OliverWyman

# THE IMPACT OF THE ROAD TO "NET ZERO" ON THE INSURANCE SECTOR

21st June 2023

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INTRODUCING

# OUR SPEAKERS TODAY


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# AGENDA

1 **Introduction and General Context**
*How are insurers responding to climate-related risks*

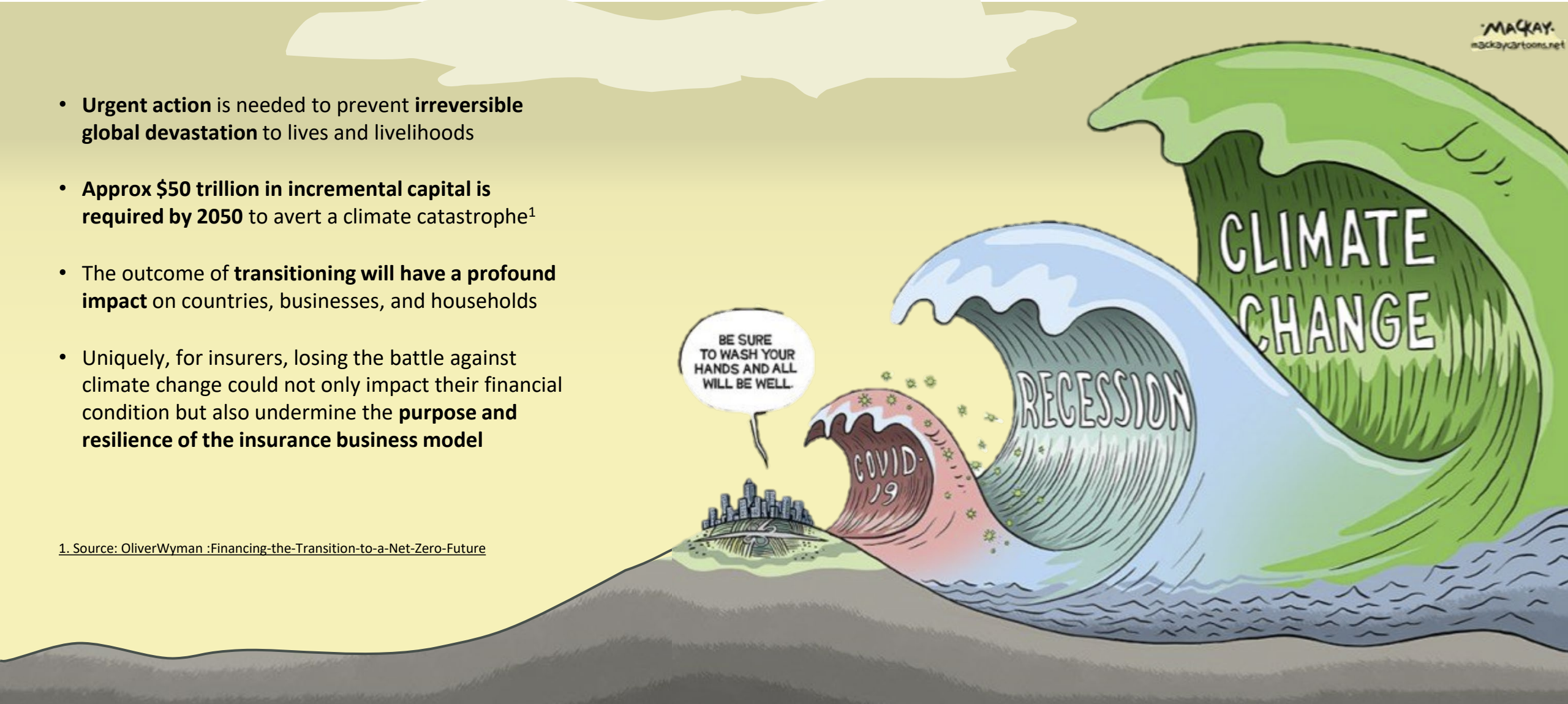
2 **Unpacking Regulatory Forces**
*How are regulators across the World shaping climate-related financial disclosures*

3 **Risks and Opportunities for Insurers**

4 **Embarking on Scenario Analysis**
*How can insurers integrate scenario analysis within their risk management framework*

# THE BIGGEST FORCE OF CHANGE YET

- **Urgent action** is needed to prevent **irreversible global devastation** to lives and livelihoods
- **Approx $50 trillion in incremental capital is required by 2050** to avert a climate catastrophe[1]
- The outcome of **transitioning will have a profound impact** on countries, businesses, and households
- Uniquely, for insurers, losing the battle against climate change could not only impact their financial condition but also undermine the **purpose and resilience of the insurance business model**



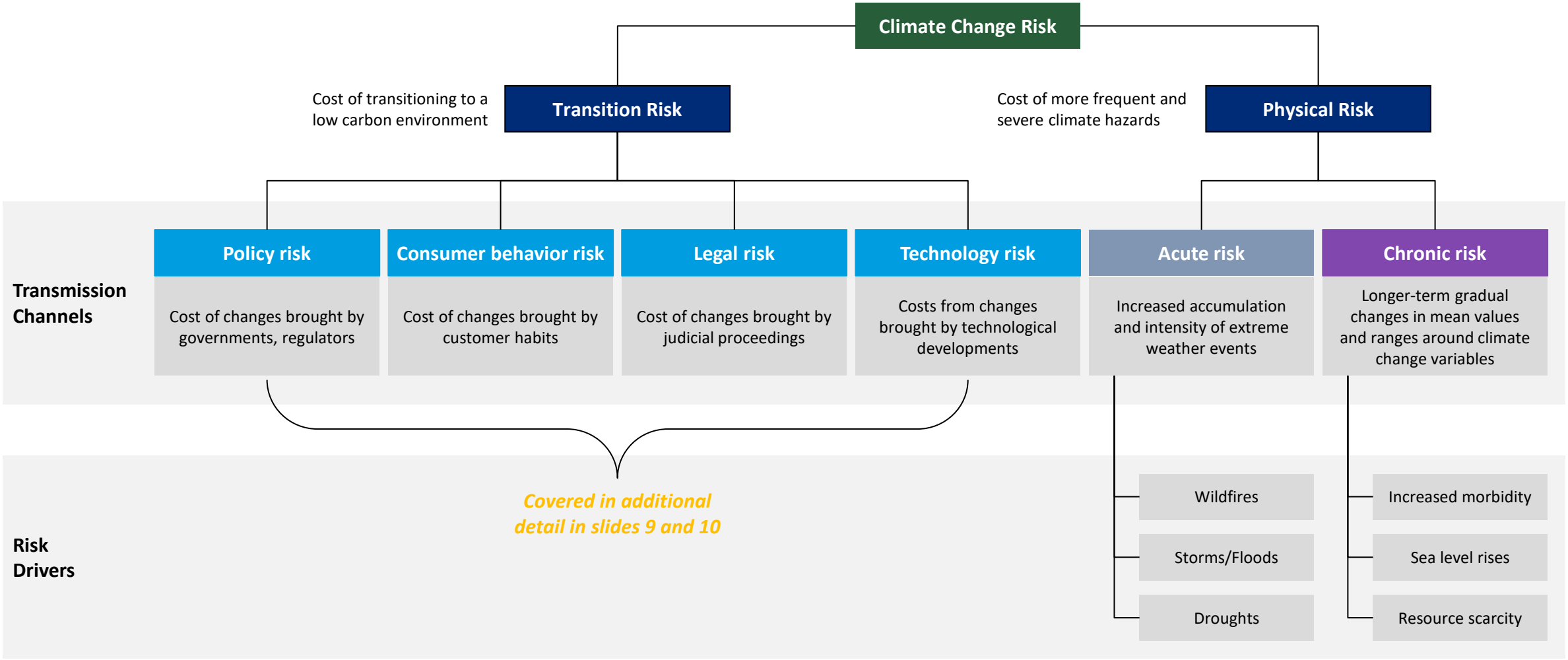

1. Source: OliverWyman :Financing-the-Transition-to-a-Net-Zero-Future

# 01

# INTRODUCTION AND GENERAL CONTEXT

# THE FORCES OF CLIMATE CHANGE AS THE GLOBE AIMS FOR LOWER GHG EMISSIONS

The highly correlated systemic nature of the implications require a collaborative effort to assess and manage over the next 10+ years




Source: Embarking on Climate Change Scenario Analysis

# THE ROLE OF THE INSURANCE SECTOR

## INVESTORS

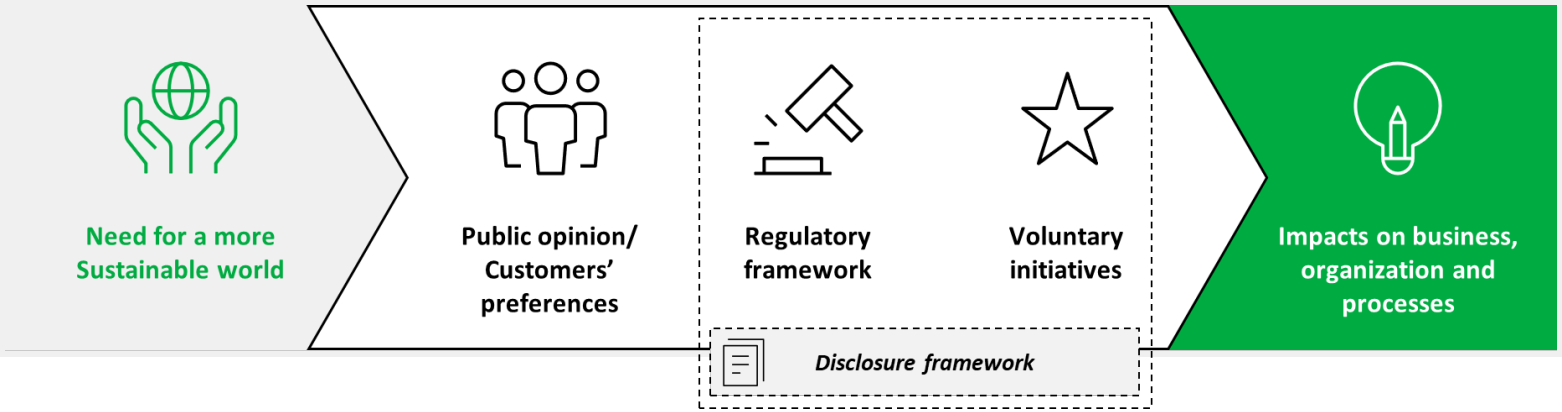
As **investors**, insurers can contribute to re-address capital flows towards more sustainable economic activities

## PROTECTION PROVIDER

As **protection providers**, they can contribute positively to the sustainable transition through underwriting practices and the design of products and services

## RISK MANAGER

As **risk managers**, they contribute to social system stability in a context where natural disasters are exacerbated by climate change



# POLICY CHANGE IS ONE OF THE PRIMARY TRANSMISSION CHANNELS OF THE TRANSITION

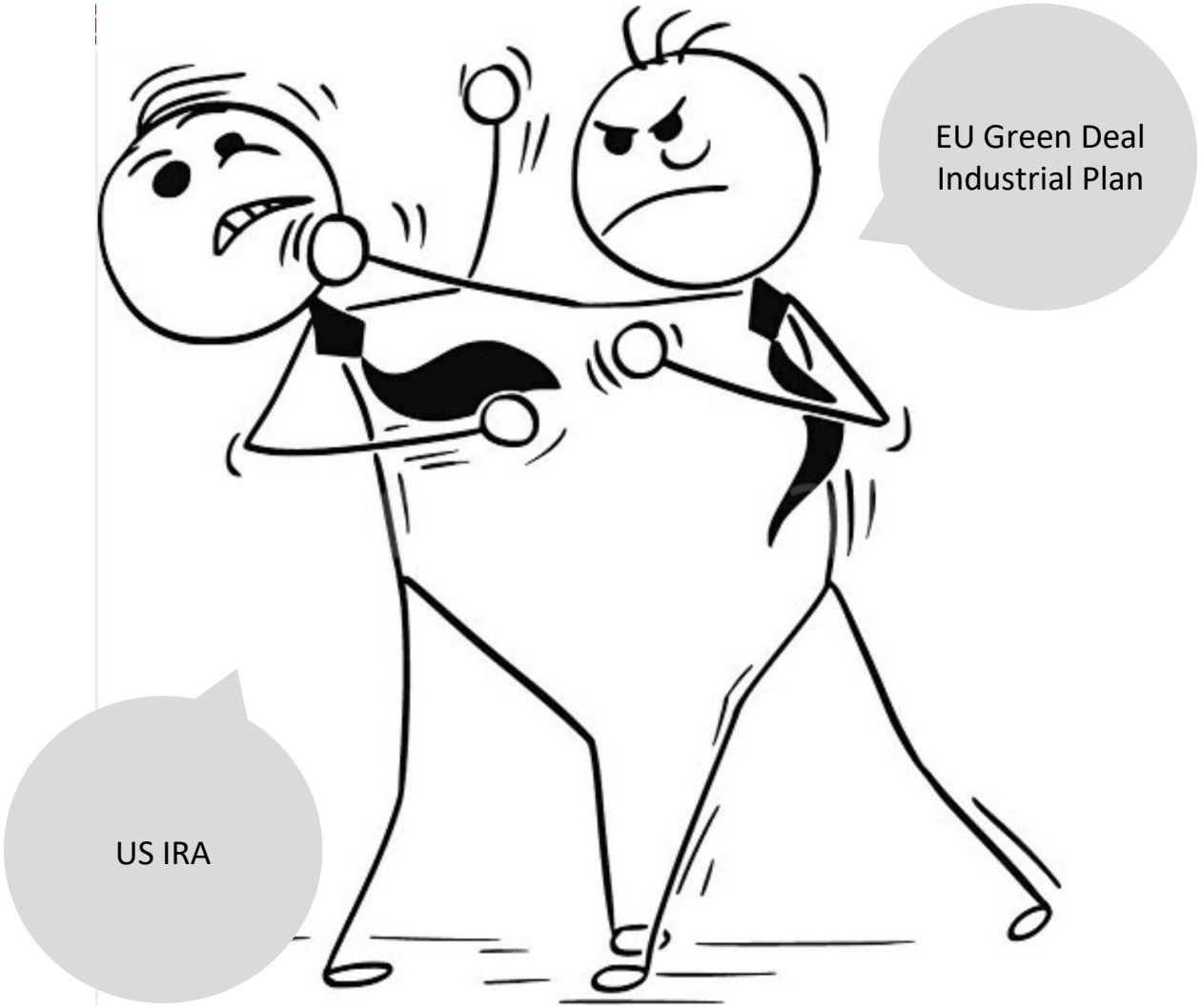
Policies are shaping company strategy and investor activity

| Transmission channel | Description | Notable Drivers | Description: likely Impact |
|---|---|---|---|
| **Policy risk** | Impact of changes brought by government and regulators. - | **Green Taxonomies:** – EU, China, Private sector, **Canada – road map, short form 2023** | Green classification system – designed to help investors and companies identify and make environmentally friendly decisions .<br>A game changer: FIs finance the economy – ineligible assets could likely attract either a higher cost of capital or no capital (i.e., stranded assets) |
| | | **COP28+** National targets and plans | Countries to update their Target Agreements/plans in December |
| | | **US Inflation Reduction Act (IRA)** | The IRA directs nearly $400 Bn in federal funding to clean energy. Largest impact on mobilization of capital to date |
| | | EU Green New deal+ | EU response to IRA – purpose retain/attract investment to EU |
| | | **ISSB Disclosures, Canada - OSFI-B15, NAIC, SEC** | Higher operating cost for greater transparency: allowing investors and customers to understand resilience |
| | | Government intervention (PPP) – changing the business model | E.g., Australia – impact to insurers business model |
| **Consumer/investor behaviour** | Cost of changes brought by customer habits & investor response | Increased climate awareness and pressure | Increased surrenders |
| | | Investor pressures | Over 450 financial institutions in the Glasgow Financial Alliance for Net Zero (GFANZ) have pledged $130trillion to NZ activities |
| **Technology risk** | Cost from changes brought by tech developments | Shift to EVs, Hydrogen and carbon capture | • Increasing gov't expenditures and debt<br>• Higher productivity and revenues for entities invested in renewables or emissions reduction (carbon capture)<br>• Employment shifts or mental wellness impacts |

Measures may open up more opportunities for investors in a market that is estimated could reach $10-$12 trillion in annual investment by 2030.

# THE ECONOMIC FORCES OF THE TRANSITION- NOT ALL "KUMBAYA"

Government taxonomies and incentives aiming to mobilize billions of capital to their local green sectors and activities of choice




**Impact of Govt and Private sector taxonomies**

- EU require companies to disclose their use of the EU taxonomy, and the % of activities in line with taxonomy
- Mandatory use of Govt taxonomy varies in other countries
- Insurers/banks –have their own taxonomies to align with own goals, esp. where no local taxonomy may exist
- Canada: late, still hopes to influence the global definition as it impacts capital flows to Canadian sectors
- Global convergence of taxonomies unlikely –recent expansion to include transition activities which are regional

**American green incentives change the investment landscape and approach**

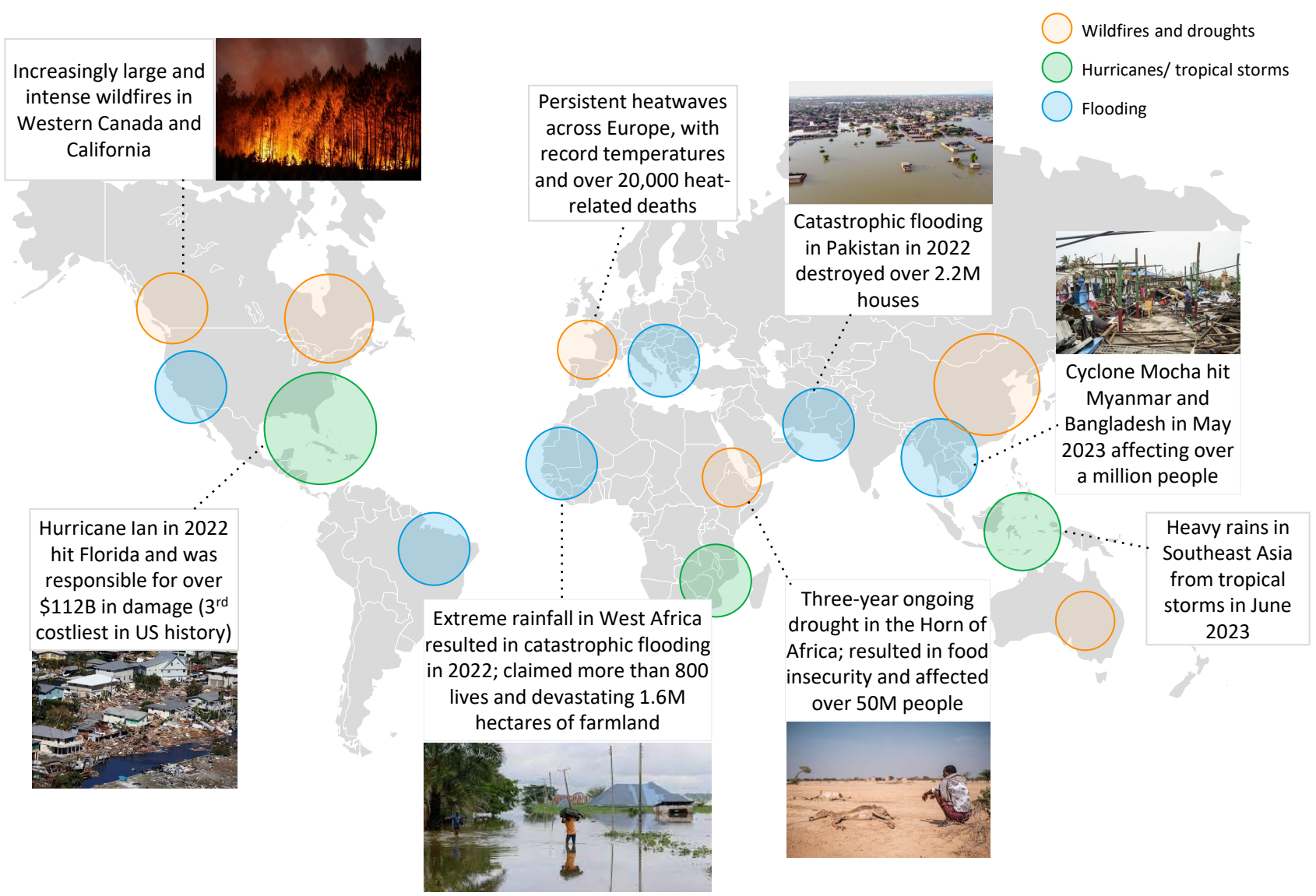
- **US IRA** – $370Bn of funding delivered via tax incentives., loans, grants to green manufacturing (EVs, upgrade repurpose energy infrastructure, carbon capture)
    - Largely excludes green manufacturing outside US
- **EU Green Deal Industrial Plan** – €600Bn to foster economic growth decoupled from natural resources use, goal of net zero CO2 emissions by 2050



Source: AMERICAN GREEN INCENTIVES CHANGE THE INVESTMENT LANDSCAPE

# PHYSICAL RISK HAS INCREASED SIGNIFICANTLY IN RECENT YEARS

We are at ~1.1°C of warming, current policies are projected to increase warming by 3.2°C by 2100




## ACUTE AND CHRONIC RISKS

- **Loss of lives from extreme weather-related events**
- **Damage to houses**
- **Supply chain interruptions**
- **Food insecurity**
- **Respiratory diseases from poor air quality (increase $PM_{2.5}$)**
- **Increase in morbidity claims from water- and vector-borne diseases**
- **Increased climate migration**
- **Increased insurance premiums**

**…and many more**

> We are the last generation that can prevent irreparable damage to our planet.
>
> - U.N. Secretary General Antonio Guterres

# HOW THE INDUSTRY IS RESPONDING – STRATEGY, ALLIANCES/INITIATIVES JOINED

Investors are increasingly demanding that companies act in a sustainable manner and/or demonstrate resilience

| | Strategy and Alliances |
|---|---|
| Allianz | **Member/Supporter:** NZAOA, NZIA, NZAM, GFANZ, GISD, PRI, PSI, ClimateAction100+, ClimateWise, TCFD, TNFD, SBTI, Geneva association, UNEP FI<br>2022_ S&P ESG score 89, 2021_CDP Climate Change score of B, 2022_MSCI score AA, 2020_PRI score A+<br>• **Operations**: Carbon neutral currently , NetZero by 2030, (interim target: 50% reduction of GHG emissions 2025 vs 2019, 100% renewable electricity by 2023, electric corporate car fleet by 2030, reduce GHG emissions from travel by 40% by 2025, phase out coal based business from P&C portfolios by 2040)<br>• **Investments**: NetZero by 2050 with interim targets (phase out coal based investments by 2040, ensure all vendors hold a public commitment to NZ GHG emissions in line with a 1.5°C path by 2025, addition of new asset classes to sustainable investments; supranationals and participation in blended finance)<br>• **Products and Services:** The inclusion of sustainability components in standard products. (e.g. add-ons to standard home insurance products offering environmental friendly upgrades and discount for electric vehicles, strategically insure low-carbon technologies)<br>• **Risk Measurement**: Quant scenarios from 1.5°C to 4°C warming, using internal and external models, with time horizons up to 2050. Complementary bottom-up modeling for relevant CCR exposures at individual investment or underwriting projects level<br>https://www.allianz.com/en/sustainability/sustainability-report-and-other-publications.html |
| Manulife | **Member/Supporter:** PRI, ClimateAction100+,TCFD, TNFD, SBTI, Geneva association, WBCSD, WBSCD, CSSB, SFAC, A4S, IIAG<br>2022_ S&P ESG score 71, 2022_CDP Climate Change score of B, 2022_MSCI score AA<br>• **Operations:** Currently Net Zero using offsets (carbon neutral), targeting 40% absolute reduction of S1 and S2 emissions by 2035<br>• **Investments:** NetZero financed emissions within GA by 2050, established short-term targets covering 42% of AUM<br>• **Products and Services:** Developing innovative solutions that contribute to climate change mitigation and resilience<br>• **Risk Measurement:** Quant scenarios from 1.5°C to 4°C warming and different RCP, using internal and external models, at the business unit level and on high emitting assets across different time horizons[1]<br>https://www.manulife.com/en/about/sustainability/esg-reporting.html |
| Sun Life | **Member/Supporter**: NZAM (several asset managers), PRI, ClimateAction100+, TCFD, UNEP FI, Climate Engagement Canada<br>2022_CDP Climate Change Score of B-<br>• **Operations:** Carbon neutral currently; NetZero by 2050, (50% absolute reduction of GHG emissions in operations by 2030 (2019 baseline), issued a sustainability bond)<br>• **Investments:** NetZero by 2050 (interim targets: 2030 NZ targets for GA w minimum 40%/50%/50% reduction in carbon intensity for corporate bonds/equities/CRE, new sustainable investment goal of $20Bn from 2021- 2025)<br>• **Products and Services:** offer clients sustainable investing opportunities<br>• **Risk Measurement:** Financial Condition Testing with a focus on climate-related investment risks (in short term it is more immediate concern)[1]<br>https://www.sunlife.com/content/dam/sunlife/regional/global-marketing/documents/com/sustainability-report-2022-e.pdf |

[1]Participation in 2021 pilot project between BoC and OSFI; scenario testing focused on transition risks

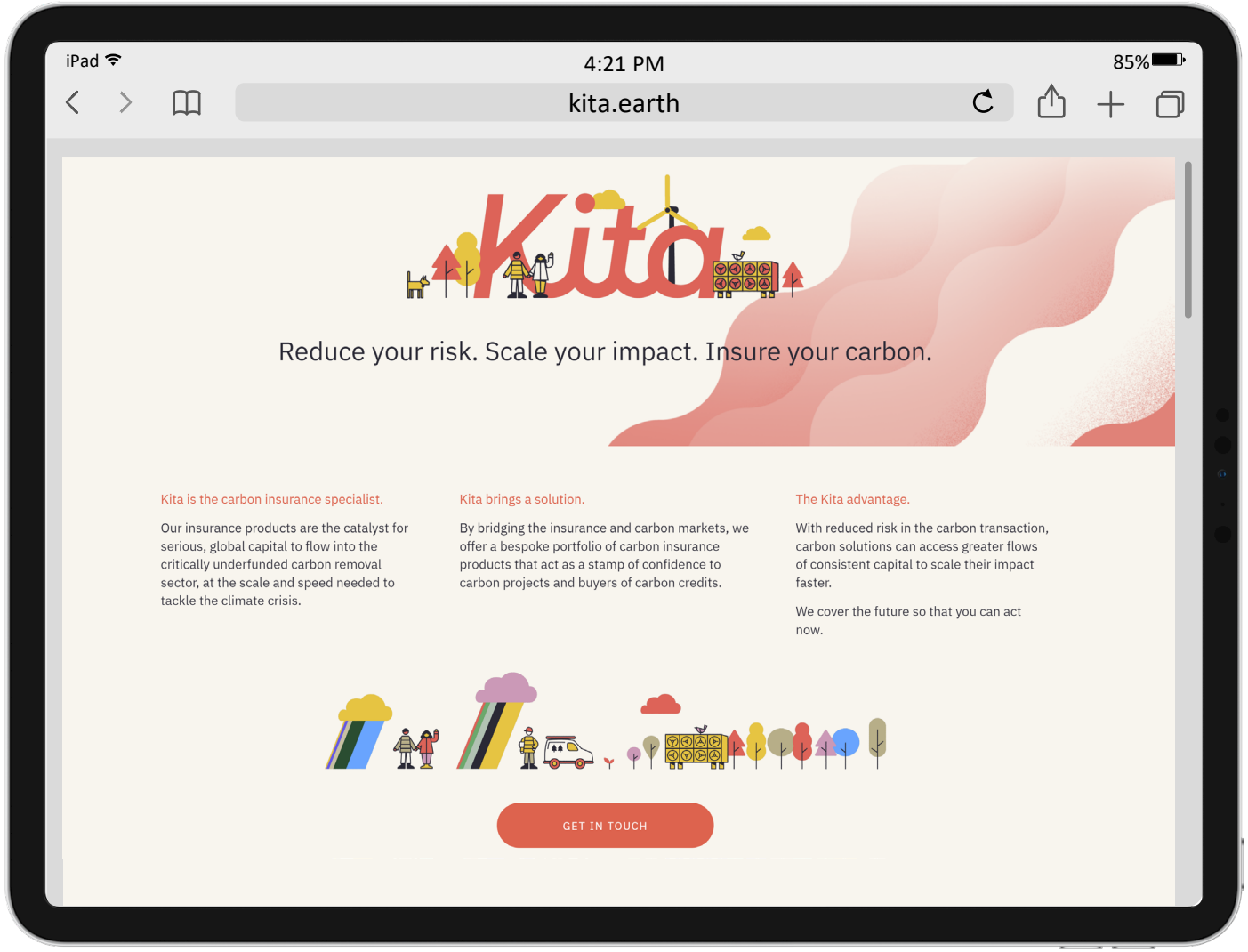
Member/Supporter lists are not exhaustive

# SUSTAINABILITY REPORTS COVER THE TCFD REQUIREMENTS AND MORE

| | Governance | Strategy | Risk Management | Metrics and Target |
|---|---|---|---|---|
| | Disclose the company's governance around climate-related risks and opportunities. | Disclose the actual and potential impacts of climate-related risks and opportunities where such information is material. | Disclose how the company identifies, assesses, and manages climate-related risks. | Disclose the metrics and targets used to assess and manage relevant climate-related risks and opportunities where material. |
| **Allianz** | • BOD includes Sustainability Committee supported by Global Sustainability Board (5 BoM and group leads; headed by CSO)<br>• Sustainability-related performance is integrated in compensation<br>• Provides a global sustainability training curriculum, the Allianz Sustainability Training, to all employees | • Aim to strategically invest in low-carbon assets and insure low-carbon technologies.<br>• Restrictions for sectors with high emissions (e.g. oil and gas, transportation)<br>• The inclusion of sustainability components in standard products. (e.g. Add-ons to home insurance products offering environmentally friendly upgrades and discount for electric vehicles.<br>• Coal exemption requests are reviewed and exemptions are rationalized | • Qualitative approaches to assess CCR over varying time horizons<br>• Scenario analyses with time horizons up to 2050 and including scenarios ranging from 1.5°C to 4°C of average warming by the end of the century. Use of internal and external models<br>• Complementary bottom-up modeling for relevant CCR exposures at individual investment or underwriting projects level<br>• Key risks are identified with qualitative and quantitative discussions on impacts<br>• Impacts of carbon price sensitivities on equity and corporate bond portfolios under tested scenarios are disclosed | **Metrics:**<br>• Value of sustainable investments and revenue from Sustainable insurance solutions<br>• Carbon footprint of invested assets and per employee<br>• Renewable electricity expenditure<br>• Energy sources/consumption. (% of renewables)<br>• Coal exemptions granted<br>• Emissions data for AUM by asset class (absolute and relative)<br>• Metrics on water and paper consumption, business travel and waste<br>• **Scope 1/2/3 (market and location based), per employee & carbon offsets**<br>**Targets:**<br>• Reduction of GHG emissions by 50 % by 2025, versus 2019, and net-zero by 2030.<br>• Sourcing 100 % renewable electricity by 2023<br>• Shifting to electric corporate car fleet by 2030<br>• Reducing GHG emissions from travel activities by 40 % by 2025<br>• Phase out coal based business models across proprietary investments and P&C portfolios by 2040 |

# HOW IS THE INDUSTRY RESPONDING : FINDING THE OPPORTUNITIES (1/3)

Enabling the scaling of climate financing through innovative Insurance product offerings: **Enter Carbon Dioxide removal insurance**




- There is increasing consensus that, in addition to carbon reduction, carbon dioxide removal (CDR) will need to play a crucial role in meeting targets along the 1.5º pathway
- Companies will likely need to purchase removals to be on a net-zero pathway
- Scale of expansion needed is of significant magnitude, necessitating trillions of dollars in investment.
- Projects poised for scalability are still exposed to technical and commercial risks. It is imperative to devise solutions that expand the financing pools AND mitigate the risks for project financiers…including innovative insurance solutions.



Source Oliver Wyman : WHY CARBON CAPTURE REMAINS KEY IN THE US

# HOW IS THE INDUSTRY RESPONDING: ENABLING MITIGATION AND ADAPTATION (2/3)

Innovations that affect underwriting

| | Initiative | Peer | Commercial offering |
|---|---|---|---|
| Enabling the mitigation objective | Insurance offerings to help industries deliver the green transition | Munich RE | • Dedicated **renewable energy generation coverage** mitigating **weather impact** (e.g. 'lack of wind'). Compensation of **renewable energy providers** when production is reduced or compensation of **traditional energy providers** when supply is high and prices suffer |
| | | Swiss Re | • Dedicated **renewable energy generation** (e.g. solar) **coverage**. **Downside protection** that guarantees the expected output of a solar farm up to 95% of expected production capacity |
| | | SCOR The Art & Science of Risk | • **Lower prices** for Environmental Impairment Liability (EIL) coverage of companies with **highly-rated scores on environmental-friendliness** to incentivize better risk management |
| | | ZURICH | • Customized product enabling **SMEs to build renewable energy facilities** (e.g. Carbon Capture & Storage liability coverage, Renewable Energy Generation Equipment loss coverage) |
| | | QBE | • High ESG-rated businesses receive **Trade Credit Product** pricing **benefits** |
| Enabling the adaptation objective | Insurance offerings to reduce the impacts of climate change | Munich RE | • 'One Cat' suite of products **offers straightforward** ('cat-in-a-box') **parametric insurance** solutions for **natural disasters** (e.g. storms, earthquakes) |
| | | Swiss Re | • **Parametric rice yield insurance product** ('RIICE') through satellite technology. Damages and rice production is **determined automatically** with a **simplified claims pay-out process** |
| | | SCOR The Art & Science of Risk | • Parametric insurance schemes that **directly provide financial protection** for **post-event reconstruction** |
| | | AXA | • Ocean Risk Initiative provides **mangrove insurance coverage** |

P&C underwriting can contribute in delivering the sustainable transition in **multiple ways** that go **beyond the boundary of the Taxonomy KPI** (see e.g. **NZIA** protocol)

**Consistency** must be ensured when coming to **disclosing** about "**Sustainable Underwriting**" in the entity's sustainability reporting

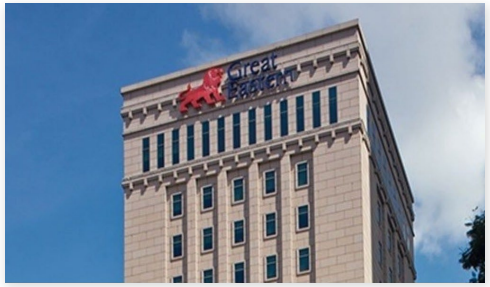
Source: Oliver Wyman analysis

# HOW IS THE INDUSTRY RESPONDING : FINDING THE OPPORTUNITIES (3/3)

"ESG" insurance product offerings

## Zero waste charitable donation

- A three-year single premium endowment plan
- Customers may invest a minimum amount of S$5,000 up to a maximum of $100,000
- The plan offers protection against death and total permanent disability, with no medical underwriting needed
- Great Eastern will also be donating S$1,000 to local charity Zero Waste SG for every S$1 MM raised from the proceeds of great Green SP



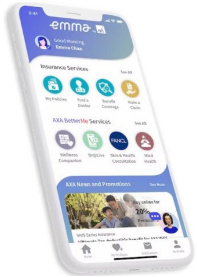
Great Eastern launches first green life insurance product in Singapore

## Green premium rebate

- AXA's Green Premium Rebate program offers selected Employee Benefits business customers a 1% premium rebate if customers utilize the Emma by AXA app
- The e-claim services are accessible 24/7 and there is no maximum claim amount limit

*"AXA has been at the forefront of the fight against climate change for years. As one of the largest Employee Benefits insurers in Hong Kong, over 200 million pieces of paper are involved in our employee benefits outpatient claims every year."*

Emily Li, Chief Employee Benefits and Wellness Office.




AXA becomes the first insurer in Hong Kong to offer green premium rebate

## Tree planting

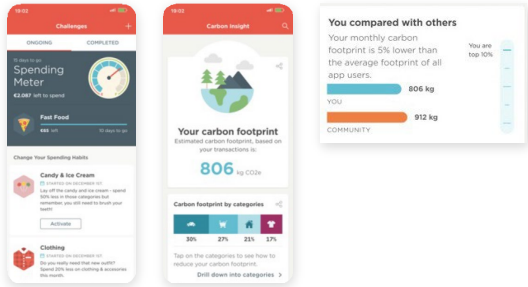
- Californian based Ando is now offering a program in which it will plant 100 carbon-reducing trees for every customer policy it opens through its insurance partners, including Nationwide and Allstate
- Ando customers are currently able to purchase new auto, homeowners, renters, pet and umbrella policies or transfer their existing policies to Ando to serve as their agent


The banking startup that raised $6 MM last year to offer consumers "sustainable banking," is announcing a new sustainable program that revolves around insurance

## Carbon footprint calculator

**A concept what we are working on in partnership with meniga…**

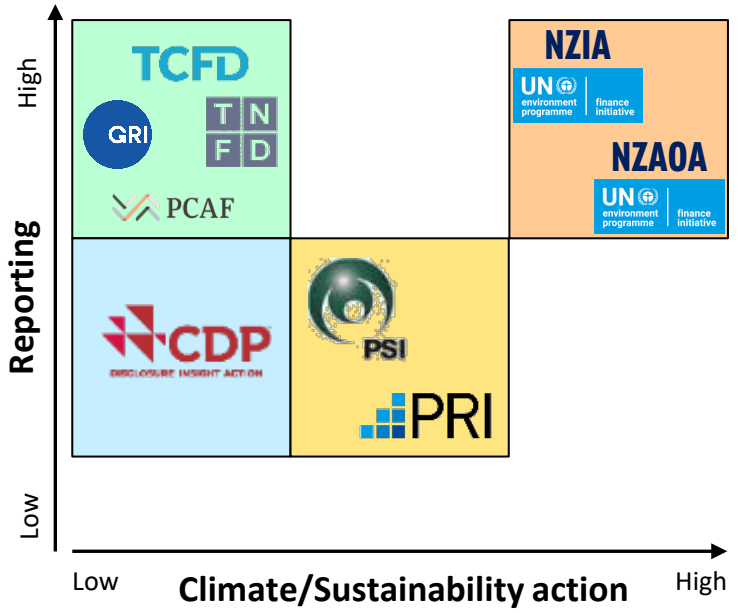
- Meniga is an Open Banking fintech and digital innovation partner to banks and financial institutions to bring personal financial solutions to millions of people
- Meniga white labelled digital banking solutions to drive financial wellness for users and business outcomes for banks
- Their products include: A Spending Coach, Savings Advisor, Cashflow Assistant, Personalized Insights Offering and a Carbon Insight Offering (which uses transactional data to determine an estimate carbon footprint of bank customers




The success of these ventures financially is unknown; however, the demand will not abate, but increase

# KEY INTERNATIONAL INITIATIVES AND ALLIANCES

| Initiative | Key objective | Focus | Target |
|---|---|---|---|
| **PRI** | Establish a framework of principles for integrating ESG issues into investment processes. | | Institutional investors |
| **PSI** | Framework of principles for the insurance industry with respect to ESG risks and opportunities and the role of insurance in the transition. | | Insurance sector |
| **NZAOA** | Commitment to transition to a net-zero investment portfolio by 2050. | | Institutional investors |
| **NZIA** | Commitment to transition to a net-zero underwriting portfolio by 2050. | | Insurance sector |
| **GRI** | Create a sustainability reporting standard (based on economic, environmental and social information). | | All entities |
| **CDP** | Provide a database for collecting data on environment and climate. | | Listed and municipalities |
| **TCFD/TNFD** | Provide recommendations for reporting on climate and nature impact information. | | Listed entities |
| **PCAF** | Standards for measuring and reporting the greenhouse gas emissions of loans and investments (+ underwriting). | | Financial Sector |




Sustainability (E-S-G)

Climate change

Insurance-specific

PRI: Principles for Responsible Investments; PSI: Principles for Sustainable Insurance; NZAOA: Net Zero Asset Owner Alliance; NZIA: Net Zero Insurance Alliance; GRI: Global Reporting Initiative; CDP: Carbon Disclosure Project; TCFD: Taskforce on Climate-related Financial Disclosures; TCND: Taskforce on Nature-related Financial Disclosures; PCAF: Partnership for Carbon Accounting Financials.

# HOW INSURERS ARE INTEGRATING THE ESG FACTORS INTO THEIR STRATEGY & OPERATIONS

Leading global insurers are integrating the sustainability factors into their strategy and operations toward the following initiatives:

### Investments & financing

- Strategic Asset Allocation review
- Proprietary ESG Scoring
- Focus on biodiversity protection/reforestation investments
- Net-zero investment portfolio by 2050 or earlier
- Assessment of net-zero investments impacts on the other E and S factors
- New green bond issues

### Insurance products and distribution

- P&C Product fostering sustainable behaviors (e.g., lower premiums for electric vehicles, etc.)
- Products to help SMEs in their transition process
- Products to facilitate access to insurance to vulnerable people
- Digital partnerships to foster sustainable forms of mobility
- Net-zero underwriting portfolio by 2050 or earlier
- Sustainable insurance agencies
- Training to distributors to help integrating customer's sustainability preferences in their advice
- Green IBIPs: with profit, UL and pension products with sustainable underlying assets/investment options

### People and governance

- Integration of sustainability in all HR processes
- Integrating sustainability in remuneration policies
- Change management programs on sustainability
- Sustainability governance: sustainability function and dedicated Board Committee
- Training programs to spread awareness and new hirings

### Risk management

- From climate to loss of biodiversity
- Risk taxonomy and risk inventory
- Increasing focus on greenwashing/reputational risk management
- From a control to a steering and risk-selection role

### Claims management

- Environmental qualification of claims management process with a view to circularity

### Disclosure

- Voluntary sustainability reporting also for smaller insurance entities and groups

# 02

# UNPACKING REGULATORY FORCES

# WORLDWIDE, REGULATORY INITIATIVES IN THE ESG FIELD ARE PROLIFERATING (1/2)

***EUROPE***

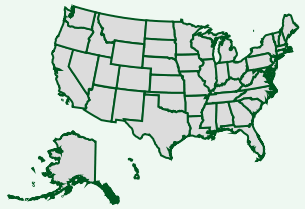
- **EU Taxonomy regulation**: classification framework establishing definitions and rules determining which economic activities qualify as sustainable
- **EU Sustainable Finance Disclosure Regulation (SFDR):** disclosure requirements on the organizational, service and product levels for European financial institutions
- **EU Corporate Sustainability Reporting Directive (CSRD) & European Sustainability Reporting Standards (ESRS):** obligation to disclose information on the impact of corporate activities on the environment and society based on specific and detailed disclosure requirements
- **European Green Bond Standard:** requirements to issue bond labelled as "green" and aligned with the EU's environmental and climate objectives
- **Corporate Sustainability Due Diligence Directive (CSDDD)**: obligations to carry out due diligence to identify and address human rights and environmental adverse impacts, and to produce climate plans.

- **UK Green Taxonomy**: ongoing development of environmentally sustainable activities classification framework
- **UK Sustainability Disclosure Requirements (SDR) and investment labels**: requirements for sustainable investment labeling, use of sustainability-related terms in product naming and marketing
- **Climate-related Financial Disclosure Regulations**: obligation to provide information in strategic reporting in accordance with the TCFD Recommendations
- **Climate stress test for largest banks and insurers:** Bank of England's Climate Biennial Exploratory Scenario (CBES) stress test

***UK***

# WORLDWIDE, REGULATORY INITIATIVES IN THE ESG FIELD ARE PROLIFERATING (2/2)

## *US*



- **SEC Climate Disclosure Rule**: obligations to disclose certain climate-related information, ranging from greenhouse gas emissions to expected climate risks to transition plans.
- **TCFD-compliant reports**: new standard for insurance companies to report climate-related risks, in alignment with the TCFD Recommendations
- **New IFRS International Sustainability-related standards**: ongoing development of General Requirements for Disclosure of Sustainability and Climate-related Financial Information

IFRS

## *SOUTH AMERICA*

- **Argentina:** guidelines for Issuing Social, Green, and Sustainable Securities
- **Brazil**: wide-ranging, mandatory ESG regulations covering several topics (e.g. disclosure, risk management, stress testing, scenario analysis)
- **Colombia**: development of the first Latin American Green Taxonomy
- **Peru**: development of ESG risk management and disclosure requirements
- **Chile:** issuance of a series of laws and regulation focus on ESG topics (e.g. Climate Change Framework Law)

## *EAST ASIA*

- **Japan:** review of catastrophe risk management processes by non-life insurance companies and new ESG disclosure requirements
- **China:** Green Bond Principles establishing unified standards that bring those for domestic green bond issuances
- **Honk Kong**: initiatives to promote a greener and more sustainable financial system and stress tests on climate risks by supervisory authorities
- **Singapore**: environmental risk management guidelines for financial institutions and development of a taxonomy of sustainable activities
- **Philippines**: Sustainable Finance Framework setting rules for issuing “Sustainable Financing Instruments”

# OSFI B-15 CLIMATE RISK MANAGEMENT GUIDELINE:

OSFI's readiness assessment starts 2023/2024 for all, with phased-in public disclosures starting with IAIGs by 2024YE

## Office of the Superintendent of Financial Institutions (OSFI)

In March 2023, OSFI issued Guideline B-15: Climate Risk Management. OSFI's expectations are divided into 2 key chapters:

**1**

**Governance and Risk Management Expectations summarized as:**

- Establish an **appropriate governance and accountability structure:** where Senior management has overall accountability; embedding of CR risk in practices and policies, including compensation policies
- Implications of physical and transition risk to be incorporated into the FRFI's business model, **Risk Appetite framework**, and strategy, with a resulting **Climate Transition plan** tested under various climate change scenarios
- FRFIs should manage and mitigate climate related risk by both **qualitative** and quantitative **stress and scenario testing** to assess its financial condition and business strategy resilience over various time horizons
- FRFI should incorporate climate related risks into its **ORSA process**

**2**

**Climate-related Financial Disclosures (will evolve to align with the upcoming ISSB release)**

- FRFIs should disclose information on its **exposures to, opportunities from, and risk management of** climate related risks which is relevant, comprehensive and verifiable
- Metrics and targets such as scope 1-3 Greenhouse Gas (GHG) emissions and OSFI's specified cross industry metric need to be disclosed as well

- **Important Timelines:** Readiness self assessment questionnaire due July 14th, 2023. Consultation on data return and scenario testing approach in 2023/2024
- Phased approach for mandatory disclosures starting 2024YE for Internationally Active Insurance Groups (IAIGs) and 2025YE for remaining FRFIs

## Canadian Securities Administrators

- The proposed climate-related disclosures (largely consistent with TCFD) ensure more **consistent and comparable financial information for investment decisions**.
- Expected to evolve to align with SEC and ISSB proposals

## International Sustainability Standards Board (ISSB)

- ISSB to release Standards (IFRS S1 and S2) by June 2023; effective January 2024
- ISSB aims to meet information needs of investors by developing standards for a global baseline of sustainability disclosures
- Mandatory application to be determined
- ISSB standards are built on the TCFD framework

# REGULATORY COMPLIANCE ROAD MAP - READINESS ASSESSMENT

Phased approach: focus for 2023 on roadmap planning, training & qualitative materiality risk assessment (OSFI B15 & ISSB Requirement)

| 1 Appropriate governance and accountability structure | 2 Assessment of physical and transition risks to the business model | 3 Management of CCR in accordance with the risk appetite (RA) statement | 4 Integration of quantitative scenario analysis within the risk framework |
|---|---|---|---|

**Suggested action items insurers should target over the next few years:**

- Form interim Climate Change Risk Management (CCRM) working group (WG) for build out phase, including a RM executive sponsor
- Perform Qualitative materiality Risk Assessment (QRA) in 2023
- Inform recommended 2025+ Governance structure based on 2023 QRA or peer industry benchmarking

- Use the 2023 QRA to assess the implications of risk drivers to revenue, costs and the balance sheet over short to medium term and long term
- Determine what if any actions need to be taken based on QRA (2023 – 2024)
- Commit resources for 2024 – 2025 based on the QRA to implement the strategy

- In 2024, form qualitative RA statement based on the 2023 QRA
- In addition, develop quantitative RA targets and thresholds to material risk categories based on any scenario testing performed in 2024
- If needed, identify and solve for data gaps required to quantify material risk drivers

- Utilize the 2023 QRA to identify key risk drivers which require quantitative scenario analysis
- Leverage NGFS or regulator-prescribed scenarios to perform a deep-dive into climate scenario analysis
- Develop a flexible, modular design (scenarios, time horizons, segmentation) to adjust/refine as data and policies evolve

**How OW may support your delivery:**

- Executive WG training on upcoming regulations
- Provide and explain the QRA template to understand level of materiality and identify any area where quantitative scenario testing is needed
- Understand internal capacity building needs

- Assist and support the build out of QRA over the next few months
- Provide peer benchmarking on industry developments
- Provide examples on L&H industry actions and illustrate potential “blind spots” where risk is material

- Provide sample peer RA statement examples between 2023 and 2024
- Illustrate how scenario testing informs RA targets and limits
- Assess QRA results collaboratively to develop and enhance 2024 QRA

- Leverage our team’s expertise to perform a comprehensive climate scenarios analysis with insights from our global engagements
- Leverage our work with relevant peers and leaders on stress testing, transition planning, integration of climate risk into scoring and financial planning (incl. GFANZ, TCFD, TNFD, WEF, CDP)

# 03

# RISKS AND OPPORTUNITIES FOR INSURERS

# ENVIRONMENTAL AND CLIMATE RISKS OCCUR AS PHYSICAL AND TRANSITION RISKS AND THEY ARE POTENTIALLY DISRUPTIVE FOR (RE)INSURERS

**Environmental and climate risks might affect insurance entities, depending on their characteristics and business, as follows:**

| | |
|---|---|
| Increase in CAT-related claims frequency and severity | Threat to business continuity of the insurance entity with offices located in certain areas |
| Increase in D&Os claims frequency | Decrease in real estate values |
| Decrease in premiums written due to higher premiums to be charged (also triggered by reinsurance costs)/unaffordability by policyholders | Decrease in assets value/investments return due to exposures to high-emitting economic sectors (e.g., stranded assets) |
| Decrease in premiums written due to uninsurability (especially if the uwt portfolio is not diversified enough among different geographical areas) | Financial impacts of reputational risks/greenwashing allegation |
| Decrease in premiums written due to destruction of productive capital | Financial impacts of litigation risks/greenwashing allegation |

Although so far the focus of policymakers, Regulators and most financial institution has been on climate change mitigation and adaptation and in managing its expected consequences, **the different environmental (e.g. loss of biodiversity) and social risks are very much interconnected**.

Think about the following:

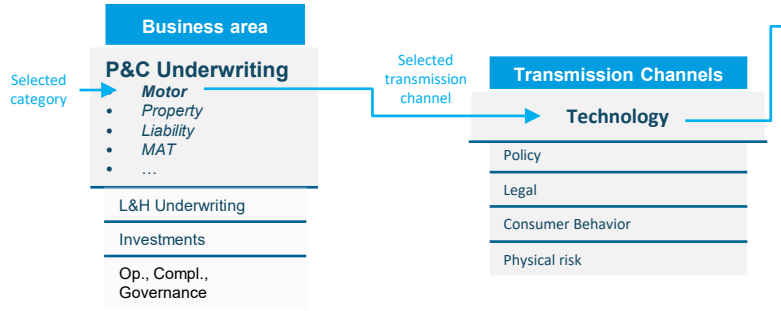
Loss of biodiversity reduce ecosystem capacity to mitigate climate change -> therefore worsening climate change effects, also on the biodiversity itself -> climate-migrations occur (social risk)

# AN APPROACH FOR RISK MANAGERS TO IDENTIFY RISKS AND OPPORTUNITIES

The described approach, based on the definition of an **ESG risk inventory** and a **Qualitative Risk Assessment**, helps companies in:

- increasing their awareness of the ESG risks they are exposed to
- map potential mitigation in place
- identifying major risks to further explore from a quantitative perspective
- spot business opportunities

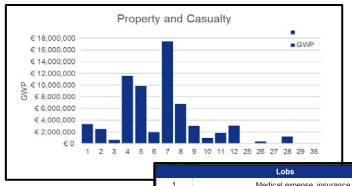
## 1 Step 1: Risk Drivers identification




## 2 Step 2: Elaborate on Risk Driver Impacts

| Risk Drivers | Possible risk drivers impacts | Short- to Mid-term (2022 - 2030) | Long-term (2031 - 2050) |
|---|---|---|---|
| Shift to electric vehicles | Increasing severity of claims and changing in claims frequency | Shifting to electric vehicles will likely decrease the claims frequency, but loss volumes will increase due to the higher electric vehicle purchase price and the fact that electric vehicles generally have higher repair costs, especially those with expensive technology features (e.g., even a minor accident results in a significant damage to the battery pack of an electric vehicle).<br>There will be great uncertainty as to how relevant past data will be for future events, as well as second-order effects like demand surge. | Shifting to electric vehicles in the long-term period will likely mean less cars, but more expensive offsetting classical insurance products GWP.<br>Electric vehicle will become mainstream (close to 100%), and the increased demand for such vehicles could have the effect of reducing their price and thus the value of spare parts. Claims costs and premiums are likely to be lower than in the short-medium term. |
| | Increasing of cyber concerns | … | … |

## 3 Step 3: Data gathering for materiality assessment




| | Lobs | GWP |
|---|---|---|
| 1 | Medical expense insurance | € 3,360,648.41 |
| 2 | Income protection insurance | € 2,528,525.12 |
| 3 | Worker's Compensation Insurance | € 620,678.94 |
| 4 | Motor Vehicle Liability Insurance | € 11,555,027.78 |
| 5 | Other Motor Insurance | € 9,854,892.02 |
| 6 | Marine, Aviation and Transport Insurance | € 1,953,386.58 |
| 7 | Fire and other damage to property Insurance | € 17,431,106.40 |
| 8 | General Liability Insurance | € 6,820,272.58 |
| 9 | Credit and Suretype Insurance | € 2,991,682.88 |
| 10 | Legal Expense Insurance | € 979,767.96 |
| 11 | Assistance | € 1,827,873.31 |
| 12 | Miscellaneous Financial Loss Insurance | € 3,096,258.25 |
| 25 | Non prop. RI: Health (NSLT) | € 54,631.98 |
| 26 | Non prop. RI: Casualty | € 335,818.84 |
| 27 | Non prop. RI: Marine, Aviation and Transport | € 63,928.62 |
| 28 | Non prop. RI: Property | € 1,194,198.70 |
| 29 | Health insurance (SLT) | € 36,684.84 |
| 35 | Accepted Health Reinsurance | € 49,227.00 |

## 4 Step 4: Risk assessment methodology definition

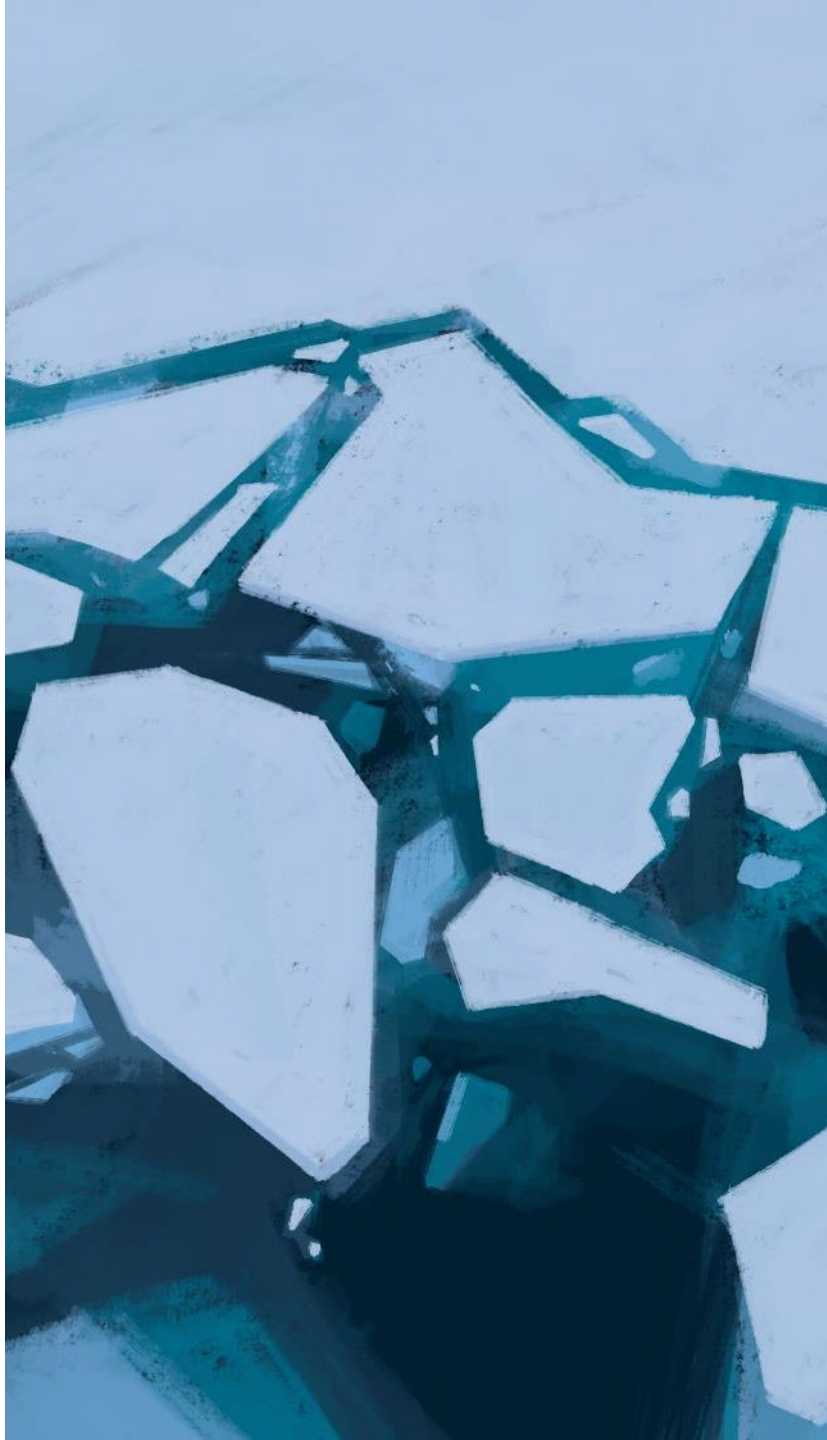
| Risk driver rating | GWP |
|---|---|
| Strongly negative | **Insurability -** Occurrence of risk driver impacts over the relevant time horizon negatively affect profitability as it is no longer profitable to insure losses/damages arising from the occurrence of such risk driver. Policy exclusions are provided and renewal of existing contracts that are more exposed to the new risk driver impacts is avoided, leading to a significant reduction in premium income.<br>**Consumers affordability -** Risk driver impacts over the relevant time horizon cause major difficulties to gradually adjust premiums that have to be strongly increased to reflect the increased risks. Consumers are strongly discouraged from taking out insurance (e.g. willingness of consumers to pay for an insurance is lower than the premium for which insurers are willing to accept the risk transfer), resulting in lower premium income.<br>**Policyholders behavior -** Risk driver impacts require policyholders to take risk mitigation measures over the relevant time horizon in order to be insured against these impacts. However, they find it very difficult to implement mitigation measures (e.g., also due to the lack of government support/incentives) and choose not to insure. Thus, the percentage of those that cannot afford insurance increase significantly, resulting in signifcant reduction of premium income. |
| | **Insurability -** Occurrence of risk driver impacts over the relevant time horizon partially affect profitability as it is no longer profitable to insure losses/damages arising from the |

## 5 Step 5: Qualitative Risk Assessment

| Transmission Channels | Risk Drivers | Possible risk drivers impacts | Short- to Mid-term assessment | | | | Long-term assessment | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Impacts on GWP | Impacts on Claims | Impacts on Expenses | Overall impact | Impacts on GWP | Impacts on Claims | Impacts on Expenses | Overall impact |
| Technology risk | SHIFT TO ELECTRIC VEHICLES | INCREASING SEVERITY OF CLAIMS AND CHANGING IN CLAIMS FREQUENCY | Positive | Negative | Negative | Negative | Neutral | Positive | Positive | Positive |
| Policy & Legal risk | RISING CARBON PRICE | CHANGING VEHICLE LANDSCAPE | Positive | Negative | Strongly negative | Negative | Negative | Negative | Positive | Negative |

# 04

# EMBARKING ON SCENARIO ANALYSIS



# THE APPROACH FOR SCENARIO ANALYSIS IS HIGHLY DEPENDENT ON THE GRANULARITY OF THE DATA AVAILABLE AND THE RELEVANCE OF THE PORTFOLIO

## Overview of climate scenario analysis process


| 1 DATA SOURCING | 2 SCENARIO EVALUATION AND REVIEW | 3 SCENARIO ANALYSIS AND STRESS TESTING | | | 4 INTEGRATION INTO CORE PROCESSES |
|---|---|---|---|---|---|
| | | Corporate Portfolios | RE Portfolios | Retail Portfolios | |
| Data requirements identification | Climate scenario definitions and variables | 1 Transition | | | Risk Embedding |
| Data sourcing | Expanded sector-specific variables | A Bottom Up forecasting<br>B Credit Rating<br>C Portfolio extrapolation (top down approach) | | | Capital allocation |
| Data consolidation and coordination | Other approaches for transition risks include regulatory approaches e.g. slotting and score cards and adjustments to existing stress testing methodologies | 2 Physical<br>Natural Catastrophe Models<br>Property Valuation Impact<br>Affordability/NOI[1] Impact | | | Credit decisioning and approval<br>Client engagement<br>Product offering |

**Governance (incl. Process and Control Management & Internal Audit)**

**Documentation and Disclosures**

1. Net Operating Income, NOI and Affordability is used to assess how likely the borrower is to repay the loan

# ESG RISK MANAGEMENT APPROACHES

Scenario analysis

## Qualitative Risk Assessment

- Comprehensive ESG risk inventory and assessment of the exposure
- Assessment of risk mitigation measures in place
- Enables the identification of high-risk area (and opportunities) for further analysis

Allows for compliance with most of the basic regulatory requirements

Limited complexity

- Ensure all ESG risks exposures are properly identified
- Can be seen as a preliminary work to the bottom-up scenario analysis

## Bottom-up Scenario Analysis 1

- Analysis at single position or issuer level, based on specific ESG drivers
- Asset side: impacts on cash-flows of individual issuers and valuation adjustments
- Liabilities: evaluation of individual contracts, e.g. geographical location, guarantees, etc.

Represents a *best practice* compared to Regulatory expectations

High complexity

- Can be seen as an evolution of the QRA
- Allows to build up taylor-made scenarios on company's portofolios/expositions

## Top-down Scenario Analysis 2

- Reflects a set of economic and financial variables
- Regional and sectoral level impacts based on publicly available scenarios (e.g. NGFS)
- Potential need for adjustments in certain sectors and asset classes

Represents a *good practice* in line with ker regulatory guidelines

Medium complexity

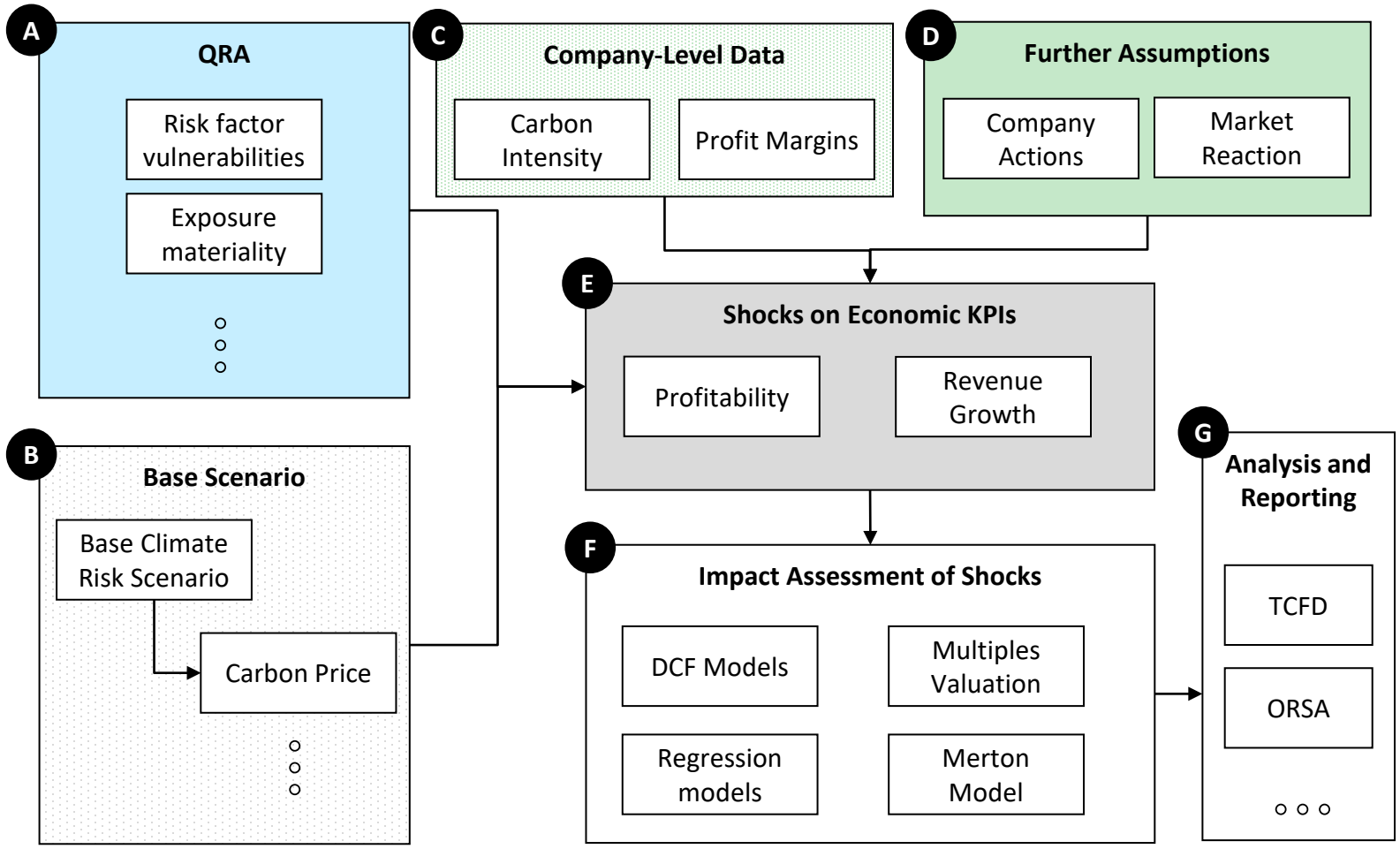
- Can be implemented regardless of the QRA
- Can contribute to validate bottom-up scenario analysis results

Reference: Embarking on Climate Change Scenario Analysis

# 1 BOTTOM-UP SCENARIO ANALYSIS ASSESSES THE IMPACT ON THE BALANCE SHEET OF A SMALL NUMBER OF VARIABLES, IDENTIFIED BASED ON THE RESULTS OF THE QRA

- Baseline scenarios are provided by specialised organisations (e.g. NGFS), but only a few variables are used.
- The variables used are selected using the results of the QRA, so that only those components that have a significant impact on the company are applied.
- Data at the individual exposure level (e.g. carbon intensity of the investee) are applied, in combination with potential further assumptions, to obtain the impacts on economic variables.
- Shocks can be applied according to dedicated evaluation models.
- The Bottom-Up Scenario Analysis is an effective exercise and provides meaningful results only if it is correctly implemented on the QRA outcomes, as it allows for ad hoc analysis on the Company.

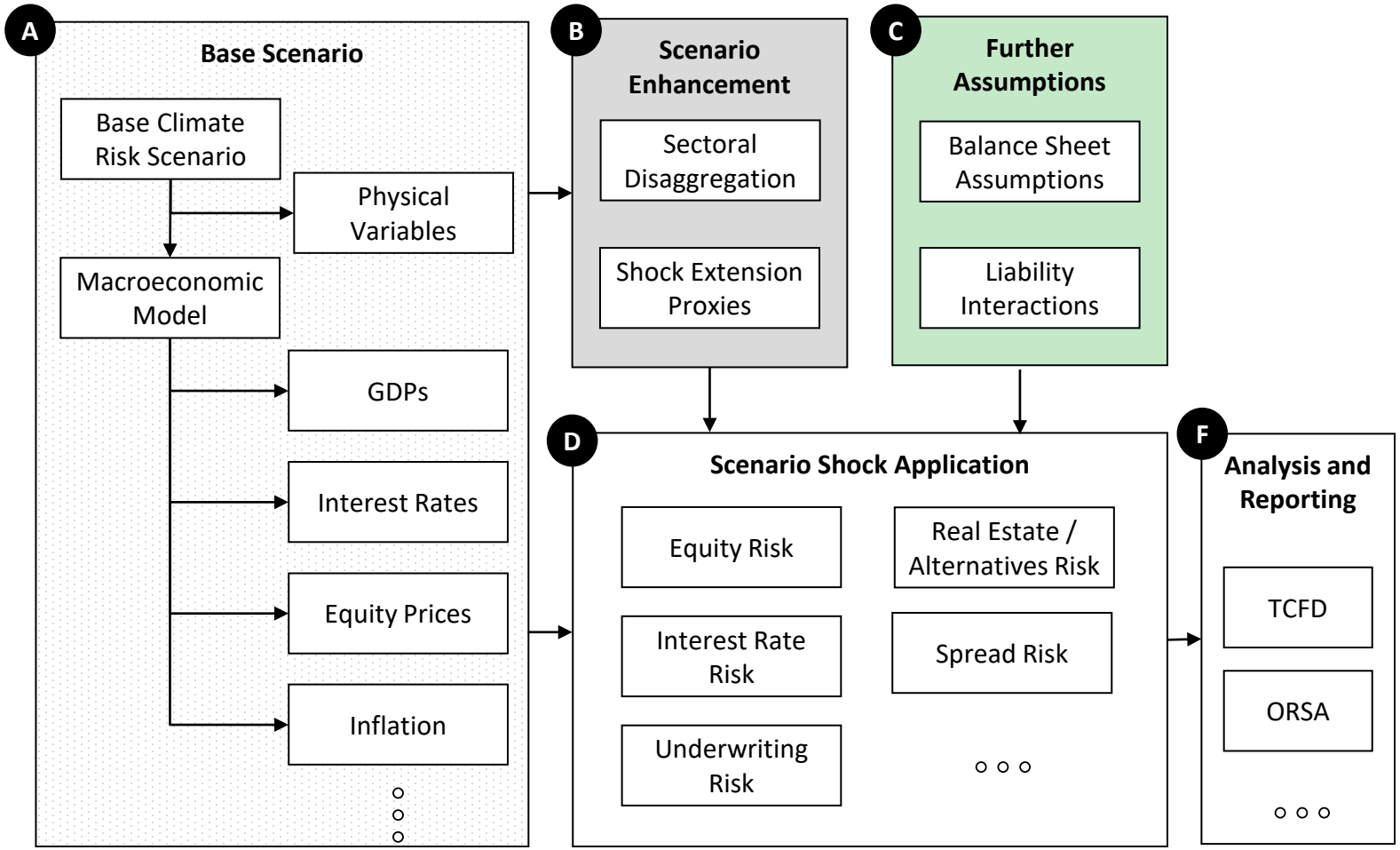
**Building Blocks of bottom-up scenario analysis**



# 2 TOP-DOWN SCENARIO ANALYSIS PROVIDES INSIGHT INTO THE EFFECT OF IMPACTS ON A WIDE RANGE OF ASSET CLASSES, BUT MAY REQUIRE ADDITIONAL CONSIDERATIONS

- Baseline scenarios are provided by specialized organizations (e.g. NGFS).
- Typically, the baseline scenarios need to be enhanced (increased sector granularity, proxies to extend shocks to unhedged exposures, etc.) and may incorporate additional assumptions (at the balance sheet level or on the characteristics of the company's liability portfolio).
- Shocks are applied at the available granularity of the scenario.
- Top-Down Scenario Analysis requires a thorough understanding of the assumptions underlying each scenario, in order to correctly apply the shock factors to the dimensions available to the Company.

**Building Blocks of top-down scenario analysis**



# WITH A VARIETY OF SCENARIOS TO CHOOSE FROM, NGFS/RCP ARE A GOOD PLACE TO START FROM; REGULATORY SCENARIOS ARE TYPICALLY BASED ON NGFS/RCP

**Why are both RCP/NGFS scenarios relevant?**

- While NGFS has made improvements in this regard, assessment of physical risks under NGFS, especially on the underwriting side, is still limited.
- There is deep and broad research on physical risk impacts around the RCP scenarios for P/C as well L/H applications (e.g. Peseta IV, Gasparrini et.al.)

**SSP Scenarios**

Building on the RCP scenarios, the latest IPCC report enhances them by "**Shared Socioeconomic Pathways**" (SSPs), which add further variance around social and political assumptions of the models

- This new set still lacks the depth of academic research around the physical risk impacts available for the RCP-scenarios used in the 5$^{th}$ IPCC assessment report.

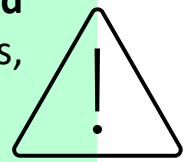
**How to bring them together?**

- The RCP results can in principle be transferred to NGFS parameters e.g. via temperature scaling.
- Another option is mapping between the scenarios for adequate temperature and carbon concentration pathways – e.g. Current Policies behaves similarly to RCP4.5 or RCP6.0, depending off the time horizon

**Regulatory Scenarios**

Several scenarios have also been put forward by regulators (e.g. Bank of England, ACPR, MAS), typically based off combined NGFS/IPCC scenarios

- These scenarios often show **substantially amplified impacts** compared to the "standard" scenarios, especially on the physical risk side



# THREE WIDELY USED NGFS SCENARIOS ARE THE EPA, LPA AND NAPA SCENARIOS WHICH RANGE IN SEVERITY OF POLICY ACTION AND RESULTING PHYSICAL AND TRANSITION RISKS

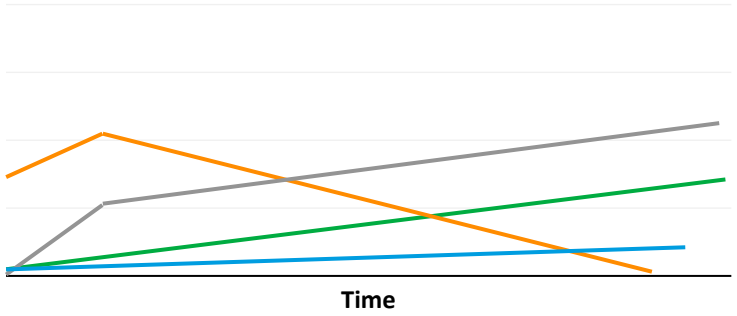
**NGFS selected climate scenarios and type of climate risks faced**

| Scenario | Description | Physical risk | Transition risk |
|---|---|---|---|
| **Early Policy Action, EPA (Orderly)** | • Climate policies are implemented promptly and economy can transition to net zero gradually without severe disruption<br>• **Net zero CO2 emissions** achieved **before 2070**, resulting in a 67% chance of limiting global warming below 2°C | Low | Medium |
| **Late Policy Action, LPA (Disorderly)** | • Climate policies to prevent climate change are not **introduced until 2030**<br>• Late introduction and limited available technologies result in more aggressive **measures to reduce emissions** to limit global warming to below 2°C | Low | High |
| **No Additional Policy Action, NAPA (Hot House World)** | • "Business as usual" with currently implemented policies incorporated, but **no new policies introduced**<br>• Emissions grow until 2080 leading to >**3°C temperature increase**, resulting in an increase of physical risks | High | Low |

Source: NGFS

# SCENARIOS ARE UNDERPINNED BY GENERAL ASSUMPTIONS AROUND POLICY ACTIONS SUCH AS CARBON PRICE, AND THE RESULTING EMISSIONS

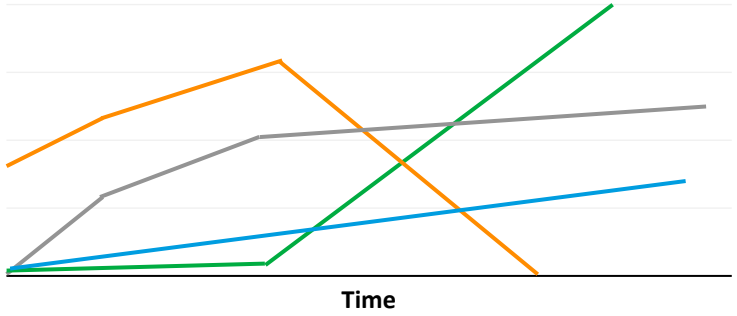
## Early policy action, EPA




**Example transition and physical risks**

- Early and gradual introduction of carbon taxes
- Government support in development of negative emissions technologies
- Increased global average temperatures threatening climates

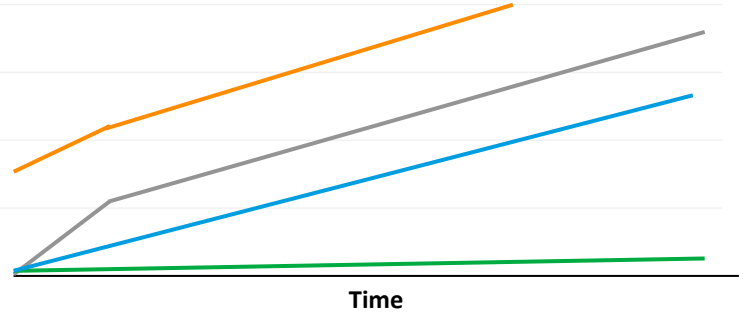
## Late policy action, LPA




**Example transition and physical risks**

- Rapid and higher increase in global carbon prices after 2030
- Limited negative emissions technologies available due to lack of investments
- Increased frequencies of extreme weather events

## No additional policy action, NAPA (BAU)




**Example transition and physical risks**

- Limited increase in carbon pricing and other policy requirements
- Increased stakeholder concern/negative feedback
- Increased frequency, duration, intensity and spread of extreme weather events

Temperature Carbon Price Sea level Emissions

The Early Policy Action, Late Policy Action and No Additional Policy Action scenarios clearly differ in transitional risks – the more that is done to mitigate against climate change, the greater the transition risk impact

Source: NGFS, OW analysis

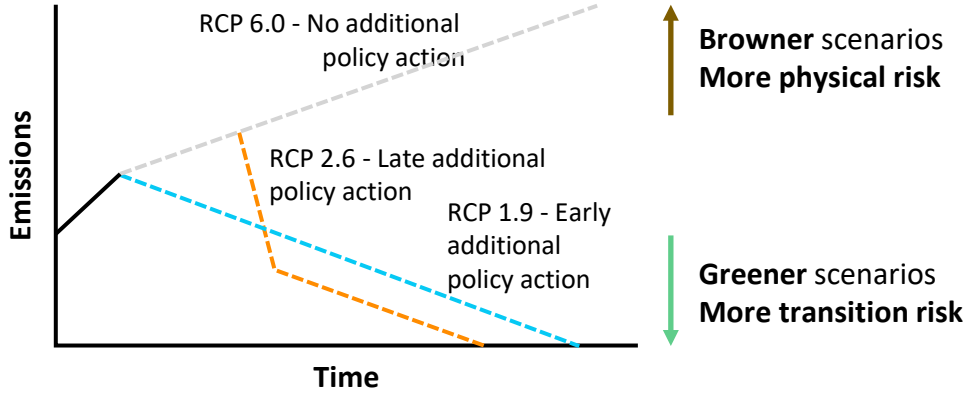
# PHYSICAL RISKS CAN BE ASSESSED BASED OFF REPRESENTATIVE CONCENTRATION PATHWAYS

**Representative Concentration Pathways (RCPs)**

- Plausible representation of the future development of emissions of GHGs and other radiatively active substances
- Based on a set of assumptions about demographic and socioeconomic development, technological change, energy and land use and other driving forces and their key relationships
- Released by the IPCC[1] as input to climate models to compute climate projections
- Each RCP has different emission characteristics
  - Preset values for radiative forcing and emissions concentrations in 2100
  - Different rates of forcing and emissions defining the pathways

**A vast body of research on the impacts of physical climate risk based off the representative concentration pathways.**

**This research forms the basis for the assessment of physical risks, particularly on the underwriting side.**




| | |
|---|---|
| **RCP2.6** | • Global CO2 emissions peak by 2020 and decline to around zero by 2080.<br>• Concentrations in the atmosphere peak at around 440 ppm in mid century and then start slowly declining. |
| **RCP8.5** | • Emissions continue to increase rapidly through the early and mid parts of the century. By 2100 annual emissions have stabilized at just under 30 Gt of carbon compared to around 8 Gt in 2000.<br>• Concentrations of CO2 in the atmosphere accelerate and reach 950 ppm by 2100. |

1. IPCC — Intergovernmental Panel on Climate Change (https://www.ipcc.ch/)
Source: van Vuuren, et al. The representative concentration pathways: an overview. Climatic Change 109, 5 (2011

# KEY AREAS OF CONCERN

In their process to integrate sustainability factors into their strategy and operations, insurers are facing a number of concerns referred to the following:

Data availability on investments is still limited, although the trend is improving thanks to the increasing public disclosure requirements. The treatment of government bonds is also a question mark

The forward-looking nature of sustainability risks implies a change in the approach as analysis based on historical data might not be significative

Scenario analysis and stress testing can only cover a small subset of ESG risks due to data availability

ESG risks are very much interconnected: difficulties arise when trying to manage them in a comprehensive matter

Develop a strategy and a business model compatible with the 1.5°C goal of the Paris agreement

Lack of internal competencies/awareness might slow down the integration processes of the ESG factors

The development of global disclosure standards, the mandatory and voluntary disclosure frameworks and more in general the customers' and public opinion attention to sustainability matters, call for the need to ensure consistency of public information and more in general to establish processes to monitor greenwashing risks

# LESSONS LEARNED FROM OUR EXPERIENCE IN BUILDING CLIMATE SCENARIO ANALYSIS MODELS AND EXECUTING CLIMATE STRESS TESTING EXERCISES

- **A broad set of stakeholders should be included** in the model development process from risk, finance and the business to ensure that there is buy-in to the approach being developed
  - **Approaches are nascent**, there will be many limitations and it will be easy for people to throw stones – bring them inside the tent and make them part of the solution
  - **Approaches are almost always driver-based**– there is no historical time series to calibrate to – and people need to get comfortable with this

- **Data is a material challenge…**
  - Internal spreading data and other financial data into one place and at an appropriate level of granularity
  - Internal data you have but that is not typically used for credit modeling (e.g., resilience measures in place for property collateral, geolocation of assets, occupancy rate of CRE buildings)
  - Client data that has not been collected previously (e.g., transition plans, emissions)
  - Industry-level data required for the analysis
- **… But is not an excuse** not to get started – companies need to push ahead, identify requited data, and put a strategy in place to collect it

- **Getting the right level of internal validation** (given nascent approaches and fast evolving)

- **Need to mobilize the business** to think about what actions the company would take in response to the scenarios
  - Ensuring the exercise is business useful takes time, as it requires engaging people at the right level of seniority (i.e. those who can make decisions for the firm), as well as a granular (and credible) view of the scenario impacts to guide those discussions
  - Requires moving away from a hypothetical thought exercise and what the business “could do” to really what the business “would do” in different situations


Q&A

# APPENDIX

Additional Details

# OWA SUSTAINABILITY TEAM - SKILLS

The OWA Sustainability team is a mix of different background and expertise, ranging from Actuaries to lawyers.

Most of our people have also got the GARP-SCR (Sustainability and Climate Risk) certificate, are lecturers for major Universities and have published papers and books around Sustainability with a specific focus on the impacts of the ESG factors on the insurance sector.

**Qualified actuaries**

**GARP certified**

**Quantitative Risk Management**

**Qualitative Risk Management and Risk Governance**

**Regulatory Compliance**

**Lawyers**

**Insurance pricing**

**Reporting**

**Corporate governance and ICS**

# WE ACTIVELY PARTNER WITH LEADING GLOBAL BODIES AT THE FOREFRONT OF GLOBAL SUSTAINABILITY PROGRESS

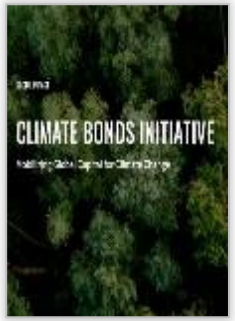
Recent climate-related collaborations (not exhaustive)

WORLD ECONOMIC FORUM


Project advisor for Financing the Transition to Net Zero Future

CDP


Climate Bonds INITIATIVE

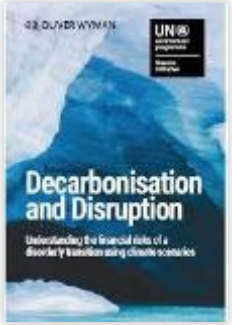



UNEP FINANCE INITIATIVE


Designed global leading transition risk counterparty assessment

Resourcing the TCFD Secretariat and leading the efforts on the Task Force's 2021 work

TCFD TASK FORCE ON CLIMATE-RELATED FINANCIAL DISCLOSURES




WORLD ENERGY COUNCIL


WWF


JV product for climate-adjusted credit ratings

S&P Global


GIIA


IACPM


GFANZ


**We advise and engage multiple global regulators, including:**

APRA

BANK OF ENGLAND PRUDENTIAL REGULATION AUTHORITY

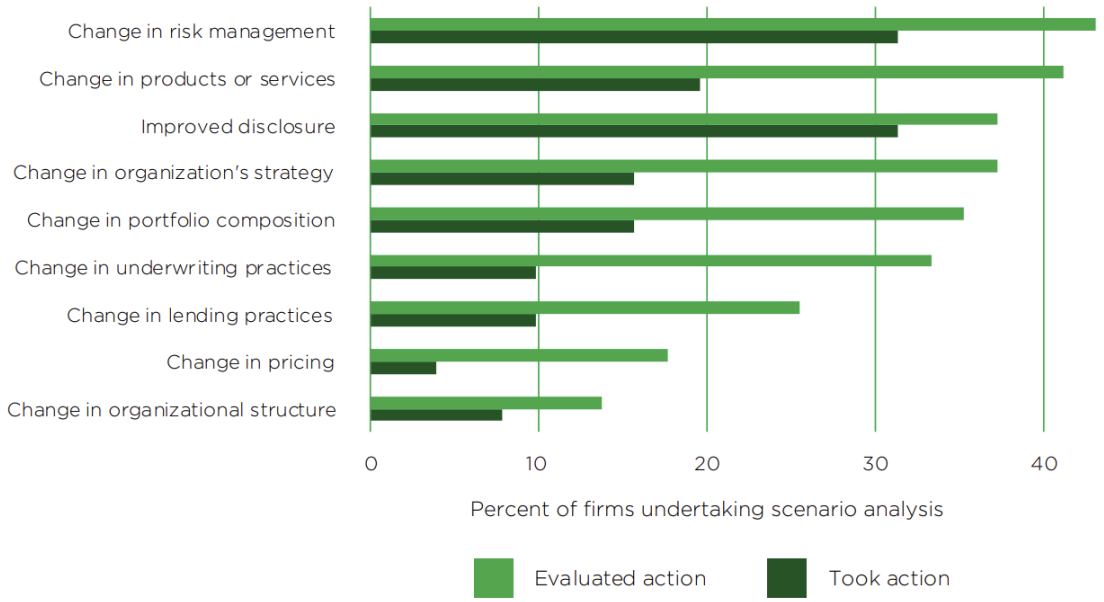
EUROPEAN CENTRAL BANK EUROSYSTEM

CFTC

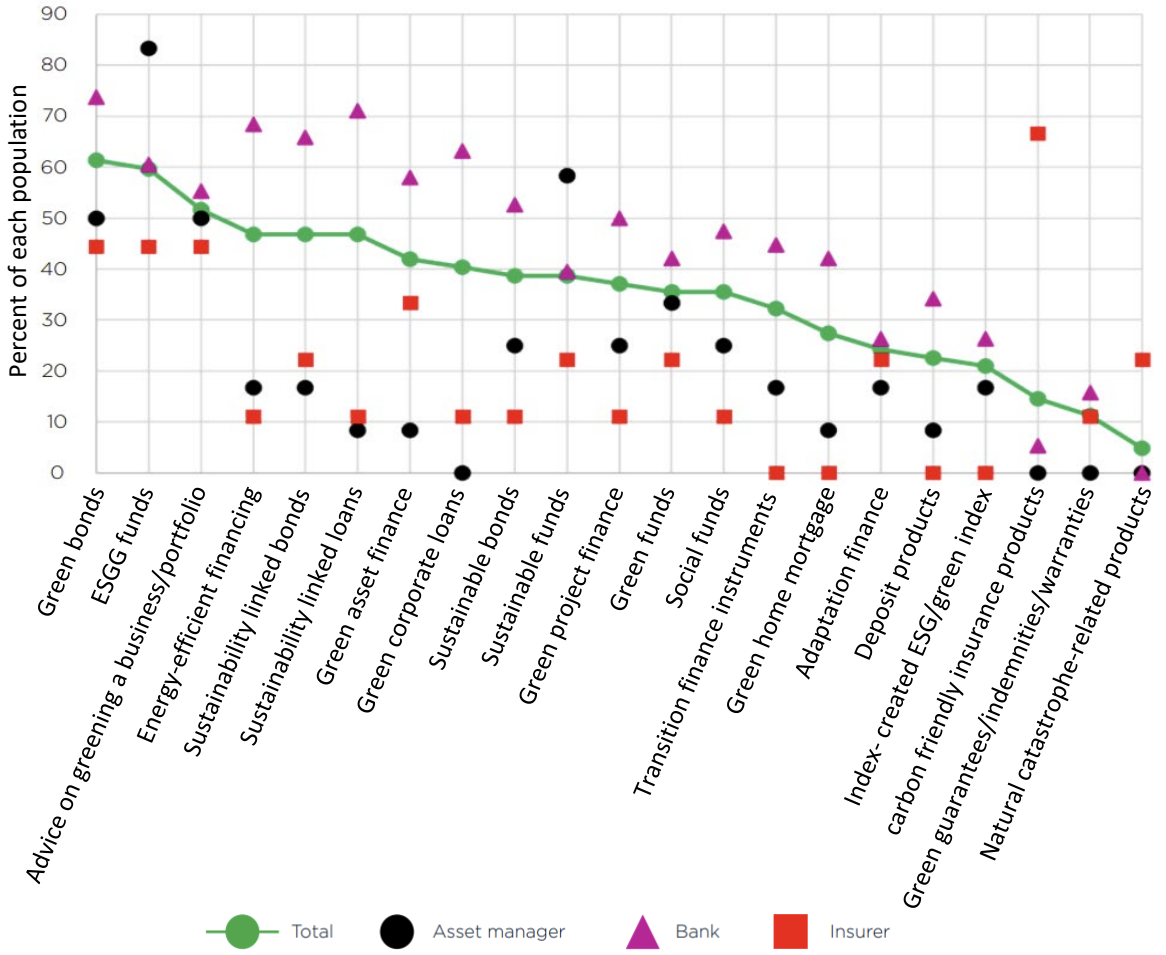
BANCO DE ESPAÑA Eurosistema

# HOW IS THE INDUSTRY RESPONDING : PUBLIC SURVEYS AVAILABLE

## Actions Evaluated and Taken as a Result of Scenario Analysis




## New Products or Services Changed Due to Climate Risk




Source: GARP: 2022 Fourth Annual Global Survey of Climate Risk Management at Financial Firms


A business of Marsh McLennan