Discussion of "Multiple Credit Constraints and Time-Varying Macroeconomic Dynamics" by Marcus Mølbak Ingholt

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Which is the macro impact of LTV and DTI?

- DSGE model with 2 households (patient, impatient), housing, and occasionally credit constraints
- 2 constraints: both are a linear combination of LTV and DTI, but weights change
  - This introduces asymmetric, state-dependent dynamics, depending on which constraint is binding
- Model is estimated using Bayesian methods
  - Findings: LTV dominates in recessions, DTI in expansions
- Macroprudential implications
  - Countercyclical DTI for house price booms, count. LTV for slumps

Comments

- Credit constraint
- Taking model to the data
- Macroprudential implications
- Other (minor) issues

Credit constraint

- Ad-hoc formulation (2 constraints):

$$b'_t \leq \rho \left(\kappa_{LTV} \xi_{LTV} \mathbb{E}_t \left[(1+\pi_{t+1}) q_{t+1} h'_t \right] + (1-\kappa_{LTV}) \xi_{DTI,t} \mathbb{E}_t \left[\frac{(1+\pi_{t+1}) w'_{t+1} n'_t}{\sigma + r_t} \right] \right),$$

$$b'_t \leq \rho \left((1-\kappa_{DTI}) \xi_{LTV} \mathbb{E}_t \left[(1+\pi_{t+1}) q_{t+1} h'_t \right] + \kappa_{DTI} \xi_{DTI,t} \mathbb{E}_t \left[\frac{(1+\pi_{t+1}) w'_{t+1} n'_t}{\sigma + r_t} \right] \right),$$

- How can κ be interpreted? (Not shares of people as in Greenwald, 2018). Why 2 equations?

- In real life, mass of borrowers and lenders endogenous to the borrowing constraint (think of Aiyagari, 1994)

- Microfoundations? Real-world constraints? What about

$$b'_t < \bar{b}_t^{LTV} \text{such that } l'_t\left(\bar{b}_t^{LTV}\right) = \xi_{LTV}\mathbb{E}_t\left[\left(1+\pi_{t+1}\right) q_{t+1} h'_t\right],$$

$$b'_t < \bar{b}_t^{DTI} \text{such that } l'_t\left(\bar{b}_t^{DTI}\right) = \xi_{DTI,t}\mathbb{E}_t\left[\frac{\left(1+\pi_{t+1}\right) w'_{t+1} n'_t}{\sigma + r_t}\right]?$$

- Savers give mortgages to borrowers: no maturity transformation.

- Figure 7, LTV and DTI differently defined in data and model: are you comparing "apples with apples"?

Taking the model to the data

- Bayesian estimation using data 1984Q1-2019Q4 detrended using one-side HP filter (parameter 100,000)
- Beyond the conventional problems with HP-filters (see Fabio Canova's), two issues:
  - Low-frequency dynamics discarded? How can we then talk about low-frequency credit cycles?
  - What if house prices have a different trend than GDP and debt?
- Interest rates not estimated. Why? How do they look? Why not monetary policy shocks? Can we trust the monetary policy effects?

Macroprudential implications

- Philosophical question: Why do you want to smooth the credit cycle in this model?
  - What is the impact on macro variables other than debt and consumption? (inflation, labor)
  - Is it welfare-improving? (ex-ante: ergodic distribution, or average welfare over the sample)

Other (minor) issues

- Why production function $Y = k^{\mu} \left(n'^{1-\alpha} n^{\alpha} \right)^{1-\mu}$ and not $Y = k^{\mu} \left(n' + n \right)^{1-\mu}$?
- Why hybrid Phillips curve with backward price indexation?
- Why does labor supply shrink after a positive DTI shock? (Intuition)

Conclusions

- Important topic. Ambitious and persuasive paper
- "Carta a los Reyes" (letter to the three Wise men): do it in a heterogeneous-agent environment (HANK)