

AFIN8003 - Workshop 9

Banking and Financial Intermediation

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! Workshop 9: Liquidity in crisis

Last week we **measured** liquidity (LCR, NSFR). This week we **manage** it, and we do it in a crisis.

Plan for the hour:

1. Part A, Concept check (≈ 15 min). Nine MCQs. Self-mark.
2. Part B, Short answers (≈ 10 min). Three discussion questions.
3. Part C, A liquidity crisis, worked through (≈ 25 min). Three rounds, Monday to Wednesday. *This is the bulk of the workshop.*
4. Part D, The big question (≈ 10 min). Open discussion.

Bring a pen. Mark up the handout.

1 Part A: Concept check

1.1 MCQ

1. The cost of holding reserves that pay no interest at the central bank is:
 - ☐ buffer reserves
 - ☐ a reserve requirement tax
 - ☐ the liquid assets ratio
 - ☐ required by law in all countries
2. A deep market is an important consideration in the management of FI liquidity in that:
 - ☐ the FI may wish to issue more loans
 - ☐ the FI may wish to issue more equity
 - ☐ the FI could be an inactive market participant
 - ☐ the FI will need to be able to sell short-term assets quickly to convert to cash
3. Which of the following is a determinant of an FI's optimal liquid asset ratio?
 - ☐ the variability of deposit inflows and outflows
 - ☐ the yield on non-liquid assets
 - ☐ the liquidation costs of highly non-liquid assets
 - ☐ All of the listed options are correct.
4. Under the RBA's ample-reserves framework, the weekly open market operation is best described as:
 - ☐ an auction in which the RBA fixes the quantity of reserves and banks bid on price
 - ☐ an outright purchase of government bonds, with no agreement to resell
 - ☐ a full-allotment repo auction: banks bid for as many reserves as they want, and every bid is filled
 - ☐ a facility open only to ADIs that have breached their LCR
5. Covered bonds are:

- ☐ bonds issued by banks that have backing of a pool of high quality assets
 - ☐ bonds that are backed by the Australian government
 - ☐ bonds issued by sovereign nations and backed by the IMF
 - ☐ a pool of various assets
6. What is the primary method of meeting cash demands in modern financial institutions?
- ☐ Asset liquidity
 - ☐ Liability liquidity
 - ☐ Securitization
 - ☐ Cash reserves
7. A high quality liquid asset (HQLA) must be:
- ☐ well rated by the rating agencies
 - ☐ easy to obtain
 - ☐ a long-term investment
 - ☐ unencumbered and easily and immediately able to be converted into cash
8. Governments seek to protect depositors more than other DI creditors because:
- ☐ deposits are a critical part of the financial system
 - ☐ deposits are a primary form of savings for individuals
 - ☐ non-deposit creditors are usually better placed to assess and manage risk
 - ☐ All of the listed options are correct.
9. Which of the following instruments is considered a low-cost liability but carries high withdrawal risk?
- ☐ Negotiable certificates of deposit (NCDs)
 - ☐ Term deposits
 - ☐ Demand deposits
 - ☐ Savings accounts

2 Part B: Short answer questions

2.1 Q1: When the two risks fight each other

How can liquidity-risk and interest-rate-risk management objectives **conflict** inside a DI? Give at least one concrete example. Are these conflicts resolvable? Explain.

2.2 Q2: Why deposit guarantees stop runs

How do **deposit insurance** and deposit guarantees mitigate bank runs, and what schemes exist in Australia to protect DI deposits?

2.3 Q3: Two crises, two failures

In 2007, **Northern Rock** failed in part because it relied too much on wholesale funding that suddenly disappeared. In 2023, Silicon Valley Bank (SVB) failed in part because its deposit base walked out the door in a day.

Both are liquidity crises, but the **mechanism is different**. In two paragraphs, contrast (i) where the liquidity drain came from in each case, and (ii) what each bank's liability mix would need to have looked like to survive.

3 Part C: A liquidity crisis, worked through

! The scenario

You are the Group Treasurer of **Acacia Bank**, a mid-sized Australian ADI. Today is Monday. Yesterday everything was fine.

Work through the questions in order. Some are calculations and some ask for judgement, and both are marked the same way in the solutions: numbers first, then the reasoning.

3.1 The opening balance sheet (Monday, 9:00 AM)

Assets (A\$bn)		Liabilities & Equity (A\$bn)	
Cash & ESA balance at the RBA	3	Demand deposits (retail)	20
HQLA Level 1, AGS, semis	8	Term deposits, ≤ 1 yr	15
HQLA Level 2A, covered bonds	2	Short-term wholesale (≤ 1 yr)	12
HQLA Level 2B, eligible RMBS	2	Long-term wholesale (> 1 yr)	5
Residential mortgages	35	Equity (CET1 + other)	4
Business loans	6		
Total assets	56	Total L&E	56

A few useful facts for the day:

- The RBA cash rate target is 4.35%. Under the ample-reserves framework the weekly full-allotment OMO repo is priced at the cash rate target plus 10 bp, and the standing overnight repo facility at the target plus 25 bp.
- Acacia's most recent LCR was 125%. NSFR was 108%.
- Acacia's covered bonds and AGS are *unencumbered* (not already pledged). About 30% of its eligible RMBS is already pledged in private repos.
- The FCS covers eligible deposits up to A\$250,000 per account holder per ADI.
- Of the A\$12bn short-term wholesale book, **A\$1 billion matures on Monday**.

i Reference: the formulas you need

You are not expected to recall these. Use them.

Only unencumbered assets count. An asset already pledged as collateral is not free to be sold in a crisis.

This exercise applies the HQLA rules from Week 8.

$$\text{LCR} = \frac{\text{HQLA}}{\text{net cash outflows over 30 days}} \geq 100\%$$

Building the numerator:

Tier	Haircut	Cap
Level 1	0%	none
Level 2A	15%	Level 2 combined $\leq 40\%$ of HQLA and Level 2B alone $\leq 15\%$ of HQLA
Level 2B	25%	

The 40% cap is far easier to apply in this form:

$$\text{admissible Level 2} \leq \frac{2}{3} \times \text{Level 1}$$

And the denominator:

$$\text{net cash outflows} = \text{outflows} - \min(\text{inflows}, 0.75 \times \text{outflows})$$

3.2 Round 1: Monday (the rumour)

 11:00 AM Monday

A senior business correspondent posts on X: “Sources inside Acacia tell me the bank is sitting on the same kind of duration mismatch that took down SVB. I’d be moving money this morning.” The post has 40,000 reposts by lunchtime.

By 4 PM Monday, **A\$2 billion** of retail demand deposits has left. Wholesale lenders stop returning calls; your overnight wholesale lines do not roll.

Work through these decisions. Write your answers next to each question, you’ll be asked to defend them.

(a) Total cash needed by close of business Monday: _____

Hint: two things leave the bank on Monday. One is in the news box above, the other is in the scenario facts.

(b) Rank the **stored-liquidity** options in the order you’d use them. Justify the ordering:

1. _____
2. _____
3. _____

(c) Can you tap **purchased liquidity** today? Why or why not? Where is the friction?

(d) Sketch the post-Monday balance sheet. Which assets shrink, which liabilities shrink?

(e) Now put a number on it, using the reference box above.

(i) Compute Acacia’s opening stock of HQLA.

Hint: add up Level 1 first. Before applying the haircuts to Level 2A and 2B, check the scenario facts for anything already pledged. Then check how much of that Level 2 the cap lets you count.

(ii) The opening LCR was 125%. Rearrange the LCR formula to get the implied net cash outflow figure.

(iii) To raise Monday’s cash, Acacia enters a **repo** (a repurchase agreement) against A\$3bn of its Level 1 assets: it sells the bonds for cash today and agrees to buy them back shortly after. Those bonds are now pledged, so they stop counting as free HQLA.

Assume the 30-day outflow figure has not been revised yet. Recompute the LCR.

Hint: the repo’d bonds drop out of Level 1. The Level 2 ceiling is set as a fraction of Level 1, so it falls too. Check whether the cap still binds.

3.3 Round 2: Tuesday (the crisis intensifies)

 9:00 AM Tuesday

Outflows resume at the open. A further **A\$3 billion** of deposits walks out before noon. Two long-standing wholesale counterparties tell you they will *not* roll the A\$4bn of short-term notes maturing this week. **APRA calls.**

- (a) Which **RBA facility** do you call on? Be specific about the terms (rate, collateral, tenor) under the *ample-reserves framework*.
- (b) What **collateral** can you still pledge? Estimate the cash you can raise (apply rough haircuts: AGS 0%, covered bonds 5–10%, RMBS 15–25%).
- (c) APRA will likely require a **public statement**. List two things APRA could say or do that would **help** Acacia, and one that would make things **worse**.
- (d) Your unencumbered HQLA is running thin. What is the very next thing on your balance sheet you'd try to sell, and at what discount?

3.4 Round 3: Wednesday (the turn)

 2:00 PM Wednesday

The Treasurer and APRA issue a **joint statement**: Acacia is solvent, eligible deposits up to A\$250,000 per account holder are protected by the Financial Claims Scheme, and the RBA will provide the liquidity Acacia needs.

Within an hour, outflows **stop**. Some deposits even begin to return.

- (a) Deposits are repaid **first come, first served**: a bank that runs out of cash pays the depositors at the front of the queue and not those at the back. Using that fact, explain in one sentence why the announcement stops the run.
- (b) Write the **two-sentence headline** Acacia's CEO should issue at 4 PM. Be specific about what you do and do not say.

CEO statement (draft here):

- (c) Looking back from a calm Thursday morning: what could the treasurer have done **last quarter** to make this week easier? List three concrete actions.

1. _____
2. _____
3. _____

4 Part D: The big question

i Wrap-up: discuss together for the last 10 minutes

SVB saw US\$42 billion of deposits withdrawn **in a single day** in March 2023, about a quarter of its deposit base, as concern spread on social media among a concentrated group of uninsured depositors. The Basel LCR's run-off factors were calibrated on deposit behaviour in the 2008 crisis. It assumes **30 days** of stress.

Should the 30-day window be shortened, or the run-off factors raised, in the age of viral runs?

What would your bank lose if regulators forced you to hold materially more HQLA against social-media risk? Who would *gain* from that change?