CHARTA LEARNING · LESSON NOTES

Analysing banks

Financial Statement Analysis

1 A story: the bakery and the bank

- A bakery owns ovens, flour and stock
- A bank owns loans and securities
- A bank is funded mostly by deposits
- So the owners' cushion is thin

IN THE LESSON

- Picture a bakery.
- It owns ovens and flour, it sells bread for cash, and about half of what it owns was paid for by its owner.
- Now picture a bank.
- It owns almost nothing you can touch.
- It owns loans, which are promises from other people to pay back, and it owns securities.
- And it paid for nearly all of them with other people's money, mostly deposits.
- If a bakery has a bad month, the baker suffers.
- If a bank has a bad month, thousands of depositors worry about their savings.
- That difference in who is exposed, and how thinly the owners' money spreads, explains almost everything in this lesson.

2 Banks against industrial companies

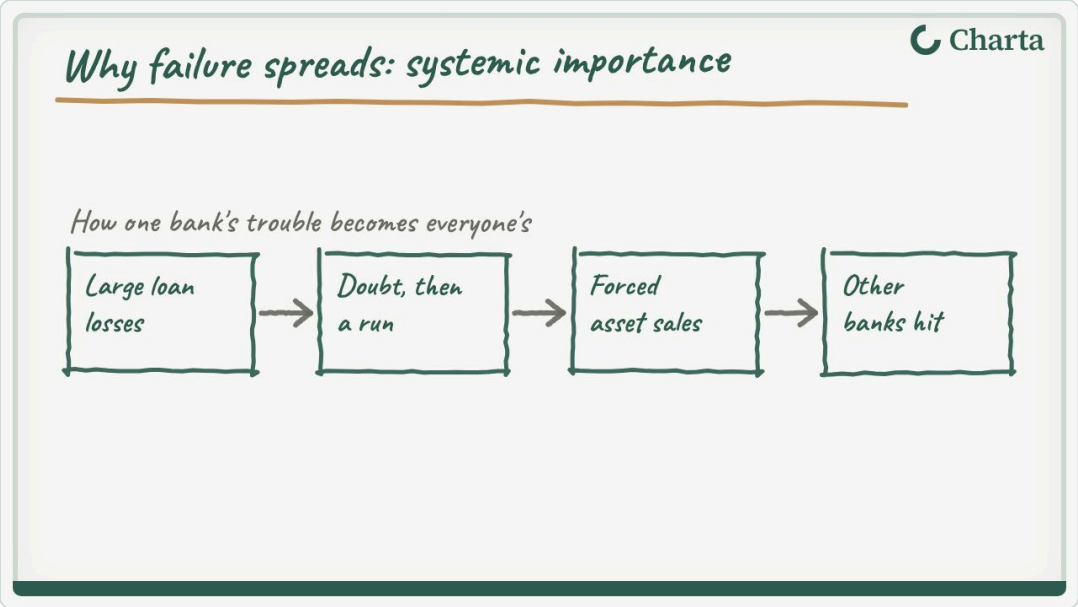
Why the usual toolkit has to change

Feature	Bank
Main assets	Loans, securities
Funding	Deposits, very high leverage
Income	Interest margin, fees
Oversight	Heavy regulation

IN THE LESSON

- Here is the comparison, row by row.
- Assets: a company holds plant and inventory, while a bank holds financial assets, often measured at fair value.
- Funding: a company mixes debt and equity, while a bank funds itself largely with deposits, which are really short promises to give money back.
- Leverage: a bank's assets are a very large multiple of its equity.
- Income: a company earns sales, while a bank earns an interest margin, fees and investment income.
- Rules: a company answers to markets and auditors, while a bank answers to a regulator as well, because its failure can spread to everyone else.

3 Why failure spreads: systemic importance



IN THE LESSON

- Here is the chain that makes banks special.
- Start on the left.
- A bank suffers large loan losses.
- Its equity is thin, so depositors and lenders start to doubt it.
- They ask for their money back, all at once, which is a run.
- To pay them, the bank must sell assets quickly, often at poor prices, and those sales push down the value of what other banks hold.
- Now the other banks look weaker, and doubt spreads from one bank to the next.
- That is what systemically important means: the failure of one can damage the whole system.
- It is why governments regulate banks heavily, and why they sometimes step in to rescue them.

4 Example 1: the same loss, two firms

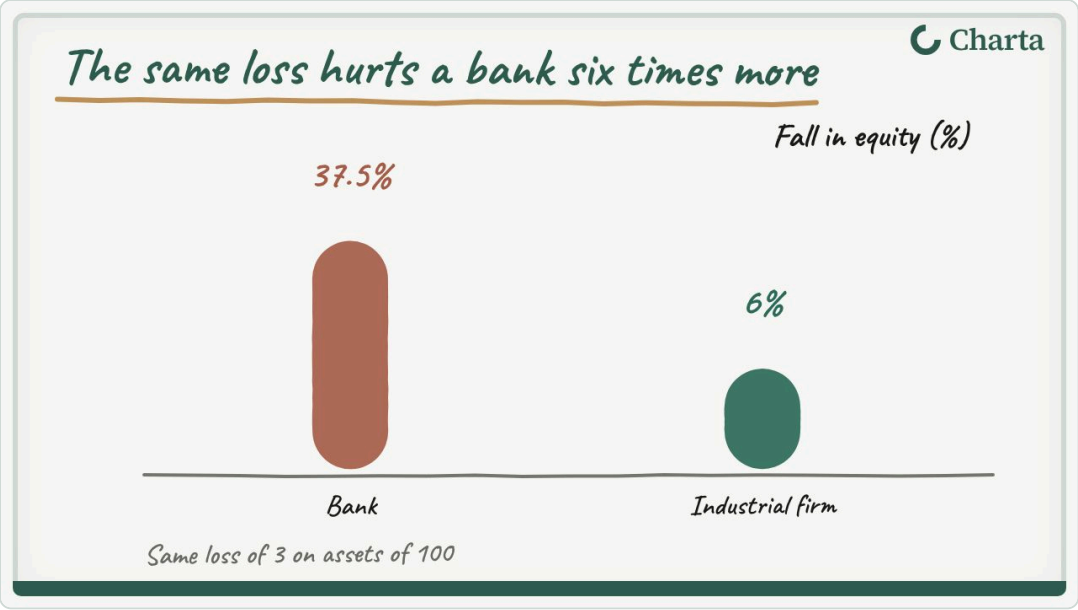
Assets 100 each: bank equity 8, industrial equity 50

Loss on assets	same for both	**3**
Bank equity after	8 − 3	**5**
Bank equity fall	3 ÷ 8	**37.5%**
Industrial equity fall	3 ÷ 50	**6%**

IN THE LESSON

- Let us see leverage at work.
- Take a bank with assets of one hundred, funded by equity of eight and the rest deposits and borrowing.
- Take an industrial company, also with assets of one hundred, but equity of fifty.
- Both suffer a loss of three on their assets.
- The bank's equity falls from eight to five.
- That loss of three is thirty seven point five per cent of its equity.
- The industrial company's equity falls from fifty to forty seven.
- Three over fifty is six per cent.
- Same loss, same assets, but the bank has lost more than a third of the owners' money.
- Thin equity is what makes small asset losses so dangerous.

5 The same loss hurts a bank six times more



IN THE LESSON

- Here are the two results as bars.
- The vertical axis is the fall in equity, in per cent.
- The left bar is the bank, with a fall of thirty seven point five per cent.
- The right bar is the industrial company, with a fall of six per cent.
- The bank's bar is more than six times taller, and the only reason is how little equity sits under its assets.
- Remember this picture when you meet a bank with a good looking profit.
- The question is never only how much it earns, but how big a loss its owners' money can absorb before the depositors are at risk.

6 What changes in the analysis

- Less useful: current ratio, cash flow, inventory
- Capital: how big a loss can it absorb?
- Credit quality and liquidity matter most
- Trap: industrial ratios on a bank

IN THE LESSON

- So what do we do differently?
- For a company we look at working capital, inventory turnover and cash flow.
- For a bank, most of those lose their meaning.
- A bank's inventory is money, and its cash flow statement is dominated by deposits and loans going in and out.
- Instead we study capital, how much loss it can absorb.
- We study credit quality, how many loans will not be repaid.
- We study liquidity, whether it can meet withdrawals.
- And we study interest rate sensitivity.
- Insurers are similar: they hold policyholder money against promises.
- The trap is simple.
- Do not apply a current ratio to a bank.

7 The rule book: capital, liquidity, disclosure

- Capital: a cushion measured against risk
- Liquidity: survive stress, fund for the long term
- Disclosure: publish capital and risks
- Insurers: solvency rules, risk-based capital

IN THE LESSON

- Because banks matter to everyone, they follow common international rules, called the Basel framework.
- Think of three layers.
- The first is capital: a bank must hold a minimum cushion of its own money, measured against its risk, not just its size.
- The second is liquidity: a bank must keep enough easily sold assets to survive a month of stress, and enough stable funding for the longer term.
- The third is market discipline: banks must publish details of their capital and risks, so investors can judge them.
- Insurers have their own version, solvency rules built on risk-based capital, where riskier business needs a bigger cushion.

8 Capital ratios: the Basel minimums

CET1 ÷ RWA ≥ 4.5%
Tier 1 ÷ RWA ≥ 6%
Total capital ÷ RWA ≥ 8%

Common equity Tier 1	Best quality, mostly equity
Tier 1 capital	CET1 plus additional Tier 1
Total capital	Tier 1 plus Tier 2
Risk-weighted assets	Assets scaled by risk weight
Conservation buffer	Extra 2.5% of RWA in CET1

IN THE LESSON

- Here are the capital ratios.
- Each divides a layer of capital by risk-weighted assets, written R W A.
- Risk-weighted assets are the bank's assets scaled by how risky each one is, so government bonds count for little and unsecured corporate loans for a lot.
- Common equity tier one is the best quality capital, mainly shareholders' equity and retained profit, and it must be at least four point five per cent of R W A.
- Tier one, which adds some loss absorbing bonds, must be at least six per cent.
- Total capital, which adds tier two, must be at least eight per cent.
- On top sits a conservation buffer of two point five per cent, which must be met in common equity.

9 Example 2: Marlow Bank's risk-weighted assets

Assets 90,000 times risk weight, in $m

Government and cash	20,000 × 0%	**0**
Mortgages	30,000 × 50%	**15,000**
Corporate loans	20,000 × 100%	**20,000**
Banks and other	20,000 × 25%	**5,000**
Risk-weighted assets	sum	**40,000**

IN THE LESSON

- Meet Marlow Bank, our running example.
- Its assets are ninety thousand.
- Government bonds and cash are twenty thousand, with a risk weight of zero.
- Residential mortgages are thirty thousand, with a risk weight of fifty per cent, giving fifteen thousand.
- Corporate loans are twenty thousand, risk weight one hundred per cent, giving twenty thousand.
- Lending to other banks and other assets are twenty thousand, at twenty five per cent, giving five thousand.
- Add up the weighted amounts: zero, fifteen thousand, twenty thousand and five thousand.
- Risk-weighted assets are forty thousand.
- Notice they are less than half the ninety thousand of total assets.

10 Example 3: Marlow's capital ratios and headroom

Capital ÷ RWA of 40,000, in $m

CET1 ratio	3,400 ÷ 40,000	**8.5%**
Tier 1 ratio	4,000 ÷ 40,000	**10.0%**
Total capital ratio	5,000 ÷ 40,000	**12.5%**
CET1 headroom over 7.0%	1.5% × 40,000	**600**

IN THE LESSON

- Now the ratios.
- Marlow's common equity tier one is three thousand four hundred.
- Divide by forty thousand and you get eight point five per cent.
- Add six hundred of additional tier one and tier one is four thousand, which is ten per cent.
- Add one thousand of tier two and total capital is five thousand, twelve point five per cent.
- With the buffer, the common equity requirement is four point five plus two point five, seven per cent.
- Marlow has eight point five, so its headroom is one point five points, which is six hundred in money.
- That is how much common equity it could lose before the buffer is breached, and a breach means limits on dividends.

11 Example 4: why not divide by total assets?

Same assets 90,000, same CET1 3,400

Both banks: CET1 ÷ assets	3,400 ÷ 90,000	**3.78%**
Marlow: RWA 40,000	3,400 ÷ 40,000	**8.50%**
Bank X: RWA 80,000	3,400 ÷ 80,000	**4.25%**
Minimum CET1	Basel	**4.5%**

IN THE LESSON

- Here is the trap.
- A student measures capital against total assets, ignoring risk.
- Marlow's common equity over ninety thousand is three point seven eight per cent.
- That looks poor, but it ignores that much of Marlow's book is safe.
- Now meet Bank X, also with ninety thousand of assets and the same three thousand four hundred of common equity.
- But Bank X lent almost everything to companies, so its risk-weighted assets are eighty thousand.
- Its ratio is four point two five per cent, below the four point five minimum.
- Against total assets the two banks look identical.
- Against risk-weighted assets, Marlow is comfortable and Bank X fails.

12 Liquidity ratios: the 30 day and the long term test

LCR = HQLA ÷ net cash outflows (30 days)
NSFR = available ÷ required stable funding
Both must be at least 100%

High-quality liquid assets	Cash and bonds sold at once
Net cash outflows, 30 days	Stressed outflows less inflows
Available stable funding	Equity, long deposits
Required stable funding	Stable funding assets need

IN THE LESSON

- Capital is not enough, because a bank with plenty of capital can still fail if it runs out of cash.
- Two liquidity ratios deal with that.
- The liquidity coverage ratio asks about the next thirty days of stress.
- It divides high-quality liquid assets, such as cash and government bonds that can be sold at once, by the net cash that is expected to flow out over thirty days.
- The net stable funding ratio asks about the next year.
- It divides the stable funding the bank has, such as equity and long term deposits, by the stable funding its assets require.
- Both ratios must be at least one hundred per cent.

13 Example 5: Marlow's liquidity ratios

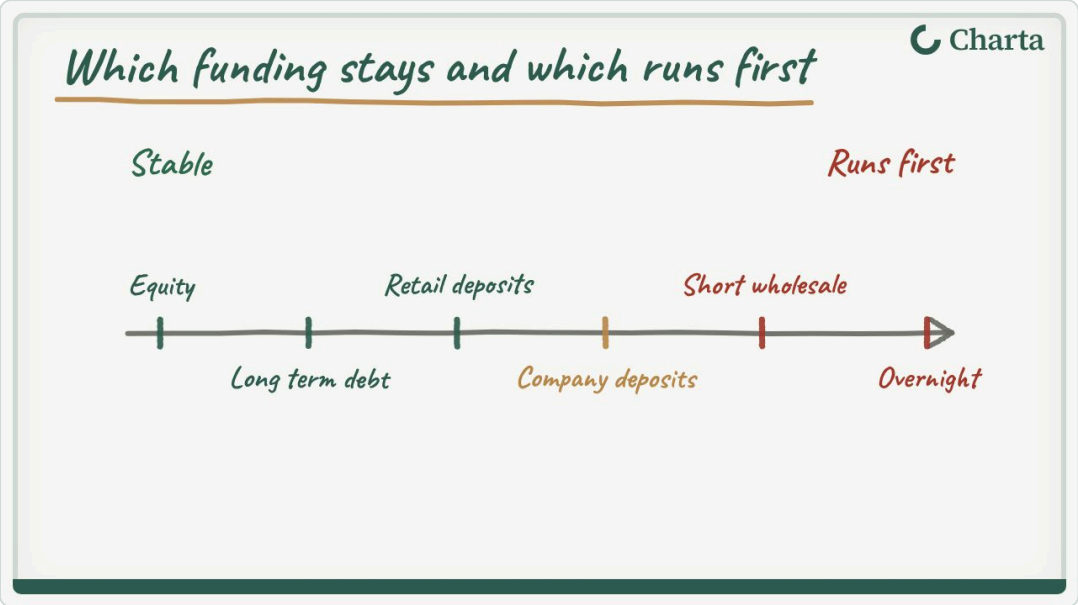
Liquidity ratios in $m, minimum 100%

Liquidity coverage	12,000 ÷ 10,000	**120%**
Net stable funding	54,000 ÷ 50,000	**108%**
Coverage if outflows 13,500	12,000 ÷ 13,500	**88.9%**
Verdict under harsher stress	below 100%	**Fails**

IN THE LESSON

- Marlow holds twelve thousand of high-quality liquid assets.
- The regulator's stress scenario gives net cash outflows of ten thousand over thirty days.
- So the liquidity coverage ratio is twelve thousand over ten thousand, one hundred and twenty per cent.
- Pass.
- Its available stable funding is fifty four thousand against required stable funding of fifty thousand, so the net stable funding ratio is one hundred and eight per cent.
- Pass again.
- Now a test.
- Suppose the stress is harsher and net outflows are thirteen thousand five hundred.
- Twelve thousand over thirteen thousand five hundred is eighty eight point nine per cent.
- That is below one hundred, so a harsher world makes Marlow fail.

14 Which funding stays and which runs first



IN THE LESSON

- The net stable funding ratio rests on one idea: some funding stays and some runs.
- Here is the line.
- On the far left, the most stable sources: shareholders' equity and long term debt, which cannot be withdrawn tomorrow.
- Next, retail deposits from households, which are usually sticky, especially when insured.
- Further right, deposits from companies, which are larger and move faster.
- Then short term borrowing from other financial firms.
- And on the far right, overnight wholesale funding, which a worried lender can simply refuse to renew.
- The further right a bank funds itself, the more it needs liquid assets to survive a scare.

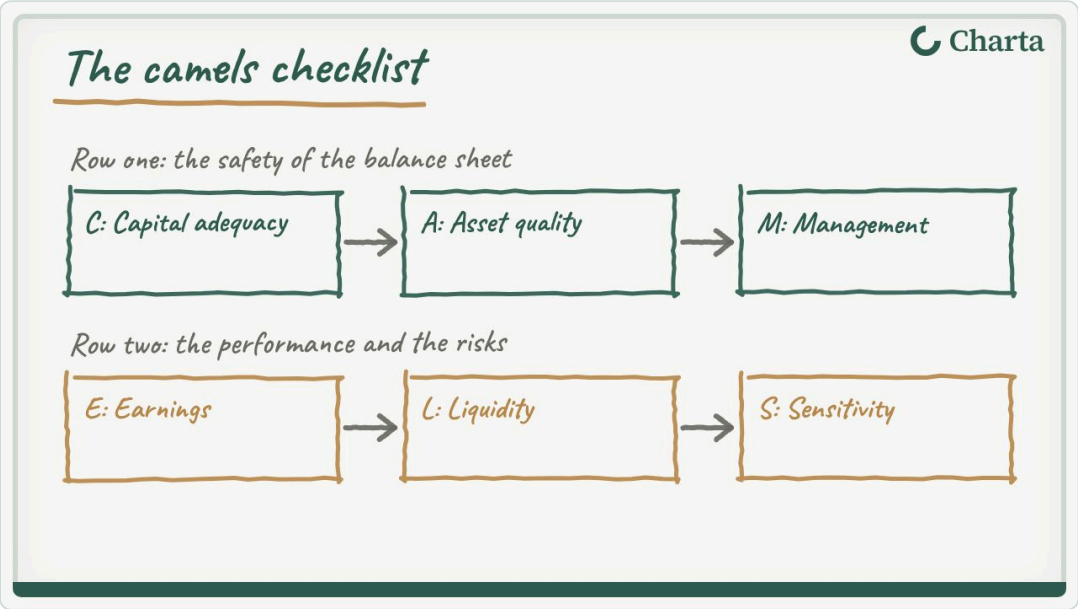
15 Regulation: four things to keep

- Capital ÷ risk-weighted assets, never total assets
- Two liquidity tests: 30 days and one year
- Disclosure lets investors check the numbers
- Minimums are floors, not targets

IN THE LESSON

- Pull the regulation together with four ideas.
- First, capital is measured against risk-weighted assets, not total assets, so the same cushion means different things for different banks.
- Second, there are two liquidity tests, thirty days for the coverage ratio and one year for the stable funding ratio, and a bank must pass both.
- Third, the regulator relies on disclosure.
- Banks publish their capital and liquidity ratios, and that gives analysts like you the raw material for the next part.
- Fourth, the minimums are floors, not targets.
- Most banks run well above them, because markets punish a bank that sits right on the line.

16 The camels checklist



IN THE LESSON

- Now the framework analysts use to organise a bank review.
- It is called camels, and each letter is one area.
- C is capital adequacy: can the bank absorb losses?
- A is asset quality: how good are its loans?
- M is management: how well is it governed and controlled?
- Then on the second row, E is earnings: does it make good money, and is that money sustainable?
- L is liquidity: can it meet withdrawals?
- And S is sensitivity to market risk: what happens to it if interest rates or prices move?
- Six boxes, six questions.
- We will take the first one, then the ratios that go with each of the others.

17 Camels: the main ratio for each letter

Capital: CET1, Tier 1, total ÷ RWA. Management: judgement

Area	Headline ratio
Asset quality	NPL ÷ loans
Earnings	NIM, cost ÷ income
Liquidity	LCR, NSFR
Sensitivity	Gap, VaR

IN THE LESSON

- Here is one headline ratio for each area that has one.
- Capital: the common equity tier one ratio, and its tier one and total capital cousins, all over risk-weighted assets.
- Asset quality: non-performing loans over total loans.
- Earnings: the net interest margin and the cost to income ratio.
- Liquidity: the liquidity coverage and net stable funding ratios, with loans over deposits as a simple cross check.
- Sensitivity: the repricing gap and value at risk.
- Management has no single ratio.
- You judge it from governance, the quality of controls and risk management, and whether the bank hits the targets it sets for itself.

18 Asset quality ratios

NPL ratio = NPLs ÷ gross loans
Coverage = allowance ÷ NPLs
Provisions ÷ net charge-offs

Non-performing loans	Borrower has stopped paying
Gross loans	Loans before the allowance
Loan loss allowance	Cushion held for losses
Provisions	Charge in the income statement
Net charge-offs	Write-offs less recoveries

IN THE LESSON

- Asset quality starts with the bad loans.
- A non-performing loan is one where the borrower has stopped paying, usually for ninety days or more.
- The non-performing loan ratio is those loans over gross loans.
- The bank sets aside a loan loss allowance, a cushion on the balance sheet against expected losses.
- Coverage is the allowance over the non-performing loans, and it asks whether the cushion matches the problem.
- Each year the bank adds provisions, a charge to the income statement, and writes off some loans as net charge-offs, which are write-offs less recoveries.
- Provisions over net charge-offs tells you whether the bank is topping the cushion up or running it down.

19 Earnings ratios

NIM = net interest income ÷ average earning assets
Cost to income = operating costs ÷ operating income

Net interest income	Interest earned less paid
Average earning assets	Loans and securities, average
Operating costs	Staff, premises, other costs
Operating income	Interest, fees and trading

IN THE LESSON

- Earnings come next.
- The net interest margin is net interest income, which is interest earned minus interest paid, divided by average interest-earning assets.
- It is the bank's core spread, like a shop's gross margin.
- The cost to income ratio is operating costs divided by operating income, which includes interest, fees and trading gains.
- Lower is better.
- When you read earnings, ask two questions.
- How stable are they?
- Profit from volatile trading is less reliable than profit from steady lending.
- And how much of the profit comes from releases of loan loss reserves, which cannot happen every year?
- Good quality earnings come from the core margin, not from one off items.

20 Example 6: Marlow's asset quality

Gross loans 50,000, in $m

NPL ratio	1,500 ÷ 50,000	**3.0%**
Coverage	1,050 ÷ 1,500	**70%**
Provisions ÷ net charge-offs	300 ÷ 250	**120%**

IN THE LESSON

- Back to Marlow.
- It has gross loans of fifty thousand, the mortgages and corporate loans together.
- Non-performing loans are one thousand five hundred, so the ratio is three per cent.
- The loan loss allowance is one thousand and fifty.
- Coverage is one thousand and fifty over one thousand five hundred, seventy per cent.
- During the year it charged provisions of three hundred and wrote off net two hundred and fifty.
- Provisions over net charge-offs is a hundred and twenty per cent.
- Taken alone, a hundred and twenty is reassuring, because the bank adds more than it writes off.
- But seventy per cent coverage is thin for three per cent bad loans, and we will see why that matters.

21 Example 7: Marlow's earnings

In $m

Net interest income	3,150 − 1,350	**1,800**
NIM	1,800 ÷ 80,000	**2.25%**
Cost to income	1,530 ÷ 2,550	**60%**
Net income	(2,550−1,530−300) × 0.75	**540**

IN THE LESSON

- Now earnings.
- Marlow earned three thousand one hundred and fifty of interest and paid one thousand three hundred and fifty, so net interest income is one thousand eight hundred.
- Its average interest-earning assets are eighty thousand, so the margin is two point two five per cent.
- Add fees of six hundred and trading gains of one hundred and fifty, and operating income is two thousand five hundred and fifty.
- Operating costs are one thousand five hundred and thirty, so the cost to income ratio is sixty per cent.
- After provisions of three hundred, profit before tax is seven hundred and twenty.
- At a tax rate of twenty five per cent, net income is five hundred and forty.

22 Example 8: Marlow's funding and rate sensitivity

In $m

Loans ÷ deposits	50,000 ÷ 55,000	**90.9%**
Wholesale share of funding	25,000 ÷ 90,000	**27.8%**
One year repricing gap	36,000 − 48,000	**−12,000**
NII if rates rise 1 point	−12,000 × 1%	**−120**

IN THE LESSON

- Two letters left.
- For liquidity, Marlow has fifty five thousand of deposits against fifty thousand of loans, so loans over deposits is ninety point nine per cent.
- It also has twenty five thousand of wholesale funding, which is twenty seven point eight per cent of its ninety thousand of funding, so it leans on markets more than on customers.
- For sensitivity, look at repricing.
- Within a year, thirty six thousand of assets reprice, but forty eight thousand of liabilities do.
- The gap is minus twelve thousand.
- If rates rise by one percentage point, the extra cost is one per cent of twelve thousand, so net interest income falls by one hundred and twenty.

23 Camels: its limits

- No weights: how to combine six scores?
- Ignores government support
- Says little about culture or off-balance-sheet risk
- Backward looking

IN THE LESSON

- Camels is a good checklist, but a checklist has weaknesses.
- It does not tell you the weights.
- Is a strong earnings score worth more than a weak liquidity score?
- Different analysts choose differently, and that is arbitrary.
- It ignores government support, which can make a weak bank safe or a strong bank look needlessly risky.
- It says little about culture, which drives how much risk people take.
- And it leaves out the off-balance-sheet risks that never show up in the ratios.
- Finally, the ratios look backward, using last year's figures to judge next year's risk.
- Camels tells you where to look, not what to conclude.

24 Example 9: reading Marlow over two years

Year 1 against year 2, in $m

Gross loans	Year 1: 40,000	**50,000**
Net interest margin	Year 1: 2.60%	**2.25%**
NPL ratio	Year 1: 2.0%	**3.0%**
Coverage	Year 1: 125%	**70%**

IN THE LESSON

- Now we analyse Marlow properly, using the camels lens and then asking what the numbers mean together.
- Here are two years side by side.
- In the first year gross loans were forty thousand.
- In the second year, fifty thousand: growth of twenty five per cent.
- The net interest margin fell from two point six per cent to two point two five.
- Non-performing loans rose from eight hundred to one thousand five hundred, so the ratio rose from two per cent to three.
- And the allowance barely moved, from one thousand to one thousand and fifty, so coverage collapsed from a hundred and twenty five per cent to seventy.
- Growth was fast and the margin was thin: the bank may be buying volume with price.

25 Example 10: how the allowance flatters profit

Hold coverage at 100%, in $m

Allowance needed	100% × 1,500	**1,500**
Extra provision	1,500 − 1,050	**450**
Pre-tax profit	720 − 450	**270**
Net income	270 × 0.75	**202.5**
ROE on 4,500	202.5 ÷ 4,500	**4.5%**

IN THE LESSON

- Look at the provisions.
- In the first year Marlow charged four hundred and fifty.
- In the second year, with bad loans nearly doubled, it charged only three hundred.
- That lower charge lifted profit.
- Suppose a cautious analyst wants coverage of one hundred per cent.
- Non-performing loans of one thousand five hundred need an allowance of one thousand five hundred, so four hundred and fifty more is needed.
- Provisions would be seven hundred and fifty, not three hundred.
- Profit before tax falls from seven hundred and twenty to two hundred and seventy.
- After tax at twenty five per cent, net income is two hundred and two point five, and return on equity falls from twelve per cent to four point five.

26 Return on equity and what hides inside it

ROA = net income ÷ average total assets
ROE = ROA × average assets ÷ average equity

Net income	Profit after tax
Average total assets	Everything the bank owns
Average equity	Owners' money
Return on assets	Profit per dollar of assets

IN THE LESSON

- Return on equity is what most investors look at first.
- But for a bank it hides the thing we care about.
- Split it in two.
- Return on assets is net income over average total assets: how much profit each dollar of assets earns.
- Multiply by the equity multiplier, which is average assets over average equity: how many dollars of assets sit on each dollar of owners' money.
- Return on equity is the product.
- A bank can lift its return on equity either by earning more on its assets or by holding less equity.
- The second route is easy, and dangerous, because thin equity is exactly what leaves no room for losses.

27 Example 11: a strong return on equity, and a stress

Marlow's assets are 90,000, equity 4,500

ROE: 0.6% × 20	540 ÷ 4,500	**12%**
Peer: 0.6% × 10	same ROA	**6%**
CET1 after a loss of 800	3,400 − 800	**2,600**
CET1 ratio after loss	2,600 ÷ 40,000	**6.5%**

IN THE LESSON

- Marlow's return on assets is five hundred and forty over ninety thousand, zero point six per cent.
- Its assets are twenty times its equity of four thousand five hundred.
- So return on equity is zero point six times twenty, twelve per cent.
- A peer with the same return on assets but assets only ten times equity earns six per cent.
- Marlow looks twice as good, mostly because it is twice as thin.
- Now stress it.
- Suppose bad loans cause a loss of eight hundred, all taken against common equity.
- Common equity falls to two thousand six hundred, which is six point five per cent of forty thousand.
- That is below the seven per cent needed with the buffer, though above the four point five minimum.

28 Four mistakes to avoid

- 1. Current ratio on a bank
- 2. Capital ÷ total assets, not RWA
- 3. High ROE read as strength
- 4. Good ratios taken to mean low risk

IN THE LESSON

- Let us collect the mistakes so far.
- One: using industrial ratios, such as the current ratio, on a bank.
- They do not mean what they mean for a company.
- Two: measuring capital against total assets instead of risk-weighted assets.
- That ignores how risky the assets are.
- Three: reading a high return on equity as strength when it comes from thin capital, or from a loan loss allowance that was cut while bad loans rose.
- And four, which we meet next: believing that good ratios mean low risk, when large commitments and guarantees sit off the balance sheet and do not appear in the ratios at all.

29 What camels leaves out

- Government support, explicit or implicit
- Mission: cooperative or development bank
- Culture sets the appetite for risk
- Competition and concentration by sector

IN THE LESSON

- Now the extra considerations.
- First, government support.
- For a systemically important bank, creditors expect the state to step in, so its funding is cheaper and its default risk lower.
- That support may be explicit, as in a guarantee, or implicit, just an expectation.
- Second, the bank's mission.
- A cooperative or development bank may aim to serve members or a region, not to maximise profit, which shapes its targets.
- Third, culture: the attitude to risk at the top drives control failures.
- Fourth, the competitive environment and concentration.
- A bank that lends mostly to one sector or region is only as safe as that sector or region.

30 Example 12: what implicit support is worth

Wholesale funding 25,000, in $m

Interest without support	25,000 × 3.4%	**850**
Interest with support	25,000 × 3.0%	**750**
Annual saving	850 − 750	**100**
Saving ÷ NII	100 ÷ 1,800	**5.6%**

IN THE LESSON

- Suppose Marlow is judged systemically important.
- Lenders believe the government would rescue it, so they accept a lower rate.
- Marlow has twenty five thousand of wholesale funding.
- If it paid three point four per cent without support, the interest would be eight hundred and fifty.
- With support, at three per cent, it is seven hundred and fifty.
- The saving is one hundred, which is five point six per cent of net interest income.
- Good for earnings, but a careful analyst asks two things.
- Is the support certain, or only hoped for?
- And does cheap funding tempt the bank into taking more risk?
- Support lowers default risk, but it is not a reason to ignore the other signs.

31 Example 13: commitments off the balance sheet

Undrawn commitments 12,000, in $m

Drawn in stress	40% × 12,000	**4,800**
New RWA at 100%	adds to 40,000	**44,800**
CET1 ratio	3,400 ÷ 44,800	**7.6%**
Cash to fund the loans	same amount	**4,800**

IN THE LESSON

- Now the risks the ratios do not show.
- Marlow has undrawn loan commitments to customers of twelve thousand.
- They are promises to lend, so they are not loans yet and are not on the balance sheet.
- In a downturn, borrowers draw them.
- Suppose forty per cent is drawn: four thousand eight hundred of new loans.
- At a risk weight of one hundred per cent, risk-weighted assets rise to forty four thousand eight hundred.
- Common equity of three thousand four hundred is now seven point six per cent of that, down from eight point five.
- The bank must also find four thousand eight hundred of cash to lend.
- The ratios looked fine, and the exposure was hidden.

32 Example 14: concentration in one sector

Commercial property loans 9,000, in $m

Share of gross loans	9,000 ÷ 50,000	**18%**
Defaults at 10%	10% × 9,000	**900**
Loss at 50% of defaults	50% × 900	**450**
CET1 after the loss	3,400 − 450	**2,950**
CET1 ratio	2,950 ÷ 40,000	**7.4%**

IN THE LESSON

- A last example, about concentration.
- Marlow's corporate book of twenty thousand includes nine thousand of commercial property loans.
- That is eighteen per cent of all its loans, in one sector.
- Suppose the property market turns and ten per cent of those loans default, which is nine hundred.
- If the bank loses half of each defaulted loan after selling the property, the loss is four hundred and fifty.
- Common equity falls to two thousand nine hundred and fifty, which is seven point four per cent of risk-weighted assets, barely above the seven per cent requirement.
- The sector table in the annual report, and the segment notes, would have warned you.

33 Recap: analysing a bank

- Banks: thin equity, deposit funded, systemic
- Rules: capital over RWA, two liquidity tests
- Camels: six areas, trends and peers
- Then: support, culture, concentration, off-balance-sheet
- Good ratios do not always mean low risk

IN THE LESSON

- Let us put it all together.
- Banks differ because they are thinly capitalised, funded by deposits, hold financial assets and can damage the whole system if they fail.
- That is why they are regulated, with capital measured against risk-weighted assets and two liquidity tests.
- Camels gives the checklist: capital, assets, management, earnings, liquidity and sensitivity.
- Analyse each over time and against peers, then ask what the numbers say together: falling margin with fast growth, a thin allowance, return on equity that comes from leverage.
- Finally look beyond the ratios, at government support, mission, culture, concentration and everything off the balance sheet.
- Strong ratios do not always mean low risk.

34 Try three quick questions

1. CET1 2,000, RWA 25,000, assets 60,000. CET1 ratio?
   Answer: 2,000 ÷ 25,000 = 8.0% (not 3.3% on assets).
2. HQLA 4,500, 30 day net outflows 5,000. LCR?
   Answer: 4,500 ÷ 5,000 = 90%, below 100%: fails.
3. NPLs 600, loans 20,000, allowance 480. Two ratios?
   Answer: NPL ratio 3.0%; coverage 480 ÷ 600 = 80%.

IN THE LESSON

- Now try three questions.
- Pause after each one.
- Question one.
- A bank has common equity tier one of two thousand, risk-weighted assets of twenty five thousand and total assets of sixty thousand.
- What is its common equity ratio?
- Two thousand over twenty five thousand is eight per cent, not the three point three per cent you get using total assets.
- Question two.
- High-quality liquid assets are four thousand five hundred and thirty day net outflows are five thousand.
- What is the liquidity coverage ratio, and does it pass?
- Ninety per cent, so no.
- Question three.
- Non-performing loans are six hundred, gross loans twenty thousand and the allowance four hundred and eighty.
- Give the two ratios.
- Three per cent, and coverage of eighty per cent.
- Well done.