CHARTA LEARNING · LESSON NOTES

Long-term liabilities, leases, pensions and share-based pay

Financial Statement Analysis

1 A story: borrowing from a thousand people

- A bond = a loan sold in pieces to investors
- Face value: repaid on the final date
- Coupon: fixed interest paid in cash each year
- Market rate: the return investors demand today

IN THE LESSON

- Imagine a factory owner who needs a hundred thousand dollars for new machines.
- No single bank wants to lend that much, so she sells a promise in small pieces: interest every year, and your money back on a fixed date.
- Investors buy the pieces.
- That promise is a bond, and the company that sold it is borrowing from many people at once.
- Three words matter.
- The face value is the amount repaid at the end.
- The coupon is the fixed interest paid each year, set as a percentage of face value.
- And the market rate is the return investors demand today for lending to a company like this one.

2 Meet Harlow Industries

Harlow Industries bond, issued today ($ millions, made up)

Bond term	Value
Face value	100
Coupon, paid yearly	5%
Life	5 years
Market rate at issue	6%

IN THE LESSON

- To make this concrete we will follow one company through the whole lesson, a maker of industrial machinery called Harlow Industries.
- All figures are made-up round numbers, in millions of dollars.
- Harlow issues a bond with a face value of one hundred.
- The coupon rate is five per cent, so it pays five in cash at the end of every year.
- The bond lasts five years.
- Now the key point.
- On the day of issue, investors in similar companies demand six per cent, not five.
- The coupon is fixed in advance, but the market rate moves every day.
- When they differ, the price differs from the face value.

3 Price is the value of the promised payments

Price = C × [1 − (1 + r)^−n] ÷ r + F ÷ (1 + r)^n

Bond price	Cash received at issue
Coupon, C	Fixed yearly interest in cash
Face value, F	Repaid on the last day
Market rate, r	Return demanded today
Years, n	Years to maturity

IN THE LESSON

- Here is the rule that drives everything about bonds.
- What a bond is worth is the present value of everything it promises, discounted at the market rate.
- Present value means what a future payment is worth today.
- A bond promises two things: a stream of coupons, and the face value at the end.
- So the price is the coupon times an annuity factor, plus the face value divided by one plus the market rate, raised to the number of years.
- Under both I F R S and U S G A A P, the company records the bond at the cash it receives on the day of issue, and that equals this present value at the market rate.

4 Example 1: issued at a discount

Face 100, coupon 5% (5 a year), market rate 6%, 5 years

Value of the coupons	5 × 4.2124	**21.06**
Value of the face value	100 ÷ 1.06^5	**74.73**
Issue price (cash received)	21.06 + 74.73	**95.79**
Discount	100 − 95.79	**4.21**

IN THE LESSON

- Example one.
- Harlow's coupon is five per cent but the market wants six, so the bond is less attractive than its rivals and investors will pay less than the face value.
- Work it out.
- The coupons are five a year for five years.
- The annuity factor at six per cent for five years is four point two one two four, so the coupons are worth twenty-one point zero six today.
- The face value of one hundred, discounted five years at six per cent, is worth seventy-four point seven three.
- Add them and the issue price is ninety-five point seven nine.
- Harlow receives ninety-five point seven nine but must repay one hundred.
- The difference, four point two one, is the discount.

5 Example 2: interest expense in year one

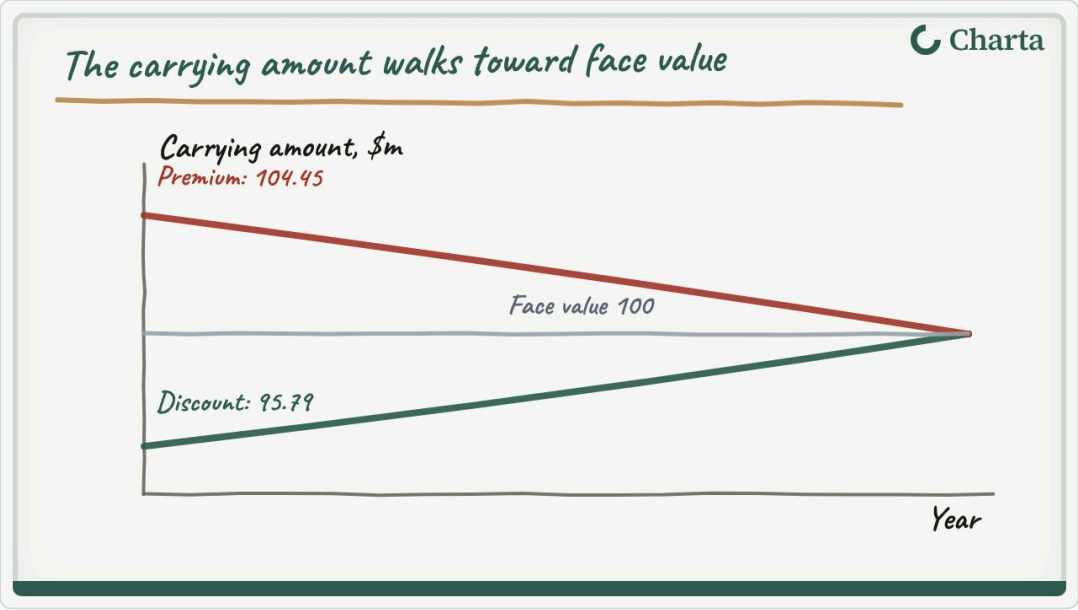
Year 1. Opening carrying amount 95.79, market rate at issue 6%

Opening carrying amount		**95.79**
Interest expense	95.79 × 6%	**5.75**
Cash coupon paid	100 × 5%	**5.00**
Discount amortised	5.75 − 5.00	**0.75**
Closing carrying amount	95.79 + 0.75	**96.54**

IN THE LESSON

- Example two.
- Now the part that questions love.
- How much interest expense does Harlow report in year one?
- Not the five it pays in cash.
- Interest expense is the opening carrying amount times the market rate that applied at issuance.
- The carrying amount is the figure the bond sits at on the balance sheet, now ninety-five point seven nine.
- Times six per cent gives five point seven five.
- Harlow pays only five in cash.
- The extra zero point seven five is added to the liability, so the carrying amount rises to ninety-six point five four.
- This is called amortising the discount.
- In year two the same steps give five point seven nine of interest on ninety-six point five four, a closing carrying amount of ninety-seven point three three.

6 The carrying amount walks toward face value



IN THE LESSON

- Here is the same story as a picture.
- The bottom axis is the year, from issue at zero to maturity at five.
- The side axis is the carrying amount of the bond on the balance sheet, in millions.
- The flat line is the face value of one hundred.
- The lower curve is our discount bond.
- It starts at ninety-five point seven nine and climbs a little more each year, as the discount is amortised, until it reaches exactly one hundred in year five.
- The upper curve is a premium bond, where the coupon is above the market rate.
- It starts higher, at one hundred and four point four five, and falls steadily to the same one hundred.

7 Example 3: issued at a premium

Face 100, coupon 5%, market rate 4%, 5 years

Issue price	22.26 + 82.19	**104.45**
Premium	104.45 − 100	**4.45**
Interest expense, year 1	104.45 × 4%	**4.18**
Premium amortised	5.00 − 4.18	**0.82**
Closing carrying amount	104.45 − 0.82	**103.63**

IN THE LESSON

- Example three, the opposite case.
- Suppose another Harlow bond has the same five per cent coupon, but investors now demand only four per cent.
- The coupons are worth twenty-two point two six and the face value is worth eighty-two point one nine, so the price is one hundred and four point four five.
- That is a premium of four point four five.
- In year one the interest expense is one hundred and four point four five times four per cent, which is four point one eight.
- That is below the five paid in cash.
- The difference, zero point eight two, reduces the liability, so the carrying amount falls to one hundred and three point six three.
- A premium bond reports interest expense below its coupon.

8 Example 4: buying the bond back early

End of year 2. Carrying amount 97.33. Harlow retires the bond.

Carrying amount	from example 2	**97.33**
Bought back at 98.00	98.00 − 97.33	**Loss 0.67**
Carrying amount		**97.33**
Bought back at 95.00	97.33 − 95.00	**Gain 2.33**

IN THE LESSON

- Example four, early redemption.
- At the end of year two Harlow's discount bond sits on the balance sheet at ninety-seven point three three.
- Suppose market rates have fallen, so the bond is now trading at ninety-eight, and Harlow chooses to buy it back at that price.
- Harlow pays ninety-eight to retire a liability recorded at ninety-seven point three three.
- It pays more than the books show, so it reports a loss of zero point six seven in income.
- Had rates risen and the bond been bought at ninety-five, Harlow would report a gain of two point three three.
- The gain or loss is the carrying amount minus the price paid, and it goes straight into income.

9 A story: the rented machine that was not on the books

- Lessee = the user. Lessor = the owner.
- Old way: rent kept off the balance sheet
- Now: record a right-of-use asset and a lease liability
- Both = present value of the lease payments

IN THE LESSON

- Imagine two cousins who each need a delivery van.
- One buys it with a bank loan, so the van and the debt both appear on her balance sheet.
- The other signs a five year rental agreement, with almost the same payments, and nothing appears at all.
- He owes years of payments, but the books look cleaner.
- Analysts used to add the missing debt back by hand.
- The standards changed.
- Now the lessee, the one using the asset, records a right-of-use asset and a lease liability, both measured at the present value of the lease payments, discounted at the rate in the lease, or the company's own borrowing rate if that is not known.

10 Recording a lease: the three pieces

Liability = PV of payments
Interest = rate × opening liability
Depreciation = asset ÷ term

Lease liability	Starts as the PV of payments
Lease payment	Cash paid each period
Rate in the lease	Implicit rate, or borrowing rate
Right-of-use asset	Starts equal to the liability
Lease term	Years of the lease

IN THE LESSON

- Here are the three pieces the lessee records, and they apply in both standards.
- First, the lease liability at the start is the present value of the payments, discounted at the rate in the lease.
- Second, the right-of-use asset starts equal to that liability, plus any costs paid to set up the lease.
- Third, each year the liability grows by interest, which is the rate times the opening liability, and shrinks by the payment made.
- The asset is depreciated, usually in a straight line over the lease term.
- Two exceptions: a lease of twelve months or less, and under I F R S a very low value asset, may stay off the balance sheet.

11 Example 5: signing the lease

Five yearly payments of 10, rate in the lease 8%

Annuity factor, 8%, 5 years		**3.9927**
Lease liability	10 × 3.9927	**39.93**
Right-of-use asset	equal to liability	**39.93**
Assets and liabilities rise by		**39.93**

IN THE LESSON

- Example five.
- Harlow rents a production line from a leasing company for five years.
- It pays ten at the end of each year, and the rate in the lease is eight per cent.
- What goes onto the balance sheet on day one?
- The present value of five payments of ten at eight per cent is ten times the annuity factor of three point nine nine two seven, which is thirty-nine point nine three.
- Harlow records a lease liability of thirty-nine point nine three and a right-of-use asset of the same amount.
- Assets and liabilities both rise by thirty-nine point nine three, so the balance sheet balances.
- No cash moves and no expense is recorded yet.

12 Example 6: year one, finance-type cost

Year 1 of the 5-year lease: two models side by side

Interest on liability	39.93 × 8%	**3.19**
Depreciation	39.93 ÷ 5	**7.99**
Finance-type total (IFRS)	3.19 + 7.99	**11.18**
US GAAP operating lease cost	50 ÷ 5	**10.00**
Closing liability	39.93 − 10 + 3.19	**33.12**

IN THE LESSON

- Example six, the first year.
- Under I F R S every lease for a lessee is treated like a purchase with a loan, and under U S G A A P a finance lease is treated the same way.
- The income statement shows two costs.
- Interest is eight per cent of the opening liability, thirty-nine point nine three, which is three point one nine.
- Depreciation is thirty-nine point nine three over five years, seven point nine nine.
- Together that is eleven point one eight.
- Now the U S G A A P operating lease, where the lessee shows only one line, a single straight-line lease cost.
- With level payments, that is simply ten.
- The liability: opening thirty-nine point nine three, less the payment of ten, plus interest of three point one nine, ends year one at thirty-three point one two.

13 IFRS and US GAAP, side by side

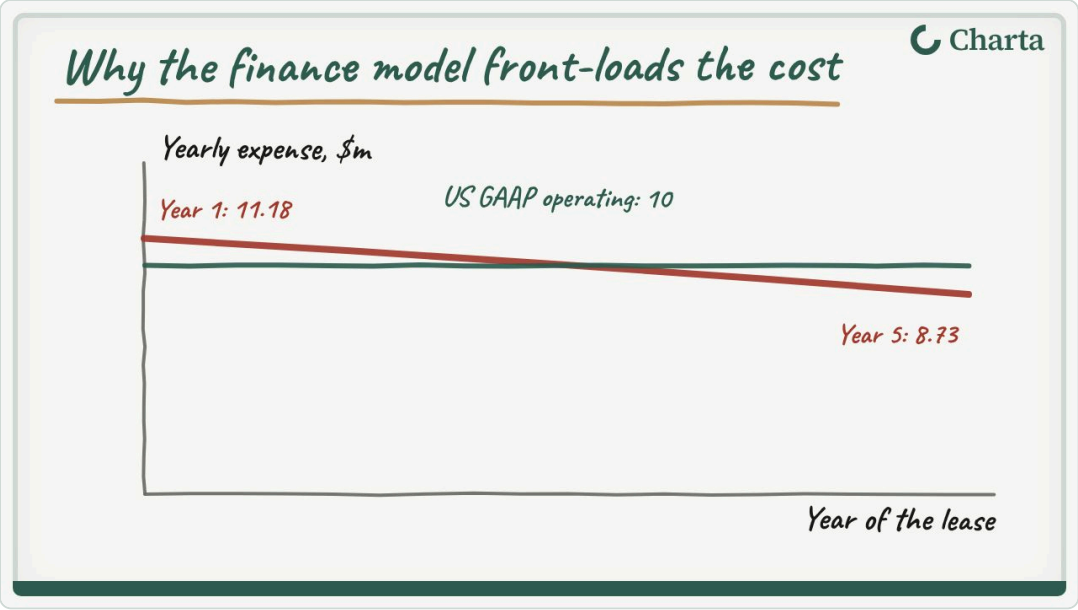
The lessee under each standard

Item	Treatment
IFRS: every lease	Interest + depreciation
US GAAP finance lease	Interest + depreciation
US GAAP operating lease	One straight-line cost
Operating lease payments	All in operating cash flow

IN THE LESSON

- Here are the two standards side by side for the lessee.
- Under I F R S there is one model.
- Every lease the lessee records shows depreciation and interest, so the expense is heaviest at the start.
- Under U S G A A P the lessee decides whether the lease is a finance lease or an operating lease.
- It is a finance lease if the asset transfers to the lessee, if there is a purchase option it will surely use, if the lease covers most of the asset's life, if the payments are nearly the whole fair value, or if the asset is so specialised it is useless to anyone else.
- Otherwise it is operating.

14 Why the finance model front-loads the cost



IN THE LESSON

- Here is the same lease over its whole life.
- The bottom axis is the year of the lease, and the side axis is the total yearly expense, in millions.
- The flat line is the U S G A A P operating lease cost, a constant ten every year.
- The falling curve is the I F R S model, or a U S G A A P finance lease.
- It starts high, at eleven point one eight, because interest is calculated on a large liability and depreciation is a steady slice.
- As the liability is repaid, the interest shrinks, and by year five the total is only eight point seven three.
- Both add up to fifty over five years; the finance model puts more cost early.

15 Example 7: what the lease does to leverage

Harlow: debt 120, equity 200, total assets 500 ($m)

Debt to equity before	120 ÷ 200	**0.60**
Add the lease liability		**39.93**
Debt including leases	120 + 39.93	**159.93**
Assets after the lease	500 + 39.93	**539.93**
Debt to equity after	159.93 ÷ 200	**0.80**

IN THE LESSON

- Example seven, why analysts care.
- Before the lease Harlow has debt of one hundred and twenty and equity of two hundred, so debt to equity is zero point six.
- Now add the lease liability of thirty-nine point nine three.
- Debt including leases is one hundred and fifty-nine point nine three, and debt to equity rises to zero point eight.
- Nothing about the business changed, only the reporting.
- Assets rise by the same thirty-nine point nine three.
- This applies to both finance and operating leases, under both standards, and leverage ratios worsen either way.
- Compare companies on the same basis.

16 A story: the other side of the desk

- Lessor = owns the asset, lets another use it
- Risks and rewards passed on? Then finance lease
- Not passed on? Then operating lease
- Different accounting for each

IN THE LESSON

- Now stand on the other side of the lease.
- The lessor is the company that owns the asset and lets someone else use it, such as a leasing firm, or a manufacturer who rents out its own machines.
- Unlike the lessee, the lessor still classifies each lease.
- Has it passed on nearly all the risks and rewards of owning the asset?
- If yes, the lease is a finance lease under I F R S.
- Under U S G A A P the finance side splits in two, sales-type and direct financing, which we meet in a moment.
- If no, it is an operating lease, and the asset is simply being rented out like a flat.

17 How the lessor classifies the lease

The lessor under each standard

Lessor lease type	Asset goes?
IFRS finance lease	Yes, receivable
US GAAP sales-type	Yes, profit at start
US GAAP direct financing	Yes, no day-one profit
Operating lease (both)	No, kept and depreciated

IN THE LESSON

- Here is the lessor's choice.
- Under I F R S sixteen there are two classes, finance and operating, and sales-type and direct financing are grouped into the one finance lease model.
- Under U S G A A P the default is a sales-type lease, whenever control of the asset passes to the lessee.
- A direct financing lease is the exception: control does not fully pass, but two things are true.
- The present value of the payments plus any third-party residual value guarantee is at least ninety per cent of the asset's fair value, and it is probable the lessor will collect all payments and guarantees.
- A lease that is neither is an operating lease, and the asset stays with the lessor.

18 Example 8: a finance lease for the lessor

Anchor Leasing buys the line for its fair value and leases it for 5 years

Net investment at the start	PV of payments	**39.93**
Interest income, year 1	39.93 × 8%	**3.19**
Cash received		**10.00**
Receivable reduced by	10.00 − 3.19	**6.81**
Net investment at year end	39.93 − 6.81	**33.12**

IN THE LESSON

- Example eight.
- Take the same lease as before, but now look through the eyes of Anchor Leasing, a financing company that buys the production line for thirty-nine point nine three and leases it to Harlow.
- This is a finance lease under I F R S.
- Under U S G A A P it is sales-type if control passes, and since Anchor paid fair value there is no selling profit.
- Anchor takes the machine off its books, because it has passed the benefits to Harlow, and records a lease receivable called the net investment, equal to the present value of the payments, thirty-nine point nine three.
- In year one it earns interest income at the rate in the lease, eight per cent of thirty-nine point nine three, which is three point one nine.
- It receives ten in cash.
- The receivable falls by six point eight one, to thirty-three point one two.

19 Example 9: the maker who also leases

Meridian builds the line for 32 and leases it on the same terms

Receivable (sale value)	PV of payments	**39.93**
Cost of the machine		**32.00**
Selling profit, day one	39.93 − 32.00	**7.93**
Interest income, year 1	39.93 × 8%	**3.19**
Direct financing: day-one profit	deferred	**0**

IN THE LESSON

- Example nine.
- Now suppose the lessor is not a finance company but the manufacturer, Meridian Machines, which built the production line at a cost of thirty-two.
- The lease passes on the benefits, so it is a sales-type lease under U S G A A P, and a finance lease under I F R S.
- Meridian records the lease receivable at the present value of the payments, thirty-nine point nine three.
- That is, in effect, a sale at thirty-nine point nine three of an asset that cost thirty-two.
- The selling profit of seven point nine three is recognised at the start, as for any sale.
- After that, it earns interest income each year, three point one nine in year one.
- A direct financing lease, where control does not fully pass, would not recognise that profit at the start; it is deferred.

20 Example 10: an operating lease

Equipment cost 50, life 10 years; rent 8, 9, 10, 11, 12 over 5 years

Total rent	8 + 9 + 10 + 11 + 12	**50**
Lease income each year	50 ÷ 5	**10**
Cash received, year 1		**8**
Rent receivable built up	10 − 8	**2**
Profit, year 1	10 − 50 ÷ 10	**5**

IN THE LESSON

- Example ten, an operating lease.
- A lessor owns equipment that cost fifty, with a ten year life, and leases it for five years.
- The asset stays on its balance sheet and is depreciated, five a year.
- Rent rises over the term: eight, nine, ten, eleven and twelve, a total of fifty.
- Under both standards the lessor recognises the rent on a straight-line basis, even though payments escalate.
- Fifty over five years is ten a year.
- In year one, cash received is eight but income is ten, so two is recorded as a rent receivable.
- Income of ten less depreciation of five leaves a profit of five.

21 Mistakes to avoid so far

- Interest expense = carrying amount × market rate
- Discount bonds climb to par; premium bonds fall
- Early redemption: gain or loss goes in income
- Operating leases are on the lessee's balance sheet now
- Lessee: one model in IFRS. Lessor: still classifies.

IN THE LESSON

- Time to pause and look at the traps in the topics so far.
- Mistake one: using the coupon to work out interest expense.
- It is the carrying amount times the market rate at issuance.
- A discount bond reports interest above its coupon, and a premium bond below.
- Mistake two: assuming the carrying amount stays at the issue price.
- It moves toward face value.
- Mistake three: treating a repurchase as an adjustment to equity.
- The gain or loss goes through income.
- Mistake four: believing operating leases are still off balance sheet for the lessee.
- They are on it under both standards.
- Mistake five: mixing up the lessee and the lessor.
- Only the lessor keeps a classification under I F R S.

22 A story: a promise that lasts forty years

- Defined benefit: the employer promises the payout
- Employer bears investment and longevity risk
- Defined contribution: expense = cash paid in
- Only defined benefit creates a pension liability

IN THE LESSON

- Think of a company that tells a new worker, stay with us, and when you retire we will pay you a pension equal to half your final salary, for as long as you live.
- That is a defined benefit plan: the benefit is defined, and the employer carries the risk.
- If investments do badly, or retirees live longer than expected, the company must top it up.
- Compare a defined contribution plan, where the company pays a set amount into the worker's own account and the worker bears the risk.
- There the expense is simply the cash contributed.
- Only defined benefit plans create a liability.

23 Funded status, the balance sheet number

Funded status = plan assets − PBO
Net interest = discount rate × funded status

Plan assets	Fair value of the pool
Obligation, PBO	PV of benefits promised
Discount rate	From high-quality bond yields

IN THE LESSON

- Here is how a defined benefit plan reaches the balance sheet.
- The company holds a pool of investments, called plan assets, set aside to pay pensions.
- It also owes workers a promise, valued today as the present value of the benefits earned so far.
- That is the projected benefit obligation, or P B O.
- The funded status is plan assets minus the P B O.
- If the obligation is bigger, the plan is underfunded, and the company reports a net pension liability.
- If the assets are bigger, it reports a net pension asset.
- The P B O is a present value, so it depends on the discount rate, which is based on the yields of high-quality corporate bonds, along with assumptions about future salary growth and how long people live.

24 Example 11: how the obligation grows

Opening PBO 500; discount rate 5% ($m)

Service cost	work done this year	**+40**
Interest cost	500 × 5%	**+25**
Benefits paid	to retirees	**−30**
Actuarial loss	assumptions revised	**+15**
Closing PBO	500 + 40 + 25 − 30 + 15	**550**

IN THE LESSON

- Example eleven.
- Harlow starts the year with an obligation of five hundred.
- Four things change it.
- Service cost, the value of benefits workers earned by working this year, adds forty.
- Interest cost, the obligation growing because it is a year closer to being paid, is five per cent of five hundred, so twenty-five.
- Benefits paid to retirees reduce the obligation by thirty.
- And suppose management revises its assumptions, perhaps because people are living longer, which raises the obligation by an actuarial loss of fifteen.
- Add it up: five hundred, plus forty, plus twenty-five, minus thirty, plus fifteen, gives a closing obligation of five hundred and fifty.

25 Example 12: the plan assets and funded status

Opening plan assets 450 ($m)

Actual return on assets		**+36**
Employer contributions	cash paid in	**+35**
Benefits paid		**−30**
Closing plan assets	450 + 36 + 35 − 30	**491**
Funded status	491 − 550	**−59**

IN THE LESSON

- Example twelve, the other side.
- The plan assets start the year at four hundred and fifty.
- The investments earn an actual return of thirty-six.
- Harlow pays in contributions of thirty-five in cash.
- The plan pays out benefits of thirty, the same money that left the obligation.
- Closing assets are four hundred and fifty, plus thirty-six, plus thirty-five, minus thirty, which is four hundred and ninety-one.
- Now the funded status.
- Assets of four hundred and ninety-one minus an obligation of five hundred and fifty is a deficit of fifty-nine.
- Harlow reports a net pension liability of fifty-nine on its balance sheet.
- The plan is about eighty-nine per cent funded.

26 Where the pension cost goes

Pension pieces under each standard

Piece	Where it goes
Service cost (both)	Profit or loss
IFRS: net interest	Profit or loss
IFRS: all remeasurements	OCI, never recycled
US GAAP: expected return	Profit or loss

IN THE LESSON

- Now the income statement.
- A defined benefit plan produces several pieces of cost, and the two standards place them differently.
- Service cost goes through profit or loss under both.
- Under I F R S the rest of the profit and loss charge is net interest: the discount rate times the opening funded status.
- All remeasurements, meaning actuarial gains and losses and the return on assets above that interest rate, go to other comprehensive income, and are never recycled to profit.
- Under U S G A A P, profit or loss includes the interest cost on the obligation less the expected return on plan assets, using the company's own expected return.
- Actuarial gains and losses, and the gap between actual and expected return, go to other comprehensive income, and may later be amortised into profit.

27 Example 13: one plan, two answers

Same plan: the 15 loss, 36 actual return; US GAAP expects 7%

IFRS profit or loss	40 + 2.5	**42.5**
IFRS OCI	−15 + 13.5	**-1.5**
US GAAP profit or loss	40 + 25 − 31.5	**33.5**
US GAAP OCI	−15 + 4.5	**-10.5**
Cash contributed	not the expense	**35**

IN THE LESSON

- Example thirteen.
- Use Harlow's figures.
- Under I F R S, profit or loss gets the service cost of forty plus net interest, five per cent times the opening deficit of fifty, which is two point five.
- That is forty-two point five.
- Other comprehensive income gets the actuarial loss of fifteen, offset by a gain of thirteen point five, because assets returned thirty-six against a five per cent interest figure of twenty-two point five.
- Net, minus one point five.
- Under U S G A A P, suppose the company expects seven per cent on assets, thirty-one point five.
- Profit or loss gets forty, plus twenty-five, less thirty-one point five, which is thirty-three point five.
- Other comprehensive income gets minus fifteen plus four point five, minus ten point five.
- Cash contributions were thirty-five either way.

28 Example 14: the discount rate does the work

A promise of 1,000 due in 20 years, valued at two discount rates

Value at a 5% rate	1,000 ÷ 1.05^20	**376.89**
Value at a 6% rate	1,000 ÷ 1.06^20	**311.80**
Fall in the obligation		**17.3%**
Harlow PBO if it all fell so	550 × 311.80 ÷ 376.89	**455**
Funded status then	491 − 455	**+36**

IN THE LESSON

- Example fourteen, the assumption analysts must challenge.
- A pension promise of one thousand due in twenty years is worth, at a five per cent discount rate, three hundred and seventy-six point eight nine today.
- Raise the rate to six per cent and it is worth three hundred and eleven point eight zero.
- That is a fall of seventeen point three per cent, and not a single dollar promised to a worker has changed.
- If the whole obligation behaved like that payment, Harlow's obligation of five hundred and fifty would shrink to about four hundred and fifty-five, and a deficit of fifty-nine would turn into a surplus of about thirty-six.
- So the analyst compares the assumed discount rate with peers and with market bond yields before trusting the funded status.

29 A story: pay that is not cash

- Shares for work: a real cost, but no cash leaves
- Restricted stock: shares given after vesting
- Option: right to buy shares at a fixed price
- Equity-settled = new shares. Cash-settled = a liability.

IN THE LESSON

- A start-up cannot afford high salaries, so it offers a young engineer shares as part of her pay.
- She gets no cash today, but she gets something valuable, and the company gets her work.
- Is that free for the company?
- No.
- The work was bought with something of value, so the company must show an expense.
- Two main types exist.
- Restricted stock is shares given outright, once the worker stays long enough.
- A stock option is the right to buy shares at a fixed price later.
- Both are equity-settled.
- A cash-settled award, such as a share appreciation right, pays the gain in cash, so it is a liability.

30 Example 15: restricted stock and options

Equity-settled awards: cost fixed at the grant date

Restricted stock cost	100,000 × $20	**$2.0m**
Yearly expense	2.0m ÷ 4 years	**$0.5m**
Share price rises to $30	no remeasurement	**still $0.5m**
Option cost	300,000 × $6	**$1.8m**
Yearly expense	1.8m ÷ 3 years	**$0.6m**

IN THE LESSON

- Example fifteen.
- For equity-settled awards, both I F R S and U S G A A P measure the cost at fair value on the grant date and spread it over the vesting period.
- Harlow grants one hundred thousand restricted shares when the price is twenty dollars.
- Cost is two million dollars.
- If workers must stay four years, the expense is zero point five million a year.
- If the share price later rises to thirty, nothing changes.
- The grant date value is fixed.
- Now options.
- Harlow grants three hundred thousand options, worth six dollars each by an option pricing model such as Black-Scholes.
- Cost is one point eight million, over three years, zero point six million a year.

31 Example 16: graded vesting

300,000 options at $6, vesting one third a year. $ millions

Year 1: IFRS	0.6 + 0.3 + 0.2	**1.1**
Year 2: IFRS	0.3 + 0.2	**0.5**
Year 3: IFRS	0.2	**0.2**
Each year: US GAAP straight line	1.8 ÷ 3	**0.6**
Total, either standard	1.1 + 0.5 + 0.2	**1.8**

IN THE LESSON

- Example sixteen, a wrinkle in timing.
- Suppose the three hundred thousand options vest in three equal tranches, one hundred thousand after each year.
- Each tranche costs six hundred thousand dollars.
- Under U S G A A P, a company may treat the award as one and spread it evenly, six hundred thousand a year.
- Under I F R S, each tranche is a separate award.
- The first tranche is all expensed in year one, six hundred thousand.
- The second is spread over two years, three hundred thousand each.
- The third is spread over three, two hundred thousand each.
- So year one carries one point one million, year two zero point five, year three zero point two.
- Both total one point eight million.

32 Example 17: a cash-settled award

100,000 rights, 2-year vesting; fair value $4 then $7

Liability, end of year 1	100,000 × $4 × 1/2	**$0.2m**
Liability, end of year 2	100,000 × $7	**$0.7m**
Expense, year 2	0.7m − 0.2m	**$0.5m**
Total expense, 2 years	0.2m + 0.5m	**$0.7m**

IN THE LESSON

- Example seventeen.
- Harlow also grants one hundred thousand share appreciation rights, which will pay the rise in value in cash.
- They vest after two years.
- Because the company will pay cash, this is a liability, and it is remeasured to fair value at every reporting date, unlike an equity award.
- At the end of year one, the fair value of each right is four dollars.
- Half the service is done, so the liability is four times one hundred thousand times one half, zero point two million, and that is the year one expense.
- At the end of year two the fair value is seven dollars, so the liability is zero point seven million.
- Year two expense is the increase, zero point five million.

33 Recap: what to remember

- Bond: interest = carrying amount × market rate
- Lessee: asset and liability at PV; lessor: still classifies
- Pension: funded status = assets − PBO; check the rate
- Share pay: grant-date value over vesting period

IN THE LESSON

- Let us pull the lesson together.
- A bond is recorded at the present value of its payments at the market rate.
- Interest expense is carrying amount times that market rate, discounts accrete toward face value and premiums fall, and early redemption gives a gain or loss in income.
- A lessee records a right-of-use asset and a lease liability, and a lessor classifies the lease: finance leases create a receivable and interest income, operating leases keep the asset and recognise rent straight-line.
- A defined benefit plan shows its funded status on the balance sheet, and depends on the discount rate.
- And share-based pay is an expense, measured at grant date fair value, spread over vesting, with cash-settled awards remeasured as liabilities.

34 Try three quick questions

1. Face 100, coupon 6%, carried at 90, market rate 8%. Year-1 interest and new carrying amount?
   Answer: 90 × 8% = 7.2. Carrying 91.2.
2. Lessee pays 20 a year for 3 years at 10%. Lease liability at the start?
   Answer: 20 × 2.4869 = 49.74.
3. Plan assets 300, PBO 340. Funded status? Effect of a higher discount rate?
   Answer: Net liability 40. Higher rate lowers the PBO, so the deficit shrinks.

IN THE LESSON

- Now try three quick questions yourself.
- Pause after each one.
- Question one.
- A bond with a face value of one hundred and a six per cent coupon is carried at ninety when the market rate is eight per cent.
- What is the first year's interest expense, and the new carrying amount?
- Ninety times eight per cent is seven point two, and the carrying amount rises by one point two to ninety-one point two.
- Question two.
- A lessee pays twenty a year for three years at ten per cent.
- What lease liability does it record?
- forty-nine point seven four.
- Question three.
- Plan assets are three hundred and the obligation is three hundred and forty.
- What is the funded status, and what does a higher discount rate do to it?
- A net pension liability of forty, which falls as the obligation shrinks.