Risk Framework Method

Approaches to integrate ESG factors in Credit Risk

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Banks must evaluate exposures through counterparties

Banks are exposed to ESG risks through their lending portfolio due to transactions with counterparties

Environmental risks can impact counterparty's business models and profitability

— Focus on **financial** materiality, which can be triggered by **environmental / social** materiality

— Impact can occur **outside of counterparties** or be caused by **counterparties themselves**

Counterparty's creditworthiness deteriorates

— Through **physical** or **transition** transmission channel, or both

— Impact can be significant, also depending on **interaction** between physical and transition risks

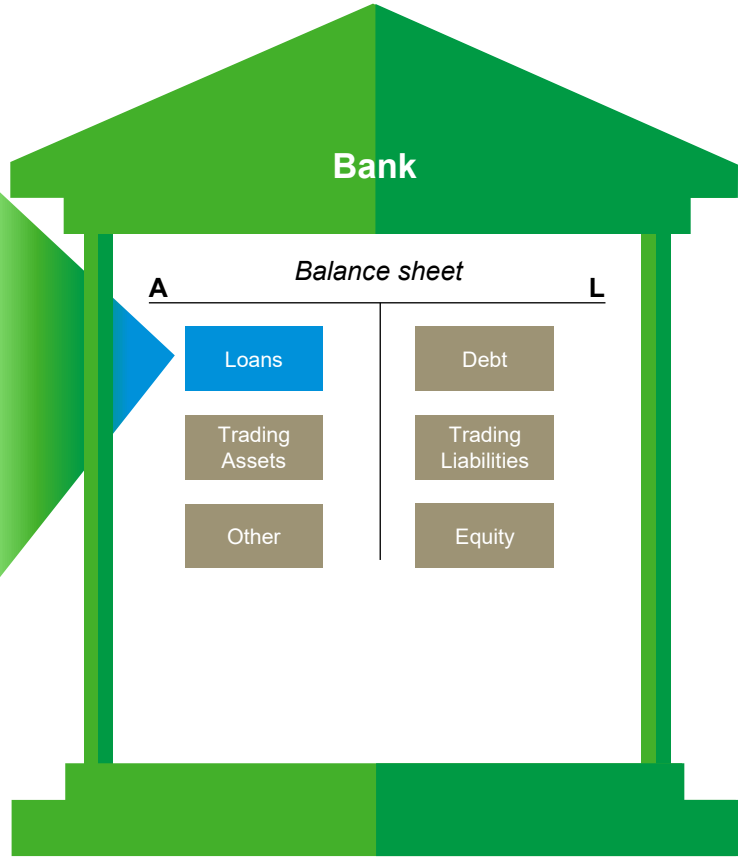
Counterparty's credit risk increases

— Increase is likely **growing with time horizon** (i.e., medium- to long-term). This forces banks to look beyond their conventional, shorter-term time horizons for credit risk assessments.

— However, environmental risks can also unwind in the **short-term**.

Banks may face more/higher losses due to increases in loan defaults as a result of environmental risk

— **Hereby, environmental risks represent prudential, financial risks**



The methods for assessing ESG Risks

Market and Regulatory pressure

Change of the **market and economic environment** as well as need to comply with **regulatory expectations** drive financial institutions to address ESG related risks in individual areas as well as holistically across the organization.

Credit Risk in the spotlight

ESG risks must be integrated in a comprehensive way in all essential credit risk processes to stay ahead of the market.

The ECB and other Supervisory Authorities are pushing banks to develop internal methods to assess ESG factors in Credit Risk

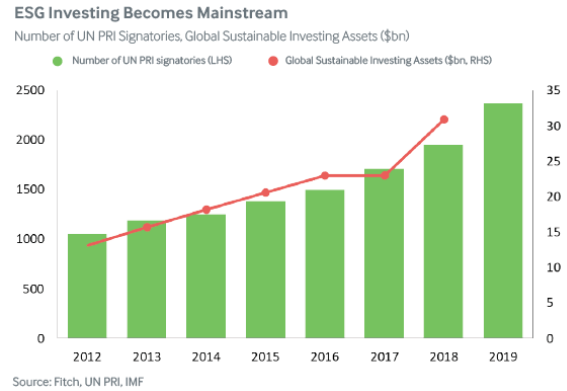
Three methods

	Portfolio Alignment Method	Exposure Method	Risk Framework Method
Purpose	• How aligned is an institution's portfolio with global sustainability targets?	• How do individual exposures and counterparties perform on ESG factors?	• How will sustainability-related issues affect the risk profile of a bank's portfolio and its risk indicators?
Advantages	• Very results-oriented • It provides analysis of institutions' portfolio positioning relative to global targets and goals	• Is the most practical and straightforward method to be implemented • It allows institutions to better understand the ESG performances of their portfolios	• It focuses on the sensitivity of portfolios and the impact climate change has on the real risk of exposures • It allows a
Limitations	• It does not make any explicit link between sustainability targets and the risk characteristics (PD, LGD)	• ESG ratings are still in their infancy and often lead to very different outcomes for the same company • Data are scarce	• Past data needed to link ESG factors to credit risk are scarce • Climate stress tests methods are under development
Tools	• Tools • Tools • Tools	• External ESG Scores • Internal Questionnaire • Internal ESG Scores	• Credit risk models (PD, LGD) • Stress Testing frameworks • IFRS9 Satellite models

Why is the integration of ESG into Credit Risk Models necessary?

Awareness in ESG topics and risks is growing

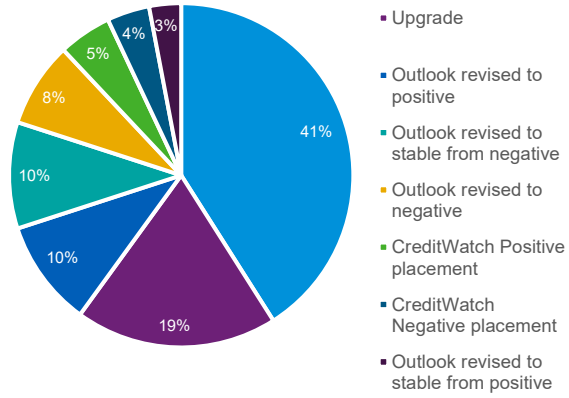
- Public awareness / attention regarding ESG factors is high and still growing
- Regulatory attention is high
- More data regarding ESG needs to be collected to link (past) defaults to ESG topics, otherwise investigation is not possible



Current models will not be representative in the future

- As impact of ESG factors and respective ESG risks on companies activities is growing (e.g. transition risks), more and more defaults are expected due to realized ESG risks
- Models that do not consider ESG Risks in some way will not be able to predict these defaults
- In S&P research updates[1], environmental and climate factors were an important consideration in ~10% of the cases and triggered certain actions towards credit ratings (see pie chart on the right for breakdown of these actions)

Rating Actions Related to E&C Risk



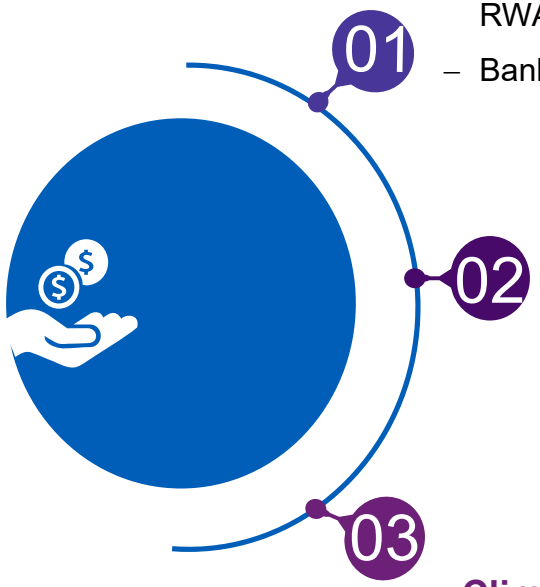
Source: S&P Global Ratings

Integration in credit risk models is necessary for the broader assessment of ESG risks

- Future processes will be sensitive to ESG risks and the credit models provide necessary input to process decisions
- Link to creditworthiness, RWA calculation and Pricing is made by Credit risk models
- Allows regular and (ideally) automated estimation of ESG Risks

[1]How Environmental And Climate Risks And Opportunities Factor Into Global Corporate Ratings - An Update November 2017

Current Situation



Industry best practices are emerging

- No specific guidance on how to integrate ESG Risks into credit models or RWA calculation
- Banks are trying different alternatives

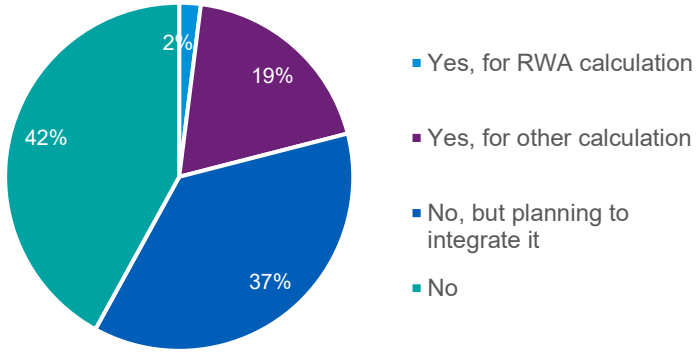
But there is limited evidence of materiality and impacts

- Credit models are developed on historical data in a back-looking way
- Finding correlations between historical defaults and ESG risk drivers has proven difficult
- For many risk drivers, sufficient historical data is not available
- For many portfolios (i.e. SME) it is hard to find evidence that ESG risks impact the creditworthiness of clients

Climate Stress testing solutions are getting common among large players

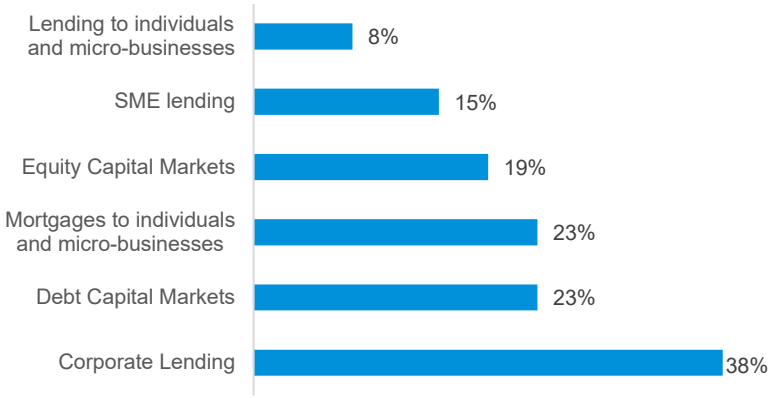
- Especially PD has a one-year horizon
- ESG risks are expected to rather materialize in a 2-3 year horizon

Direct incorporation of ESG risks into existing parameters/models



Source: BlackRock FMA Analysis

Evidence collected on ESG risks impact on asset classes



Source: BlackRock FMA Analysis

Three approaches to integrate ESG Risk into credit models

Backward looking → **Forward looking**

2-step overlay

ESG overlay to classical credit models

- Requires traditional credit rating from PD/LGD models as well as macro **ESG assessment**
- Impacted ratings are notched based on **expert judgement**
- Override may be decided by credit officers or in credit committees
- Existing models need not be adjusted
- ESG assessment may come from exposure method analysis (i.e. results are refactored for the purpose of rating adjustments)
- Overrides usually directly impact RWA calculation

Direct integration

ESG risks directly integrated in the models

- ESG **KRIs** are used as model parameters
- Requires **redevelopment** of existing models
- Alternatively, a **separate ESG risk score** is modelled and combined with the credit score
- Or use external ESG score / exposure Method score
- Provides a data driven link between E, S and G KRIs and the customers credit rating

Scenario Method

Adapted Satellite models

- Adjusting the existing models that link macro variables to risk parameters (satellite models) to forecast expected credit losses taking into account sectorial sensitivity to transition risk

Use stressed input parameters

- Stressed input parameters (e.g. adjusted balance sheet data) are used in traditional PD/LGD models
- Models themselves remain unchanged
- Stressed parameters are derived based on **scenario analysis**
- Requires detailed scenarios and an assessment of the impact on the parameters to be stressed
- Allows calculation of different scenarios

Different

Key messages from the ECB Climate Stress Test

*"**Initial insights** (particular on data gathering) from the ECB CST can also be used for future climate risk analysis."*

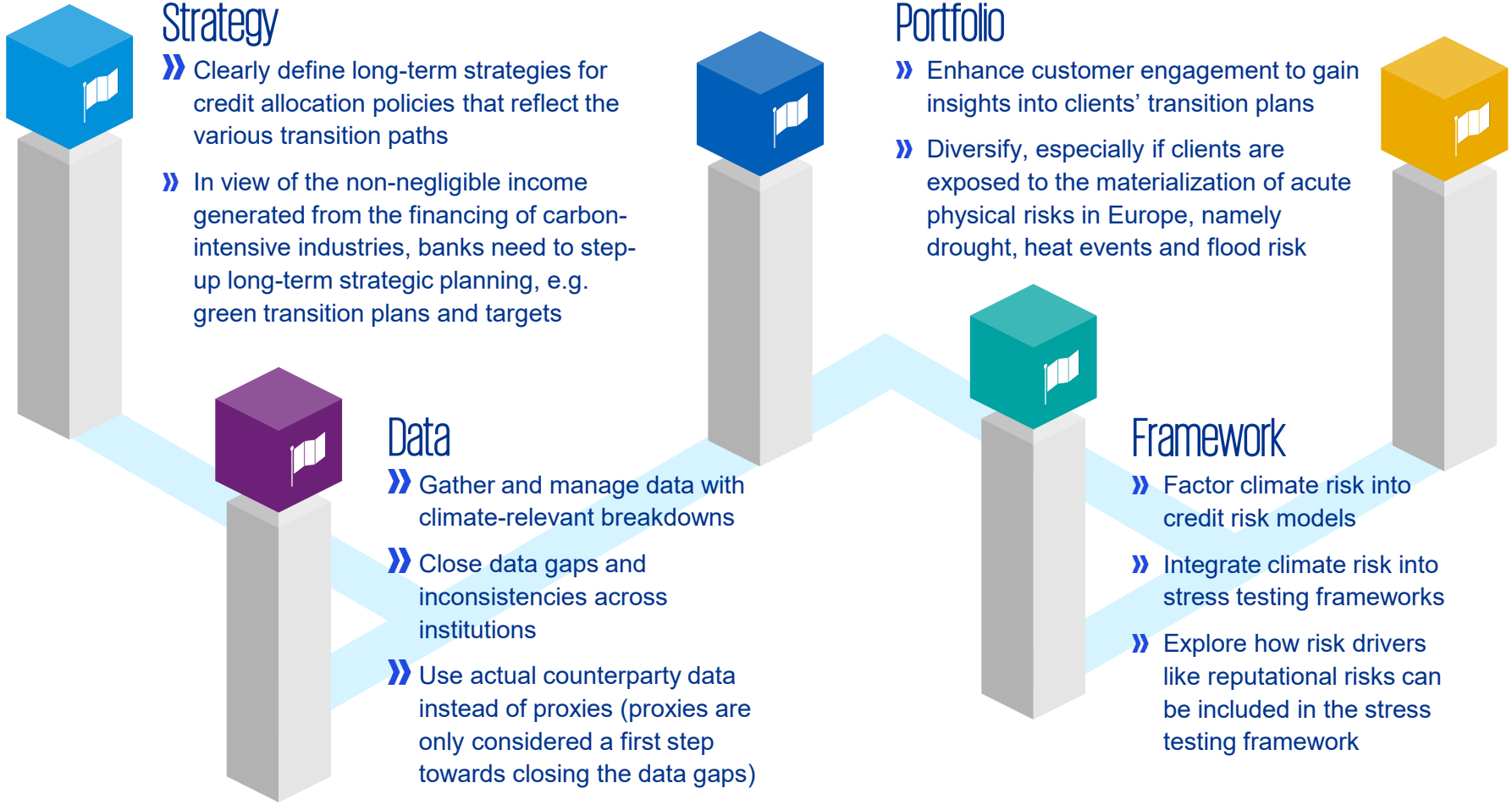
*"The **stress impact was relatively low** within the given framework and scenario parameters – only limited insights for bank steering so far"*

*"The ECB climate risk stress test has taught us the lesson that **more and better data** as well as additional **bottom-up analyses** are required to better understand exposures and scenarios."*

*"**Adapt stress test governance and capacity**: Additional resources and budget needed to accompany external CST exercises going forward (most likely "recurring") and to implement internal methods/design."*

***"Collaboration and orchestration:** the necessary expertise for the CST extends from the front office to risk controlling/back office and regulatory reporting."*

Summary of lessons learnt from the ECB climate risk stress test



Strategy

- Clearly define long-term strategies for credit allocation policies that reflect the various transition paths
- In view of the non-negligible income generated from the financing of carbon-intensive industries, banks need to step-up long-term strategic planning, e.g. green transition plans and targets

Data

- Gather and manage data with climate-relevant breakdowns
- Close data gaps and inconsistencies across institutions
- Use actual counterparty data instead of proxies (proxies are only considered a first step towards closing the data gaps)

Portfolio

- Enhance customer engagement to gain insights into clients' transition plans
- Diversify, especially if clients are exposed to the materialization of acute physical risks in Europe, namely drought, heat events and flood risk

Framework

- Factor climate risk into credit risk models
- Integrate climate risk into stress testing frameworks
- Explore how risk drivers like reputational risks can be included in the stress testing framework

Results

- Interpret quantitative results with caution due to model deficiencies (modelling at preliminary stage, often insensitive parameters)
- 30-year projections are exploratory and subject to significant uncertainty. Therefore, these long-term loss projections should be interpreted as a qualitative yardstick for the direction of travel rather than as a robust quantitative measure

Data, modelling and scenario capabilities are key focus topics to master ESG challenges and the journey going forward

While specific feedback has been provided to each of the participants by the ECB, a number of overarching themes have been identified as key areas of focus going forward:

Close climate risk data gaps

- Obtain more data on the **understanding of 'customers" current emissions**, up and downstream the value chain, and transition plans + further parameters characterising transition vulnerability
- **Location data for collateral** and – in the medium-term –customers' critical infrastructure incl. supply & delivery routes
- Immediate pressure originates from **new reporting requirements** (pillar 3, EBA templates) to obtain data quickly

Understand transmission channels

- Increase **understanding of sector specific transmission channels** and critical assumptions made for the transition (e.g. availability of technology and competitiveness, e.g. battery vs. hydrogen)
- Explore methods to **model the effects** of these transition channels directly **on a forward-looking basis** instead of using backward looking stochastic models relying on macroeconomics
- Increase **scrutinising data and projections supplied by third-parties** and compare with the possibilities and limitations of publicly available data

Develop meaningful scenarios

- **Existing climate risk scenarios** (e.g. NGFS) are a good starting point for the rough narrative, but **tend to focus on a long-term 'best-case' trend**. Adjust the narrative and scenario details to be relevant for the banks
- Take advantage of **what-if analyses to test critical assumptions** concerning those key vulnerabilities to generate relevant insights for management. Potentially integrate adverse assumptions into bank-wide scenarios at a later stage
- Discuss in depth **how the bank would respond strategically to different scenarios**, including thinking through the implications of different paths for climate policy.

Banks should iteratively enrich available data based on new insights & requirements – banks not participating in module 3 have to address potential backlog w.r.t. modelling & scenario analysis as further regulatory exercises on climate risk can be expected

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