'Low interest rates: a license to accumulate (public) debt?'

Daniel Gros

Motivation and context

- Risk free interest rates are negative or ultra-low even for long maturities (in euro area). Low rates favour higher deficits (! Or ?)
- Both real and nominal rates are low; only level of nominal rates is unprecedented.
- Low level of long rates suggests markets expect 'low for long' and option prices imply little uncertainty.

Two sets of issues considered

1. Low rates = low cost and low risk?
2. Monetary and fiscal policy meet in two different ways.

Key issues:
Low rates = low cost and low risk?

- Effective cost of public debt remains higher than present rates would suggest.
- The marginal cost of additional debt >> than the interest rate for highly indebted countries.
- (Not treated here: low rates, or rather r-g<0, no protection against default. Mauro and Zhou, IMF forthcoming)

Key issues:
Monetary and fiscal policy meet

- The sovereign bond purchase program of the ECB (PSPP) might have increased the risk for private investors thus making additional debt more expensive.
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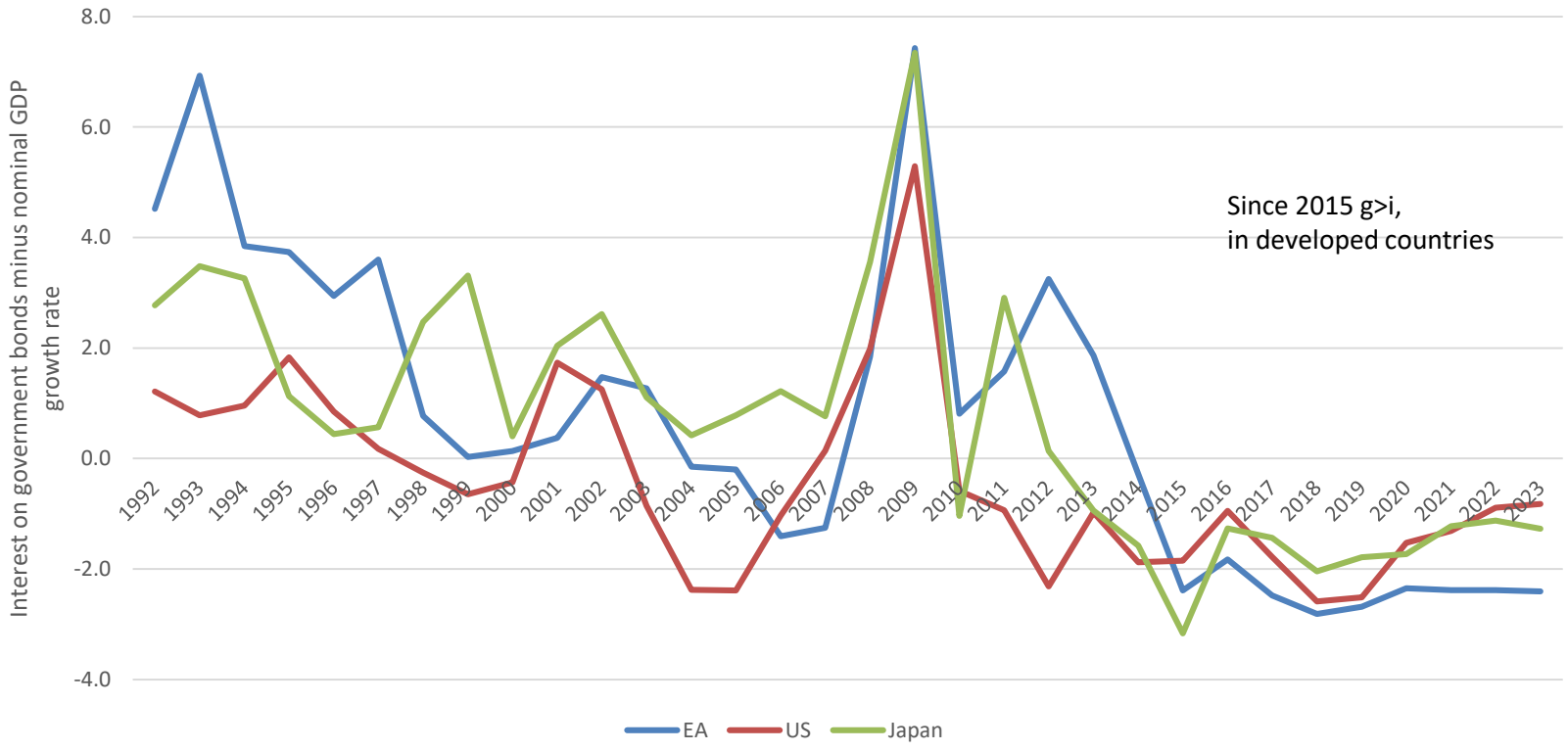
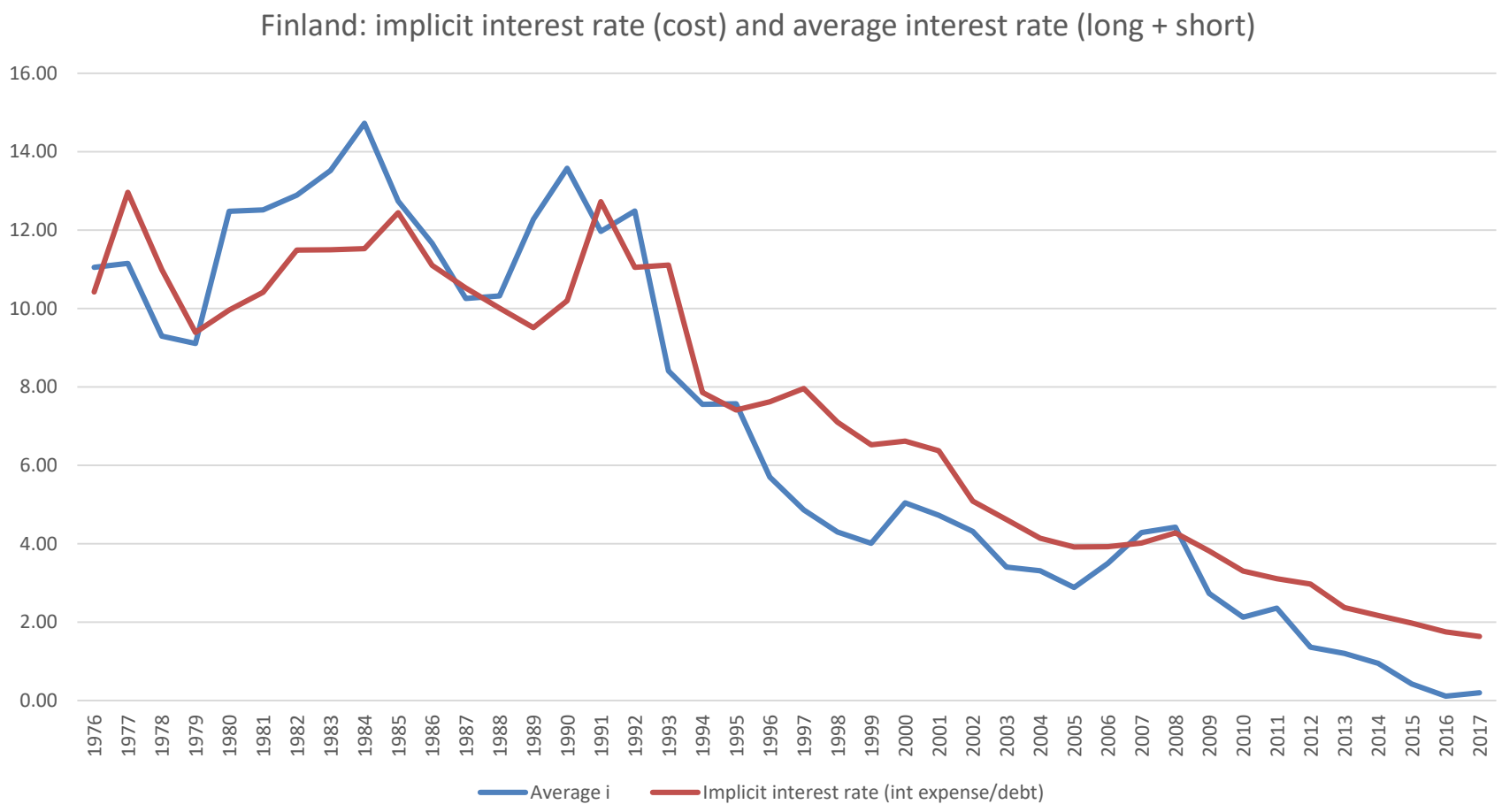
At first sight:
Financing conditions for governments very favorable (and can be expected to remain) (i<<g)

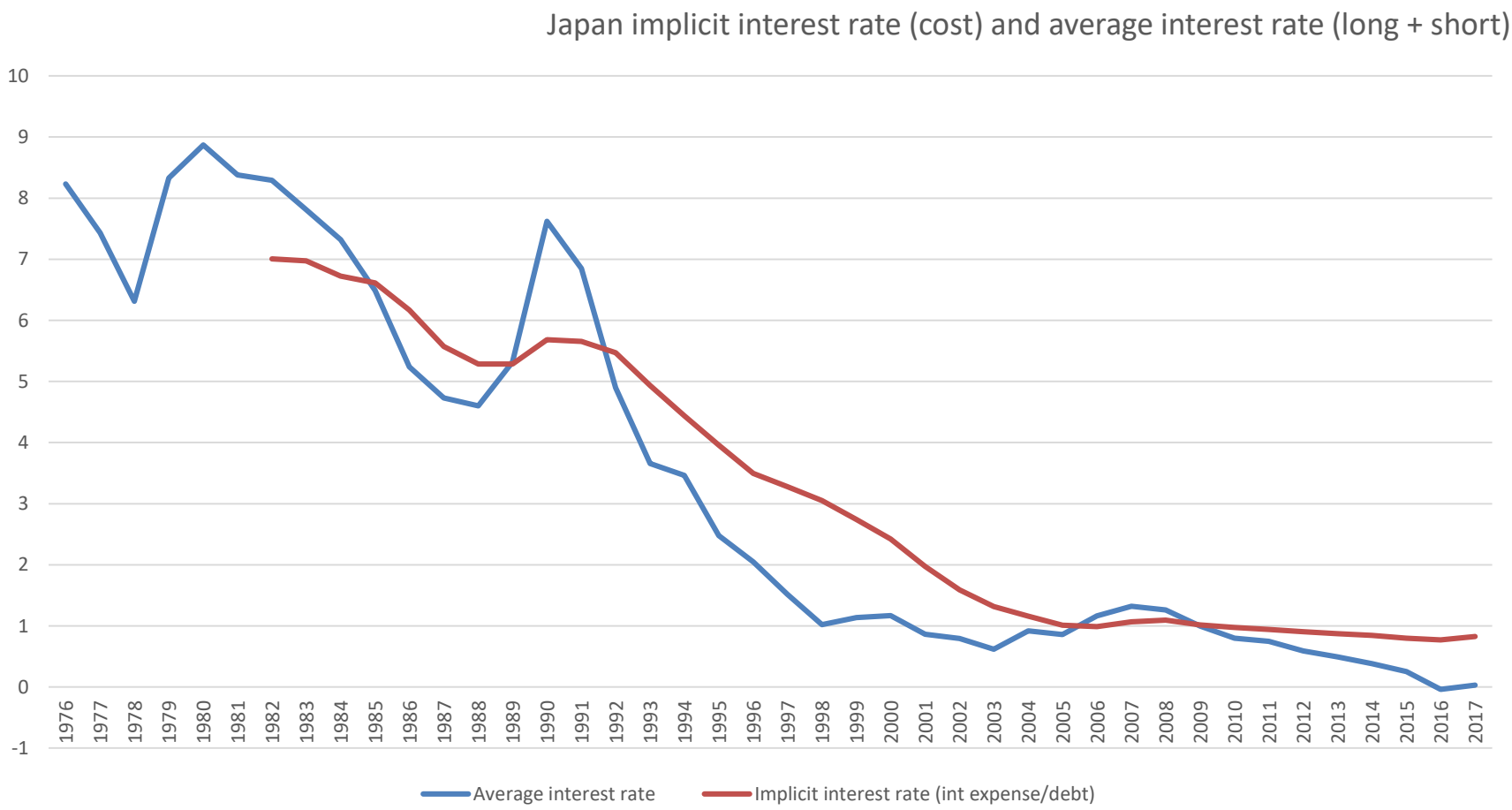


Source: IMF (WEO) and AMECO

But: Implicit cost > interest rate(s)



Implicit cost > interest rate(s)



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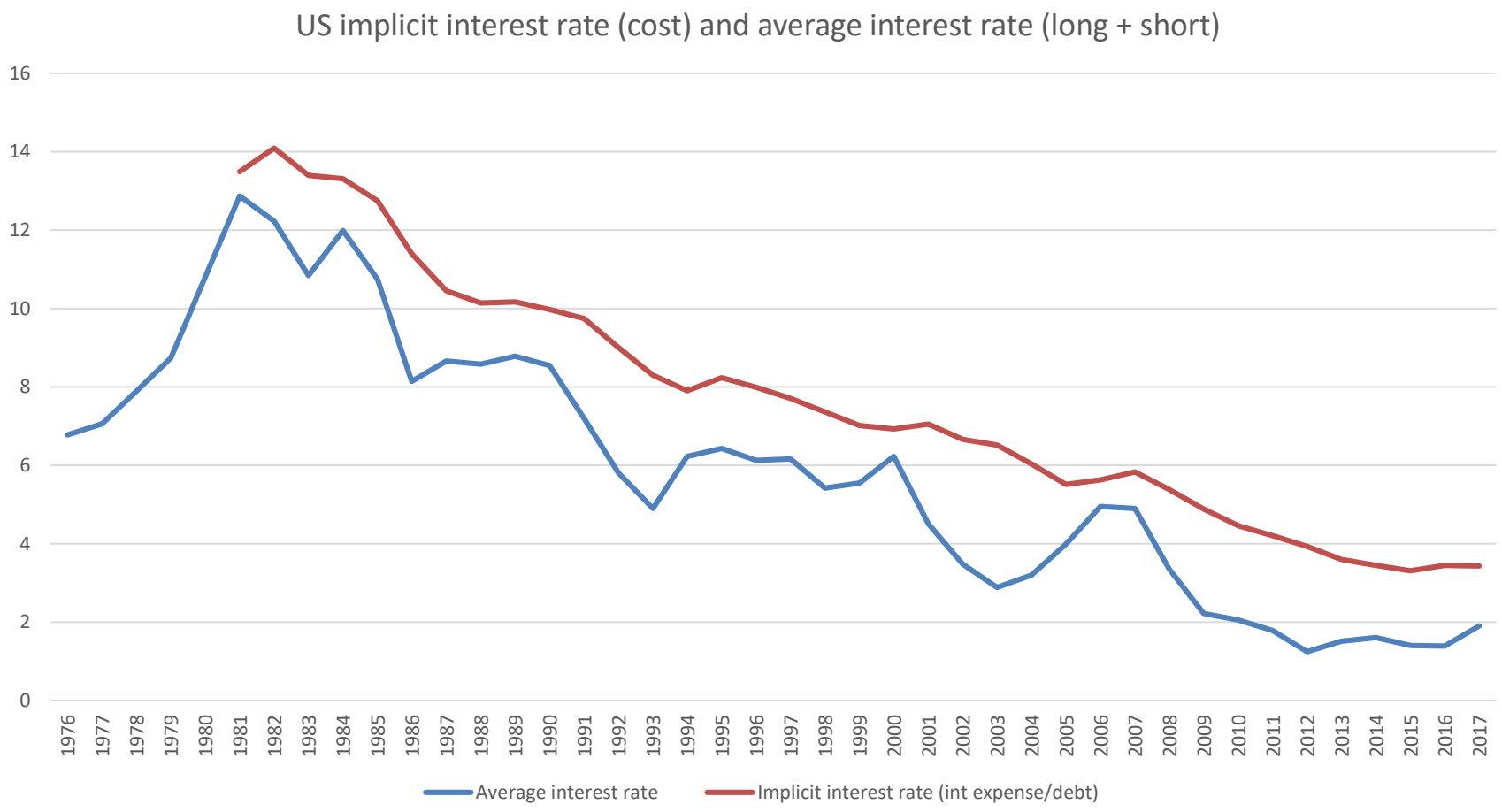
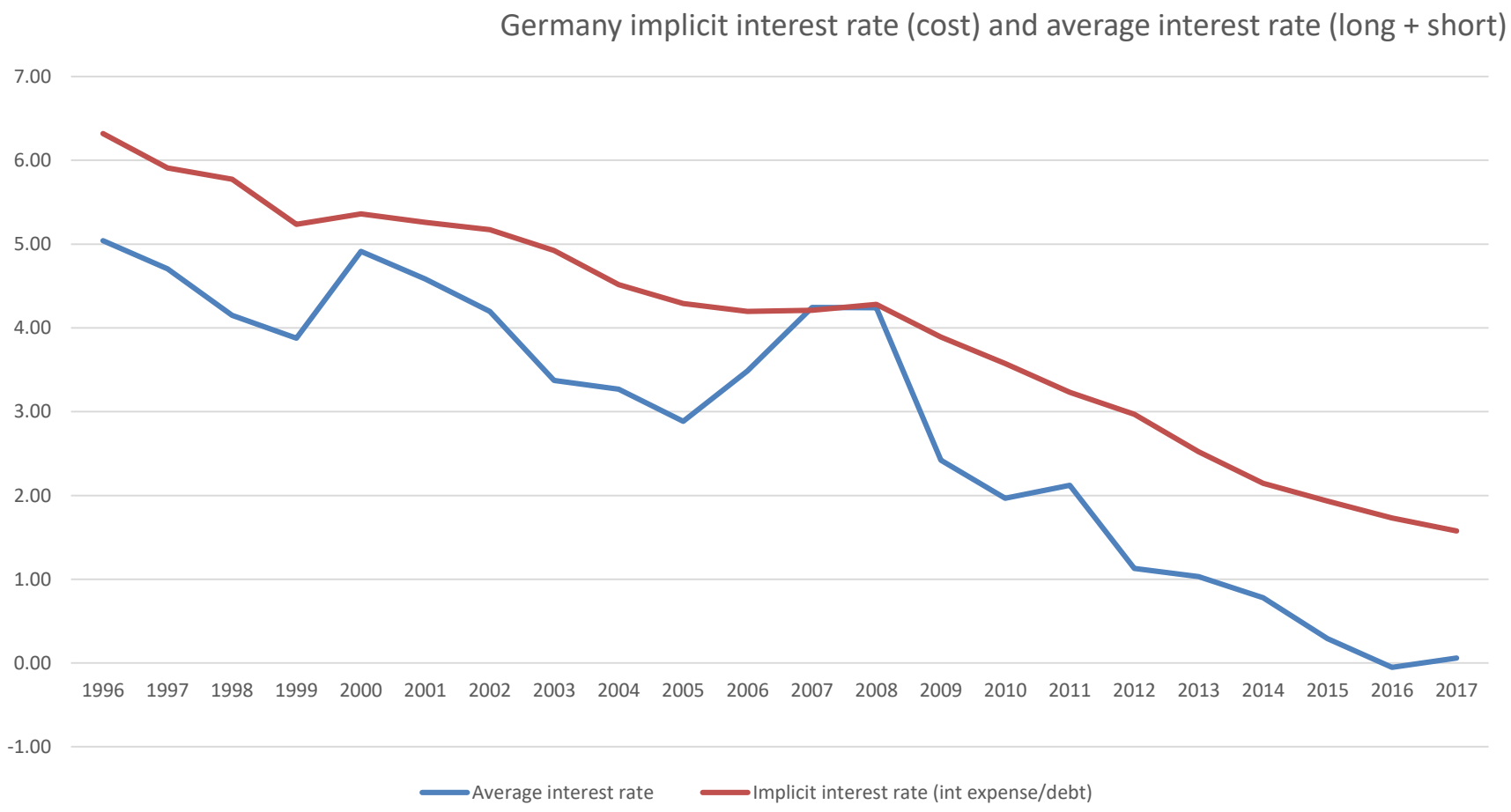
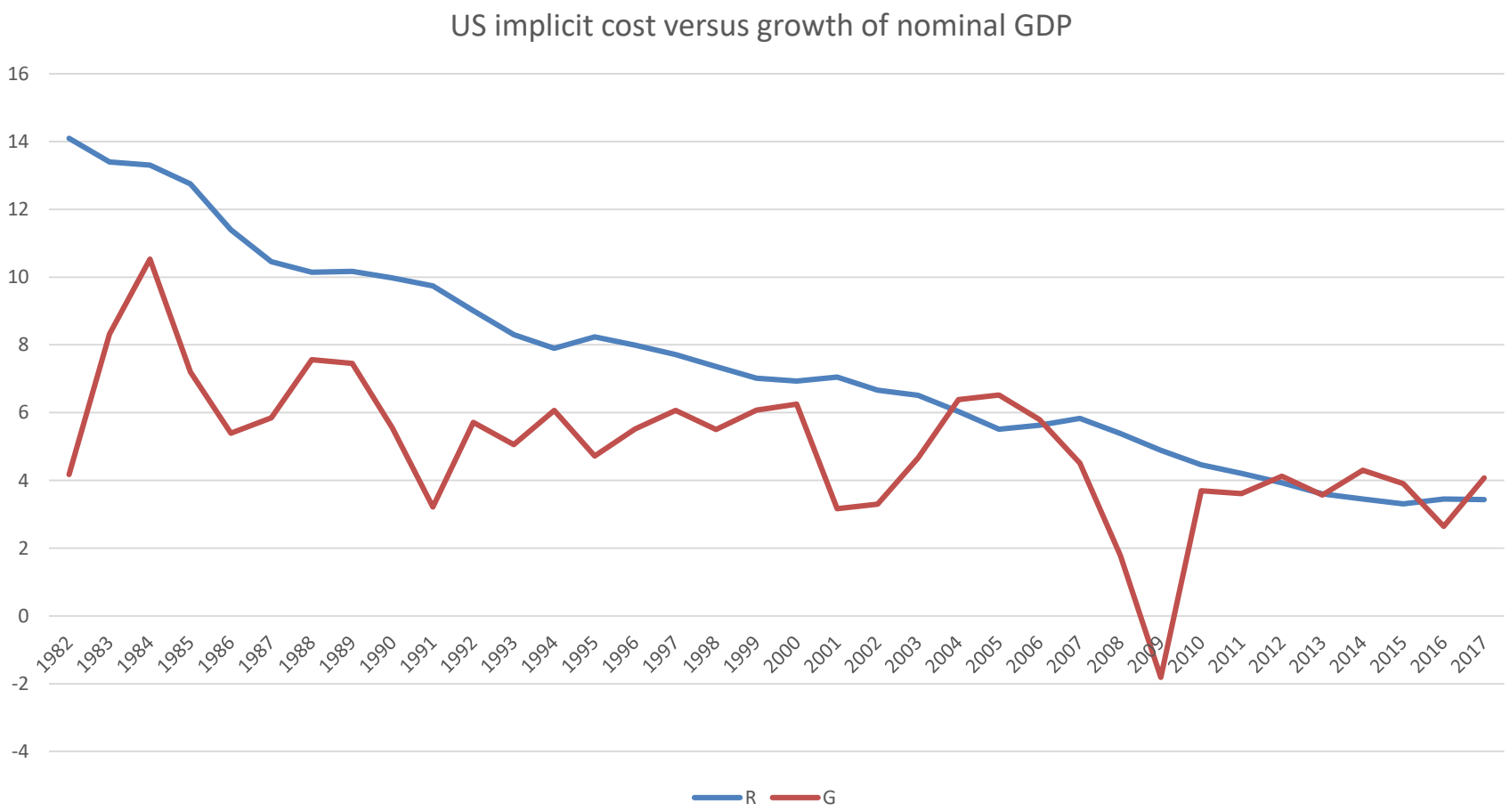


Implicit cost > interest rate(s)



R-g<0? Not if use implicit cost



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Interest rates versus marginal cost

Laubach estimates, plus key assumption in many DSAs: interest rate on government debt is increasing function of debt/GDP ratio (above a certain threshold):

$$Interest\ rate = r_t + \alpha(b_t - 60)$$

With r = riskless rate, b debt/GDP and alpha 0,03-0,04.

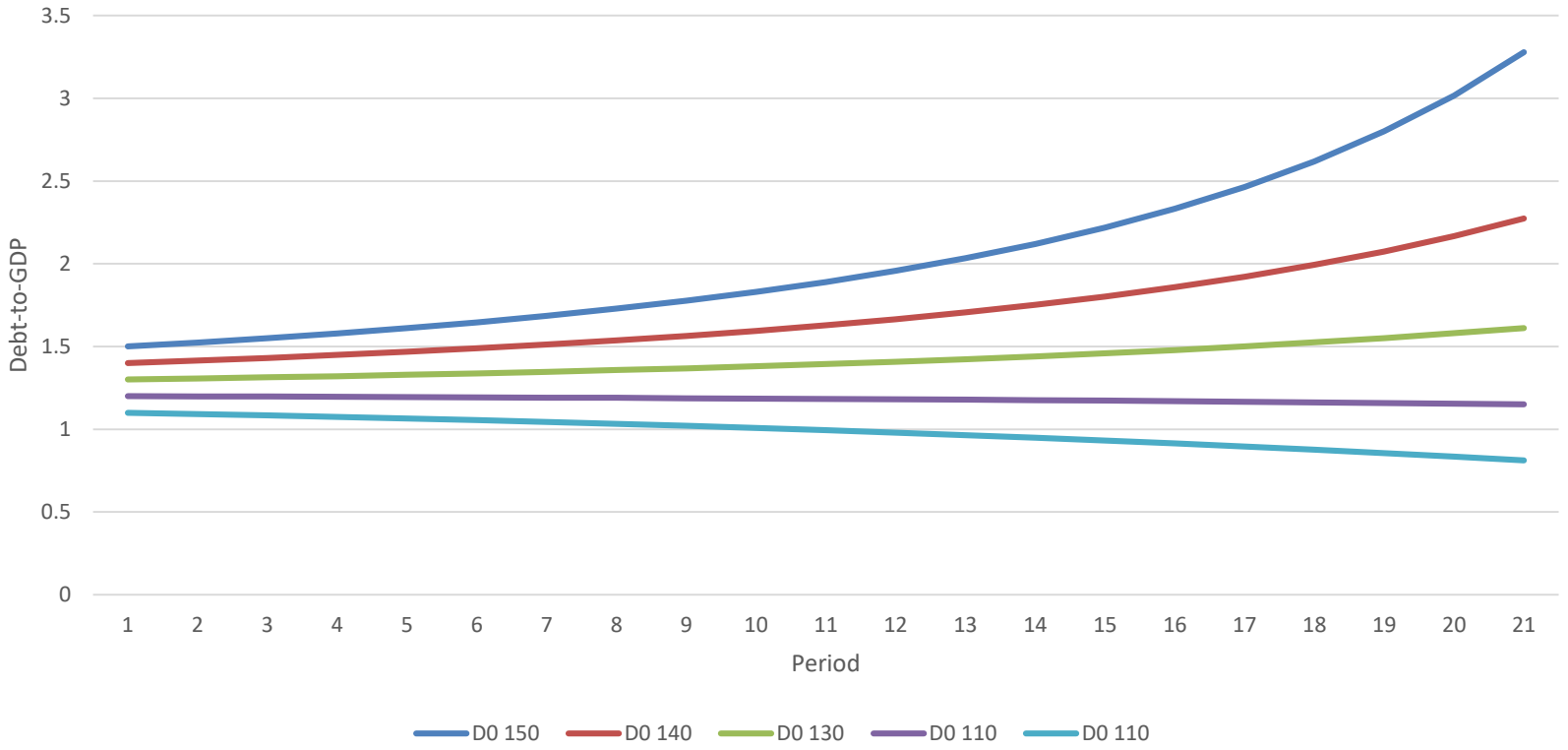
$\Rightarrow$Interest rate for b = 130 = r + 210 basis points

$\Rightarrow$Today r = -0,3 -> interest rate = 180 bps

Feed-back mechanism of risk premium on debt levels if keep primary surplus constant when:

Interest rate = risk free + risk premium (debt/GDP)

Illustration: Dynamic evolution of debt-GDP ratio from different starting levels - IMF assumption



Source: own calculations assuming 3% primary surplus, risk free rate equal to growth rate and risk premium increasing with 4 basis points for every percentage point increase in debt ratio above 60% of GDP

Note: D0 110 stands for Debt at time 0, equals 110% of GDP, D0 120 stands for Debt at time 0, equals 120% of GDP etc.

Interest rates versus marginal cost

Total debt service cost is equal to:

$$Interest\ expense \equiv\ b_t \cdot i_t = b_t\,[r_t + \alpha(b_t - 60)] = b_t\,r_t + \alpha(b_t^2 - 60b_t\,)$$

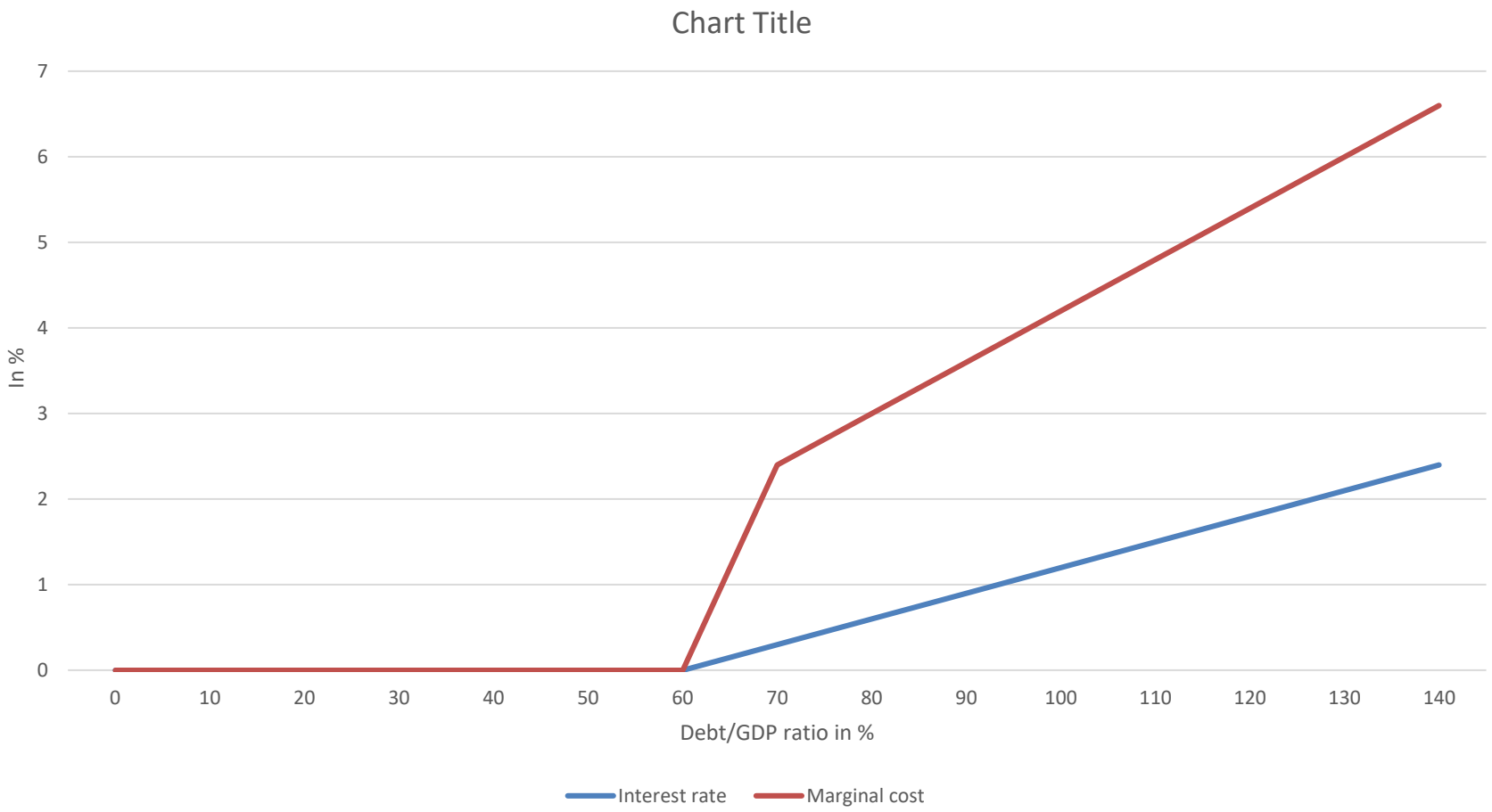
Interest rate expenditure (as a % of GDP) thus increases with the square of the debt to GDP ratio, b^2. The marginal cost of debt then becomes:

$$Marginal\ cost\ of\ debt\ \equiv \frac{\partial(interest\ expense)}{\partial(b)}$$

$$= r_t + \alpha(2b_t - 60) \gg r!$$

With alpha = 0,03 and b=130 -> marginal cost 600 bps!

Interest rate versus marginal cost of debt when the risk premium increases with the debt ratio



Real world complications

- With (usually) positive slope to yield curve: marginal cost of debt < long term rate.
- Works twice:
- Risk free rate and risk premium, both have positive slope!

- **Example: Italy 2017/8**
- 2017: 10 year rate IT = 2.7 % (spread 2.5), 2 year rate = 0.5 %
- Average interest rate = 1.6 % (WAM for Italy 7 years) < nominal growth
- (October 2018: 10 year rate 3.2 and 2 year 1.8 => average 2.5 %)
- => average cost of new debt in Italy below 1 % in 2017!

- Other example Portugal: anticipation of fiscal adjustment leads to fall in risk premium before debt/GDP ratio falls.

Conclusions

- DSA based on r- g today might be misleading – even apart from uncertainty about future rates.
- Governments (highly indebted countries) should consider the marginal cost of public debt, not interest rate.

Key issues:
Monetary and fiscal policy meet

- The sovereign bond purchase program of the ECB (PSPP) might have increased the risk for private investors thus making additional debt more expensive.
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(Domestic) Public Debt: What if held via financial institutions?

Public debt often held by domestic financial institutions (banks):

- Makes default more costly (can have haircut only if deposits cut or banks bankrupt). Defaults on domestic debt rare!
- In euro area: difference commercial banks and national central bank? Banking Union with or without EDIS?
- If held by national central bank (PSPP)? Probability of default (PD) low, but LGD high.

In a nutshell: PSPP and spreads

- Since all government bonds purchased by 'home' NCB, no cross-country risk sharing.
- Assume **risk premium = PD*LGD**
- **LGD**: **goes up** since liabilities of the NCBs cannot be restructured and fewer bonds held by public.
- **PD**: **goes down**, liabilities of NCBs (deposits or Target2 balances) not 'runnable'!

$\Rightarrow$QE reduces risk of 'speculative attack' on national government debt market, but increases LGD.

$\Rightarrow$Impact of PSPP on risk premium **uncertain**?

Risk spreads and central bank holdings of government debt in the Euro Area I

- **Simple formal framework**
- EA country whose public debt is in the form of long-term bonds and is traded in the market at a discount to (riskless) German debt
- Derive (1) **probability of default** (PD) and (2) **loss investors have to expect if government defaults** (LGD)

Risk spreads … II

- **Probability of default** comprises two elements
  - **fixed factor**: depends on fundamentals (debt/GDP ratio, growth rates, efficiency of the tax system, …)
  - **variable factor**: depends positively on amount of bonds to be refinanced (liquidity risk, de Grauwe and Ji, 2013), i.e. the amount of debt still held by the public

Risk spreads … III

- We formalise these two factors in a **simple model** of a EA country with an arbitrary government debt (all in the form of bonds), …
- … a share, S, of which is held (or to be bought) by the NCB.

Probability of default: PD = $\alpha + \beta(1 - S)$, (1)

with
α: fixed factor (“fundamental fiscal risk”)
β*(1-S): variable factor (“remaining liquidity risk”)

Fundamental fiscal risk

- Caveat: bond purchases by the central bank should improve fundamentals, perhaps via lower riskless rate → **lower risk of default (see below)**
- If purchases lead to a **higher risk premium**, feedback would operate in the opposite direction (see below)
- Base => α assumed exogenous!

- Average maturity of government debt is assumed to remain constant => β assumed constant/independent from CB bond buying!
- CB holdings diminish the amount of gov't bonds to be refinanced and thus liquidity risk. → 1-S

Risk spreads … V

- Second key element: **loss investors have to expect if government defaults**
  - Key assumption: in case of default public needs to be reduced to R (fraction of previous value = “haircut”)
- Central bank liabilities increase by the amount S, in the form of short-term deposits of commercial banks, cannot be written down (“senior”) because NCB is still part of the Eurosystem.
- In case of default: the **required reduction of the debt**, R, has to be **spread**, proportionally**, over the remaining bond holders** (1-S):

Loss given default: LGD = $\frac{R}{(1-S)}$ (2)

- **The higher the share** of debt held by (national) CB (or banking system), **the higher the loss** for remaining bond holders.

Risk spreads … VI

- Equations (1) and (2) can be **combined** to calculate the **expected loss** (risk premium):

$$Expected\ loss = PD * LGD = risk\ spread =$$

$$[\alpha + \beta(1 - S]\left[\frac{R}{(1-S)}\right] = \mathrm{R}\left[\left[\frac{\alpha}{(1-S)}\right] + \beta\right]. \quad (3)$$

- Key result since eq. implies that **higher S** leads to **higher expected loss** or risk spread.
- Relationship <u>non linear</u>

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The ECB is running out of policy space: Can fiscal policy help?

Motivation

Low inflation, sluggish growth and global uncertainties

+ ECB out of ammunition

→ Fiscal policy called 'to do its part' (Draghi 2019)

Aim

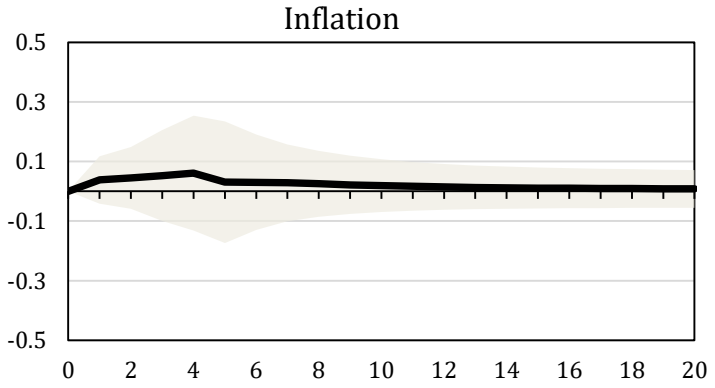
Evaluating the Impact of Fiscal Expansion on inflation and interest rate using the mainstream models via MMB comparative tool

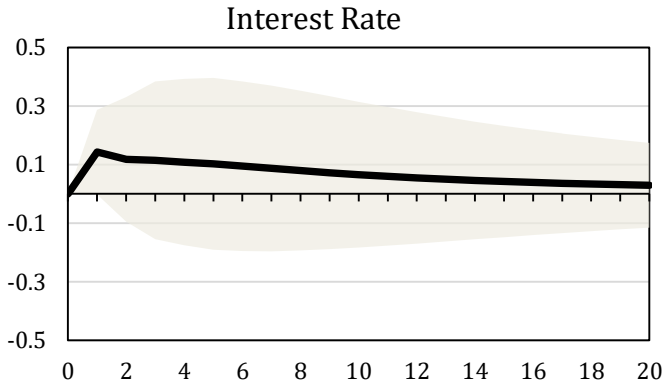
Findings

Modest and temporary impact of a fiscal deficit of 1% of GDP on inflation.

The ECB is running out of policy space: Can fiscal policy help?

- Average Impulse response functions to a unit fiscal shock of ten EA models





- Note: The black solid line is the average of the impulse response functions of ten different models calibrated or estimated for the euro area and obtained using the Macro Model Data Base. The grey shaded area represents the 95% confidence interval. The horizon period is twenty quarters.

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How to make public debt scarce (reduce interest rate)?

- Purpose of QE is to make public debt scarce.
- Fiscal surplus achieves same, but over time.
- ECB bought 20 % GDP: impact disputed. ECB event studies little impact on safe rate, 50 bps on risk premium for periphery (Altavilla et al.) versus 100 basis points lower term premium using term structure models (but with half life of 5 years) .
- 10 years of surplus at 2 % of GDP would yield similar reduction in debt/GDP, hence similar reduction in term premium as PSPP, but in addition also a reduction in the risk premium of 60-80 bps.

Conclusions

- Fiscal policy unlikely to have big impact on interest rates or inflation.
- Bond purchases by ECB (PSPP) might actually increase risk premium.
- Fiscal surplus better way to make bonds scarce than central bank buying?

Thank you for your attention!

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Selected References

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