Capital Structure, Cost of Capital and Funding

Interview preparation summary · FP track

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INT.FD.1.a · Cost of capital

Estimate the cost of equity with CAPM and the after-tax cost of debt, say where each input comes from, and explain why equity costs more than debt.

The cost of equity is the return shareholders require for bearing the risk of owning the shares. It is not a dividend yield or an accounting return. The usual estimate is the capital asset pricing model: the risk-free rate plus beta times the equity risk premium. Beta measures how strongly the shares move with the market, so a higher beta means a higher required return. The cost of debt is the return lenders require today. Read it from the yield on the company's traded bonds, or the rate on a new loan of similar maturity and risk, not from the coupon on an old loan. Because interest is typically tax deductible, the after-tax cost of debt is the pre-tax rate times one minus the tax rate, provided the company has enough taxable profit to use the deduction. For a division or an unlisted business, take betas from comparable listed companies, remove their leverage, and relever at your target structure. Interviewers ask this to see whether you know where each input comes from. Usual mistakes are using the coupon, forgetting tax, and treating CAPM inputs as precise facts.

WORKED EXAMPLE: HARLOW FOODS: COST OF EQUITY AND COST OF DEBT

Harlow Foods is an invented packaged-food company. Use a risk-free rate of 4.0%, an equity risk premium of 5.0% and an equity beta of 1.1. Its traded bonds yield 6.0% although an older loan carries a 4.5% coupon. The tax rate is 25% and the company pays tax. Find the cost of equity and the after-tax cost of debt, then see what a beta of 1.4 would do to the cost of equity.

Answer: The cost of equity is 9.5% (11.0% if beta were 1.4) and the after-tax cost of debt is 4.5%.

> **Interview tip:** Give the formula in words first, state each input and where it comes from, and say that beta and the premium are estimates, so you would show a range. Mention that the coupon is the wrong debt rate.

INT.FD.1.b · Cost of capital

Calculate a weighted average cost of capital from market-value weights, and explain when it is the right discount rate and when using it would mislead.

The weighted average cost of capital, or WACC, blends the cost of equity and the after-tax cost of debt using the proportion of each in the target funding mix. Weights should be market values, or a target structure, not balance sheet book values, because book equity is historic and usually far below what investors would pay. WACC is the right discount rate for a project only when the project has about the same risk as the business as a whole and a similar financing capacity. It misleads in three common ways. First, applying one company rate to projects of very different risk, which accepts risky projects and rejects safe ones. Second, discounting at the cost of the particular loan raised for a project, as if the financing changed the risk of the cash flows. Third, treating a precise-looking figure as exact when beta, the premium and the weights are all estimates. A change in beta of 0.2 moves the cost of equity by about one point, and the WACC by that times the equity weight. Interviewers ask this to test judgement, not just arithmetic.

WORKED EXAMPLE: BRACKLEY CONTROLS: MARKET WEIGHTS AGAINST BOOK WEIGHTS

Brackley Controls is an invented maker of industrial sensors. The market value of its equity is 630m and its debt is 270m. The book value of equity is 280m. The cost of equity is 10.2%, the pre-tax cost of debt is 5.6% and the tax rate is 25%. A project costs 100m now and returns 25m a year for five years. Compute the WACC on market weights and on book weights and test the project at each.

Answer: WACC is 8.40% on market weights and 7.25% on book weights. The project has an NPV of minus 1.23m at 8.40%, so it should not be approved on these figures, although the book-weight rate would wrongly accept it.

> **Interview tip:** Say why you use market weights in one sentence, show the two numbers side by side, and finish by saying which decision each rate would produce.

INT.FD.1.c · Cost of capital

Explain the interest tax shield and the idea of an optimal capital structure, and set a hurdle rate for a project by adjusting the cost of capital for risk.

A hurdle rate is the minimum return a project must be expected to earn to be approved. It starts from the WACC and is usually adjusted for the project's risk, for example by adding a premium for a new market or a start-up product. Debt matters to cost of capital through the tax shield: when interest is deductible, each pound of interest saves tax at the tax rate, so the shield on a year's interest is interest times the tax rate. If debt were permanent, the present value of the shield is approximately the tax rate times the amount of debt, provided the company keeps paying tax. Against that sit the costs of financial distress, and the fact that as debt rises both lenders and shareholders demand more. The trade-off view says WACC falls as debt is added at first, then rises, so there is a range of sensible leverage, not one exact optimum. In practice firms choose a target range by looking at earnings volatility and the rating or covenant they want to keep. Interviewers look for the trade-off and for a practical, hedged conclusion.

WORKED EXAMPLE: KESTREL TILES: THE TAX SHIELD AND WHERE WACC BOTTOMS OUT

Kestrel Tiles is an invented ceramics group with an enterprise value of 1,000m. It is considering four debt levels, shown as debt to total value: 0%, 20%, 40% and 60%. Illustrative costs of equity are 9.0%, 9.5%, 10.5% and 14.0%, and pre-tax costs of debt are not applicable, 5.0%, 6.0% and 9.0%. The tax rate is 25%. Find the WACC at each level and the annual tax shield at 40%.

Answer: WACC is lowest at 40% debt (8.10%), the annual shield there is 6.0m, and a risky project would face a hurdle of about 10.1%. A target range of 20% to 40% is more defensible than a single point.

> **Interview tip:** Describe the trade-off in one sentence, give the numbers, and then say you would pick a range below the mathematical minimum to leave room for a bad year.

INT.FD.2.a · Funding

Compare the main funding sources (bank loans, bonds, revolving facilities, leases and equity) and calculate an all-in cost that includes fees.

Companies fund themselves with equity, bank term loans, bonds, revolving credit facilities and leases, and the choice turns on size, tenor, flexibility and cost. A term loan is drawn once and repaid on a schedule, is often prepayable and suits mid-sized needs. A bond is a fixed-rate security sold to investors, usually in large amounts, with a lump sum repayment at maturity and less flexibility to change terms. A revolving facility can be drawn, repaid and redrawn up to a limit, suits seasonal working capital, and charges interest on drawn amounts and a commitment fee on undrawn amounts. Leases finance specific assets and can be useful where the asset is short-lived or the lessor carries the residual value risk. Equity has no repayment or fixed charge but is the most expensive and dilutes owners. A sound answer compares the all-in cost, which includes fees spread over the life, and matches funding length to the asset, because short funding for long assets creates refinancing risk. Usual mistakes are comparing headline rates only and ignoring covenants.

WORKED EXAMPLE: FENWICK LABS: A BOND OR A TERM LOAN FOR 60M

Fenwick Labs is an invented diagnostics company with EBITDA of 45m and net debt of 70m. It needs 60m for seven years. Option one is a bond with a 5.8% coupon, a 1.0% issuing fee and repayment at the end. Option two is a bank loan at 6.2% with a 0.5% arrangement fee, also repaid at the end. Find the all-in annual cost of each and the leverage after raising the money.

Answer: All-in cost is about 5.98% for the bond and 6.29% for the loan, and leverage rises from 1.56x to 2.89x. The bond is cheaper if the company can access the market, the loan is more flexible.

> **Interview tip:** Say the all-in cost, not the headline rate, then name one non-price factor (flexibility, size, covenants) and the leverage consequence.

INT.FD.2.b · Funding

Calculate covenant headroom for leverage and interest cover, say which test binds first, and explain how credit ratings and headroom shape funding decisions.

A financial covenant is a promise to lenders to keep a ratio within a limit, typically net debt to EBITDA below a maximum, and EBITDA to interest above a minimum. Headroom is how far results could worsen before the limit is hit. The practical way to express it is the fall in EBITDA, as a percentage of today's figure, that would cause a breach. For leverage, the EBITDA at breach is net debt divided by the limit. For cover, it is the limit times interest. Whichever fall is smaller is the binding test. Covenants are usually tested on trailing figures at set dates, using definitions in the agreement. A breach can lead to a waiver fee, a higher margin, tighter terms or, in the worst case, a demand for repayment. Rating agencies look at leverage and cover too, with their own thresholds, so a company can pass its covenants and still face pressure on its rating and its borrowing cost. Usual mistakes are forgetting that spending cash raises net debt and ignoring the pro forma effect of an acquisition.

WORKED EXAMPLE: MARDEN RETAIL: HEADROOM, AND WHAT A BOLT-ON ACQUISITION DOES TO IT

Marden Retail is an invented home-goods chain with net debt of 156m, EBITDA of 52m and interest of 8.0m a year. Its covenants are net debt to EBITDA no higher than 3.5x and EBITDA to interest no lower than 4.0x. It is considering buying a business for 24m, funded by debt, which has EBITDA of 3m. Find the headroom now and after the purchase.

Answer: Headroom is a 14.3% fall in EBITDA before the leverage test is breached, and 38.5% for cover. After the deal leverage is 3.27x and headroom falls to 6.5%.

> **Interview tip:** Always express headroom as the percentage fall in EBITDA, say which covenant binds, and finish with what the new deal does to that cushion.

INT.FD.2.c · Funding

Weigh dividends against buybacks, and evaluate a refinancing by comparing interest saved with call and issue costs over a stated horizon.

Returning cash to shareholders is a funding decision as much as a reward. A dividend pays the same amount per share to everyone and is expected to be kept up or grown, so cutting it sends a signal. A buyback reduces the share count and returns cash only to those who sell, so it is more flexible, but it creates value for remaining holders only when the price paid is below intrinsic value. Test affordability with payout (dividends over earnings) and cash cover (free cash flow over dividends), and check the plan against leverage targets and covenants. A refinancing replaces existing debt with new debt, usually to cut interest, extend maturity or change terms. Compare the interest saved each year, discounted over the period both instruments overlap, with the one-off costs: any call premium or make-whole payment on the old debt, issue fees, and the cost of breaking any hedge. Payback is the costs divided by the annual saving. A longer maturity reduces refinancing risk, but that value is a judgement. Usual mistakes are ignoring the call premium and counting savings beyond the old maturity.

WORKED EXAMPLE: ASHGROVE ENERGY: IS IT WORTH REFINANCING A BOND EARLY?

Ashgrove Energy is an invented power producer. It has a 100m bond with a 7.5% coupon and four years to maturity, callable now at a premium of 2.0%. It can issue a new four-year bond at 5.5% with issue costs of 1.2% of the amount. Ignore tax, and discount the savings at the new rate of 5.5%. Is refinancing worth it?

Answer: Refinancing saves 2.0m a year for four years, costs 3.2m now, and has an NPV of about plus 3.81m with a payback of 1.6 years, so it is worthwhile on these assumptions.

> **Interview tip:** Set out the saving, the costs and the horizon in that order, give NPV and payback, and then name one thing that could reverse the decision.

Summary of the Charta interview-preparation topic. Companies and figures in the examples are invented. Draft content, not yet expert reviewed.