

Sovereign interest rate exposure in the CESEE region

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⁰ The findings, interpretations and conclusions expressed in this presentation are those of the authors and should not be attributed to the Oesterreichische Nationalbank or the Eurosystem

Fiscal space and public debt

The tradeoffs involved in the to the maturity structure

Empirical results: costs, risks and risk preferences

Lessons learned

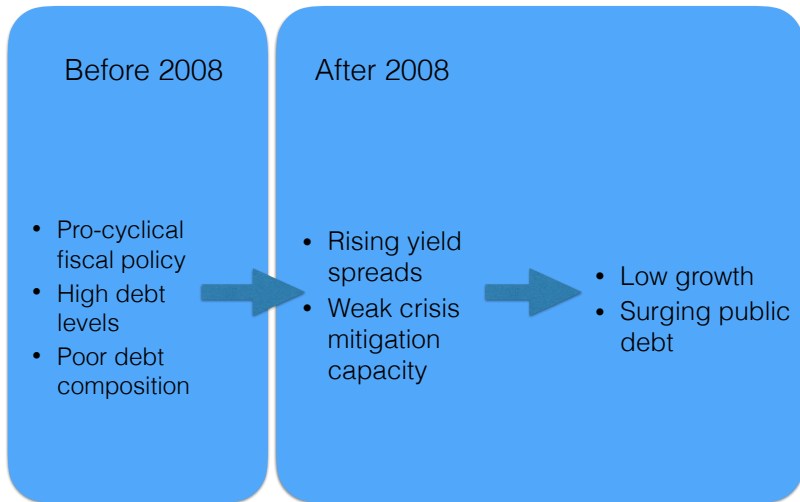
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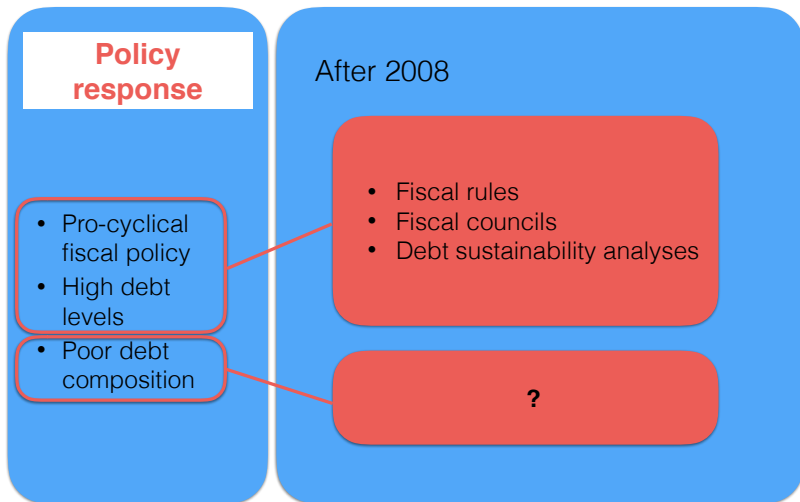
Empirical results: costs, risks and risk preferences

Lessons learned

Causes and consequences of limited fiscal space



Causes and consequences of limited fiscal space



Composition of public debt is under-appreciated

Debt managers control risks:

Decision	Risk
long- vs. short-term borrowing	Interest rate/Roll-over risk
fixed- vs. variable-rate debt	Interest-rate risk
local- vs. foreign-currency borrowing	FX-rate risk
...	...

Yet, efforts vary considerably, in terms of

- ▶ scope and detail of debt management publications
- ▶ formal objectives (debt targets)
- ▶ evaluation of target achievement

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The costs and benefits of sovereign interest-rate exposure

The paper in a nutshell

Aim and scope of this paper:

- ▶ evaluate **structure** of public debt across the CESEE region
- ▶ to support assessment of financial vulnerabilities/fiscal space
- ▶ focus on maturity structure and associated interest rate risk

Key messages:

- ▶ interest-rate risk is the downside of low financing costs
 - ▶ typically, long-term debt is more expensive than short-term debt
 - ▶ but with more long term debt, fewer roll-over needs each period
- ▶ the relation between maturity, costs, and risk is non-trivial and country-specific
- ▶ simple structural indicators like ATM are not informative, especially for cross-country comparison

Costs and risks related to the maturity structure

- ▶ Suppose only two types of bonds: one-year and N-years. Share of long-term borrowing is α . Then composite interest rate is

$$R_t = (1 - \alpha)i_t^s + \frac{\alpha}{N} \sum_{j=1}^N i_{t+1-j}^l,$$

- ▶ Define costs, $c(\alpha)$, as expected interest payments and risk, $r(\alpha)$, as one-step ahead variance of interest payments.
- ▶ Optimal maturity balances costs and risks at the margin. With linear preferences, FOC is

$$c'(\alpha)\delta + r'(\alpha)(1 - \delta) = 0$$

where δ is weight on cost minimization.

Optimal response to dynamics in the yield curve

Optimal maturity structure, given by

$$\alpha^* = \frac{e\sigma_s^2 - \delta b}{(e\sigma_s)^2 + (\sigma_l/N)^2}.$$

increases if

- ▶ yield curve becomes flatter (b)
- ▶ volatility in short- or long-term bond yields increases (σ)
- ▶ weight on cost minimization decreases

Empirical strategy

Estimation approach:

1. Estimate slope and volatility of yield curves
2. Calculate marginal cost and risk measures
3. Identify implicit risk preferences, δ , by using FOC

Data: panel dataset of country-specific

- ▶ Generic bond yields (Bloomberg, Datastream)
- ▶ ATR's (calculated, based on Bloomberg)
- ▶ additional control variables (fiscal deficit, gap, NPL, ...)

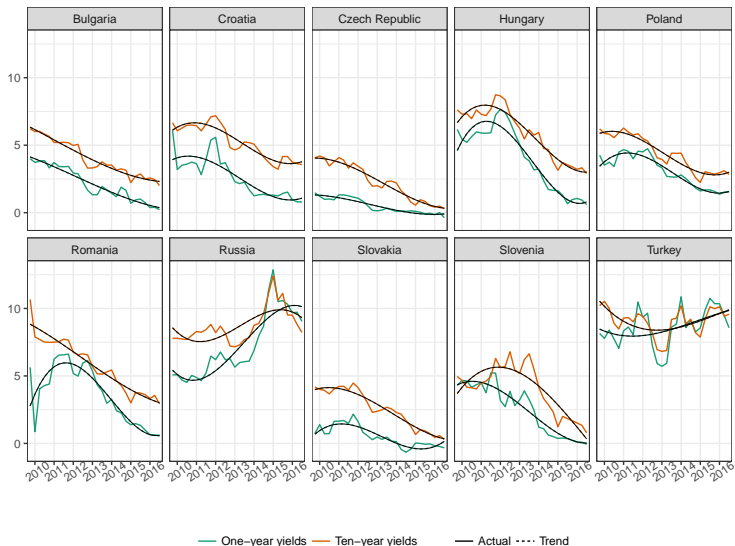
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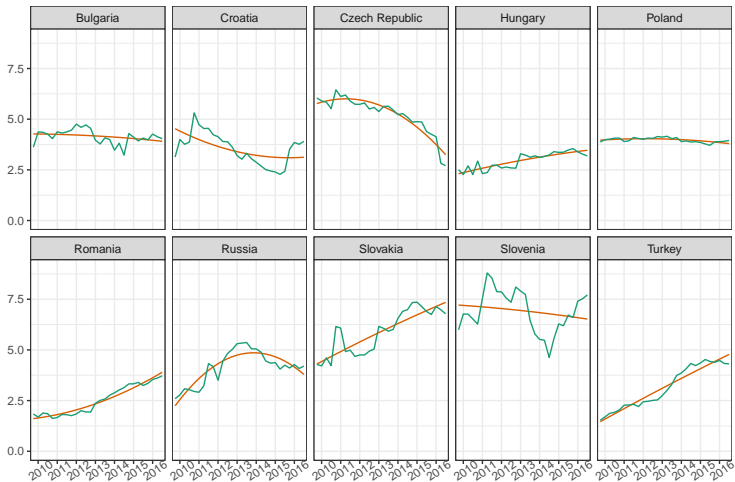
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Yield-curves differ considerably

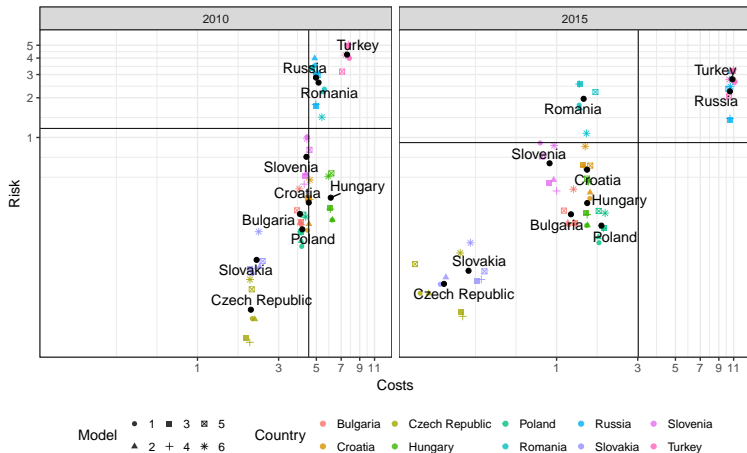


as do ATRs...

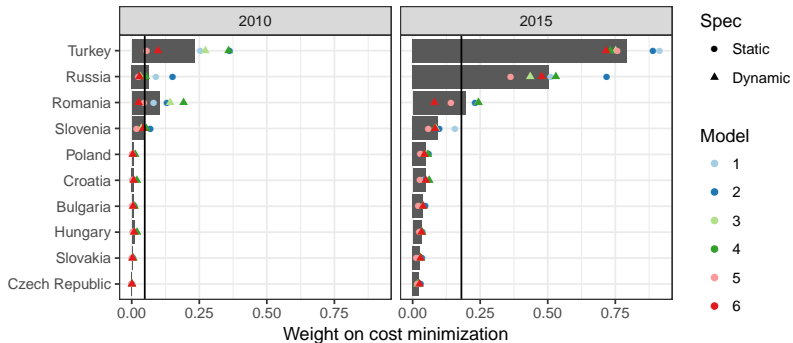


Variable — ATR — Trend

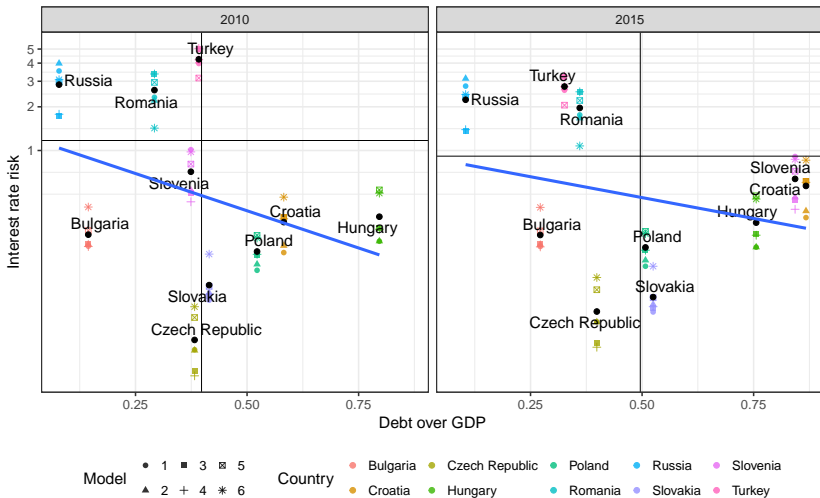
Costs have decreased more sharply than risks



Risk-aversion has decreased



Debt-size adjusted interest rate risk



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Summary and implications

Challenges and contribution of the model

- ▶ Highly simplified world, neglecting various choice dimensions, such as Asset Liability Management approaches, FX rate risk,...
- ▶ But: structural indicators not suitable for cross-country comparisons
- ▶ More focus (research and policy) on composition of debt needed

Practical implications

- ▶ Changing funding conditions require changing debt targets if costs and risk should remain balanced
- ▶ Maturity should be expanded more forcefully to lock in currently low rates

Thanks for your attention!

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