BY TOM VAN DER VORST

# New regulations to assess the impact of Climate (Change related) risk

**The Global Theme of this edition of De Actuaris has sparked the interest of the editorial committee on emerging topics in the actuarial and risk modelling practices abroad. In the preparation and follow-up of the UN Climate Conference in Glasgow (COP26) in 2021, the Prudential Regulation Authority ("PRA") and the Bank of England (BoE) together with Parliament have sparked initiatives, new expectations and have introduced new regulations to assess the impact of climate (change related) risk on the financial industry and wider society.**

**Since then, organisations have been working on obtaining appropriate long- and short-term estimates on the impact of climate risk[1] both in extreme events (through stress testing, scenario analysis and capital assessments), and expected impacted (provisioning). Moreover, the introduction of obligatory transition plans and voluntary commitments have triggered a need to obtain robust estimates of a portfolio carbon footprint as well as a strategy how to reshape the portfolio such that commitments can be met.**

**This article provides two examples where an increasing number of risk modellers are focusing on in the UK, illustrating how double materiality[2] influences the activities of risk modelling professionals in Financial Institutions (FIs).**

## THE IMPACT OF CLIMATE ON A LENDING AND INVESTMENT BOOK – A CREDIT RISK EXAMPLE

The IFRS 9 provision represents the best estimate expected credit loss ("ECL") under multiple economic scenarios and covers a range of potential (and plausible) outcomes. As the climate is changing and new policies to limit this are designed (and expected), FIs should consider the impact that this might have on their IFRS 9 impairment allowance using a proportionate approach.

"**75% of global respondents indicated that they are either already including climate in their provision or are expected to do so in the next few years.**" (PwC Survey, December 2022)

In the UK regulatory expectations and priorities for coming years are published in supervisory statements and "Dear CEO/CFO" letters. The deadline for complying with the PRA Supervisory Statement 3/19 ("SS3/19") around climate risk management has expired at the end 2021. The regulatory focus has now shifted toward active monitoring around progress and continuous alignment against expectations. Dear CEO, Dear CFO and Written Auditor Reports issued over the course of last 18 months, all indicate the high priority that climate has on the regulatory agenda in the UK. Financial impacts arising from climate change are embedded in the financial reporting process, as indicated in their latest **thematic feedback from the Written Auditor report**. Besides these regulatory pressures, the risk assessment of FI's themselves as well as the ones of external audit organisations are in the process of refinement. This is triggered also triggered by recent (nature related) events and new policy announcement indicating that climate change no longer is a risk potentially materialising far into the future but can already impact the current portfolio and should therefore be considered in the provisioning process.

Figure 1 illustrates the potential impacts arising from climate transmission channels whilst Figure 2 illustrates the projected evolution based on the strength of response and performance against climate targets.

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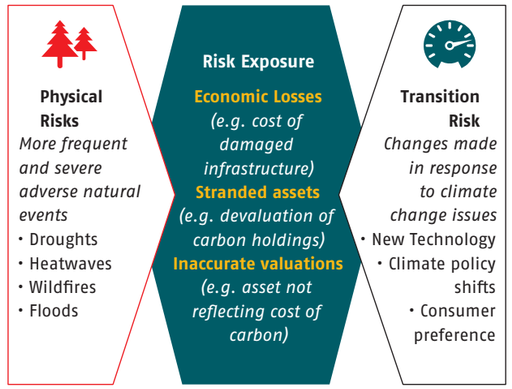
**Embedding Climate Change Risks in the IFRS 9 Allowance**

**Figure 1:** Climate Change Transmission channels




Climate Change will need to be embedded across several areas, as follows:

- Scenarios used for the forward-looking assessment should take into account climate related factors and specific considerations associated with Physical and Transition Risks.
- Data sources and granularity would need to be enriched in order to appropriately capture the vulnerabilities to climate change.
- Impact of climate change on the current and projected creditworthiness of the obligor as well as collateral values
- Staging Assessment / Criteria.

**Figure 2:** Climate Change Scenarios overview

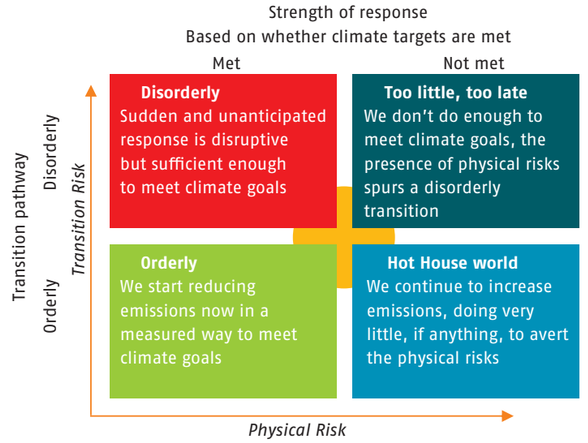



**Figure 3:** Embedding Climate change in IFRS 9 Components – key considerations

**1 Scenario selection and design**

The scenario narratives need to be enhanced to capture specific elements such as regulatory and legislation changes, carbon taxation, climate transmission channels etc.

**2 Enrichment of data sources and granularity**

Additional data elements would need to be sourced, stored and integrated within the models underpinning the risk assessment process.

**3 Impact on the borrowers' Creditworthiness**

The current and projected vulnerabilities to climate change as well their relationship with the borrower creditworthiness need to be identified, measured and integrated in the assessment.

**4 Impact on collateral valuations**

The scenario narratives need to be enhanced to capture specific elements such as regulatory and legislation changes, carbon taxation, climate transmission channels etc.

**5 Staging Assessment**

The quantitative element in the SICR criteria will be naturally enhanced via the PD mechanism whilst the qualitative approach may require further refinements. This should include provisions around vulnerability to climate change, allow for provisions related to counterparty transition plans and their credibility, and/or sustainability matters / events.

*What's next on climate in IFRS9?*
At present there are gaps in existing IFRS 9 frameworks that fail to incorporate a consideration of climate risk. Both financial institutions and the external audit firms are defining appropriate responses to develop robust and conceptually sound methods of quantifying ECL risk assessments related to climate risk whilst the formal embeddedness of climate into the full IFRS 9 framework is developed. It is expected that by the end of this calendar year or the next the majority of organisations have performed a quantitative assessment on climate (could) mean on the expected credit loss estimates.

## THE IMPACT OF AND LENDING AND INVESTMENT BOOK ON CLIMATE – MANAGING DATA CHALLENGES FOR PORTFOLIO EMISSION ESTIMATES

The Environmental, Social and Governance (ESG) agenda is getting more integrated in regular business processes in financial institutions in the UK. This is driven by the following main developments:

- Globally, **ESG reporting regulations are increasing** and in key jurisdictions, assurance requirements on disclosures have been proposed.

- Many firms have signed up to a **large number of voluntary ESG commitments and reporting frameworks** without clear oversight and are reviewing these in light of upcoming regulations and external criticism (e.g. antitrust). This also drives the increasing need for voluntary assurance on these metrics, an area with modelling specialists (like actuaries) are heavily involved in.

- ESG reporting requirements **impact functions across businesses**, and in particular are leading to increased finance and CFO ownership. For example, if an organisation would like to decarbonise the carbon footprint of the asset/liability portfolio, changes to the strategic asset allocation, loan origination and underwriting processes might be required as besides risk-reward-strategy elements the carbon footprint should now be integrated.

- Many companies are finding that **ESG Reporting requirements are identifying strategic gaps** and are prompting strategic change - particularly alignment of corporate and sustainability strategies.

These developments will have a substantial impact on the financial industry overall, research shows.

**61%**
Of global investors use sustainability disclosures to assess how companies manage risks and opportunities.[3]

**41%**
Of FTSE 350 corporate reporting did not link sustainability disclosure to strategy, risking it as greenwashing, even if unintentional.[4]

**3/4**
Of businesses in European Economic Area are impacted by CSRD[5]

**$68tr**
The value of assets held by financial firms, as a part of Climate Action 100+, that have committed to implement the TCFD recommendations.[6]

As an emerging risk area, the financed and facilitated emission modelling brings both unique challenges and considerations to clients in addition to those normally encountered from a typical model development process. Portfolio emission quantification is a nascent area and therefore involves a great amount of uncertainty related to robustness, completeness and the accuracy of data. Navigating this is therefore important to ensure results can be trusted, validated and (ultimately) audited.

## DATA QUALITY IN PORTFOLIO EMISSIONS

The **data source and method** used to measure and estimate are equally important for portfolio emissions modelling primarily for two reasons:

- **Reporting and disclosure** – the need to comply with reporting requirements around portfolio emissions as well as disclosing data quality.

- **Strategic implications** – the impact of decarbonisation strategies and decision making on firms should consider data accuracy and robustness.

Therefore, while **data quality** is imperative to every modelling discipline, the need to source and use the best quality data plays an important role in **transparency** and **investor expectations**. The **complexity of solving the data problem** for portfolio emissions is complex for large geographically diversified institutions. To provide portfolio coverage, a range of internal, external (subscribed) and publicly available information is needed. This extends across many data types; **emissions data**, **financial data**, **lending & investment information** as well as a range of data to **estimate emissions** (e.g. activity/production data, revenue, asset size).

## KEY DATA CHALLENGES ACROSS PORTFOLIO EMISSIONS MODELLING

Some of the common data challenges experienced across the industry include the following:

- **Data lag/timing mismatch** between financial reporting and the reporting of required emissions-related data for borrowers or investees.

- **Data unavailability** as not all entities report their emissions. Some countries also do not report emissions at all.
- **Data inconsistencies and conflicts** across same data types from different data providers.

- **Granularity limitations**, for example, some providers may combine Scope 1, 2 and 3 into a single value and for dual fuel motor vehicles, the split of percentage usage of each fuel type is usually not available.

- **Verifiability of data**, including unavailability of verified emissions and proper understanding of data construction from third parties.

- **Data inaccessibility**, for example, not all commercial real estate and residential mortgages have a current energy performance certificate (EPC) rating.

- **Stability** of the data as some data sources override old data with new data without maintaining any history.

- **Rates considerations**, including the impact of foreign exchange rates and inflation/deflation on some data types such as GDP data.

- **Validity** in the sense that at a specific time, the data may not be the best representation of emissions, for example, the impact of Covid.

- **Age of the data** as data can become out of date and therefore not suitable for modelling portfolio emissions as it can no longer be deemed representative.

In the UK organisations are working hard on tackling those challenges, and many are using a phased approach by either focusing on a proportion of their portfolio first or obtaining an initial estimate that is refined is subsequent development phases.

## NEXT STEPS THAT FINANCIAL INSTITUTIONS IN THE UK ARE CONSIDERING

Financial institutions that are yet to measure their portfolio emissions will either act to ensure they can meet external expectations and their net zero ambitions often set through the Net-Zero market alliances[7] or will need to crawl back on previously made external commitments. Despite the complexities, data should not be seen as a roadblock to making a start. While data sourcing can be difficult, the basis of the PCAF Standard allows estimating a carbon footprint using both direct emissions and proxies to suit ranging data quality score ambitions.

Those firms that are now planning the second and third generations of data and modelling solutions should consider the following next steps to enhance their journey:

- **Balance between coverage and simplicity from a data lineage perspective** – simplification of data sources can lead to more efficient and effective data processing and preparation. Given the need for many data types (e.g. emissions, financials, internal classification, consumption and conservation factors), placing more reliance on single sources at the data element type will help reduce overall complexity and data management requirements. While there are benefits to a priority system across providers (to increase coverage), firms may want to consider the added benefit (by analysing end results) and overlap between providers, especially as data completeness at providers improves over time.

- **Automated data quality processes** – developing controls and processes will support assessment for completeness, accuracy and validity as well as overall sense checking. It is very easy for entity emission information to go missing, or nonsensical results to flow through, especially with the high volume of sources, transformations and treatments required.

- **Data driven output variability and sensitivity testing** – firms can analyse the impact on outcomes of varying sources (e.g. Bloomberg instead of CDP, consumption by dwelling type instead of region) either at development, to determine a best candidate, or post model production, to understand the impact of varying the priority structures and role of proxies.

- **Continued movement towards higher rated data sources** – while proxies are a start to baseline portfolios and addressing missing information, financial institutions need to gravitate towards better estimation approaches, in particular to higher coverage of reported emissions. While not all entities will report, ensuring models are using the best available data at the time of reporting will improve the data quality score and result in a more accurate reflection of the portfolio emissions footprint.

- **Refining proxy development approaches** – the choice of data granularity used to define proxies at the production, revenue and asset level is a key aspect of the data and model development journey. Financial firms that are able to source data that is reflective of their profile in terms of region, industry and asset type can move towards proxies that are more precise and representative than those developed at an overall level.

- **Data management & monitoring** – moving towards centralised data management systems and frameworks, that are integrated with the wider ESG data capture, processes and needs across the institution. This includes the consideration of data controls, governance, reporting requirements horizon scanning and overall risk management. The high volume of data sources also requires the monitoring of data refreshing feeds over time to identify, understand and explain data movements and changes over time, including the impact on modelling outcomes.

Financial institutions need to consider their data related next steps towards portfolio emission management and measurement. However, end-to-end asset classification and scoping, model and methodology design, governance, controls, and reporting should also be prioritised for firms looking to enhance their models and embed their use of decarbonization strategies. ■

1 – Physical risk and transition risk in particular, litigation risk is often not considered yet in the lending and investment portfolios (note: can be covered as an insurance product)

2 – The concept of double materiality of climate risks stands on the recognition of a feedback loop between climate change and the financial system (European Commission, 2019).

3 – PwC's 2022 Global investor survey

4 – PwC FTSE 350 reporting trends

5 – Carbon Trust

6 – 2022 TCFD status report (2022)

7 – Net zero banking alliance (NZBA) and Net zero insurance Alliance (NZIA) are examples of these.