AFIN8003 Week 8 - Liquidity Risk

Banking and Financial Intermediation

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1 Liquidity Risk

1.1 Why this week matters

❗ Two bank deaths in 10 days: March 2023

	Silicon Valley Bank	Credit Suisse
Run size	$42bn in one day (about 25% of deposits)	CHF 67bn of deposits in Q1 2023, most of it in late March
Time to failure	48 hours	One week
Trigger	$1.8bn AFS loss disclosure	Loss of confidence
Outcome	FDIC seizure	UBS takeover for CHF 3bn
Solvent on paper?	Yes	Yes

Both banks died of thirst, not insolvency. A bank's *funding model* is as much a risk as its *loan book*.

1.2 Roadmap: how long can the promise last?

A bank promises to repay depositors **on demand**, while holding assets it cannot sell on demand. Everything this week measures the same thing at a different horizon: how long could the bank keep that promise?

Horizon	The question	What we build
One day	How much cash walks out on an ordinary day?	Net deposit drains, core deposits
30 days	Can it survive an acute run on its own?	LCR and the HQLA stack
One year	Is the funding structure stable at all?	NSFR
Beyond that	What happens when the buffer runs out?	Deposit insurance, lender of last resort

The uncomfortable part

Both banks on the previous slide were **solvent**. Neither ran out of capital. They ran out of **time**.

1.3 Two sides of the same risk

	Liability side	Asset side
Trigger	Depositors / wholesale funders demand cash	Borrowers draw committed lines; investment portfolio loses value
Symptom	Net deposit drain	Forced asset sales
Cost	New funding at higher rates	Fire-sale loss on long-duration assets

	Liability side	Asset side
Key concept	Distribution of net deposit drains; core deposits	Loan commitments; HQLA haircuts
March 2023 example	$42bn SVB run in one day	$1.8bn SVB AFS loss

We focus on **DIs**, the institutions most exposed because they fund long-term assets with short-term, on-demand liabilities.

2 Sources of liquidity risk at DIs

2.1 Liability-side liquidity risk

- A DI's balance sheet typically features a large amount of short-term liabilities funding relatively long-term assets.
  - Short-term liabilities: demand deposits, other transaction accounts, etc.
  - Long-term assets: mortgages, C&I loans, etc.
- Demand deposit accounts, money market deposit accounts (MMDAs), and other transaction accounts allow holders to demand immediate repayment of the face value in cash.
  - For example, a DI with 20% of its liabilities in demand deposits, MMDAs, and other transaction accounts must be ready to liquidate assets to cover that amount on any banking day.

> **i** Scale of the maturity mismatch
>
> For U.S. commercial banks, deposits typically make up **70–80% of total liabilities and capital**, while cash assets are a small single-digit-to-low-teens share of total assets. The maturity mismatch is the business model, and the source of the risk.

CBA in FY2023 held only **9.3% of total assets** in cash and liquid assets, and funded 73.25% of total liabilities with deposits and other public borrowings, most of it short-dated and on demand.

		Group		Bank	
	Note	30 Jun 23 $M	30 Jun 22 $M	30 Jun 23 $M	30 Jun 22 $M
Assets					
Cash and liquid assets	5.1	**116,619**	161,154	**108,367**	150,974
Receivables from financial institutions	5.2	**6,079**	6,845	**5,422**	6,071
Assets at fair value through Income Statement	5.3	**67,627**	25,315	**67,641**	25,249
Derivative assets	5.4	**23,945**	35,736	**25,585**	37,774
Investment securities:					
At amortised cost	5.5	**2,032**	3,217	**2,032**	3,217
At fair value through Other Comprehensive Income	5.5	**84,072**	79,086	**77,232**	72,191
Assets held for sale	11.3	**5**	1,322	**5**	28
Loans and other receivables	3.1	**926,082**	878,854	**816,140**	773,042
Shares in and loans to controlled entities	11.2	**–**	–	**54,636**	56,719
Property, plant and equipment	6.1	**4,950**	4,887	**3,549**	3,627
Investments in associates and joint ventures	11.1	**2,848**	2,801	**1,430**	1,407
Intangible assets	6.2	**7,393**	6,899	**4,340**	3,883
Deferred tax assets	2.5	**3,811**	3,173	**3,640**	3,069
Other assets	6.3	**7,382**	5,971	**6,799**	5,387
Total assets		**1,252,845**	1,215,260	**1,176,818**	1,142,638

Figure 1: Assets. *Source:* CBA 2023 Annual Report.

Liabilities					
Deposits and other public borrowings	4.1	**864,995**	857,586	**786,267**	783,701
Payables to financial institutions	5.2	**21,910**	26,052	**21,266**	25,321
Liabilities at fair value through Income Statement	4.2	**40,103**	7,271	**39,148**	6,097
Derivative liabilities	5.4	**25,347**	33,899	**26,728**	35,002
Due to controlled entities		**–**	–	**42,586**	41,433
Current tax liabilities		**671**	263	**442**	75
Deferred tax liabilities	2.5	**138**	150	**64**	82
Liabilities held for sale	11.3	**–**	1,183	**–**	–
Provisions	7.1	**3,013**	3,636	**2,818**	3,370
Term funding from central banks	4.4	**54,220**	54,807	**49,637**	51,137
Debt issues	4.3	**122,267**	116,902	**95,893**	89,940
Bills payable and other liabilities	7.2	**15,578**	12,656	**14,932**	12,347
		1,148,242	1,114,405	**1,079,781**	1,048,505
Loan capital	8.2	**32,598**	28,017	**32,587**	28,009
Total liabilities		**1,180,840**	1,142,422	**1,112,368**	1,076,514

Figure 2: Liabilities. *Source:* CBA 2023 Annual Report.

It's not that bad.

- Normally, only a small proportion of its deposits will be withdrawn on any given day.
- Further, deposit withdrawals may in part be offset by the inflow of new deposits[1] (and the DI's income).

Most demand deposits are relatively "stable", acting as consumer **core deposits** on a daily basis.

- **Core deposits** are those deposits that provide a DI with a long-term funding source.

The DI manager must monitor and predict the *net deposit drains* on any given normal banking day.

- Beyond predictable daily seasonality in deposit flows, other seasonal variations exist.
- Many of these seasonal variations are somewhat predictable.
- Retail DIs often experience above-average deposit outflows around the end of the year and in the summer (due to Christmas and the vacation season).
- Rural DIs may experience a deposit inflow–outflow cycle aligned with the local agricultural cycle.
  - During the planting and growing season, deposits tend to fall.
  - During the harvest season, deposits tend to rise as crops are sold.

2.2 Net deposit drains and how DIs manage them

DI managers monitor the **distribution of net deposit drains**, the daily difference between withdrawals and inflows. Two stylised cases:

[1] Large inflow of deposits may also cause issues if the DI cannot find sufficiently attractive investments.

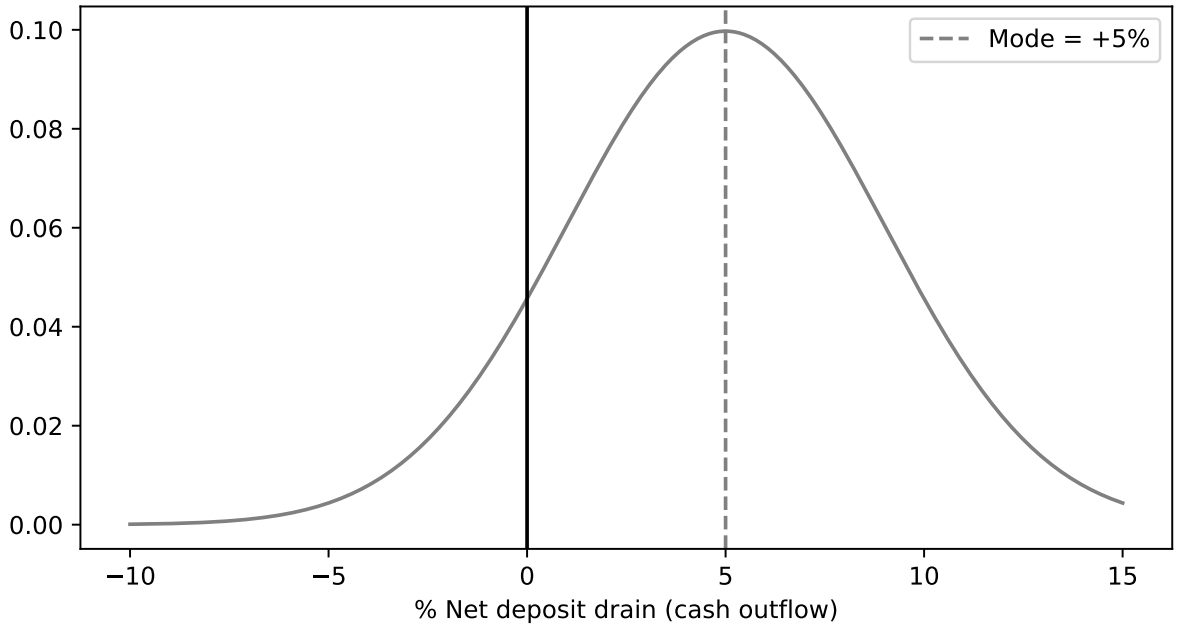

Figure 3: Positive expected drain: balance sheet contracts

Mode at +5% withdrawals routinely exceed inflows liability side **contracting**.

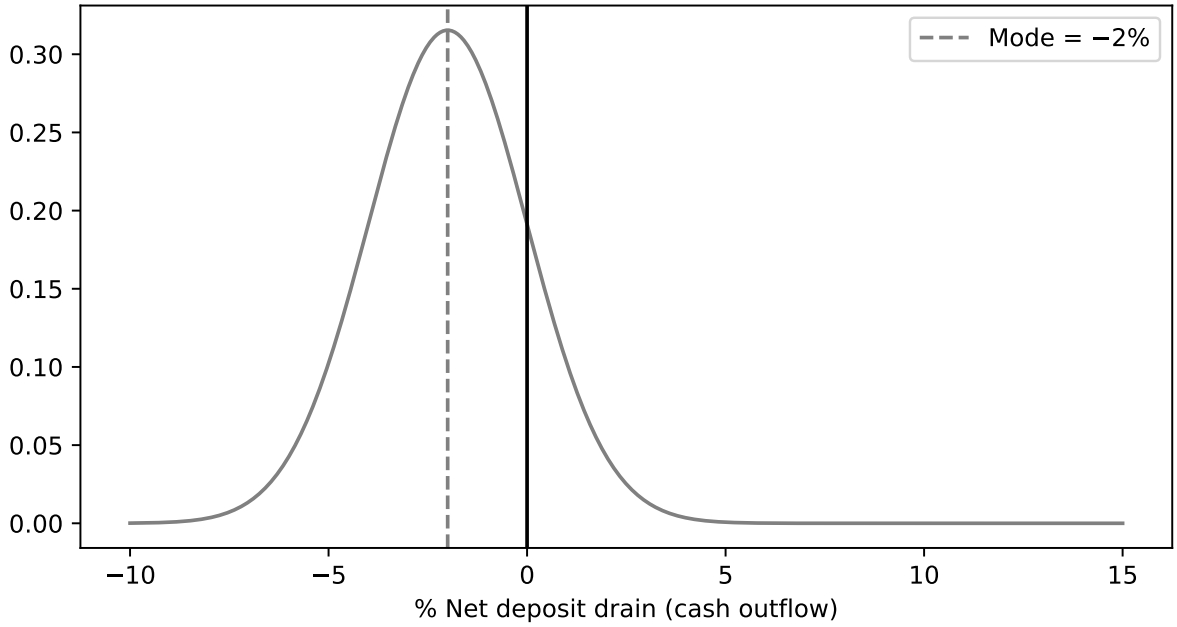

Figure 4: Negative expected drain: balance sheet expands

Mode at −2% inflows exceed withdrawals balance sheet **expanding**.

When a positive drain materialises, the DI plugs it via either **purchased liquidity** (wholesale borrowing) or stored liquidity (run down cash / HQLA). Traditionally DIs leaned on stored liquidity; today most rely on purchased liquidity, examined next.

3 Managing liquidity risk

3.1 Purchased vs. stored liquidity: side by side

A **$5 deposit drain** (deposits 70 → 65). Two ways to plug it:

Purchased liquidity: borrow in wholesale markets (interbank, repo, CDs, notes/bonds).

	Before	After drain	After fix
Assets	100	100	100
Deposits	70	65	65
Borrowed	10	10	15
Other liab.	20	20	20
Total	100	95	100

Balance sheet size **preserved**. Wholesale funding is costlier and flightier than deposits.

Stored liquidity: run down cash and HQLA buffers.

	Before	After drain & fix
Cash	9	4
Other assets	91	91
Deposits	70	65
Borrowed	10	10
Other liab.	20	20
Total	100	95

No new (expensive) funding. Balance sheet **contracts**; foregone return on the cash buffer.

> **i** Reserve requirements have largely faded
>
> The U.S. Fed cut all reserve requirements to **zero on 26 March 2020** and has not reinstated them; the RBA does not impose a reserve ratio. Today, "stored liquidity" mostly means **HQLA** under the LCR, not regulatory cash reserves.

3.2 Asset-side liquidity risk: two channels

So far we have focused on **liability-side** drains. The asset side generates liquidity demand through two channels:

1. Loan-commitment drawdowns

Borrowers exercise pre-existing committed credit lines, so the bank must fund the loan today, even though it priced the commitment yesterday.

> **i** COVID-19 dash for cash
>
> In March 2020, U.S. corporates drew on credit lines at unprecedented speed. Acharya et al. (2024) link this drawdown channel directly to bank-stock underperformance during the pandemic.

2. Investment-portfolio losses

Rising rates → MTM losses on bond holdings. If the bank must sell to fund withdrawals, paper losses become **realised** losses, eating into equity.

⚠ SVB, March 2023

SVB sold its available-for-sale portfolio at an **$1.8bn after-tax loss** to raise cash for outflows. The disclosure itself triggered the run that killed the bank within 48 hours.

The mechanics of plugging an asset-side need (a $5 drawdown or $5 MTM hit) are **the same as on the liability side**: either *purchase* liquidity (more borrowing) or *store* liquidity (run down cash). The cost trade-offs are identical to the previous slide.

Loan-commitment exercise ($5 drawn)

	Before	Stored	Purchased
Cash	12	7	12
Other assets	138	143	143
Deposits	100	100	100
Borrowed	20	20	25
Equity	25	25	25
Total	150	150	155

Investment-portfolio MTM loss ($5)

	Before	Stored	Purchased
Cash	12	7	12
Inv. port.	50	50	50
Other assets	88	88	88
Deposits	100	100	105
Borrowed	20	20	20
Equity	20	20	20
Total	150	145	150

In both cases the **stored** route shrinks the balance sheet, and the purchased route preserves size at the cost of more wholesale funding.

4 Measuring liquidity risk

4.1 Measuring liquidity risk: from textbook to regulation

Liquidity-risk measurement has evolved through three layers. The first two (gap analysis, peer ratios) remain useful **internal** management tools; the Basel III LCR and NSFR are the binding regulatory standards.

Layer	Measure	Question it answers	Status today
1. Structural gap	Financing gap & financing requirement	How much wholesale funding do I need to plug the loan/deposit mismatch?	Internal ALM tool
2. Peer benchmarking	Loan-to-deposit ratio, core deposits / assets, unused commitments / assets	How does my balance-sheet structure compare to peers and history?	Internal + supervisory monitoring

Layer	Measure	Question it answers	Status today
3. Stress-based ratios	LCR (30-day), NSFR (1-year)	Can I survive 30 days of stress? Is my funding stable over 1 year?	Binding Basel III minima

4.2 Financing gap in practice: the loan-to-deposit ratio

The **financing gap** is the textbook framing; the loan-to-deposit ratio (LDR) is the version banks and supervisors actually report.

$$\text{Financing gap} = \text{Average loans} - \text{Average (core) deposits}$$

A *positive* gap must be filled by **liquid assets sold** or wholesale funding raised:

$$\underbrace{\text{Financing gap}}_{\text{loans}-\text{deposits}} + \underbrace{\text{Liquid assets}}_{\text{stored}} = \underbrace{\text{Borrowed funds}}_{\text{purchased}}$$

Worked example: and the LDR view

A bank reports average loans of \$25bn, deposits of \$20bn, and liquid assets of \$3bn.

- Financing gap = 25 − 20 = \$5bn requires \$5bn of non-deposit funding.
- Of that, \$3bn can come from liquid assets; the remaining \$2bn must be borrowed.
- Equivalently, LDR = 25 / 20 = 125%, well above the ~70–80% typical for the Australian Big 4. The higher the LDR, the more the bank relies on wholesale funding (and, post-2008, the more attention APRA pays).

- **Loans to assets**: overall illiquidity of the asset book.
- **Core deposits to total assets**: share of *sticky*, lower-cost funding.
- **Unused loan commitments to assets**: contingent draw-down exposure (this is the channel that bit banks in March 2020).
- **Wholesale funding to total liabilities**: how much short-term, *flighty* money the bank relies on.

The 2023 SVB autopsy turned all of these into headline metrics: SVB's **uninsured-deposit share was ~94%**, and its HTM bond book was ~50% of assets, both extreme outliers among U.S. peers.

5 LCR: short-term resilience

5.1 Basel III: two ratios, two horizons

	LCR	NSFR
Question	Survive 30 days of acute stress?	Funding stable over 1 year?
Horizon	30 days	1 year
Numerator	Stock of HQLA	Available stable funding (ASF)
Denominator	Net cash outflows in stress	Required stable funding (RSF)
Minimum	100%	100%
In force	Phased 1 Jan 2015 → fully 1 Jan 2019	1 Jan 2018
Reporting	Monthly	Quarterly

⚠ Did Basel III prevent SVB?

SVB sat just **below the $250bn U.S. threshold**, so the strictest LCR/NSFR rules **did not bind**. The 2018 rollback of post-crisis rules for mid-sized U.S. banks (S.2155) is a recurring theme in post-mortems of March 2023.

5.2 Liquidity Coverage Ratio (LCR): the 30-day question

"If a severe liquidity stress hits today, can the bank survive for 30 days using only its own liquid assets?"

$$\text{LCR} = \frac{\text{Stock of HQLA}}{\text{Total net cash outflows over the next 30 calendar days}} \geq 100\%$$

- **Numerator**: high-quality liquid assets the bank can sell, repo, or pledge in stress at little loss of value.
- **Denominator**: modelled net cash outflows under a prescribed stress scenario combining an idiosyncratic shock (e.g. a credit-rating downgrade) and a market-wide shock (e.g. GFC-style funding freeze).
- **Reporting**: at least monthly to supervisors, with daily computation capacity required.

Read the ratio as a survival horizon

LCR = 100% means the bank can survive **exactly 30 days** of the stress scenario on its own liquidity. LCR = 150% buys a bigger margin of safety; LCR < 100% means the bank fails the test and must rebuild its buffer.

Two universal requirements for any asset to count as HQLA:

1. **Liquid in stress**: convertible to cash at little loss of value and acceptable at the central-bank facility as collateral.
2. Unencumbered: free of legal, regulatory, contractual, or other restrictions on the bank to liquidate, sell, transfer, or assign it.

Tier	Examples[2]	Haircut	Cap
Level 1	Cash, central-bank reserves, sovereign/central-bank/PSE/multilateral debt (e.g. BIS, IMF, ECB, MDBs)	0%	none
Level 2A	Other sovereign/PSE/MDB claims; high-grade corporate debt; covered bonds	15%	combined Level 2 40% of HQLA
Level 2B	RMBS (eligible)	25%	of which Level 2B 15% of HQLA
Level 2B	Eligible corporate debt and equities	50%	(subject to same Level 2B sub-cap)

[2]Each tier carries additional eligibility tests (rating, market depth, repo eligibility, etc.). See BIS LCR40: HQLA.

⚠ Why the haircuts matter: SVB again

SVB held a large portfolio of long-dated **U.S. Treasuries and agency MBS**, Level 1 or Level 2A on paper. The book was technically HQLA-eligible. The problem was that the bank classified much of it as **held-to-maturity (HTM)** at *amortised cost*: the unrealised losses didn't show on the balance sheet, but they crystallised the moment SVB had to sell. The haircut framework prices in expected loss in stress; **HTM accounting hid the loss until it was too late**.

$$\text{Net cash outflows} = \underbrace{\text{Out}}_{\text{outflows}} - \min\Big(\underbrace{\text{In}}_{\text{inflows}},\ 0.75 \times \text{Out}\Big)$$

- **Outflows** (Out): every deposit, wholesale liability and contingent commitment, multiplied by a stressed run-off factor.
- **Inflows** (In): contractual receipts within 30 days from performing assets.
- The 75% cap on inflows ensures the bank cannot rely *entirely* on incoming cash. It must hold a meaningful HQLA buffer regardless.

The intuition: *the more flighty the funding, the higher the assumed run-off.*

Liability type	Stressed run-off	Why
Stable retail deposits (insured, transactional)	3–5%	Sticky; protected by deposit insurance
Less-stable retail deposits (e.g. brokered)	10%+	Less behavioural attachment
Operational corporate deposits	25%	Tied to clearing/payments services
Non-operational unsecured wholesale (financial)	100%	Will leave overnight in a crisis
Non-operational unsecured wholesale (corporate)	40%	Slower, but still flighty
Undrawn committed credit lines (corporate)	10%	Drawdowns spike in stress (cf. COVID-19)

ℹ The hidden assumption: 30 days of *that* deposit base

LCR run-offs were calibrated to **GFC-era** deposit behaviour. The March 2023 SVB run **exceeded the assumed retail/SME run-off in a single day**, not 30. Post-2023 reviews by the Basel Committee, FRB, BoE, and APRA are explicitly considering whether run-off factors need to rise for **highly digital, concentrated, or uninsured** deposit bases.

5.3 Liquidity Coverage Ratio (LCR): example

Consider the following balance sheet (in millions of dollars) of a bank. Calculate the bank's LCR.[3]

- Assume that the cash inflows over the next 30 days from the bank's assets are \$5 million.

Assets	\$	Liquidity Level	Liabilities and Equity	\$	Run-Off Factor
Cash	5	Level 1	Stable retail deposits	95	3%
Deposits at the Fed	15	Level 1	Less Stable retail deposits	40	10
Treasury securities	100	Level 1	Unsecured wholesale funding from:		
GNMA securities	75	Level 2A	- Stable small business deposits	100	5
Loans to A-rated corporations	110	Level 2A	- Less Stable small business deposits	80	10
Loans to B-rated corporations	85	Level 2B	- Nonfinancial corporates	50	75
Premises	20		Equity	45	
Total	410		Total	410	

The LCR is calculated as follows:

First, calculate the amount of HQLA.

- Level 1 assets is $5 + 15 + 100 = 120$ million

Before adjustment for caps,

- Level 2A assets is $(75 + 110) \times (1 - 15\%) = 157.25$ million[4]
- Level 2B assets is $85 \times (1 - 50\%) = 42.5$ million[5]

However, Level 2 assets is capped at 40% of HQLA!

- Given that Level 1 assets is 120 million, which should account for at least $1 - 40\% = 60\%$ of HQLA.
- HQLA should be $120/(1 - 40\%) = 200$ million, which means a maximum of $200 - 120 = 80$ million Level 2 assets.
- The Level 2 assets after haircut is larger than the cap - they will not further increase HQLA.

Therefore, the HQLA is 200 million.

Next, calculate the total net cash outflows over next 30 days.

Cash outflows are:

- Stable retail deposits: $95 \times 0.03 = 2.85$
- Less stable retail deposits: $40 \times 0.1 = 4$
- Stable small business deposits: $100 \times 0.05 = 5$
- Less stable small business deposits: $80 \times 0.1 = 8$
- Nonfinancial corporates: $50 \times 0.75 = 37.5$

Therefore,

- Total cash outflows over next 30 days is 57.35 million.
- Total cash inflows over next 30 days is 5 million (assumed).

[3] This example follows the textbook (Saunders et al. 2023). Strictly speaking, HQLA comprises *marketable securities*, ordinary loans would not qualify. Treat "loans to A-rated/B-rated corporations" here as tradable corporate debt exposures used for illustration.

[4] There is a 15% haircut applied on the value of Level 2A assets.

[5] There is a 50% haircut applied on the value of Level 2B assets.

- Total net cash outflows over next 30 days is 57.35 million - min(5, 75% * 57.35) = 52.35 million.

Lastly, calculate LCR:

$$\text{LCR} = \frac{\text{Stock of HQLAs}}{\text{Total net cash outflows over next 30 calendar days}} = \frac{200}{52.35} = 382.04\% \geq 100\%$$

5.4 Now move the numbers yourself

Interactive in the online slides: sliders for each HQLA tier and each outflow category, recomputing haircuts, the Level 2 caps and the LCR live. It is seeded with the worked example above.

Sliders start at the worked example. Level 2A takes a 15% haircut, Level 2B 50%.

> **Three things to try**
>
> 1. Push Level 2A up on its own. Past a point the LCR stops moving: the 40% cap is binding, and the extra securities count for nothing.
> 2. Now raise Level 1 instead. The cap is a multiple of Level 1, so buying government paper lifts the ceiling as well as the numerator.
> 3. Raise inflows above 75% of outflows. The ratio stops improving, because the inflow cap forces the bank to hold its own buffer.

6 NSFR: structural funding stability

6.1 Net Stable Funding Ratio (NSFR): the 1-year question

*"Is the bank's funding model **structurally stable** over a one-year horizon, or is it built on the kindness of overnight wholesale markets?"*

$$\text{NSFR} = \frac{\text{Available Stable Funding (ASF)}}{\text{Required Stable Funding (RSF)}} \geq 100\%$$

The LCR addresses **acute stress (30 days)**; the NSFR addresses structural funding mismatch (1 year). Both must be 100%, and they are complements, not substitutes.

> **Where it bites**
>
> The NSFR penalises banks that fund **long-duration assets** (long-term loans, illiquid securities) with **short-term wholesale funding**, exactly the funding model that blew up Northern Rock in 2007 and stressed European banks throughout the GFC.

Available Stable Funding (ASF) weights *liabilities + equity* by how reliably they will stick around for a year. **Required Stable Funding (RSF)** weights *assets* by how illiquid / long-dated they are (i.e. how much stable funding they "need").

ASF factors (selected)

Funding source	ASF factor
Capital, liabilities with maturity > 1 year	100%
"Stable" retail / SME deposits	95%
"Less stable" retail / SME deposits	90%
Non-financial corporate, sovereign, PSE funding < 1 year	50%
Funding from financial institutions < 6 months	0%

Higher factor *"this funding is stable, count more of it."*

RSF factors (selected)

Asset / OBS exposure	RSF factor
Cash, central-bank reserves	0%
Level 1 HQLA	5%
Level 2A HQLA	15%
Performing residential mortgages (35% risk weight)	65%
Other performing loans (residual maturity 1 year)	85%
Non-performing loans, encumbered assets > 1 year	100%
Undrawn committed facilities	5% of notional

Higher factor *"this asset locks up funding; you need more stable funding to hold it."*

i Reading the formula

A bank holding lots of long-term mortgages (high RSF) funded mainly with overnight repos (low ASF) will fail the NSFR, exactly the funding-mismatch the rule is designed to discourage.

7 LCR and NSFR in practice: the Big 4

7.1 Liquidity of the Australian majors, FY2025

Table 15: Source: each bank's FY2025 Pillar 3 / APS 330 disclosures.

	CBA	NAB	ANZ	Westpac
Balance date	30 Jun 25	30 Sep 25	30 Sep 25	30 Sep 25
LCR (average)	130%	135%	132.1%	137%
NSFR	115%	116%	114.6%	113%
LCR two years earlier (FY2023)	*131%*	*140%*	*132.9%*	*134%*
NSFR two years earlier (FY2023)	*124%*	*116%*	*116.4%*	*115%*

What to notice

- All four clear the 100% minimum on both ratios, and none by a wide margin.
- The range is narrow (LCR 130 to 137, NSFR 113 to 116). That is APRA's supervisory benchmarking, not coincidence.
- **NSFRs have compressed**, most sharply at CBA: 124% down to 115% in two years.

i Discussion

CBA's LCR barely moved over the two years, but its NSFR fell nine percentage points. What kind of change to a balance sheet moves the **one-year** ratio without moving the **30-day** one?

8 Bank runs and safety nets

8.1 Liquidity risk, unexpected deposit drains, and bank runs

Major liquidity problems arise when deposit drains are **abnormally large and unexpected**, for reasons including:

- Concerns about a DI's solvency relative to its peers.
- Failure of a related DI, the contagion effect.
- Sudden changes in investor preferences for holding non-bank financial assets (e.g. T-bills, money-market funds) over deposits, particularly when those alternatives offer materially higher yields.

In these cases, unexpected deposit drains can trigger a **bank run** that eventually forces the bank into insolvency. In the worst case, a bank panic spreads: a systemic, contagious run across the banking industry.

> The 2023 run was different
>
> Classic bank runs (think 1930s) propagated by **word of mouth** and physical queues. The **March 2023 SVB run** propagated by **Slack, Twitter/X, and WhatsApp**, and depositors moved money out of mobile apps in seconds rather than hours. Regulators are now actively rethinking how fast LCR-style buffers can really last when the run velocity is digital.

8.2 Does "30 days" mean 30 days?

Interactive in the online slides: sliders for the size of the liquid buffer and the speed of the run, showing how many days the bank survives.

> The arithmetic nobody likes
>
> $$\text{Days of survival} = \frac{\text{buffer}}{\text{daily outflow}}$$
> The LCR fixes the **numerator**. The run fixes the denominator. Only one of those is under the bank's control.

> Set the run to 25% and look again
>
> SVB lost about **25% of deposits in one day**. At that speed a 20% buffer is gone in **under a day**, and a bank reporting a healthy LCR the previous week still fails. The LCR is not wrong, it is answering a question about a 30-day stress that the deposit base no longer obeys.
> This is why post-2023 reviews by the Basel Committee, the Fed, the Bank of England and APRA are all revisiting run-off factors for **digital, concentrated and uninsured** funding.

8.3 Bank runs, the discount window, and deposit insurance

The two major liquidity risk insulation devices are **deposit insurance** and the **discount window** (or its central-bank equivalent).

1. **Deposit insurance**: a public guarantee on insured deposits up to a per-depositor cap (US: FDIC; Australia: FCS).
2. Discount window / lender-of-last-resort facilities: short-term central-bank lending against eligible collateral, at the "discount rate."
    - In the week ending 15 March 2023, U.S. banks drew $152.85 billion from the Federal Reserve's discount window, a new record, eclipsing the $111 billion peak of the 2008 GFC.

- In Switzerland the same week, the SNB pledged CHF 50 billion of liquidity to Credit Suisse; when that was insufficient, the eventual support package totalled CHF 250 billion.
- In response to SVB the Fed also launched the Bank Term Funding Program (BTFP), lending against high-quality securities valued at par with no haircut, an unusually generous design. It stopped extending new loans on 11 March 2024.

⚠ Moral hazard

Insulation is not free. Insured deposits and easy LOLR access can **encourage DIs to take more liquidity risk**: hold riskier loans, fewer HQLA, more flighty wholesale funding. This is precisely why the Basel III LCR/NSFR rules exist: to put a regulatory floor under the liquidity buffer that protection might otherwise erode.

9 Liquidity regulation and depositor protection

9.1 Liquidity regulation in Australia

- In Australia, liquidity requirements are set by APRA.
- **Prudential Standard APS 210: Liquidity** aims to ensure that an ADI has sufficient liquidity to meet obligations as they fall due.

APRA classifies each ADI as either:

- an LCR ADI (subject to the Basel III LCR, effective from 1 January 2015), or
- an MLH ADI (subject to the Minimum Liquidity Holdings regime, effective from 1 January 2014).

💡 What March 2023 changed here

APRA finalised targeted changes to **APS 210** in response to the 2023 turmoil, in force since **1 July 2025**:

- MLH ADIs must revalue their liquid assets for mark-to-market movements rather than carrying them at amortised cost. This is precisely the gap that hid SVB's losses.
- All ADIs must be operationally ready to supply the information needed to request Exceptional Liquidity Assistance from the RBA.

The headline 9% MLH minimum is unchanged.

9.2 LCR ADI vs. MLH ADI

APRA splits ADIs into two regulatory tracks under APS 210:

Feature	LCR ADI	MLH ADI
Who	Larger / internationally active banks (the Big 4 and other significant ADIs)	Smaller ADIs (e.g. mutual banks, building societies, smaller credit unions)
Core requirement	Basel III LCR 100% *and* NSFR 100%	Liquid assets 9% of liabilities
Liquid asset definition	HQLA (Level 1 + capped Level 2, with haircuts)	RBA-repo-eligible, unsubordinated debt securities
Stress testing	Regular scenario analysis (at minimum: LCR scenario + "going concern")	Operational capacity to liquidate liquid assets within 2 business days; trigger ratio set above 9%
Effective from	1 January 2015 (LCR), 1 January 2018 (NSFR)	1 January 2014

In short: **LCR ADIs run the full Basel III stack**; MLH ADIs run a simpler ratio-based regime scaled to their size and complexity.

9.3 Depositor protection

- **Deposit insurance** is a public mechanism designed to insulate depositors, and indirectly DIs, from liquidity crises.
  - In the U.S., the Federal Deposit Insurance Corporation (FDIC) was created in 1933 in the wake of the Great Depression banking panics. The standard deposit insurance limit is $250,000 per depositor, per insured bank, per ownership category (raised from $100,000 in 2008).
  - Most major economies now operate an explicit deposit insurance scheme.
- In October 2008, in response to the GFC, Australia introduced the Financial Claims Scheme (FCS) alongside a temporary wholesale funding guarantee.
  - The FCS initially guaranteed deposit balances up to $1 million per depositor per institution.
  - The permanent cap of $250,000 per account-holder per ADI has been in place since 1 February 2012.
  - **APRA** administers the FCS, but it is only activated if the Treasurer declares an ADI to have failed. It is *not* a continuously running insurance product.

9.4 Other Australian depositor protection mechanisms

- Guarantee scheme for large deposits and wholesale funding
  - Guaranteed deposit balances greater than $1 million and funding instruments with a maturity of 5 years or less
  - Available to branches of foreign-owned banks
  - Closed in March 2010 after the recovery of global funding conditions
- Financial Claims Scheme: Policyholders Compensation Facility
  - Similar as FCS for DIs
  - Available to general insurers authorised by APRA

Liquidity risk beyond banks

> **i** Optional reading
>
> The mechanisms parallel those for DIs: forced asset sales, loss of confidence, run dynamics. Skim for context, not examinable in detail.

Life insurers hold cash and liquid assets to meet policy surrenders. Premium income and investment returns normally cover them, with government bonds as the buffer. A loss of confidence can trigger mass surrenders, forcing liquidations at poor prices and pushing the insurer towards insolvency exactly as a run does to a bank.

Property and casualty insurers face the same problem from the other direction: a natural disaster produces claims that exceed premium income and investment returns at once.

> **i** Case study: Equitable Life
>
> The Equitable Life Assurance Society, founded in 1762 and the world's oldest mutual insurer, lost a 2000 House of Lords ruling (the *Hyman* case) on guaranteed annuity rates. The adverse ruling triggered a wave of surrenders and the society closed to new business in **December 2000**. Its remaining policies transferred to Utmost Life and Pensions on 1 January 2020, ending a 258-year history.

10 Finally...

10.1 Key takeaways

> ! What to remember
>
> 1. **Liquidity solvency**: but a liquidity shock can kill a solvent bank in 48 hours (SVB).
> 2. **Both sides of the balance sheet matter**: deposit runs (liability side) often coincide with fire-sale losses on long-duration securities (asset side).
> 3. **Buffers come in two flavours**: *purchased* (wholesale market) and *stored* (HQLA, central-bank reserves). Both have costs.
> 4. **Basel III gave us LCR and NSFR**: short-term (30-day) and structural (1-year) liquidity ratios, both with a 100% minimum.
> 5. **Australia layers it on**: APRA classifies ADIs as LCR (the Big 4 et al.) or MLH (smaller ADIs at 9%); 1 July 2025 brought mark-to-market and ELA-readiness tweaks.
> 6. **Safety nets create moral hazard**: deposit insurance and the discount window protect the system but encourage risk-taking, which is why prudential rules are needed.

10.2 Suggested readings

- APRA Explains: Liquidity in banking.
- RBA: The Implementation of Monetary Policy: Domestic Market Operations.
- BIS: LCR - Liquidity Coverage Ratio.
- Prudential Standard APS 210 Liquidity.
- Acharya, V. V., Engle, R., Jager, M., & Steffen, S. (2024). Why Did Bank Stocks Crash during COVID-19? *The Review of Financial Studies*, 37, 2627–2684.

References

Acharya, Viral V, Robert Engle, Maximilian Jager, and Sascha Steffen. 2024. "Why Did Bank Stocks Crash During COVID-19?" *The Review of Financial Studies* 37 (9): 2627–84. https://doi.org/10.1093/rfs/hhae028.

Saunders, Anthony, Marcia Millon Cornett, and Otgo Erhemjamts. 2023. *Financial Institutions Management ISE*. 11th ed. McGraw Hill.