CHARTA LEARNING · LESSON NOTES

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

CFA Level I · Financial Statement Analysis

You will learn: Account for bonds, leases (as lessee and lessor), defined benefit pensions and share-based pay, and read what each does to the statements.

Running example: Worked examples follow one made-up machinery maker, Harlow Industries ($ millions). Bond: face value 100, coupon 5% (5 a year), 5 years, market rate 6%. Lease: five payments of 10 at 8%. Pension: opening obligation 500, opening plan assets 450, discount rate 5%.

1. Bonds

- A bond is a loan sold in pieces to investors. Face value is repaid at the end; the coupon is fixed yearly interest (a percentage of face value); the market rate is the return investors demand today. When coupon and market rate differ, price differs from face value.
- Price = present value of the coupons plus the face value, discounted at the market rate. Under IFRS and US GAAP the bond is recorded at the cash received at issue, which equals that present value.
- Interest expense = opening carrying amount × the market rate at issuance, not the coupon. A discount bond reports interest above its coupon and its carrying amount climbs to face value; a premium bond reports interest below its coupon and falls to face value.
- On early redemption, gain or loss = carrying amount − price paid, and it goes straight into income, not equity.

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

HARLOW BOND (FACE 100, COUPON 5%, 5 YEARS)

Issue price at 6%	5 × 4.2124 + 100 ÷ 1.06^5 = 21.06 + 74.73	**95.79 (discount 4.21)**
Year 1 interest expense	95.79 × 6%	**5.75 (cash 5.00)**
Carrying amount, end of year 1	95.79 + 0.75	**96.54 (year 2: 97.33)**
Premium bond at 4%: price	22.26 + 82.19	**104.45**
Premium year 1 expense; carrying	104.45 × 4%; 104.45 − 0.82	**4.18; 103.63**
Buy back at 98.00 / 95.00 (carrying 97.33)		**loss 0.67 / gain 2.33**

Watch out: Using the coupon to work out interest expense; treating a repurchase as an equity adjustment.

2. Leases: the lessee

- Lessee = the user, lessor = the owner. The lessee records a right-of-use asset and a lease liability, both at the present value of lease payments, discounted at the rate in the lease (or its own borrowing rate). Operating leases are on the balance sheet under both standards.
- Leases of 12 months or less, and under IFRS very low value assets, may stay off. The asset starts equal to the liability plus set-up costs. Each year the liability grows by interest (rate × opening liability) and shrinks by the payment. The asset is depreciated, usually straight line.
- IFRS has one model: every lease shows interest and depreciation, so expense is heaviest early. US GAAP: a finance lease is the same; an operating lease shows one straight-line cost.
- US GAAP finance lease if ownership transfers, a purchase option is sure to be used, the term covers most of the asset's life, payments are nearly the whole fair value, or the asset is specialised.
- Leases raise debt and assets, so leverage ratios worsen either way. Compare companies on the same basis.

> **Liability = PV of payments; interest = rate × opening liability; depreciation = asset ÷ term**

HARLOW: FIVE PAYMENTS OF 10 AT 8%

Lease liability = right-of-use asset	10 × 3.9927	**39.93**
Year 1 interest; depreciation	39.93 × 8%; 39.93 ÷ 5	**3.19; 7.99**
IFRS expense, year 1	3.19 + 7.99	**11.18 (year 5: 8.73)**
US GAAP operating lease cost	50 ÷ 5	**10.00 each year**
Closing liability, year 1	39.93 − 10 + 3.19	**33.12**
Debt to equity (debt 120, equity 200)	120 ÷ 200; (120 + 39.93) ÷ 200	**0.60 to 0.80**

Watch out: Believing operating leases are still off the lessee's balance sheet.

3. Leases: the lessor

- The lessor still classifies each lease. If nearly all risks and rewards pass, it is an IFRS finance lease: the asset leaves the books, a lease receivable (present value of payments) is recorded, and interest income is earned. Otherwise it is an operating lease: the asset stays and is depreciated.
- US GAAP splits finance leases. Sales-type is the default whenever control passes, with selling profit at the start. Direct financing is the exception: control does not fully pass, but payments plus any third-party residual guarantee are at least 90% of fair value and collection is probable. Profit is deferred.
- An operating lease recognises rent straight line over the term, under both standards, even if payments escalate; the difference is a rent receivable.

ANCHOR LEASING, MERIDIAN MACHINES AND AN OPERATING LEASE

Anchor: interest income, year 1	39.93 × 8%	**3.19**
Receivable reduced by; net investment	10.00 − 3.19; 39.93 − 6.81	**6.81; 33.12**
Meridian sales-type: selling profit	39.93 − 32.00 cost	**7.93 on day one**
Direct financing: day-one profit	deferred	**0**
Operating lease: income each year	(8 + 9 + 10 + 11 + 12) ÷ 5 = 50 ÷ 5	**10**
Rent receivable, year 1; profit	10 − 8; 10 − 50 ÷ 10	**2; 5**

Watch out: Mixing up lessee and lessor: under IFRS only the lessor keeps a classification.

4. Defined benefit pensions

- Defined benefit: the employer promises the payout and bears investment and longevity risk. Defined contribution: the expense is simply the cash paid in, and only defined benefit creates a liability.
- Funded status = plan assets − projected benefit obligation (PBO, the present value of benefits earned so far). A deficit is a net pension liability; a surplus is a net asset. The PBO depends on the discount rate (high-quality corporate bond yields), salary growth and longevity.
- Service cost goes to profit or loss under both standards. IFRS adds net interest (discount rate × opening funded status) there; all remeasurements go to OCI, never recycled.
- US GAAP: interest cost less expected return on assets goes to profit or loss; actuarial gains and losses and the gap between actual and expected return go to OCI, possibly amortised later.
- Challenge the discount rate: a small rise cuts the PBO sharply with no change in promises.

> **Funded status = plan assets − PBO; net interest = discount rate × funded status**

HARLOW PENSION

Closing PBO	500 + 40 service + 25 interest − 30 paid + 15 actuarial loss	**550**
Closing plan assets	450 + 36 return + 35 contributions − 30 paid	**491**
Funded status	491 − 550	**−59 (about 89% funded)**
IFRS profit or loss; OCI	40 + 2.5; −15 + 13.5	**42.5; −1.5**
US GAAP (7% expected) profit or loss; OCI	40 + 25 − 31.5; −15 + 4.5	**33.5; −10.5**
Promise of 1,000 in 20 years	1,000 ÷ 1.05^20 vs 1,000 ÷ 1.06^20	**376.89 vs 311.80 (−17.3%)**

5. Share-based pay

- Shares for work are a real cost though no cash leaves, so the company shows an expense. Restricted stock is shares given after vesting. An option is the right to buy shares at a fixed price. Equity-settled awards issue new shares; cash-settled awards (such as share appreciation rights) are liabilities.
- Equity-settled awards (IFRS and US GAAP): cost measured at fair value on the grant date and spread over the vesting period. Later share price moves do not change it. Options are valued with a pricing model such as Black-Scholes.
- Graded vesting: US GAAP may treat the award as one and spread it evenly; IFRS treats each tranche as a separate award, so expense is front-loaded. Totals are the same.
- Cash-settled awards are remeasured to fair value at every reporting date; the expense is the change in the liability.

HARLOW AWARDS

Restricted stock (100,000 at $20, 4 years)	$2.0m ÷ 4	**$0.5m a year**
Options (300,000 at $6, 3 years)	$1.8m ÷ 3	**$0.6m a year**
Graded vesting, IFRS: years 1, 2, 3	0.6 + 0.3 + 0.2; 0.3 + 0.2; 0.2	**1.1, 0.5, 0.2 (total 1.8)**
Cash-settled rights: liability, end of year 1	100,000 × $4 × 1/2	**$0.2m**
Liability end of year 2; year 2 expense	100,000 × $7; 0.7 − 0.2	**$0.7m; $0.5m**

Key takeaways

- A bond is recorded at the present value of its payments at the market rate; interest expense uses that rate, not the coupon.
- Discount bonds climb to face value, premium bonds fall; early redemption gain or loss goes in income.
- A lessee records a right-of-use asset and lease liability at present value; IFRS has one model, US GAAP splits finance and operating.
- A lessor classifies: finance lease gives a receivable and interest income; operating lease keeps the asset and recognises rent straight line.
- Pension funded status = plan assets − PBO, and the discount rate does the work.
- Share-based pay is an expense at grant date fair value over vesting; cash-settled awards are remeasured liabilities.

Quick check

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.

Summary notes for the Charta whiteboard lesson. Examples use made-up figures. Watch the full lesson at charta-learning.com.