How and Why Capital Stress Tests Might Incorporate a Funding Shock

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Capital stress tests typically emphasize the direct risks to bank capital from a severe recession and associated market dislocation.

Funding cost shocks are related to firms’ own capital positions:
- Capital strength preserves the bank’s access to and lowers its funding costs in wholesale markets.

Funding cost shocks are also related to broader developments:
- Bank capital could be affected by market-wide funding and liquidity disruptions, which may or may not reflect stress arising from the banking industry.

Funding/liquidity issues in stress testing featured in academic literature (Kashyap et al. 2012), official statements (Brazier, Bank of England 2015), and policymaker speeches (Tarullo 2016).

Our efforts to understand how a funding shock could be incorporated are at an early stage.
Examples of Stress-Induced Funding Cost Increases

• Relative funding costs increased well before acute stresses arose

• During stress test horizon, bank capital is declining

• Test could recognize that those declines, some to near regulatory minimums, will trigger investor concerns

• A more-conservative approach might be to assume some funding sources dry up, rather than become somewhat more costly

Note: Spread over a group of peer institutions that did not experience acute stress.
Source: Call Reports.
Variations on a Funding Cost Component

• Direct shock to funding costs
  • Assume that weighted average cost of a set of liabilities increases sharply
  • Alternatively, bank loses access to some of its wholesale funding and must replace at higher cost

• Link funding costs to firms’ capital position during the test
  • Falling below some critical threshold may trigger market reaction even in the absence of regulatory penalties
  • As bank’s capital falls further below trigger, funding becomes progressively more expensive

• Link funding costs to overall capital position of the industry during the test
  • Macroprudential: Captures externalities that stresses caused by riskier banks impose on peers, such as balance sheet adjustments and fire sales
  • Requires advances in modeling of both sides of the balance sheet under stress
  • May require iterative procedure with banks
Illustrative Example of Direct Funding Cost Shock

• One potential approach to incorporate a funding shock would be to:
  • Assume banks lose access to certain forms of STWF, and ...
  • ... are forced to substitute higher cost funding
  • Moreover, the declines in capital seen during the test raise the bank’s costs in markets that it continues to access

• To get a rough sense of potential magnitude, assume average increase in funding costs is 100 bp at annual rate on existing fraction of assets funded by STWF for 1 year

• In this example, define STWF as closely as possible to GSIB rule using public data:
  • **Narrow definition:** Federal funds purchased and repurchase agreements; other borrowed money (≤ 1 year); commercial paper; other trading liabilities and short positions; brokered deposits ≤ $100,000
  • **Broader definition:** foreign deposits and time deposits <= 1 year
## Additional Losses From Direct Funding Shock (basis points of RWA)

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean</th>
<th>Median</th>
<th>10th percentile</th>
<th>90th percentile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Narrow definition of STWF</td>
<td>-17</td>
<td>-15</td>
<td>-41</td>
<td>-3</td>
</tr>
<tr>
<td>Adding foreign deposits and time deposits &lt;= 1 year</td>
<td>-31</td>
<td>-18</td>
<td>-74</td>
<td>-6</td>
</tr>
</tbody>
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Conclusion

• If bank capital positions worsened as they do during the stress test, market-wide funding costs would likely rise and weakest banks would be disproportionately affected

• Associated rise in funding costs would affect earnings and thus capital accretion

• Reaction by banks – withdrawing liquidity, dumping assets – would have second-round effects on other banks

• Challenges to implementation
  • A direct funding shock or slight variation on that theme would be fairly straightforward
  • Macroprudential implementation would require gathering information or making assumptions about banks’ contingency plans

• Addressing capital strains arising from illiquidity does not reduce the need for separate liquidity stress testing