Discussion of:

A Model of a Systemic Bank Run

by Harald Uhlig

Todd Keister
Federal Reserve Bank of New York
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The views expressed herein are my own and do not necessarily reflect those of the Federal Reserve Bank of New York or the Federal Reserve System.
Motivation

- Observers claim that some recent events are “just like” a bank run
  - draw policy conclusions based on this analogy

- We have a canonical model of bank runs
  - Diamond and Dybvig (1983) and many subsequent variations

- However:
  - some critical elements of the common story about recent events
    are not in the model
  - (there is also some debate about the policy conclusions of the basic model)
• Goal: build a richer version of the Diamond-Dybvig framework
  – more directly linked to current events
  – use this model to inform current policy debate

• Key shortcomings of standard model:
  (i) the current crisis is a run by intermediaries, not depositors
  (ii) the crisis also has important *systemic* elements

• I will argue that (ii) is the relevant issue
  – start with the basic Diamond-Dybvig model
The Diamond-Dybvig model

- Continuum of depositors
  - each may be patient or impatient
  - expected utility: \( \phi u(c_1) + (1 - \phi) u(c_2) \)

- Bank divides assets between storage and investment
  - investment yields \( R > 1 \) if held to maturity
  - but only yields \( q \leq 1 \) if liquidated early

- Competition leads bank to maximize \( E[u] \) subject to feasibility

- A run equilibrium exists under some conditions
The Diamond-Dybvig model: a “bank-on-bank” run

• Continuum of local banks
  – each may have patient or impatient depositors
  – expected utility: $\phi u(c_1) + (1 - \phi) u(c_2)$

• Core bank divides assets between storage and investment
  – investment yields $R > 1$ if held to maturity
  – but only yields $q \leq 1$ if sold to outside investors

• Competition leads core bank to maximize $E[u]$ subject to feasibility

• A run equilibrium exists under some conditions
A “wholesale” run is not very different from a “retail” run (in modeling terms)

- The paper does more than relabel variables, of course
  - differentiates local bank and its depositors
  - has location-specific risk that generates a role for core banks
    ⇒ true tiering of financial system

- However, I would argue that is not the main issue/contribution
  - I want to focus on systemic effects
The Diamond-Dybvig model: a system-wide run

- It is also easy to model a system-wide bank run

- Suppose there are many core banks
  - each core bank has its own set of local banks/depositors
  - depositors in a core bank run if they observe a negative “sunspot” signal

- Suppose all depositors coordinate on the same signal
  - then a run, when it occurs, will be system wide
  - but ... is this a *systemic* run?
• In the model above, there is no linkage between the core banks
  – systemic ≈ a run on some banks adversely affects other banks

• One approach: payoff externality in liquidation costs ("fire sale")
  – suppose \( q(L) \) where \( L = \) total assets liquidated with \( q'(L) \neq 0 \)

• Fire sale pricing \( \Rightarrow \) high return on assets between \( t = 1 \) and \( t = 2 \)
  – why don’t outside investors buy, drive up prices?
  – answering this question is not trivial
  – optimal policy response may depend critically on the answer

• The paper looks at two theories: loss aversion and moral hazard
Loss aversion

- Return $R$ is random and heterogeneous across assets

- Some outside investors are experts who pay fair value
  - fixed mass of these investors

- All other outside investors are loss averse
  - willing to pay the value of the asset in the worst state

- As $L$ increases, larger fraction of sales goes to loss averse investor
  - a run on some bank lowers average sale price; $q'(L) < 0$
  - this makes other banks more susceptible to a run
Moral hazard

- Classic lemons problem
  - banks know value of their assets, outside investors do not
  - banks would like to unload worst assets

- When depositors run, bank is forced to sell all assets

- Forced sales improve average quality of assets sold
  - a run on some banks raises the sale price; \( q'(L) > 0 \)
  - this makes other banks less susceptible to a run
  - runs counter to common view of current events
Comments: (1) policy implications

• Conclusion: trust the policy implications of the loss-aversion model

• Paper offers some preliminary thoughts on what these implications might be
  
  – govt purchases of assets at above-market prices: good
  
  – offers taxpayers a high expected return

• But ... what if taxpayers are loss averse?

• Paper is careful not to make welfare statements

  – but ... we would like to be able to evaluate policy proposals in terms of welfare
(2) Theories of $q(L)$

- The paper considers two specific theories of $q(L)$
  - many other possibilities; how sensitive are results?

- Will any model with $q'(L) < 0$ lead to same policy recommendation?
  - probably not

- How can we judge whether the loss aversion theory is really useful?
  - personally, I would prefer a theory that does not rely on “funny” preferences

- What other tests should a model pass before I trust its recommendation?
(3) Multiplicity

- The model has multiple equilibria
  - a “fundamental” run and a self-fulfilling run

- Do the policy conclusions of the model vary across equilibria?
  - seems possible (perhaps even likely)

- If so, how can we determine which is the relevant one?
(4) Probability of a crisis

- Paper views the current situation as triggered by an unlikely shock
  - ex ante probability of a bust $\approx 0$, or ...
  - bust state was "irrationally ignored" when contracts were signed

- What if the bust state was rationally ignored?
  - agents anticipate government intervention following some event(s), make contractual arrangements accordingly
  - these arrangements can make the event more likely to occur (Ennis and Keister, 2008a,b)

- Do the ex post policy prescriptions depend on the cause of the crisis?
  - perhaps not, but seems worth thinking about
Summary

- Paper addresses an important issue
  - builds a model that can be used for policy evaluation
  - designed to match some features of the current crisis

- Exercise requires one to be explicit about the forces at work
  - “fire sale” story is very common, but ...
  - surprisingly difficult to fit into a standard model

- Results so far are interesting, but more could be done
  - real payoff is a more detailed evaluation of policy proposals