

# Financial Modeling

## – Certification Quiz Questions

### Module 12 – Leveraged Buyout Concepts and Simpler LBO Models

- Consider the simple LBO model shown below for the cash-free, debt-free leveraged buyout of a restaurant business that is shifting to a franchise-based model to improve its margins and reduce its capital intensity:

#### LBO Model - Drivers and Returns Attribution Analysis

(\$ in Millions)

##### Assumptions:

EBITDA Purchase Multiple:	12.0 x	EBITDA Exit Multiple:	15.0 x
Purchase TEV:	\$ 600	Minimum Cash % EBITDA:	20.0%
Debt Used:	5.0 x		
Equity Contribution:	7.0 x		
Interest Rate:	5.0%		
Tax Rate:	25.0%		

Income Statement:	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Revenue:	\$ 250	\$ 275	\$ 297	\$ 315	\$ 331	\$ 347
Growth Rate:		10%	8%	6%	5%	5%
EBITDA:	50	59	68	77	86	95
Margin:	20%	22%	23%	25%	26%	28%
Growth Rate:		18%	16%	13%	11%	11%
(-) Depreciation & Amortization:		(28)	(27)	(25)	(23)	(21)
% of Revenue:		(10%)	(9%)	(8%)	(7%)	(6%)
(-) Interest Expense:		(13)	(11)	(9)	(7)	(4)
Pre-Tax Income:		19	30	43	56	71
(-) Taxes:		(5)	(8)	(11)	(14)	(18)
<b>Net Income:</b>	<b>\$ 14</b>	<b>\$ 23</b>	<b>\$ 32</b>	<b>\$ 42</b>	<b>\$ 53</b>	

<b>Cash Flow and Debt Repayment:</b>	<b>Year 0</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Net Income:	\$ 14	\$ 23	\$ 32	\$ 42	\$ 53	
(+) Depreciation & Amortization:	28	27	25	23	21	
(+/-) Change in Working Capital:	(3)	(1)	-	0	1	
% of Change in Revenue:	(10%)	(5%)	0%	3%	5%	
(-) CapEx:	(5)	(4)	(3)	(2)	(2)	
% of Change in Revenue:	(20%)	(18%)	(15%)	(13%)	(10%)	
(+) Beginning Cash Balance:	-	12	14	15	17	
(+) Free Cash Flow:	34	44	55	64	73	
(-) Minimum Cash Balance:	(12)	(14)	(15)	(17)	(19)	
<b>Cash Flow Available for Debt Repayment:</b>	<b>23</b>	<b>43</b>	<b>53</b>	<b>62</b>	<b>71</b>	
Cash Flow Used for Debt Repayment:	23	43	53	62	70	
Debt Balance:	250	227	185	132	70	-
Cash Balance:	-	12	14	15	17	20
Equity Balance:	350	364	387	419	461	515
Invested Capital:	600	592	572	551	531	515
NOPAT:		24	31	39	47	56
<i>Return on Invested Capital (ROIC):</i>		4%	5%	7%	9%	11%

  

<b>Returns Attribution Analysis:</b>	<b>Amount:</b>	<b>%:</b>	<b>Exit Calculations:</b>
EBITDA Growth:	\$ 545	49%	Exit Enterprise Value: \$ 1,432
Multiple Expansion:	286	26%	(-) Debt: -
Debt Paydown/Cash Generation:	270	25%	(+) Cash: 20
<b>Total Return to Equity Investors:</b>	<b>\$ 1,102</b>	<b>100%</b>	<b>Equity Proceeds: \$ 1,452</b>

  

<b>Money-on-Money (MoM) Multiple:</b>	<b>4.1 x</b>
<b>Internal Rate of Return (IRR):</b>	<b>33%</b>

The private equity firm reviewing this deal believes that it can achieve this 30%+ IRR because of the company's strong EBITDA and FCF Growth, and the fact that the ROIC nearly triples, even as Revenue and EBITDA Growth slow down.

Also, it argues that since 49% of the returns come from EBITDA Growth, with only 26% from Multiple Expansion, the assumptions are not overly aggressive. What is the biggest POTENTIAL PROBLEM with these arguments?

- a. The assumptions driving the EBITDA and FCF growth are very aggressive, as most companies do not increase their margins by nearly 50% over 5 years.
  - b. Multiple Expansion should never contribute to the returns because it's too speculative; this model should assume an Exit Multiple equal to the Purchase Multiple instead.
  - c. Even with a significantly higher ROIC, the higher Exit Multiple is not justified because both Revenue Growth and EBITDA Growth decline by Year 5.
  - d. It's unrealistic for the company to cut its CapEx by more than 50% and turn its Change in Working Capital into a source of funds as the company's EBITDA nearly doubles.
2. Consider the Sources & Uses schedule shown below for a different leveraged buyout, in which the Founder and management team plan to roll over nearly 50% of their existing shares into the post-transaction entity:

#### Sources & Uses

Sources:	\$ in Millions	x EBITDA
Senior Notes:	\$ 90.0	1.0 x
Subordinated Notes:	30.0	0.3 x
Target Debt Assumed:	-	0.0 x
Founder/Management Rollover:	311.1	3.5 x
Cash for Transaction Fees:	17.6	0.2 x
Excess Cash from Target:	-	0.0 x
Investor Equity:	295.5	3.3 x
<b>Total Sources:</b>	<b>\$ 744.3</b>	<b>8.3 x</b>

Uses:	\$ in Millions	x EBITDA
Equity Value of Company:	\$ 686.6	7.7 x
Advisory & Legal Fees:	14.0	0.2 x
Financing Fees:	3.6	0.0 x
Target Debt Assumed:	-	0.0 x
Target Debt Refinanced:	40.0	0.4 x
<b>Total Uses:</b>	<b>\$ 744.3</b>	<b>8.3 x</b>

Ownership Percentages:	Pre-Deal:	Post-Deal:
Founder / Management Ownership %:	45.9%	51.3%
Existing Investor Ownership %:	54.1%	0.0%
New Investor Ownership %:	0.0%	48.7%
<b>Total:</b>	<b>100.0%</b>	<b>100.0%</b>

Which of the following items affect the "New Investor Ownership %" entry in the Post-Deal column?

- a. Everything in the Uses column and everything above "Investor Equity" in the Sources column affect it, EXCEPT for "Target Debt Assumed," "Cash for Transaction Fees," and "Excess Cash from Target."
  - b. Everything in the Uses column and everything above "Investor Equity" in the Sources column affect it.
  - c. Everything in the Uses column and everything above "Investor Equity" in the Sources column affect it, EXCEPT for "Target Debt Assumed" and, depending on the model setup, potentially "Target Debt Refinanced" and a matching portion of the new Senior Notes and Subordinated Notes.
  - d. None of these answer choices states the correct set of items that affect "New Investor Ownership %" in the Post-Deal column.
3. Consider the "Cash Flow Available for Debt Repayment" metric in the Cash Flow Projections and Debt Schedule of an LBO Model.

The statements below all list similarities and differences between this metric and the "Free Cash Flow" metric, as it is normally defined and used in 3-statement models.

Which of these statements list(s) a similarity or difference that is INCORRECT?

- a. Both figures deduct the Net Interest Expense but exclude Optional Principal Repayments on New Debt used to fund the LBO.
- b. Free Cash Flow is a component of Cash Flow Available for Debt Repayment, along with an addition for the Beginning Cash Balance, a deduction for the Minimum Cash Balance, and other possible adjustments.
- c. Free Cash Flow is capital structure-neutral, but Cash Flow Available for Debt Repayment is not because it changes throughout the LBO holding period as the company repays its Debt balance.
- d. The Change in Debt each year should equal the Cash Flow Available for Debt Repayment each year, but it will never equal the annual Free Cash Flow.

- e. Statements 1, 3, and 4 are all incorrect.
  - f. Statements 1 and 2 are incorrect.
  - g. Statements 3 and 4 are incorrect.
  - h. All four statements are incorrect.
4. A private equity firm acquires a company at the end of Year 0 for a Purchase Enterprise Value of \$1 billion, which represents a 10x EBITDA multiple. It uses 6x Debt / EBITDA to do the deal, with the rest funded by Investor Equity.

The company's EBITDA grows from \$100 million in Year 0 to \$140 million in Year 4, and its Free Cash Flow (after deducting the Interest Expense on the New Transaction Debt) grows from \$20 million in Year 0 to \$60 million in Year 4.

Assume that the company uses 2/3 of its annual Free Cash Flow repay Debt, with remaining amounts accumulating to its Cash balance. The Cash balance is \$0 right after the deal closes.

The PE firm exits the investment in Year 4 based on a 10x EBITDA Exit Multiple applied to the company's Year 4 EBITDA.

However, the PE firm cannot sell this company in an M&A deal, so it takes the company public in an IPO, and it sells 1/3 of its stake in Year 4, 1/3 in Year 5, and 1/3 in Year 6.

What is the approximate IRR of this leveraged buyout?

- a. 15%.
- b. 17%.
- c. 20%.
- d. 25%.

5. Consider the Debt Schedule shown below for the leveraged buyout of a rapidly growing mobile app company based in Singapore:

Debt Schedule:	Units:	Projected					
		FY16	FY17	FY18	FY19	FY20	FY21
<b>Cash Flow Available for Debt Repayment:</b>							
Cash - Beginning of Period:			-	8.1	13.0	21.3	52.7
(+) Free Cash Flow:			24.0	35.4	50.5	61.8	75.1
(-) Mandatory Debt Repayments:			(6.5)	(6.5)	(6.5)	(0.6)	-
(-) Minimum Cash:			(5.0)	(5.0)	(5.0)	(5.0)	(5.0)
<b>Cash Flow Available for Debt Repayment:</b>			<b>12.4</b>	<b>32.0</b>	<b>52.0</b>	<b>77.4</b>	<b>122.8</b>
(+) Revolver Draw / (-) Repayment:			-	-	-	-	-
<b>Cash Flow Available for Term Loan A:</b>			<b>12.4</b>	<b>32.0</b>	<b>52.0</b>	<b>77.4</b>	<b>122.8</b>
(-) Optional Repayments of Term Loan A:			(6.2)	(16.0)	(19.5)	-	-
<b>Cash Flow Available for Term Loan B:</b>			<b>6.2</b>	<b>16.0</b>	<b>32.5</b>	<b>77.4</b>	<b>122.8</b>
(-) Optional Repayments of Term Loan B:			(3.1)	(8.0)	(16.3)	(29.8)	-
<b>Cash Flow Available for Subordinated Notes:</b>			<b>3.1</b>	<b>8.0</b>	<b>16.3</b>	<b>47.7</b>	<b>122.8</b>
(-) Optional Repayments of Subordinated Notes:			-	-	-	-	(92.0)
(-) Call Premium Paid:			-	-	-	-	(1.8)
<b>Cash Generated ABOVE Minimum Cash Balance:</b>			<b>3.1</b>	<b>8.0</b>	<b>16.3</b>	<b>47.7</b>	<b>28.9</b>
Ending Revolver:			-	-	-	-	-
Ending Senior Term Loan A:			47.3	25.4	-	-	-
Ending Senior Term Loan B:			55.8	47.2	30.4	-	-
Ending Subordinated Notes:			81.7	84.2	86.7	89.3	-

Based on this Debt Schedule, which of the following statements is NOT a potentially valid conclusion?

- Since much of the Debt is repaid early, the deal may not be viable because the IRR will be too low (as more Debt could have been used to fund the initial purchase).
- A Dividend Recap, in which the PE firm has the company issue more Debt and also issue a Dividend to the PE firm with the proceeds, might be used in Year 3 or 4 to boost the IRR here.
- Since the company has healthy and growing FCF, making add-on acquisitions may be a better use of cash flow than repaying the Debt early.
- Repaying Debt is slightly more beneficial than letting Cash accumulate (due to the reduced interest expense), but probably not enough to change the investment recommendation one way or the other.

6. Consider the screenshot below, which shows the Debt Assumptions for a leveraged buyout of a Chinese company with financials reported in both RMB and USD:

Debt Assumptions							
Debt Amounts:		%:	\$ in Millions	¥ in Millions	Other Debt Information:	Interest:	Principal:
Total Debt Used:			\$ 120.0	¥ 753.8	Senior Notes:	L + 375	20.0%
% Senior Notes:	75.0%		90.0	565.4	Subordinated Notes:	10.0%	0.0%
% Subordinated Notes:	25.0%		30.0	188.5			
Initial LIBOR Rate:	0.30%						
Annual Step-Up:	25 bps						

The company's LTM EBITDA is \$50 million USD, and its projected EBITDA one year after the transaction close is \$40 million USD.

The USD / RMB exchange rate remains constant during this period, and the company's Existing Debt is refinanced and replaced with the New Debt of \$120 million.

The comparable public companies have a median Debt / EBITDA ratio of 2.5x. The Senior Notes have maintenance covenants that specify a maximum Debt / EBITDA ratio of 2.45x, and the Subordinated Notes have incurrence covenants that require all proceeds from asset sales to be used on repayment of the Senior Debt.

What is the PROBLEM if Debt with these covenants is used to fund this leveraged buyout?

- The maximum Leverage Ratio is too high relative to the comparables; due to the added risk in an LBO, it should be below 2.0x rather than close to 2.5x.
- Investors may not be willing to fund a deal for a company whose EBITDA is expected to decline immediately after the transaction close.
- The incurrence covenants on the Subordinated Notes may be problematic because this company might be planning to sell assets, as indicated by its declining EBITDA.
- The maximum Debt / EBITDA covenant on the Senior Notes will be violated in the first year following the transaction close.