Climate data and climate services for the finance sector: challenges, opportunities and experiences

Webinar summarized by Ingrid Coninx, Wageningen Environmental Research

This blog summarizes the webinar dialogue on climate data and climate services for the finance sector: challenges, opportunities and experiences, that was organised by ClimatEurope and the Sincere project in April 2020. We invited Bouke de Vries, Lead of Rabobank's climate programme. He took us on a journey on how climate change entered into the financial arena and shared his experiences on how the bank is supporting clients to become more climate friendly. Other speakers were Robin Hamaker-Taylor from the company Acclimatise, that has extensive experience with developing climate services for the finance sector, and Sophie DeJonckheere who was engaged in the JPI-Climate funded ClimInvest project and at that time was working for the research institute Cicero. This blog is especially interesting for climate services research funders, developers and financial actors that deal with climate change. It will give insight in ongoing climate services initiatives and highlights new opportunities for finance sector – climate science collaboration?

Pledge for more transparency on climate change impact

The finance sector plays a major role in mobilizing private funds to support the transition to a climate neutral and climate proof society. Encouraged by the global ambitions of the Paris Agreement and the yearly large amounts of non-insured natural disaster losses, the sector is changing tremendously its way of operating. Their stakeholders are pushing the sector for transparency on investments. The international Task Force on Climate-Related Financial Disclosures (FSB- TCFD) is recommending on the sector's climate reporting. Other international collaborations that support the sector's change are the Network for Greening the Financial System, United Nations Environment Programme Finance Initiative, European Commission's Taxonomy, Partnership for Carbon Accounting Financials. National collaborations also emerge such as collaborations among Dutch financial actors in the scope of the Climate Agreement.

Supporting services for clients

Next, the finance sector is also supporting clients to better deal with climate change via access to beneficial financial services, climate knowledge and networks. Bouke de Vries from Rabobank presented the green mortgage as an example of a supporting service that financially rewards people for buying sustainable houses via cheaper mortgages. For its corporate clients, Rabobank offers green and social impact loans. Another services is the Rabo Circular Entrepreneurship Desk that advises clients via sustainability data to reduce their environmental footprint and assess climate risks when developing their business plan.

Climate services to assess physical climate risks

Climate data and knowledge are essential for this finance sector transformation. In Europe, several EU funding programmes such as H2020 and JPI Climate have financed finance sector-climate science collaborations to develop climate services, which are decision aids based on climate information (WMO, 2020). Two examples of climate services, aimed to assess the physical climate risks, were shared during the webinar. The finance sector wants to know the physical climate risks at asset-level in case clients are requesting credit. And the physical climate risks are relevant to know at portfolio level to estimate the financial risks and when disclosing investment information in the scope of TCFD.

The risk indicator database

The first presented climate service is developed by Sophie in the ClimInvest project and consists of an assessment methodology and an ArcGis data portal to assess physical climate risks . The assessment methodology indicates that physical climate risks are assessed by combining data on the projected climate hazard, the location of the asset (exposure) and the characteristics of the asset (vulnerability). To illustrate the methodology and the use of the data portal, a series of case studies are presented. The

financial impact of physical climate risks are expressed in terms of revenue loss, increased operation costs and higher financing costs due to increased risks. Societal loss, including cascading effects of these physical risks can be further considered by the investors themselves.

Heatmapping of physical climate risks

Robin from Acclimatise shared the second climate service, the heatmapping approach. This service helps investors to identify key segments of risk in their portfolio. The heatmapping approach screens vulnerability to a full range of climate impacts by identifying the location of investments, combined with geographical information on climate hazards and expert judgement of vulnerability. The heatmapping makes use of two different climate scenarios and assesses risk for time horizons 2030 – 2050 to make sure that also incremental changes are considered.

2 'worlds' are connecting

The two 'worlds' of finance sector and climate science are operating quite differently. Therefore, the collaboration takes time and requires mutual learning. Close communication is crucial to develop useful climate services that fits to the needs of investors. This indicates the importance of further providing research funding to foster the collaboration via tests and experiments. One example of such close communication is the piloting that took place in the UNEP Finance Initiative. Acclimatise led 1 of the pilots that aimed to develop a scenario based approach to assess climate change related credit risks for bank loan portfolios. Another example of close communication comes from ClimINVEST and is called the science-practice labs (SPLs). In these labs, information and indicators were co-designed with input from investors.

What is next in climate service development: ideas for further research funding

Climate scientists and finance sector are collaborating in explorative and fragmented ways. Given the challenges that are mentioned beneath, this explorative stage is expected to remain for the next few years. Public resources will remain needed, given the explorative character of these collaborations. Publicly financed research programmes, such as JPI Climate and H2020 have helped the financial sector to enter the world of climate services. Topics for upcoming research calls can be oriented to:

1. ***Improving and harmonizing assessment methods***
   Physical climate risk assessment methods are in full development and are quite divers. Some assessment methods try to quantify physical risks, while others are merely qualitative. These methods combine hazards, exposure and vulnerability indicators. The challenge is to develop methods that are able to take into account the diversity of climate hazards, like flooding, heatwave, drought. The impact of these hazards depends on the specific context of the assets. Furthermore, there are acute and chronic hazards. How can these multi-hazards be integrated in assessment methods? In addition, vulnerability is asset-specific and difficult to standardize. It is rarely part of risk analysis but largely determines the financial costs. Vulnerability for instance depends on the age of the asset, construction material or surrounding land use and also the capacity to go back to a normal state after being impacted by a natural hazard. These impact metrics are therefore difficult to standardize, in contract to mitigation metrics that easily disclose information. In the coming years, there is a need to agree on harmonized impact assessment methods that can be used in climate reporting.

2. ***Better and more reliable data***

   There are also challenges with used data. The first challenge is related to probability change of hazard over time, due to climate change. This data is not always available. The ClimInvest team made use of expert judgement on the frequency and intensity of hazards in specific locations for project climate change scenarios. Some investors are also interested in knowing trends of hazard probabilities. There exist data that forecast climate change induced hazards but the data

varies in terms of quality and reliability among different regions. It is also an issue that many climate change data is projected on the long term, while investors are looking for data for short and medium term, in particular inter-annual and decadal projections, depending on the specific user needs. Copernicus Data Store has recently launched a prototype service on decadal predictions.

Data on vulnerability is asset-specific and rarely found in global data portals. The vulnerability data is coming from local databases and is often qualitative, although the qualitative data is sometimes also scored in an ordinal way.

The currently used data portals do not take into account risk assessment methods that are currently used in the finance sector. This makes it more difficult to connect climate information with the risk modelling, which requires an extra effort and probably will also mean that extra capacity has to be attracted to enable the integration of the climate data in existing risk assessment methods.

3. ***Balancing efforts on data resolution***

Many efforts are going to produce high resolution data, which is time consuming and expensive. It would be recommended that balance must be found between time spend on improving resolution and specific investors' needs. The discussion illustrated that this high resolution data is not always needed to support the finance sector. When assessing risks at sector level, low resolution data may suffice. The Heatmapping of Acclimatise focusses on country-scale and regional-scale (e.g. large provinces) analysis of financial portfolios, where averages and percentile analysis are done across large geographies, using ~ 100 km resolution data. Tools that focus on asset-level locational data benefit from high resolution data. Most investors are satisfied with 10km resolution.

4. ***Harmonizing methods on downscaling climate scenarios***

Crucial in climate risk assessment is the quality of the data on climate scenarios. The finance sector is relying on global open access data platforms that is used for downscaling like https://www.gfdrr.org/en; https://preview.grid.unep.ch/; https://cds.climate.copernicus.eu/#!/home. Sometimes, poorly tailored climate scenarios are used, resulting in uncertainties and inaccuracies. To be able to compare risk assessment results, the finance sector wishes to harmonize downscaling methods, harmonize definitions and thresholds. The ClimInvest team has been working on this challenge and has developed a modelling factsheet to guide downscaling and dealing with related uncertainties.

5. ***Developing methods and data to assess transitional risks***

Physical climate risks are only one type of risks to assess. Transitional risks are another type that would require joint effort to develop harmonized methodologies and collect needed data. Transitionsal risks are risks that come along with policy changes that impact return of investment.

6. ***Improving climate science communication***

The finance sector has indicated to benefit from scientists that tailor their science communication to the finance sector's knowledge gaps. It will ease the access and the use of the knowledge into the finance sector. Factsheets, short overviews, summaries are helpful communication means.

We observe that finance sector is willing to build inhouse capacity for climate risk analysis. The sector is searching for easy to use climate services. And there is a strong willingness to work towards harmonisation of methods, definitions and data for better quality, reliability and comparability. At the stage of scaling climate services, the finance sector is looking into the direction of government for

enabling legislation and supervising the use of climate services for climate reporting. Strong science-finance sector-government collaboration would be the way forward to guide private finance for meeting the global ambitions of the Paris Agreement.

Recommanded literature

- National and international initiatives of the finance sector:
  - Task force on climate-related financial disclosures
  - Central Banks and Supervisors – Network for Greening the Financial System
  - UNEP Finance Initiative. – Navigating a new climate report. And Pilot Project
  - Bank of England – 2021 biennial scenario report
  - De Nederlandse Bank: Platform voor Duurzame Financiering – sharing good practices. – a joint initiative of Dutch Banks.

- Information on the ClimInvest project:
  - Dataportal: https://www.arcgis.com/apps/MapSeries/index.html?appid=24aa80957be242a794114cd4c9054518
  - Publications: https://cicero.oslo.no/en/publications/internal/2858

- Information on Acclimatise:
  - Work on disclosure services
  - Landscape of climate service providers – report on banking pilot phase II -due Autumn 2020
  - EU-MACS report: exploration of the market for climate services
  - Report on understanding physical climate risks.
  - Keep up to date: monthly bulletin of Acclimatise

- Data:
  - Copernicus Climate Change Service and the Climate Data Store
    - https://climate.copernicus.eu
      https://cds.climate.copernicus.eu/#!/home