Discussion of: "Banks, Market Organization and Macroeconomic Performance: An agent-based computational analysis"

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Disclaimer!

The views expressed in this discussion are those of the author only and are not necessarily shared by the Federal Reserve Board, the Committee, or any of the staff. All errors are mine.

What I will be talking about:

- What the authors are after
- The approach: why agent-based computational economics (ACE)?
- Review the punchlines of the paper
- Outline the strengths and weaknesses (as I see them)
- Offer conjectures on the "bad-time results" curiosum
- Conclude

My punchline: **this is an ambitious and promising paper!**

What these guys are up to....

The question(s):

- What is the role of banking in stabilizing the economy, damping shocks?
- Can banking itself be a source of problems? That is, is more banking always a good thing?
- What regulatory tools are "welfare improving"?

The ACE in the hole

Why ACE (and why not DSGE models)?.

- DSGE models–especially linearized ones–are like Hollywood movies: a little bit of drama followed by the inevitable happy ending
- Real-world economic dynamics look complex: bubbles, fads & herding
- The Walrasian auctioneer does not work for free
- Attractive features of ACE:
  - Organic, petri-dish approach to economic evolution
  - Agents are heterogeneous, and all shocks are individual
  - Agents are boundedly rational and follow simple rules
  - General disequilibrium & short-side rules
  - Entry and exit could be socially costly as well

Authors and their agents, both hard at work...

- $m = 5$ banks
- $n = 50$ goods
- $n(n-2) = 2400$ individual agents
- Each period divided into nine subperiods
- 5,000 runs * 70 years * 48 weeks/year $\approx$ 1.7 million observations
- Each run takes about 11.5 seconds $\approx$ 16 hours per experiment

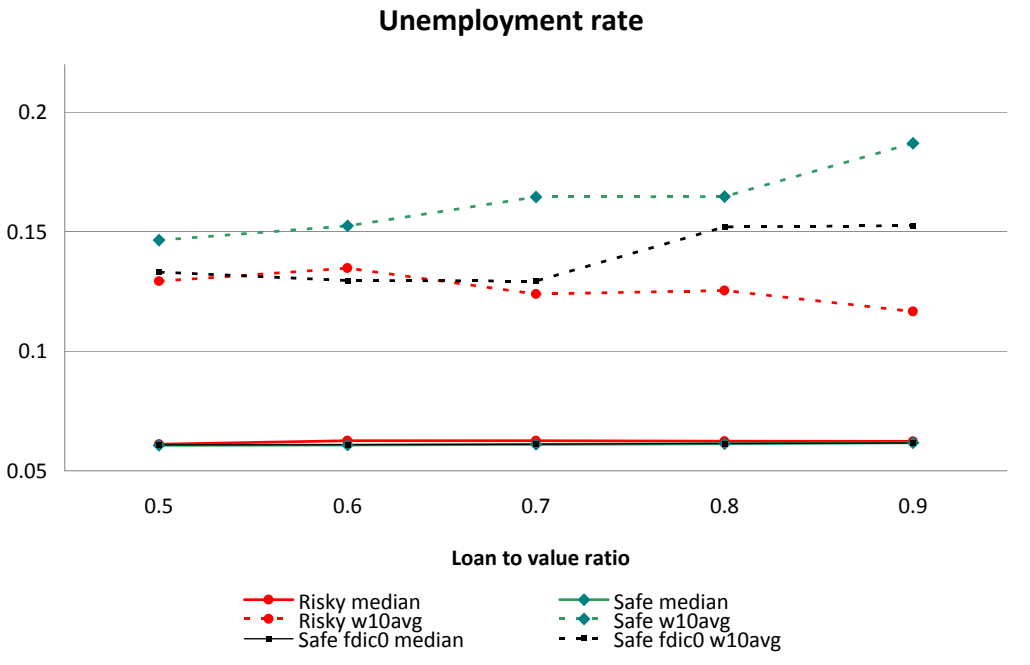
The punchlines

- Solid, prudent banks are a good thing for the economy at the median
- Making those banks "risky" does remarkably little to *median* economic performance
- But strong non-linearities manifest themselves in a small proportion of runs
- And banking does matter, and quite a lot, in extreme draws.
- Two regulatory policies have noteworthy effects on outcomes: LTVs and restrictions on dividend payouts.

Taking on orthodoxy: solid punches and glancing blows.

There is lots to like, but a few things miss (at least for me):

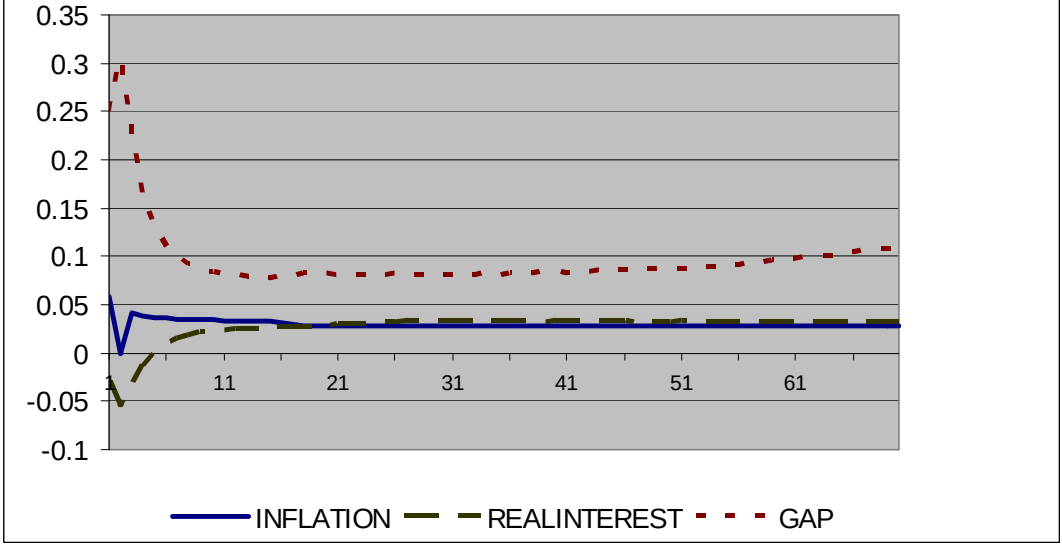
- *Solid punches*
  1. Intricate & detailed model, with sensible behavioral assumptions
  2. Thorough calibration
  3. Well posed questions, often with answers; e.g. banks usually help but not always
- *Glancing blows*
  1. Difficult to tell which model features matter; e.g., $\widetilde{s}$ is a sunk cost, but is it an important one?
  2. Need to make banks more consequential and their failure more consequential
  3. The model is not up to the task for some experiments such as the bank bailout


Unemployment rate
0.2
0.15
0.1
0.05
0.5
0.6
0.7
0.8
0.9
Loan to value ratio
Risky median
Risky w10avg
Safe fdic0 median
Safe median
Safe w10avg
Safe fdic0 w10avg

The high LTV leads to better outcomes curiosum

Median	No banks	Safe banks	Risky banks
Bank failure rate	0	0.5	13.0
Inflation rate	2.9	2.9	2.9
Unemployment rate	6.7	6.1	6.2
Unemployment duration	12	11	11
Job loss rate	0.60	0.59	0.61
Worst decile	No banks	Safe banks	Risky banks
Bank failure rate	0	1.0	19.0
Inflation rate	2.3	2.1	2.4
Unemployment rate	12	15	12
Unemployment duration	16	17	15
Job loss rate	0.94	1.20	0.88

- Measurement problems?: Average v. median; non-stationarity
- Perverse policy responses? ZLB restriction?


0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-0.05
-0.1
11
21
31
41
51
61
INFLATION
REALINTEREST
GAP

Miscellaneous quibbles

Here are a few observations and remarks of dubious significance...

- The *private* role of recourse v. non-recourse lending is not identified, i.e., there is no moral hazard
- Asymmetry in intertemporal decision making; e.g., entry decisions are myopic while consumption and portfolio decisions are not
- Method for updating "output gap" estimates by CB is confusing. Which is it: $q, q^*, q - q^*, y^{cap}$?
- Why do bad times result in more positive output gaps?
- What of the ZLB? Any chance that it conflates with the LTV through option values?
- How do we interpret restrictions on dividend payouts? Akin to restrictions on concentrated ownership? Nationalization of banks?

Suggestions for future research

Blue sky mining

1. Bubbles are always preceded by either a technical innovation or a regulatory change. Can the AGH model produce this?
2. Focus is rightly on regulatory policy but there is lots of room to look at monetary policy. Whither policy credibility? Is transparency a good thing? How serious could monetary policy errors be in an environment like this one?
3. What would exogenous population or productivity growth do?
4. Could the process of disintermediation be modeled?

Conclusions

- A big, meaty and ambitious paper that more than demonstrates the utility of ACE for the questions at hand
- The apparatus is at hand to do a whole lot more
- The authors are among the best situated to bridge the canyon between the ACE and neo-classicalists