# DEBT SUSTAINABILITY ANALYSIS IS BACK

## Sudden shifts in underlying factors may push high-debt countries into a bad equilibrium

**Public Debt Dynamics: The Search for the Optimal Levels**

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# Back to basics: Debt dynamics is a nutshell

- Government budget identity:

$$\boldsymbol{G_t} \;+\; \boldsymbol{i_t B_{t-1}} \;\equiv\; \boldsymbol{T_t} \;+\; \boldsymbol{\Delta B_t} \;+\; \boldsymbol{\Delta M_t} \quad \text{(nominal terms).}$$

gov't exp. | interest | tax revenue | new bonds | new money

- Abstracting from monetary financing and rearranging:
  $\Delta B = (G - T) + iB_{t-1}$ → Change in debt ≡ budget deficit.

- $Py$ = nominal national income (GDP)

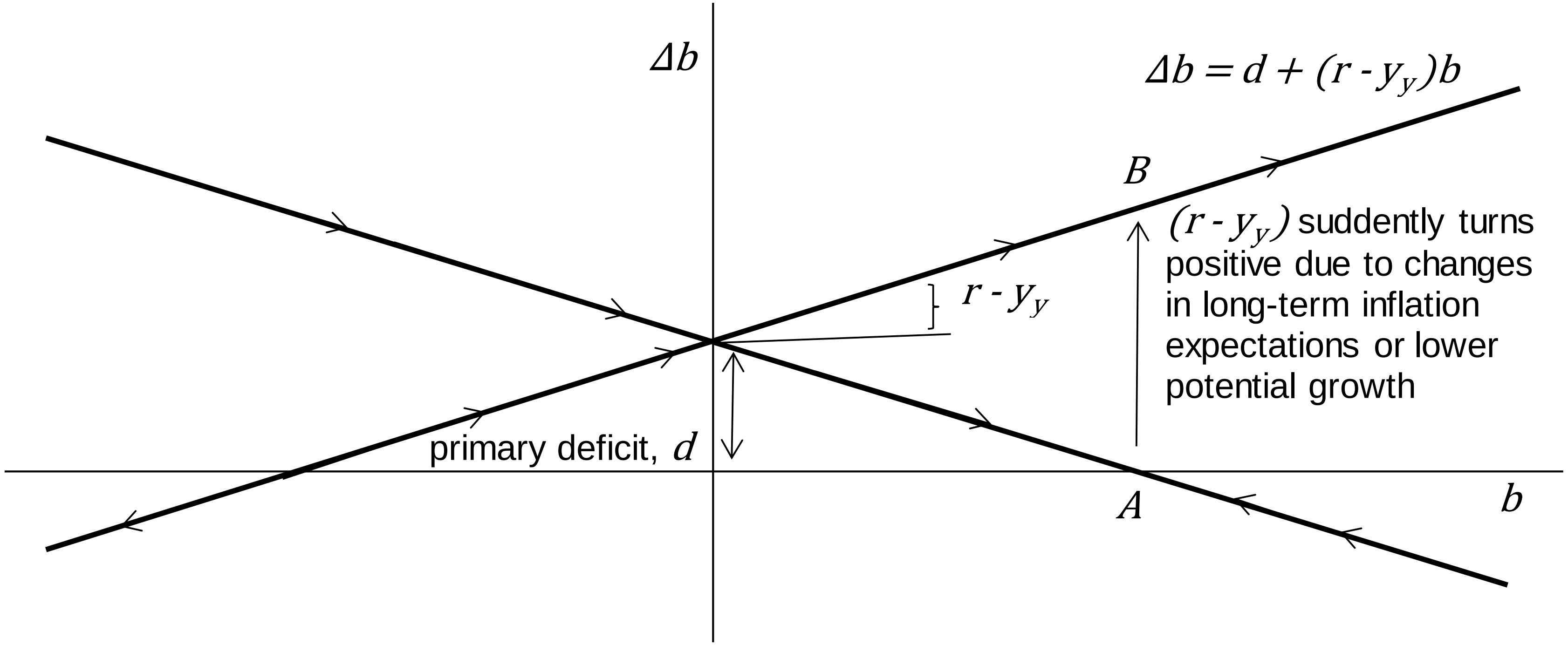
- Debt ratio: $b \equiv \frac{B_{-1}}{Py}$ and $\frac{budget\ deficit}{GDP} = \frac{\Delta B}{Py} \equiv \frac{G-T}{Py} + \frac{iB_{-1}}{Py} \equiv d + ib$
  where $d$ is the primary deficit/GDP ratio.

- $\frac{\Delta P}{P} \equiv \pi$, $\frac{\Delta y}{y} \equiv \gamma_y$ , Fischer equation: $\boldsymbol{r} = i - \pi$ .

- **Debt dynamics equation**, i.e. how the debt/GDP ratio evolves over time: $\boldsymbol{\Delta b = d + (r - \gamma_y) b}$ → sustainable if $\boldsymbol{\Delta b}$ =< 0

# Risk of bad equilibria: financial markets expectations

- Initially at A, primary deficit ($d > 0$) and $r < \gamma_y$.
- But shock to $r$ and/or $\gamma_y$ or both → now, $r > \gamma_y$ → The economy jumps to the new upward-sloping line B → $\Delta b$ rises without limit unless $r$, $\gamma_y$ or $d$ change.



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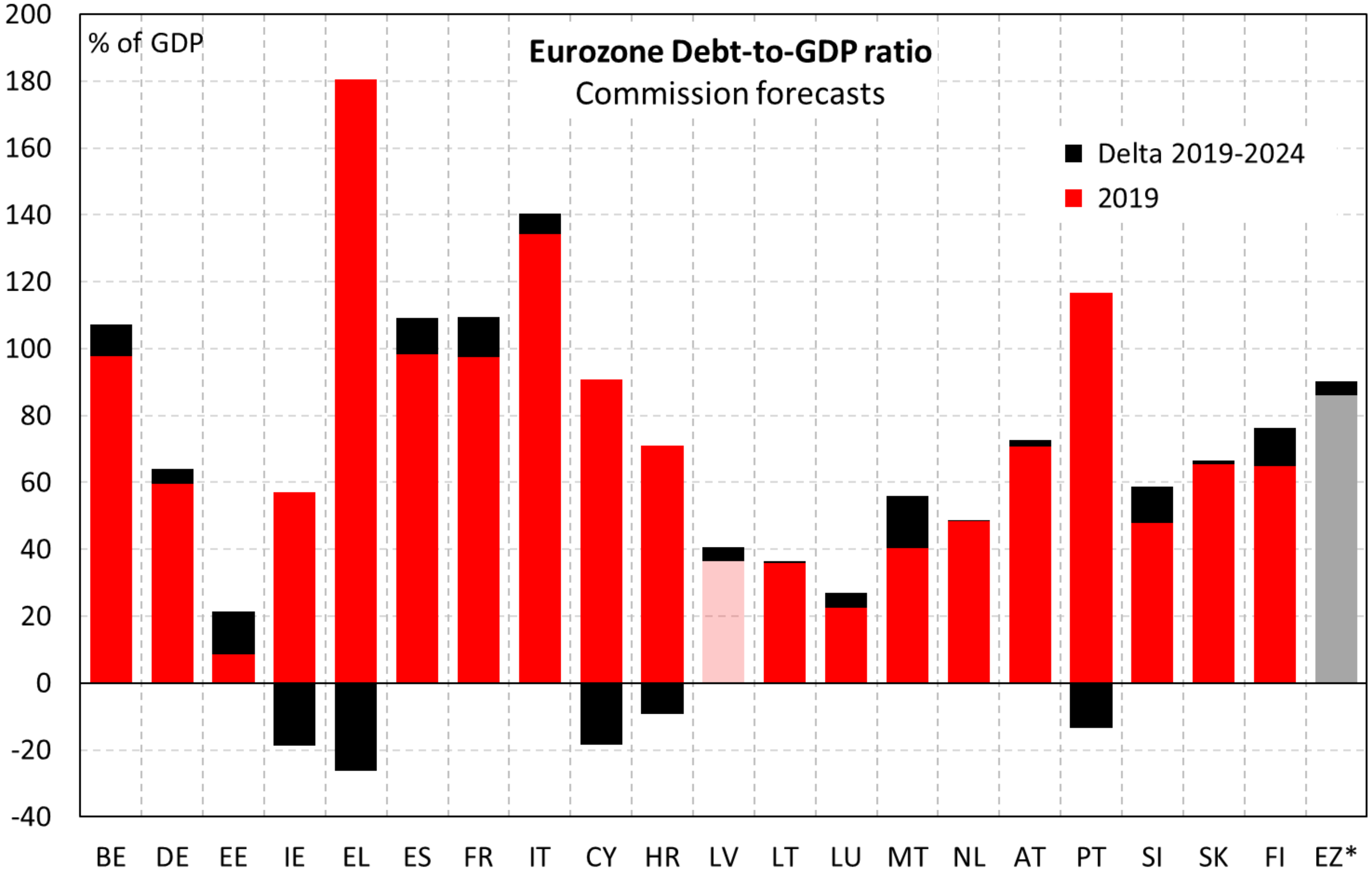
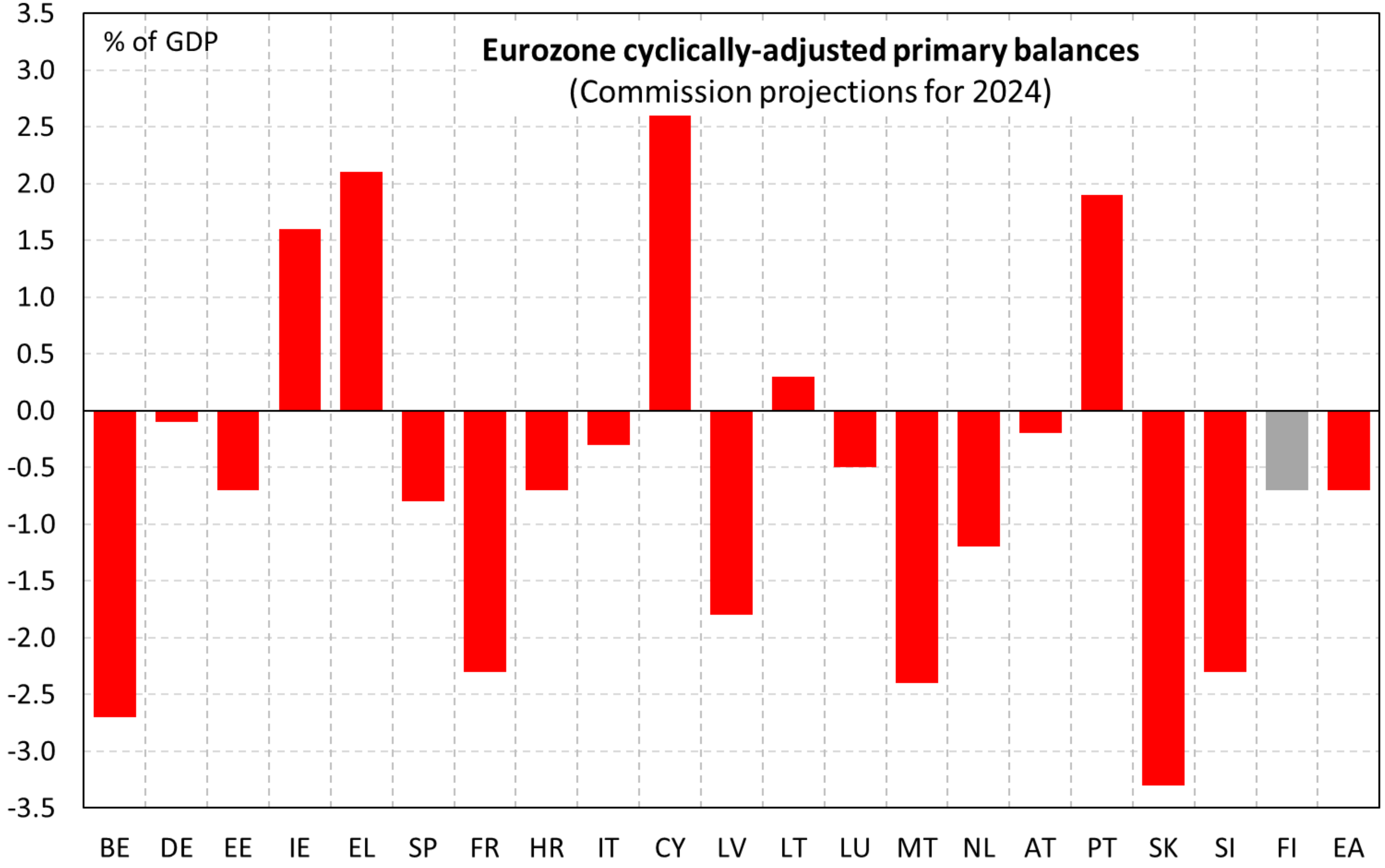
# Starting with a forward-looking debt position



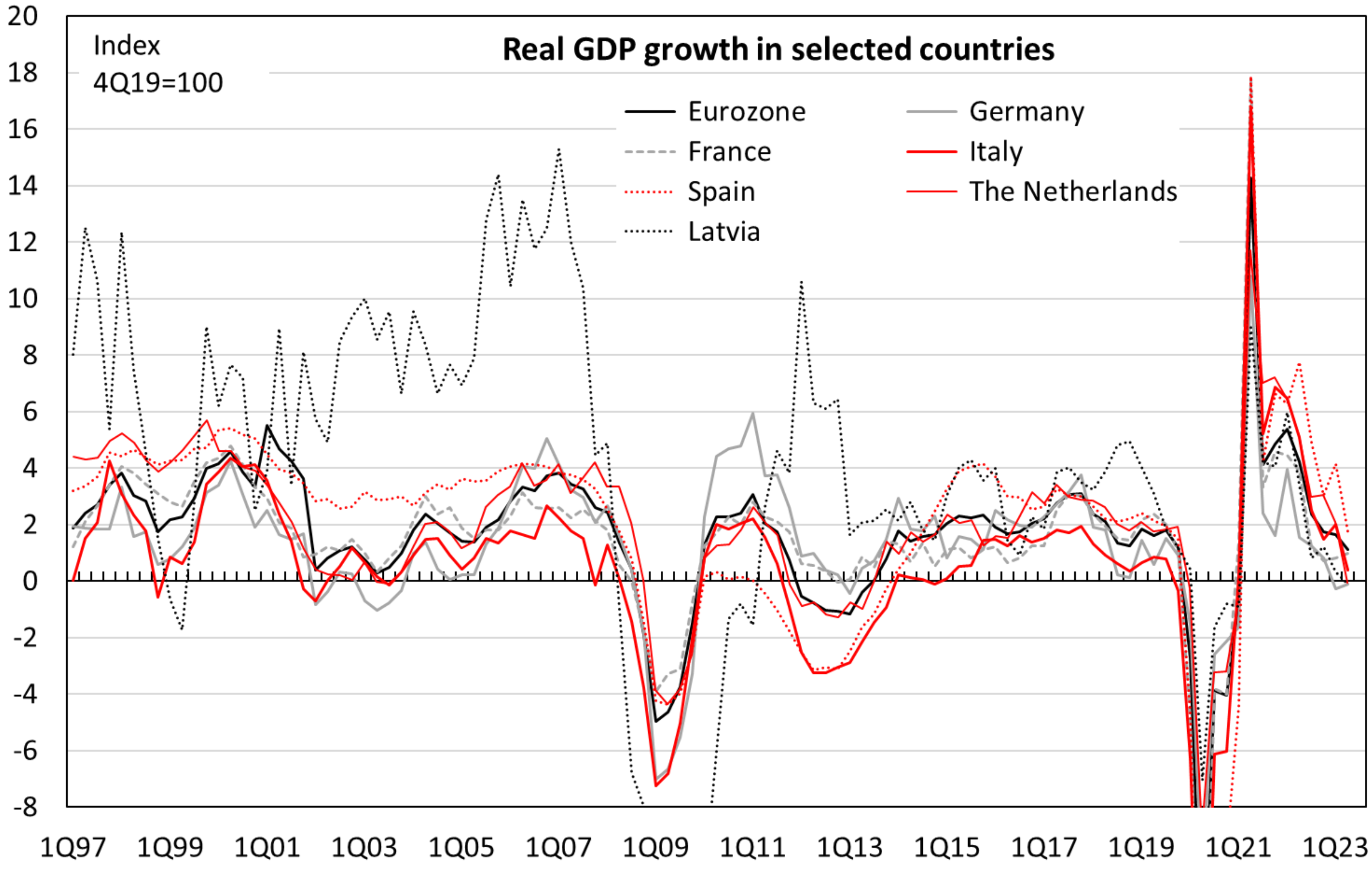

Source: European Commission AMECO, LC-MA calculations.

# Not just debt-to-GDP ratios, but forward-looking $d, r, \gamma_y$



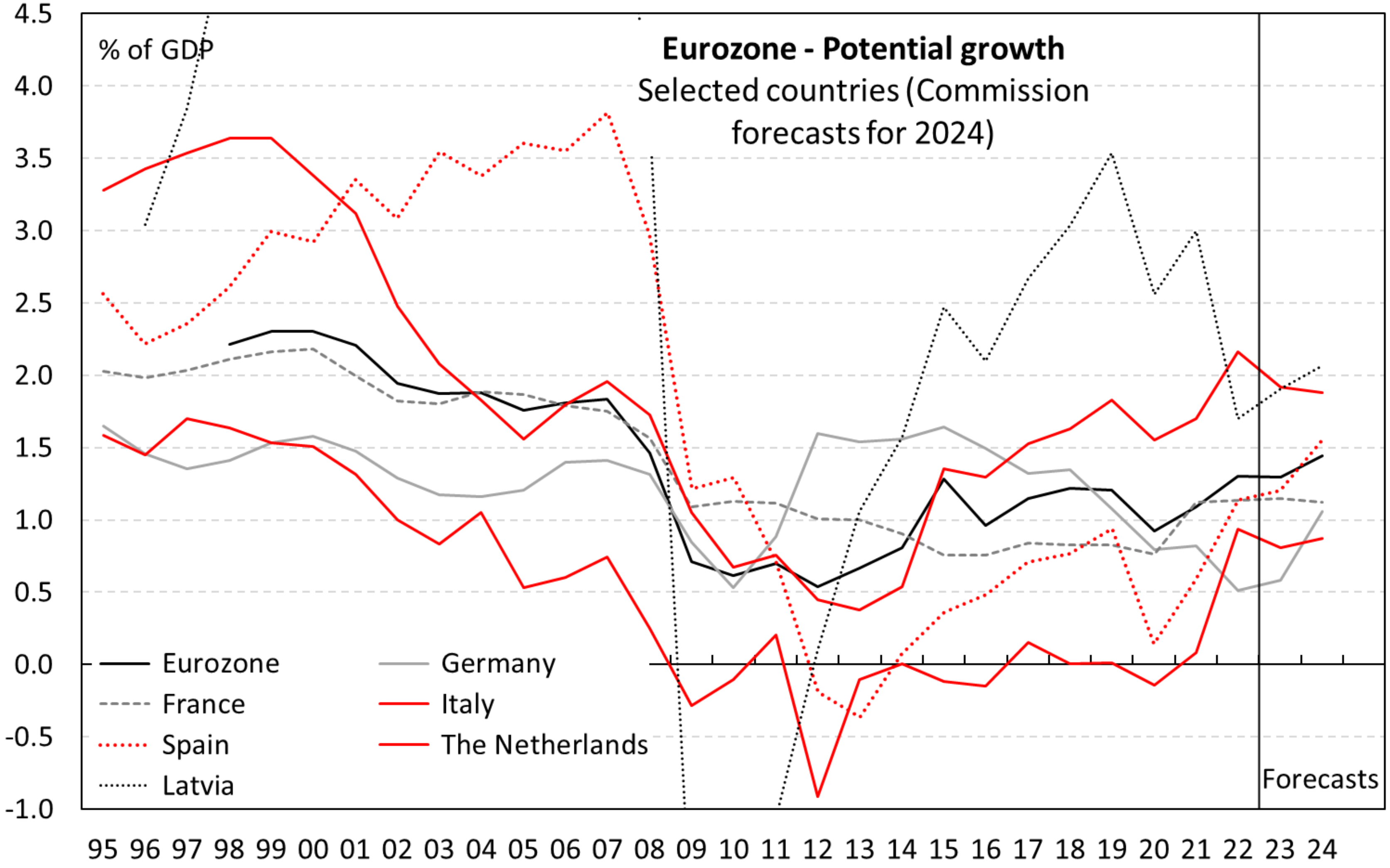

Source: Own calculations on European Commission data and projections.

# What real GDP growth? (with feedback into fiscal balances)



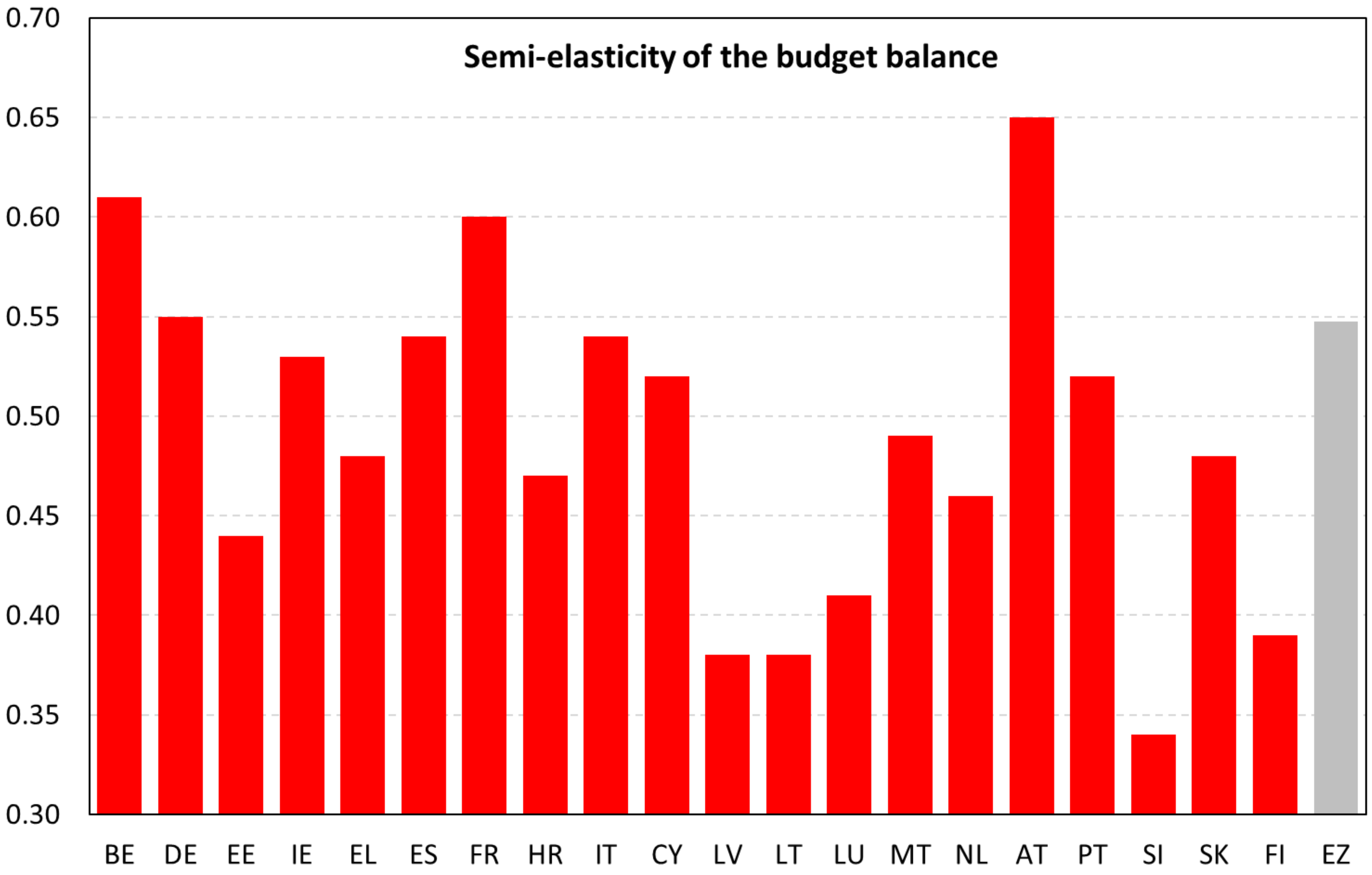

Sources: Refinitiv (Datastream), Eurostat, LC-MA

# What matters is potential growth




Source: European Commission, AMECO, Refinitiv (Datastream), LC-MA calculations.

# Which has also a feedback effect on the budget balance




Source: European Commission, OECD, LC-MA calculations.

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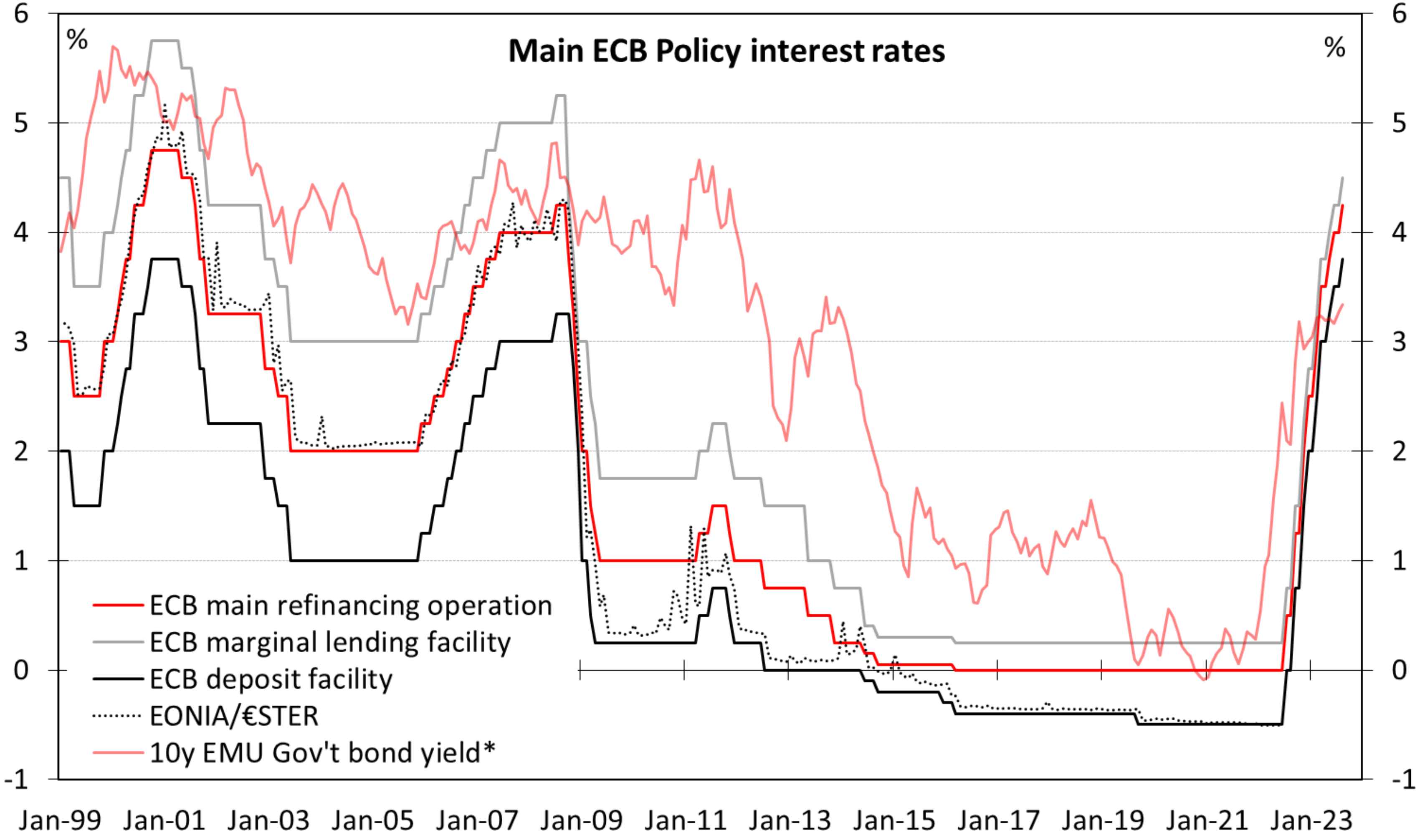
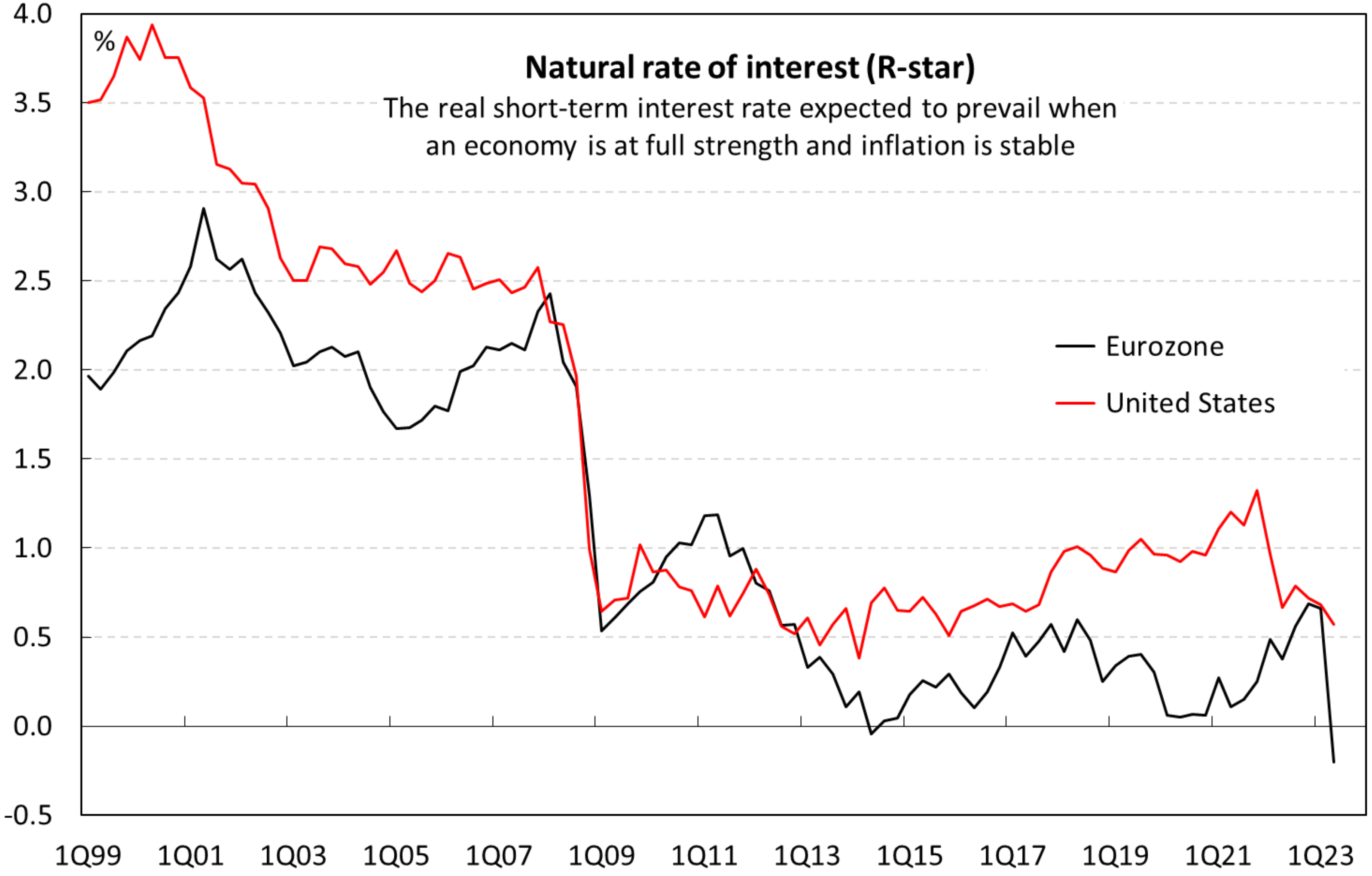
# $r$ may go up because of a turn in monetary policy




Source: Refinitv (Datastream), ECB, LC-MA calculations.

* National government bond yields weighted by the nominal outstanding amounts in the 10-year maturity band.

# And the neutral rate for monetary policy




Source: Refinitiv (Datastream), Federal Reserve Bank of New York, LC-MA calculations.

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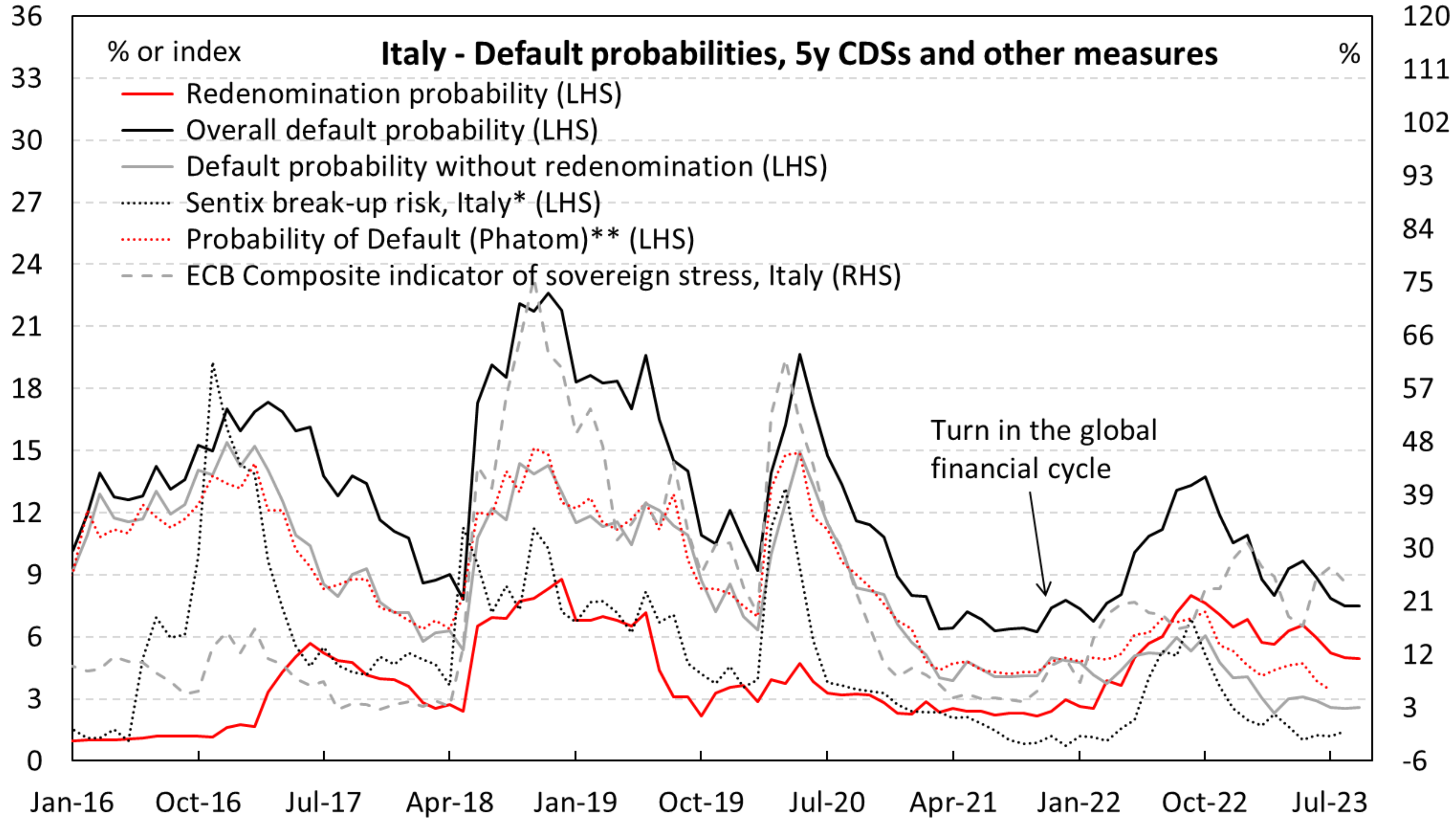
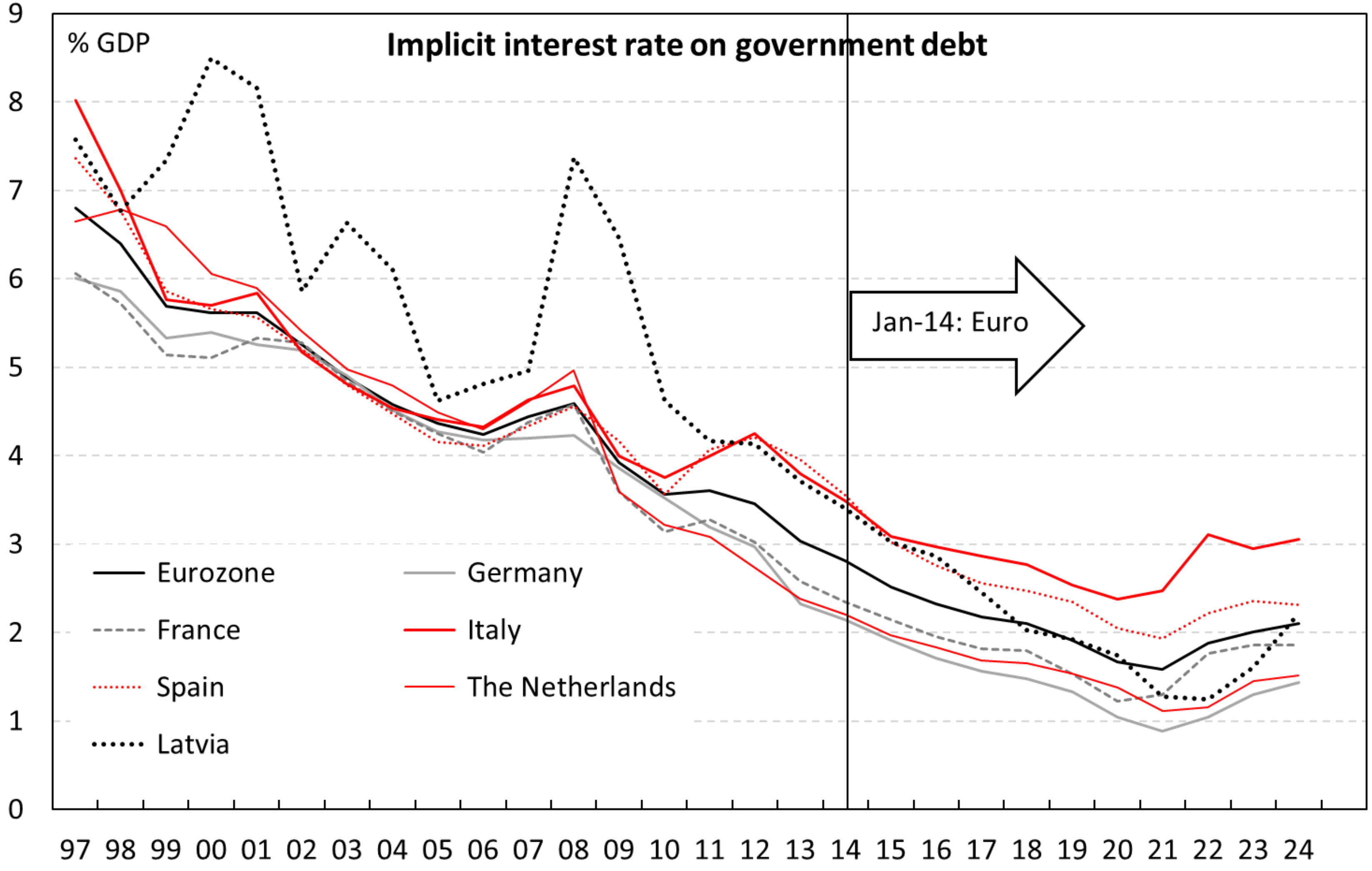
# Plus term premia, risk premia etc.



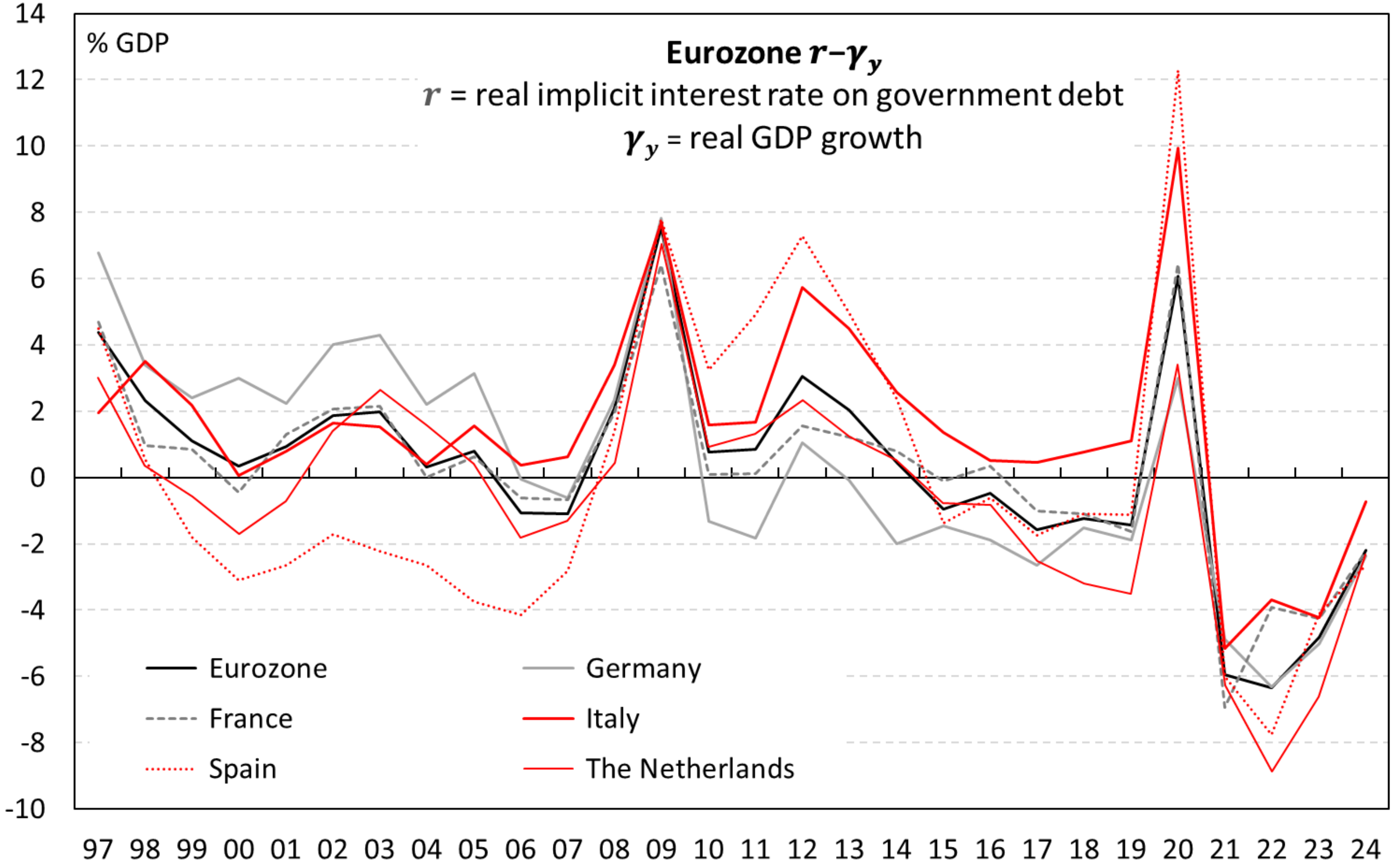

Source: Refinitiv (Datastream), LC-MA calculations based on a 60% recovery rate.
*Percentage of investors who expect at any given time that at least one country will leave the euro area within the next twelve months. ** Unconditional CDS-implied probability.

# *r* depends on the maturity structure, term & credit premia …



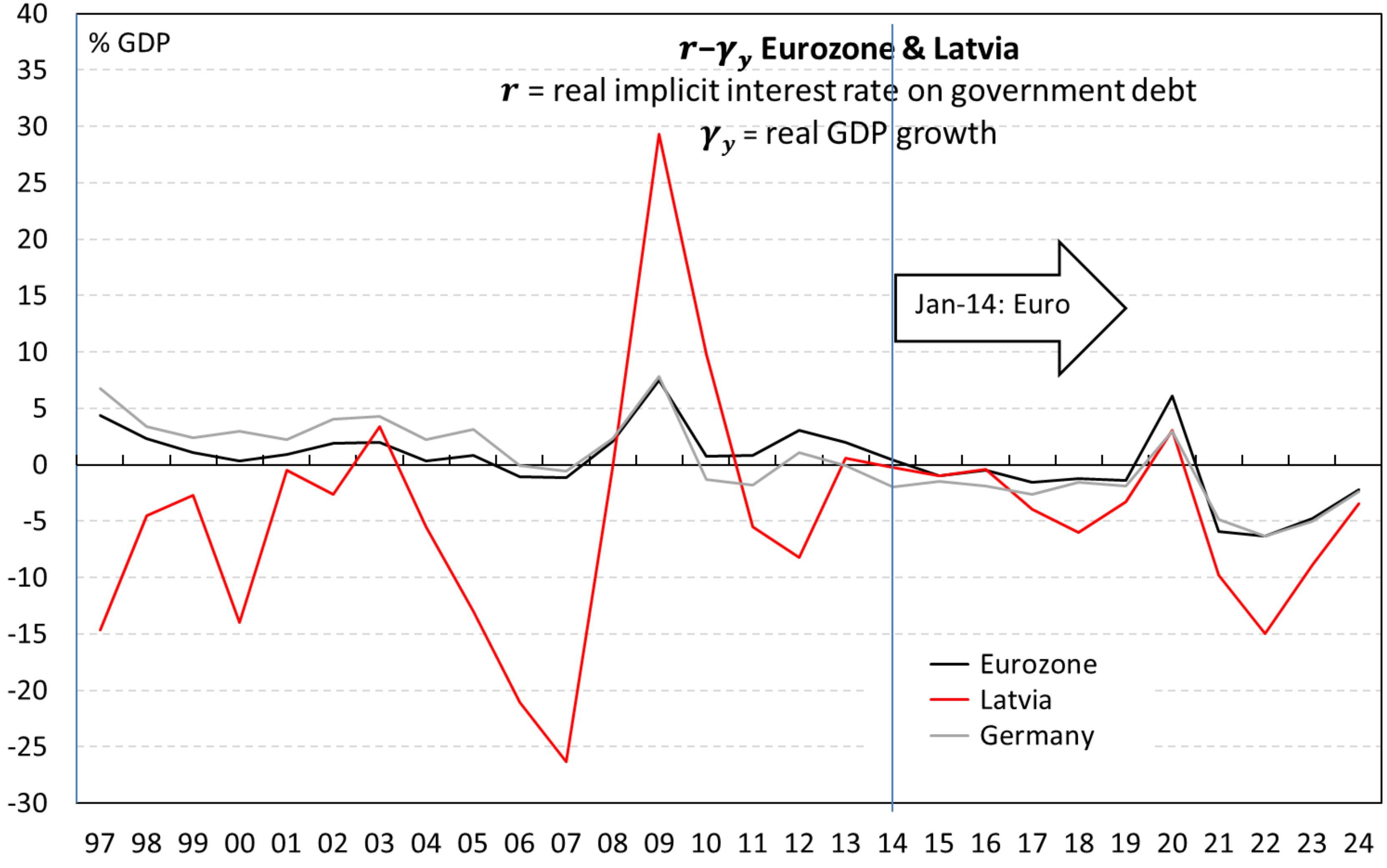

Source: EU Commission, AMECO, Refinitiv (Datastream), LC-MA calculations. r=implicit interest rates, $y_y$=nominal GDP

# $r - \gamma_y$ may no longer be structurally low (Blanchard)



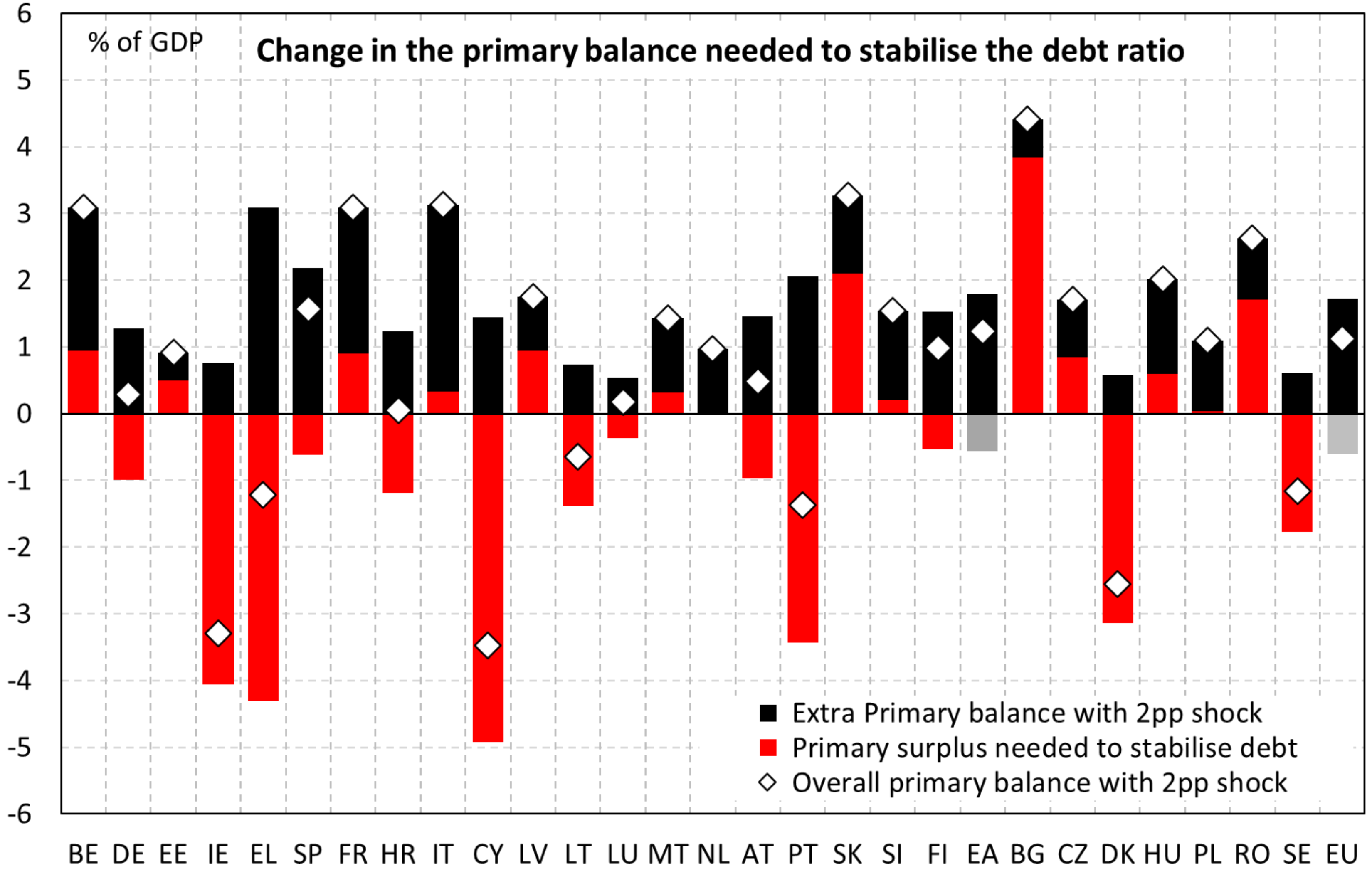

Source: EU Commission, AMECO, Refinitiv (Datastream), LC-MA calculations. r=implicit interest rates, $y_y$=nominal GDP

# $r - \gamma_y$ for Latvia below that for the Eurozone and Germany



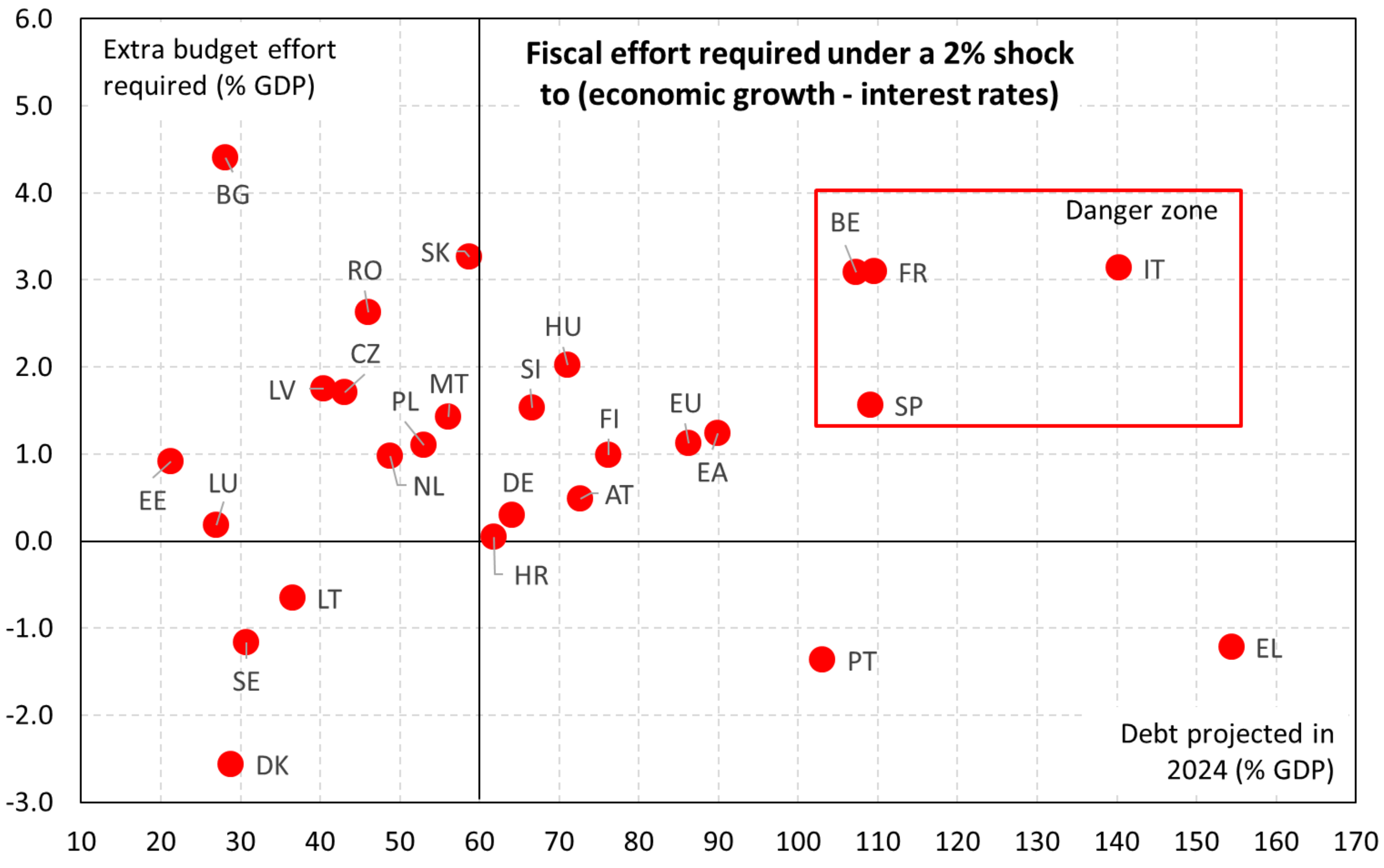

Source: EU Commission, AMECO, Refinitiv (Datastream), LC-MA calculations. r=implicit interest rates, $y_y$=nominal GDP

# A 2pp $r - \gamma_y$ shock to see the extra fiscal effort needed



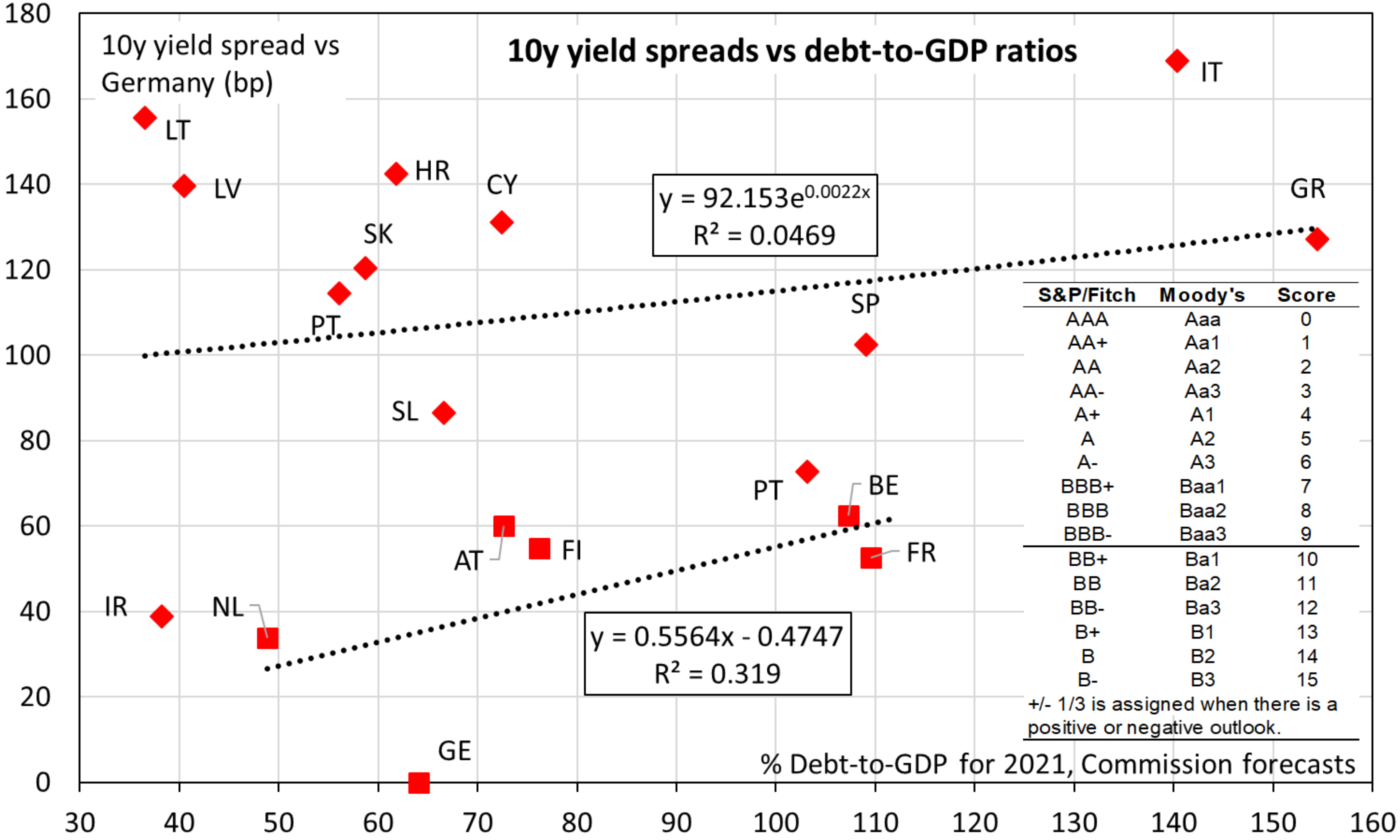

Source: Own calculations on European Commission data and projections.

# The danger zone: Italy but also France, Belgium, and Spain




Source: European Commission data and projections, LC-MA calculations.

# Debt-to-GDP is a pretty poor fit for yield spreads

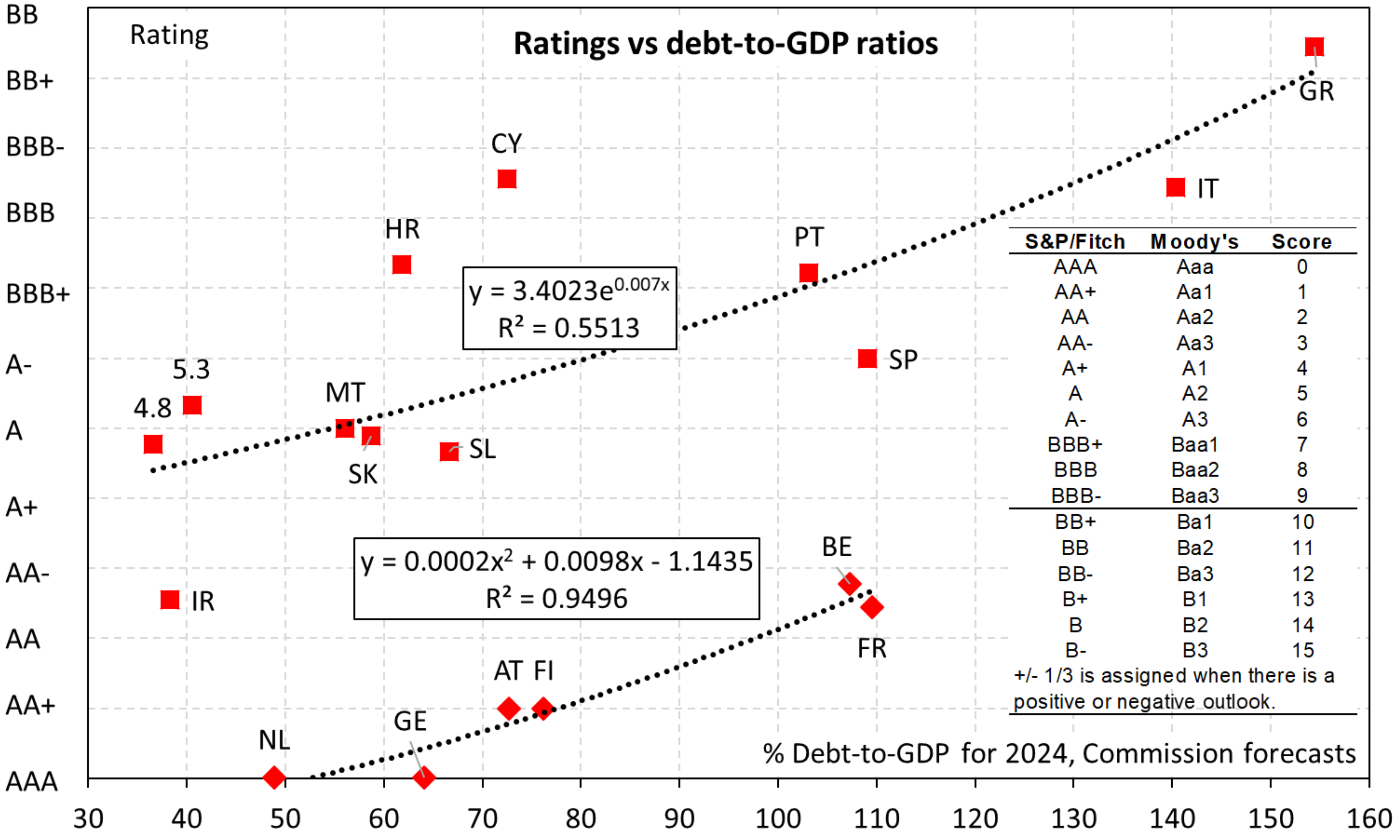



| S&P/Fitch | Moody's | Score |
|---|---|---|
| AAA | Aaa | 0 |
| AA+ | Aa1 | 1 |
| AA | Aa2 | 2 |
| AA- | Aa3 | 3 |
| A+ | A1 | 4 |
| A | A2 | 5 |
| A- | A3 | 6 |
| BBB+ | Baa1 | 7 |
| BBB | Baa2 | 8 |
| BBB- | Baa3 | 9 |
| BB+ | Ba1 | 10 |
| BB | Ba2 | 11 |
| BB- | Ba3 | 12 |
| B+ | B1 | 13 |
| B | B2 | 14 |
| B- | B3 | 15 |

+/- 1/3 is assigned when there is a positive or negative outlook.

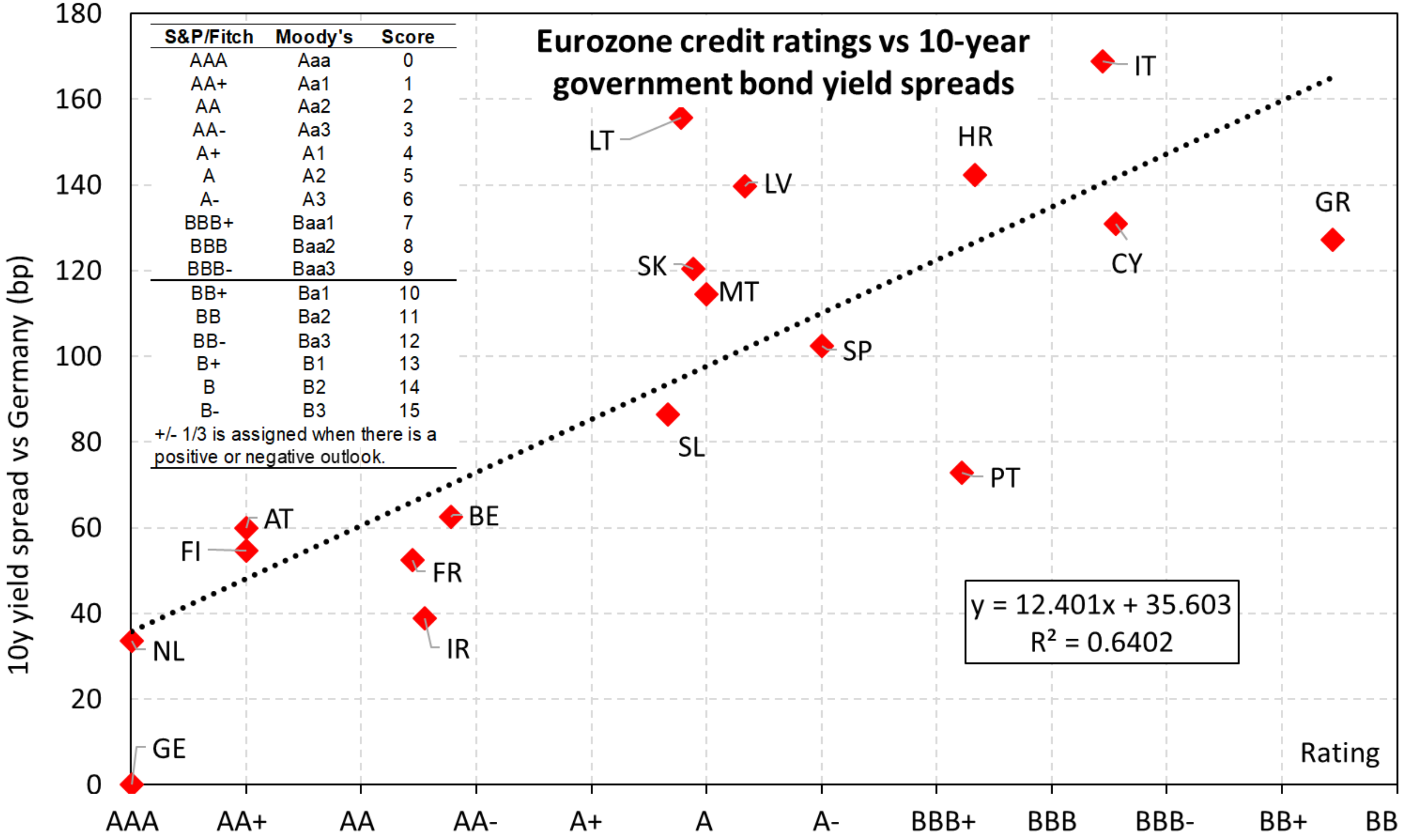
Source: Refinitiv (Datastream), S&P's, Moody's, Fitch, LC-MA calculations. NB: 10y benchmark yields (5y for Latvia). Estonia and Luxembourg are not included.

# And it is also a poor fit for ratings



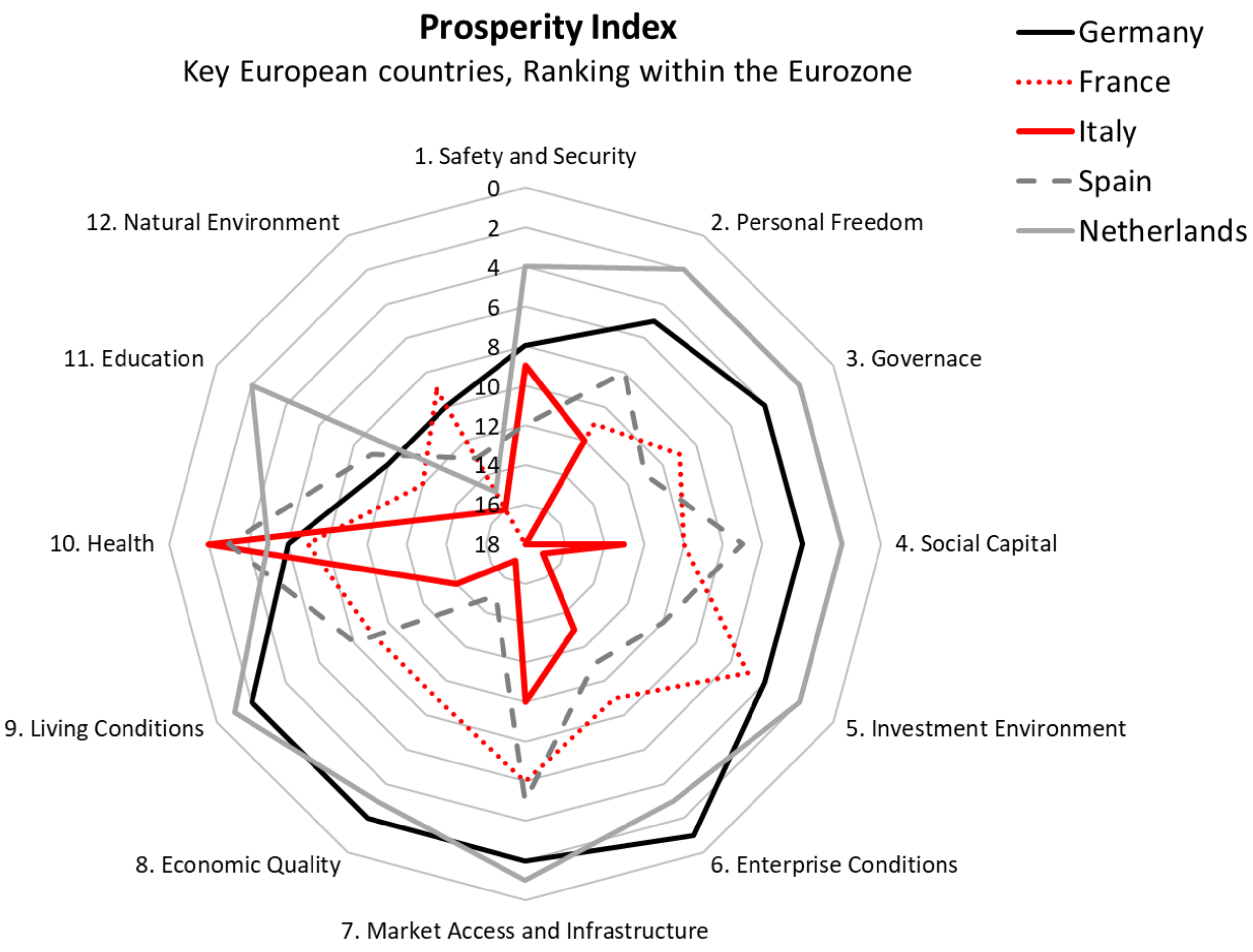

Source: Refinitiv (Datastream), S&P's, Moody's, Fitch, LC-MA calculations. NB: 10y benchmark yields (5y for Latvia). Estonia and Luxembourg are not included.

# Ratings do a much better job, with broader considerations



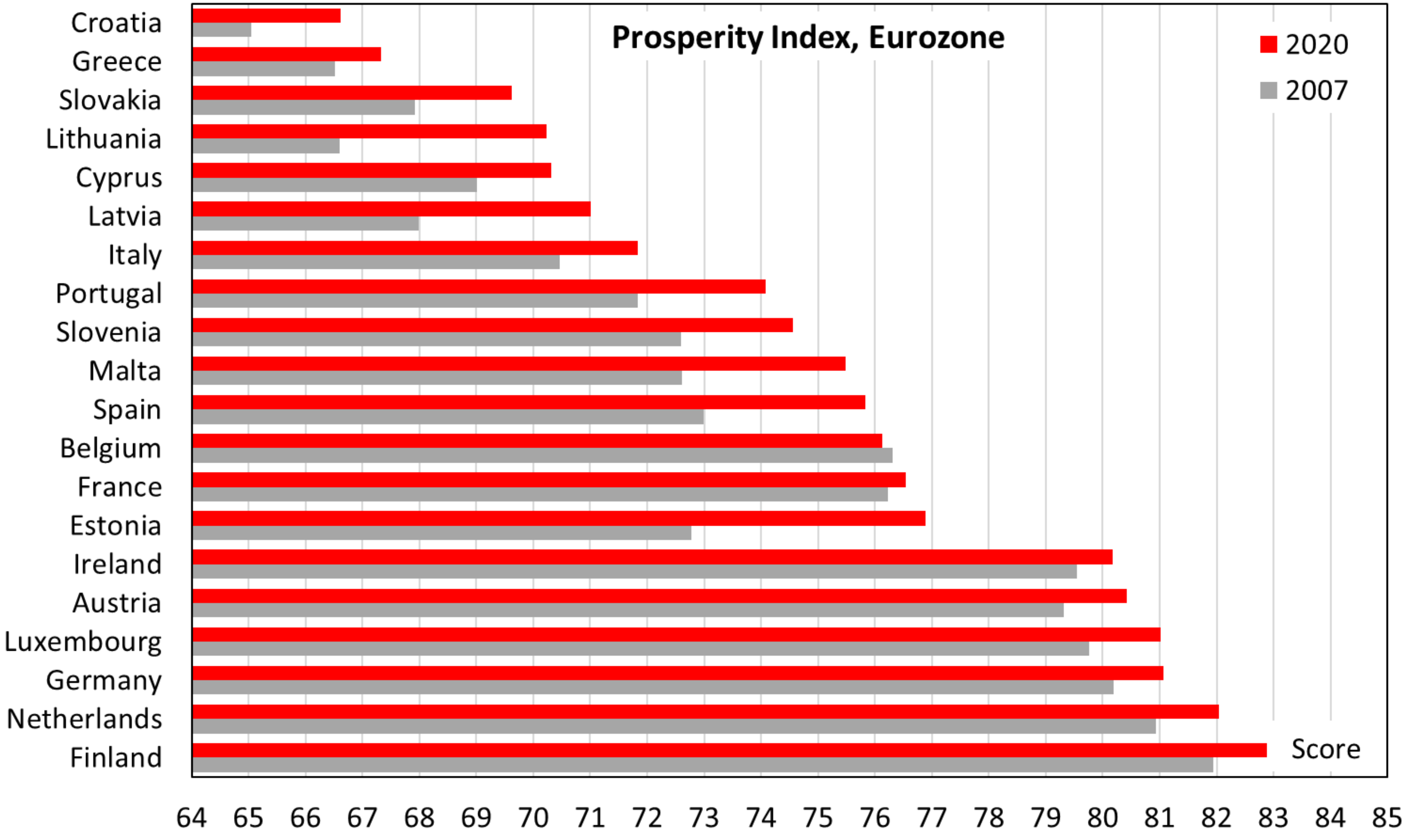

Source: Refinitiv (Datastream), S&P's, Moody's, Fitch, LC-MA calculations. NB: 10y benchmark yields (5y for Latvia). Estonia and Luxembourg are not included.

# Picking up the right dimensions is of the essence




Source: Legatum Institute.

# Beyond debt, what matters for the cost of borrowing?




Source: Legatum Institute.

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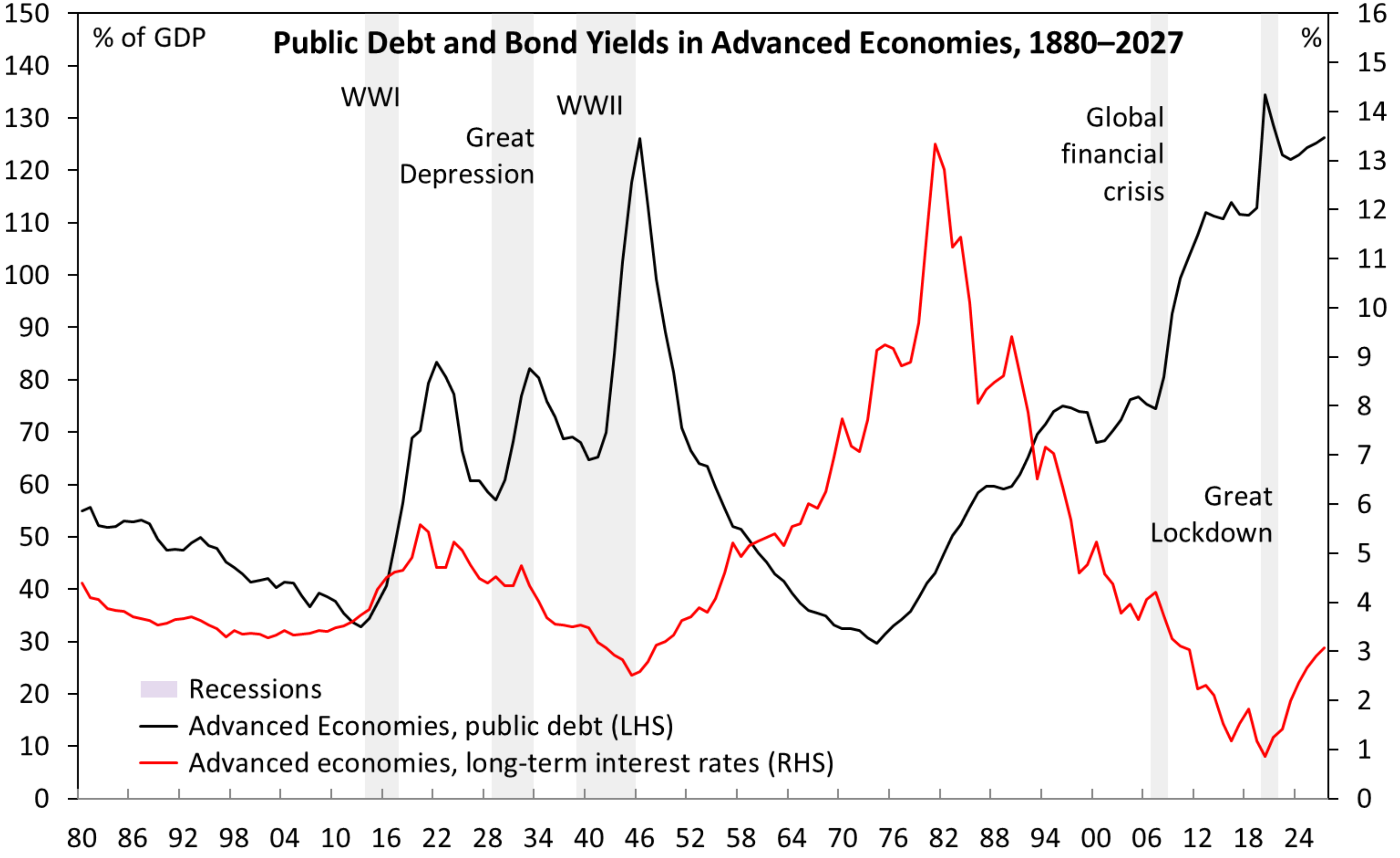
# Can debt be reduced, while making room for climate transition, digilisation, military spending etc.?




Source: International Monetary Fund, OECD, own calculations.

# What is the optimal level of debt? Key messages

- There is **no optimal level**.
- No matter what that **ideal level** is, it is certainly **lower than current ones** for most of the world and Euro Area countries.
- There is no level that guarantees sustainability. On top of the starting level of debt, sustainability relies on careful consideration of $\boldsymbol{d}$, $\boldsymbol{r}$, $\boldsymbol{\gamma_y}$ and their related risks. They should be **stress tested** to find out whether there are risks of **bad equilibria**.
- Finally, sustainability is a **much broader concept** that touches on many other economic and non economic aspects, and countries should also work on that on top of public finance variables.
- Having **fiscal leeway** can facilitate climate transition, digitalisation, ageing, military spending, etc. and any other needs to address structural shift.

## SOME RECENT REFERENCES



"Growth and inflation: a slow-motion storm" (Italian only) on Rivista di Politica Economica (Economic Policy Review) edited by Stefano Manzocchi and Francesco Saraceno and entitled "The new atlas. How global shocks are changing the economy", December 2022, https://www.confindustria.it/home/centro-studi/rivista-di-politica-economica/dettaglio?doc=RPE_come_shock_globali_cambiano_economia_2022_2

"Lessons from Italy's economic decline. Exploring how some of Italy's traps may become future challenges for the UK economy", with Giampaolo Galli, chapter of a book published by the LSE's Centre for Economic Performance and Resolution Foundation as part of a large-scale project called the "Economy 2030 Inquiry" which will set out ideas for the UK as it navigates economic challenges in coming years.

"Shifts in expectations may undermine debt sustainability", with Giancarlo Corsetti, VoxEU CEPR, 3 November 2022, Shifts in expectations may undermine debt sustainability | CEPR.

"Rethinking debt sustainability?", editorial piece in the volume of Economia Italiana with the same title edited together Pietro Reichlin, October 2022, Rethinking Debt Sustainability? – ECONOMIA ITALIANA.

"Debt sustainability analysis is back. Sudden shifts in underlying factors may push high-debt countries into a bad equilibrium", with Giancarlo Corsetti, in the volume "Rethinking debt sustainability?" of Economia Italiana, October 2022, Rethinking Debt Sustainability? – ECONOMIA ITALIANA