



Actuarial Contributions to Sustainable Pension Reform

Tetyana Kohansal | ks actuaries, Vienna, Austria

ECA 2026 | Paris | June 2026

6th European
Congress of Actuaries
www.eca2026.org



Five Structural Pressures on European Pension Systems



33 → 52

Old-age dependency
ratio
per 100 workers
2025 → 2050

>35%

Working-age
population
decline by 2065
in IT, KR, LV, LT, PL

17pp

Employment rate gap:
age 55–64 vs 25–54
OECD average

<40%

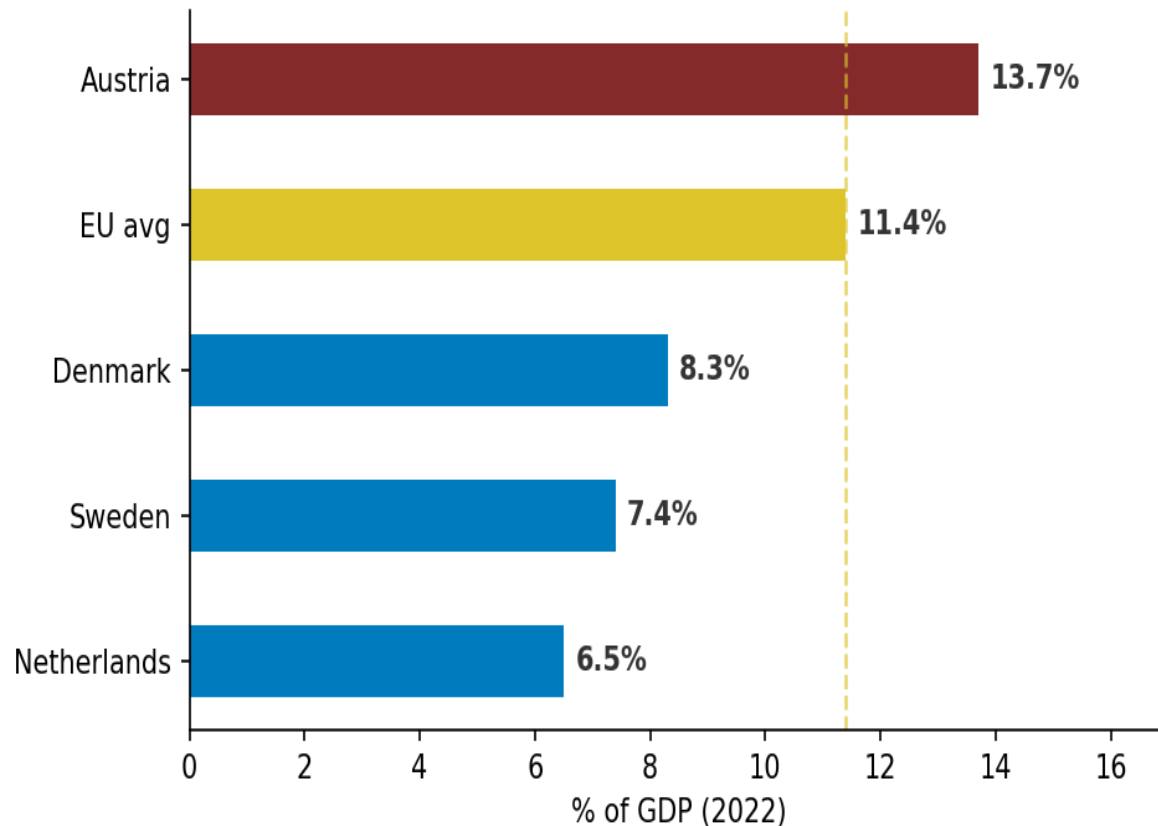
Future net
replacement
rate in Estonia,
Ireland, Korea,
Lithuania

**Fertility
overestimated**

Past projections
systematically too high
Policies: uncertain
effect

Source: OECD Pensions at a Glance 2025

The Fiscal Cost: What Poor System Design Delivers



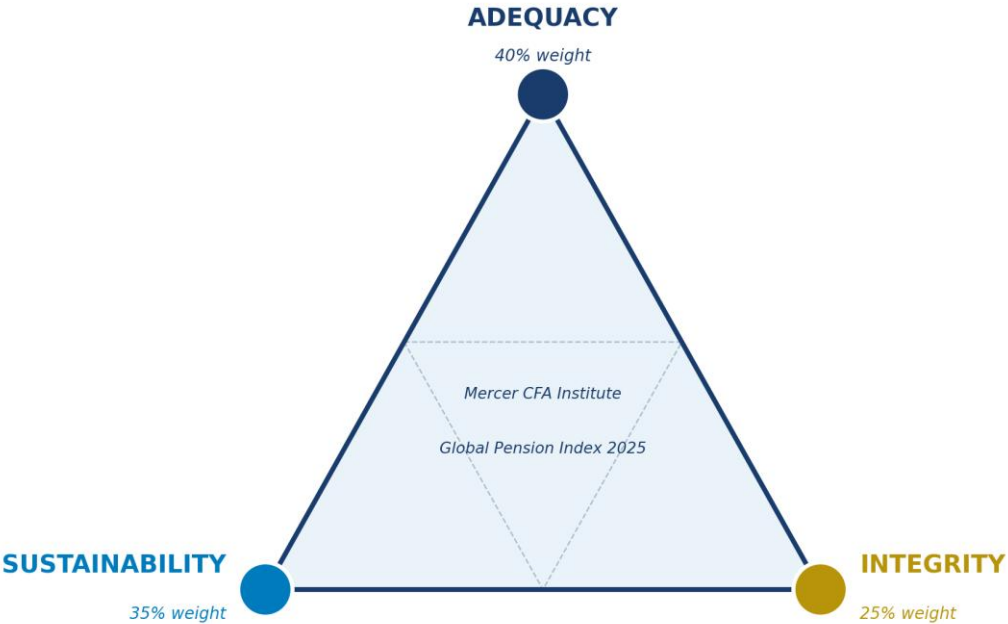
Example: Austria spends €11B more/year than the EU average
Denmark €25,8B
Sweden €34,4B

NL 83.5 (A) | DK 85.0 (A) | SE 76.3 (B+) | AT 24.0 (E)
— Mercer CFA Institute Global Pension Index 2025

Sustainability Grade E (24.0/100) — global average 55.3

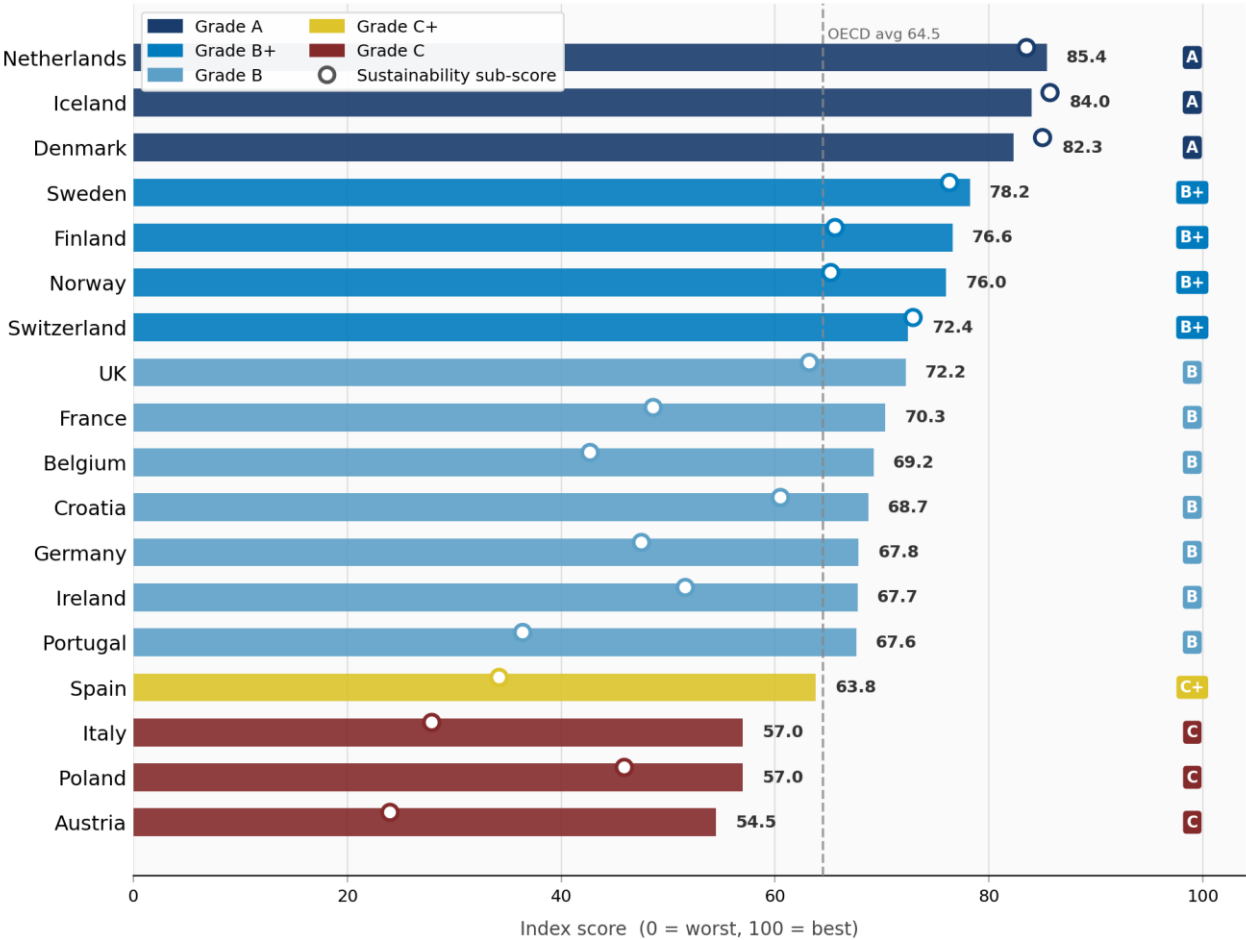
Sources: EU Ageing Report 2024; EcoAustria OPI Study; Mercer CFA Global Pension Index 2025; OECD Pensions at a Glance 2025

Mercer Global Pension Index



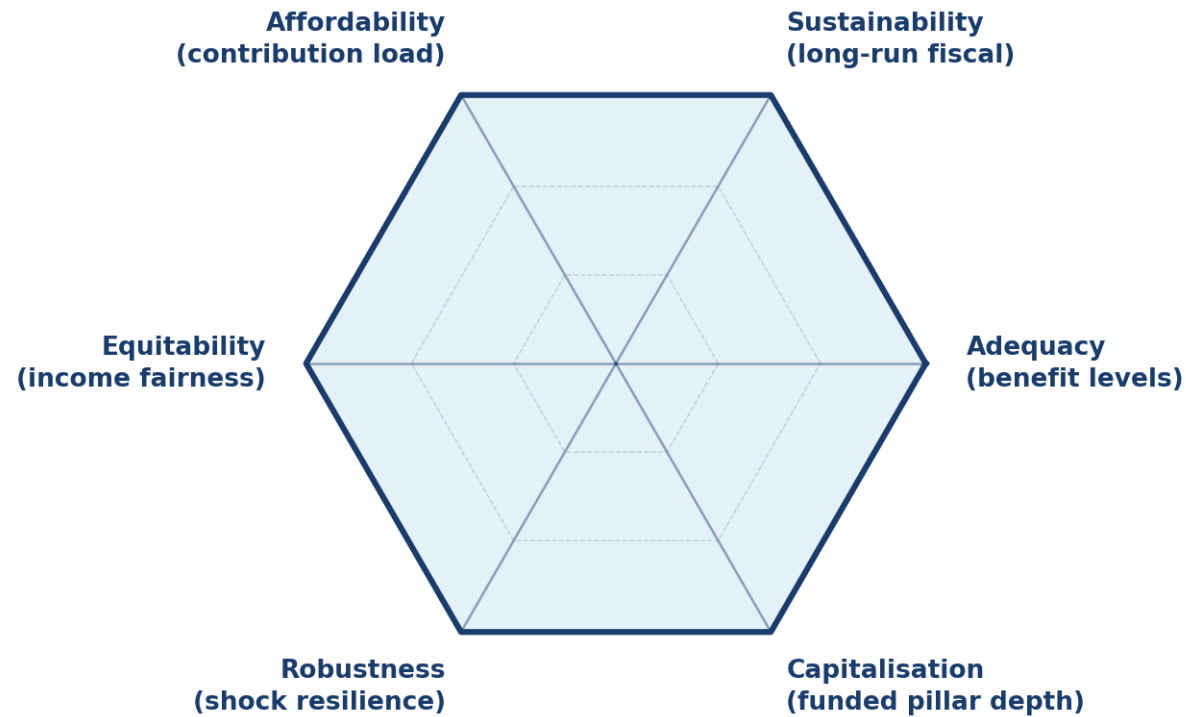
Source: Mercer CFA Institute Global Pension Index 2025

Mercer CFA Institute Global Pension Index 2025
European Systems – Overall Score with Sustainability Sub-score



Source: Mercer CFA Institute Global Pension Index 2025

What Makes a Pension System Sustainable?



Source: EcoAustria Overall Pension Index (Köppl-Turyna, 2025)

The Actuarial Toolkit: What We Uniquely Bring

Longevity modelling

Project mortality, price the liability

Liability valuation

Quantify implicit pension debt

Stress testing

Scenario analysis under demographic shocks

System design

NDC and FDC actuarial mechanics

Adjustment mechanism design

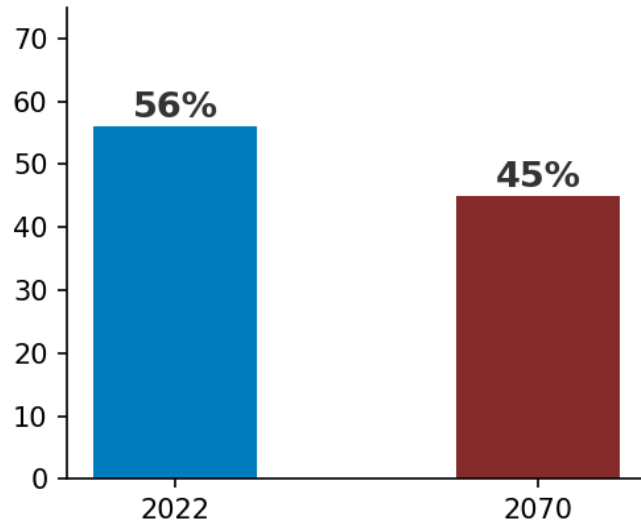
Rule-based, automatic stabilisers

These are design tools.

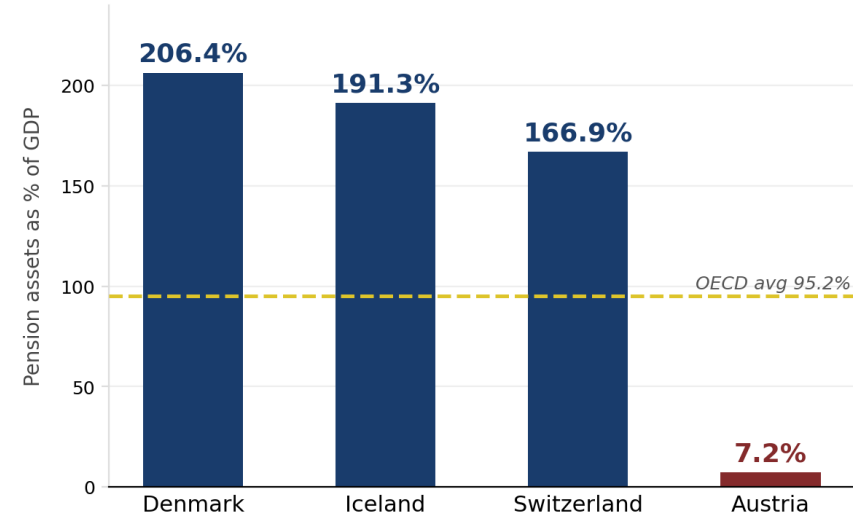
**They belong at the beginning of reform
conversations — not at the end.**

Europe's Sustainability Gap: The Actuarial View

Austria — Replacement Rate



**Private Pension Assets as % of GDP
Top 3 vs Austria**



Source: OECD Pension Markets in Focus 2024

Country	Overall	Adequacy	Sustainability	Integrity
Netherlands	85.4 (A)	86.1 (A)	83.5 (A)	86.8 (A)
Denmark	82.3 (A)	82.9 (A)	85.0 (A)	77.6 (B+)
Sweden	78.2 (B+)	76.8 (B+)	76.3 (B+)	83.0 (A)
Austria	54.5 (C)	67.5 (B)	24.0 (E)	76.4 (B+)

Source: Mercer CFA Institute Global Pension Index 2025

Sources: OECD Pensions at a Glance 2025; EU Ageing Report 2024; Mercer CFA Institute Global Pension Index 2025

Contribution #1: Longevity Risk and Automatic Stabilisers

Retirement age must track life expectancy

Each additional year of life expectancy $\approx$ 3–5% increase in pension liabilities. Political ages don't self-adjust.

Countries with automatic life expectancy link

Finland, Sweden, Norway, Portugal, Denmark (from 2027), Estonia — future ages reaching 70+ in DK, EE, IT, NL, SE

Countries without (politically set)

Austria, France, Germany — liability keeps growing between reform cycles

Actuarially neutral retirement timing

OECD average: $\sim$ 4.8%/year. Belgium, Greece, Luxembourg, Türkiye flagged as underperformers — low bonuses penalise late work

Contribution #2: NDC System Design — Sweden and Beyond



The actuary is built into the formula

Sweden: Notional accounts + wage growth + ABM

Latvia: Total wage-bill growth

Poland: Total wage-bill growth

Estonia: 80% contributions + 20% prices

Lithuania: Wage-bill growth

Italy: GDP growth

Source: OECD Pensions at a Glance 2025; Swedish Pensions Agency

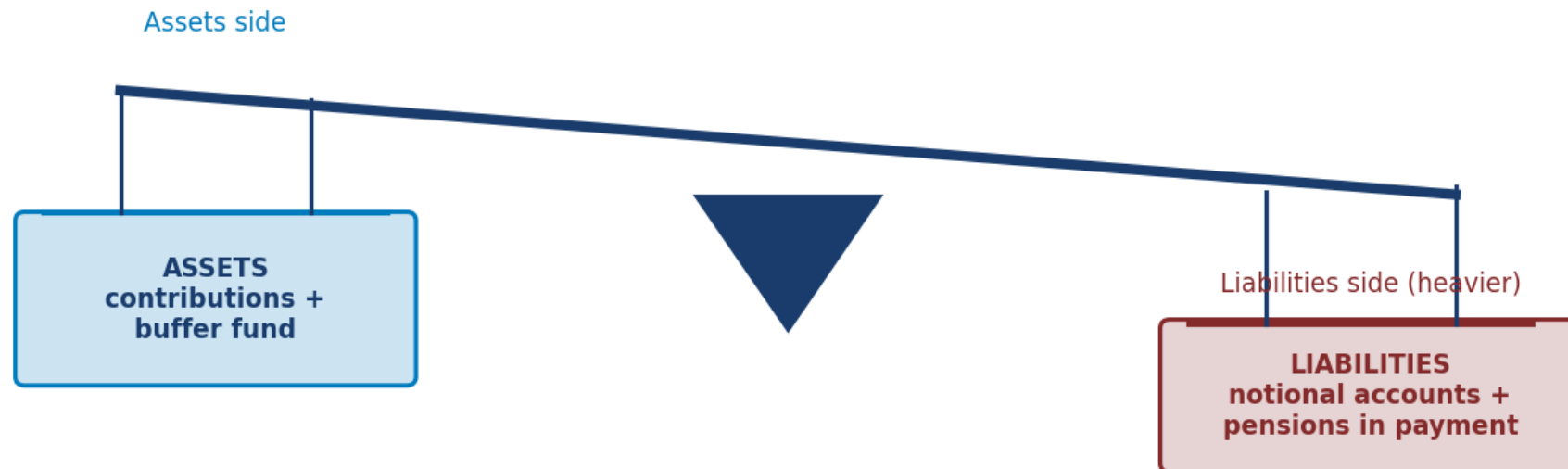
Case Study: Sweden's Automatic Balancing Mechanism

When Liabilities > Assets: ABM Triggers Automatically

$$\text{Balance ratio} = \text{Assets} \div \text{Liabilities} < 1.0$$



Automatic indexation reduction — no vote required



Contribution #3: Stress Testing Reform Scenarios

What actuarial scenario modelling shows: Austria — mandatory funded component introduced

Reform element	Projected result
Pension fund assets	2.3% → 55.9% of GDP by 2070
Real GDP impact	+€9.8B cumulative
Additional employment	~34,000 jobs
Fiscal balance	Improves from 2040 onward

These numbers answer the politician's question before it is asked.
The profession that should be generating them is ours.

Source: EcoAustria EU-PuMA simulation model (Köppel-Turyna, 2025)

Two Reform Models — Same Actuarial Logic, Different Paths

DENMARK

- ▶ Folkepension: flat-rate, tax-financed first pillar
- ▶ Quasi-mandatory occupational tier (ATP + sector schemes)
- ▶ Coverage: ~85% of working population
- ▶ Retirement age linked to life expectancy from 2027

SLOVENIA

- ▶ Higher statutory retirement age
- ▶ Longer reference wage period for benefit calculation
- ▶ Higher accrual rates
- ▶ Lower indexation of pensions in payment
- ▶ OECD 2025: "improves both sustainability and equity"

Sources: EU Ageing Report 2024; OECD Pensions at a Glance 2025; Mercer CFA Institute Global Pension Index 2025

Where Actuarial Input Is Missing: Austria's Sustainability Mechanism

Fiscal trigger, not actuarial

Activates on budget deviation — not on balance ratio. Damage is already visible before correction begins.

Scope too narrow

Only corridor pensions affected — a small fraction of total claims. The main pension stream is unchanged.

No life expectancy link

Underlying liability keeps growing between reform cycles. No automatic correction for longevity.

Missing: a feedback loop

Actuaries can see this failure in the design before the system fails — and should say so publicly.

Five Design Principles for Actuarially Sound Reform

1

Longevity-linked retirement age

Automatic, rule-based — not legislative. Eliminates the political cycle from longevity management.

2

Benefit indexation tied to demographic indicators

Balance ratio, wage-bill growth, or dependency ratio — not inflation alone. Latvia, Poland, Estonia, Lithuania.

3

Actuarially neutral retirement timing (~4.8%/yr)

Penalties and bonuses calibrated so work decisions are undistorted. Absence effectively taxes late retirement.

4

Actuarial valuation of implicit pension debt

Put it on the sovereign balance sheet. Visibility changes the political incentive structure entirely.

5

Remove barriers to work-pension combination

Nordic/Baltic countries: 40%+ of new pensioners continue working. Gradual retirement is a sustainability tool.

The Actuarial Credibility Advantage

Technically credible

The only profession trained specifically in long-run demographic and financial risk

Politically neutral

We report what the numbers say, not what a constituency wants to hear

Long-term frame

We think in 30- and 50-year horizons — the only appropriate frame for pension policy

Where is the actuarial voice loudest in European pension reform?
Where is it absent?

Four Things to Take From This Room

1 Europe's pension sustainability gap is actuarial in nature — we are the diagnosticians

2 Best-performing systems embed actuarial principles in their architecture

3 Our tools — longevity modelling, liability valuation, stress testing — are design inputs, not just outputs

4 The profession must move from reporting rooms to design tables

"Actuaries contribute most when they design systems that are automatically sustainable, behaviourally neutral, and socially credible."



Thank You

Tetyana Kohansal

ks actuaries | Vienna, Austria

t.kohansal@ks-actuaries.at

6th European
Congress of Actuaries
www.eca2026.org

