-level based on the Kaya Identity, focusing on key drivers in corporations' value chains: raw materials, products, and production efficiency.
  - The goal is to integrate climate transition risks into risk models and corporate decision-making by concentrating on significant emission-contributing activities.

- Empirical application
  - The authors apply this approach to a sample of 20 large emitters in the automotive, cement, and steel sectors based on data from their answers to CDP questionnaires.
  - For these three sectors, the authors find a high correlation between the strategic metrics based on the Kaya Identity and the total emissions (tCO2) calculated based on the GHGP, suggesting that based on the proposed adapted Kaya Identity the material factors for these sectors can be identified.

Blasco Vázquez and Carrión Moneo (2024): Strategic Climate Metrics: Prioritizing key factors for enhanced decision-making - Highlights

- The authors effectively describe the challenges in emissions accounting through the GHGP, illustrated by examples from CDP questionnaire responses.
- They propose a new approach to account for GHG emissions inventory at the company-level based on the Kaya Identity, focusing on key drivers in corporations' value chains: raw materials, products, and production efficiency.
- Their approach helps companies identify the primary sources of CO2 emissions within their value chains, which can guide strategic improvements in CO2 efficiency.
- Applying this approach to three sectors, the authors find a high correlation between the strategic metrics based on the Kaya Identity and the total emissions (tCO2) calculated based on the GHGP, suggesting that based on the proposed adapted Kaya Identity the material factors for these sectors can be identified.
- The methodology offers a cost-efficient solution for climate data collection.
- By focusing on the materiality of emissions, the adapted Kaya Identity could contribute to align corporate strategic climate metrics with national decarbonization plans (NDCs).

Blasco Vázquez and Carrión Moneo (2024): Strategic Climate Metrics: Prioritizing key factors for enhanced decision-making - Questions

- Could you compare your approach with other methodologies proposed in academic literature or tools used in practice in order to highlight its limitations and advantages? For instance, in light of the approach by Alessi & Battiston (2023), would country-sector-specific Kaya Identity metrics be a next step to consider?
- Who are the intended users of your approach? Which types of companies (by size, sector, etc.) would benefit most, and for what purposes within the company (regulatory, risk management, voluntary disclosure) would it be most useful?

Loberto and Russo: Climate risks and firms: a new methodology for assessing physical risks - Summary

- Methodology
  - The authors propose a methodology to assess how natural hazards impact Italian businesses, considering the geographic distribution of their operations, leveraging unique datasets.

- Application
  - Applying this methodology to a regional sample of manufacturing companies, they find that accounting for various company establishments significantly alters the measure of flood risk exposure, especially for large firms.
  - The authors also assess the effects of a major regional flood in 2023, identifying individual flooded establishments and demonstrating that even localized natural disasters can have spillover effects beyond the immediate area.

- Methodological guidance
  - The authors demonstrate the complexity of measuring companies' exposure and vulnerability to climate-related natural hazards, and describe a process for assessing physical risk exposure, critically reviewing different data sources' quality.

Loberto and Russo: Climate risks and firms: a new methodology for assessing physical risks - Highlights

- A novel approach is proposed to address the lack of precise establishment location and significance information, combining unique datasets to provide more accurate hazard exposure metrics at regional and firm level.
- Acknowledging the limitations of the approach, such as assumptions about employee distribution and lacking consideration of indirect effects of disasters, the authors transparently discuss these drawbacks.
- The methodology's practical relevance is shown through its application to a regional sample of Italian manufacturing firms.
  - Accounting for various company establishments significantly alters the measure of flood risk exposure.
  - Even localized natural disasters can have spillover effects beyond the immediate area.
- The paper provides comprehensive methodological guidance and thereby encourages further research. Its relevance thus goes beyond the benefits related to proposed methodology and the unique local dataset used in the analysis.

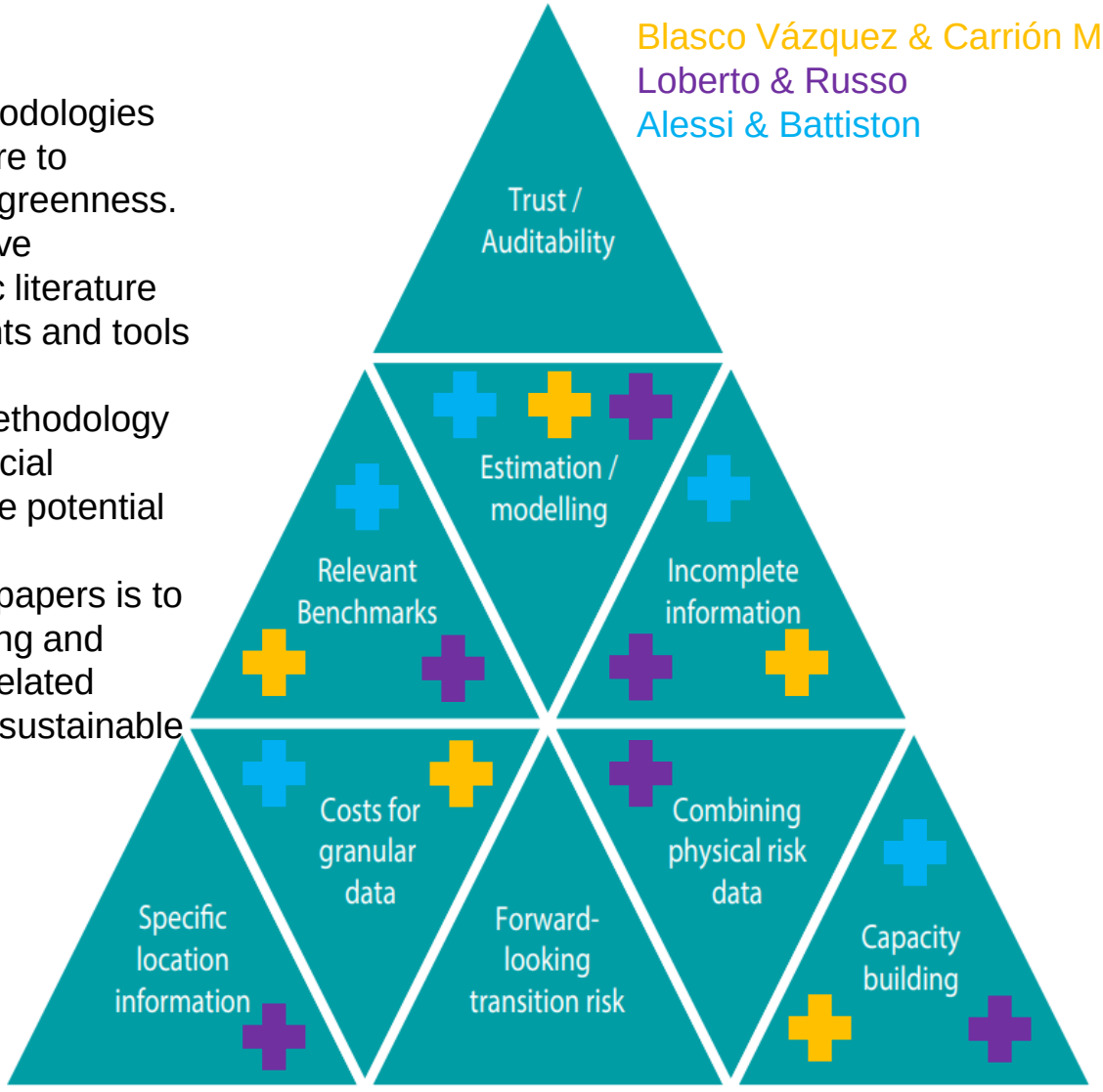
Loberto and Russo: Climate risks and firms: a new methodology for assessing physical risks - Questions

- Can your methodology be adapted for other sectors, such as agriculture, or for different natural hazards? What modifications, if any, would be necessary?
- Could you comment of the time-perspective of the proposed metrics? Can it accommodate different climate change projections or Representative Concentration Pathway (RCP) scenarios?
- Who do you envision as the primary users of your exposure metrics (e.g., policy-makers, financial institutions, the companies themselves)? How broadly can these metrics be shared, are there potential issues with restricted data? To what extent do your metrics meet regulatory standards, such as those required for reporting physical risks under the CSRD?
- What are the next steps for your methodology? Do you plan to expand it to all Italian companies and create a national dataset?

Summary

- The papers present methodologies for assessing the exposure to climate-related risks and greenness.
- The papers offer innovative contributions to academic literature as well as practical insights and tools for practitioners.
- Each paper applies its methodology to a sample of firms/financial institutions to demonstrate potential insights.
- The collective aim of the papers is to enhance the understanding and management of climate-related risks, thereby supporting sustainable economic development.

Blasco Vázquez & Carrión Moneo
Loberto & Russo
Alessi & Battiston



NGFS, Final report on bridging data gaps (2022): Key challenges for climate-related data (p. 33) (final_report_on_bridging_data_gaps.pdf (ngfs.net))