7 PROPOSALS TO INTEGRATE CLIMATE RISK INTO CAPITAL REQUIREMENTS

From Basel III To Basel IV:

Accelerating Banks' Integration Of Climate Risk

CH &Co.

FOREWORD

Climate Risk is a complex topic for the Banking Industry, combining social & environmental aspects and two distinct concepts of physical & transition risk. Several months of research have led us to identify challenges that are impairing the sector from addressing this complex topic and effectively transitioning to 'Greener' financing models:

- **Under-capitalization of Climate Risk by the Financial Sector is a growing risk.** Only a minimal portion of Climate Risk is currently covered by Banks' core capital: physical risk as far as it impacts banks' daily operations (e.g. flooding)
- **Banks are not currently incentivized to accelerate their transformation when it comes to climate risk.** Initiatives to integrate Climate Risk into Banks' models are rare, due to the negative impact it would have on their prudential and therefore on their ROE. Tax relief based on additional "climate" capital should be possible. This idea is not developed here.
- **Prudential regulation is late to the game and has not yet provided efficient proposals.** To date, there are no climate-related constraints on capital requirements imposed on banks even though a lot of important work has already been done.
- Risk mitigation by estimating & securitizing unexpected losses is not enough: **banks must also adopt initiatives to review their risk exposures** and transition to greener investments.

Thinking about ways to remediate these challenges, we quickly came to the conclusion that one of the key success factors was to involve international authorities & regulations. The 7 principles described in this document propose a novel approach to do so. They are based on the following 5 key assumptions:

1. Climate Risk must be integrated in banks' balance sheets in a **progressive manner**
2. There must be **clear incentives** for banks to integrate Climate Risk & transition to green financing
3. Climate Risk is **additive** – integration cannot lead to a total risk reduction for Banks
4. Climate Risk is a **material risk** and as such should be integrated into appropriate regulation (e.g. Basel III Pillar 1)
5. Climate Risk integration into Banks' balance sheets must be **mandatory and follow a common methodology** pushed by local and international supervisors

DISCLAIMER

- This publication is a synthesis of several months of research. A detailed publication will be released at a later stage.
- CH&Co. would like to acknowledge all open access studies that supported the formulation & structuration of ideas expressed in this document – in particular reports from the IPCC, the French Treasury Department, I4CE, the Bloomberg Institute, our colleagues Oliver Wyman and Mercer, the Terra Nova Foundation, External rating agencies and more.
- The following proposals aim to fuel an informed and constructive debate between risk practitioners, regulatory experts and researchers. They are by no means final and only seek to serve the common interest through financial industry-centric initiatives.

Views expressed in this publication are those of the authors and do not necessarily reflect the official position of CH&Co.

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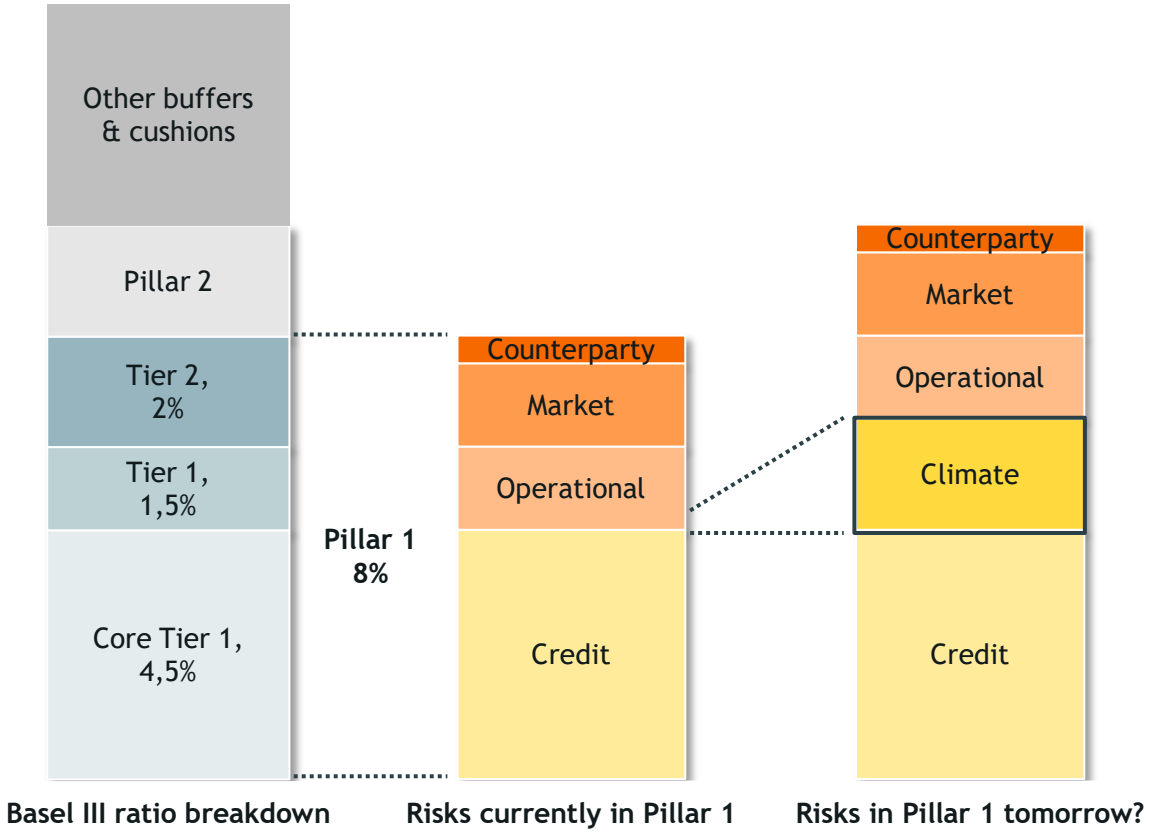
PRINCIPLE #1

Integrating Climate Risk Into Banks' Capital Requirements

- As Climate Risk is a material risk, it must be identified & tackled as such.
- In the future, a new Climate Risk typology can be created and positioned directly in Pillar 1 of the Basel reform.
- As a first step, **we anticipate that this risk will be capitalized under Pillar 2 of the Basel reform.**



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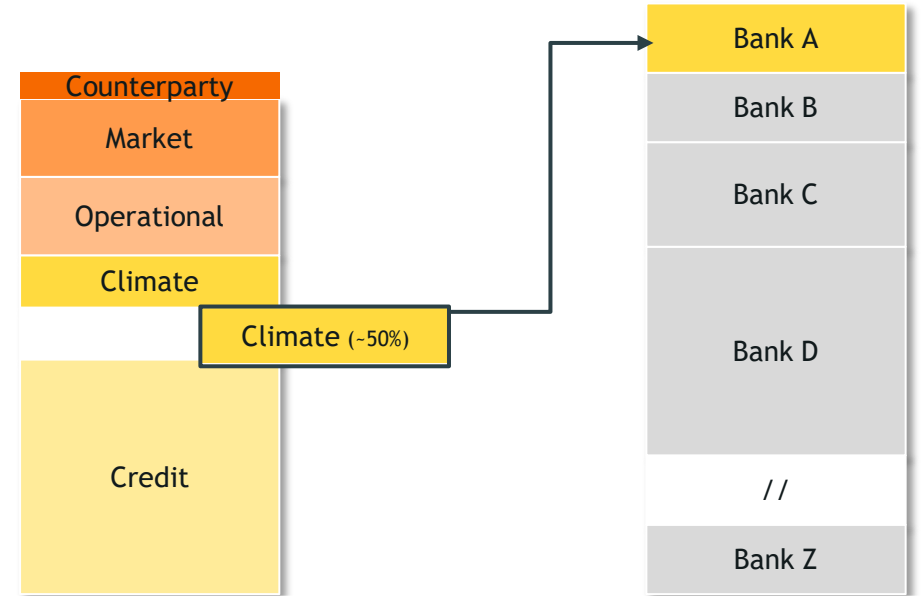
PRINCIPLE #2

- A Climate Stability Fund can be created and managed by Central Banks & authorities
- This fund will be financed by banks, based on their consumption level of climate risk.
- Out of an individual bank's allocated total to climate risk, around half will go to the Climate Stability Fund; the remainder requirements will be kept on its balance sheet

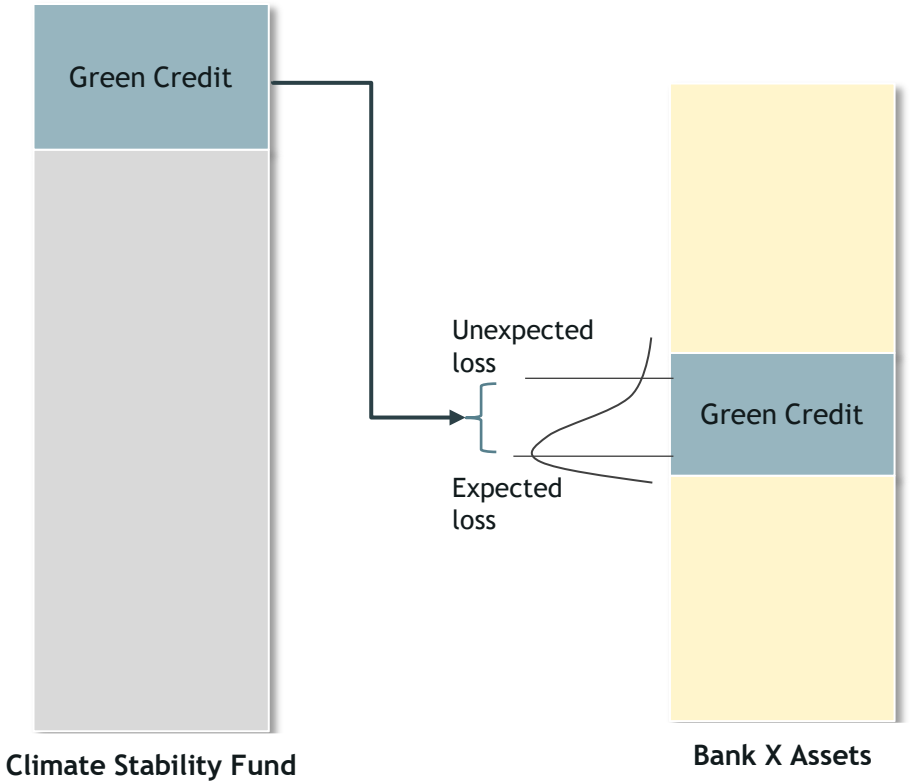
Creating A Climate Stability Fund Financed By Banks



PRINCIPLE #3

Using The Climate Stability Fund As An Absorber For Unexpected Losses

- The new Climate Stability Fund can be used to support banks in absorbing unexpected losses on “Green” and “Transition” financing (favourable impacts on LGD /EAD parameters also possible)
- Specific conditions & threshold must be determined around the coverage of these unexpected losses by the Fund



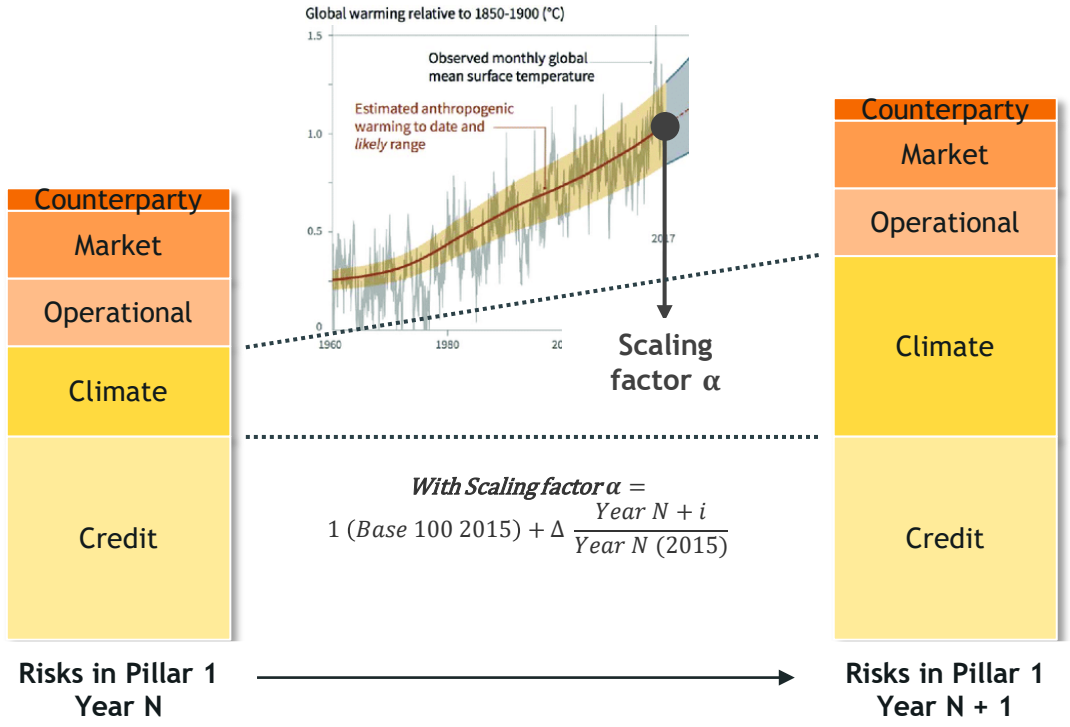
PRINCIPLE #4

- Capital charge on transition risk can gradually increase over time
- Annual progression could be indexed on reference international climate scenarios pushed by the IPCC*, generating a scaling factor
- Consequently, capital charge must increase at the same rhythm as cumulative consumption of CO2/increase in temperature

*IPCC: Intergovernmental Panel on Climate Change

Illustration
Source : IPCC, 2018. Summary for Policymakers

Gradually Integrating Transition Risk Into Capital Requirements



Proposal: applying a scaling factor aligned on the IPCC RCP 4.5 scenario

A scaling factor α base 100 in 2015 (date of the COP 21 Paris agreements) can be applied. Its annual progression would be indexed on the projections of the 4.5 IPCC scenario (i.e. maintain temperature increase <2 degrees Celsius).

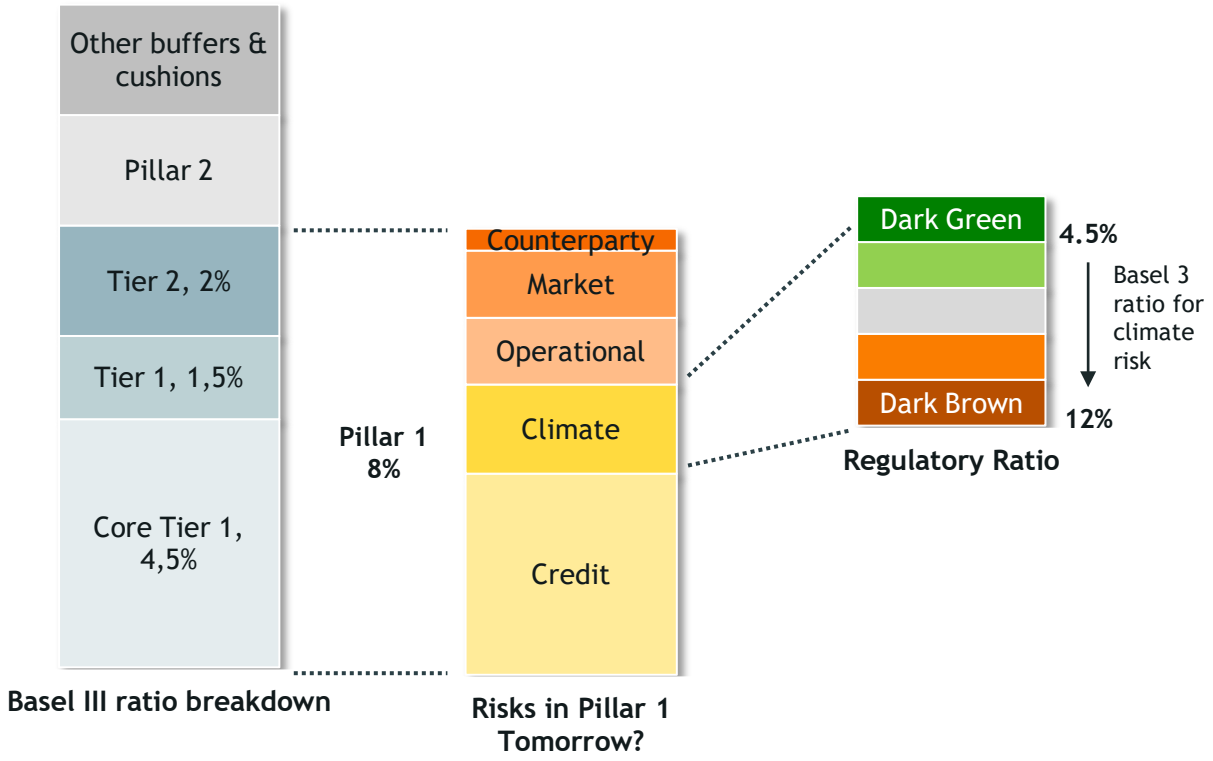
This factor could be applied directly to capital requirements levels, as follows:

$$Capital\ Requirements = [EAD * regulatory\ risk\ weight\ coefficient * 8\%" \ "] * Scaling\ factor\ \alpha$$

PRINCIPLE #5

- Banks can be incentivized to move towards greener financing thanks to a variable Climate Risk ratio based on Basel III
- This ratio would vary based on the color of the financial assets:
  - For « Green fundings »: ratio of 4.5% (minimum Core Tier 1)
  - For « Brown fundings »: ratio increasing to ~ 12%
- This principle is based on the assumption that rating agencies will be capable of proposing standard ratings in the future

Implementing A regulatory B3 Ratio Based On Asset Color



Calculation of Capital Charge for Climate Risk (only):

$$[EAD * regulatory\ risk\ weight\ coefficient * \boldsymbol{X}\ \%\ ] * Scaling\ factor\ \alpha$$

With X varying between:

- 4.5% (minimum Core Tier 1) for Green financing
- Pillar 1 + Pillar 2 + Countercyclical cushions & Management buffer (~12%) for Brown financing

PRINCIPLE #6

- Climate Risk Capital Requirements must reflect the effects of a potential climate crisis on Risk-Weighted Assets
- Climate risk weight must include climate effects on credit risk levels (e.g. increase in PD or LGD)
- This will allow to isolate climate effect on Credit Risk, and ensure Climate Risk additivity on Banks' balance sheets

Isolating Potential Climate Crisis Effects on Credit Risk

Capital Charge for Climate Risk

$$= [EAD * (RW_{climate} - RWA_{credit})] * \mp 8\% * Scaling\ factor\ \alpha$$

Climate Risk weighting includes climate effects on Credit Risk levels *(and not only see principle #7)*

Credit Risk weighting as currently recommended in Basel III

With the following assumption:

$$[RWA_{climate} - RWA_{credit}] > 0$$

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PRINCIPLE #7

- In addition to isolating Climate Risk effects on Credit Risk, the Basel III ASRF* formula on Risk Weights must be reviewed to better anticipate a potential climate crisis
- In particular, the methodology must incorporate a **correlation** matrix by Sector & Country to reflect appropriate impacts, and correlations should no longer be limited to 12%-24%)
- The survival rate **confidence interval** for Banks must also be calibrated to reflect lower survival rates in climate crisis conditions

*ASRF: Asymptotic Single Risk Factor

Reviewing the ASFR Model To Better Integrate Climate Risk

$$RW_{climate} = \left[LGD_{climate} \times N\left[\frac{1}{\sqrt{1-R}}\right] - G(PD_{climate}) + \sqrt{\frac{R}{1-R}} \times G(0.9993) \right] - PD_{climate} \times LGD_{climate} \times \left(\frac{1 + (M - 2{,}5) \times b(PD)}{1 - 1{,}5 \times b(PD)} \right)$$

Principle #6 - Risk parameters integrating Climates effects (impact on the cost of risk & EL, on average default rates by rating, on rating transition matrices, and on collateral value or recovery rates (LGD))

Correlation restrictions must be removed (currently limited to 12% et 24%). The methodology must be reviewed to incorporate a correlation matrix by Sector & Country

The confidence interval must be calibrated on a reduced survival rate for a given rating, due to future climate conditions. *0,9993 is illustrative here*.

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