CHARTA LEARNING · LESSON NOTES

The income statement

Financial Statement Analysis

1 A story: profit is not the same as cash

- Income statement: performance over a period
- Revenue counted when earned, not when paid
- Costs counted when they help earn the revenue
- So profit and cash flow routinely differ

IN THE LESSON

- Imagine you run a bicycle workshop.
- In December you build a hundred bikes and deliver them to a shop, on credit.
- The shop pays you in February.
- Did you make money in December?
- Your bank account says no.
- But your work says yes.
- The income statement answers yes.
- It is a report of performance over a period of time, such as a quarter or a year.
- That is different from the balance sheet, which is a photograph of one single day.
- The income statement uses accrual accounting.
- Revenue is counted when it is earned, not when the cash arrives.
- Costs are counted when they help earn that revenue, not when they are paid.
- So a profitable company can still run short of cash.
- Keep this idea in mind, because everything else hangs on it.

2 Meet Kestrel Cycles: the top half

Kestrel Cycles, one year, $ millions (made-up figures)

Revenue, the top line	**2,000**
Cost of goods sold	(1,200)
Gross profit	800
Operating expenses	(360)
Operating profit	440

IN THE LESSON

- We follow one company all lesson, a bicycle maker called Kestrel Cycles.
- Every figure is made up, in millions of dollars.
- Revenue, also called sales or the top line, is what customers were charged for the bikes delivered in the year: two thousand.
- Cost of goods sold is what it cost to make those bikes, the materials and the factory wages: one thousand two hundred.
- Subtract it and you have gross profit of eight hundred.
- Next come operating expenses, the everyday costs of running the business.
- They are three hundred of selling and administration, plus sixty of depreciation, which spreads the cost of a long-lived machine over its life.
- That is three hundred and sixty in all.
- That leaves operating profit of four hundred and forty.

3 Kestrel Cycles: the lower half

Kestrel Cycles continues, $ millions

Operating profit	**440**
Gain on sale of old equipment	20
Interest expense	(60)
Tax at 25% of 400	(100)
Income from continuing operations	300

IN THE LESSON

- Now the lower half.
- Operating profit, four hundred and forty, measures the everyday business before anyone asks how it is financed or taxed.
- Below it sit the other items.
- First, a gain of twenty.
- Kestrel sold some old equipment for more than its value in the books.
- Gains and losses arise from transactions outside ordinary activities, so they are not revenue.
- Kestrel sells bicycles, not equipment.
- Second, interest expense of sixty, the price of borrowing.
- It is a financing cost, so it sits below operating profit.
- Add the gain, take off the interest, and profit before tax is four hundred.
- Tax at twenty-five per cent takes one hundred.
- That leaves income from continuing operations of three hundred million.
- One more line, for a business Kestrel closes, comes later and takes us to the final net income.

4 The two subtotals

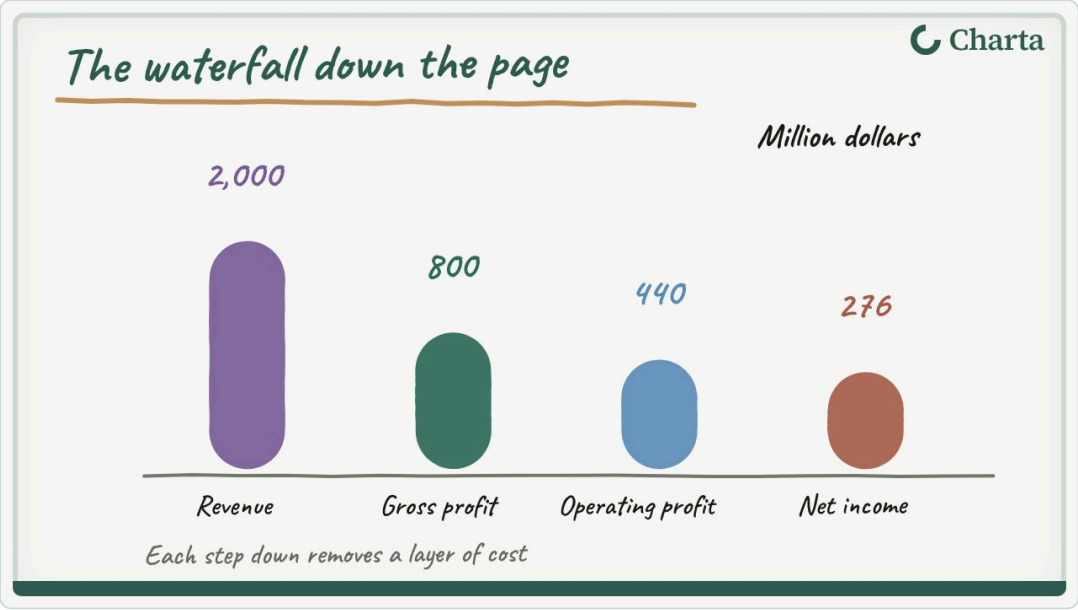
Gross profit = revenue − COGS
Operating profit = gross profit − operating expenses

Revenue	Sales for the year
COGS	Direct cost of what was sold
Gross profit	Pays for pricing and production
Operating expenses	Selling, admin, depreciation

IN THE LESSON

- Here are the two subtotals as formulas.
- Gross profit equals revenue minus cost of goods sold.
- It shows what is left to pay for everything else once the product itself is paid for, so it reflects pricing power and production cost.
- Operating profit equals gross profit minus operating expenses.
- It shows how well the business is run before financing and tax, which makes it the fairest base for comparing companies that borrow different amounts.
- Below operating profit, net income is what remains after the non-operating items, interest and tax.
- Think of the statement as a waterfall: each line takes a bite out of revenue.
- Most mistakes are about where an item belongs.

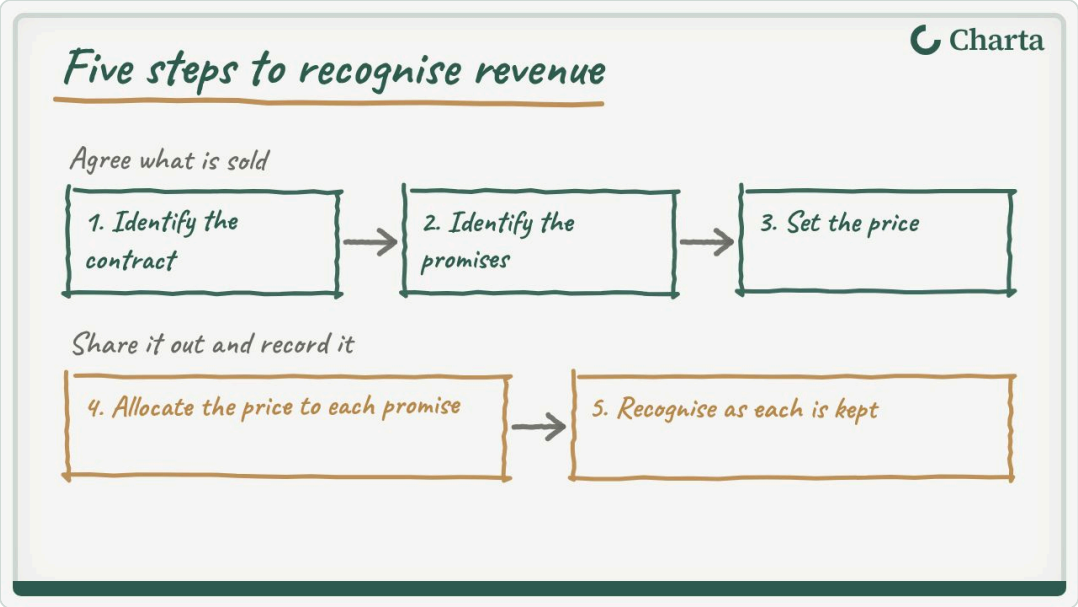
5 The waterfall down the page



IN THE LESSON

- Here is the waterfall as bars.
- The bottom axis names four points down the statement, and the side axis is millions of dollars.
- The first bar is revenue, two thousand.
- The cost of making the bikes shrinks it to gross profit of eight hundred, the second bar.
- Overhead and depreciation shrink it again, to operating profit of four hundred and forty.
- After the gain, the interest, the tax and the scooter business we close later, net income is two hundred and seventy-six, the last bar.
- That is about fourteen cents of every revenue dollar.
- Each bar answers a different question.
- Gross profit asks whether the product pays.
- Operating profit asks whether the business is run well.
- Net income asks what is left for the owners.

6 Five steps to recognise revenue



IN THE LESSON

- Imagine a gym sells you a one-year membership in January for twelve hundred dollars, paid at once.
- Has the gym earned twelve hundred dollars in January?
- Not yet.
- It has only promised a year of access, and it earns the money month by month as it delivers.
- Accounting follows that logic.
- Revenue is recognised when control of a good or service passes to the customer, in the amount the seller expects to be entitled to.
- Under both I F R S and U S G A A P the rules are the same five-step model.
- Step one, identify the contract.
- Step two, identify the promises inside it, called performance obligations.
- Step three, set the transaction price.
- Step four, share that price out across the promises.
- Step five, recognise revenue as each promise is kept.

7 Where the judgement hides

- A contract may hide several separate promises
- Delivered once: recognise then. Ongoing: over time
- Variable price: estimate rebates and returns
- Optimistic estimates pull revenue forward

IN THE LESSON

- The five steps look mechanical, but some of them carry judgement, and an analyst needs to know where.
- The first is step two.
- A contract often hides several promises.
- A software firm that sells a licence together with a year of support has two obligations, not one, because the customer could buy each on its own.
- The second is timing.
- A promise kept at a single moment, like delivering a bike, is recognised at that moment.
- A promise kept gradually, like a service plan, is recognised over time.
- The third is step three.
- Prices can be variable, through rebates, discounts and the right to return goods.
- The firm must estimate these.
- Optimistic estimates pull revenue forward, and no rule is broken.
- That is where a careful analyst looks.

8 Sharing the price out

Allocated price = transaction price × standalone price ÷ total standalone prices

Transaction price	What the customer pays in all
Standalone price	What this item sells for alone
Total standalone	All the items sold alone, added

IN THE LESSON

- Step four needs arithmetic.
- When a customer pays one price for several promises, the price is shared out in proportion to what each promise would sell for on its own.
- That is called its standalone price.
- The share for one promise equals the transaction price, times that promise's standalone price, divided by the total of all the standalone prices.
- Suppose the bundle is cheaper than buying separately.
- The discount is spread across every item in proportion, rather than dumped on one.
- Why does it matter?
- Because each promise is recognised on its own timetable.
- If the allocation shifts value to the promise delivered today, revenue arrives sooner.
- So the allocation is both a rule and a place where judgement can hide.

9 Example 1: a bike with a service plan

Bike ($900 alone) + 2-year plan ($300 alone), sold for $1,000

Bike share	1,000 × 900 ÷ 1,200	**$750**
Plan share	1,000 × 300 ÷ 1,200	**$250**
Plan earned in 6 months	250 × 6 ÷ 24	**$62.50**
Year one revenue	750 + 62.50	**$812.50**
Still owed as service	250 − 62.50	**$187.50**

IN THE LESSON

- Example one.
- On the first of July Kestrel sells a customer a bike together with a two-year service plan, for one thousand dollars in cash.
- Sold separately, the bike costs nine hundred and the plan three hundred, twelve hundred in all.
- The bike gets one thousand times nine hundred over twelve hundred, which is seven hundred and fifty.
- The plan gets one thousand times three hundred over twelve hundred, which is two hundred and fifty.
- The bike is delivered at once, so its share is revenue now.
- The plan runs twenty-four months, and by year end six have passed, so sixty-two dollars fifty is earned.
- Year one revenue is eight hundred and twelve dollars fifty.
- The remaining one hundred and eighty-seven dollars fifty is a liability, a service still owed.
- Cash of one thousand equals revenue plus that liability, so the books balance.

10 Example 2: expected returns

Dealer order: 200 bikes at $1,000; Kestrel expects 5% back

Invoice total	200 × 1,000	**$200,000**
Expected returns	5% × 200,000	**$10,000**
Revenue recognised now	200,000 − 10,000	**$190,000**
Refund liability	owed if returned	**$10,000**
Revenue if 8% were used	92% × 200,000	**$184,000**

IN THE LESSON

- Example two, variable consideration.
- Kestrel ships two hundred bikes to a dealer at one thousand dollars each, so the invoice is two hundred thousand dollars.
- From experience, five per cent of bikes come back unsold.
- Kestrel may not count revenue it expects to give back.
- Five per cent of two hundred thousand is ten thousand dollars.
- So revenue recognised now is one hundred and ninety thousand, and the ten thousand is set aside as a refund liability, money Kestrel expects to owe.
- Now the judgement.
- If returns will really be eight per cent, revenue should be ninety-two per cent of two hundred thousand, one hundred and eighty-four thousand.
- The estimate lifted revenue by six thousand, and no rule was broken.

11 A story: matching costs to sales

- Expense recognised with the revenue it earns
- COGS follows sales, not purchases
- No link to revenue: expense as incurred
- Benefits many years: capitalise, then spread

IN THE LESSON

- Think of a baker who buys a thousand kilos of flour on Monday for the whole month, but by month end has baked and sold bread using only eight hundred kilos.
- The cost that belongs to this month's sales is the eight hundred kilos, not the whole thousand.
- The other two hundred are still on the shelf.
- That is the matching idea.
- An expense is recognised in the same period as the revenue it helped to earn.
- So cost of goods sold moves with sales, not purchases.
- Costs that cannot be tied to sales, such as office salaries, are expensed as incurred.
- Costs that give benefits over many years, such as a machine, are capitalised, meaning recorded as an asset, then spread over those years.

12 Spreading a machine's cost

Annual depreciation = (cost − salvage value) ÷ useful life

Cost	What was paid for the asset
Salvage value	Expected resale value at the end
Useful life	Years of expected use

IN THE LESSON

- The spreading of a machine's cost is called depreciation, or amortisation when the asset is intangible, like a patent.
- The simplest method is straight line.
- Take the cost, subtract the salvage value, which is what you expect to sell the asset for at the end, and divide by the useful life in years.
- The same charge falls in every year.
- An accelerated method instead charges more in the early years.
- Notice what the formula needs: a salvage value and a useful life.
- Both are estimates.
- A longer life or a higher salvage value means a smaller yearly charge, and so a higher profit.

13 Example 3: expense it or capitalise it?

New machine: $500m, life 5 years, no salvage value

Expensed at once, year one	all cost now	**$500m**
Capitalised: yearly charge	500 ÷ 5	**$100m**
Year one profit protected	500 − 100	**$400m**
Machine left on books, year end	500 − 100	**$400m**
Total charged over 5 years	5 × 100	**$500m**

IN THE LESSON

- Example three.
- Suppose Kestrel buys a new machine for five hundred million dollars.
- It will last five years and be worth nothing at the end.
- Expensing it all at once cuts year one profit by five hundred and leaves nothing on the balance sheet.
- That is wrong, because the machine earns revenue for five years.
- Capitalising it gives depreciation of five hundred divided by five, one hundred a year, so year one profit falls by only one hundred.
- At year end the machine sits on the balance sheet at four hundred.
- Over five years the total charged is five hundred either way.
- Capitalising puts each hundred in the year the machine did its work.

14 Example 4: estimates move profit

Same machine and receivables: two defensible choices

Life 5 years: yearly charge	500 ÷ 5	**$100m**
Life 8 years: yearly charge	500 ÷ 8	**$62.5m**
Doubtful accounts 3% vs 5%	of 400 receivables	**$12m vs $20m**
Profit lift from gentler choices	37.5 + 8	**$45.5m**
Share of operating profit	45.5 ÷ 440	**10.3%**

IN THE LESSON

- Example four, the same machine and two other choices.
- A manager who believes the machine will last eight years charges five hundred over eight, which is sixty-two point five a year, instead of one hundred.
- That alone lifts profit by thirty-seven point five.
- Now take receivables.
- Kestrel is owed four hundred million, and some customers will never pay.
- Setting aside three per cent as doubtful accounts costs twelve.
- Setting aside five per cent costs twenty.
- The gentler choice lifts profit by eight.
- Add the two and the lift is forty-five point five, about ten point three per cent of Kestrel's operating profit of four hundred and forty.
- Neither choice is fraud, but each shifts profit between periods, so compare a company's choices with its peers.

15 IFRS and US GAAP side by side

Expense recognition: where the two standards differ

Topic	Treatment
Revenue recognition	Same under both
Research costs	Expensed under both
Development costs	IFRS capitalises
Inventory write-down reversed	IFRS only

IN THE LESSON

- Let us put the two standards side by side.
- Revenue recognition is the same: one converged five-step model.
- Research costs are expensed as incurred under both.
- Development costs differ.
- Under I F R S a company must capitalise them once the project is technically and commercially feasible.
- Under U S G A A P they are generally expensed as incurred.
- Inventory is the last difference.
- Both standards write inventory down to the lower of cost and net realisable value when it loses value.
- But if the value later recovers, I F R S allows the write-down to be reversed, up to the original cost, while U S G A A P does not.

16 Which items will not come back?

- Discontinued operation: separate line, net of tax
- Unusual or infrequent items: stay in continuing results
- Change in principle: restate past years
- Change in estimate: from now on only

IN THE LESSON

- Picture a restaurant that closes one of its food trucks this year.
- The truck's losses are real, but they tell you nothing about next year, because the truck is gone.
- Investors forecast, so they separate what will recur from what will not.
- Four items matter here.
- A discontinued operation is a business that has been sold or shut down, with its own results.
- It is shown on a separate line below continuing operations, after tax, and past years are restated.
- Unusual or infrequent items, such as restructuring costs, stay inside continuing operations but must be disclosed.
- Changes in accounting principle are applied to past years too.
- Changes in estimate are applied from now on only.
- The treatment is the same under both standards.

17 Example 5: the scooter division

Scooter division sold: pretax loss $32m, tax rate 25%

Pretax loss on scooters	operations and sale	**–$32m**
Tax saved	25% × 32	**+$8m**
Loss, net of tax	32 − 8	**–$24m**
Income, continuing operations	from the statement	**$300m**
Net income	300 − 24	**$276m**

IN THE LESSON

- Example five.
- Kestrel sells its scooter division.
- This year the division lost thirty-two million dollars before tax, including the loss on the sale.
- The loss produces a tax saving at twenty-five per cent, which is eight.
- So the loss net of tax is thirty-two minus eight, twenty-four.
- It appears on its own line, below income from continuing operations.
- Kestrel's income from continuing operations was three hundred.
- Subtract the twenty-four and net income is two hundred and seventy-six.
- That is the figure on the last bar of our waterfall.
- Notice what the separate line does for you.
- The three hundred is a clean base for forecasting the bicycle business, because the scooter losses are not mixed into it.
- The twenty-four will not recur, because the division no longer exists.

18 Principle, estimate and error

How a change shows up in the numbers

Type of change	Treatment
Accounting principle	Restate past years
Estimate	From now on only
Correction of an error	Restate past years
IFRS versus US GAAP	Same treatment

IN THE LESSON

- Now the accounting changes.
- A change in accounting principle is a switch to a different method, such as moving inventory from first in first out to weighted average cost.
- It is applied retrospectively.
- Past years are restated, so the figures stay comparable.
- A change in estimate is a revision of a guess.
- Here is a case.
- Kestrel bought a machine for five hundred with a five-year life, so the charge is one hundred a year.
- After two years, two hundred has been charged and the book value is three hundred.
- Management now thinks six more years remain.
- The charge becomes three hundred divided by six, fifty a year, from now on.
- Past years are not touched.
- The correction of an error is also restated retrospectively.
- Under I F R S and U S G A A P these treatments agree.

19 Example 6: what will really recur?

Restructuring charge $30m booked in 5 of the last 6 years

Profit before tax, reported	from the statement	**$400m**
Remove the one-off gain	400 − 20	**$380m**
Add back restructuring?	it recurs, so no	**No**
Tax at 25%	380 × 25%	**$95m**
Recurring income	380 − 95	**$285m**

IN THE LESSON

- Example six.
- Management says a restructuring charge of thirty is non-recurring and asks you to add it back.
- The thirty sits inside Kestrel's three hundred of selling and administration.
- But Kestrel booked a restructuring charge in five of the last six years.
- A cost that returns almost every year is a cost of doing business, however it is labelled, so you leave it in.
- The gain of twenty on the old equipment will not repeat, so you take it out.
- Start with profit before tax of four hundred.
- Remove the gain, giving three hundred and eighty.
- Tax at twenty-five per cent is ninety-five.
- Recurring income is two hundred and eighty-five, below the reported three hundred.
- Accepting the add-back would have shown three hundred and seven point five.

20 Four mistakes to avoid so far

- 1. Gains and interest sit below operating profit
- 2. Revenue follows control, not cash or signature
- 3. Principle: restate. Estimate: from now on
- 4. Ask what recurs. Ignore the label

IN THE LESSON

- Before we move on, four mistakes that cost marks.
- One.
- Putting gains or interest in the wrong place.
- A gain on selling equipment is not revenue, and interest expense is not an operating cost; both sit below operating profit.
- Two.
- Recognising revenue when the cash arrives or when the contract is signed.
- Revenue follows the passing of control, and a promise to be kept over time is earned over time.
- Three.
- Confusing a change in principle with a change in estimate.
- Principle is restated for past years, estimate applies from now on.
- Four.
- Trusting the label non-recurring.
- Ask what will actually recur.
- A charge that returns every year is a normal cost, and a discontinued operation is separated only because it will not come back.

21 A story: slicing the pie

- EPS = profit behind each ordinary share
- Preferred dividends come off first
- Basic: time-weighted shares outstanding
- Diluted: add shares that could appear

IN THE LESSON

- Imagine a company's profit as a pie.
- The people who own ordinary shares, called common shareholders, own slices of it.
- Preferred shareholders are different.
- They take a fixed dividend first, before the common owners see anything.
- So the pie that belongs to common shareholders is net income minus preferred dividends.
- Earnings per share, spoken as E P S, divides that pie by the number of common shares.
- Basic E P S uses the shares outstanding.
- Shares change during the year, so we use a weighted average, counting each batch only for the part of the year it existed.
- Diluted E P S asks a more cautious question: what if every security that could turn into shares did so?

22 Basic earnings per share

Basic EPS = (net income − preferred dividends) ÷ weighted average shares

Net income	Profit after everything
Preferred dividends	Paid to preferred holders first
Weighted shares	Shares, each weighted by time

IN THE LESSON

- Here is the formula for basic earnings per share.
- Take net income and subtract the dividends on preferred shares.
- The result is income available to common shareholders.
- Divide it by the weighted average number of common shares outstanding.
- To build that weighted average, multiply each batch of shares by the fraction of the year it was outstanding, and add them up.
- New shares issued part-way through the year count only from the issue date.
- Bought-back shares stop counting from the buyback date.
- One trap: a stock split or stock dividend is not weighted by date.
- It is applied to the whole year, and prior years too, as if it had always happened.

23 Example 7: basic EPS

Net income $276m, preferred dividends $30m; shares in millions

Shares at start of year	100 × 12/12	**100m**
New shares, issued 1 July	24 × 6/12	**12m**
Weighted average shares	100 + 12	**112m**
Income to common	276 − 30	**$246m**
Basic EPS	246 ÷ 112	**$2.20**

IN THE LESSON

- Example seven.
- Kestrel starts the year with one hundred million common shares.
- On the first of July it issues twenty-four million new ones.
- Those new shares were outstanding for six months out of twelve, so they count as twenty-four times a half, twelve million.
- The weighted average is one hundred plus twelve, one hundred and twelve million shares.
- Now the numerator.
- Net income is two hundred and seventy-six.
- Kestrel also pays thirty million in dividends on its preferred shares.
- Income available to common shareholders is two hundred and seventy-six minus thirty, which is two hundred and forty-six.
- Basic earnings per share is two hundred and forty-six divided by one hundred and twelve, which is two dollars and twenty cents.

24 Diluted earnings per share

Diluted EPS = (income to common + add-backs) ÷ (shares + new shares)
Option shares = options × (1 − exercise ÷ average price)

Income to common	Net income less pref. dividends
Add-backs	After-tax interest, pref. dividend
New shares	Shares from conversion or options

IN THE LESSON

- Diluted earnings per share asks what happens if securities that could become ordinary shares do so.
- There are three kinds.
- Convertible bonds: if converted, the company stops paying their interest, so add back that interest after tax, and add the new shares.
- Convertible preferred shares: add back their dividend and add the new shares.
- Options: here we use the treasury stock method.
- Assume the holders exercise and pay the exercise price.
- Assume the company uses that money to buy back shares at the average price.
- The net new shares are the options times one minus exercise price over average price.
- One rule governs everything.
- A security is included only if it lowers earnings per share.
- Anything that would raise it is antidilutive and is left out.

25 Example 8: which securities dilute?

Test each: add-back per new share against basic EPS of $2.20

Options: 10m at $20, price $25	10 − 10 × 20 ÷ 25	**2m shares**
Convertible bonds	6 ÷ 4	**$1.50 a share**
Convertible preferred	30 ÷ 12	**$2.50 a share**
Basic EPS to beat	246 ÷ 112	**$2.20**
Preferred dilutes?	2.50 is above 2.20	**No, left out**

IN THE LESSON

- Example eight.
- Kestrel has three dilutive candidates.
- First, ten million options with an exercise price of twenty dollars.
- The average share price is twenty-five.
- Exercise brings in two hundred million, which buys back eight million shares.
- Net new shares are two million, and they dilute.
- Second, convertible bonds.
- Their interest is eight before tax, six after tax at twenty-five per cent.
- They convert into four million shares.
- Six divided by four is one dollar fifty per new share, below basic earnings per share of two dollars twenty, so the bonds dilute.
- Third, convertible preferred.
- Its dividend is thirty and it converts into twelve million shares.
- Thirty divided by twelve is two dollars fifty per new share, above two twenty.
- So including it would raise earnings per share.
- It is antidilutive and excluded.

26 Example 9: diluted EPS

Include the options and the bonds; leave out the preferred

Numerator	246 + 6	**$252m**
Shares	112 + 2 + 4	**118m**
Diluted EPS	252 ÷ 118	**$2.14**
Basic EPS	from Example 7	**$2.20**
Dilution	2.20 − 2.14	**$0.06**

IN THE LESSON

- Example nine, putting it together.
- The numerator starts with income available to common shareholders, two hundred and forty-six.
- Add back the after-tax bond interest of six, giving two hundred and fifty-two.
- The preferred stays out, so its dividend remains deducted.
- The denominator starts at one hundred and twelve million.
- Add two million net option shares and four million bond shares, giving one hundred and eighteen.
- Diluted earnings per share is two hundred and fifty-two divided by one hundred and eighteen, which is two dollars and fourteen cents.
- Compare it with basic at two dollars and twenty.
- The gap is about six cents.
- A big gap between basic and diluted is a warning for any investor.

27 A story: a giant and a corner shop

- Every line shown as a percentage of revenue
- Removes the effect of company size
- Across years: where is margin won or lost?
- Across peers: is the cost structure different?

IN THE LESSON

- Suppose a national chain earns fifty million dollars a year, and a corner shop earns fifty thousand.
- Which is better run?
- Raw dollars cannot say, because the chain is a thousand times bigger.
- A common-size income statement shows every line as a percentage of revenue.
- Revenue becomes one hundred per cent, and each cost and profit line becomes a share of that.
- This removes the effect of size.
- Read across the years, and you see where margin is being gained or lost.
- Read across peers, and you see whether the cost structure differs from the industry.
- Look especially for one line moving against the others.

28 Example 10: Kestrel against last year

Each line as % of revenue: last year in the middle, this year right

Revenue growth	1,800 → 2,000	**11.1%**
Cost of goods sold	last year 60.0%	**60.0%**
Operating expenses	last year 15.0%	**18.0%**
Operating margin	last year 25.0%	**22.0%**
Gross margin	last year 40.0%	**40.0%**

IN THE LESSON

- Example ten.
- Last year Kestrel had revenue of eighteen hundred, cost of goods sold of one thousand and eighty, and operating expenses of two hundred and seventy.
- That makes gross profit seven hundred and twenty and operating profit four hundred and fifty.
- Convert each to a share of revenue.
- Cost of goods sold was sixty per cent last year, and this year twelve hundred over two thousand is sixty per cent again.
- Gross margin held at forty.
- But operating expenses rose from fifteen per cent of revenue to eighteen.
- So operating margin slid from twenty-five per cent to twenty-two.
- Revenue grew eleven per cent, yet operating profit fell from four hundred and fifty to four hundred and forty.
- The problem is overhead, not production or pricing.

29 The three margins

Gross margin = gross profit ÷ revenue
Operating margin = operating profit ÷ revenue
Net margin = net income ÷ revenue

Gross profit	Revenue less COGS
Operating profit	Before interest and tax
Net income	After everything
Revenue	The base for every margin

IN THE LESSON

- A margin is a profit measure divided by revenue.
- It tells you how many cents of profit the company keeps from each dollar of sales.
- Gross margin is gross profit over revenue.
- It reflects pricing power and production cost.
- Operating margin is operating profit over revenue.
- It reflects the efficiency of the whole business before financing and tax.
- Net margin is net income over revenue.
- It is after everything, so it mixes operating performance with how the company is financed and how it is taxed.
- Every margin is just a line of the common-size statement.
- The skill is in the comparison.
- When two margins differ, the gap between the two levels tells you where the difference arises: production, overhead, or financing and tax.

30 Example 11: Kestrel's three margins

Kestrel: revenue $2,000m, gross $800m, operating $440m, net $276m

Gross margin	800 ÷ 2,000	**40.0%**
Operating margin	440 ÷ 2,000	**22.0%**
Net margin	276 ÷ 2,000	**13.8%**
Interest as share of revenue	60 ÷ 2,000	**3.0%**

IN THE LESSON

- Example eleven.
- Back to this year's Kestrel.
- Gross margin is eight hundred divided by two thousand, forty per cent.
- Operating margin is four hundred and forty divided by two thousand, twenty-two per cent.
- Net margin is two hundred and seventy-six divided by two thousand, which is thirteen point eight per cent.
- Look at the drop from twenty-two to thirteen point eight.
- Part of it is interest.
- Sixty over two thousand is three per cent of revenue.
- Part is tax, and part is the scooter loss.
- The gain of twenty helped a little.
- So the net margin is a mixture, and it is the weakest of the three for judging how well the business itself is run.

31 Example 12: Kestrel against Ridgeback

Middle: Kestrel. Right: Ridgeback ($500m revenue, no debt)

Gross margin	Kestrel 40.0%	**45.0%**
Overhead share of revenue	Kestrel 18.0%	**25.0%**
Operating margin	Kestrel 22.0%	**20.0%**
Net margin	Kestrel 13.8%	**15.0%**
Fall, operating to net	Kestrel 8.2 pts	**5.0 pts**

IN THE LESSON

- Example twelve.
- Compare Kestrel with a smaller rival, Ridgeback Bikes, with revenue of only five hundred, and no debt.
- Ridgeback has cost of goods sold of two hundred and seventy-five, so its gross profit is two hundred and twenty-five.
- Gross margin is forty-five per cent, better than Kestrel's forty.
- Ridgeback's operating expenses are one hundred and twenty-five, so operating profit is one hundred, a margin of twenty per cent, lower than Kestrel's twenty-two.
- Ridgeback has a better product margin but heavier overhead, twenty-five per cent of revenue against eighteen.
- Ridgeback pays tax of twenty-five, so net income is seventy-five and net margin is fifteen per cent, higher than Kestrel's thirteen point eight.
- The reason is not the business.
- It is that Ridgeback has no debt and no closed division.

32 Recap: what to remember

- Revenue → gross → operating → net income
- Revenue when control passes; costs matched to it
- One-offs: ask what will really recur
- EPS: basic and diluted, dilutive securities only
- Common-size: divide every line by revenue

IN THE LESSON

- Let us pull the lesson together.
- The income statement is a waterfall.
- Revenue less cost of goods sold gives gross profit.
- Less operating expenses gives operating profit.
- Gains, interest, tax and discontinued operations take you down to net income.
- Revenue is recognised when control passes, through five steps, and expenses are matched to that revenue, with long-lived costs spread by depreciation.
- Estimates move profit, so compare choices.
- Ask which one-off items will really recur.
- Basic earnings per share is income to common over time-weighted shares, and diluted adds only securities that lower it.
- Finally, a common-size statement divides every line by revenue, and the three margins show where a difference arises: product, overhead, or financing and tax.

33 Try three quick questions

1. Revenue 500, COGS 300, operating expenses 100. Gross and operating margins?
   Answer: Gross 200 ÷ 500 = 40%. Operating 100 ÷ 500 = 20%.
2. Net income 90, preferred dividends 10, weighted average shares 40. Basic EPS?
   Answer: (90 − 10) ÷ 40 = $2.00.
3. 6 options, exercise price $10, average price $15. Net new shares?
   Answer: 6 × (1 − 10 ÷ 15) = 2 shares.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A company has revenue of five hundred, cost of goods sold of three hundred and operating expenses of one hundred.
- What are the gross and operating margins?
- Gross profit is two hundred, so forty per cent.
- Operating profit is one hundred, so twenty per cent.
- Question two.
- Net income is ninety, preferred dividends are ten, and the weighted average shares are forty.
- What is basic earnings per share?
- Ninety minus ten is eighty, over forty, which is two dollars.
- Question three.
- Six options have an exercise price of ten, and the average share price is fifteen.
- How many net new shares under the treasury stock method?
- Six times one minus ten over fifteen, which is two.
- Well done.