Sovereign debt management in the face of climate liabilities: Perspective of European Union member states

Iustina Alina Boitan* and Kamilla Marchewka-Bartkowiak**

*Bucharest University of Economic Studies, Faculty of Finance and Banking, Romania
**Poznań University of Economics and Business, Institute of Finance, Poland

Ministry of Science and Higher Education
Republic of Poland

The study was conducted within the research project ***Economics in the face of the New Economy*** financed within the Regional Initiative for Excellence programme of the Minister of Science and Higher Education of Poland, years 2019-2022, grant no. 004/RID/2018/19, financing 3,000,000 PLN

Agenda

- Research aim, questions and methodology
- Sovereign climate debt in the face of the Fiscal Risk Matrix
- Projections of the sovereign climate debt path till 2050
- Sovereign debt management in the face of climate change – results from case study research for EU member states and proposals

Aim and questions of the research

- **The major aim of our paper is** *to identify a suitable approach to be followed by sovereign debt managers in terms of strategies, tasks, instruments, institutional and communication solutions in the face of the pursued climate policy and different scenarios of climate liabilities for 2050.*

- Specific **research questions** to be addressed in this paper are:

i) how should climate debt be incorporated into the current, globally-accepted classification of government liabilities?

ii) what will the climate debt path look like by 2050, conditioned by the occurrence of various climate scenarios?

iii) how should sovereign debt management change in order to address the climate debt challenges?

Methodology of our research

- We develop a complementary **three-fold analytical framework** that relies on three pillars:

1) *assessment of the estimated level and share of current climate liabilities in total government liabilities, based on the Fiscal Risk Matrix methodology*
2) *performing forward-looking climate debt projections over the timeframe 2025-2050 for the EU member countries based on 6 different scenarios*
3) *conducting case study research related to the sovereign climate debt management activities undertaken so far by debt managers in the 27 European Union member states.*

- Data and information from: **Eurostat database, OECD database, the Network for Greening the Financial System (NGFS) database**
- we performed ample **desk research** of official documents available on the websites of **EU sovereign debt management institutions** (ministries, agencies, central banks) from 2019-2021 and counted the frequency of occurrence of climate change-related words

Sovereign debt management

- **Objective:** to cover the borrowing requirements of public authorities, taking into account cost minimisation and prudent management of risks associated with incurring debt
- **Approaches**: sovereign portfolio approach and sovereign assets and liabilities approach

- **Why climate liabilities and risk in SDM?**: the adoption of new international strategies to combat climate change (including those agreed at international Climate Summits and in the European Union within the European Green Deal and the ETS development), new regulations on Environment-Social-Governance (ESG), European green taxonomy, a climate risk included in the methodology of rating agencies

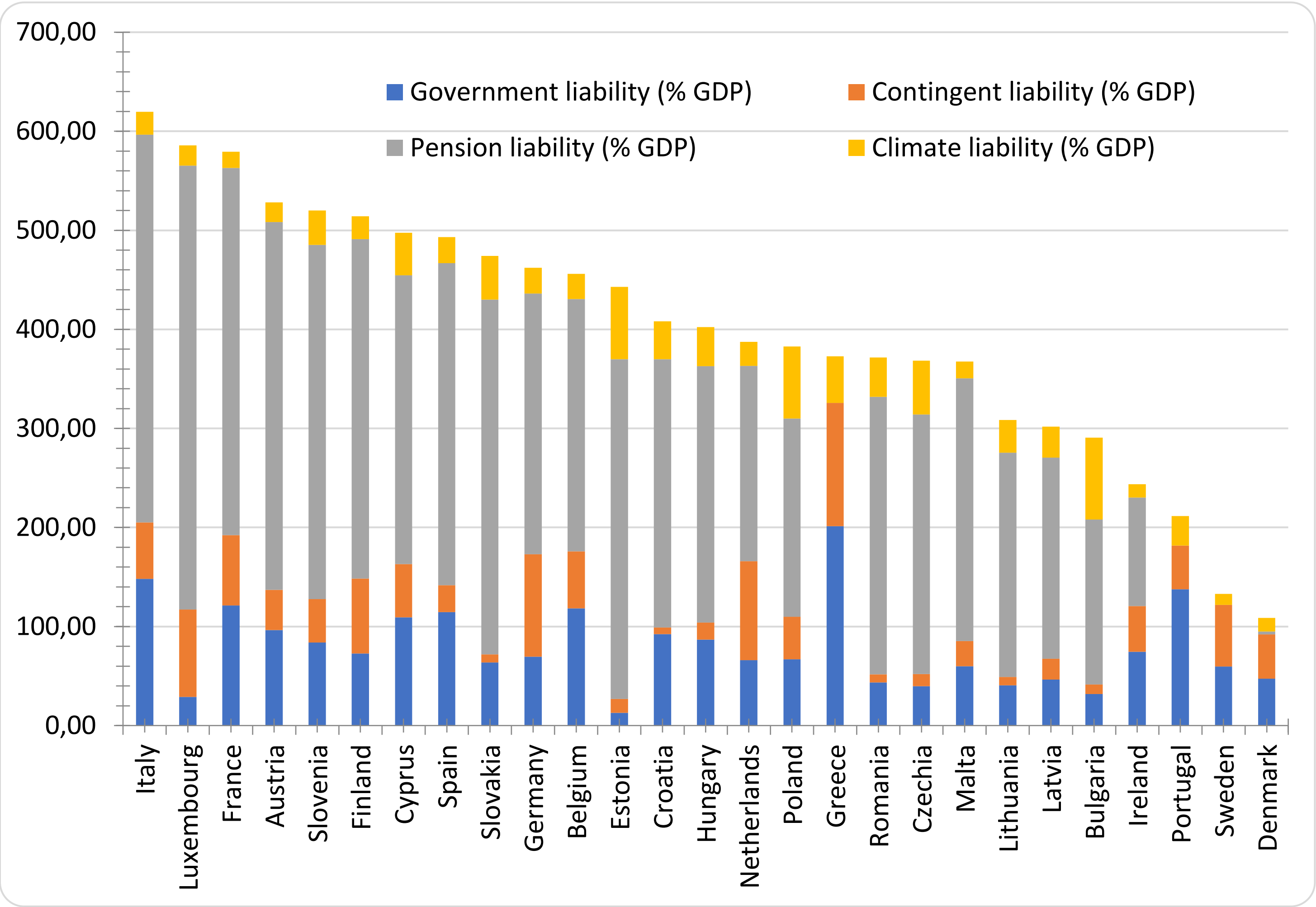
The Fiscal Risk Matrix – major instruments of total government liabilities

Criteria	Direct (obligations in any event)	Contingent (obligation if a particular event occurs)
Explicit (obligation recognised by a law or contract)	Government liabilities (debt)	Contingent liabilities
Implicit (obligation reflects public and interest group pressures)	Pension liabilities	Climate liabilities

To calculate **climate debt,** we rely on the carbon price, expressed as US$/t CO2, and on the level of current CO2 emissions/year as published by official statistical agencies (e.g. Eurostat).

Source: own elaboration based on (Polackova, 1989)

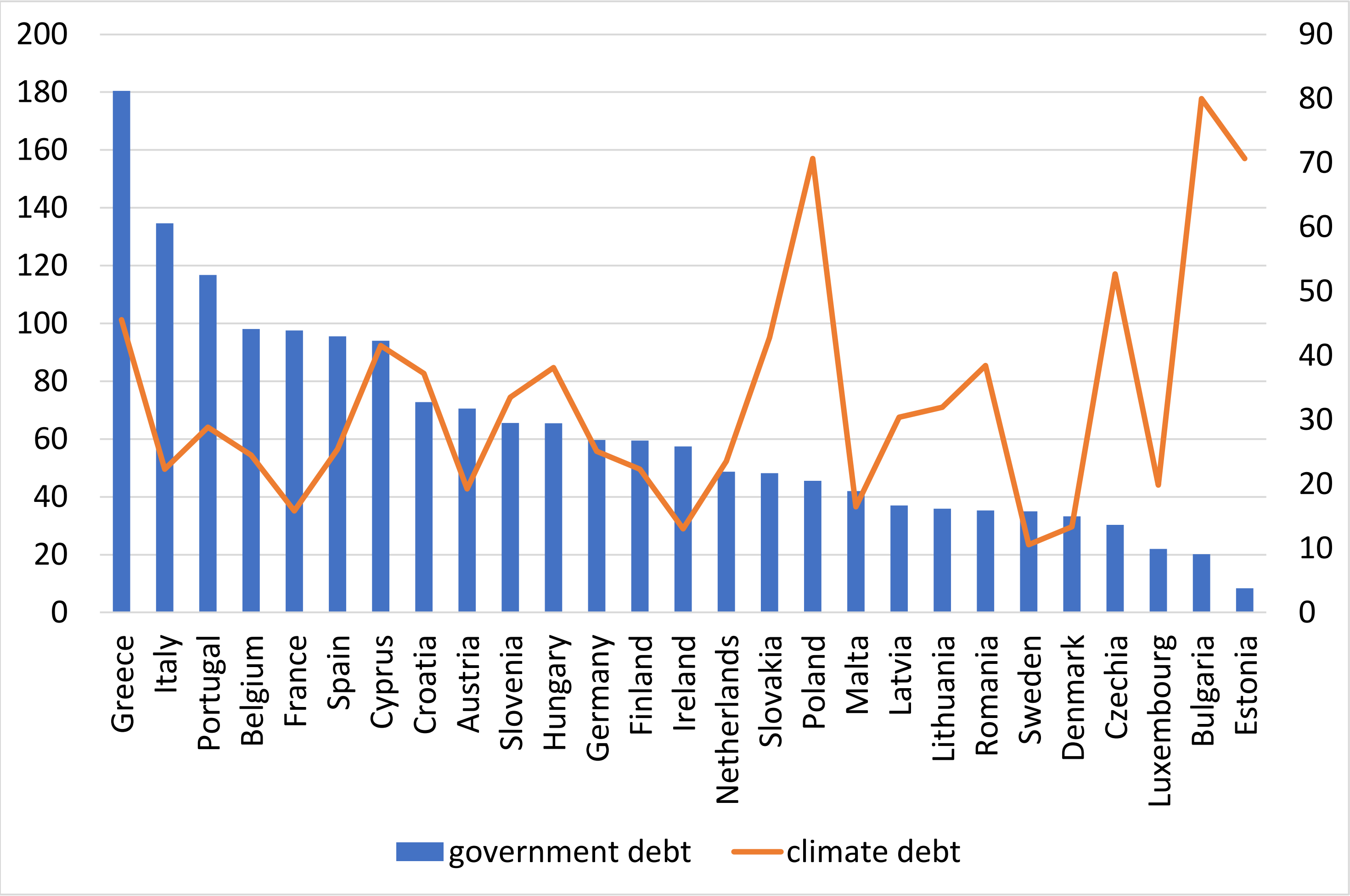
Total sovereign liabilities in EU member states in 2018



the average level of **climate debt** was 34% of GDP, with **government debt** at 79% of GDP, **contingent liabilities** at 45% of GDP and **pension liabilities** at 271% of GDP

Note: data access restrictions

The relation between sovereign debt (left axis) and climate debt (right axis) as % GDP in 2019



Euro area member states are often characterised by a relatively higher ratio of marked-based debt as a % of GDP to climate burdens

In contrast, as for **countries outside the Eurozone, particularly in Central and Eastern Europe**, the relationship is in many cases reversed

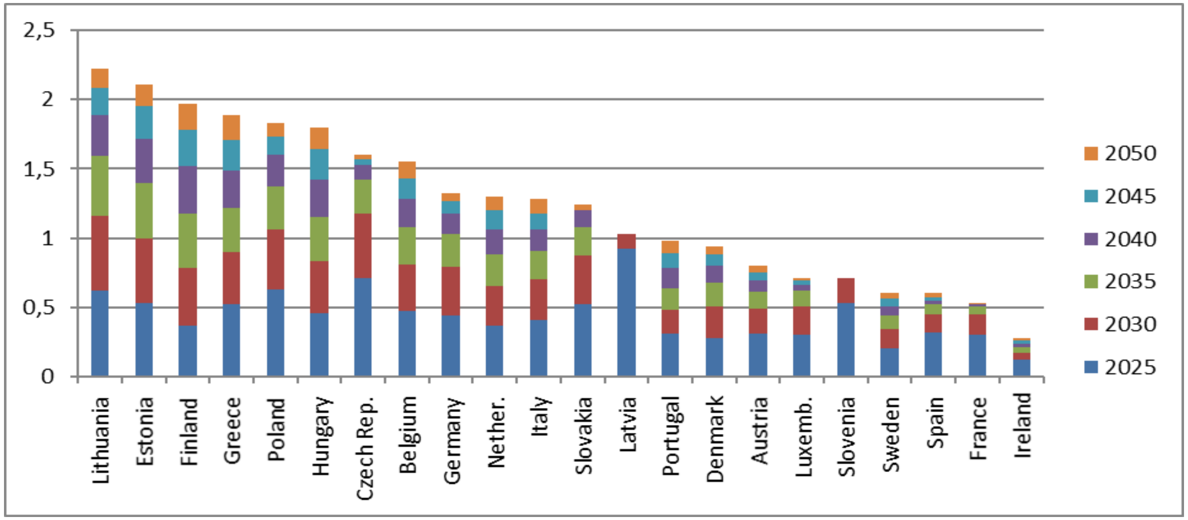
The Modified Fiscal Risk Matrix – major instruments of total government liabilities

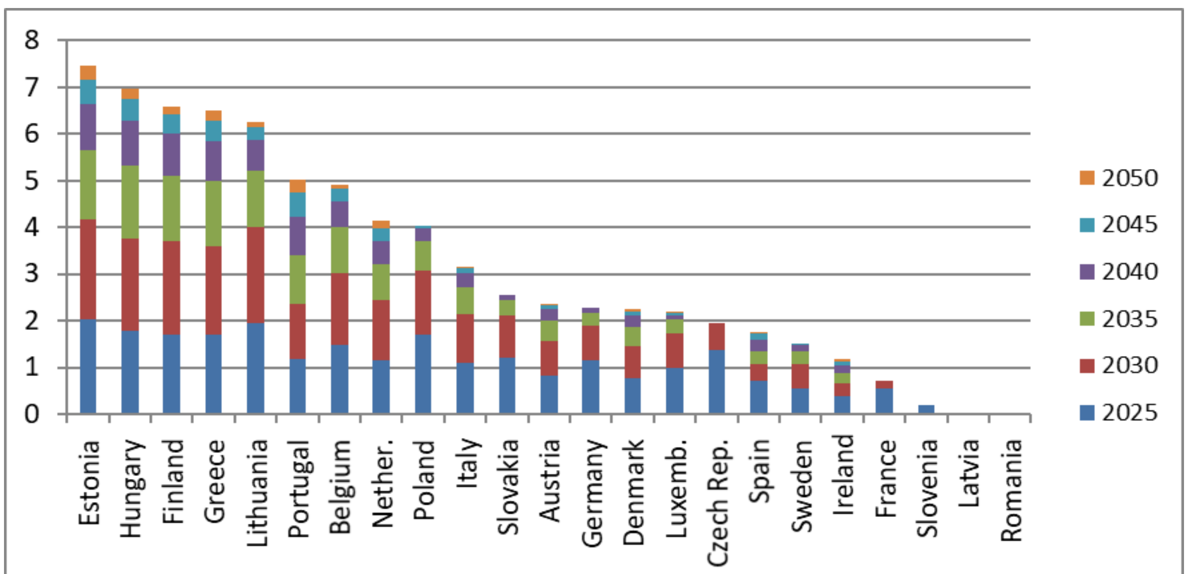
Criteria	Direct (obligations in any event)	Contingent (obligation if a particular event occurs)
Explicit (obligation recognised by a law or contract)	Government liabilities (debt) Climate debt (proposed approach)	Contingent liabilities
Implicit (obligation reflects public and interest group pressures)	Pension liabilities	Climate debt (current approach)

Source: own elaboration based on (Polackova, 1989)

1. the observed effects of environmental change **cannot be regarded only as incidental** anymore
2. the fight against climate change forms the basis for the formulation of **many strategic documents and legal acts**
3. the European climate **goal can be treated as the maturity term**

Projections of the sovereign climate debt (as %GDP) path till 2050 (1)

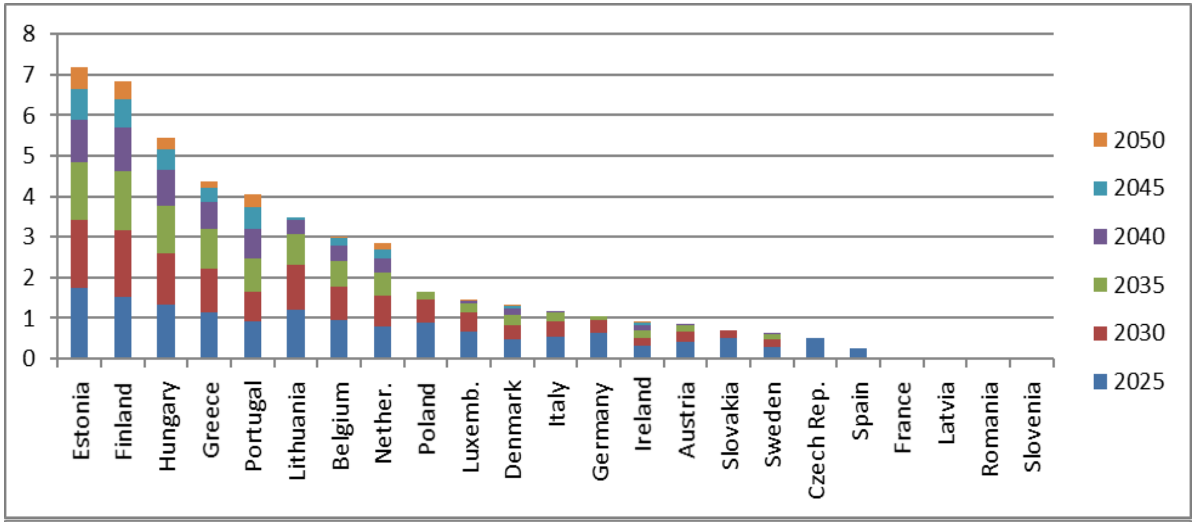




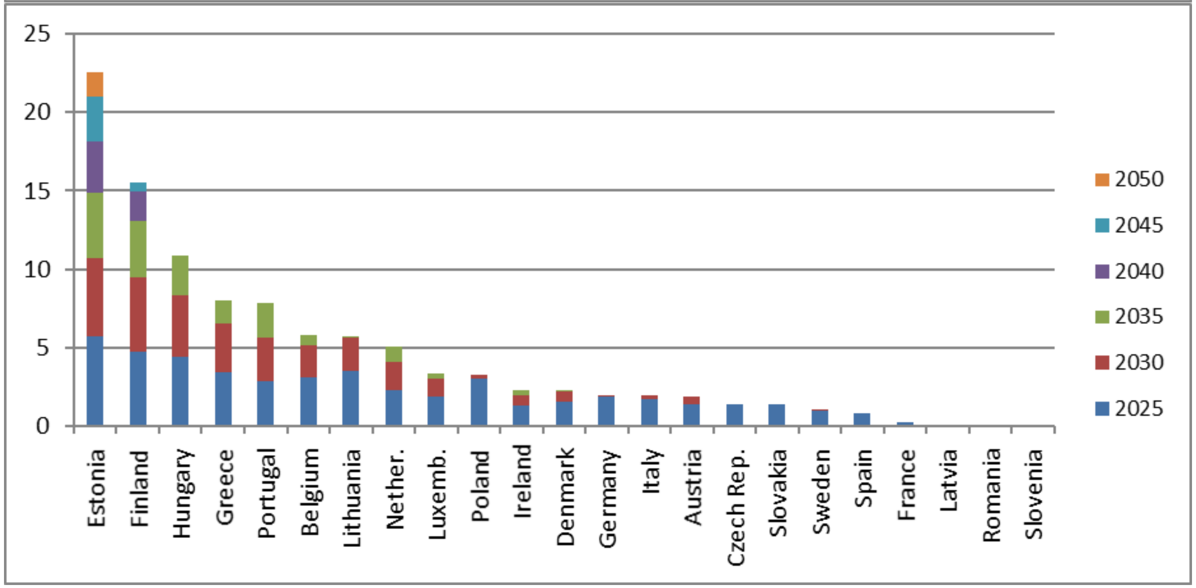
In a **Current Policies scenario** only the currently implemented climate policies remain in place, the policy reaction is slow and unevenly represented across different economic sectors. Technological investments are small and the capabilities for carbon dioxide removal from the atmosphere are low.

The Nationally Determined Contributions (NDCs) scenario is more comprehensive than the Current Policies one, because it considers all promised policies, even if currently they are not yet implemented.

Projections of the sovereign climate debt (as %GDP) path till 2050 (2)

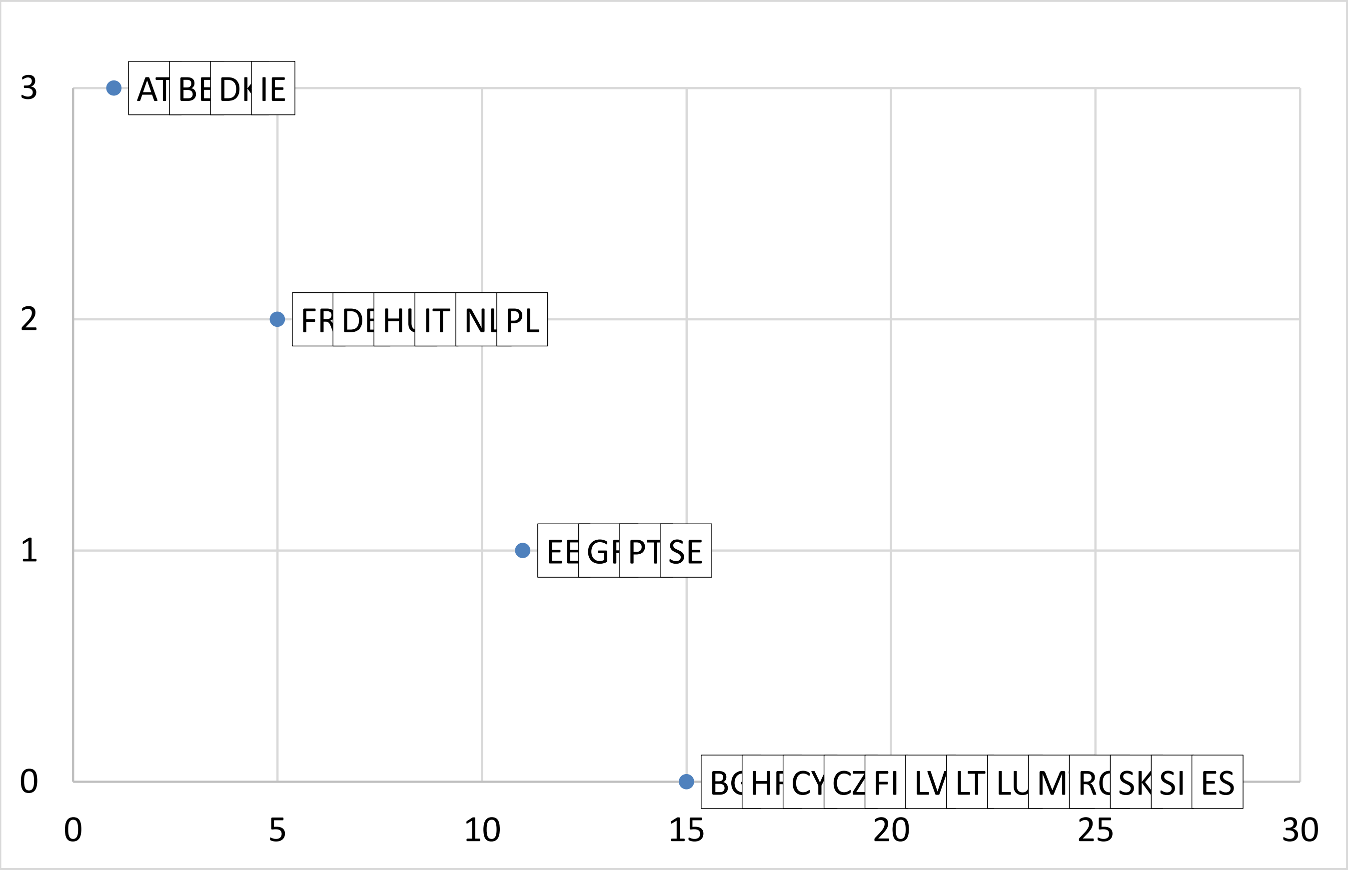


In the **Below 2°C scenario** the stringency of climate policies increases gradually, giving a 67% chance of limiting global warming to below 2°C until 2050



The Net Zero 2050 scenario envisages limiting global warming to 1.5°C through the adoption of stringent climate policies and technological innovation, in order to reach global net zero CO2 emissions by 2050.

Climate change references in sovereign debt management documents of EU member states



To identify the activities undertaken by debt managers in the 27 European Union member states we verified **the use of the words "climate", "carbon", and "green" in the documentation** available on the websites of sovereign debt management institutions, including strategies, reports, and investor presentations from 2019-2021

Case study research - summary

- no country has yet changed its **debt management objectives**, focusing mainly on financial objectives,
- the remit of debt managers is **beginning to shift towards the carbon market and carbon fund management**,
- some debt managers are introducing **climate risk into their sovereign risk management,**
- the **predominant instrument of climate debt management is green bonds**, whose issuing procedures (at present, ten EU member states are issuing this type of bonds) and financing of climate needs are slowly being adapted by member states to EU taxonomy,
- one of the **new tasks in climate debt management** are being transferred to sovereign debt management agencies,
- the new tasks entail the **participation of debt managers in new procedures**, including the auctioning of CO_2 emission rights,
- some debt managers include **information on climate policy and climate liabilities** in official documents published on websites and in presentations given directly to investors.

Features	Actual approach	Proposed approach
SDM objectives	Financing of budget borrowing needs Debt cost minimising Medium and long term strategy Prudent risk management	Financing cost of climate change included
SDM tasks	Market-based debt management Liquidity management Contingent liabilities management* Sovereign assets management*	Sovereign climate assets and liabilities management
SDM risk management	Refinancing risk Market risk Credit risk Liquidity risk Operational risk	Climate risk assessment and management
SDM instruments	T-bonds and bills Loans State guarantees* State fund management*	Green bonds Carbon fund Other financial operations supported green investments („green public budget”)
Institutional background	Ministerial model Agency model Central bank model	Sovereign agency for the broader debt (liabilities) management
Debt market organisation	Auctions Syndications On-tap Private placement	Carbon auctions Climate assets investments
Investor Relations and reporting	Annual and periodical reports Investor Relation presentation on sovereign debt portfolio	Detailed information on climate debt management, also based on e.g., the EU Sustainable Finance Taxonomy

Thank you very much

for your attention