Shadow Banking and Financial Stability under Limited Deposit Insurance

Lukas Voellmy, Study Center Gerzensee (foundation of the Swiss National Bank)

‘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-funding, 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.

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

<table>
<thead>
<tr>
<th>assets</th>
<th>deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>0.5</td>
<td>0.5</td>
</tr>
</tbody>
</table>

If depositors withdraw, the bank needs to sell assets on a secondary market, at market price P. If P = 1: Assets trade at fundamental value (no liquidation losses). If P < 1: Assets trade below fundamental value (liquidation causes losses for the bank).

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

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

\[ \text{share of uninsured deposits} \geq \text{liquidation price} \]

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.

<table>
<thead>
<tr>
<th>Structure 1</th>
<th>Structure 2</th>
<th>Structure 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>At P = 0.25, all banks are susceptible to runs ( \rightarrow ) Systemic runs can affect the entire financial system.</td>
<td>At P = 0.25, only shadow banks are susceptible to runs ( \rightarrow ) Systemic runs can affect the entire shadow banking sector (i.e. at most half of the financial system).</td>
<td>At P = 0.25, only shadow banks are susceptible to runs ( \rightarrow ) Systemic runs affect at most 40% of the financial system.</td>
</tr>
</tbody>
</table>

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 uninsured 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 uninsured deposits in the economy is:

- **Low**: Systemic runs do not occur, independent of how uninsured 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 either.
- **High**: Not feasible to avoid systemic runs altogether. Set SB-sector to the smallest size at which it keeps CBs shielded from runs.

Key References: