

# Debt sustainability and monetary policy: The ebb and flow of ECB asset purchases

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*Disclaimer: The views in this presentation do not necessary reflect those of Banco de España or the BIS*

## Plan of the presentation

- Motivation and contribution
- Model and results
- Whither now?

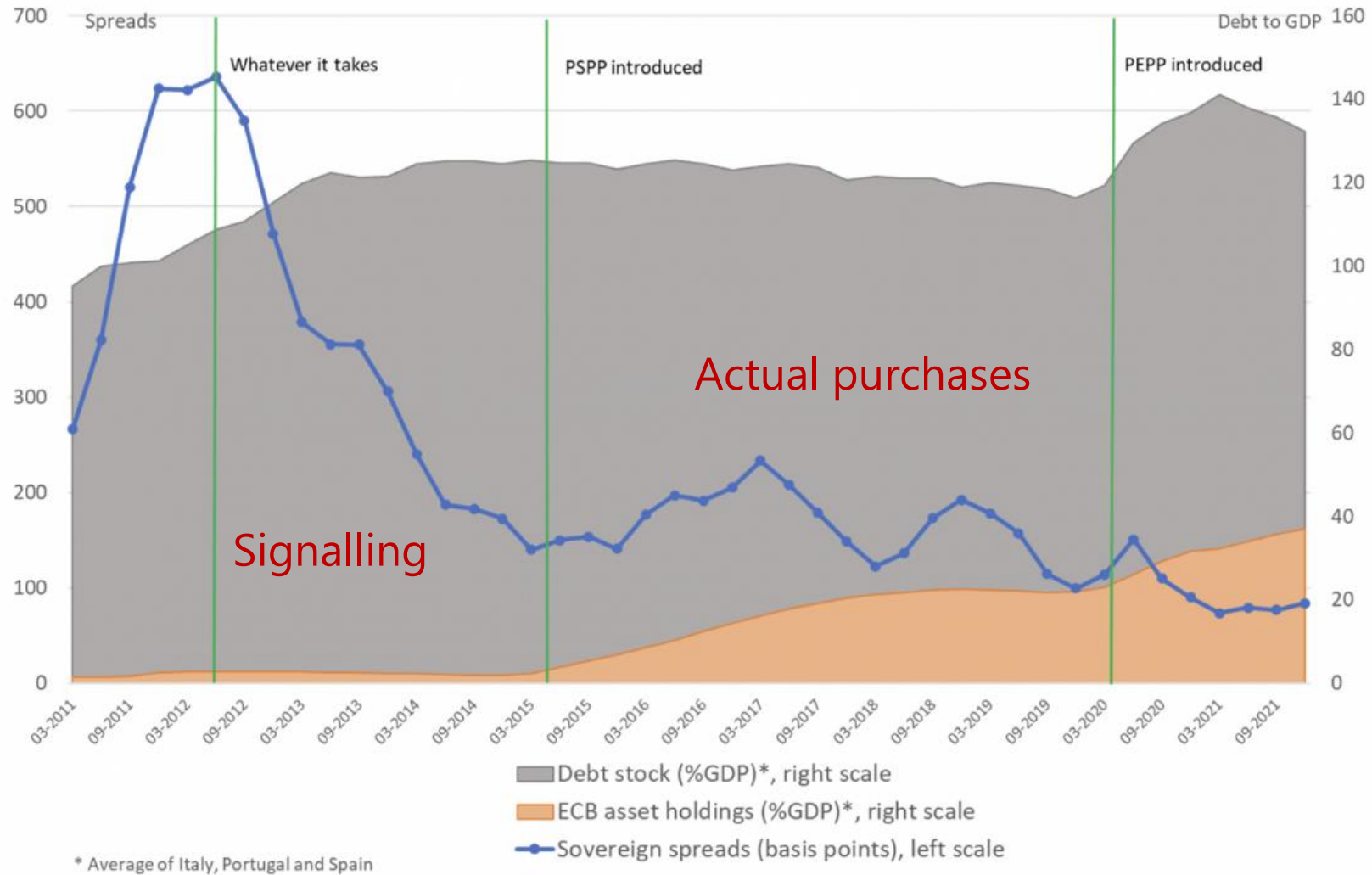
- Based on

### Debt sustainability and monetary policy: the case of ECB asset purchases

Joint work with Gong Cheng (BIS), Andrea Consiglio (University of Palermo), Stavros Zenios (University of Cyprus, Bruegel)

BIS WP 1034, July 2022

# Motivation: Central Banks actions can impact on spreads, offsetting debt surges

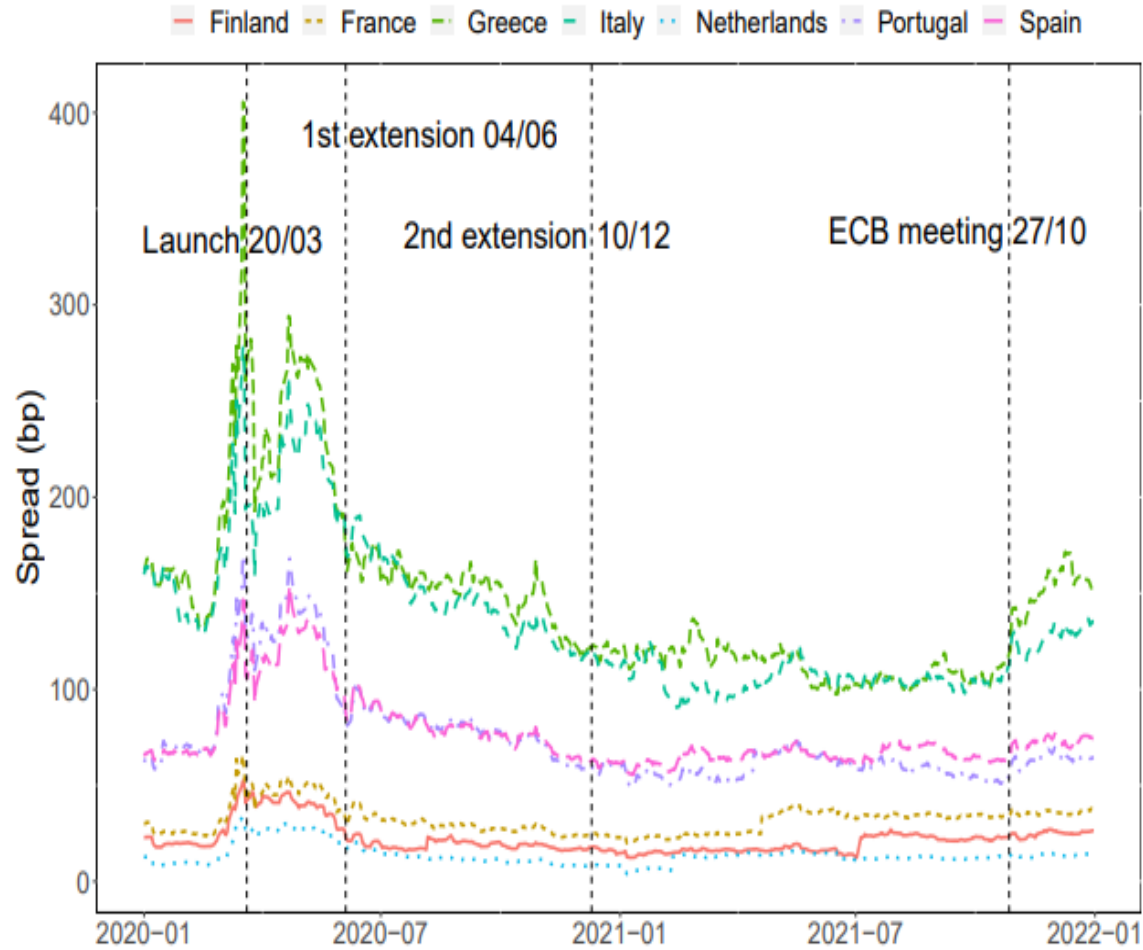


## Motivation: Central Banks actions can impact on spreads, offsetting debt surges

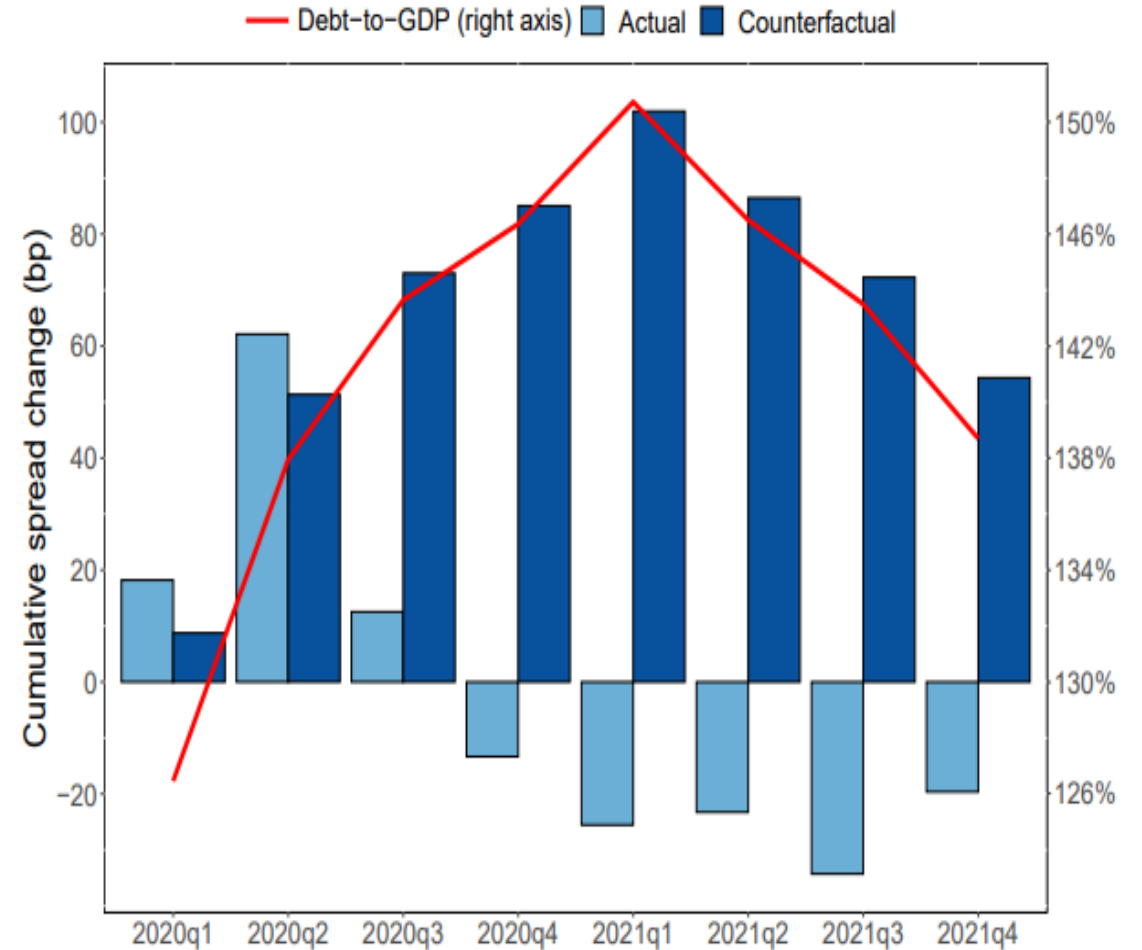
- Monetary and fiscal policy closely interacted to cushion the pandemic's economic fallout
  - Central Banks deployed unconventional tools on an unparalleled scale
  - Asset purchases contained the spreads and supported fiscal expansion to face the pandemic shock.
  - Alleviate debt sustainability concerns in spite of the debt surge
- Focus on the ECB's asset purchase programmes impact on debt sustainability
  - Purchase phase (2020-22)
  - Reversal phase (2024-)
- What are the implications of the reversal of purchase on debt sustainability?
  - How do these implications affect fiscal perspectives in the current context
  - And on monetary fiscal policy interactions?
- Now, it is a defining moment (fiscal rule debate, ECB hiking and unwinding)

# Motivation: looking into the counterfactual

## (A) Sovereign 10-year spreads



## (B) Counterfactual for high debt countries



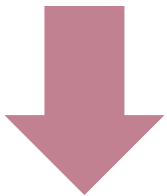
## Stochastic DSA

(Zenios, Consiglio, et al., *Op. Res*, 2021)



## Macro framework

(≈Hofmann et al., BIS, 2021)



## DSA simulations

- Basic DSA with debt stock and flow dynamics
- Stochastic: Uncertainty in **scenario trees**
- Risk management introduced with **Conditional VaR**
- Debt management optimisation:  
trade-offs between costs and rollover risks

- IS and Phillips curves
- An active central bank
- Conventional: Taylor rule
  - **Unconventional: PEPP**
- Affecting the yield curve through risk/term premia

- PEPP vs. no PEPP. Exit strategies. Inflation shock.
- Debt management strategies

## Stochastic DSA

- Basic debt dynamics equation (**stock**)

$$\Delta \text{Debt-to-GDP} = \text{Primary fiscal balance} + (i - \pi - g) \times \text{Debt-to-GDP}$$

- Basic gross financing needs equation (**flow**)

$$GFN_t = i_{t-1} D_{t-1} + A_t - PB_t$$

- Debt agencies issue debt at different maturities to cover *GFNs*
  - Financing strategy trades off: rollover risk (favour long-term) , financing cost (favour short-term)

## Stochastic DSA

- Projection of debt trajectories
  - Given forecasts of basic variables: primary balance, GDP growth, inflation
  - Financing costs are a result of monetary policy and credit risk premia
  - Optimization of debt issuance (maturity structure) for a given preference in the tradeoff
  - Factoring in correlation that provide probability map (fan chart)
- Debt sustainability assessment
  - Non-increasing debt trajectory with a given probability (75%) ten years ahead



## Financing cost, credit risk premia and asset purchases

- Monetary policy affects (nominal) financing costs through 2 direct channels
  - Conventional policy: the policy rate  $i_t$  shifts the yield curve, term premia assumed fixed
  - Unconventional: asset purchases depress the risk premium  $\rho_{t,j}$ 
$$r_t(j) = i_t + \rho_{t,j}$$
  - No signalling or announcement effect

# Cumulated PEPP purchases reduce the premium, non-linearly

- Risk premia estimation

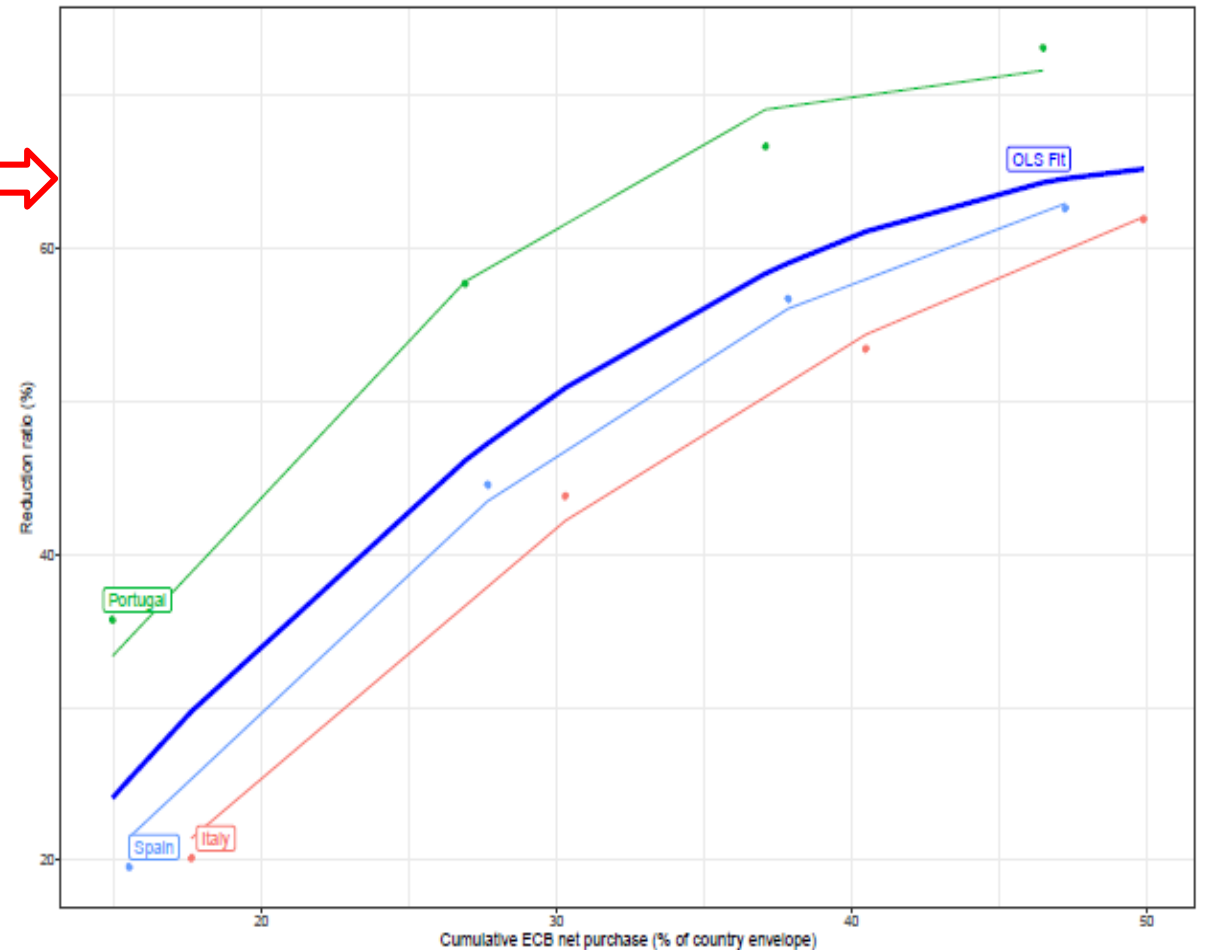
$$\rho(d_{i,t}, p_{i,t}, j) = \rho_C(d_{i,t}, j) \times (1 - \rho_{U_i}(p_{i,t}))$$

$\approx 3bp \times \Delta 1 pp$   
 $debt/GDP$

- Supression function

- Non linear estimation
- Decreasing marginal impact

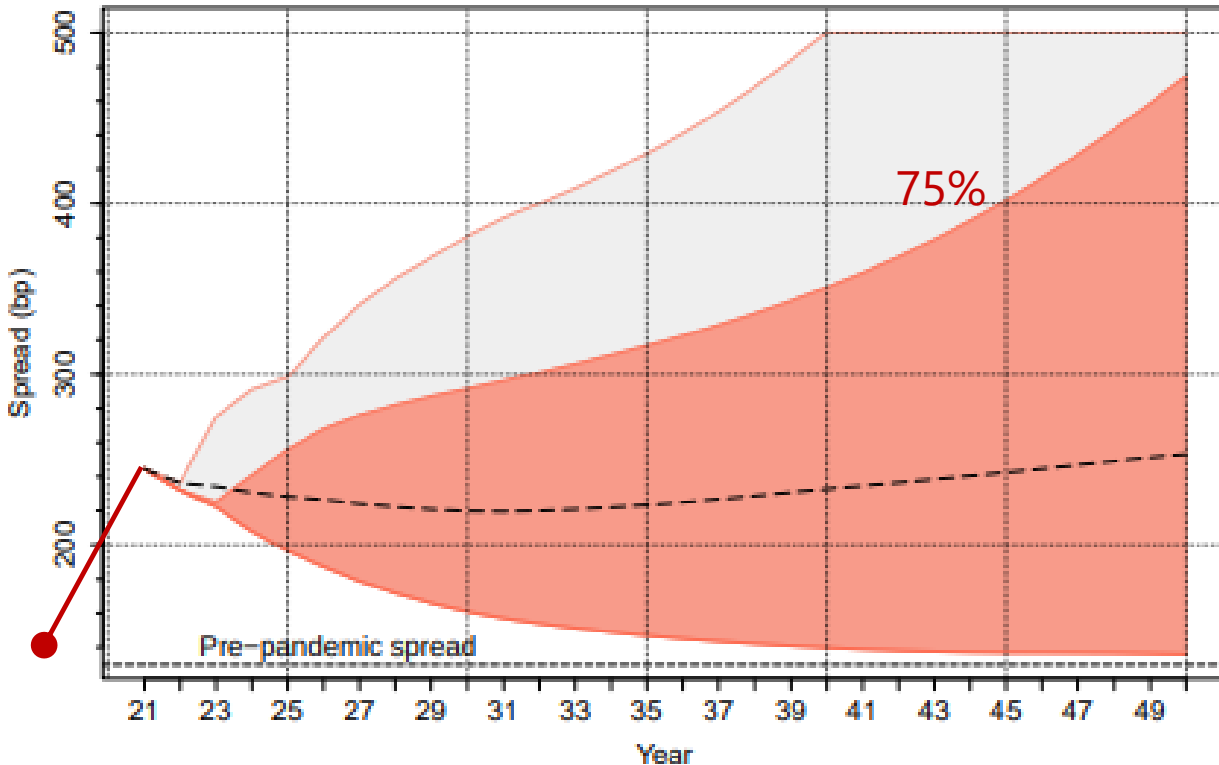
Figure 5 – PEPP-induced spread suppression



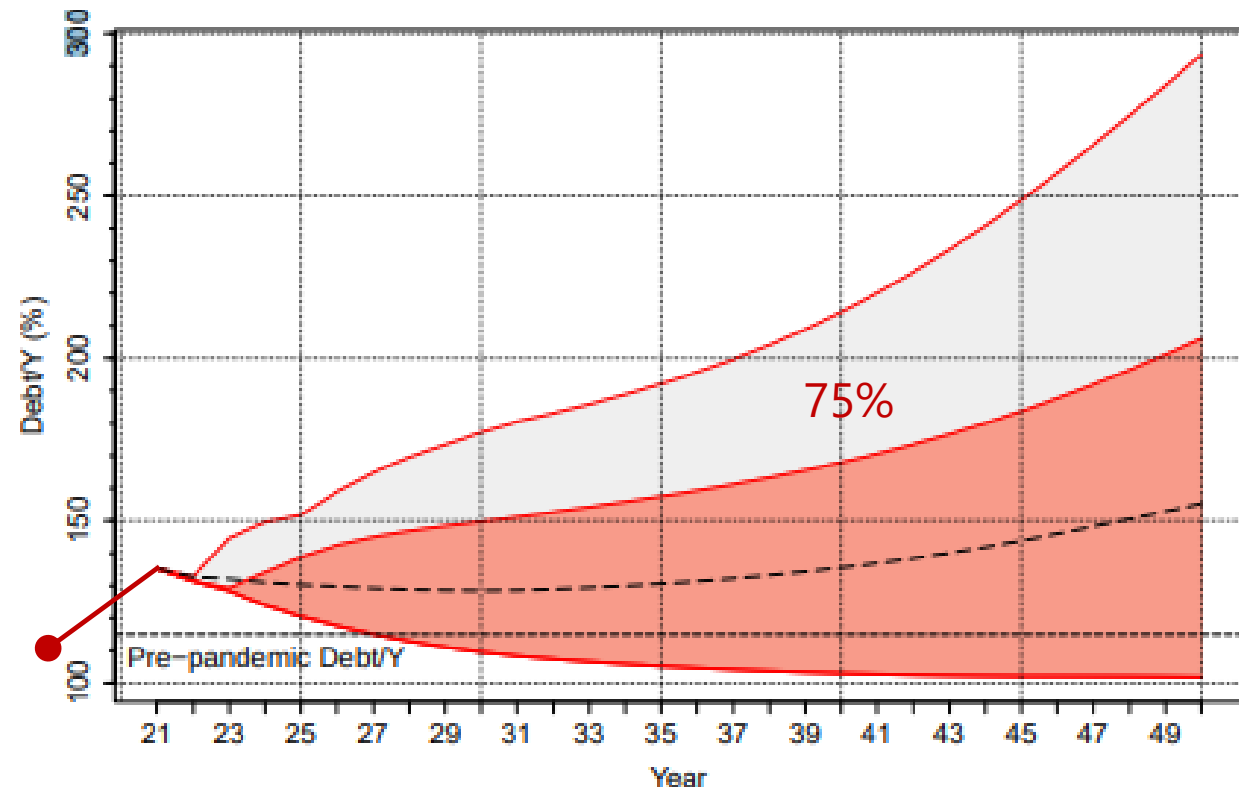
## DSA simulations without PEPP: Debt is clearly unsustainable

- Fan charts depict probabilities
- Debt reduction at mid-point, but debt unsustainable at 75%
- N.B: fiscal balances are given (alternative is the fiscal balance adjustment= fiscal effort.

Credit spreads



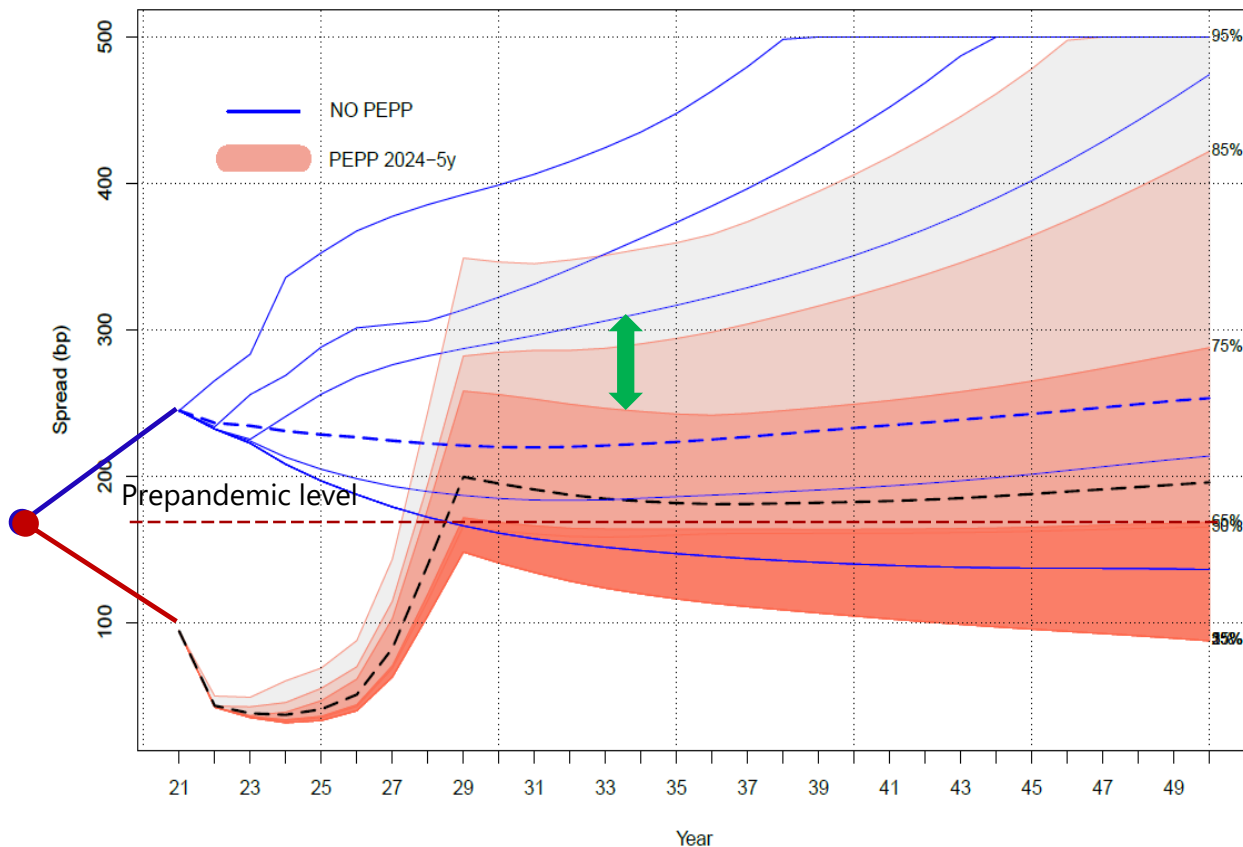
Debt



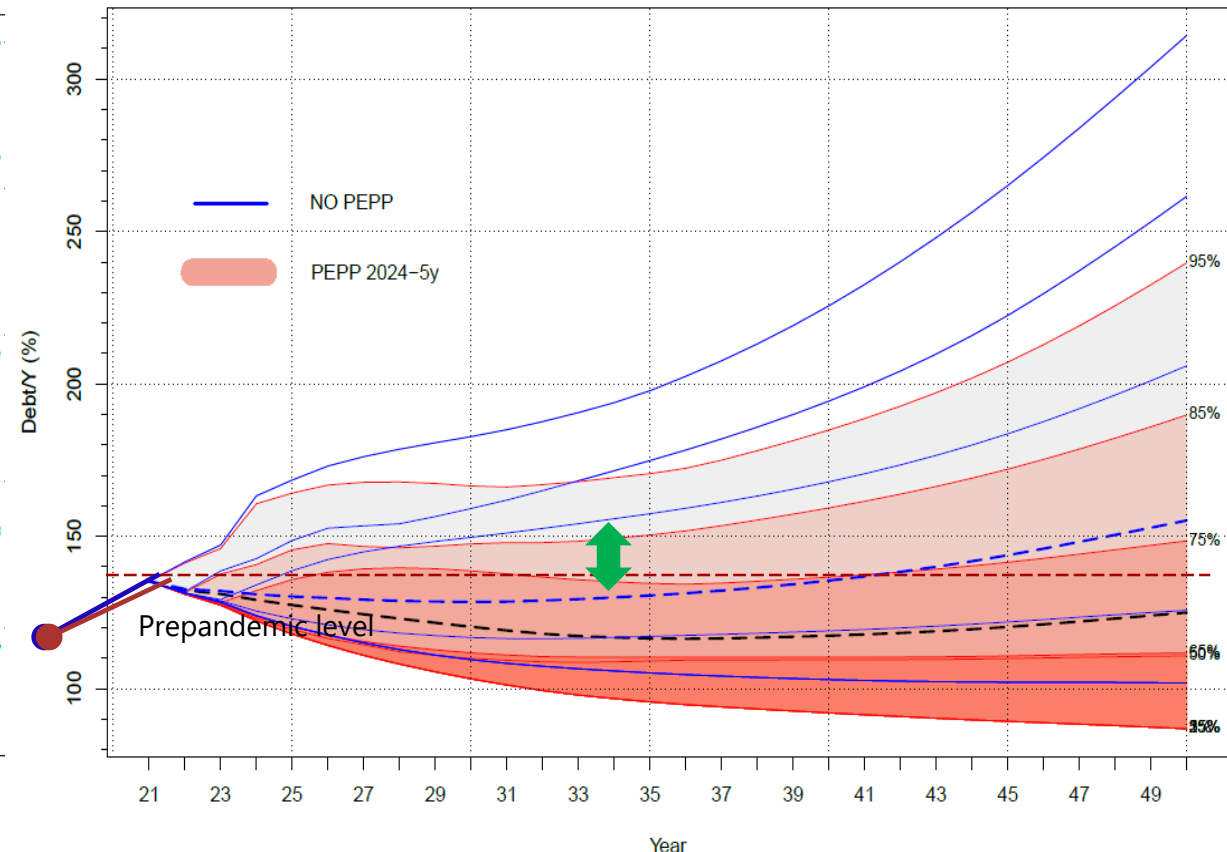
## Asset purchases lowers and instrumental to keep debt manageable

- PEPP depresses spreads...unwinding reverses the effect
- Unwinding assumption: maturing debt from 2024 drops from the balance
- Bridge effect: surfs pandemic until recovery facilitates debt reduction
- ...yet debt unsustainable at the margin in the long run.

Spreads

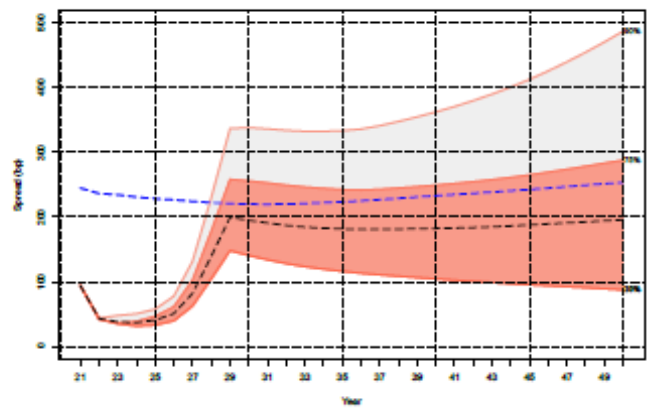


Debt

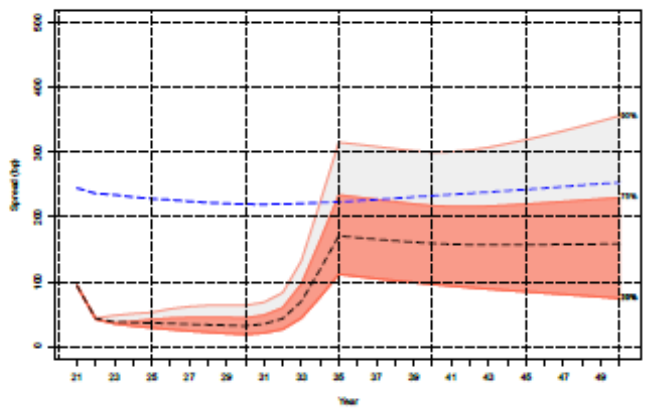


# Pace of unwinding determines degree of debt sustainability

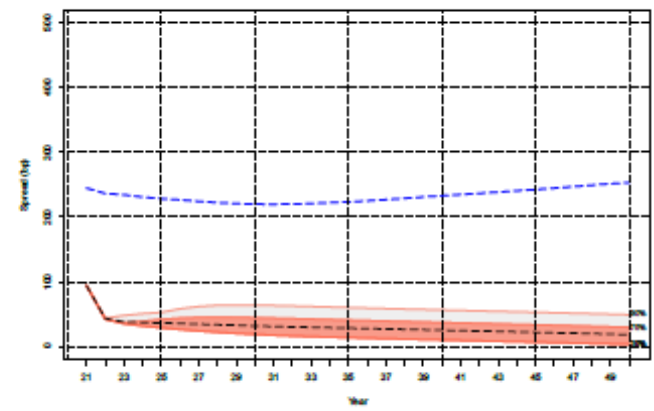
(A) Risk premia, EarlyQT



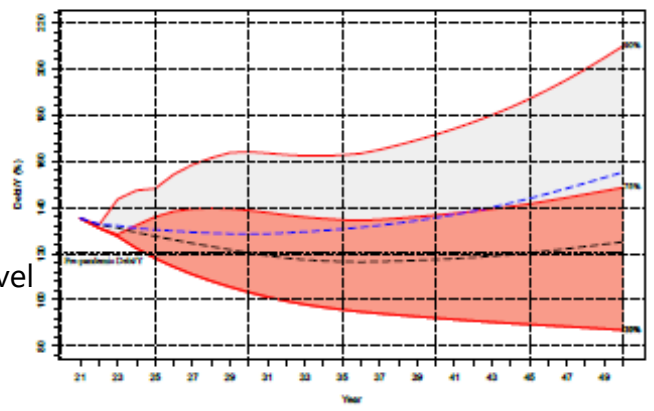
(B) Risk premia, LateQT



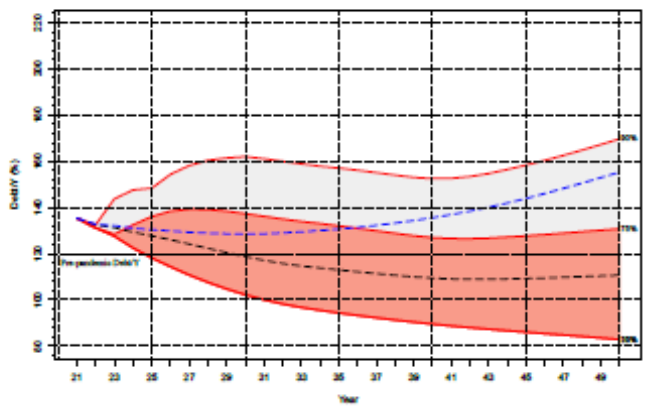
(C) Risk premia, QEternity



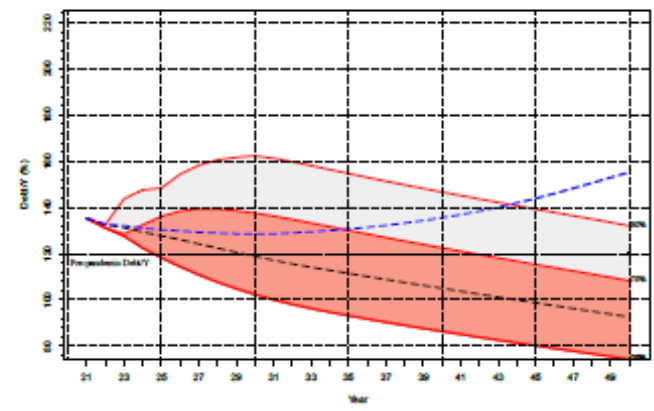
(D) Debt stock, EarlyQT



(E) Debt stock, LateQT



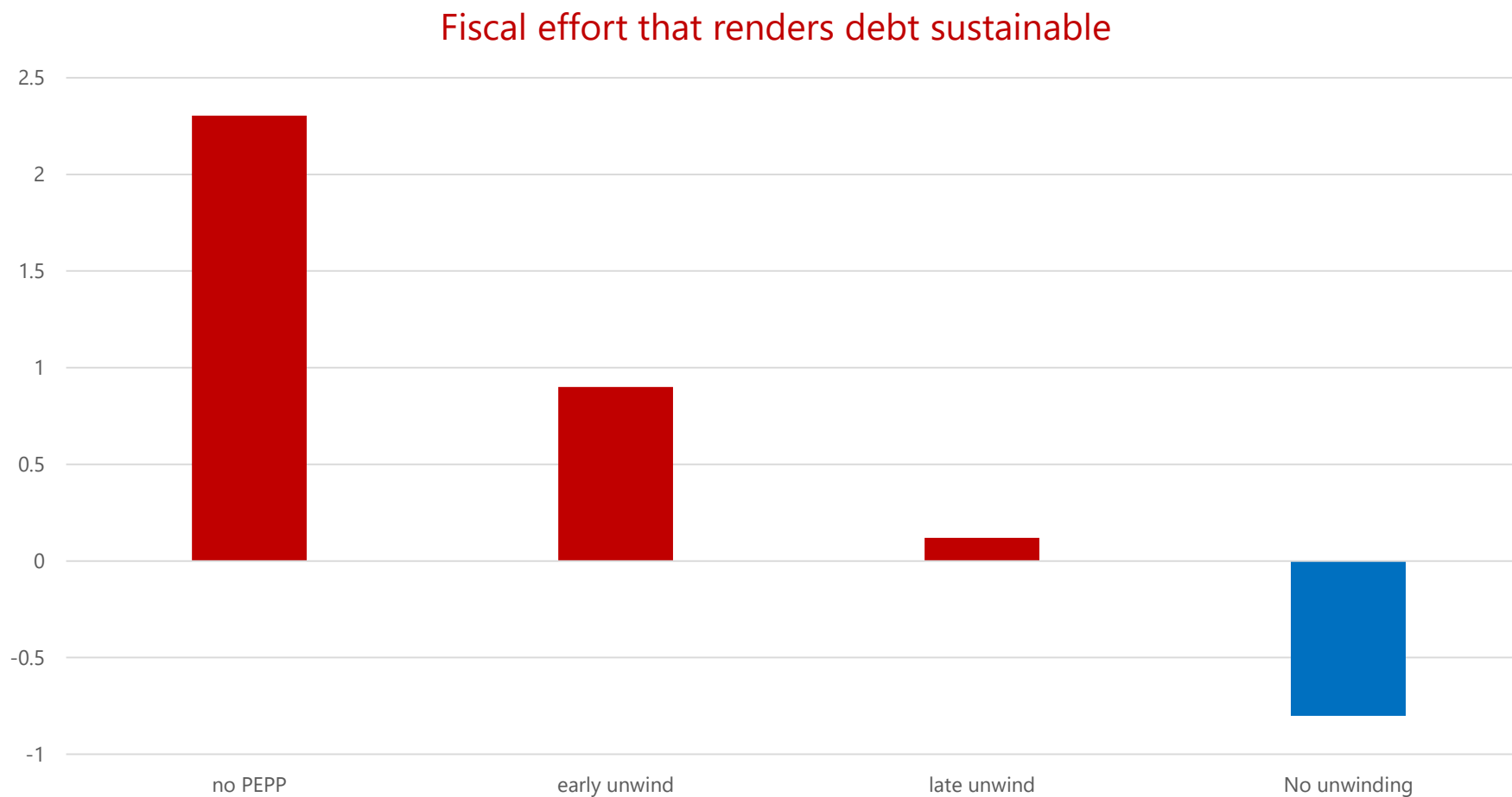
(F) Debt stock, QEternity



Prepandemic level

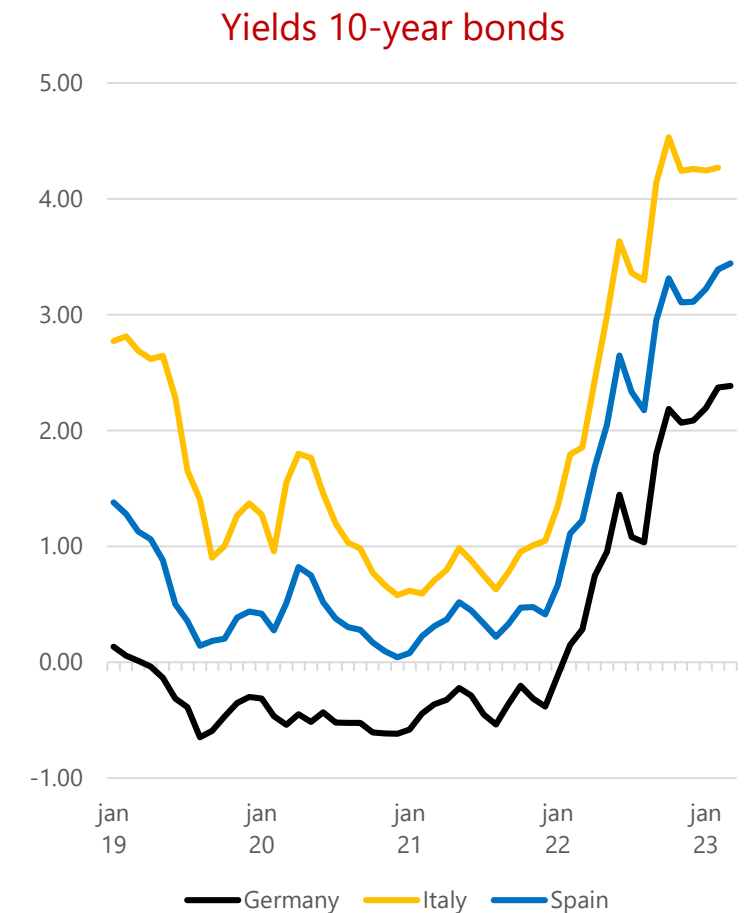
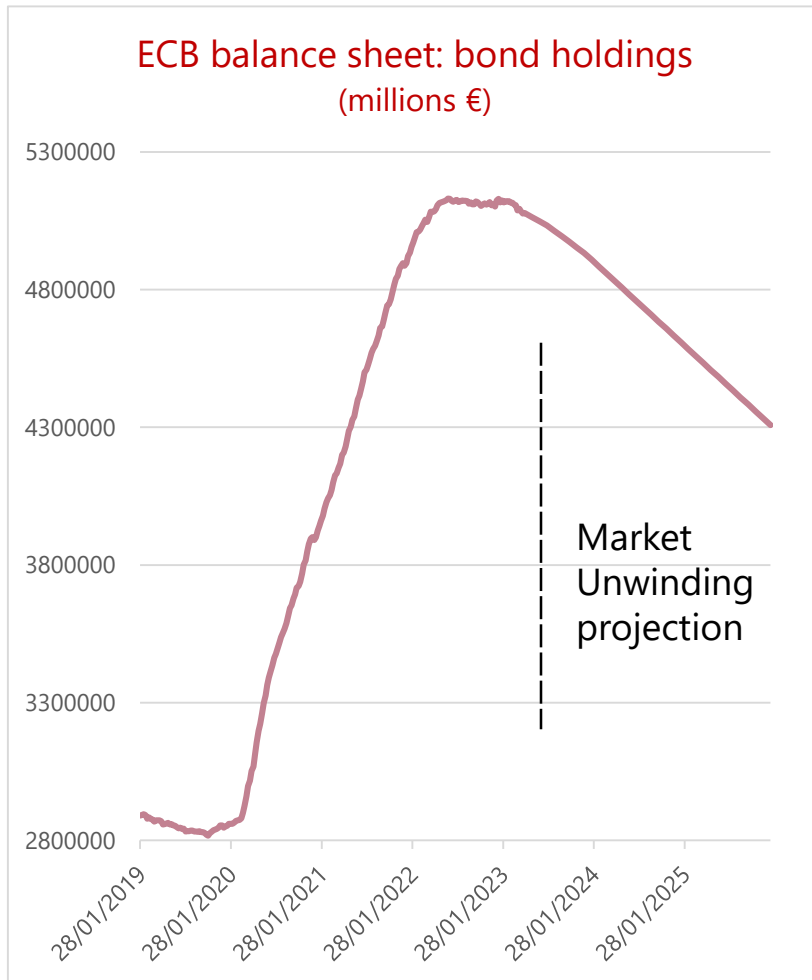
## Fiscal effort

- A metric to (roughly) assess the fiscal gains of PEPP
  - Which is the primary balance adjustment (10 years) that renders debt sustainable
  - Differences in the fiscal efforts as proxy of the fiscal savings



# Whither now? Higher financing costs

- Unwinding has started slowly. Gradual reduction, similar to our assumption
- Spreads have not shot up in anticipation, but nominal financing costs rising

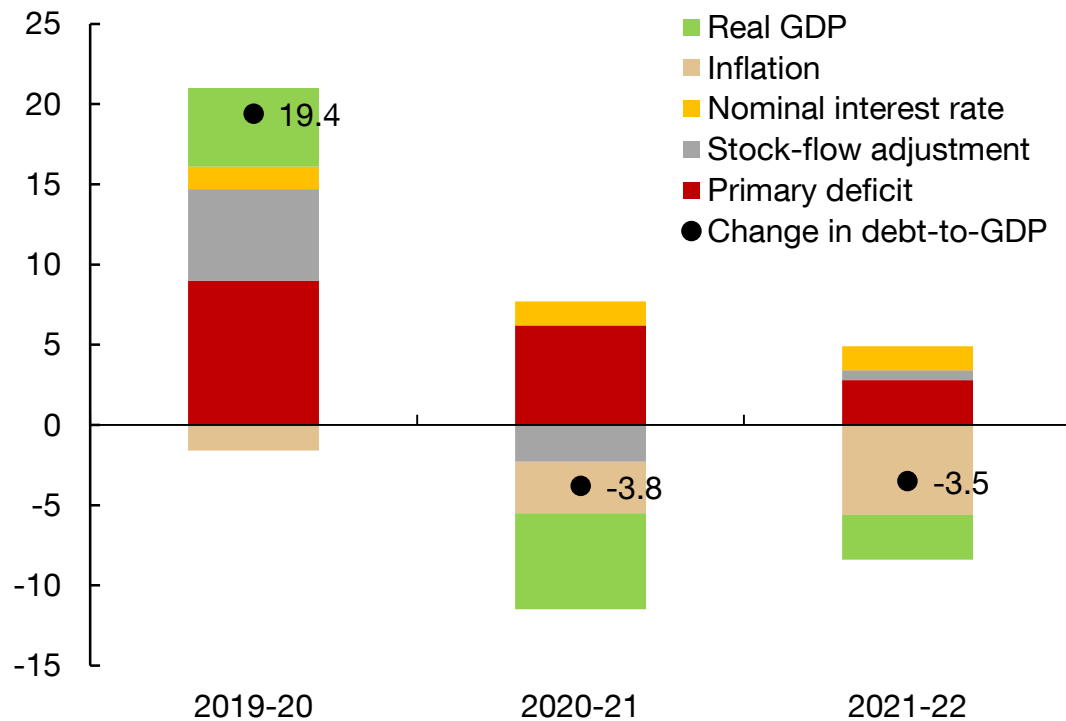


## Whither now? Inflation flattering

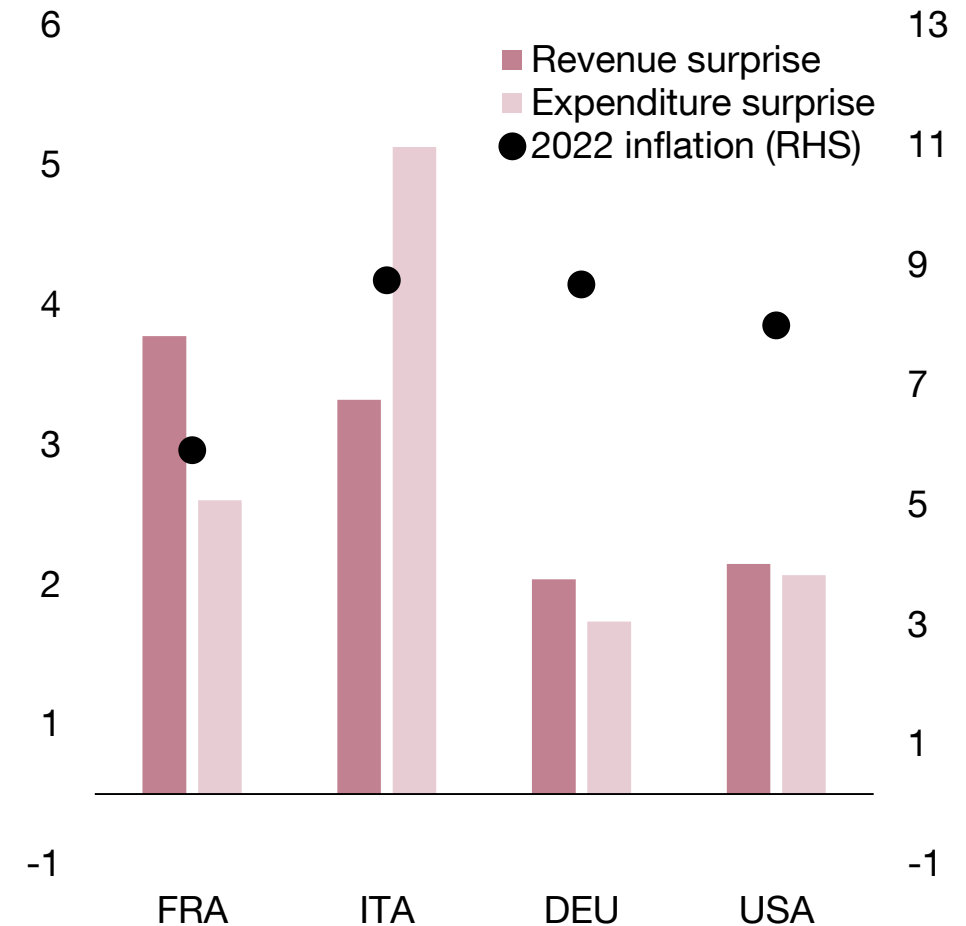
- First, recovery and now inflation flatters debt picture
- But windfall from inflation is being largely spent
- Financing costs going up with risks to the upside

### Inflation is main driver of debt reduction last year

*Advanced economies. Percent of GDP*



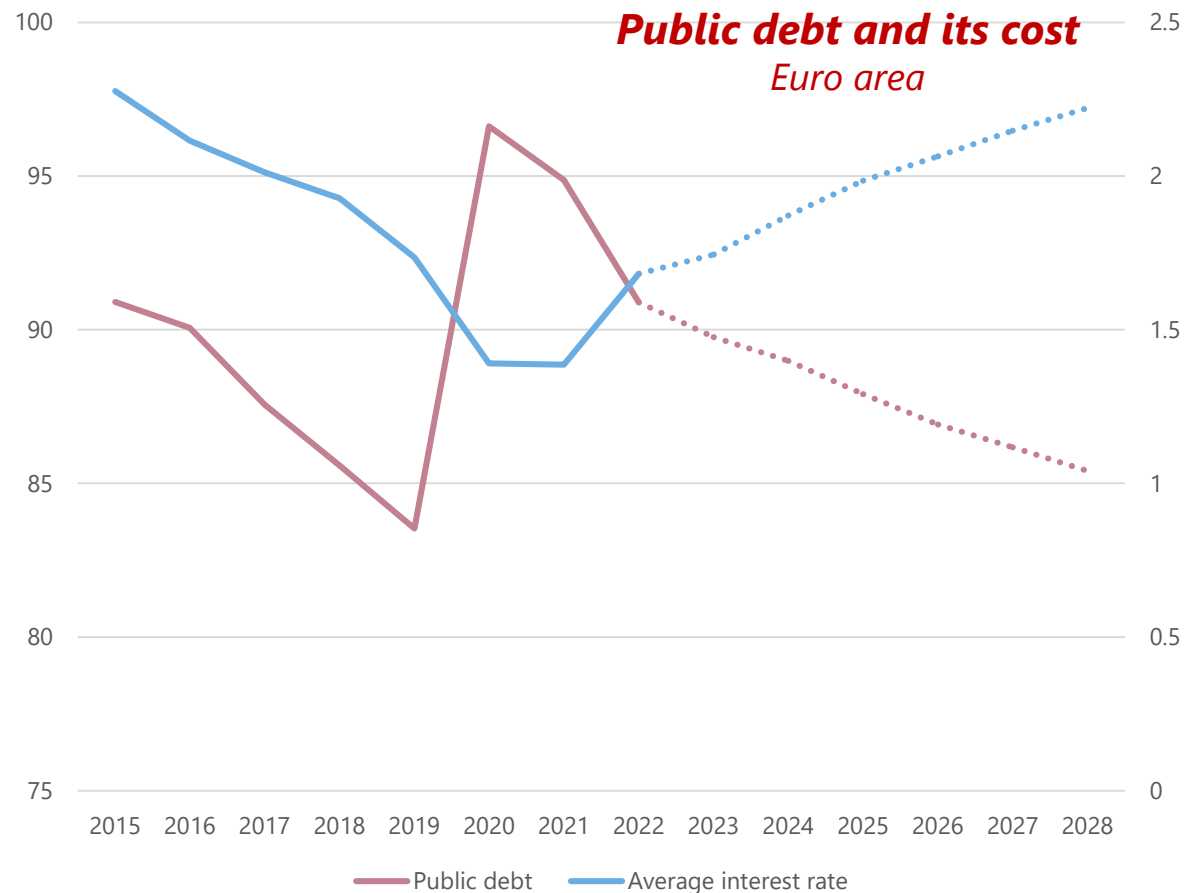
### Large revenue surprises..., but matched by expenditures *Percent of GDP*





## Whither now? Inflation flattering

- First, recovery and now inflation flatters debt picture
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## Whither now?. Monetary policy and interactions with fiscal policy

- Monetary policy tightening still some way to go (expected peak  $\geq 4\%$ )
- Unwinding is on, pace is uncertain, probably contingent
- Inflation effect to reverse, real rates becoming positive = higher effective financing costs
- Wither inflation? Expectations anchored, but...
- Debt sustainability concerns reawakening?
  
- Elements at play could reignite market tensions,...
  - ECB Transmission protection instrument (so far a signaling effect, not tested by markets)
  - Fiscal consolidation amid growing fiscal demands and 'expansionary mood'.
  - Debate on New Fiscal rules
- ...as well as fiscal-monetary entanglement

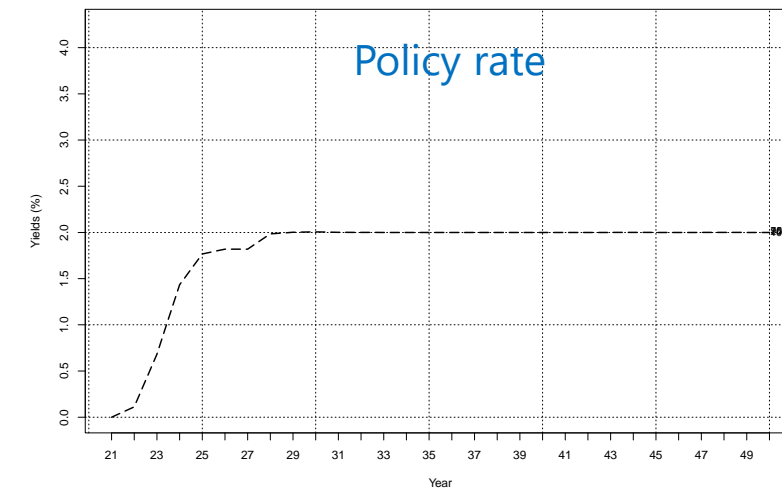
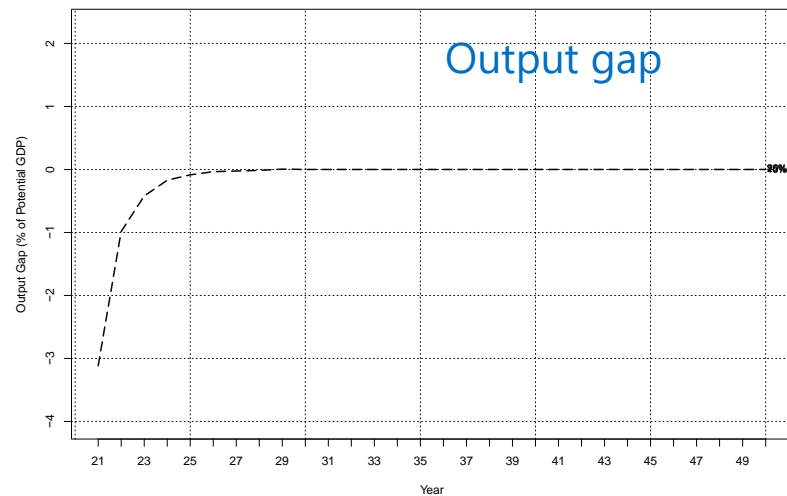
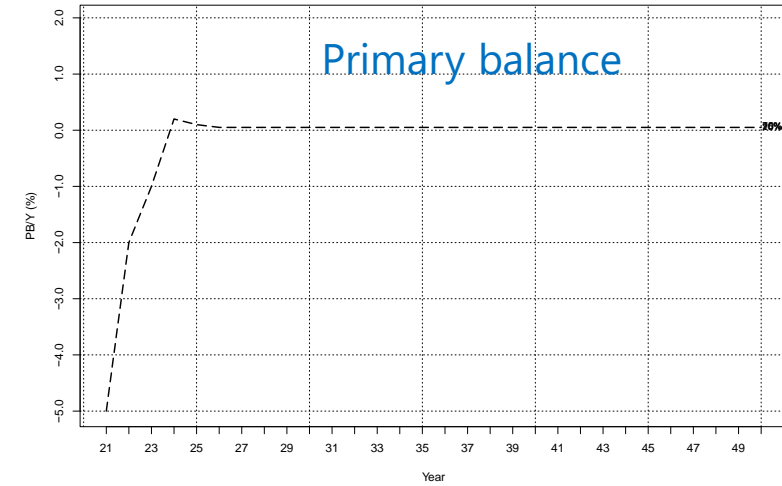
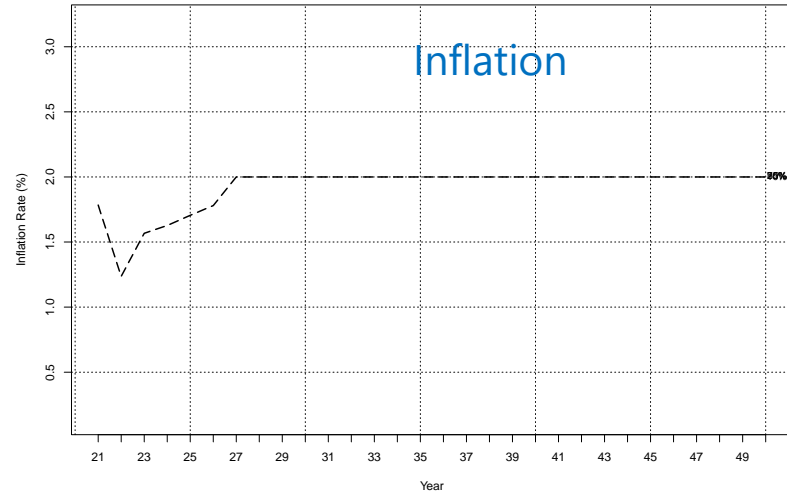
## Supporting slides

## References

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# Calibrated scenarios

## Path of state variables and monetary policy rate



## Implications of an inflation spike

1. Central bank looks through the shock does not raise rates: debt dynamics improve slightly
  2. Central bank reacts by raising rates through the Taylor rule: debt stock will be slightly higher at the end of the horizon
- In either case, the impact of inflation is small

## Debt levels under different scenarios *Interquartile ranges*

