Discussion of

“Liquidity At Risk: Joint Stress Testing of Solvency and Liquidity”

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Key Contributions of the Paper

- Framework for coherent stress testing of liquidity and solvency risk
  - Shocks to risk factors → asset values → capital and liquidity
- Incorporates bank's response to liquidity needs
  - Borrowing (including repo, central bank), fire sales
- Feedback cycle between falling asset values and increased cash needs
- Liquidity at Risk: additional cash needed conditional on shock
- Framework designed for practical implementation using information from bank balance sheets

My Questions

1. Does the framework capture all or most important sources of liquidity risk?

2. How does the framework relate to existing measures, including the Liquidity Coverage Ratio?

Outlays-Driven Vs. Funding-Driven Liquidity Stress

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- Paper focuses on **outlays-driven** stress:
  - Value of collateral posted by bank drops → bank needs to top up
  - Adverse move in derivatives → bank needs to pay variation margin

Outlays-Driven Vs. Funding-Driven Liquidity Stress

- Paper focuses on **outlays-driven** stress:
  - Value of collateral posted by bank drops → bank needs to top up
  - Adverse move in derivatives → bank needs to pay variation margin

- Doesn't address draws on credit lines supplied by bank (considered stable)

- Doesn't address **funding runs**
  - [Does allow for creditor response to credit downgrade]
  - Creditors hoard liquidity because they fear they may need it
  - Creditors pull funding because of uncertainty
    - Wider haircuts in repo
    - U.S. prime money market funds cut exposure to European banks in half in 2011-2012

Contrast: Liquidity Coverage Ratio

$$\text{LCR} = \frac{\text{High Quality Liquid Assets}}{\text{Stressed Outflow - Stressed Inflow}}$$

- Flows estimated for 30-day stress period
- Prospective and conditional measure (paper says “backward looking”)

- Uses ad hoc weights, no link to primitive risk factors or asset values

JPM LCR Disclosure 2020-Q1

Three months ended March 31, 2020 (in millions)		Average Unweighted Amount[a]	Average Weighted Amount[b]
CASH OUTFLOW AMOUNTS			
5	Deposit outflow from retail customers and counterparties, of which:	**$ 794,589**	**$ 49,304**
6	Stable retail deposit outflow	491,773	14,753
7	Other retail funding outflow	257,037	26,721
8	Brokered deposit outflow	45,779	7,830
9	Unsecured wholesale funding outflow, of which:	**816,137**	**302,807**
10	Operational deposit outflow	564,162	140,743
11	Non-operational funding outflow	245,424	155,513
12	Unsecured debt outflow	6,551	6,551
13	Secured wholesale funding and asset exchange outflow[d]	**795,050**	**175,852**
14	Additional outflow requirements, of which:	**476,095**	**149,776**
15	Outflow related to derivative exposures and other collateral requirements	58,489	44,392
16	Outflow related to credit and liquidity facilities including unconsolidated structured transactions and mortgage commitments	417,606	105,384
17	**Other contractual funding obligation outflow**	**4,754**	**4,754**
18	**Other contingent funding obligations outflow[e]**	**277,159**	**10,033**
19	TOTAL CASH OUTFLOW	**$ 3,163,784**	**$ 692,526**

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CASH INFLOW AMOUNTS					
20	**Secured lending and asset exchange cash inflow[(d)]**	$	**818,358**	$	**208,305**
21	**Retail cash inflow**		**25,955**		**12,978**
22	**Unsecured wholesale cash inflow[(f)]**		**31,668**		**25,147**
23	**Other cash inflows, of which:**		**24,291**		**23,973**
24	Net derivative cash inflow		4,856		4,856
25	Securities cash inflow		5,585		5,585
26	Broker-dealer segregated account inflow		13,532		13,532
27	Other cash inflow		318		–
28	TOTAL CASH INFLOW	$	**900,272**	$	**270,403**

Contrast: Liquidity Coverage Ratio

$$\text{LCR} = \frac{\text{High Quality Liquid Assets}}{\text{Stressed Outflow - Stressed Inflow}}$$

- Stressed outflow = stressed outlays + stressed funding withdrawal

- Liquidity at Risk:

Definition (Liquidity at Risk). *Consider a stress scenario defined in terms of shocks to asset values. We call* Liquidity at Risk *associated with this stress scenario the net liquidity outflows resulting from this stress scenario:*

$$\begin{aligned} \textit{Liquidity at Risk} = {} & \textit{Maturing Liabilities} + \textit{Net Scheduled Outflows} \\ & + \textit{Net Outflow of Variation Margin} + \textit{Credit-Contingent Cash Outflows} \end{aligned}$$

The Liquidity-Solvency Link

- Paper's emphasis is on coherent modeling of liquidity and solvency stress
- LCR disconnected from capital, asset values
- But U.S. G-SIB surcharge implicitly reflects a "capital cost of liquidity risk"
  - U.S. G-SIB Method 2 score (unlike Basel's) includes wholesale funding
  - Higher score → higher capital requirement
- How does this implicit link compare with model's implications?

JPM Systemic Risk Report Y-15 – 2020-Q1

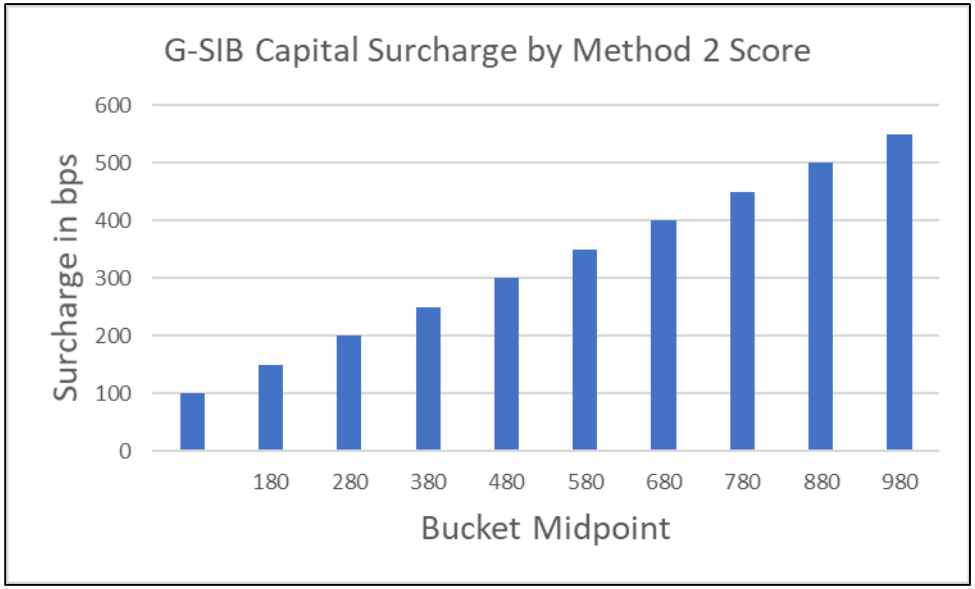
- Short-term wholesale funding contributes 115 pts to G-SIB score

	in Thousands	RISK	Amount
6. Total short-term wholesale funding (sum of item 5, Columns A through D)		Y894	509345850
7. Average risk-weighted assets		Y895	1546890000
		RISK	Percentage
8. Short-term wholesale funding metric (item 6 divided by item 7)		Y896	32.93

- Which adds approx. 58 bps to capital requirement

- Capital cost of liquidity risk

- How does this compare with the paper's analysis?



Summary

- Addresses an important question of coherent stress testing of liquidity and solvency risk
- Relative to existing regulatory framework, puts less emphasis funding runs as a source of liquidity risk
  - But this can be addressed
- Systematic comparison with LCR would be welcome
- Paper has a welcome focus on making the results practical for implementation