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TSI Pillar 2 · Session 2 · The participating IFI's perspective

Building the capacity to test our own debt sustainability analysis

Cyprus's experience: from no DSA model to a climate-augmented framework we can update, test and challenge

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Cyprus needed a debt sustainability capability before it could add climate risk

At the outset (2024)

- ✕ No DSA model of our own
- ✕ No long-term fiscal sustainability tool
- ✕ No systematic treatment of climate risk

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What the framework now requires

Debt sustainability at the centre of EU fiscal surveillance
Regulation (EU) 2024/1263

Assessment of climate risks to public finances
Directive 2011/85/EU, as amended by Directive (EU) 2024/1265

An IFI able to assess, not only receive, these analyses

Our need came in two steps: first a DSA capability, then a way to add climate risk to it.

Three building blocks, with clear ownership

Phase 2A (project team): review of existing tools and proposed framework

FCC

Phase 2B

Our own DSA model

Deterministic model in Excel and Stata, following the Commission's DSM method

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Cambridge Econometrics

Phase 2C

Climate tool and integration

Excel tool for transition and physical risks, Stata code linking it to our DSA, user guide and training

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FCC

Review, 2026

Testing and correcting

Line-by-line review, own runs with diagnostic checks, and amendments in the FCC version

The third block is where institutional capacity shows: understanding the framework well enough to challenge it.

A transparent baseline, with separate climate channels

Transition

Public investment (NECP); energy and vehicle taxes; ETS revenues

Physical – chronic

Warming lowers the level of GDP (Centorrino et al., 2025)

Physical – acute

Public cost of floods, wildfires, droughts, storms

Primary balance

GDP level

Primary expenditure

FCC baseline DSA

- Growth and nominal GDP
- Primary balance
- Interest and financing needs
- Debt stock and debt ratio

Debt path by scenario

Baseline vs physical; baseline vs transition – run separately

Additional climate debt pays interest at the implicit rate. The only multiplier is the DSM adjustment to baseline growth in 2027 – this is not a full macroeconomic feedback model.

Our review made the integrated model internally consistent

€5.95 bn

of already-repaid ESM debt remained in long-term debt and kept generating interest

After the correction, short-term + long-term debt = total debt in every year

Debt components add up (ESM in long-term debt)	**Verified – both scenarios**
Chronic effect applied to the GDP level	**Verified – both scenarios**
Interest on additional climate debt, used in financing needs and balances	**Verified – both scenarios**
2027 growth follows the DSM 2025 multiplier rule, applied once	**Verified – both scenarios**
2028 growth consistent with GDP levels	**Verified – both scenarios**

Verified = confirmed by FCC execution and accounting checks. Details of each correction: technical appendix.

What we can now examine, and what still needs work

Capabilities developed

- A baseline we update ourselves
- Climate assumptions we can inspect
- Channels we can test one at a time
- Scenario outputs we can compare
- Checks that expose inconsistencies quickly
- Documentation for operation and maintenance

Limits we state openly

- No GDP response to climate spending or revenue changes
- No revenue loss from lower output; no interest-rate effects
- Results depend on key assumptions: disaster costs, use of ETS revenue, EU vs national funding

Proposed next steps (subject to the Council)

- Work with Cyprus experts – the University of Cyprus Economics Research Centre (KOE) and The Cyprus Institute – to improve climate, energy and macroeconomic inputs
- Document the diagnostic checks in an internal manual
- Pilot the framework in our long-term sustainability assessment

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COMMUNICATION AND UPDATES

Where to Find the Fiscal Council's Work

REPORTS

- Interim / Spring Report
- Autumn (Final) Report
- Annual Activity Reports to Parliament

INFORMATION

- News, announcements and statements
- Briefing Notes
- Key Macroeconomic & Fiscal Indicators

LEGISLATION

- National Fiscal Responsibility Framework
- EU Economic Governance Framework

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A1. Amendments in the FCC version of the integration code

Issue	Why it mattered	Amendment	Status
ESM repayments	Deducted from total debt but not from long-term debt: €5.95 bn of repaid debt kept generating interest	Deduct repayment_lt_esm in both long-term debt equations	Verified
Chronic GDP effect	Level estimate added to growth every year: losses compounded (−24.3% vs −1.2% in 2070, SSP3)	Apply to the GDP level; derive growth from levels	Verified (only physical)
2028 GDP growth	Growth used in the debt ratio differed from growth implied by GDP levels after the 2027 adjustment	Set 2028 growth from the GDP levels	Verified
Interest on climate debt	Extra debt carried no interest in debt stock, financing needs and balances	interest_x = interest + iir × (D_x − D) of previous year; used in GFN and OB	Verified
2027 multiplier	Applied twice, with the sign reversed and the wrong SPB change	DSM 2025: forecast growth − 0.6 × change in forecast SPB, from rg_bl	Verified

A2. Diagnostic checks run by the FCC (physical-risk & transition scenarios)

Check	Test	Before	After
Debt identity	D − (D_st + D_lt)	−4.05 (2029) to −5.95 bn (2031 onwards)	≈ 0 in every year
Chronic effect	(ngdp_physical / ngdp − 1) × 100 vs Excel value	2050: −9.12% vs −0.64%	2050: −0.64% vs −0.64%
Stock vs ratio	D_physical / ngdp_physical × 100 − d_physical	—	≈ −0.001 pp
Growth consistency	ng vs ngdp / L.ngdp − 1	—	Equal in 2027–2029
2027 multiplier	rg − rg_bl vs 0.6 × ΔSPB (forecast)	−0.22 pp (twice, wrong sign)	2.366 − 0.6 × 0.538 = 2.043

The same checks passed in the transition run (identity ≈ 0; stock vs ratio ≈ −0.001 pp; 2027 growth 2.043; 2028 growth consistent). Both runs use the same baseline GDP as the Excel tool; transition GDP equals baseline GDP.

A3. Scope: what the integrated framework captures

Captured

- Transition: NECP public investment; energy taxes (VAT and excise by fuel, Eurostat energy balances); vehicle taxes; ETS1/ETS2 revenues – WEM vs WAM
- Chronic physical risk: GDP-level deviation (Centorrino et al., 2025; Kahn et al., 2021)
- Acute physical risk: public share of expected annual damages, net of relief funds
- Interest on additional climate debt at the implicit rate
- DSM multiplier on baseline growth in T+2 (2027)

Not captured (stated limitations)

- GDP response to climate-related spending or revenue changes
- Revenue loss from lower GDP under chronic risk
- Effects on interest rates, risk premia or inflation
- Combined physical + transition scenario (run separately)
- Climate effects in 2025–2027 (assumed in the AMECO forecast)
- Key assumptions: disaster costs vs baseline; use of ETS revenue; EU vs national investment financing