

How and Why Capital Stress Tests Might Incorporate a Funding Shock

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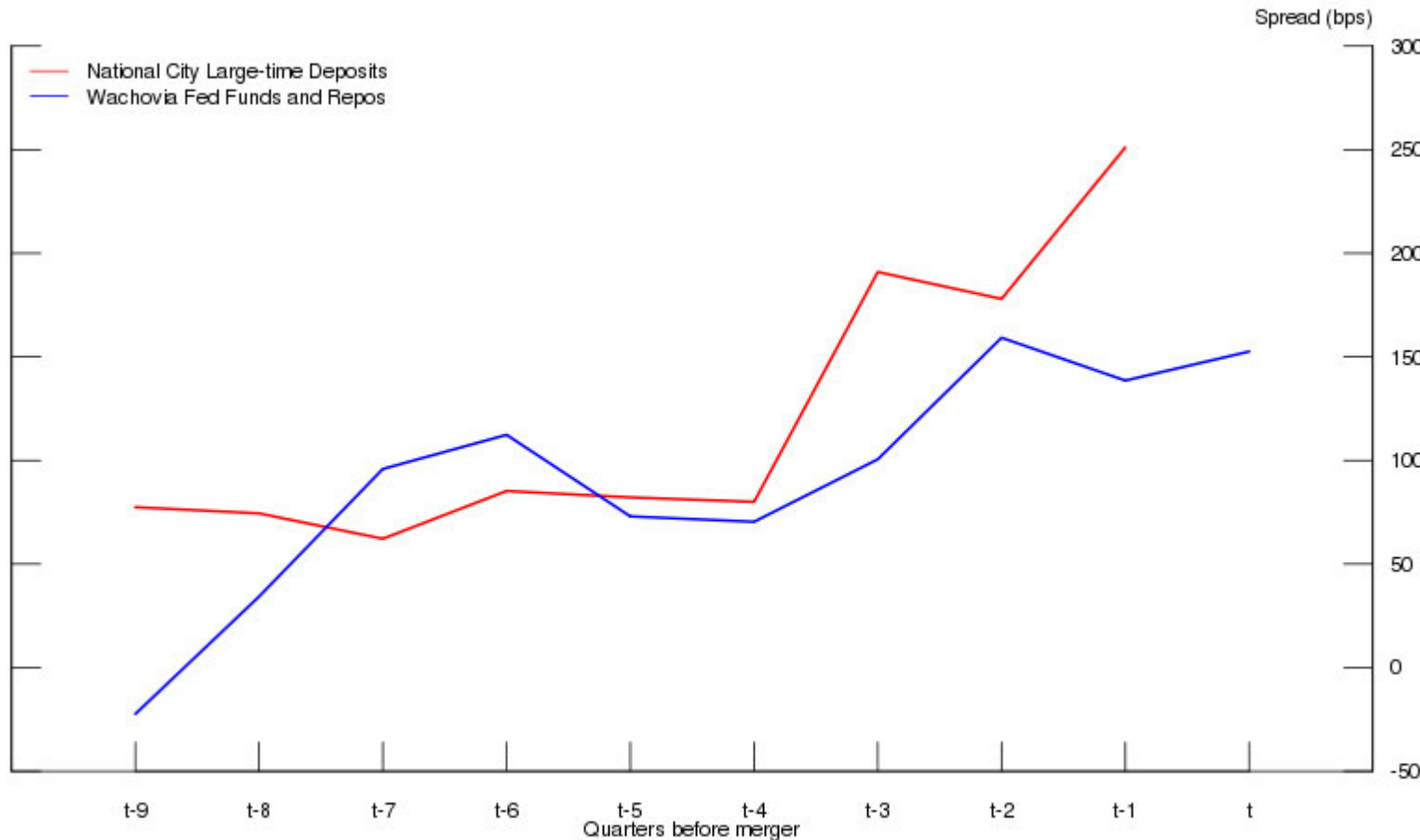
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Background

- 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 $\leq \$100,000$
 - **Broader definition:** foreign deposits and time deposits ≤ 1 year

Additional Losses From Direct Funding Shock (basis points of RWA)

	Mean	Median	10th percentile	90th percentile
Narrow definition of STWF	-17	-15	-41	-3
Adding foreign deposits and time deposits \leq 1 year	-31	-18	-74	-6

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