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 / day** (25% of deposits)	**CHF 110bn** in days
Time to failure	**36 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

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
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.

For CBA (FY2023), cash and liquid assets accounted for only **9.3% of total assets** — the rest is largely loans and long-dated securities.

		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: Excerpt of CBA's FY2023 balance sheet — assets. *Source:* Commonwealth Bank of Australia 2023 Annual Report.

On the other side, CBA (FY2023) funded **73.25% of total liabilities** with deposits and other public borrowings — most of it short-dated and on demand.

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: Excerpt of CBA's FY2023 balance sheet — liabilities. *Source:* Commonwealth Bank of Australia 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.

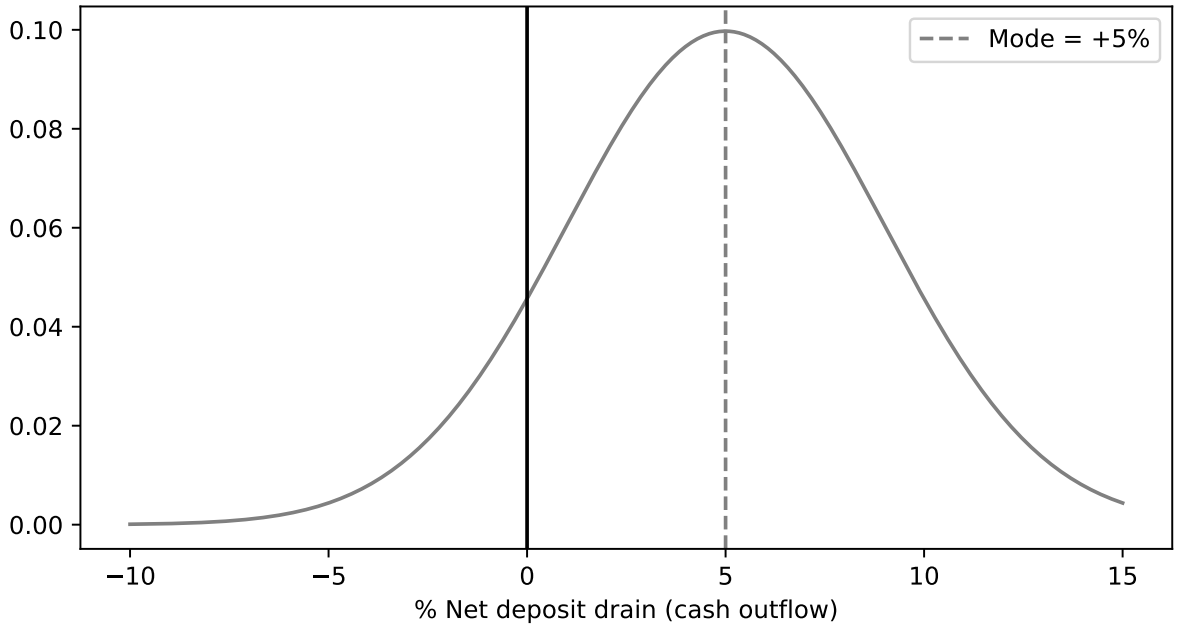

Figure 3: Positive expected drain — balance sheet contracts

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

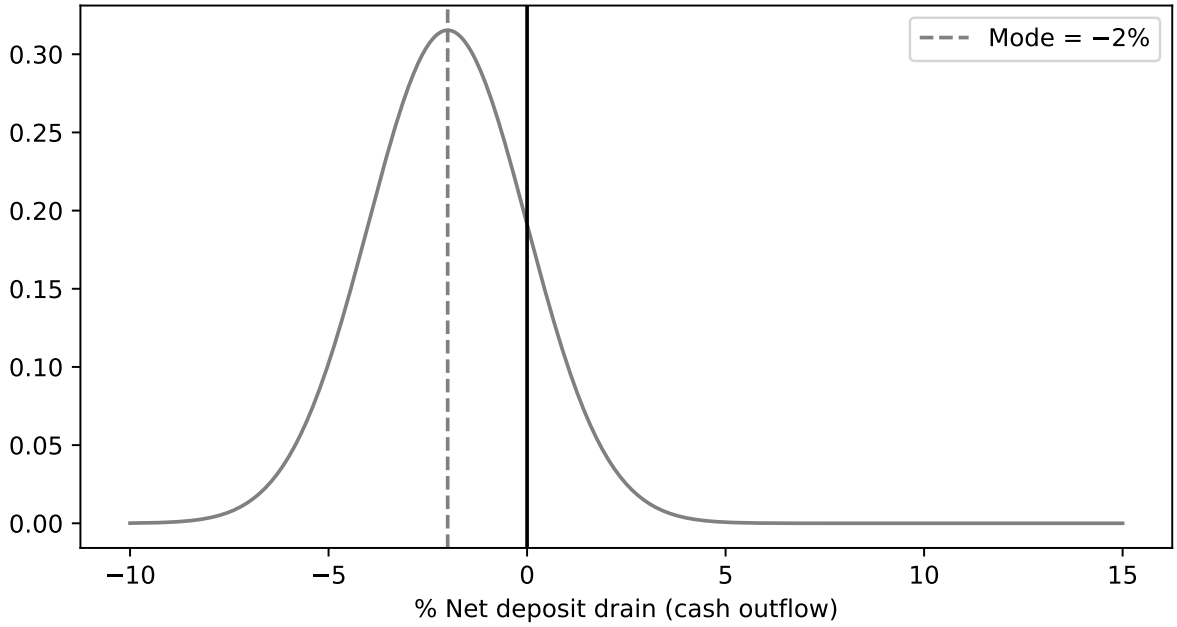

Figure 4: Negative expected drain — balance sheet expands

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:

(A) 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.

(B) 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 has never imposed a formal 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 — 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 36 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).

Common peer-comparison ratios:

- **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** — 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	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)

⚠ Why the haircuts matter — SVB again

SVB held a large portfolio of long-dated **U.S. Treasuries and agency MBS** — Level 1 / 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 million of dollars) of a bank. Calculate the bank's LCR.

- 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[2]
- Level 2B assets is $85 \times (1 - 50\%) = 42.5$ million[3]

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

Lastly, calculate LCR:

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

[2]There is a 15% haircut applied on the value of Level 2A assets.
[3]There is a 50% haircut applied on the value of Level 2B assets.

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% — 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."*

> **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 & NSFR in practice — the Big 4

7.1 Liquidity risk of Australian banks (FY2023)

The figures below are drawn from the Big 4 banks' FY2023 Pillar 3 disclosures. Workshop 8 will ask you to look up the latest figures from each bank's most recent Pillar 3 report.

	CBA	NAB	ANZ	Westpac
Cash Outflows				
Retail And Counterparties Deposits Outflow	37,416	29,947	25,517	29,304
Stable Deposits	12,700	5,843	5,879	7,969
Less Stable Deposits	24,716	24,104	19,638	21,335
Unsecured Wholesale Funding Outflow	82,444	82,299	146,698	76,953
Operational Deposit Outflow	22,219	21,540	22,553	18,631
Non Operational Deposits Outflow	49,236	47,619	111,549	47,073
Unsecured Debt Outflow	10,989	13,140	12,596	11,249
Secured Wholesale Funding Outflow	6,839	10,701	5,405	3,891
Additional Outflow Requirements	26,186	38,693	70,639	30,463
Derivative Expo And Other Collateral Requirement	7,557	8,154	48,206	12,462
Loss of Funding on Debt Products	0	0	0	136
Credit And Liquidity Facilities	18,629	30,539	22,433	17,865
Other Contractual Funding Obligation	0	81	0	4,515
Other Contingent Funding Obligation	10,373	5,219	8,024	4,082
Total Cash Outflow	163,258	166,940	256,283	149,208

	CBA	NAB	ANZ	Westpac
Cash Inflows				
Secured Lending	2,328	3,898	1,549	0
Inflows From Fully Performing Exposures	9,520	11,788	17,190	5,020
Other Cash Inflows	6,753	1,589	36,016	7,988
Total Cash Inflow	18,601	17,275	54,755	13,008

	CBA	NAB	ANZ	Westpac
Liquidity Coverage Ratio (LCR)				
Average High Quality Liquid Assets	189,419	209,561	267,905	181,882
Average Net Cash Outflows	144,657	149,665	201,528	136,200
Average Liquidity Coverage Ratio	131.00	140.00	132.90	134.00
Net Stable Funding Ratio (NSFR)				
Available Stable Funding	860,999	646,508	625,285	707,893
Required Stable Funding	693,453	556,016	537,430	615,341
Net Stable Funding Ratio	124.00	116.00	116.35	115.00

What to notice

- All four banks sit comfortably above the **100% minimum** for both LCR and NSFR.
- The **range is narrow** (LCR ~131–140%, NSFR ~115–124%) — this reflects APRA's tight supervisory benchmarking, not coincidence.
- **CBA's NSFR (124%)** is highest, consistent with its larger share of stable retail deposits.
- **ANZ's outflows ($256bn)** are roughly 50% larger than the others, driven by a larger

non-operational wholesale book.

8 Bank runs and safety nets

8.1 Liquidity planning

- **Liquidity planning** is crucial for managing liquidity risk and costs, helping with borrowing priorities and minimizing excess reserves.
- Components of a liquidity plan:
  1. Managerial responsibilities: Assign roles during a liquidity crisis and manage public disclosures.
  2. List of fund providers: Identify likely fund withdrawers and patterns, including sensitivity to funding composition changes.
  3. Withdrawal estimates: Assess potential deposit and fund withdrawals over different time horizons and identify funding sources.
  4. Internal limits and asset disposal: Set borrowing limits for subsidiaries and branches, determine acceptable risk premiums, and sequence asset disposals.
- The plan involves key departments like the money desk and Treasury for daily liability funding.

8.2 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, not hours. Regulators are now actively rethinking how fast LCR-style buffers can really last when the run velocity is digital.

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** (no haircut) — an unusually generous LOLR design.

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 changed in 2025

APRA finalised **targeted changes to APS 210** in 2024 in response to the March 2023 banking turmoil. From **1 July 2025**, MLH ADIs must adjust the value of their liquid assets regularly for **mark-to-market** movements (no more carrying at amortised cost — exactly the issue at SVB). All ADIs must also be **operationally ready** to provide key information when requesting **Exceptional Liquidity Assistance (ELA)** 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 at other types of financial institutions

> **i** Optional reading
>
> This chapter is **optional reading**. The mechanisms parallel those for DIs (forced asset sales, loss of confidence, run dynamics). Skim for context; not examinable in detail.

9.5 Life insurance companies

- Life insurance companies hold cash reserves and liquid assets to meet policy cancellations (surrenders) and working capital needs.
- Premium income and returns on investments usually cover policyholder surrenders, with government bonds serving as a liquidity buffer.
- If premium income is insufficient, insurers may sell liquid assets to meet demands.
- A loss of confidence in an insurer can lead to a run, with mass policy surrenders forcing asset liquidations at potentially low prices.
- Forced liquidations can push insurers towards insolvency, similar to banks (DIs).

> **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 policy surrenders, and the society **closed to new business in December 2000**. After an 18-year wind-down, its remaining policies were transferred to **Utmost Life and Pensions on 1 January 2020**, ending a 258-year history.

9.6 Property-casualty insurers

- Property–casualty (PC) insurers sell policies insuring against certain contingencies impacting either real property or individuals.
- Large unexpected claims may materialize and exceed the flow of premium income and income returns from assets.
  - For example, natural disasters.

10 Finally...

10.1 Key takeaways

! What to remember

1. **Liquidity solvency** — but a liquidity shock can kill a solvent bank in 36 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.