

Shadow Banking and Financial Stability under Limited Deposit Insurance

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„Shadow banks“ denote financial institutions outside the traditional banking system that issue liabilities with similar properties to bank deposits (payment-on-demand, stable nominal value). This paper studies the relation between shadow banking and financial stability in an economy in which government-provided deposit insurance at traditional banks is limited by a cap and in which self-fulfilling, systemic bank runs can occur.

The cap on deposit insurance is taken as an exogenous parameter in this paper. In this sense, the paper speaks to a regulator that cannot change the deposit insurance scheme.

Since the financial crisis 2007-08, shadow banks are widely thought to pose a threat to financial stability. Key message of this paper: The financial stability implications of the shadow banking sector should not be analyzed separately from the cap on deposit insurance at traditional banks.

Shadow banks cater mostly to institutional cash pools, whose size is such that it is impossible or impracticable to hold the entire cash in insured (commercial-) bank deposits, given the cap on deposit insurance (Poszar 2011).

In the context of limited deposit insurance, shadow banks can have the effect of absorbing uninsured (and uninsurable) deposits from the commercial banking sector. This may be desirable from a financial stability point of view. Shadow banking may limit the extent of systemic bank runs in the sense that systemic runs will be confined to the shadow banking sector rather than encompassing the entire financial system.

Main technical contribution of the paper: it shows that the potential magnitude of systemic bank runs in the economy may depend on how insured and uninsured deposits are distributed across banks.

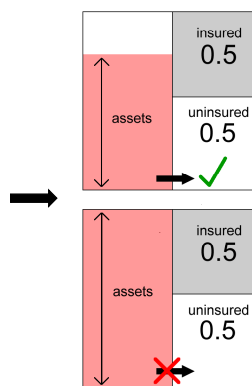
Consider a bank with 50% insured and 50% uninsured deposits:

assets	deposits
1	insured 0.5
	uninsured 0.5

If depositors withdraw, the bank needs to sell assets on a secondary market, at market price P .

- $P = 1$: Assets trade at fundamental value (no liquidation losses)
- $P < 1$: Assets trade below fundamental value (liquidation causes losses for the bank)

The bank is susceptible to self-fulfilling runs if all **uninsured** depositors have an incentive to withdraw, given that all other uninsured depositors withdraw. (**Insured** depositors will never run the bank).



Suppose $P = 0.8$: then the bank is not susceptible to runs. It can pay out all uninsured depositors if all of them withdraw, by selling a large enough part of the portfolio. Uninsured depositors know this and have no incentive to run in the first place.

Suppose $P < 0.5$: then the bank is susceptible to runs. It cannot pay out all uninsured depositors if all of them withdraw. Nothing is left in the bank for the uninsured depositors that show up last at the bank.

In general, a bank is susceptible to self-fulfilling runs if and only if:

$$\text{share of uninsured deposits} > \text{liquidation price}$$

Endogenize liquidation price („cash-in-the-market pricing“):

$$\text{liquidation price} = \frac{\text{secondary market capacity}}{\text{total assets sold}}$$

Whether an individual bank is susceptible to a run depends on the liquidation price, which itself depends on how many other banks are hit by a run. Runs have a systemic component.

The potential magnitude of systemic runs depends on the structure of the financial system.

Consider an economy in which 50% of all deposits are insured and 50% are uninsured.

Let secondary market capacity = 0.25. In a hypothetical situation where all banks are hit by a run, the liquidation price then equals $P = 0.25$.

"commercial banks"	
1	insured 0.5
	uninsured 0.5

Structure 1

At $P = 0.25$, all banks are susceptible to runs -> Systemic runs can affect the entire financial system.

"commercial banks"		"shadow banks"	
0.5	insured 0.5	0.5	uninsured 0.5

Structure 2

At $P = 0.25$, only shadow banks are susceptible to runs -> systemic runs can affect the entire shadow banking sector (i.e. at most half of the financial system).

"commercial banks"		"shadow banks"	
0.6	insured 0.5	0.4	uninsured 0.4

Structure 3

At $P = 0.25$, only shadow banks are susceptible to runs -> systemic runs affect at most 40% of the financial system.

Key References:

Allen, Franklin and Douglas Gale (1994): „Limited Market Participation and Volatility of Asset Prices“, *AER*

Davila, Eduardo and Itay Goldstein (2016): „Optimal Deposit Insurance“, Working Paper

Diamond, Douglas and Philip Dybvig (1983): „Bank Runs, Deposit Insurance and Liquidity“, *JPE*

Luck, Stephan and Paul Schempp (2016): „Banks, Shadow Banking and Fragility“, Working Paper

Poszar Zoltan (2011): „Institutional Cash Pools and the Triffin Dilemma of the U.S. Banking System“, IMF Working Papers No. 11/190

General result: The magnitude of systemic runs is minimized if the shadow banking (SB) sector is at the smallest size at which it is large enough to absorb enough of the uninsurable deposits from the commercial banking (CB) sector so as to keep the commercial banking sector shielded from systemic runs.

The graph shows the optimal size of the shadow banking sector for an economy with secondary market capacity of 0.25. If the share of uninsurable deposits in the economy is:

- **Low**: systemic runs do not occur, independent of how uninsurable deposits are distributed across banks.
- **Middle**: Systemic runs can be avoided by setting the SB sector large enough to shield CBs from systemic runs, but not too large, so that the SB sector itself is not susceptible to systemic runs.
- **High**: Not feasible to avoid systemic runs altogether. Set SB-sector to the smallest size at which it keeps CBs shielded from runs.

