It is not $R^*$ but $R^{**}$ we should worry about!

Gianluca Benigno

HEC- Lausanne

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Based on joint work with O. Akinci (FRBNY), M. Del Negro (FRBNY), A. Queralto (Board of Governors).

Disclaimers: views are my own and do not represent the views of the Federal Reserve Bank of New York, the Federal Reserve System or the FOMC.
It's R** not R* We Should Worry About Neutral rate for "financial stability"

https://www.youtube.com/watch?v=wPQ65Qt3tuo
Background

Why do we need another star?

• The natural rate of interest $r^*$ is associated with the notion of macroeconomic stability, the rate consistent with output equaling its natural rate and constant inflation (Wicksell, Woodford,... Laubach and Williams, ...);

• Our research introduces $r^{**}$, the financial (In)Stability real interest rate, the threshold real rate above which financial instability arises;

• Goal of $r^{**}$: map the notion of financial stability onto the interest rate space, and complement $r^*$ as a guide to policy.
R* versus R**: Trade-offs

- R** is associated with the notion of financial stability. One interpretation is in terms of policy space.
  - If $r > r^{**}$ we enter a region of financial distress;
  - If $r < r^{**}$ we are in a region of financial stability;

- How does this relate with the notion of macroeconomic stability?
  - If $r^{**} > r^*$ macroeconomic stability is compatible with financial stability;
  - If $r^{**} < r^*$ macroeconomic stability is not compatible with financial stability.
• Concept of R** : simple macrofinance model with an occasionally binding financing constraint;

• Discuss the drivers and dynamics of R**

  ➢ “Financial Dominance”: persistently low real interest rates generate financial vulnerabilities and an eventual drop in r**, which may constraint monetary policy (monetary policy determines its own boundary)

• Provide and empirical measure of R**.
## Determinants

Generic financial Intermediary

<table>
<thead>
<tr>
<th>Assets</th>
<th>Liabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interest Rate Sensitive Assets</td>
<td>Deposit</td>
</tr>
<tr>
<td>Safe Assets</td>
<td>Liabilities</td>
</tr>
</tbody>
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Leverage Constraint (Gertler, Karadi, Kiyotaki): financial stress and amplification

➢ Leverage Constraint depends on the share of safe assets
We construct $R^*$, the financial instability real interest rate, as the threshold interest rate above which leverage constraint is binding.

What are the determinants of $R^*$?

- $R^*$ is positively related with the share of safe assets.
- $R^*$ is positively related to the value of interest rate sensitive assets.

Prolonged low interest rates can move financial intermediary into distress region

- Low $R$ reduces equity by lowering return on intermediary interest rate sensitive assets. Shift towards riskier assets. Leverage increases and this now reduces $R$ and policy space.
- QT: reducing amount of safe assets and lower $R^*$. 

Construction and Determinants
Persistent low rates today cause vulnerabilities to build up implying a reduction in monetary policy space for maintaining “financial stability” in the future.
Measuring R**

- Structural Approach: quantitative model

- Machine Learning to uncover model links between concept and variables that we can observe in the data.
Measuring $R^{**}$

Real Interest Rates

- $R^{**}$
- $R$ (PCE core)
- $R^*$ (LW)

Recession
Measuring R**: zoom in
Conclusions

• Introduce a new concept: $R^{**}$
  - threshold real interest rate above which the tightness of financial conditions may generate financial instability.

• $R^{**}$ enables us to translate financial vulnerabilities into an object comparable to the monetary policy rate and to the natural real interest rate

• Different nature of economic cycles: more dominated by financial episodes. This is why we should worry about $R^{**}$ more than $R^*$. 
Appendix: Ex-post Policy Stance (U.S.)

![Diagram showing the ex-post policy stance (U.S.) with specific values and time periods marked.]