Industry and competitive analysis

Equity Investments

1 A story: which shelf does the book go on?

- Which shelf does each company go on?
- Peers = companies facing the same world
- Principal business activity: what it mostly does
- Commercial schemes: one sector, by main revenue

IN THE LESSON

- Imagine a librarian with a pile of new books and one question: which shelf does each go on?
- She could sort by subject, by how often people borrow them in winter, or by which books are borrowed together.
- Each method gives a different shelving, and each suits a different job.
- Investors face the same question with companies.
- Sorting companies into industries is called classification, and it matters because we judge a company against its peers, the other companies facing the same world.
- The most common method is by principal business activity, meaning what the company mostly does.
- Commercial schemes, such as the global industry classification standard, or G I C S, give each company one sector, chosen mainly by where most of its revenue comes from.

2 Three ways to group companies

Three methods, three different purposes

Way to group	Best known for
Business activity	Reproducible
Cycle sensitivity	Asset allocation
Return similarity	Hard to explain

IN THE LESSON

- So there are three ways to group companies, and each was built to answer a different question.
- First, by business activity.
- That is the commercial scheme we just met.
- It is reproducible, because two analysts reading the same accounts reach the same sector.
- Second, by sensitivity to the business cycle.
- Cyclical companies, like car makers, see sales swing hard with the economy.
- Non-cyclical, or defensive, ones, like food shops, see sales hold steady.
- This grouping is more useful for asset allocation than for competitive analysis.
- Third, by statistical similarity of returns.
- You ignore what companies sell and group those whose share prices have moved together.
- It sounds objective, but the pattern shifts over time and the groups are hard to explain.

3 Meet Marlow Group

Marlow Group, $ millions (made-up figures)

Segment	Revenue / operating profit (margin) / earnings
Groceries	600 / 60 (10%) / 48
Payments	400 / 140 (35%) / 112
Group	1,000 / 200 / 160

IN THE LESSON

- Now meet our running company.
- Marlow Group is made up, and every figure is a round teaching number, in millions of dollars.
- It runs a chain of supermarkets with revenue of six hundred, and a payments business with revenue of four hundred.
- Group revenue is one thousand.
- Profit tells a different story.
- The supermarkets earn operating profit of sixty, a margin of ten per cent.
- The payments business earns one hundred and forty, a margin of thirty-five per cent.
- After tax at twenty per cent, earnings are forty-eight from groceries and one hundred and twelve from payments, one hundred and sixty in total.
- So sixty per cent of revenue comes from groceries, but seventy per cent of earnings comes from payments.

4 Example 1: the label and the value

Staples peers 12 times earnings, payments peers 25 times

Value using the label	160 × 12	**1,920**
Groceries part	48 × 12	**576**
Payments part	112 × 25	**2,800**
Sum of the parts	576 + 2,800	**3,376**
Label understates by	3,376 − 1,920	**1,456 (43%)**

IN THE LESSON

- Example one.
- A revenue-based scheme looks at Marlow, sees sixty per cent groceries, and files the whole group under consumer staples.
- Suppose staples companies trade at twelve times earnings, while payments companies trade at twenty-five times.
- An analyst who accepts the label values the group at twelve times one hundred and sixty, which is one thousand nine hundred and twenty.
- Now value it by parts.
- Groceries: forty-eight times twelve is five hundred and seventy-six.
- Payments: one hundred and twelve times twenty-five is two thousand eight hundred.
- The sum of the parts is three thousand three hundred and seventy-six.
- The label understates the value by one thousand four hundred and fifty-six, about forty-three per cent of the true figure.
- The trap is that a scheme sorts by revenue, but value follows earnings and demand drivers.

5 Example 2: a recession test

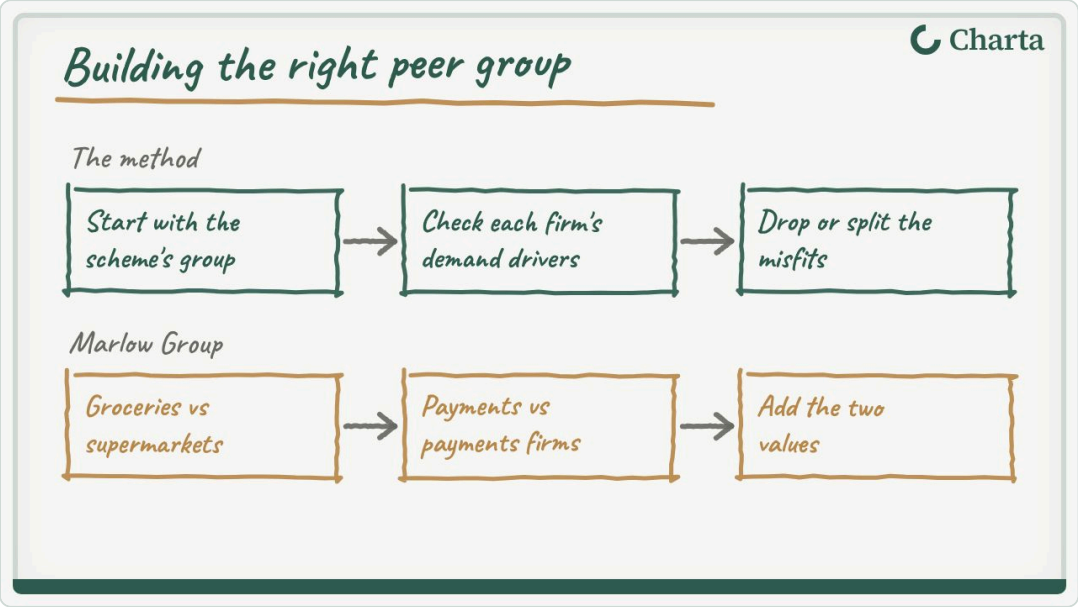
Recession: groceries earnings −4%, payments earnings −10%

Groceries earnings	48 × 0.96	**46.08**
Payments earnings	112 × 0.90	**100.8**
Group earnings	46.08 + 100.8	**146.88**
Fall in group earnings	146.88 ÷ 160 − 1	**−8.2%**
If all fell like staples	160 × 0.96	**153.6**

IN THE LESSON

- Example two, the business cycle.
- Suppose a recession cuts the earnings of the supermarkets by four per cent, because people still eat.
- Payments depend on spending in shops and on travel, so suppose their earnings fall ten per cent.
- Groceries drop from forty-eight to forty-six point zero eight.
- Payments drop from one hundred and twelve to one hundred point eight.
- The group falls from one hundred and sixty to one hundred and forty-six point eight eight, which is down eight point two per cent.
- A manager who trusted the staples label would have expected only four per cent, a group figure of one hundred and fifty-three point six.
- This is why cyclical grouping serves asset allocation, judging a portfolio's exposure to the economy.
- It does not tell you who competes with whom.

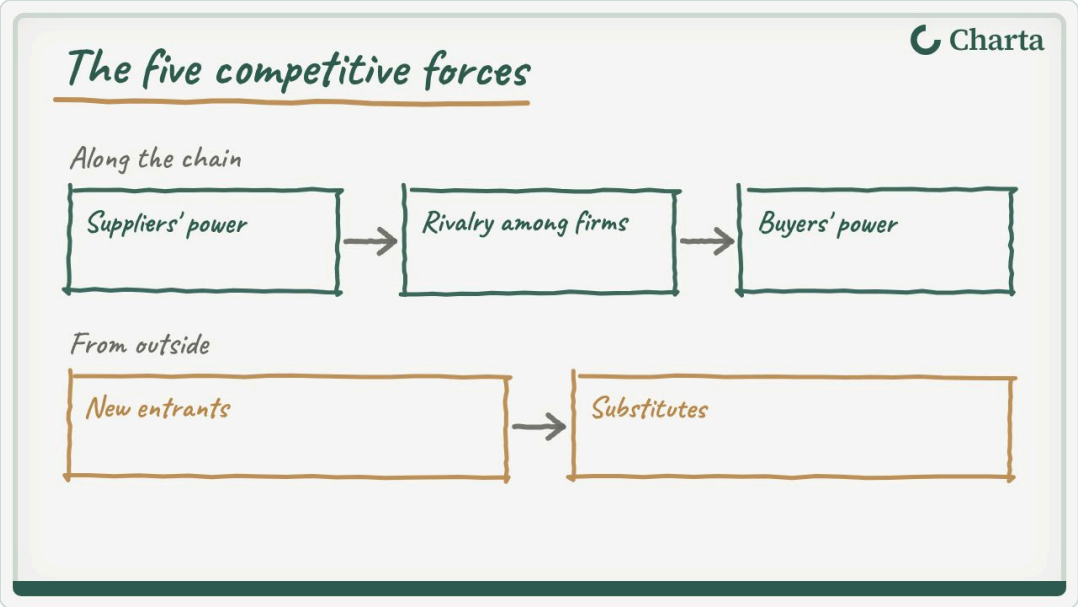
6 Building the right peer group



IN THE LESSON

- So how do you find the right peer group?
- Think of a doctor who looks at your symptoms rather than your job title.
- The right peers face the same demand drivers: the same customers, the same costs, the same threats.
- No standard scheme reliably delivers that, so treat a scheme as a starting point, not an answer.
- Here is the method in two rows.
- On top, start with the scheme's group, check the demand drivers of each company in it, and drop or split the ones that do not fit.
- Below, we apply it to Marlow: groceries are compared with other supermarkets, payments with other payments firms, and the two values are added.
- One more warning.
- A scheme lags.
- A company that is transforming keeps its old label until its revenue mix has changed.

7 The five competitive forces



IN THE LESSON

- Now to a bigger question: why do some industries make money for decades while others never do?
- Picture a street of lemonade stands.
- If the stands are many and identical, nobody profits.
- If one stand has a licence nobody else can get, it does.
- The five forces, from Michael Porter, put that thought in order.
- Two come from outside the industry.
- New entrants, who arrive when profits look good, and substitutes, which do the same job in a different way, as video calls replace some business trips.
- Three work along the chain.
- Suppliers, who sell to the industry.
- Buyers, who purchase from it.
- And rivalry among the firms already there.
- The weaker these five pressures, the higher the returns an industry can sustain.

8 Entrants and substitutes

- Entrants arrive when profits look good
- Barriers: scale, capital, licences, brands, switching
- Substitutes: the same job done another way
- A rival's version of your product is rivalry

IN THE LESSON

- Start with new entrants.
- When an industry earns high profits, newcomers arrive and compete them away, unless something stops them.
- Those stoppers are barriers to entry.
- The main ones are economies of scale, meaning the cost of each unit falls as output rises; large capital requirements; regulation, such as licences; strong brands; and customers who find it costly to switch.
- Next, substitutes.
- A substitute is not a rival's version of your product but a different product that does the same job, such as streaming instead of cinema tickets.
- The more good substitutes there are, and the cheaper they are, the more they cap the price the industry can charge.
- A classic trap: a similar product from a competitor in the same industry is rivalry, not a substitute.

9 Example 3: a barrier made of scale

Fixed cost 400 a year, variable cost 2 a unit, price 5

Incumbent cost per unit	400 ÷ 400 + 2	**3**
Entrant cost per unit	400 ÷ 40 + 2	**12**
Market price per unit		**5**
Entrant profit	(5 − 12) × 40	**−280**
Break-even volume	400 ÷ (5 − 2)	**133 units**

IN THE LESSON

- Example three, a barrier made of scale.
- Suppose making a product costs four hundred a year in fixed costs plus two per unit, and the market price is five.
- The established firm sells four hundred units.
- Its cost per unit is four hundred over four hundred, which is one, plus two, so three.
- It earns two on every unit, eight hundred in all.
- A newcomer starting small sells forty units.
- Its cost is four hundred over forty, which is ten, plus two, so twelve per unit.
- At a price of five it loses seven on each unit, two hundred and eighty in all.
- To break even, the entrant needs four hundred divided by three, about one hundred and thirty-three units.
- That jump is the barrier: you must be big before you can be profitable.

10 Buyers and suppliers: who has the power

- Strong buyers: few, large, switch easily
- Strong suppliers: few, no substitute, hard to leave
- Power = concentrated + easy to switch away
- Profit leaks to the more concentrated end

IN THE LESSON

- Now the two bargaining powers.
- Think of a farmer selling milk.
- If one huge supermarket buys all of it, the farmer takes the price offered.
- If many small shops compete to buy, the farmer chooses.
- Buyers have strong power when they are few and large, when they can switch easily, and when your product looks like everyone else's.
- Suppliers have strong power in the mirror image: when they are few, when their input has no substitute, and when it is costly for you to move.
- Power comes from being concentrated, with switching easy for you and hard for the other side.
- The profit an industry earns then leaks along the chain to whichever end is more concentrated.

11 Example 4: squeezed from both ends

Per 100 of sales: suppliers 70, other costs 22, profit 8

Suppliers raise prices 5%	100 − 73.5 − 22	**4.5**
Buyers cut prices 3%	97 − 70 − 22	**5**
Both at once	97 − 73.5 − 22	**1.5**
Starting profit	100 − 70 − 22	**8**
Profit lost, both	1 − 1.5 ÷ 8	**81%**

IN THE LESSON

- Example four, how bargaining power squeezes profit.
- Take an industry that sells one hundred dollars of goods.
- It pays suppliers seventy and other costs are twenty-two, leaving profit of eight.
- Now suppose the suppliers are concentrated and raise their prices by five per cent.
- The supplier bill becomes seventy-three point five and profit falls to four point five, a drop of nearly forty-four per cent.
- Suppose instead big buyers force a price cut of three per cent.
- Sales are ninety-seven, and with the old costs profit is five.
- If both happen at once, profit is ninety-seven minus seventy-three point five minus twenty-two, only one point five.
- A small push from each side wiped out more than eighty per cent of the profit.

12 Rivalry: the fifth force

- High fixed costs: fill capacity at any price
- Slow growth: gain only by taking from a rival
- Same products: price is all that is left
- Often where the other four forces show up

IN THE LESSON

- The fifth force is rivalry among the firms already in the industry.
- Think of two petrol stations facing each other across a road.
- If they sell the same fuel and each has a big fixed bill to pay, a price cut that brings in a few more cars looks tempting.
- Rivalry is fiercest when fixed costs are high, since every extra unit sold helps cover them; when industry growth is slow, so you can only grow by taking a customer from a rival; and when products are undifferentiated, so price is all that is left to compete on.
- Hard-to-sell plant also keeps weak firms in the game.
- Rivalry is often where the other four forces show up, as falling prices.

13 Example 5: the price-cut trap

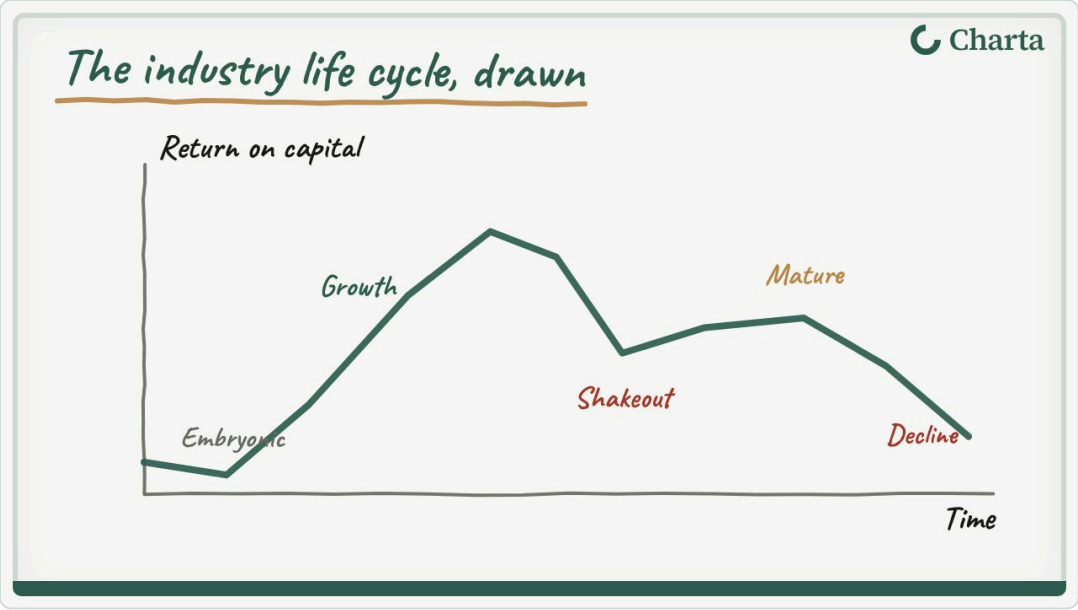
Each firm: fixed cost 400, variable cost 4 a unit

Both at 12, 60 units each	8 × 60 − 400	**80**
A cuts to 11, sells 90	7 × 90 − 400	**230**
B keeps 30 units at 12	8 × 30 − 400	**−160**
B matches: 60 each at 11	7 × 60 − 400	**20**
Each firm's loss vs start	80 − 20	**60**

IN THE LESSON

- Example five, the price-cut trap.
- Two firms each have fixed costs of four hundred and a variable cost of four per unit.
- Each sells sixty units at twelve, so the contribution is eight a unit and profit is eight times sixty minus four hundred, which is eighty.
- Firm A cuts its price to eleven and takes customers from B, selling ninety units.
- A's profit is seven times ninety minus four hundred, two hundred and thirty.
- B keeps only thirty units at twelve, and makes eight times thirty minus four hundred, a loss of one hundred and sixty.
- So B matches the price.
- Now each sells sixty units at eleven and earns seven times sixty minus four hundred, which is twenty.
- Both firms are sixty worse off than at the start.
- Cutting was sensible for each and ruinous for both.

14 The industry life cycle, drawn



IN THE LESSON

- Every product has a life, and so does every industry.
- Think of a new gadget.
- At first few people have heard of it and making it is costly.
- Then it takes off.
- Later the shops fill with copies, and finally people move on.
- Analysts split this into five stages.
- Look at the picture.
- The bottom axis is time, and the side axis is the return on capital the industry earns.
- In the embryonic stage, on the left, returns are low, because demand is small and costs are high.
- Growth lifts returns to a peak.
- Then comes shakeout, where returns fall as capacity outruns demand.
- In maturity they recover to a steady level.
- In decline they slide away again.

15 What each stage usually brings

The five stages and what follows from each

Embryonic	small demand, high costs	**Losses**
Growth	rising demand, calm prices	**Profit up**
Shakeout	capacity outruns demand	**Weak exit**
Mature	consolidated, high barriers	**Steady**
Declining	shrinking demand	**Price cuts**

IN THE LESSON

- Here is what each stage usually brings.
- Embryonic: demand is small, costs are high, and failure rates are extreme, so most firms lose money.
- Growth: demand rises, prices fall, and profit improves, with little price competition because there is room for everyone.
- Shakeout: capacity outruns demand, prices are pushed down, and the weaker firms leave.
- Mature: the survivors have consolidated, barriers are high, and returns are stable but unspectacular.
- Declining: demand shrinks, there is overcapacity, and price competition returns.
- For an investor the lesson is that the strongest profits come in late growth, and that this is exactly when the new capacity that ends the party is being planned.

16 Example 6: how a shakeout is born

Demand: 100 units, +30% a year, then +8%. Capacity built for +30%.

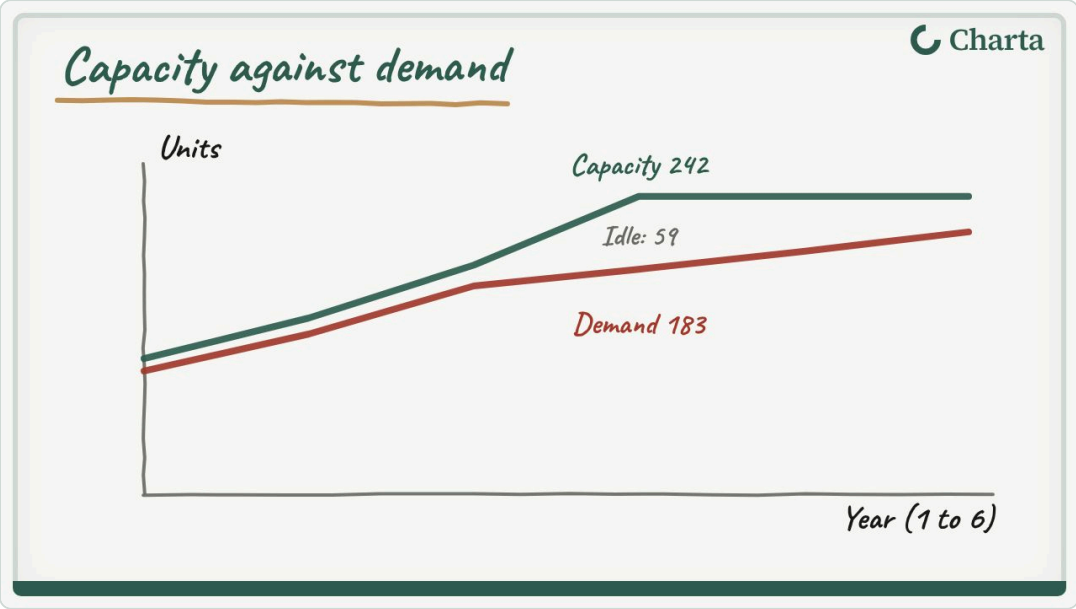
Demand, year 3	100 × 1.3 × 1.3	**169**
Capacity, year 4	185.9 × 1.3	**242**
Demand, year 4	169 × 1.08	**183**
Use of capacity	182.5 ÷ 241.7	**75.5%**
Idle capacity	241.7 − 182.5	**59 units**

Capacity in year 3 is assumed to be 185.9 units

IN THE LESSON

- Example six, how a shakeout is born.
- Industry demand is one hundred units in year one, growing thirty per cent a year.
- By year three it is one hundred times one point three times one point three, which is one hundred and sixty-nine.
- Firms are confident, so they build capacity for thirty per cent growth.
- Capacity in year three is assumed to be one hundred and eighty-five point nine, and in year four it reaches two hundred and forty-two.
- But demand growth slows to eight per cent, so year four demand is one hundred and eighty-three.
- The plants run at only seventy-five point five per cent of capacity, with fifty-nine units idle.
- The problem is the gap, and firms fill idle plants by cutting prices.

17 Capacity against demand



IN THE LESSON

- Here is the same story as a picture.
- The bottom axis is the year and the side axis is units.
- The green line is capacity, and the red line is demand.
- In years one to three the two rise together, with capacity a little above demand.
- In year four, capacity jumps to two hundred and forty-two, built for growth that has stopped.
- Demand keeps climbing, but more slowly, to one hundred and eighty-three.
- The gap between the lines is idle capacity, fifty-nine units.
- That gap is the shakeout.
- Prices fall, weaker firms exit, capacity shrinks, and eventually the lines meet again.
- That is the start of maturity, with fewer firms and steadier returns.

18 A guide, not a timetable

- Stages have no fixed length
- Technology or rules can reset the stage
- Marlow: groceries mature, payments growing
- Ask: is capacity outgrowing demand?

IN THE LESSON

- A last warning on the life cycle: it is a guide, not a timetable.
- Stages have no fixed length.
- One industry may stay mature for fifty years, another may race through growth in three.
- And the order can change.
- New technology can bring a mature industry back to growth, the way streaming did for television.
- A new rule or a new rival can push an industry into decline early.
- For Marlow Group, groceries look mature: slow growth, consolidated, steady.
- Payments looks like growth: fast demand, but new capacity is likely to arrive.
- So rather than asking only which stage is this, ask whether capacity is growing faster or slower than demand, and what could change that.

19 Mistakes to avoid so far

- 1. Sector label is not the peer group
- 2. Substitute = different way, same job
- 3. Growth alone does not make an industry good
- 4. Life cycle is a guide. Profit peaks in late growth.

IN THE LESSON

- Before we move on, four mistakes that cost marks.
- One.
- Treating the sector label as the peer group.
- The label comes from the biggest revenue line, and the firm's value may come from somewhere else.
- Two.
- Calling a rival's product a substitute.
- A substitute does the same job in a different way.
- A rival is rivalry.
- Three.
- Judging an industry by growth alone.
- Fast growth with no barriers attracts capacity and competes returns away, while a slow industry with strong barriers can earn well.
- Four.
- Reading the life cycle as a timetable, or assuming the peak of profit is in maturity.
- The peak is usually late growth, and technology or rules can reset the stage.

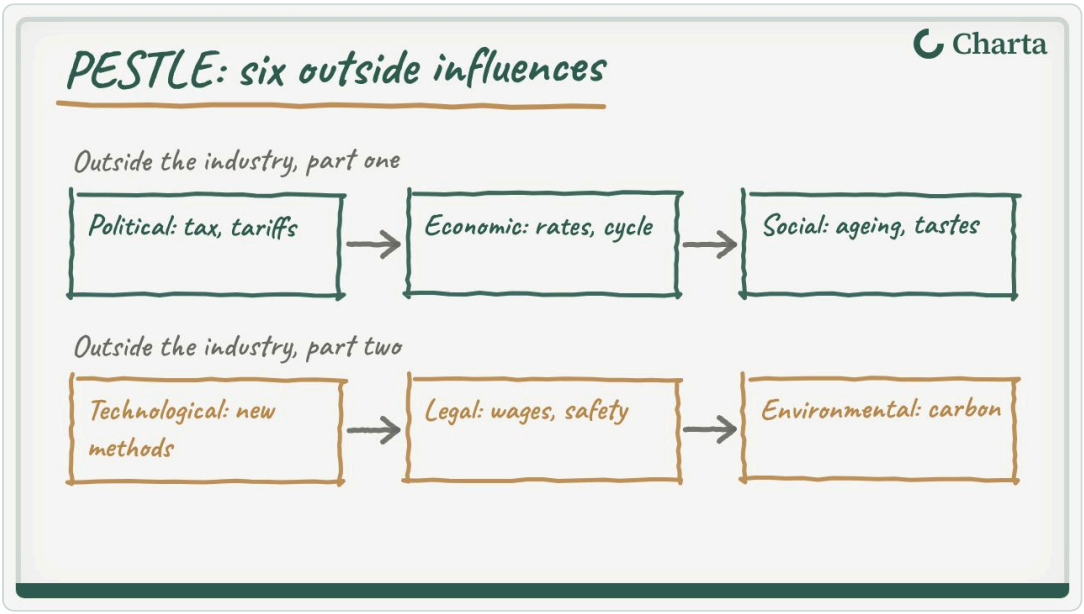
20 A story: the farmer and the weather

- Company at the centre
- Industry around it: the five forces
- Wider environment: PESTLE
- Goal: the few factors that move the forecast

IN THE LESSON

- We have looked at an industry from the inside.
- Now look at the weather around it.
- Think of a farmer.
- How well she does depends on her own skill, on how the neighbouring farms compete, and on the weather, the price of fuel, and the rules on pesticides.
- Analysts think in the same layers.
- In the centre is the company.
- Around it is the industry, where Porter's five forces explain profit through competitive pressure.
- Around that is the wider environment, which is where pestle comes in.
- Each letter is a heading: political, economic, social, technological, legal and environmental.
- The aim is not to fill all six boxes.
- It is to find the few outside factors that will actually move demand, costs and competition over the forecast horizon.

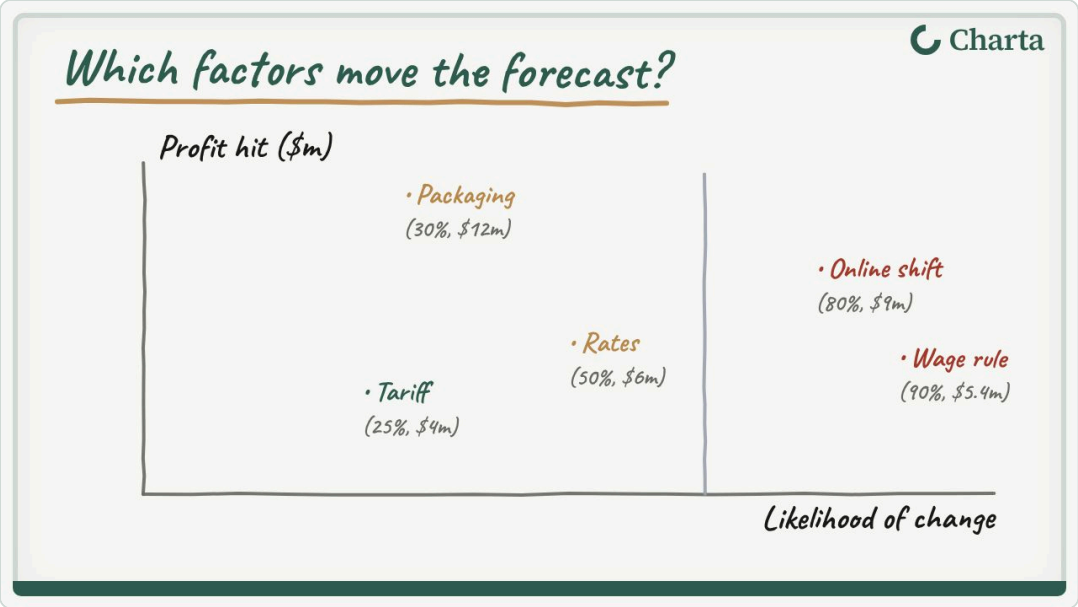
21 PESTLE: six outside influences



IN THE LESSON

- Here are the six, in two rows.
- Political: government policy, tax, tariffs and trade rules.
- Economic: growth, interest rates, inflation and the business cycle.
- Social: population ageing, changing tastes and habits.
- Technological: new ways to make, sell or deliver.
- Legal: rules on wages, safety, competition and data.
- Environmental: climate, carbon prices and waste.
- Notice how they link to the five forces.
- A new technology can lower the barriers to entry.
- A tax can raise costs for the whole industry.
- For supermarkets, think of tariffs on imported fruit, interest rates, ageing shoppers, online delivery, minimum wage rules and packaging charges.
- Six headings are easy to fill in.
- Judgement is deciding which matter.

22 Which factors move the forecast?



IN THE LESSON

- Now let us rank the factors for Marlow's supermarkets.
- The bottom axis is how likely the change is, and the side axis is how much it would cut annual profit, in millions.
- The online shopping shift is eighty per cent likely and costs about nine.
- The minimum wage rule is ninety per cent likely, and costs five point four.
- Packaging charges would hurt a lot, twelve, but are only thirty per cent likely, so we watch them.
- Interest rates sit in the middle, at fifty per cent and about six.
- The tariff on imported fruit is twenty-five per cent likely and small, about four, so we note it and move on.

23 Example 7: from factors to the model

Chance × profit hit, $ millions a year (illustrative)

Online shift	80% × 9	**7.2**
Minimum wage rule	90% × (90 × 6%)	**4.86**
Packaging charge	30% × 12	**3.6**
Interest rates	50% × 6	**3.0**
Tariff on fruit	25% × 4	**1.0**

IN THE LESSON

- Example seven, turning the map into numbers.
- For each factor, multiply the chance of it happening by the profit it would cost.
- This is a teaching device for ranking, not an official formula.
- The online shift: eighty per cent times nine is seven point two.
- The minimum wage rule is a legal factor.
- Labour is ninety, fifteen per cent of grocery revenue, and the rule lifts wages six per cent, so it costs five point four.
- Times ninety per cent, that is four point eight six.
- Packaging: thirty per cent times twelve is three point six.
- Interest rates: fifty per cent times six is three.
- The tariff: twenty-five per cent times four is one.
- The top three go into the model as inputs.
- The tariff is noted and left out.

24 A story: judge the pond before the fish

- Size: total revenue or units sold
- Growth: volume or price, cyclical or structural
- Profit: margins and returns on capital
- Share and its trend: who holds the market

IN THE LESSON

- Before judging a company, judge its industry.
- Picture a fishing trip.
- A skilled angler at a nearly empty pond goes home hungry, while an average one at a well-stocked pond fills the bucket.
- Four questions measure the pond.
- How big is it?
- How fast is it growing?
- How profitable are the people catching the fish?
- And who holds most of the catch?
- Size means total revenue or units sold, estimated from company reports, industry bodies, or a build-up of customers times spending.
- Growth should be split into volume and price, and into cyclical swings and lasting structural change.
- Profit is judged through margins and returns on capital, across firms and over time.
- Share and its trend show pricing power.

25 Size by build-up, and growth split

Market size = customers × take-up × spend each
Revenue growth = (1 + volume) × (1 + price) − 1

Customers	People who could buy
Take-up rate	Share who actually buy
Spend each	Spend each in a year
Volume growth	Growth in units sold
Price growth	Growth in the price paid

IN THE LESSON

- Two formulas.
- The first sizes a market from the bottom up.
- Market size equals the number of customers, times the share of them who actually buy, times what each spends in a year.
- Check that you count customers who buy, not everyone who could.
- The second splits growth.
- Revenue is volume times price, so revenue growth is not a plain sum.
- If volume grows by a rate v and price by a rate p, revenue growth is one plus v, times one plus p, minus one.
- For small rates, adding them is a good approximation, but the product is exact.
- The split matters, because growth from price alone, in a market that has run out of new customers, is harder to repeat than growth from selling more.

26 Example 8: sizing Marlow's market

Region: 2 million households (made-up figures)

Households		**2,000,000**
Use a supermarket as main shop	× 75%	**1,500,000**
Spend per household a year		**$2,000**
Market size	1.5m × 2,000	**$3.0bn**
Marlow's share	600 ÷ 3,000	**20%**

IN THE LESSON

- Example eight, sizing the grocery market where Marlow trades.
- The region has two million households.
- Seventy-five per cent use a supermarket as their main shop, which is one and a half million.
- Each spends two thousand dollars a year.
- So the market is one and a half million times two thousand, three billion dollars.
- This is a build-up, and it shows which assumption to change if the outlook changes: the households, the take-up, or the spending.
- Marlow's grocery revenue is six hundred million, so its share of the market is six hundred over three thousand, twenty per cent.
- Always check that you size the same thing you measure the share of.
- Revenue against revenue, not revenue against households.

27 Example 9: splitting the growth

Volume +1.5%, price +3.0% (illustrative)

Volume growth		**1.5%**
Price growth		**3.0%**
Revenue growth	1.015 × 1.03 − 1	**4.5%**
Share of growth from price	3.0 ÷ 4.545	**66%**
Market next year	3.0bn × 1.0455	**$3.14bn**

IN THE LESSON

- Example nine, growth.
- Next year the market is expected to sell one and a half per cent more volume, and prices are expected to rise three per cent.
- Revenue growth is one point zero one five times one point zero three, minus one, which is four point five per cent.
- Next year's market is three billion times one point zero four five, about three point one four billion.
- Now take it apart.
- Price is three of the four point five points, about two thirds of the growth.
- In a mature market with few new customers, that is a warning.
- Price growth depends on rivals behaving, and the rivalry force tells you it may not last.
- Also ask whether the change is cyclical or structural.
- A cyclical bounce will reverse; a lasting change in habits will not.

28 Margins, returns and concentration

Operating margin = operating profit ÷ revenue
ROIC = NOPAT ÷ average invested capital
CR3 = share 1 + share 2 + share 3

Operating profit	Profit before interest and tax
Revenue	Sales for the year
NOPAT	Operating profit after tax
Average invested capital	Start plus end, divided by two
Top three shares	Add the three largest shares

IN THE LESSON

- Now profitability and share.
- The operating margin is operating profit divided by revenue, the profit on each dollar of sales.
- The return on invested capital, or R O I C, is net operating profit after tax, or N O P A T, divided by invested capital.
- Following the convention we use for balances compared with a flow, we use the average of the start and end invested capital.
- Compare these across firms and over time; one year alone proves little.
- For market share, the concentration ratio adds up the shares of the largest firms.
- C R three is the share of the top three.
- A high ratio means a few firms dominate, but it says nothing about who is gaining or losing, so always look at the trend in each firm's share too.

29 Example 10: Marlow's profitability

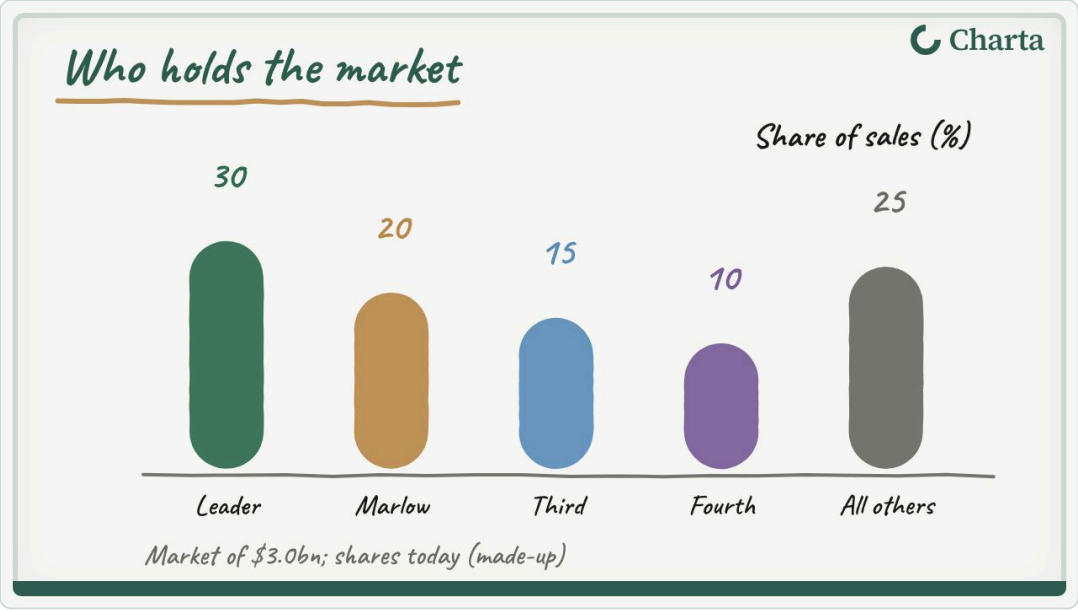
Marlow groceries, $ millions; tax 20%; cost of capital 8%

Operating margin	60 ÷ 600	**10%**
NOPAT	60 × (1 − 20%)	**48**
Average invested capital	(380 + 420) ÷ 2	**400**
ROIC	48 ÷ 400	**12%**
Spread over cost of capital	12% − 8%	**4 points**

IN THE LESSON

- Example ten, profitability.
- Marlow's grocery business earns operating profit of sixty on revenue of six hundred, a margin of ten per cent.
- Suppose the industry leader earns twelve per cent, and three years ago the leader earned eleven and Marlow eleven too.
- So the leader's margin is rising while Marlow's is falling.
- Now returns.
- After tax at twenty per cent, operating profit is forty-eight.
- Invested capital was three hundred and eighty at the start of the year and four hundred and twenty at the end, so the average is four hundred.
- R O I C is forty-eight over four hundred, twelve per cent.
- If the cost of capital is eight per cent, the spread is four percentage points, and Marlow creates value, though less quickly than its leader.

30 Who holds the market



IN THE LESSON

- Now market share.
- Look at the picture.
- Each bar is a firm's share of the three billion dollar market.
- The leader holds thirty per cent.
- Marlow holds twenty.
- The third firm holds fifteen, the fourth ten, and all the others together twenty-five.
- Notice how few firms hold most of the market.
- Three years ago the shares were twenty-seven for the leader, twenty-two for Marlow, fifteen for the third, ten for the fourth, and twenty-six for the others.
- So the leader has gained three points, Marlow has lost two, and small firms have lost one.
- Together with the margin trend, that suggests the leader is winning on product or cost, while Marlow is losing ground in a market with little growth.

31 The Herfindahl index (HHI)

HHI = s1² + s2² + s3² + … (each share in %)

HHI	Sum of the squared shares
Each share	Market share, in percent
Squaring	Big firms count for more
Range	From near 0 up to 10,000
Two equal firms	50² + 50² = 5,000

IN THE LESSON

- The Herfindahl index, or H H I, measures how concentrated a market is.
- Take each firm's share in percent, square it, and add up the squares.
- Squaring makes big firms count far more than small ones.
- Two firms with fifty per cent each give fifty squared plus fifty squared, which is five thousand.
- Unlike the concentration ratio, which adds only the top few shares, the H H I uses every firm.
- A single-firm market scores ten thousand, the maximum, and a market of many tiny firms scores near zero.
- A rising index means the market is concentrating.

32 Example 11: concentration hides the movers

Top three firms, share of sales

CR3 today	30 + 20 + 15	**65%**
CR3 three years ago	27 + 22 + 15	**64%**
HHI, four named firms	900 + 400 + 225 + 100	**1,625**
Leader's change	30 − 27	**+3 points**
Marlow's change	20 − 22	**−2 points**

IN THE LESSON

- Example eleven, concentration.
- Today the top three firms hold thirty plus twenty plus fifteen, which is sixty-five per cent.
- Three years ago they held twenty-seven plus twenty-two plus fifteen, which is sixty-four per cent.
- So the ratio moved by one point.
- Yet underneath, the leader gained three points and Marlow lost two.
- The ratio tells you how many firms dominate, not who is winning.
- Now the index for the four named firms: nine hundred plus four hundred plus two hundred and twenty-five plus one hundred, which is sixteen twenty-five.
- The trap is stopping at the ratio.
- A concentrated market with a leader gaining share suggests the leader can set the pace.

33 Recap: the measures to remember

Market size = customers × take-up × spend
Growth = (1 + volume)(1 + price) − 1
ROIC = NOPAT ÷ average invested capital

Market size	Customers × take-up × spend
Revenue growth	Volume and price together
Operating margin	Operating profit ÷ revenue
ROIC	NOPAT ÷ average capital
CR3	Share of the top three firms

IN THE LESSON

- Let us pull the lesson together.
- Companies can be grouped by business activity, by cycle sensitivity or by return similarity, but none reliably gives the right peer group.
- The five forces are entrants, substitutes, buyers, suppliers and rivalry; weaker forces mean higher sustainable returns.
- The life cycle runs embryonic, growth, shakeout, mature, declining; profits peak in late growth, and it is a guide not a timetable.
- Pestle looks outside the industry, and the skill is picking the few factors that matter.
- Finally the numbers.
- Market size is customers times take-up times spend.
- Revenue growth is one plus volume, times one plus price, minus one.
- Margin and return on capital measure profit, and the concentration ratio, with the trend in share, measures who holds the market.

34 Try three quick questions

1. A firm earns 55% of revenue from machinery, 45% from lending. Sector under a revenue scheme, and the risk?
   Answer: Industrials. The lending half gets the wrong peers.
2. Demand growth slows from 30% to 8%, capacity was built for 30%, weak firms leave. Stage?
   Answer: Shakeout.
3. Volume grows 2% and price grows 5%. Revenue growth?
   Answer: 1.02 × 1.05 − 1 = 7.1%.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A company earns fifty-five per cent of revenue from machinery and forty-five per cent from lending.
- Which sector does a revenue-based scheme choose, and what is the risk?
- Industrials, and the lending half is compared with the wrong peers.
- Question two.
- Demand growth slows from thirty per cent to eight per cent, capacity was built for thirty, and weak firms leave.
- Which stage is this?
- Shakeout.
- Question three.
- Volume grows two per cent and price grows five per cent.
- What is revenue growth?
- One point zero two times one point zero five, minus one, which is seven point one per cent.
- Well done.