CHARTA LEARNING · LESSON NOTES

Multinational operations: translation and currency effects

Financial Statement Analysis

1 A story: one subsidiary, two currencies

- Parent reports in dollars; branch keeps books in euros
- Translation = same business, restated in dollars
- Independent branch: current rate method
- Extension of parent: temporal method

IN THE LESSON

- Picture an American parent, Marlow Incorporated, that owns a European subsidiary, Marlow Europe.
- The subsidiary keeps its books in euros, because that is the money of its daily business.
- But Marlow publishes its accounts in dollars, so every euro figure has to be restated.
- That restating is called translation.
- Quick reminder.
- If the subsidiary runs fairly independently, its functional currency is the euro, and we use the current rate method.
- If it is really an extension of the parent, the dollar is functional, and we use the temporal method.
- The two methods put different exchange rates on different lines, and that choice moves profit, equity and the ratios.

2 Which rate goes on which line

Rates by method, Marlow Europe (share capital: historical, both)

Line item	Rate
Current rate: assets, liabilities	Closing
Current rate: sales and expenses	Average
Temporal: cash, receivables, debt	Closing
Temporal: inventory, plant, cost of sales	Historical

IN THE LESSON

- Here is the rate map.
- Under the current rate method, every asset and liability goes at the closing rate, the rate on the last day.
- Sales and expenses go at the average rate, because they happened all year.
- Share capital stays at the rate on the day it was issued.
- Under the temporal method, the split is different.
- Cash, receivables and debt are monetary items, which are claims to a fixed amount of money, so they take the closing rate.
- Inventory and plant are bought at a past price, so they keep the historical rate.
- Cost of sales and depreciation follow the assets behind them.

3 Example 1: multiply or divide?

Closing quote: €0.80 per $1. Net assets €100m

The quote means	€0.80 buys $1	**EUR per USD**
Correct: divide	€100m ÷ 0.80	**$125.0m**
Wrong: multiply	€100m × 0.80	**$80.0m**
Sense check	1 ÷ 0.80	**$1.25 per €**

IN THE LESSON

- Before any statement, the classic trap.
- Which way is the rate quoted?
- Suppose the closing quote is zero point eight zero euros per dollar.
- That is euros per dollar, and we want dollars, so we divide.
- A hundred million euros of net assets divided by zero point eight zero is one hundred and twenty five point zero million dollars.
- If you multiply by mistake you get eighty point zero million, which makes the subsidiary look smaller.
- Check: one euro is one point two five dollars, so net assets should be worth more in dollars, not less.

4 Example 2: the income statement, current rate

€m at the average rate $1.15 per €

Sales	€600m × 1.15	**$690.0m**
Cost of sales	€360m × 1.15	**$414.0m**
Other expenses	€190m × 1.15	**$218.5m**
Net income	€50m × 1.15	**$57.5m**

IN THE LESSON

- Now the full case.
- Marlow Europe started the year with share capital of two hundred million euros, issued on day one when a euro was worth one dollar and ten cents.
- Over the year a euro averaged one dollar fifteen and closed at one dollar twenty.
- Sales were six hundred million euros, cost of sales three hundred and sixty, and other expenses one hundred and ninety, so profit was fifty.
- Under the current rate method every line goes at the average.
- Sales become six hundred and ninety point zero million dollars, cost of sales four hundred and fourteen, other expenses two hundred and eighteen point five, and net income fifty seven point five million.
- One rate for every line, so margins are unchanged.

5 Example 2: the balance sheet and the balancing figure

Balance sheet at the closing rate $1.20

Assets	€500m × 1.20	**$600m**
Liabilities	€250m × 1.20	**$300m**
Share capital	€200m × 1.10	**$220m**
Retained earnings	= translated net income	**$57.5m**
Translation adjustment (OCI)	600 − 300 − 220 − 57.5	**$22.5m**

IN THE LESSON

- Now the balance sheet.
- At year end the subsidiary has total assets of five hundred million euros and liabilities of two hundred and fifty.
- At the closing rate of one dollar twenty, assets are six hundred point zero million dollars and liabilities three hundred point zero.
- Share capital stays at its day one rate, two hundred times one point one zero, which is two hundred and twenty.
- Retained earnings are the translated profit, fifty seven point five, because no dividend was paid.
- Capital and retained earnings reach two hundred and seventy seven and a half, but net assets are three hundred.
- The gap is twenty two point five million dollars.
- It is the cumulative translation adjustment, the balancing figure, and it goes to other comprehensive income, not to profit.

6 The translation adjustment, found directly

Adjustment = opening net assets × (closing − opening rate) + profit kept × (closing − average rate)

Opening net assets	Net assets at the start
Rate rise over the year	Closing rate minus opening rate
Profit kept in the year	Profit kept in the year
Closing minus average rate	Closing rate minus average rate
Translation adjustment	Goes to other comprehensive income

IN THE LESSON

- You can also build the adjustment without the balancing trick.
- Under the current rate method, the exposure is net assets, so the adjustment has two pieces.
- The first is the opening net assets multiplied by how far the rate rose over the year.
- Here that is two hundred million euros times ten cents, which is twenty point zero million dollars.
- The second is the profit kept in the year, multiplied by the gap between the closing rate and the average rate, because the profit came in at the average but now sits at the closing rate.
- That is fifty million euros times five cents, which is two point five.
- Add the two and you get twenty two point five, the same as the balancing figure.

7 Where the closing net assets came from

Net assets ($m)

Start	**220**
Profit	**57.5**
Adjustment	**22.5**
End	**300**

Start + profit + adjustment = end

IN THE LESSON

- Here is the same story as a picture.
- The vertical axis is net assets in millions of dollars.
- The first bar is the opening net assets, two hundred and twenty.
- That is what the parent already held in its books at the day one rate.
- The second bar is the year's profit, brought in at the average rate, fifty seven and a half.
- The third bar is small but important, the translation adjustment of twenty two and a half.
- Added together they reach the last bar, three hundred, which is the closing net assets of two hundred and fifty million euros at one point two.
- A rising euro has made the parent's investment worth more.

8 Example 3: the temporal method, balance sheet

Liabilities $300m, share capital $220m

Cash and receivables	€100m × 1.20	**$120.0m**
Inventory (bought at 1.17)	€100m × 1.17	**$117.0m**
Plant (bought at 1.10)	€300m × 1.10	**$330.0m**
Total assets	120 + 117 + 330	**$567.0m**
Retained earnings (balancing)	567 − 300 − 220	**$47.0m**

IN THE LESSON

- Now treat Marlow Europe as an extension of the parent, so the temporal method applies.
- Cash and receivables, together one hundred million euros, are monetary, so they go at the closing rate: one hundred and twenty point zero million dollars.
- Inventory was bought when a euro was one dollar seventeen, so one hundred million euros becomes one hundred and seventeen point zero.
- The plant was bought on day one at one dollar ten, so three hundred million euros becomes three hundred and thirty point zero.
- Total assets are five hundred and sixty seven point zero million dollars.
- Liabilities are monetary at the closing rate, three hundred, and share capital is still two hundred and twenty.
- So retained earnings must be forty seven, and that figure is the balancing item.

9 Example 3: the temporal income statement

$m; cost of sales at the historical 1.12

Sales	€600m × 1.15	**$690.0m**
Cost of sales	€360m × 1.12	**$403.2m**
Other expenses	€190m × 1.15	**$218.5m**
Remeasurement loss	balancing figure	**$21.3m**
Net income	690.0 − 403.2 − 218.5 − 21.3	**$47.0m**

IN THE LESSON

- Now the income statement under the temporal method.
- Sales and other expenses arose through the year, so they take the average rate: sales six hundred and ninety point zero million and other expenses two hundred and eighteen point five.
- But cost of sales is different.
- The goods sold were bought earlier, at an assumed historical rate of one dollar twelve, so three hundred and sixty million euros becomes four hundred and three point two.
- Profit before remeasurement is sixty eight point three million.
- Yet retained earnings must be forty seven.
- The difference, a loss of twenty one point three million dollars, is the remeasurement loss.
- It goes through net income, so net income is forty seven point zero, not fifty seven and a half.

10 Example 3: why it is a loss

Net monetary position, $m

Start: −€100m × 1.10		**−$110.0m**
Plus the year's flows	690.0 − 520.2 − 218.5	**−$48.7m**
Expected end position	−110.0 − 48.7	**−$158.7m**
Actual: −€150m × 1.20		**−$180.0m**
Remeasurement loss	180.0 − 158.7	**$21.3m**

IN THE LESSON

- Why a loss?
- The subsidiary has a net monetary liability, and when the euro rises, a liability fixed in euros costs more dollars.
- Let's prove the number.
- At the start, cash of one hundred less debt of two hundred left a net monetary liability of one hundred million euros, worth one hundred and ten point zero million dollars.
- The year's flows were sales of six hundred and ninety point zero, less purchases of five hundred and twenty point two, less other expenses of two hundred and eighteen point five.
- That leaves an expected position of minus one hundred and fifty eight point seven.
- The actual position is minus one hundred and fifty million euros at one dollar twenty, minus one hundred and eighty point zero.
- The gap is the loss.

11 Who is exposed: net assets or net monetary items

- Current rate: net assets exposed, gain goes to OCI
- Temporal: net monetary items exposed, hits profit
- Euro rises: net assets gain, net monetary debt loses
- Same year, same rates, opposite signs

IN THE LESSON

- Now pause and compare the two methods side by side, because this is a favourite exam point.
- Under the current rate method, everything on the balance sheet moves with the closing rate, so what is exposed is the whole net asset position.
- The euro rose, net assets were positive, so there is a gain, and it sits in equity.
- Under the temporal method only monetary items do.
- Our subsidiary has a net monetary liability, so the same rising euro produces a loss, and it sits in profit.
- Same company, same rates: one method books a gain in equity, the other a loss in profit.
- Always find which items are exposed first.

12 Example 4: current rate ratios

Marlow Europe, current rate method

Current ratio	€ 4.00, in $: 240 / 60	**4.00**
Debt to assets	€ 0.40, in $: 240 / 600	**0.40**
Net margin	€ 8.33%, in $: 57.5 / 690	**8.33%**
Return on assets	€ 10.00%, in $: 57.5 / 600	**9.58%**
Asset turnover	€ 1.20, in $: 690 / 600	**1.15**

IN THE LESSON

- Next, the ratios.
- Under the current rate method, balance sheet lines all use the closing rate.
- So a ratio made only of balance sheet lines does not change.
- The current ratio is current assets over current liabilities, two hundred over fifty euros, which is four point zero zero.
- In dollars it is two hundred and forty over sixty, still four point zero zero.
- Debt to assets stays at zero point four zero.
- Net margin stays at eight point three three per cent, because both net income and sales use the average rate.
- The ratios that mix a flow with a balance move.
- Return on assets falls from ten per cent to nine point five eight, and asset turnover from one point two zero to one point one five.

13 The mixed ratio shortcut

Translated ratio = local ratio × (average rate ÷ closing rate)

Ratio in local currency	E.g. ROA or asset turnover
Average rate	Rate for the income statement
Closing rate	Rate for the balance sheet
Translated ratio	What the parent reports

IN THE LESSON

- There is a neat shortcut for the ratios that move.
- A mixed ratio has an income statement number on top, translated at the average rate, and a balance sheet number underneath, translated at the closing rate.
- So the translated ratio equals the local currency ratio, multiplied by the average rate over the closing rate.
- Here that factor is one point one five over one point two zero, which is zero point nine five eight three.
- Ten per cent times that factor is nine point five eight per cent.
- One point two zero times the factor is one point one five.
- When the foreign currency strengthens, average is below closing, the factor is below one, and these ratios look lower.
- When it weakens, they look higher, with nothing real having changed in the business.

14 Example 5: temporal ratios

Marlow Europe, temporal method

Gross margin	€ 40.00%, in $ 690.0 − 403.2	**41.57%**
Net margin	€ 8.33%, in $ 47.0 / 690.0	**6.81%**
Return on assets	€ 10.00%, in $ 47.0 / 567.0	**8.29%**
Debt to assets	€ 40.0%, in $ 240 / 567	**42.3%**
Current ratio	€ 4.00, in $ 237 / 60	**3.95**

IN THE LESSON

- Now the same subsidiary under the temporal method, and the picture is messier.
- Cost of sales goes at the historical one twelve while sales go at the average one fifteen, so the gross margin rises from forty per cent to forty one point five seven per cent, with nothing changing in the business.
- The remeasurement loss drops net income to forty seven, so net margin falls to six point eight one per cent, against eight point three three in euros.
- Return on assets is eight point two nine per cent against ten.
- Even balance sheet ratios move.
- Debt to assets rises to forty two point three per cent from forty, and the current ratio slips to three point nine five.

15 Which ratios survive translation

Current rate keeps most ratios; temporal bends many

Ratio	Current rate method
Current ratio, debt to assets	Unchanged
Gross and net margins	Unchanged
Return on assets, turnover	Changed
Temporal: margins, net income	Distorted

IN THE LESSON

- Let's collect it in one table.
- Under the current rate method, ratios built only from balance sheet lines keep their local value, so the current ratio and debt to assets do not change.
- Margins keep their value too, since every income line uses the same average rate.
- The ratios that mix the two statements do change, return on assets and asset turnover, by the average over closing factor.
- Under the temporal method, anything can move.
- Cost of sales and depreciation at historical rates can distort the gross margin and the turnover figures.
- The remeasurement gain or loss makes net income jump around with the currency, so the trend in profit is no longer the trend in the business.
- The trap is saying that every ratio survives.

16 Hyperinflation: when the ruler melts

- Test: about 100% cumulative inflation over 3 years
- Local currency stops being a stable ruler
- Old-cost assets shrink under current rate translation
- US GAAP and IFRS each repair this differently

IN THE LESSON

- Imagine measuring a room with a ruler that shrinks every day.
- That is the problem with a hyperinflationary economy, one where prices rise so fast that the local currency loses its meaning as a measure.
- A common test is cumulative inflation of about one hundred per cent over three years.
- If a subsidiary there is translated at the current rate, its plant and inventory, recorded at old cost in a collapsing currency, shrink in the parent's accounts for no real reason.
- Both accounting frameworks refuse to do that, but they fix it in different ways.
- The next picture shows the two routes.

17 Two routes to the parent's currency

US GAAP

Remeasure, temporal method → Plant at historical rate → Gains and losses to profit

IFRS

Restate with price index → Gain or loss on monetary items → Translate at closing rate

IN THE LESSON

- Read the two rows from left to right.
- The top row is U S G A A P.
- It treats the parent's currency as functional, so the subsidiary is remeasured with the temporal method.
- Plant and inventory stay at the old rates from when they were bought, and every remeasurement gain or loss goes through net income.
- The bottom row is I F R S.
- It keeps the local currency but repairs it first.
- Non-monetary items are restated with a general price index, which lifts old costs to today's prices.
- The gain or loss from holding monetary items through the inflation goes to profit.
- Only then are all the restated statements translated at the current rate.

18 Example 6: the plant, three ways

Plant LC 1,000,000; index 100 → 200; €/LC 0.010 → 0.006

No restating, closing rate	1,000,000 × 0.006	**€6,000**
US GAAP: historical rate	1,000,000 × 0.010	**€10,000**
IFRS: restate with the index	1,000,000 × 200 / 100	**LC 2,000,000**
IFRS: then translate	2,000,000 × 0.006	**€12,000**

IN THE LESSON

- Now numbers.
- A subsidiary in a hyperinflationary economy bought a plant for one million local currency units on the first day, when one unit was worth one cent in euros.
- Over the year the price index doubled, from one hundred to two hundred, and a unit fell to six tenths of a cent.
- First, the trap: translate the old cost at the closing rate and the plant is six thousand point zero euros, a forty per cent write-off with no economic event behind it.
- Under U S G A A P it stays at the historical rate: ten thousand point zero euros.
- Under I F R S we restate first: one million times two hundred over one hundred is two million units, and at the closing rate that is twelve thousand point zero euros.

19 Example 7: the gain on borrowing

Cash LC 200,000, loan LC 500,000, held all year

Net monetary liability	500,000 − 200,000	**LC 300,000**
IFRS: gain on the position	300,000 × 2 − 300,000	**LC 300,000**
IFRS: gain in euros	300,000 × 0.006	**€1,800**
US GAAP: remeasurement gain	3,000 − 1,800	**€1,200**

IN THE LESSON

- One more effect of inflation.
- The same subsidiary held cash of two hundred thousand units and owed a bank five hundred thousand, a net monetary liability of three hundred thousand units.
- During inflation, a fixed debt becomes easier to repay, because money is worth less.
- Under I F R S, that is a purchasing power gain on the net monetary position.
- The opening liability, restated to year end prices, is three hundred thousand times two, six hundred thousand.
- Only three hundred thousand is still owed, so the gain is three hundred thousand point zero units, or one thousand eight hundred point zero euros at the closing rate.
- Under U S G A A P, the liability fell from three thousand euros to one thousand eight hundred point zero at the end, so the remeasurement gain in profit is one thousand two hundred point zero euros.

20 Mistakes to avoid so far

- 1. Quote per dollar: divide, then sense check
- 2. Current rate: net assets; temporal: monetary items
- 3. Mixed ratios change under the current rate
- 4. Hyperinflation: restate first, then translate
- 5. Temporal profit includes currency noise

IN THE LESSON

- Let's stop and collect the mistakes that cost marks in this first half.
- One.
- Multiplying when the rate is quoted as foreign currency per dollar.
- Divide, then check with common sense.
- Two.
- Mixing up what is exposed.
- Under the current rate method it is net assets, with the adjustment going to equity.
- Under the temporal method it is net monetary items, with the gain or loss going to profit.
- Three.
- Expecting every ratio to be unchanged under the current rate method.
- Only the pure balance sheet ratios and the margins survive.
- Four.
- In a hyperinflationary economy, translating at the current rate without restating first.
- That understates fixed assets, and more so the higher the inflation.
- Five.
- Reading temporal net income as a clean view of the business.

21 The tax rate of a company with many homes

- Effective rate = tax expense ÷ pre-tax income
- A blend of local statutory rates, weighted by profit
- More profit in low-tax places lowers the blend
- Tax note: reconciles statutory to effective rate

IN THE LESSON

- A family with houses in several cities pays a blend of all the local property taxes.
- A company's effective tax rate works the same way.
- It is income tax expense divided by pre-tax income, and it is a blend of the statutory rates of every country where profit is earned.
- So if more profit moves to lower-tax countries, the effective rate falls even though no tax law changed.
- The tax note reconciles the home statutory rate to the effective rate, line by line: foreign rate differences, permanent items, changes in valuation allowances under U S G A A P, and one-off settlements.
- The analyst then asks which lines will repeat.

22 The effective tax rate, and its blend

Effective rate = tax expense ÷ pre-tax income = Σ (profit share × local rate)

Income tax expense	From the income statement
Pre-tax income	Before tax, all countries
Share of profit in a country	Country profit ÷ total profit
Local statutory rate	The country's statutory rate
Effective tax rate	The blended rate

IN THE LESSON

- Here are both views of the formula.
- First, the effective tax rate equals income tax expense divided by pre-tax income.
- That is what the accounts show.
- It is also the sum, across countries, of each country's share of the profit multiplied by that country's statutory rate.
- Take a company with two hundred million dollars of profit, half in a country taxed at forty per cent and half in one taxed at ten per cent.
- Each share is one half, so the blend is half of forty plus half of ten, which is twenty five per cent.
- If the profit later shifts to seventy five per cent in the low-tax country, the blend falls to seventeen point five per cent.
- The rates did not move; the mix did.

23 Example 8: a blend of three countries

Pre-tax profit $200m; amounts in $m

Home: 100 at 25%	100 × 25%	**25.0**
Country X: 60 at 12.5%	60 × 12.5%	**7.5**
Country Y: 40 at 30%	40 × 30%	**12.0**
Total tax	25.0 + 7.5 + 12.0	**44.5**
Effective rate	44.5 ÷ 200	**22.25%**

Plan: move 40 home to X: tax 39.5, rate 19.75%

IN THE LESSON

- Now a worked case.
- Halden Group earns pre-tax profit of two hundred million dollars in three places.
- A hundred is earned at home, taxed at twenty five per cent: tax of twenty five.
- Sixty is earned in Country X, taxed at twelve and a half per cent: tax of seven and a half.
- Forty is earned in Country Y, taxed at thirty per cent: tax of twelve.
- Total tax is forty four point five million, which on two hundred is an effective rate of twenty two point two five per cent, below the home rate of twenty five.
- Now the plan: move forty of profit from home to Country X.
- Tax becomes thirty nine point five, and the rate falls to nineteen point seven five per cent.
- No law changed.
- Is it sustainable?
- Only if the new mix holds.

24 Example 9: the tax note, and the one-off

Rate reconciliation, % of pre-tax income

Home statutory rate		**25.00%**
Foreign rate differences	(−7.5 + 2.0) ÷ 200	**−2.75 pts**
Valuation allowance release	one-off	**−1.50 pts**
Reported effective rate	25.00 − 2.75 − 1.50	**20.75%**
Underlying rate	20.75 + 1.50	**22.25%**

IN THE LESSON

- Now read the tax note for the same company.
- Start at the home statutory rate of twenty five per cent.
- Foreign rate differences take off two point seven five points: Country X is cheaper by twelve and a half points on sixty of profit, Country Y dearer by five on forty, and the net, spread over two hundred, is minus two point seven five.
- Then comes a release of a valuation allowance under U S G A A P, a one-off that takes off another one and a half points.
- The reported rate is twenty point seven five per cent, and tax is forty one point five million.
- The underlying rate is twenty two point two five, tax forty four point five.
- Forecasting on the reported rate would overstate profit by three million dollars.
- The trap is treating a one-off as permanent.

25 Where does the growth come from?

- Sources: volume, price, acquisitions, currency
- Volume and real price in a stable market: best
- Acquisitions: not organic, will not repeat alone
- Currency: can reverse at any time

IN THE LESSON

- Two bakeries both report sales up fifteen per cent.
- One sold more loaves; the other bought a rival.
- Same headline, very different futures.
- A multinational's sales growth can come from four sources: volume, meaning more units sold; price; acquisitions; and currency, because foreign sales are translated into the reporting currency.
- Selling more units, or raising real prices in a stable market, is the most sustainable.
- Acquired growth is not organic and will not repeat without more deals.
- Currency growth can reverse at any time.
- A price rise in a high-inflation country may only keep pace with inflation, and be wiped out later by a falling currency.
- Companies often disclose organic growth, which removes deals and currency, or constant currency growth, which removes currency alone.

26 Organic growth, stripped out

Organic growth = (sales − acquired sales − currency effect) ÷ last year's sales − 1

This year's sales	Reported, as translated
Sales from acquisitions	Sales added by deals
Currency effect on sales	Gain or loss from rates
Last year's sales	The base year
Organic growth	The sustainable core

IN THE LESSON

- The formula is simple.
- Organic growth equals this year's sales, less the sales that came from acquisitions, less the currency effect, all divided by last year's sales, minus one.
- In words: take the headline sales, remove what was bought and what the exchange rate gave you, and compare what is left with last year.
- Only post-deal sales of a purchased business are removed.
- Constant currency growth is the cousin that removes only the currency piece.
- The gap between the two tells you how much was bought.
- The analyst builds the forecast on the organic number, then adds deals and currency separately.

27 Example 10: headline versus organic

Sales €m: last year 1,000, this year 1,150

Headline growth	1,150 ÷ 1,000 − 1	**15.0%**
Constant currency growth	(1,150 − 50) ÷ 1,000 − 1	**10.0%**
Organic sales	1,150 − 60 − 50	**€1,040m**
Organic growth	1,040 ÷ 1,000 − 1	**4.0%**

IN THE LESSON

- A European group reports sales up from one thousand to one thousand one hundred and fifty million euros, headline growth of fifteen point zero per cent.
- The annual report says acquisitions added sixty million and a weaker euro added fifty million when foreign sales were translated.
- Constant currency sales are one thousand one hundred, so constant currency growth is ten point zero per cent.
- Organic sales are one thousand one hundred and fifty, less sixty, less fifty, which is one thousand and forty million, and organic growth is four point zero per cent.
- A forecaster who extrapolated fifteen per cent would be out by nearly four times.
- Start from four, then model the acquisition's remaining months and any currency view separately.

28 What is inside the fifteen per cent

Growth (points of sales)

Organic	**4.0**
Acquisitions	**6.0**
Currency	**5.0**

4.0 + 6.0 + 5.0 = 15.0

IN THE LESSON

- This picture splits the headline into its parts.
- The vertical axis is growth in percentage points of last year's sales.
- The first bar is organic growth, four points: customers buying more and paying more in a normal way.
- The second bar is acquisitions, six points: the group bought its way to more than the whole of its organic growth.
- The third is currency, five points: the weaker home currency made foreign sales look larger when translated.
- Add the three bars and you get the fifteen per cent headline.
- Only the first bar is built to repeat.
- The acquisition may add a little next year, but that is a separate calculation, and currency could turn negative.

29 Who gains when foreign currencies rise

If the foreign currency strengthens

Where it sells, where it spends	Effect
Sells abroad, costs at home	Gains
Sells abroad, costs abroad	Hedged
Sells at home, inputs from abroad	Loses
Sells at home, costs at home	Little effect

IN THE LESSON

- Now let's turn to currency and profit.
- Ask two questions about any company.
- Where does the money come in, and where does it go out?
- A company that sells abroad but has its costs at home gains when the foreign currency strengthens: revenue is worth more, costs are unchanged.
- If it also has costs in the same foreign currency, they rise together and largely cancel.
- That is a natural hedge.
- A company that sells at home but buys inputs abroad loses when the foreign currency strengthens, because its inputs cost more and it may not be able to raise prices.
- One that does everything at home has little direct effect.
- Borrowing in the revenue currency extends the hedge; other debt adds exposure.

30 Example 11: the natural hedge in numbers

$m; euro up 10%, from $1.00 to $1.10

Sales: €300m	300 → 330	**$330m**
Euro costs: €240m	240 → 264	**$264m**
Profit with a natural hedge	60 → 66	**+$6.0m**
Profit with dollar costs	330 − 240 = 90	**+$30.0m**

IN THE LESSON

- A concrete case.
- Take a firm that reports in dollars and sells in euros, three hundred million euros a year.
- Its costs are two hundred and forty million euros, also in euros.
- Suppose a euro is worth one dollar, so operating profit is sixty million dollars.
- Now the euro rises ten per cent.
- Sales become three hundred and thirty point zero million dollars, costs two hundred and sixty four point zero, and profit sixty six point zero, only six point zero more.
- The costs in euros rose with the sales, so most of the gain was cancelled.
- Compare a firm with the same sales but all its costs in dollars.
- Its profit would be ninety point zero, a jump of thirty.
- The currency of the costs decides the exposure too.

31 Example 12: using the sensitivity disclosure

£m; 10% dollar rise: +30; 10% yen rise: −12

Dollar down 3%	30 × (−3) ÷ 10	**−£9.0m**
Yen down 5%	−12 × (−5) ÷ 10	**+£6.0m**
Net effect on profit	−9.0 + 6.0	**−£3.0m**
Share of operating profit	−3.0 ÷ 400	**−0.75%**

IN THE LESSON

- Companies disclose sensitivities, and you scale them.
- Pennine plc reports in pounds.
- Its report says a ten per cent strengthening of the dollar against sterling would raise operating profit by thirty million pounds, and a ten per cent strengthening of the yen would cut it by twelve million.
- Operating profit is four hundred million.
- You expect the dollar to fall three per cent and the yen to fall five per cent.
- The dollar line is thirty times three over ten, with the sign flipped by the fall: minus nine point zero million.
- The yen line is minus twelve times minus five over ten, which is plus six point zero, because Pennine pays costs in yen and they get cheaper.
- The net is minus three point zero million, or zero point seven five per cent of operating profit.

32 Recap: six outcomes in five boxes

Multinational operations: five checks

Translation	Current rate: net assets exposed
Ratios	Mixed ratios scale by avg ÷ close
Hyperinflation	Restate first, then translate
Tax rate	Profit mix sets the blend
Growth and currency	Organic growth; scaled moves

IN THE LESSON

- Let's pull it together.
- Translation: under the current rate method, net assets are exposed, the adjustment goes to other comprehensive income, and you can find it as the balancing figure or by the two-part formula; under the temporal method, net monetary items are exposed and the loss or gain goes to profit.
- Ratios: balance sheet ratios and margins survive the current rate method, while return on assets and turnover shift by average over closing; the temporal method distorts more.
- Hyperinflation: restate first, then translate, or remeasure under U S G A A P.
- Tax: the effective rate is a profit-weighted blend, so ask which drivers will last.
- Growth and currency: build on organic growth, and scale the sensitivity disclosures by the expected move.

33 Try three quick questions

1. Quote €0.80 per $1, net assets €100m. In $?
   Answer: Divide: 100 ÷ 0.80 = $125m.
2. ROA 10% in €, average 1.15, closing 1.20, current rate?
   Answer: 10% × 1.15 ÷ 1.20 = 9.58%.
3. Disclosed +£30m per 10% dollar rise; dollar +4%?
   Answer: 30 × 4 ÷ 10 = +£12m.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- The closing quote is zero point eight zero euros per dollar, and a subsidiary has a hundred million euros of net assets.
- What is that in dollars?
- Divide: one hundred and twenty five point zero million dollars.
- Question two.
- A subsidiary's return on assets is ten per cent in euros.
- The average rate is one point one five and the closing rate one point two zero, current rate method.
- What does the parent report?
- Ten per cent times the average over closing gives nine point five eight per cent.
- Question three.
- A ten per cent rise in the dollar raises operating profit by thirty million, and you expect the dollar to rise four per cent.
- What is the effect?
- Thirty times four over ten, which is twelve point zero million.
- Well done.