A Theory of Endogenous Asset Fire Sales, Bank Runs and Financial Contagion

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IWFSAS 2017
HEC Montreal, 24-25 August 2017

Summary

Motivation: Banking crises often a vicious cycle

- run on one bank
- asset prices drop
- runs on other banks
- asset prices drop further,...

Summary

Novelty: Model this vicuous cycle

Use model to inform policy decisions

Model:

- Global games approach
- Aggregate risk & bank-specific risk
- Endogenous asset prices in case of run

Summary

Asset fire sales and funding illiquidity reinforce each other

Policy implications

1. "increasing capital can ... have unintended consequences for liquidity via buyers' beliefs."
2. "model highlights the effectiveness of asset purchase programs in promoting financial stability."
3. regulatory disclosures are a double-edged sword.
   - disclosed good news $\longrightarrow$ banks can be saved from illiquidity.
   - disclosed bad news $\longrightarrow$ disclosure can lead to financial fragility.

Refresher

Comments:
Refresher: Why the global games approach again?
DD1983:

- Multiple equilibria
- Runs unrelated to fundamentals (panics, sun-spots)

Goldstein-Pauzner (2005):

- Single equilibrium
- That depends in reasonable way on fundamentals

General comments

I have the impression that you have a gem!

I am going to trust you on the technical stuff...but, in moderation

- .If I don't see the intuition...
- Or feel the result arises from an unreasonable assumption...

I do have some concerns after applying these criteria
But also suspect misunderstanding on my part

General comments

On structure: start "simple" and increase difficulty

- Framework of the "baseline model"
- Equilibrium, intuition of the baseline model
- Policy in the baseline model
- Extention: aggregate uncertainty
- Equilibrium & policy in the extended model

Banks: liquidity transformation?

Your assets, $j = 1, ..., N$:

$t = 0$	if held until $t = 1$	if held until $t = 2$
1	sold for P_M	θ_j

Banks: liquidity transformation?

Comment: what's the issue if runs occur?

Your paper		
$t = 0$	if held until $t = 1$	if held until $t = 2$
1	sold for P_M	θ_j

→

DD1983		
$t = 0$	if held until $t = 1$	if held until $t = 2$
1	1	$\theta > 1$ (fixed)

- DD1983: issue is inefficient liquidation
- Your paper: Illiquidity? Or really low, but fair prices?
- Asset sold, but always held until maturity
  - So no liquidation, no inefficiency
  - No maturity transformation role of banks as in DD1983

Baseline model

Comment: contagion

- No counterparty risk, etc
- Link is "fire sale price" if many banks run (M large)
  - This is plausible mechanism in real world
  - In your model too?
- Issue 1: (as indicated) asset illiquid?
- Issue 2: contagion? Assets sold for fair market value, P. FMV decreasing in M?

Baseline model

$P.$ decreasing in M? $\rightarrow$ reasonable in reality.

Asset buyers uninformed: do not observe any bank's cash flow θ_j

"Yet, they can observe the number of bank runs, and based on the observable outcome, form rational expectations about the quality of assets on sale."

- Suppose no aggregate uncertainty, N large, $M = 1 \rightarrow$ "bad draw", so $E(\theta_j|run)$ is low $\rightarrow P_1$ low
- Suppose no aggregate uncertainty, N large, and (counterfactually) M is high $\rightarrow$ not likely M "bad draws"! so $E(\theta_j|run)$ is high $\rightarrow P_M$ high
- Relevance: contagion in the "baseline model"?
    - with P_M not declining in M no contagion in the baseline model, right?

Model with systematic risk

This is perhaps where aggregate risk s comes in!

- Maybe aggregate risk is necessary condition for contagion
- Aggregate risk $\longrightarrow$ interaction "asset price at $t = 1$" & number of runs
    - Run $\longrightarrow$ higher belief that $s = B$ $\longrightarrow$ lower conditional expectation value $=$ lower P_M $\longrightarrow$ more runs

Conclusion

Interesting paper, very subtle.

If I am right (probability?):

- Then no loss from a asset sale, no fire sale price in compatitive market.
- Assumed relation between P_M and M not so clear-cut?
- Still not to despair:
  - Very subtle, and you know the proofs now.
  - Maybe aggregate risk is necessary condition for contagion
  - There must be other ways to model fire sales too, hopefully not too *ad hoc*