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Discussant comments on

Market freeze and recovery: trading dynamics under optimal intervention by a Market-Maker-of-Last-Resort

Jonathan Chiu and Thorsten Koeppl

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"Monetary policy, financial stability and the business cycle"

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* These comments reflect the views of the author and not necessarily those of the BIS or of central banks participating in the meeting.

Discussion of Chiu and Koeppl's

"Market Freeze and Recovery: Trading Dynamics under Optimal Intervention by a Market-Maker-of-Last-Resort"

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The theme

- Motivation:

  Accounts of trading lapses in asset markets during 2007–2009

- Chiu and Koeppl's working hypothesis:

  Lapses caused by an adverse-selection shock

The questions and the answers

Question 1: What should the government do?

Answer: Buy lemons.

Question 2: How should the government do it?

Answer: Study tradeoffs in the choices of quantity, price, and timing of lemons purchase.

Insight: Policy can (sometimes should) exploit "announcement effects".

The model

$$
\begin{aligned}
rV_o &= \delta + \kappa\left(V_s - V_o\right) \\
rV_\ell &= \lambda\mu_b\gamma\left(V_b - V_\ell + p\right) \\
rV_s &= \delta - x + \lambda\mu_b\gamma\left(V_b - V_s + p\right) \\
rV_b &= \lambda\gamma\left(\mu_s + \mu_\ell\right)\left\{\tilde{\pi}\left(p\right)V_o + \left[1 - \tilde{\pi}\left(p\right)\right]V_\ell - V_b - p\right\}
\end{aligned}
$$

$\mu_s = \frac{\kappa}{\kappa+\lambda\gamma}\pi S$	$\mu_o = \frac{\lambda\gamma}{\kappa+\lambda\gamma}\pi S$	$\mu_\ell = (1-\pi)S$	$\mu_b = 1$

$$
\tilde{\pi}\left(p\right) = \begin{cases} 0 & \text{if } p < V_s - V_b \\ \frac{\mu_s}{\mu_s+\mu_\ell} = \frac{\kappa\pi}{\kappa+(1-\pi)\lambda\gamma} & \text{if } V_s - V_b \leq p \end{cases}
$$

Steady-state equilibria

Look for equilibrium with $p = V_s - V_b$, then:

$$
\begin{aligned}
rV_o &= \delta + \kappa\left(V_s - V_o\right) \\
rV_\ell &= \lambda\mu_b\gamma\left(V_s - V_\ell\right) \\
rV_s &= \delta - x \\
rV_b &= \lambda\gamma\left(\mu_s + \mu_\ell\right)\left\{\frac{\kappa\pi}{\kappa+(1-\pi)\lambda\gamma}V_o + \left[1 - \frac{\kappa\pi}{\kappa+(1-\pi)\lambda\gamma}\right]V_\ell - V_s\right\}
\end{aligned}
$$

Results

$$\Gamma(\gamma) \equiv \frac{\kappa\pi}{\kappa+(1-\pi)\lambda\gamma} V_o + \left[1 - \frac{\kappa\pi}{\kappa+(1-\pi)\lambda\gamma}\right] V_\ell - V_s$$

- $\gamma = 0$ if π is small enough
- $\gamma = 1$ if π is large enough
- Unique steady state if κ is small
  (with $\gamma \in (0,1)$ for intermediate values of π)
- If κ is large: three steady states for intermediate values of π

- *Strategic substitutability* in trading decisions: *"quality effect"*
- *Strategic complementarity* in trading decisions: *"resale effect"*

The adverse-selection shock

1. Start from a situation with large π
   (with the market at the steady state equilibrim with $\gamma = 1$)
2. Assume an unanticipated one-time large drop in π
   (market moves to a region with $\gamma = 0$)

$$\Rightarrow$$

3. Trade halts

About the theoretical formulation

- Doesn't the $\{0, 1\}$ inventory restriction exacerbate the strategic complementarity?
  - What if agents could hold *portfolios of assets?* (e.g., some lemons, some good assets)?
- What do agents pay with?

About the theoretical formulation

- Holding motives are driven by preference shocks:
  - "Negative" preference shocks turn owners into sellers
  - "Positive" preference shocks ... always coincide with sales?
  - Which assets/investors do you have in mind?
- Preference shocks interpreted as idiosyncratic "liquidity shocks" (need to sell)
  - These "liquidity shocks" are modeled as *permanent*...
  - Aren't liquidity shocks typically thought of as *temporary*?

About the policy analysis

- In this setup, in general a policy should be a *path of functions:*

$$\{Q(t), P(t)\}_{t \geq 0}$$

- But the set of policies has been restricted to three *numbers*:

$$(T, Q(T), P(T))$$

- Cannot really talk about "*optimal* intervention"
  ("optimal" is all over the paper—including the title...)

The big picture

- "Announcement effect" is nice
  - ... but ... what about *time consistency*?
  - Why not solve for the time-consistent path of gov. purchases?
- Policy recommendation: buy lemons
  - ... but ... is that what the Fed did?
  - ... what about *moral hazard*?

Summary

- Nice paper:
  - Very interesting question (I am sure)
  - Headed in the right direction (I am pretty sure)
- Still some loose ends to take care of... (I think)