



## Assessment Center Case Study – LBO Modeling Test

In this case study exercise, you will build a simple leveraged buyout model for a company and then answer questions about the cash-on-cash (CoC) multiple and IRR, under both a traditional M&A exit and an IPO exit.

Please note that you need to provide not only the correct answers to these case study questions, but also a model that is easy to understand and well-formatted.

Ideally, you will also create sensitivity tables that show the impact of different entry and exit multiples on the cash-on-cash multiple and IRR.

The company in this exercise has the following financial profile:

- **LTM Revenue:** €200 million
- **LTM EBITDA:** €50 million
- **Revenue Growth:** 10% per year over the 3-year projection period
- **EBITDA Margin:** 25% per year over the 3-year projection period
- **D&A:** 5% of sales
- **Tax Rate:** 20%
- **Inventory:** 10% of sales
- **Receivables:** 5% of sales
- **Payables:** 5% of sales
- **CapEx:** 7% of sales

Please use the following assumptions for the purchase and exit:

- **EBITDA Purchase Multiple:** You will be solving for this in the case study questions; no baseline value.
- **EBITDA Exit Multiple:** Assume 8x LTM EBITDA in the base case.
- **Management Rollover / Equity:** Assume nothing, i.e. the PE firm owns 100% of the company after the transaction.
- **Fees:** Assume a 0.5% M&A advisory fee on the purchase price, a 1.5% financing fee on the total debt raised, and a 0.5% sponsor fee on the purchase price.

Use the following assumptions for the capital structure in the deal:

- **Term Loan A:** 1.0x LTM EBITDA; amortized equally over 5 years; L + 350 interest
- **Term Loan B:** 1.0x LTM EBITDA; amortized equally over 5 years; L + 400 interest
- **Term Loan C:** 1.0x LTM EBITDA; amortized equally over 5 years; L + 450 interest
- **Second Lien:** 1.0x LTM EBITDA; bullet repayment in 7 years; 8.25% fixed interest
- **PIK:** 0.5x LTM EBITDA; no amortization; 14.00% fixed interest



Assume that LIBOR is 2.25%, and that the company earns 1.50% interest on its cash balance. Assume an initial cash balance of \$20 million just before the leveraged buyout takes place.

Within the model, assume that excess cash is **NOT** used to repay debt, and instead simply accumulates on the Balance Sheet.

Set up your model and sensitivity tables, and then use them to answer the following questions:

### Case Study Questions

1. How much could a private equity firm pay for the company to achieve a 2.5x cash-on-cash multiple over a 3-year period?

It could afford to pay €372 million for the company (Purchase Enterprise Value), which is a 7.4x LTM EBITDA multiple. The full results are shown in the sensitivity table below:

**Sensitivity Analysis - 3-Year Cash-on-Cash Multiple and Purchase Multiple vs. Exit Multiple:**

		EBITDA Exit Multiple:						
		6.0 x	6.5 x	7.0 x	7.5 x	8.0 x	8.5 x	9.0 x
EBITDA Purchase Multiple:	6.0 x	3.1 x	3.5 x	3.9 x	4.3 x	4.7 x	5.1 x	5.5 x
	6.5 x	2.4 x	2.7 x	3.0 x	3.3 x	3.6 x	3.9 x	4.2 x
	7.0 x	1.9 x	2.2 x	2.4 x	2.7 x	2.9 x	3.2 x	3.4 x
	7.5 x	1.6 x	1.8 x	2.0 x	2.2 x	2.4 x	2.7 x	2.9 x
	8.0 x	1.4 x	1.6 x	1.7 x	1.9 x	2.1 x	2.3 x	2.5 x
	8.5 x	1.2 x	1.4 x	1.5 x	1.7 x	1.9 x	2.0 x	2.2 x
	9.0 x	1.1 x	1.2 x	1.4 x	1.5 x	1.7 x	1.8 x	1.9 x

2. What IRR does this purchase price imply?

The 3-year IRR at this price is 35.7%. The results across a range of purchase and exit multiples are shown below:

**Sensitivity Analysis - 3-Year IRR and Purchase Multiple vs. Exit Multiple:**

		EBITDA Exit Multiple:						
		6.0 x	6.5 x	7.0 x	7.5 x	8.0 x	8.5 x	9.0 x
EBITDA Purchase Multiple:	6.0 x	45.7%	51.9%	57.6%	62.9%	67.9%	72.6%	77.0%
	6.5 x	33.2%	38.8%	44.0%	48.8%	53.4%	57.7%	61.8%
	7.0 x	24.1%	29.3%	34.1%	38.7%	42.9%	46.9%	50.7%
	7.5 x	17.0%	22.0%	26.5%	30.8%	34.8%	38.6%	42.2%
	8.0 x	11.3%	16.0%	20.4%	24.5%	28.3%	31.9%	35.3%
	8.5 x	6.6%	11.1%	15.3%	19.2%	22.8%	26.3%	29.5%
	9.0 x	2.6%	7.0%	11.0%	14.7%	18.2%	21.5%	24.7%



3. *By how much would the EBITDA margin need to increase in each year to achieve a 3.0x cash-on-cash multiple over 3 years, if you assume the same purchase price?*

The EBITDA margin would need to increase from 25.0% to 27.8% in each of the 3 projected years for the private equity firm to achieve a 3.0x cash-on-cash multiple, assuming the same 7.4x EBITDA purchase multiple and the same LTM financial figures (€200 million in revenue and €50 million in EBITDA).

4. *If the EBITDA exit multiple were 1.0x higher, how would that impact the purchase price required to achieve a 2.5x cash-on-cash multiple over 3 years?*

At a 9.0x exit multiple, the private equity firm could afford to pay 8.0x EBITDA (€398 million purchase price) initially and still earn a 2.5x cash-on-cash multiple.

As shown in the sensitivity tables above, for each 0.5x increase in the exit multiple, the IRR increases by 4-5%, and the cash-on-cash multiple increases by 0.2-0.3x.

5. *What are the IRR and cash-on-cash multiple if the private equity firm pays 7.0x LTM EBITDA for the company, and exits at 8.0x LTM EBITDA after 3 years?*

The multiple is 2.9x, and the IRR is 42.9%:

Investor Returns:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
EBITDA:				€ 67		
EBITDA Multiple:				8.0 x		
Enterprise Value:				532		
Equity Value:				385		
Investor Equity:	(132)	-	-	385	-	-
<b>Cash-on-Cash Multiple:</b>	<b>2.9 x</b>					
<b>Internal Rate of Return (IRR):</b>	<b>42.9%</b>					

6. *What are the IRR and cash-on-cash multiples if the PE firm exits via an IPO in 3 years, but only sells 60% of its stake initially? Assume that the senior debt **stays in place** in this scenario, and that the purchase and exit multiples are the same as in question #5 above. Also assume that the PE firm's remaining stake is sold 1 year following the IPO, and that the company's share price increases by 30% in that period.*



In this scenario, assuming a 7.0x purchase multiple and 8.0x exit multiple and no refinancing of the senior debt, the cash-on-cash multiple would be 3.8x and the IRR would be 47.6%.

The numbers increase mainly because approximately 40% of the remaining debt balance is no longer repaid at the end of Year 3; that actually makes a bigger difference than the 30% share price increase (cash-on-cash multiple impact of 0.5x vs. 0.4x for the 30% share price increase):

Investor Returns:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
EBITDA:				€ 67		
EBITDA Multiple:				8.0 x		
Enterprise Value:				532		
Equity Value:				445		
Investor Equity:	(132)	-	-	267	231	-
<b>Cash-on-Cash Multiple:</b>	<b>3.8 x</b>					
<b>Internal Rate of Return (IRR):</b>	<b>47.6%</b>					