

CLIMATE CHANGE RISK ASSESSMENT FOR FINANCIAL STABILITY PURPOSES: EIOPA TOOLS AND METHODOLOGIES

EIOPA 5th Sustainable Finance Roundtable – 7 December 2021

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INTRODUCTION

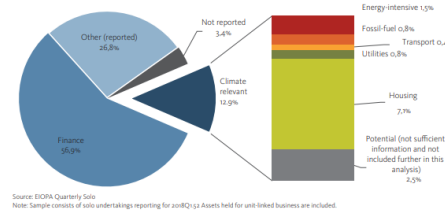
- Several projects, focusing on **climate risk in the context of financial stability**
 - Climate risk sensitivity analysis + follow-up on physical risks
 - Incorporation of ESG risks in EIOPA Risk Dashboard
 - Stress test methodologies

INITIAL EXPLORATORY WORK FROM A RISK PERSPECTIVE

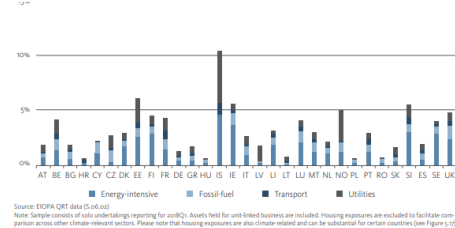
- Asset by asset reporting under Solvency II enabled the first exploratory work presented in 2018
 - Looking for specific companies that were excluded from the investment universe of a large fund based on ESG criteria
- Next, same data source allowed a detailed assessment of exposures to climate-change relevant sectors (CPRS) based on NACE
 - Overall, between 10 and 13% of the assets held by insurers may be vulnerable in a climate-related transition scenario**
- Published in the EIOPA Financial Stability Report December 2018, pp 51-57
<https://www.eiopa.europa.eu/sites/default/files/publications/reports/fsr-december-2018.pdf>

- Results in 2018 – Overall holdings and breakdown by holder and location of investment

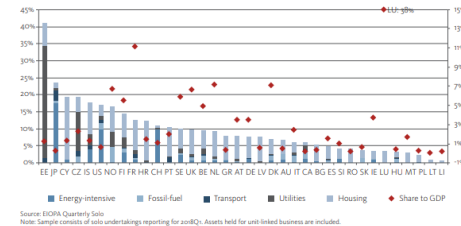
Climate related asset exposures of the European insurance sector



Climate related asset exposures (excluding housing)



Geographical exposure – share of climate-related exposures to total investments in target country



SENSITIVITY ANALYSIS

- But economic sectors defined NACE code are broad and do not separate between different types of technologies

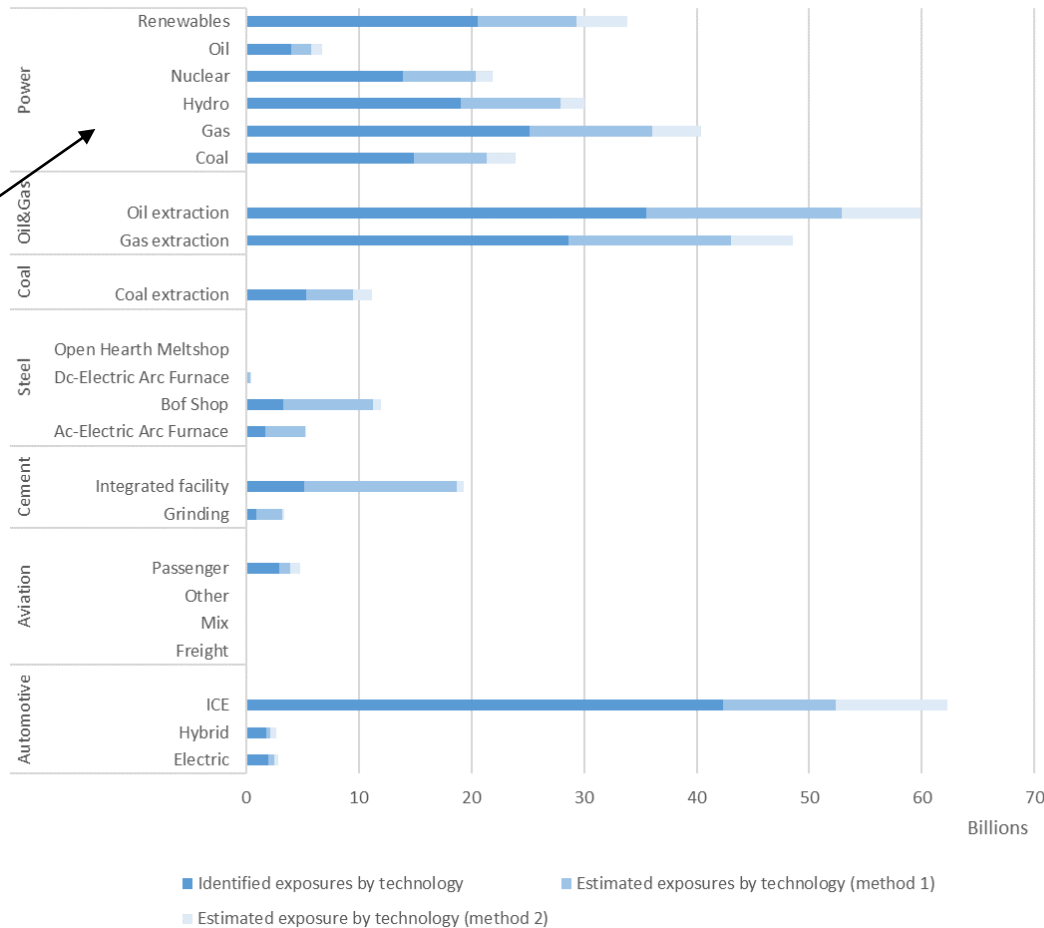
Out of scope

Participations, non-listed assets
Exposures related to real estate holdings (direct and indirect)
Covered bonds

The following investments are considered

In scope	Data and approach	Coverage
Equity <i>Common and preferred equity</i>	Solvency II and 2° Investing Initiative	Overall high: Only 1.5% of relevant exposures with no information. Participations and other non-listed equity and equity issued by real estate firms out of scope.
Corporate bonds <i>Corporate bonds, convertible and hybrid bonds, subordinated bonds</i>	Solvency II and 2° Investing Initiative	Overall high: Only 3.6% of relevant exposures with no information. Non-listed and covered bonds out of scope.
Collective investment undertakings <i>Equity funds, debt funds and asset allocation funds</i>	Solvency II and 2° Investing Initiative	We get information about underlying asset for 44% of holdings (compared to 0% if we had used only Solvency II). Real estate funds out of scope.
Government bonds <i>All holdings</i>	Solvency II	Full

Sector
Technology



Identification of exposures carried out using the PACTA method of 2° Investing Initiative (2DII)

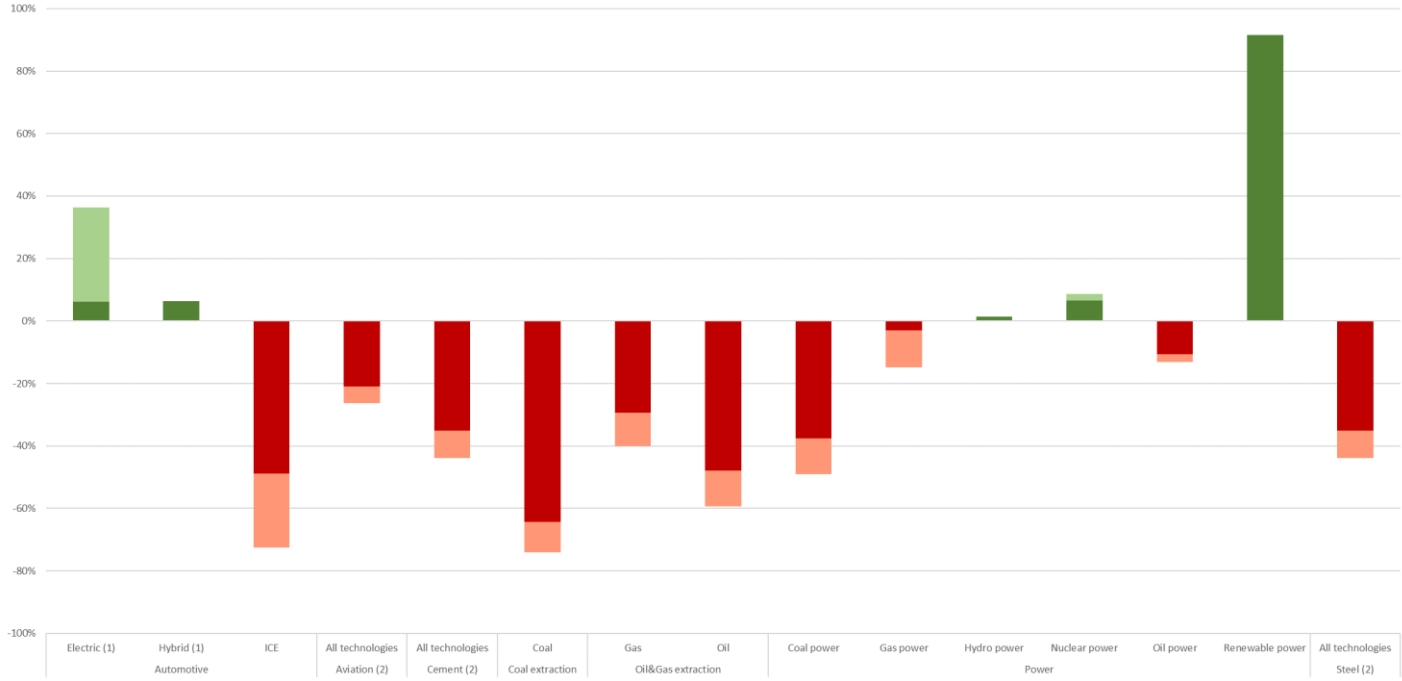
Based on asset by asset reporting (i.e. individual ISIN level). Mapped to physical production in key technologies – more detailed than NACE sector level.

The chart shows identified holdings (dark blue bar) per sector and technology for the EEA (excl. UK)

Lighter blue bars show results with extrapolation to account for unmapped assets

SENSITIVITY ANALYSIS

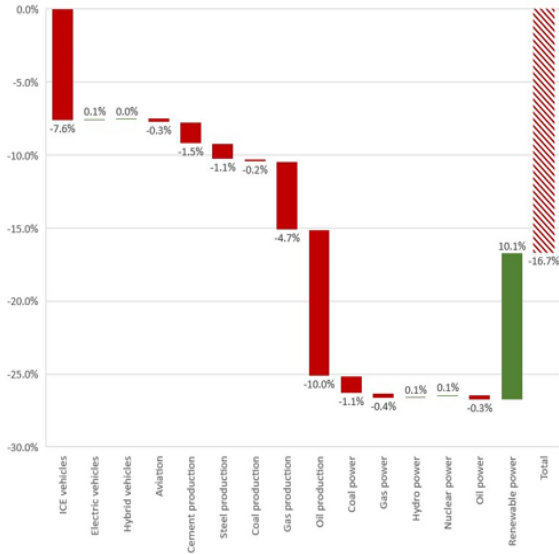
Price adjustments tested in a “what-if” learning exercise



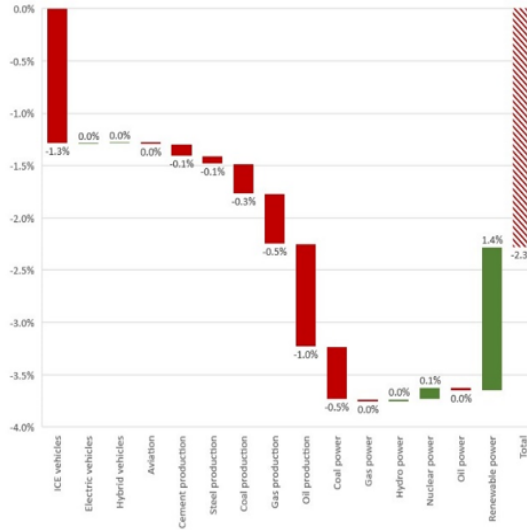
SENSITIVITY ANALYSIS

Quite substantial losses on (esp. equity) holdings in high carbon sectors, but some re-balance by investments in renewables. EEA level excl. UK

Equity – non-unit-linked



Corporate bonds – non-unit-linked

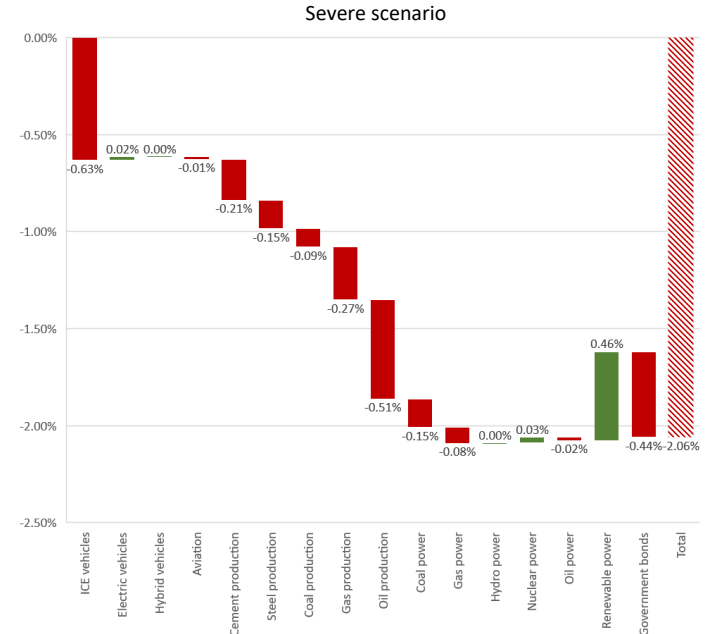
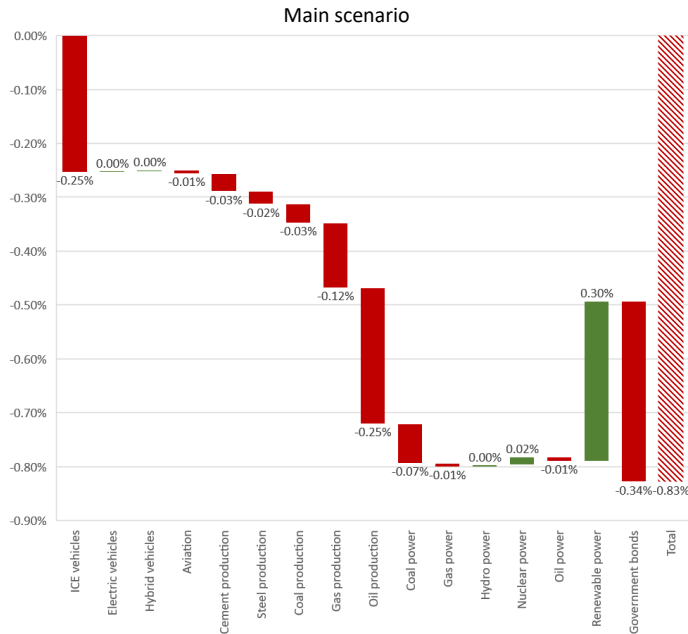


- Potential impact on insurers portfolios of sovereign bonds is moderate in terms of its magnitude, but it might still be non-negligible*

* Battiston, S., Jakubik, P., Monasterolo, I., Riahi, K., van Ruijven, B. (2019): Climate Risk Assessment of the sovereign bond portfolio of European insurers, EIOPA Financial Stability Report December 2019.

SENSITIVITY ANALYSIS – OVERALL IMPACT IN RELATION TO EAOL

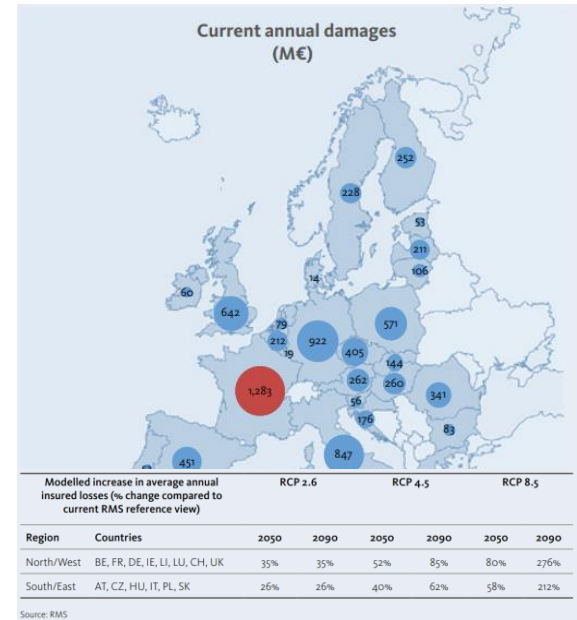
Chart below shows impact in % of Excess of assets over liabilities (govt. included) for non-unit-linked assets



FOLLOW-UP: PHYSICAL RISKS

- Physical risk study
 - Ambitious data collection currently ongoing
- The exercise will explore three main areas:
 - Case studies **on past trends** - Historical consequences of 4 large disasters will be analysed using case studies.
 - **Current exposure (and materiality)** of the European insurance sector to climate relevant perils (wildfire, windstorm, river flood and costal flood)
 - Current and possible **future developments in light of climate change**

- Initial analysis of river floods in the sensitivity analysis



Source: JRC PESETA IV

CONTINUOUS MONITORING

- One of the instruments used for insurance sector to monitor ESG related risks is the EIOPA Risk Dashboard.
 - In this context, in October this year, EIOPA **introduced a new risk category in the RDB** that aims at assessing the vulnerability of the European insurance industry to ESG risks but also to capture these kind of risks that may emerge and rise in the near future.
 - The set of indicators proposed focuses mainly on the environmental side, particularly on transition and physical risk for insurers and very little on social and governance risks due to lack of data availability.
 - EIOPA aims to develop further the framework as new and more granular data will become available in the future.
- Indicators included in the RDB:
 - Insurers' external ESG ratings
 - Insurers' change in external ESG ratings
 - Insurers' investments in green bonds
 - Change in insurers' investments in green bonds
 - Climate relevant assets share based on their greenhouse gas emissions
 - Exposure at risk of NatCat events - flood
 - Exposure at risk of NatCat events - windstorm
 - Catastrophe loss ratio

EIOPA RISK DASHBOARD OCTOBER 2021

Risks	Level	Trend (Past 3 months)	Outlook (Next 12 months)
1. Macro risks	high		
2. Credit risks	medium		
3. Market risks	medium		
4. Liquidity and funding risks	medium		
5. Profitability and solvency	medium		
6. Interlinkages and imbalances	medium		
7. Insurance (underwriting) risks	medium		
8. Market perceptions	medium		
9. ESG related risks	medium		

- For the first time, ESG related risks were included in the Risk Dashboard. They are classified at medium level, with worsening outlook over the next 12 months.
 - Insurers ESG rating has been improving. Insurers have been increasing their investments into green bonds, albeit at a slower pace than the growth of outstanding green bonds.
 - The median exposure to climate relevant assets has been slightly decreasing. Exposure to flood and windstorm risk has been slightly increasing in the high end of the distribution. The cumulative catastrophe loss ratio decreased in Q2-2020. The data are not able to capture yet the impact of the EU floods in summer 2021.
 - Based on the EIOPA's survey amongst national competent authorities on the risks and key vulnerabilities of the insurance and IORP sectors, ESG risk is assumed to increase in the next 12 months

Reference date for company data is Q2-2021 for quarterly indicators and 2020-YE for annual indicators. The cut-off date for most market indicators is mid-September 2021.. The Outlook displayed for the next 12 months is based on the responses received from the national competent authorities (NCAs) and ranked accordingly to the expected change in the materiality of each risk (Substantial decrease, decrease, unchanged, increase and substantial increase).

STRESS TESTS/SENSITIVITY

Preliminary
conclusions

- Required by the regulation, a climate stress test has become one of the top item in the supervisory agenda.
- **EIOPA issued two discussion papers on methodological principles of insurance stress testing where a section of second issuance was devoted to climate change stress test.** EIOPA collected feedbacks from stakeholders and plans to publish the final version in January 2022.
- The paper elaborates on the potential approaches to be used in a **bottom-up stress test exercise** and covers both **transition and physical risks**.
- EIOPA acknowledges that at this stage any climate change stress test should be considered more as an explorative exercise. It is part of an important learning process to better understand the potential implications of climate change risks for the insurance sector. Hence, no SCR recalculation will be asked in a first climate ST.
- EIOPA considers the following approach as potentially suitable for a first climate change stress test:
 - **Multiple climate scenarios** to be evaluated focusing on different climate outcomes/scenario narratives
 - **Scenario and technical specifications with specific climate variables at regional (intra-country) level for perils and financial impacts at a sectoral level (for corporate bonds, equities and real estate) and country level (for government bonds), to ensure a balance between complexity and comparability.**
 - **A medium-to-long-term time horizon**, with end-of-modelling horizon scenario impact evaluated as an **instantaneous shock to the reference balance sheet under a fixed and constrained framework.**
 - **A separate forward-looking assessment** designed to capture the reactive management actions/responses to climate change-related risks
 - Regarding the **shocks**, EIOPA is proposing that they will be specified in line with the guidance provided in the first methodological paper.



THANK YOU!

For more information visit:
<https://www.eiopa.europa.eu>