LBO Mechanics and Paper LBOs

Interview preparation summary · PE track

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INT.LB.1.a · Deal structure and capital structure

Explain why leverage lifts equity returns in an LBO and judge what makes a good LBO candidate.

An LBO works because a sponsor buys a business with a small equity cheque and a large amount of debt, then uses the company's own cash flow to repay that debt. If the business earns more than the after-tax cost of the debt, the surplus is shared among less equity, so the return on each unit of equity rises. Interest is also tax-deductible, which lowers the effective cost of debt. A good candidate has stable, predictable cash flow, modest capex and working capital needs, a strong market position, recurring revenue, a sensible entry price, identifiable ways to improve profit and a clear exit route. Poor candidates are cyclical, capital hungry, fast-changing or bought at a very high multiple. Leverage cuts both ways: it magnifies losses, and a fall in enterprise value equal to the equity share of the price wipes out the cheque. Interview point: pair every answer on leverage with its risk, and tie the candidate checklist to cash flow that can service the debt.

WORKED EXAMPLE: LEVERAGE ON A STEADY BUSINESS, AND ITS DOWNSIDE

A sponsor is weighing a buyout of a steady business with an enterprise value of 800 that earns 80 a year of after-tax cash flow before interest, with no growth. An interviewer asks you to show what leverage does to the one-year equity return if the after-tax cost of debt is 6 percent, first with half debt and then with three quarters debt, and then what happens in a bad year. Ignore fees and repayment.

Answer: Leverage lifts the one-year equity return from 10 percent to 14 percent at half debt and to 22 percent at three quarters debt, but a 25 percent fall in enterprise value wipes out the equity at three quarters debt.

> **Interview tip:** Say the return rises because the asset earns 10 percent against a 6 percent after-tax debt cost, then give the risk in the same breath. The interviewer listens for the downside: the gearing that lifts the return is the same gearing that makes a modest fall in value fatal.

INT.LB.1.b · Deal structure and capital structure

Build a sources and uses table that balances and find the sponsor equity cheque.

Sources and uses shows where the money for the deal comes from and where it goes. Uses are the equity purchase price paid to shareholders, the refinancing of the target's existing debt, any fees and any cash put on the balance sheet. Sources are the new debt tranches, any target cash used, management rollover and the sponsor equity. Total sources must equal total uses, and the sponsor equity is normally the balancing figure after debt has been sized from leverage multiples. Check the logic by working from enterprise value: equity price plus existing debt less target cash gives enterprise value, so adding fees and subtracting new debt and rollover gives the same sponsor cheque. A common slip is to forget that the old debt must be repaid, which understates the cheque. This note assumes no fees unless a question states them. Interview point: write both columns, total them, and say that equity is the plug.

WORKED EXAMPLE: SOURCES AND USES WITH ROLLOVER AND TARGET CASH

A sponsor agrees to buy a company for an equity price of 600. The company has existing debt of 200, which must be repaid, and cash of 50, which will be used in the deal. Fees are 30. New debt is a term loan of 300 and notes of 200, and management rolls over 40. Build sources and uses, find the sponsor cheque, then check it from enterprise value.

Answer: The sponsor equity cheque is 240, on total sources and uses of 830.

> **Interview tip:** Write uses and sources side by side, total both, and say aloud that equity is the plug. The interviewer listens for the old debt being refinanced and for a second route to the same cheque from enterprise value.

INT.LB.1.c · Deal structure and capital structure

Derive the entry enterprise value from a purchase multiple and bridge it to the equity price paid.

The entry price is usually quoted as a multiple of EBITDA applied to enterprise value, which is independent of how the company is financed. Enterprise value equals equity value plus net debt and any other claims such as minority interests, preferred shares or debt-like items, so the bridge to the equity price is entry enterprise value less those claims. For a listed target, the offer price per share is the undisturbed price plus a premium, multiplied by the shares, and then the net debt is added to reach enterprise value. State which EBITDA the multiple uses: last twelve months, next twelve months, reported or adjusted for one-off items. A lower multiple on a forward or adjusted figure can hide a higher multiple on reported earnings. Interview point: when given a multiple, first say whether it is on enterprise value and which EBITDA, then bridge to equity.

WORKED EXAMPLE: FROM AN OFFER PRICE TO AN ENTRY MULTIPLE

A listed target has an undisturbed share price of 40 and a sponsor offers a 25 percent premium. There are 20 million shares. The company has debt of 350 million, cash of 100 million and preferred shares of 50 million. Reported EBITDA for the last twelve months is 130 million and next year's forecast is 150 million. Find the offer price, the enterprise value and the multiple on each EBITDA.

Answer: The offer is 50 a share, the enterprise value is 1,300 million, and the entry multiple is 10.0 times last twelve months EBITDA or about 8.7 times forecast EBITDA.

> **Interview tip:** Open with whether the multiple is on enterprise value and on which EBITDA, then bridge to the equity price. The interviewer listens for the premium on the undisturbed price and for every claim, such as the preferred shares, being added.

INT.LB.1.d · Deal structure and capital structure

Describe the debt tranches in an LBO capital structure and compare their cost, ranking and terms.

An LBO capital structure is layered by ranking. Senior secured debt, such as term loans, sits first in line, is secured on the assets, carries the lowest interest rate and often has mandatory amortisation and covenants. Junior debt such as second lien or senior unsecured notes ranks behind and costs more. Mezzanine ranks below that, costs more again and may pay part of its interest in kind, meaning it is added to the balance, and can carry warrants. The sponsor equity ranks last and takes the residual. Each step down the structure adds cost and risk to the lender, so the blended cost of debt is a weighted average of the tranche rates. Total leverage and senior leverage are quoted as multiples of EBITDA, and the equity cheque is what remains. In a distressed sale, value is paid out in ranking order. Interview point: explain the trade-off between cheaper senior debt, which is limited, and costlier junior debt, which adds risk.

WORKED EXAMPLE: BLENDING THREE LAYERS OF DEBT

A buyout of a company with EBITDA of 100 is financed with a senior term loan of 350 at 7 percent, a second lien loan of 100 at 10 percent and mezzanine of 100 at 13 percent, all paying cash interest. Find total leverage, the blended cost of debt and interest cover, then say who is paid if the company is sold for an enterprise value of 400.

Answer: Leverage is 5.5 times, the blended cost is about 8.6 percent, interest cover is about 2.1 times, and in a sale at 400 senior is repaid in full, second lien recovers half and mezzanine and equity get nothing.

> **Interview tip:** Give the structure as a ladder from senior to equity and tie each rung's cost to its place in the queue. The interviewer listens for the trade-off: senior debt is cheaper but limited, so junior debt fills the gap at a higher cost and more risk.

INT.LB.2.a · Debt schedule and cash flow

Roll a debt schedule forward with mandatory amortisation, interest, a cash sweep and PIK accrual.

A debt schedule tracks each tranche from opening to closing balance. Interest each year is the rate times the opening balance, which is the paper convention because using the average balance creates a circular reference: interest depends on the closing balance, which depends on repayments, which depend on cash left after interest. Mandatory amortisation is the scheduled repayment, often a set percentage of the original principal on amortising term loans and nil on bullet bonds. Cash left after interest, tax, capex and working capital, and after mandatory repayments, is excess cash flow, and a cash sweep uses a set share of it, often all of it, to prepay the most senior prepayable tranche first. PIK interest is not paid in cash but added to the balance, so a PIK tranche grows each year, which lowers cash interest but raises debt at exit. Interview point: state your interest convention and which tranche the sweep repays first.

WORKED EXAMPLE: TWO YEARS OF A DEBT SCHEDULE WITH A PIK NOTE

A buyout has a term loan of 400 at 10 percent interest on the opening balance, with mandatory amortisation of 5 percent of the original amount a year and a full cash sweep. It also has a PIK note of 100 at 10 percent, accruing and not paid in cash. Cash flow before interest, after tax and capex, is 100 in year one and 110 in year two, all at year end. Find total debt after year two.

Answer: Total debt after year two is 385, made up of a term loan of 264 and a PIK note of 121.

> **Interview tip:** Say your interest convention and which tranche the sweep repays first before you start. The interviewer listens for the PIK balance being grown rather than ignored, and for mandatory amortisation not being double counted with the sweep.

INT.LB.2.b · Debt schedule and cash flow

Compute free cash flow available for debt repayment, including the tax shield on interest.

Free cash flow available for debt repayment is what is left of operating cash flow after everything the business must pay before lenders get principal back. Start with EBITDA, subtract cash interest, cash taxes, capex and any increase in working capital. Taxes are charged on profit before tax, which is EBITDA less depreciation and amortisation less interest, so interest is deductible and creates a tax shield equal to the interest times the tax rate. The after-tax cost of debt is therefore the interest rate times one minus the tax rate. Depreciation is not a cash cost but it reduces tax, which is why it matters. Another route is to take unlevered free cash flow and subtract interest after tax. Rules limiting interest deductibility vary by country, so a question should state any cap. Interview point: show the tax shield explicitly, because forgetting it is the most common slip in cash flow for an LBO.

WORKED EXAMPLE: FREE CASH FLOW WITH THE INTEREST TAX SHIELD

A levered company has EBITDA of 200, depreciation and amortisation of 60, and debt of 800 at 10 percent. Capex is 40 and the increase in working capital is 10. The tax rate is 25 percent on profit after interest. All figures are annual. Find the free cash flow available to repay debt and show what the tax shield is worth.

Answer: Free cash flow available to repay debt is 55 a year, the interest tax shield is worth 20, and the after-tax cost of the debt is 7.5 percent.

> **Interview tip:** Show the tax shield as its own line and say that depreciation matters only through tax. The interviewer listens for tax being charged after interest, not on EBITDA.

INT.LB.3.a · Exit, returns and attribution

Work out exit enterprise value, net debt at exit and exit equity value.

At exit, enterprise value is the exit multiple times the exit-year EBITDA. Net debt at exit is the debt balances left after all repayments and PIK accrual, less any cash on the balance sheet. Exit equity value is exit enterprise value less net debt, and then less any exit costs, and the share belonging to the sponsor is after any management incentive plan or rollover. The base case normally assumes the exit multiple equals the entry multiple, because relying on a higher exit multiple makes the return depend on market sentiment rather than on what the sponsor controls. Whether surplus cash repays debt or builds up as cash, net debt falls by the same amount before interest, but repaying debt saves interest. Check exit equity by working from the right side of the bridge: enterprise value less net debt, not less gross debt alone. Interview point: always set out the exit bridge in three lines and name the multiple you assume.

WORKED EXAMPLE: FROM EXIT EBITDA TO SPONSOR PROCEEDS

A buyout was struck at 8 times EBITDA and is sold at the end of year five at the same multiple, when EBITDA is 150. At exit the company owes a term loan of 200 and a PIK note that has grown to 200, and holds 50 of cash. Exit costs are 50 and management receives 10 percent of the equity value after costs. Find what the sponsor receives.

Answer: The sponsor receives 720 at exit, from an equity value of 800 after net debt of 350 and costs of 50, less management's 80.

> **Interview tip:** Set out the bridge in three lines and name the exit multiple you assume. The interviewer listens for net debt rather than gross debt, and for the PIK note at its grown balance.

INT.LB.3.b · Exit, returns and attribution

Calculate the money multiple and IRR for a sponsor and read the IRR from a multiple and a holding period without a calculator.

The money multiple (MoM) is exit proceeds divided by the equity invested, and the IRR is the annual compound rate that links them over the holding period. With one investment and one exit, IRR equals the multiple raised to the power one over the years, less one. Interviewers expect a quick read: 2.0x over five years is about 15%, 2.5x about 20%, 3.0x about 25%, and 2.0x over three years is about 26%. The rule of 72 helps, as doubling in n years gives roughly 72 divided by n per cent. Never divide the gain by the years: a 2.5x multiple over five years is not 30% a year. A shorter hold with the same multiple gives a much higher IRR, while a longer hold raises the multiple but lowers the IRR if the extra years earn less than the IRR. Interview point: quote both numbers, the multiple and the IRR, and state the holding period.

WORKED EXAMPLE: READING AN IRR FROM A MULTIPLE

A fund invests 200 in a company and receives 500 on exit five years later, with no payments in between. An interviewer asks for the money multiple and the IRR without a calculator, and then asks how the IRR would change if the same 500 arrived after three years or after seven.

Answer: The money multiple is 2.5 times and the IRR is about 20 percent over five years, rising to about 36 percent over three years and falling to about 14 percent over seven.

> **Interview tip:** Quote both the multiple and the IRR and state the holding period. The interviewer listens for compounding, with a quick check such as 1.2 to the fifth, rather than a gain ÷ years.

INT.LB.3.c · Exit, returns and attribution

Split equity value creation into EBITDA growth, multiple expansion and deleveraging.

Returns attribution explains where the equity gain came from. With no fees and no interim dividends, the gain equals the rise in enterprise value plus the fall in net debt. A common convention splits it into three parts. EBITDA growth is the change in EBITDA multiplied by the entry multiple. Multiple expansion is the change in the multiple multiplied by exit EBITDA. Deleveraging is the entry net debt less the exit net debt. These three add up to the equity gain exactly. Another convention uses the exit multiple for growth and the entry EBITDA for the multiple effect, so state which you use. A deal that earns most of its return from growth and deleveraging is seen as higher quality than one that relies on multiple expansion, which the sponsor does not control. Interview point: attribute the gain in a sentence and check the three parts add up.

WORKED EXAMPLE: SPLITTING AN EQUITY GAIN INTO THREE PARTS

A sponsor buys at 8 times EBITDA of 100 with net debt of 480, and sells five years later at 9 times EBITDA of 140 with net debt of 300. There are no fees or interim dividends. Split the equity gain into EBITDA growth, multiple expansion and deleveraging, using the convention of growth at the entry multiple and multiple change on exit EBITDA.

Answer: The 640 equity gain is 320 from EBITDA growth, 140 from multiple expansion and 180 from deleveraging, so about 22 percent depends on the exit multiple.

> **Interview tip:** State the convention you use and show the three parts add to the gain. The interviewer listens for you calling out how much of the return depends on a multiple you cannot control.

INT.LB.4.a · Paper LBO technique

Build a paper LBO and read off the IRR in under four minutes using rounding, a one-page set-up and sanity checks.

A paper LBO is a five-year LBO done by hand on one page. Set the page out in the order of the deal: entry enterprise value and equity cheque from sources and uses at the top, then five columns for EBITDA, cash flow, interest and closing debt, then the exit bridge, multiple and IRR at the bottom. Round inputs to friendly numbers, work to about two significant figures, state each assumption aloud, such as 100 percent sweep and interest on opening debt, and accept an answer within about 5 percent. Aim for roughly one minute to set up, two to run the five years and one to read the result. Common errors are forgetting to repay the old debt, ignoring the tax shield, deducting gross debt but not cash, dividing the multiple by the years and using the wrong exit year. Sanity-check by the attribution: growth plus debt paydown should equal the equity gain. Interview point: talk through each line as you write it.

WORKED EXAMPLE: A FIVE-YEAR PAPER LBO ON ONE PAGE

Entry EBITDA is 100 at 8 times, with no fees. Debt is 500 at 10 percent interest on the opening balance. Free cash flow before interest, after tax, capex and working capital, is 70 a year, and all cash after interest repays debt. Exit is after five years at 8 times, with EBITDA of 130. Find the money multiple and the IRR.

Answer: The sponsor earns about 2.2 times its money, an IRR of about 17 percent, with exit equity of about 662 on a cheque of 300.

> **Interview tip:** Talk through each line as you write it and finish with the growth plus paydown check. The interviewer listens for stated assumptions and for a result that is checked, not just computed.

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