

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

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Motivation: Banking crises often a vicious cycle

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

Novelty: Model this vicious cycle

Use model to inform policy decisions

Model:

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

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 → banks can be saved from illiquidity.
 - disclosed bad news → disclosure can lead to financial fragility.

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

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

On structure: start "simple" and increase difficulty

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

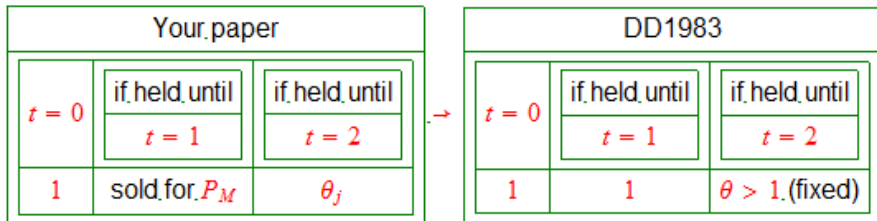
Banks: liquidity transformation?

Your assets, $j = 1, \dots, N$:

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

Banks: liquidity transformation?

Comment: what's the issue if runs occur?



- 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

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 \rightarrow interaction "asset price at $t = 1$ " & number of runs
 - Run \rightarrow higher belief that $s = B \rightarrow$ lower conditional expectation value = lower $P_M \rightarrow$ more runs

Interesting paper, very subtle.

If I am right (probability?):

- Then no loss from a asset sale, no fire sale price in compaitive 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*