**Introduction**

- One of the major challenges in the post GFC is a significant decline in the neutral interest rate.

- Low interest rates change agents’ behavior, in terms of assets and liabilities
  - Both household assets and liabilities are expanded due to fast rising house prices
  - Bank equity capital has also seen a substantial increase

**Motivation**

- All these developments should have an effect on the implementation of Basel III
  - Higher borrowing has made financial markets more volatile, calling for stricter banking regulations
  - Higher capital makes banks safer, calling for a relaxation in Basel requirements Basel III regulations

**Model Overview**

- DSGE model with a housing market and a banking sector
  - The economy features patient and impatient householders, bankers and a final goods firm
    - Bankers are credit constrained in how much they can borrow from savers, and borrowers are credit constrained with respect to how much they can borrow from bankers
  - The central bank follows a Taylor rule for the setting of interest rates
  - The countercyclical capital buffer of Basel III is represented by a Taylor-type rule for the setting of the capital requirement ratio

**Simulations**

- Figure: Financial and Macroeconomic Stability. High and Low interest rate

**Financial and Macro Stability**

- For all levels of CRR, there is a trade-off between financial stability and macroeconomic stability
- Financial instability is more of concern in a low interest-rate economy, and thus the call for a tighter CRR is more warranted
- Even though banks are safer when the CRR is set high, borrowers become more vulnerable in the face of shocks
  - This trade-off becomes worse when the interest rate becomes lower
- The low interest-rate environment calls for a macroprudential use of Basel III regulation and an optimal implementation of the countercyclical capital buffer

**Basel III Regulation**

- A rule for the countercyclical buffer

\[
\text{CRR} = \text{CRR}_{SS} + \phi_b \times (\text{credit}) + \phi_y \times (\text{outputdev})
\]

**Optimal Policy**

Optimal combination of the parameters in countercyclical buffer rule, which maximizes welfare:

<table>
<thead>
<tr>
<th></th>
<th>(\phi_b)</th>
<th>(\phi_y)</th>
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</thead>
<tbody>
<tr>
<td>High interest rate</td>
<td>1.4</td>
<td>0</td>
</tr>
<tr>
<td>Low interest rate</td>
<td>1.7</td>
<td>0</td>
</tr>
</tbody>
</table>

- For the low interest-rate environment, since challenges for financial stability are stronger, the rule needs to be more aggressive
- It is not optimal in any of the two economies to respond to macroeconomic fluctuations

**Conclusions**

- In this paper, we use a DSGE model with housing and a banking sector to study the effects of the decrease in the natural rate of interest
- Our model captures some key developments of the household balance sheet as observed in the data
  - A decrease in the interest rate increases the value of housing assets
  - Borrowers become more indebted, calling for a more active use of CRR
  - An increase in CRR helps stabilizing financial cycles, but it also brings a side-effect on macro stability
- We study the optimal implementation of Basel III regulation
  - For the low interest-rate environment, the rule that proxies the CCB needs to be more aggressive on credit cycles

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