CHARTA LEARNING · LESSON NOTES

Insurers and the quality of financial reports

Financial Statement Analysis

1 A business that is paid first

- Premiums come in first; claims are paid later
- The money held in between is the float
- Engine one: underwriting, selling cover at a profit
- Engine two: investing the float

IN THE LESSON

- Imagine a village where every household pays a small amount into a shared pot at the start of the year.
- When a roof blows off, the pot pays for the repair.
- Most households never claim, so the pot is rarely empty.
- That pot is an insurer.
- The insurer collects premiums first and pays claims later, sometimes years later.
- In between it holds other people's money, and invests it.
- That holding is called the float.
- So an insurer has two engines.
- The underwriting engine is the business of selling cover for more than it costs to pay claims and run the firm.
- The investment engine is what the float earns while it waits.
- A good analyst judges both.

2 The two engines of a property insurer

Life of a premium

Premium is paid in → Float is invested → Claims paid later

Where profit comes from

Underwriting result → Investment income → Total profit

IN THE LESSON

- Here is the picture, drawn in the order the money moves.
- The top row is the life of a premium.
- A customer pays a premium.
- The insurer invests it as float.
- Later, claims are paid out of it.
- The bottom row shows where the profit comes from.
- First, the underwriting result: premiums earned minus claims and the costs of writing the business.
- Second, the investment income earned on the float.
- Add the two and you have the total profit.
- The key idea is that either engine can carry the other.
- A weak underwriter can still make money if its investments do well, but it is then a bet on markets, not a sign of a well run insurer.

3 The combined ratio

Combined ratio = Loss and LAE ratio + Underwriting expense ratio
Losses ÷ premiums earned; expenses ÷ premiums written

Loss and LAE ratio	Losses ÷ net premiums earned
Underwriting expense ratio	Expenses ÷ net premiums written
Combined ratio	Below 100% is a profit

IN THE LESSON

- Now for the main yardstick for a property and casualty insurer, which is the insurer that covers things like buildings, cars and liability.
- It has two parts.
- The loss and loss adjustment expense ratio equals losses and the cost of settling claims, divided by net premiums earned.
- Earned means the slice of premium that relates to cover already given.
- The underwriting expense ratio equals underwriting expenses, such as commissions, divided by net premiums written.
- Written means premiums on all policies sold in the year.
- Add the two to get the combined ratio.
- Below one hundred per cent, the insurer makes an underwriting profit before investing a single dollar.
- Above one hundred, it loses money on what it sells.

4 Example 1: Halden Mutual

Written 1,100, earned 1,000, losses 700, expenses 330

Loss and LAE ratio	700 ÷ 1,000 earned	**70.0%**
Expense ratio	330 ÷ 1,100 written	**30.0%**
Combined ratio	70.0% + 30.0%	**100.0%**
Wrong base for expenses	330 ÷ 1,000	**33.0%**

Mixing the bases invents a 3 point loss that is not there

IN THE LESSON

- Mira studies Halden Mutual, a made up insurer that is growing.
- In the year, net premiums written were one thousand one hundred.
- Net premiums earned were one thousand, lower because some policies were sold late in the year and have only partly earned their premium.
- Losses and loss adjustment expenses were seven hundred.
- Underwriting expenses were three hundred and thirty.
- The loss ratio is seven hundred over one thousand, which is seventy per cent.
- The expense ratio is three hundred and thirty over one thousand one hundred, which is thirty per cent.
- The combined ratio is exactly one hundred per cent.
- Now the trap.
- Dividing the expenses by earned premiums gives thirty three per cent, and a false combined ratio of one hundred and three.

5 Example 2: what the reserves hide

Halden's losses include a release of 40 of old reserves

Reported loss ratio	700 ÷ 1,000	**70.0%**
Add back the release	40 ÷ 1,000	**4.0 pts**
Underlying loss ratio	70.0% + 4.0	**74.0%**
Underlying combined ratio	74.0% + 30.0%	**104.0%**

IN THE LESSON

- A reported ratio can be flattered.
- When an insurer sets aside money for claims, it estimates.
- Later it learns whether it guessed too high or too low.
- A release of old reserves that proved too generous is called favourable reserve development, and it lowers this year's losses.
- Halden's seven hundred of losses includes a release of forty from earlier years.
- Mira wants the ratio for this year's business.
- Forty over one thousand is four points.
- Adding them back lifts the loss ratio from seventy to seventy four per cent, and the combined ratio from one hundred to one hundred and four.
- Halden was not at break even.
- It was losing four points, and old reserves covered the gap.

6 Three insurers side by side

Combined ratio, %

Insurer A	**96**
Halden, reported	**100**
Halden, underlying	**104**

Illustrative; below 100 is an underwriting profit

IN THE LESSON

- Here are three combined ratios as bars.
- The vertical axis is the combined ratio in per cent.
- The first bar is a tidy made up rival, Insurer A, at ninety six.
- Every hundred of premium leaves four points of underwriting profit.
- The second bar is Halden as reported, exactly one hundred.
- The third bar is Halden after adding back the old reserve release, one hundred and four.
- The picture tells you something the reported bar hides.
- Halden sits on the wrong side of the line, and the line is the whole story.
- Remember that a combined ratio below one hundred is the target, and a trend of ratios, not one year, shows whether the underwriting is disciplined.

7 Example 3: the investment engine

Underlying view, rounded to whole numbers

Underwriting result	(1 − 1.04) × 1,000	**−40**
Investment income	3,000 × 4%	**120**
Underlying pre-tax profit	−40 + 120	**80**

Approximate: premium base taken as 1,000

IN THE LESSON

- Now the second engine.
- Halden holds three thousand of invested assets, the float and its own capital, and these earn four per cent.
- That is one hundred and twenty of investment income.
- Mira takes the underlying combined ratio of one hundred and four.
- Four points of premium on about one thousand is a forty underwriting loss.
- So underlying profit before tax is the minus forty plus one hundred and twenty, which is eighty.
- Two things follow.
- Without the investments, Halden would lose money.
- And that profit is now tied to markets.
- If the portfolio held risky shares or long bonds, a fall in prices or a rise in interest rates would hit the profit.
- So asset quality and interest rate sensitivity are part of the analysis.

8 Life and health insurers

- Product and customer diversification
- Benefits and expenses against premiums and deposits
- Investment returns and portfolio quality
- Liquidity and risk-based capital

IN THE LESSON

- Life and health insurers work differently.
- A life insurer sells long contracts, such as protection policies and savings products, so claims are far more predictable but stretch over decades.
- There is no combined ratio to lean on.
- Instead the analyst asks several questions.
- How diversified are the products and the customers?
- How do benefits paid and expenses compare with premiums plus deposits?
- Deposits are money customers place in investment type contracts.
- How good is investment performance and portfolio quality?
- Is there enough liquidity to meet withdrawals?
- And is the capital strong enough, measured by risk based capital?
- Both kinds of insurer hold big portfolios, so interest rates matter to both.

9 Example 4: Aldergrove Life

Premiums 2,600, deposits 400, benefits 2,100, expenses 600

Money in	2,600 + 400	**3,000**
Benefits plus expenses	2,100 + 600	**2,700**
Ratio to premiums and deposits	2,700 ÷ 3,000	**90.0%**
Left before investing	100% − 90.0%	**10.0%**

IN THE LESSON

- Mira now turns to Aldergrove Life, another made up firm.
- Premiums were two thousand six hundred and deposits four hundred, so three thousand came in.
- Benefits paid to policyholders were two thousand one hundred, and operating expenses were six hundred.
- Together that is two thousand seven hundred.
- Divide by the three thousand that came in, and you get ninety per cent.
- So ten per cent, three hundred, is left before investment results.
- That is the margin the life insurer lives on, and it is thin.
- A small rise in benefits, or a small fall in the return on investments, can wipe it out.
- That is why the investment return, and how the assets match the long promises, deserve as much of your attention.

10 Two layers of quality

- Reporting quality: faithful, complete, unbiased
- Results quality: sustainable and above the cost of capital
- The two questions are separate
- Honest bad news is still good reporting

IN THE LESSON

- Switch lenses now.
- Suppose you are buying a second hand car.
- There are two questions.
- Is the seller honest about the car?
- And is the car itself any good?
- Financial reports have the same two layers.
- Reporting quality asks whether the statements are decision useful, meaning faithful, complete and free of bias.
- Results quality, also called earnings quality, asks whether the profit is sustainable and large enough to cover the cost of capital.
- The two are separate.
- A company can report a bad year in an honest, clear way, and that is high quality reporting of low quality results.
- The dangerous case is the reverse, handsome profit that is hard to trust.

11 Two questions, four answers

Reporting quality against results quality

Faithful reporting, lasting profit	**The goal**
Faithful reporting, weak profit	Honest bad news
Poor reporting, lasting profit	Cannot tell
Poor reporting, weak profit	Worst case

IN THE LESSON

- Put the two questions in a grid and four cases appear.
- Top left: faithful reporting and lasting profit.
- That is the goal, honest statements of durable earnings.
- Next, faithful reporting but weak profit.
- That is honest bad news, which an analyst can work with.
- Third, poor reporting of apparently lasting profit.
- Here you simply cannot tell, because the reporting hides the truth.
- This is the dangerous cell, because the profit looks good.
- Last, poor reporting and weak profit, the worst case.
- Notice the order of the work.
- Answer the reporting question first, because until you trust the reporting you cannot judge the results.
- A good looking profit that you cannot trust is worth little.

12 From best to worst

- High quality, sustainable
- Within rules, biased choices
- Breaks the standards
- Fictitious transactions

IN THE LESSON

- Reports can be placed on a line from best to worst.
- On the left is the best case: high quality reporting of sustainable earnings.
- Next comes reporting that follows the rules but reflects biased choices.
- It complies, yet the choices flatter or depress the result.
- Third, reporting that departs from the accounting standards and so misstates the economics.
- At the far right are fictitious transactions, which is plain fraud.
- The line has no sharp edge between the first two points, which is why this topic needs judgement.
- Most real questions on the exam live in the second point, because everything is permitted, and yet the numbers still mislead.

13 Example 5: compliant but flattering

Reported pre-tax profit 90; both choices are permitted

Smaller bad-debt allowance	600 × (5% − 3%)	**12**
Longer machine life	360 ÷ 8 − 360 ÷ 12	**15**
Profit without the choices	90 − 12 − 15	**63**
Share of profit from choices	27 ÷ 90	**30%**

IN THE LESSON

- Here is the second point on the line in numbers.
- Brightmoor Packaging, a made up firm, reports pre-tax profit of ninety.
- During the year it did two things, both allowed.
- It cut its allowance for doubtful receivables from five to three per cent of receivables of six hundred.
- That frees twelve, taken straight into profit.
- It also gave new machinery costing three hundred and sixty a twelve year life, when peers use eight.
- Depreciation falls from forty five to thirty, a gain of fifteen.
- Together the two choices add twenty seven.
- Without them, profit would be sixty three.
- Thirty per cent of the reported profit comes from choices, with no better trading.
- Compliance is not quality.

14 A practical framework

- Understand the business and how it earns
- Find the key choices and estimates
- Compare with peers and with history
- Look for bias in the choices
- Check red flags

IN THE LESSON

- So how do you put this into practice?
- Use five habits, in order.
- First, understand the business: how it makes money and what its risks are.
- Second, find the key accounting choices and estimates, the places where management has room to judge.
- Third, compare those choices with peers and with the company's own past.
- Fourth, look for a bias, aggressive or conservative, in the direction of the choices.
- Fifth, check red flags, which we will meet in a few minutes.
- Here is the exam trap again.
- The statement that the accounts comply with the standards, and carry a clean audit opinion, does not make them high quality.
- Biased choices can sit inside the rules.

15 Three ways quality is undermined

- Biased amounts: early revenue, capitalised costs
- Misleading classification of items
- Timing choices that shift profit between years
- Each route leaves a different trace

IN THE LESSON

- Quality can be damaged in three ways.
- First, the reported amounts themselves can be biased.
- Revenue is recognised early.
- Costs that should be expensed are capitalised, meaning turned into an asset.
- Asset lives are stretched.
- Reserves for bad debts and warranties are set too low.
- Second, classification can mislead.
- A receivable is moved to the non-current section, a recurring cost is placed in a one off line, or an operating cash flow is shown as something else.
- The totals can look innocent while the labels mislead.
- Third, timing choices move profit from one period to another.
- Our job is to spot which of the three is at work, because each one leaves a different trace.

16 Examples of each route

Route and a typical example

Biased amounts	Early revenue
Biased amounts	Bad debt allowance cut
Classification	Recurring cost called one-off
Classification	Receivable made non-current
Timing	Sale pulled forward; cost held back

IN THE LESSON

- Let us put examples next to each route.
- Under biased amounts, revenue recognised before the product is delivered, or a bad debt allowance cut without any reason.
- Under classification, receivables moved out of the current section, or recurring costs called unusual.
- Under timing, a quarter end sale pulled forward, or an expense held back until next year.
- The signs differ.
- Biased amounts often show up as profit growing faster than cash.
- Classification shows in comparisons with peers: odd categories that nobody else uses.
- Timing shows up as a pattern, high profit at the end of a period and low profit just after.
- When you read a note, ask which of the three routes it could belong to.

17 Example 6: a reclassified cost

Talbury Freight, operating cash flow (illustrative)

Reported operating cash flow	as published	**120**
Capitalised costs in investing	peers treat as operating	**50**
Comparable operating cash flow	120 − 50	**70**
Share of reported figure	50 ÷ 120	**42%**

IN THE LESSON

- Here is classification in action.
- Talbury Freight, a made up carrier, reports operating cash flow of one hundred and twenty.
- In the notes, Mira finds that fifty of costs on maintaining its trucks were capitalised and shown in investing cash flow.
- A peer treats the same costs as operating.
- To compare fairly, Mira moves the fifty back.
- Operating cash flow falls from one hundred and twenty to seventy.
- The fifty is about forty two per cent of the reported figure.
- Total cash is the same.
- Only the label has moved, and the label decided whether the company looked like a strong cash generator.
- Always ask what a number would be on the peer's classification.

18 Why do firms do it?

- Motivation: bonuses, covenants, share issues, targets
- Opportunity: weak board, auditor or controls
- Rationalisation: it is temporary; everyone does it
- Culture and tone at the top decide the rest

IN THE LESSON

- Low quality is more likely when three things come together.
- These are often called motivation, opportunity and rationalisation.
- Motivation is pressure: bonuses tied to profit, a debt covenant close to being broken, a share issue coming up, or analysts' targets that must be met.
- Opportunity is a weak control environment: a captured board, a weak or friendly auditor, estimates that nobody checks.
- Rationalisation is the story people tell themselves, such as this is only temporary, or everyone does it.
- Culture matters here.
- When the tone at the top tolerates stretching, the others follow.
- You cannot see motive directly, but you can look for the conditions.
- The more of the three you find, the more carefully you should read.

19 Example 7: the big bath

Underlying profit 80 a year; excess charges 25 + 15 in year 1

Year 1	80 − 25 − 15	**40**
Years 2 and 3, each	80 + 12.5 + 7.5	**100**
Three-year total	40 + 100 + 100	**240**
Reported growth, year 1 to 2	(100 − 40) ÷ 40	**150%**

IN THE LESSON

- Now the trap that surprises people: conservative accounting can also reduce quality.
- A new chief executive of a made up firm, Corvane Foods, arrives to underlying profit of eighty a year.
- In year one they write inventory down by twenty five more than needed, and book a restructuring provision fifteen too big.
- Year one profit is forty.
- In years two and three the stock sells at full price and half the excess provision is released each year.
- That adds twelve and a half and seven and a half, so twenty a year.
- Profit is one hundred in each of years two and three.
- Three year total is two hundred and forty, exactly three times eighty.
- Nothing is invented, but reported growth is one hundred and fifty per cent.

20 Profit that moves, not grows

Profit

Underlying, each year	**80**
Year 1 reported	**40**
Year 2 reported	**100**
Year 3 reported	**100**

Illustrative; the three-year total is 240 either way

IN THE LESSON

- Here are those profits as bars, and the vertical axis is profit.
- The first bar is the steady underlying profit, eighty a year.
- The second bar is year one as reported, only forty, with the big bath.
- The third and fourth bars are years two and three, one hundred each.
- Look at the pattern.
- Year one is dragged down below the truth, and the next two years are lifted above it by the same total.
- The line over three years is flat, but the reported bars show a poor year, then a dazzling recovery.
- The danger is that investors extrapolate that recovery.
- Quality needs both the up and the down read together, not one year alone.

21 Four mistakes to avoid

- Expense ratio uses written premiums, not earned
- A low combined ratio may rest on reserve releases
- Compliance is not the same as quality
- Conservative choices can also lower quality

IN THE LESSON

- Here are four slips that cost marks.
- One.
- Using net premiums earned as the base for the expense ratio.
- The expense ratio uses premiums written, the loss ratio uses earned.
- Two.
- Treating a combined ratio below one hundred as proof of discipline without checking reserve releases.
- Three.
- Thinking that following the rules means high quality.
- Biased choices can sit within the rules.
- Four.
- Believing only aggressive accounting lowers quality.
- A big bath is conservative, and it flatters later years.
- Keep these four in mind through the rest of the lesson, because the next ones, the screens and the red flags, tempt people into similar shortcuts.

22 The evaluation, step by step

Understand and identify

The business → Key choices → Peers and history

Test and screen

Pressure → Cash and accruals → Screening scores

IN THE LESSON

- Now for the process of judging a company's reports.
- There are two rows.
- The top row is where most of the thought happens.
- Understand the business, because you can only call an estimate aggressive once you know the economics behind it.
- Then identify the key choices and estimates, such as revenue recognition, capitalisation, reserves and the inputs to fair values.
- Then compare them with peers and with history to see which ones stand out.
- The bottom row tests what you found.
- Look for pressure, such as bonus targets and covenants.
- Check whether profit turns into cash and examine accruals.
- Last, apply the screens, which rank companies, so that your attention goes to the right places.

23 The accrual ratio

Accrual ratio = Change in net operating assets ÷ Average net operating assets

Accrual ratio	High means profit outruns cash
Change in net operating assets	End less start
Average net operating assets	Start plus end, over two

IN THE LESSON

- Profit is made of two things: cash, and accruals, the parts that have been booked but not yet turned into cash.
- A little accrual is normal in a growing firm.
- A lot suggests profit outrunning cash.
- One simple measure is the balance sheet accrual ratio.
- Net operating assets are operating assets, minus operating liabilities, leaving out cash, investments and borrowings.
- When net operating assets grow faster than they should, it usually means profit has been booked without matching cash.
- The ratio is the change in net operating assets over the year divided by their average.
- Compare it with peers and with the firm's own past.
- A ratio well above peers is a prompt to investigate, not a verdict.

24 Example 8: Marlow Textiles

Net operating assets; peers average 8%

Start of year	net operating assets	**900**
End of year	net operating assets	**1,100**
Change	1,100 − 900	**200**
Average	(900 + 1,100) ÷ 2	**1,000**
Accrual ratio	200 ÷ 1,000	**20.0%**

IN THE LESSON

- Mira calculates the ratio for Marlow Textiles, a made up firm.
- Net operating assets were nine hundred at the start of the year and one thousand one hundred at the end.
- The change is two hundred.
- The average is nine hundred plus one thousand one hundred, over two, which is one thousand.
- Two hundred over one thousand is twenty per cent.
- Peers in the same industry average eight per cent.
- So Marlow sits twelve points above its peers.
- That does not prove anything yet.
- A company opening new plants can have a high ratio honestly.
- But it tells Mira where to look: receivables, inventory, capitalised costs, and the notes on how revenue is recognised.

25 The Altman Z score

Z = 1.2·WC/TA + 1.4·RE/TA + 3.3·EBIT/TA + 0.6·MVE/TL + 1.0·Sales/TA
Below 1.81 distressed; 1.81 to 2.99 grey; above 2.99 safe

Working capital ÷ assets	Weight 1.2
Retained earnings ÷ assets	Weight 1.4
EBIT ÷ assets	Weight 3.3
Market equity ÷ liabilities	Weight 0.6
Sales ÷ assets	Weight 1.0

IN THE LESSON

- Screening models turn many ratios into one score.
- The Altman Z score began as a bankruptcy warning, and it ranks the financial strength of a company.
- It adds five terms, each a ratio times a weight.
- Working capital over total assets, with weight one point two.
- Retained earnings over total assets, weight one point four.
- Earnings before interest and tax over total assets, weight three point three.
- Market value of equity over total liabilities, weight zero point six.
- And sales over total assets, weight one.
- Altman's original cut offs for public manufacturers: below one point eight one is distressed, above two point nine nine is safe, and in between is a grey zone.
- A higher score means safer.

26 Example 9: scoring a company

Total assets 800; weights 1.2, 1.4, 3.3, 0.6, 1.0

Working capital, retained earn.	1.2 × 0.15 + 1.4 × 0.20	**0.460**
EBIT ÷ assets term	3.3 × 0.08	**0.264**
Equity ÷ liabilities term	0.6 × 0.80	**0.480**
Sales ÷ assets term	1.0 × 1.20	**1.200**
Z score	sum of the terms	**2.40**

IN THE LESSON

- Mira scores a made up manufacturer.
- Total assets are eight hundred, working capital one hundred and twenty, retained earnings one hundred and sixty, earnings before interest and tax sixty four, market value of equity four hundred, total liabilities five hundred, and sales nine hundred and sixty.
- Working capital over assets is zero point one five, times one point two, is zero point one eight.
- Retained earnings gives zero point two times one point four, is zero point two eight.
- Earnings gives zero point zero eight times three point three, which is zero point two six four.
- Market equity gives zero point eight times zero point six, which is zero point four eight.
- Sales gives one point two.
- The total is two point four zero, in the grey zone.

27 From a number to a concern

Revenue

Receivables outrun sales → Early revenue? → Check terms and returns

Inventory and estimates

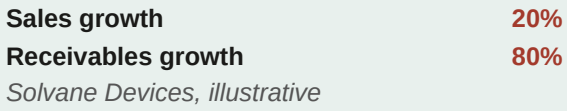
Stock outruns cost of sales → Old stock not written down? → Check lives and reserves

IN THE LESSON

- Now we tie numbers to worries.
- Each row follows the same logic.
- Read the top row.
- A receivable is a sale that has not yet been paid for.
- So if receivables grow much faster than sales, either customers are given longer to pay, or goods have been pushed on to distributors, which is often called channel stuffing.
- The concern is early revenue, and the check is the payment terms and returns.
- The bottom row is inventory and estimates.
- Inventory is cost of sales waiting to happen.
- If it grows faster than cost of sales, goods are piling up, and some may be worth less than carried.
- Longer asset lives and reserve releases lift profit without improving the business.

28 Receivables against sales

Growth in the year, %



Solvane Devices, illustrative

IN THE LESSON

- Here is the first signal drawn.
- The vertical axis is growth in the year, in per cent.
- Mira looks at a made up company, Solvane Devices.
- The first bar is growth in sales, twenty per cent.
- The second bar is growth in receivables, eighty per cent.
- Receivables went from one hundred to one hundred and eighty, while sales went from one thousand to one thousand two hundred.
- The gap between the bars is the signal.
- Four times faster growth in what customers owe than in what they buy is unusual.
- It does not prove a problem.
- It tells Mira which note to open, and which question to ask management.

29 The Beneish M score

M = −4.84 + 0.920 DSRI + 0.528 GMI + 0.404 AQI + 0.892 SGI
+ 0.115 DEPI − 0.172 SGAI + 4.679 TATA − 0.327 LVGI
Likely manipulator if M is above −1.78

DSRI: receivables index	Above 1 is a warning
GMI: margin index	Above 1: margins falling
AQI: asset quality index	Above 1: softer assets
TATA: accruals ÷ assets	High accruals raise M
Flag level	About −1.78

IN THE LESSON

- The Beneish model combines signals like these into one score, designed to flag likely manipulators.
- The eight variable version has a constant of minus four point eight four, plus weighted indices.
- Each index compares this year with last year, so a value of one means no change.
- DSRI is the days sales in receivables index, and above one is a warning.
- GMI is the gross margin index, above one means margins are falling.
- AQI is the asset quality index, above one means more assets that are hard to value.
- TATA is total accruals over total assets.
- The others cover sales growth, depreciation, overheads and leverage.
- A score above about minus one point seven eight suggests likely manipulation.

30 Example 10: scoring Solvane

Sales 1,000 to 1,200; receivables 100 to 180; margin 40% to 35%

Receivables index, DSRI	(180÷1,200) ÷ (100÷1,000)	**1.50**
Gross margin index, GMI	40% ÷ 35%	**1.14**
Sales growth index, SGI	1,200 ÷ 1,000	**1.20**
Weighted terms, all eight	AQI 1.10; TATA 5%	**3.35**
M score	−4.84 + 3.35	**−1.49**

Above −1.78: flagged for a closer look

IN THE LESSON

- Mira scores Solvane.
- Sales rose from one thousand to one thousand two hundred, and receivables from one hundred to one hundred and eighty.
- The receivables index is receivables over sales this year, which is zero point one five, divided by last year's zero point one zero.
- That is one point five zero.
- Gross margin fell from forty to thirty five per cent, so the margin index is forty over thirty five, one point one four.
- Sales growth index is one point two zero.
- Mira is given the asset quality index of one point one zero, accruals at five per cent of assets, and the rest at one.
- The weighted terms add to three point three five.
- Subtract four point eight four and the M score is minus one point four nine, above the threshold.

31 Example 11: does the business explain it?

Solvane receivables against last year's pattern

Days to collect, last year	100 ÷ 1,000 × 365	**36.5 days**
Days to collect, this year	180 ÷ 1,200 × 365	**54.75 days**
Expected receivables	10% × 1,200	**120**
Unexplained receivables	180 − 120	**60**
Share of sales	60 ÷ 1,200	**5.0%**

IN THE LESSON

- A flag is the start of the work.
- Mira now asks whether the business changed.
- Last year Solvane collected in thirty six and a half days, ten per cent of sales times three hundred and sixty five.
- This year the collection period is one hundred and eighty over one thousand two hundred, times three hundred and sixty five, which is about fifty five days.
- At last year's ratio, receivables would be ten per cent of one thousand two hundred, or one hundred and twenty.
- The actual is one hundred and eighty.
- Sixty is unexplained, five per cent of sales.
- If the notes show new customers on longer terms, part of the sixty may be innocent.
- If not, revenue may have been booked early.

32 Judge the whole picture

- Weigh all the signals together
- Test each against the business story
- A screening score ranks; it does not convict
- Never condemn a company on one ratio

IN THE LESSON

- Here is how to finish.
- Weigh the signals together, not one at a time.
- A single ratio can have an honest cause: a new product, a new customer, an acquisition.
- Several signals pointing the same way, with pressure and weak controls behind them, is far more worrying.
- And weigh them against the business story.
- Then the traps.
- Do not rely on a screening score alone.
- These models are built on past data, so they miss new tricks, and they flag innocent firms.
- A score ranks companies for attention.
- It does not convict anyone.
- And do not condemn a company on one ratio, because the business may truly have changed.
- The aim is a reasoned view.

33 Recap

- Combined ratio: loss over earned, expenses over written
- Reporting quality versus results quality
- Biased amounts, classification, timing
- Process, red flags, screens; weigh them together

IN THE LESSON

- Let us pull it together.
- A property and casualty insurer is judged on underwriting and investing.
- The loss ratio is over earned premiums, the expense ratio over written premiums, their sum is the combined ratio, and below one hundred per cent is an underwriting profit.
- Check reserve development.
- Life insurers are judged on diversification, benefits and expenses against premiums and deposits, investments, liquidity and capital.
- Reporting quality asks about faithful reporting; results quality asks about sustainable earnings.
- Quality is hurt by biased amounts, misleading classification and timing, driven by pressure, opportunity and rationalisation.
- Evaluate in order, test cash and accruals, use screens like the M score and Z score as a ranking, and always weigh the evidence together.

34 Try three quick questions

1. Written 2,000, earned 1,800, losses 1,170, expenses 600. Combined ratio?
   Answer: 1,170 ÷ 1,800 + 600 ÷ 2,000 = 65% + 30% = 95%.
2. Receivables 150 to 210, sales 1,000 to 1,200. Receivables index?
   Answer: (210 ÷ 1,200) ÷ (150 ÷ 1,000) = 1.17: above 1, a warning.
3. Accounts comply and have a clean audit. High quality?
   Answer: Not necessarily: biased choices can sit within the rules.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- An insurer has net premiums written of two thousand, earned of one thousand eight hundred, losses of one thousand one hundred and seventy, and expenses of six hundred.
- What is the combined ratio?
- Losses over earned is sixty five per cent.
- Expenses over written is thirty per cent.
- The combined ratio is ninety five per cent.
- Question two.
- Receivables rise from one hundred and fifty to two hundred and ten while sales rise from one thousand to one thousand two hundred.
- What is the receivables index?
- It is one hundred and seventy five over one hundred and fifty, about one point one seven, above one, a warning.
- Question three.
- Accounts comply with the standards and have a clean audit.
- Does that make them high quality?
- No.
- Biased choices can sit within the rules.