

Gaballo and Marimon

**Breaking the Spell with Credit-Easing: Self-Confirming
Credit Crises in Competitive Search Economies**

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Discussion

Self-confirming equilibrium (context)

Story

Equilibrium

Experimentation

Policy evaluation

Conclusion

Self-Confirming Equilibrium

Basic idea

- Agents form model consistent expectations w.r.t. *equilibrium outcomes*
- But not necessarily w.r.t. other objects, in particular outcomes off the equilibrium path
- Expectations are confirmed, thus equilibrium

Plausible, appealing

Beyond simple games, somewhat intricate

Fudenberg and Levine (1993)

- SCE: For each player and every information set that may be reached under player's *equilibrium* strategy, player's beliefs about opponents' *actions* are correct
- NE: In every information set, player's beliefs are correct

Sargent (1999)

- SCE: Government mis-perceives reduced form object (Phillips curve), sets policy optimally conditional on mis-perception, interprets data as consistent with mis-perception

Gaballo and Marimon (2014)

- Broader micro foundations, competitive search framework give rise to more objects than just actions, beliefs about actions
 - Raises question where SCE consistency requirements should apply
 - Authors impose restrictions on banks' beliefs about *equilibrium values*—not on beliefs about firms' actions
- ⇒ Lack of discussion (equations in flux)

Story

Core

- Banks mis-perceive firms' fundamentals, conditionally optimize
- Resulting “bad” equilibrium confirms banks' mis-perceptions
- Central bank may induce banks to change perceptions

Add-ons

- Firms optimise in competitive search environment
- TALF application

Comments

- Core plausible, clear; can a.s. write down such a model
- Competitive search creates problems (see below); why not stick to core plus simpler firm model?
- Motivation for competitive search unclear: Are delays, fixed costs important for question at hand?
- TALF application not fitting: TALF helped *circumvent* banks; did *not* change investment behaviour; learning did *not* occur with intervention, but only with repayment after years
- Not a coordination story, but flavour: Banks' contract choices determine firms' choice sets and thus, restrictions on banks' out-of-equilibrium beliefs

Equilibrium

Firms, forming rational expectations, moving second

- i. Take as given $s^f = (\omega, \{R_n, p_n\}_{n=1, \dots, N})$
- ii. Choose contract (R_i, p_i) , investment type and scope $I(R_i, \omega)$
Value $V^f((R_i, p_i); s^f) = p_i \cdot V^{f, \text{match}}(R_i, I(R_i, \omega))$
- iii. Indifference, $V^f((R_n, p_n); s^f) = \text{cst}, n = 1, \dots, N$

From (iii),

$$\text{equilibrium } \{p_n / p_1\}_{n=2, \dots, N} \text{ depends on } \omega \quad (1)$$

Banks, forming consistent expectations, moving first

i. Have beliefs $s^b = (\beta(\omega), (p(R), q(R))_{R \in \mathbf{R}_+})$ (“small” bank)

ii. Also believe

$$p(R) \cdot \mathbb{E}^\beta[V^{\text{f,match}}(R, I(R, \omega))] = \text{cst} \quad \forall R \in \mathbf{R}_+ \quad (2)$$

iii. Choose contract offer $R_i \in \mathbf{R}_+$

$$\text{Value } V^b(R_i; s^b) = q(R_i) \cdot \mathbb{E}^\beta[V^{\text{b,match}}(R_{\text{CB}}, R_i, I(R_i, \omega))]$$

iv. Free entry, $V^b(R_n; s^b) = -c, n = 1, \dots, N$

v. $V^b(R_n; s^b)$ correct in neighborhoods around $\{R_n\}_{n=1, \dots, N}$

Issues

- Why not impose consistency requirements on *observables* $I(R_i, \omega)$ (and maybe also $\{p(R_n), q(R_n)\}_{n=1, \dots, N}$)?
- Why impose (2)? Is it consistent with SCE although only some contracts are offered?
- Are banks rational conditional on beliefs? Then (1), (2), $\beta(\omega)$ may be inconsistent
- What does $V^b(R_n; s^b)$ **correct** mean (expectation vs. realization)?

Propositions, proofs under specific functional form assumptions

- ...

Experimentation

Argument

- No private gain from experimentation, banks' beliefs persist
- But social gain (different objective function), central bank experiments even under *very pessimistic* beliefs

Underlying assumptions?

- Don't banks learn ω from firms' investment choice?
- Or does ω evolve, but then how can experimentation help?
- Small vs. large experiments: Learning speed bank to bank?

Relation to SCE?

Policy Evaluation

How to think about policy when rational private sector holds incorrect (initial) beliefs?

Analog: Lucas' change of perspective

- “Arbitrary” PS behaviour, optimal policy vs.
- Rational PS behaviour, policy rule; let's find best rule

Perspectives on experimentation with learning

- “Arbitrary” PS belief formation, optimal policy vs.
- Rational PS belief formation, policy rule; let's find best rule

Conclusion

Thought provoking paper

As for the big picture, my views match the paper's ...

... as for the details, they sometimes don't

(the converse of a self-confirming equilibrium)