

Report of the C-level ESG Risk Roundtable

Physical Risks Workstream

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Contributors

Workstream leaders:

- Groupe Crédit Agricole : Antoine de Béon, Mikaël Prébet
- Société Générale : Noémie Baquès

Participants :

- BBVA : José Angel Cañizares Fernandez
- BNPP : Marie Lore Aka, Olivier Javaud, Marie-Stephanie Diouf, Heeten Thaker, Valentin Kammes
- ING : Andrea Cesaroni, Amine Hamed
- Intensa : Stefano Del Punta
- Nordea : Brent Matthies, Saija Penttilä
- Santander : Manuel Perez de Castro
- Unicredit : Luciano Mario Bencivinni
- BPCE : Gabriel Barata

1. Introduction

Sustainable finance has become a key priority for European banks that play a crucial role in the transition to sustainable EU economy and participate in the global challenge to reach net zero emissions of greenhouse gases. This transformation requires to reach emissions targets per sector. While it represents an opportunity for banks in accompanying their clients in this transition, it could also create risks.

Banks as well as supervisors recognize indeed that environmental factors could be a source of financial risk. It is therefore essential to step up efforts to ensure that such risks are properly identified, understood, measured, managed, and supervised. To achieve this, banks are in the process of revisiting their internal systems, models, and processes, particularly those related to data collection, risk management and credit approval. As the risk profile of banks' portfolios are reflective of those of their clients, to mitigate the risk, banks are also rapidly deepening engagement with clients to understand their transition plans and assist them in the necessary business transformation.

However, while banks are making tangible progress, they are facing numerous operational and implementation challenges, many of which neither originate, nor are inherent in the banking industry. While some will need to be addressed at the level of individual organizations, others will benefit from collaborative approaches and collective solutions and discussions among banks, regulators and supervisors.

To further strengthen the dialogue within the banking sector and to facilitate the discussion with the European Central Bank (ECB), a high level Environmental, Social, and Governance Risk Roundtable (C-ESG Risk RT) was set up by the European Banking Federation under the existing CEO Roundtable (CEO RT), with the participation of 13 European banks, and the EBF and the ECB as observers.

The C-ESG Risk RT is focusing on climate risks with the objective to discuss current practices, identify gaps and promote pragmatic and practical approaches, including interim solutions, that will be shared with the entire banking industry to support and facilitate their implementation efforts and enhance harmonization where relevant and possible.

In its inaugurating meeting in February 2023, the C-ESG Risk RT identified four initial areas to work on in the following workstreams:

- Data Workstream
- Scenario analysis Workstream
- Collateral Workstream
- Physical risk Workstream

The results of the workstreams' (WS) deliberations is presented publicly via a series of EBF webinars and will be available on the EBF website in the format of four thematic papers. The views in these papers reflect the discussions of the WS members (contributors) and any suggestions in these publications will be of a voluntary nature.

The sole purpose of the initiative is to identify existing gaps and approaches shared by the WS members and share such experience and knowledge to increase the level of collective awareness and deepen future dialogues on these topics that are expected to further evolve over time.

Individual institutions are free to consider the relevance of a particular approach for potential implementation within their own organization.

1.1 Objective of the Physical Risk Workstream

The objective of the Physical Risk Workstream (PRWS) was to collect current practices as well as the common challenges encountered, with the aim to identify possible “quick wins” to overcome the challenges. With initial focus on Pillar 3 disclosures for Environmental, Social and Governance (ESG) risks, the WS discussion extended to cover broader Climate & Environmental (C&E) risks management practices.

This workstream focused on climate physical risk.

1.2 Organization of the workshops

The WS was initiated in April 2023, followed by monthly meetings. To scope the discussions and understand the ongoing practices, 2 surveys have been distributed to the WS members. The first survey was dedicated to Pillar 3 ESG disclosures^[1], while the second, more detailed, aimed at understanding the methodological choices made to implement physical risk measurement.

[1]<https://www.eba.europa.eu/activities/single-rulebook/regulatory-activities/transparency-and-pillar-3/implementing-technical-standards-its-prudential-disclosures-esg-risks-accordance-article-449a-crr>

2. Key outcomes resulting from the analysis and subsequent discussions

2.1 On Pillar 3 ESG disclosures

The practices of WS members to disclose climate physical risk exposures as part of Pillar 3 ESG differ significantly, preventing comparison of exposure across banks.

The main sources of differences were identified as follows:



The reporting format and scope.

The WS participants choose to report either:

- All their exposures or only the exposures in the most relevant geographies
- One template with aggregated exposures or several templates showing breakdowns per geographical zones.



Assessment methodologies:

- Assessment of the risk exposure at counterparty level or portfolio level
- Mapping of exposures to hazards or based on climate stress test
- Use of external providers for data and methodologies or use of public databases and internal models.



Assessment parameters:

- Assessment over a short-term horizon (1y, 3-5y, average maturity...) or a long-term horizon (2050, 2100...)
- Either no scenario, RCP 4.5 or RCP 8.5
- Risk level: high& very high or only very high



Hazard selection

- Different lists of hazards
- Different number of hazards

Therefore, it is difficult to analyse and compare the exposure at risk disclosed by banks due to methodology discrepancies and lack of guidance and definitions.

2.2 Identification of physical risk

2.2.1 Hazards maps

2.2.1.1 Hazards definition

According to the ECB[2], “the physical risk refers to **the financial impact of a changing climate**, including more frequent extreme weather events and gradual changes in climate, **as well as of environmental degradation**, such as air, water and land pollution, water stress, biodiversity loss and deforestation. Physical risk is therefore categorised as **“acute” when it arises from extreme events**, such as droughts, floods and storms, and **“chronic” when it arises from progressive shifts**, such as increasing temperatures, sea-level rises, water stress, biodiversity loss, land use change, habitat destruction and resource scarcity.”

Challenge



It is difficult to categorize climate hazards as acute or chronic, as some acute risks, such as droughts, could become chronic in the future.

➤➤ Approaches identified to overcome this issue:

- **Agree upon a common list of climate “acute” versus “chronic” hazards.** Considering ECB’s definition as a first input, the below categorization could be contemplated. However, a list set by the participants of the WS is not perceived as a lasting solution because i) the list would need to be reviewed and updated ii) the list won’t be broadly shared as a reference across the industry.

| Acute | Chronic |
|--|---|
| Wildfire Floods (by runoff, river, water table, coastal) Storms (Windstorms)/Tropical Cyclones | Increasing temperatures Temperature Variability (Days over 32°C / below 0°C) Sea-level rises Water stress Drought |

- **A common list to be provided by a higher and more competent authority** or
- **an independent and legitimate data source that could disclose the list of hazards in the relevant category** (acute versus chronic).

[2] [Guide on climate-related and environmental risks \(europa.eu\)](https://www.europa.eu)

Challenge



Definition of each hazard given that a generic hazard category could lead to different definitions.

Flood risk, as a generic category, for example, could refer to river flood, flash flood or coastal flood. Some other hazards also appear difficult to define, for example wildfire. It must be noted as well that distinction of “chronic” and “acute” can also depend on models, rather than hazards. It has to be distinguished whether the model provides an output in the form of a probability distribution (in which case this is an acute model) or an average shift (in which case it is a chronic model). For example, while wildfires are considered as acute events, many models provide average fire probabilities which are based on chronic patterns.

➤➤ Approaches identified to overcome this issue:

- **Set common definitions of hazards.** This solution could be contemplated when hazards maps are built inhouse. However, there is currently no standardization of the hazards definition in the solutions currently proposed by data providers.
- **Disclose as detailed as possible definition of each hazard.**

Challenge



Selection of relevant hazards

The main hazards used by the WS members are the following: flood, fire, sea level rise, drought/water stress, heatwaves, tendential temperature rise, tropical cyclones / hurricanes / typhoons.

However, considering that the magnitude of the impact of physical hazards are strongly dependent on the geography, it would be relevant to use different hazards based on the country/region specificity.

➤➤ Approaches identified to overcome this issue:

- **Set a list of suggested hazards per region** (Europe, North America, South America). In Europe, subsets of hazards could be contemplated at a more granular level (Southern, Northern, Central) and even at country level.

The WS members suggest a combination of a science-based and risk-based approach for the selection of the hazards: the most intense one per zone (based on hazard maps, as part of the risk identification process) and the most meaningful considering the bank exposures to each hazard (vulnerability).

- **Assess the exposure at risk on selected region & hazards only**, considering the operational challenges (mapping exposures X hazards), in order to increase the reliability of the outcome.

If geography is the first criteria to consider, banks may also consider the below parameters to select their hazards:

- **The type of portfolio:** for example, mortgage portfolio can be very sensitive to shrink-swell of clays impacts in some areas, based notably on the nature of soil.
- **The sector considered:** e.g. sectors depending on agriculture are more sensitive to water stress.

For the reasons explained earlier, the WS members did not consider it appropriate to set the list of hazards by the WS itself.

Challenge



The number of hazards used for Pillar 3 ESG disclosure

The number of hazards used to assess the exposure at risk has an impact on the outcome:

- Limited number of hazards could lead to an underestimation of the exposure at risk
- The exposure at risk increases with the number of hazards

➤➤ Approaches identified to overcome this issue:

- **Do not set minimum or maximum number of hazards.** The number of hazards used for Pillar 3 ESG disclosure should be risk and science based. Hence the number of hazards used will vary from bank to bank depending on their portfolios.

2.2.1.2 Maps

For hazard maps, banks have two options: develop in-house maps or rely on data providers. Both solutions show strengths and weaknesses.

| | In house maps | External data provider |
|------------|--|---|
| Strengths | <ul style="list-style-type: none"> • Control of the methodology • Cost control over time | <ul style="list-style-type: none"> • Data available quickly • Maps developed by experts on the subject |
| Weaknesses | <p>Challenges to overcome:</p> <ul style="list-style-type: none"> • selection of the data sources (that might not be worldwide by default), • internal investments to develop methodologies, • availability of the internal knowledge, • limited comparability among banks • Data not readily available - need to develop maps on numerous hazards and all lot of geographies | <ul style="list-style-type: none"> • No transparent view on the methodologies used, • No control on the impact of proxies that might be used • No control over methodology changes that could trigger changes in risk assessment with limited explanation capacities • Significant cost on the long run |
| Sources | <p>Europe: Copernicus France: BRGM, DRIAS Spain: IGN, MAPAMA, AEMET, ...</p> | <p>Globally: Munich Re, Moody's, OS-Climate (JUPITER), Swiss Re, Royal Haskoning DHV, S&P Global, Bloomberg, Climate-X, Guy Carpenter</p> <p>France: Axa Climate...</p> |

Challenge



Inconsistency of assessment from one data provider to another

» Approaches identified to overcome this issue:

- Test the dispersion of results provided by hazard maps. In the meantime, risk assessment provided by these maps should be used with caution.
- At target, rely on hazard maps built on public data, standardized with public methodology. These data could be made available through the European Single Access Point (ESAP).

2.2.1.3 Scenario and time horizon

Scenario:

The selection of the referenced scenario has an impact on the risk identification. Indeed from 2050 horizon, RCP 8.5 physical risks are expected to be significantly higher than in RCP 4.5.

The scenario choice is highly dependent on what banks want to assess:

- Identification on a baseline view: banks would consider their current exposures to physical risks using the current most probable scenario.
- Identification on a stressed view: banks would consider their current exposures to physical risks using a scenario that is not in line with Paris Agreement.

In the absence of Guidelines, for Pillar 3 ESG disclosure, banks choose different scenarios.

Challenge



Scenario to be used in Pilar 3 ESG disclosure to ensure comparability of results

Even though the scenario would have limited impact on physical risk sensitivity before 2050, WS members agreed that they should all use the same reference scenario. However, no consensus emerged on the scenario that should be used.

The WS members however agree that the same scenario should be used for both acute and chronic risks to ensure consistency of results.


>> Approaches identified to overcome this issue:

Disclose the scenario used in the Pillar 3 ESG. For internal risk management the choice of scenario would depend on what banks want to assess.

Time Horizon:

As for the scenario choice, the time horizon has an impact on the risk identification. Indeed, as climate system responds on a lag, even based on the current emissions, the materialization of physical risk will have an increasing impact in the future. Hence one can expect to identify higher risk on the long term (especially past 2050) than on the short term.

In the absence of guidelines, for Pillar 3 ESG disclosure, banks choose different time horizon.

| | | |
|------------------|--|--|
| Challenge |  | Time horizon to be used in Pillar 3 ESG disclosure to ensure comparability of results |
|------------------|--|--|

WS members agree that they should all use the same time horizon, but no consensus emerged on which one should be used. They also agree that time horizon should be the same for both acute and chronic risks to ensure consistency of results.

>> Approaches identified to overcome this issue:

Disclose the time horizon used in the Pillar 3 ESG.

2.2.2 Mapping hazards to the bank exposure

2.2.2.1 Allocation methodology

To identify exposures sensitive to physical risks, banks must define methodologies to map their exposures to the hazard maps, and face two challenges.

Challenge



Allocating a localization to each exposure

Localization of assets is more complex than it would appear. Indeed, several approaches can be applied, leading to dispersion in the results. Consensus was reached amongst WS member on the necessity to set common standards for asset localization, however, no consensus has been reached on the methodology to be used at corporate level. While acknowledging possible data protection issues, it was considered that public databases at national level that would facilitate the location of assets could be extremely useful. It is believed that such information may already be available to public authorities for other purposes (e.g. taxation etc).

>> Approaches identified to overcome this issue:

Consider compendium of the practises identified by the WS.

A first compendium of the practices collected by the WS:

A basic practice consists in using the address of the headquarter of each counterparty. However, damages affecting the headquarter of a considered counterparty might not have any significant impact on its solvency.

A more advance practice consists in adopting methodologies based on the bank portfolios, sectorial view, or financing type. There is for example a large consensus on the necessity to distinguish the localization approaches for:

- Dedicated financing/collateralized loan. In this case, the localization of the collateral or financed asset should be considered. The main challenge identified is the availability of the data in the financial institution systems.

- General-purpose financing, for which the exposure of the counterparty should be considered. To do so:
 - The basic practice consists in using the address of the headquarter.
 - A more advance practice consists in considering the localization of the assets of the counterpart. Once again, the data availability is a key challenge and often imply relying on data providers.
 - A most advance practice would consist in considering the types of assets and implementing a dedicated methodology (for example by considering only the strategic assets of the counterparty that could be based on the sector of the counterparty, or by taking into consideration all assets but by applying weights based on the sector of the counterparty). The data on assets could be sourced directly from the client, which is a major challenge, or from an external data provider, or from public databases, should they become available.

Challenge



Use of precision

The precision of location can have a significant impact on the risk identification and risk analysis, especially for hazards that are highly dependent of the topography (such as flood risk).

»» Approaches identified to overcome this issue:

- At target, use the exact GPS address of the asset.
- If unknown, use proxy at NUTS3 level. Zip code to the country of localization could be used while working on data quality improvement. Those proxies might be adjusted depending on the sector of the counterparties.

It is worth mentioning that localization precision should match the map precision. Indeed, using the GPS address of an asset is meaningless if the hazard map is at NUTS3 level. NUTS 3 level analysis will result in an over- exposure to natural hazards of the portfolio.

2.2.2.2 Sourcing of asset level data

Challenge



Sourcing the asset localization data, which is not a common data used by financial institutions

➤➤ Approaches identified to overcome this issue:

- At target, retrieve this information by directly engaging with clients. However, given the potential criticality of this data, clients can be reluctant to share it, especially with regards to assets that are considered strategic.
- Future CSRD publications could be a source of information. However, the type, level and standardization of the information that would be disclosed remains to be seen and tested.
- As for today:
 - Depending on the capacity or complexity of their IT systems, banks could gather information on the localization of financed assets (as least on new financing). If not able to do so, plans to enter these data in IT systems need to be set.
 - With regards to the localization of assets of banks' counterparties or issuers, banks often choose, as a first step, to buy asset addresses from data providers. The third-party services provided range from the GPS address only, to detailed information on the assets (type of asset or strategic assessment).
 - A preferred solution would be the construction of a common database that could be used by all banks.

2.3 Value chain: short term objective and quick wins

Financial institutions must also consider the indirect exposures of their counterparts or invested assets by considering the sensitivity of their value chain to physical hazards. Indeed, a counterparty that has no assets directly exposed to physical risks could be exposed to business disruption or increase costs on its inputs due to physical risk damage on its value chain.

Challenge



Financial institutions currently have limited information on the value chain of the counterparties

>> Approaches identified to overcome this issue:

To fill the data gap, several options may be contemplated by banks:

- Retrieve this information from clients.
- Rely on data providers.
- Adopt a global sectorial assessment of the value chains weaknesses to physical hazard: as a first step, adopt a sectorial approach and consider the main sensitivities of the value chain. For example, industries that are highly dependent of semiconductor chips that are mainly located in Asia could be indirectly affected by physical hazards halting the production in this area.

2.4 Insurance coverage

Challenge



Consideration of insurance in the risk identification process

As per ICAAP guidelines^[3], the risk identification is required to be performed on the gross exposure. Therefore, the identification of bank's exposure to physical risk should be performed without consideration of mitigation actions, including insurance.

Insurance should however be considered when assessing the potential financial impact for the bank (net exposure to risk), for risk management purposes.

[3] [ECB Guide to the internal capital adequacy assessment process \(ICAAP\) \(europa.eu\)](#), paragraph 61, p 26.

2.5 Vulnerability

The vulnerability to physical risk refers to the predisposition of clients to adverse impact of the hazards to which they assets are exposed to. It might be related to the assets of the clients as well as their business model (e.g. supply chain).

The vulnerability can be considered either in the risk identification phase, or when performing the assessment of the potential financial impact. Since vulnerability can have an impact on the outcome of the risk identification, banks should disclose their choices when disclosing Pilar 3 ESG exposure to physical risk.

Challenge



Assessment of the vulnerability of a client

>> Approaches identified to overcome this issue:

As a first step, assess the vulnerability at a macro level using a simple risk score methodology based on:

- The sector of the client
- The specificities of its assets: vulnerability of a factory or a building office are different.

More advanced practices would consist in:

- Considering past events and their consequences for the client
- Directly engaging with the client to gather information related to adaptation investments that might have been done to reduce the risk or increase effectiveness of business continuity plans when it comes to severe physical events. It has to be however noted that this approach, given the time required for each client, would be hardly scalable at portfolio level.

Challenge



What should be considered to assess the vulnerability of an asset

>> Approaches identified to overcome this issue:

As a first step, assess the vulnerability at macro level based on the asset type.

As a more advance practice, banks may consider adaptation actions that might have been done locally to mitigate the impact of physical events (for example building of a dike performed by local authorities).

3. Suggested topics that could be addressed in a second phase of the Physical Risk Workstream



Assessment of the financial impact for the bank:

Damage functions: availability per hazards, need for further development?



Mitigants: How to assess net financial risks:

- Insurance and public support mechanisms: How and at what stage do we need to identify the insurance program of the customer?
- Adaptation plans: at asset, counterparty, or regional level?
- Collateral: how to adjust collateral value to consider physical risks?



Integration in the risk framework:

- Client rating adjustment
- Loan origination guidelines.
- Materiality assessment
- Stress testing and ICAAP
- KRI: which one (maximum annual loss...), methodology? and RAS