Financial Modeling – Certification Quiz Questions

Module 7 – 2-Hour Valuation and DCF Case Study (Steel Dynamics)

1. You have set up Unlevered Free Cash Flow (UFCF) projections for use in a DCF analysis and valuation of a steel manufacturing company based in the U.S., as shown below:

		Historical			Projected				
Steel Dynamics Inc. - FCF Projections:	***Units:***	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Year 6**	**Year 7**	**Year 8**
Revenue:	*$ M*	**$ 7,372.9**	**$ 8,756.0**	**$ 7,594.4**	**$ 7,716.0**	**$ 8,406.2**	**$ 9,259.3**	**$ 10,127.2**	**$ 11,006.6**
Revenue Growth Rate:	*%*	*1.1%*	*18.8%*	*(13.3%)*	*1.6%*	*8.9%*	*10.1%*	*9.4%*	*8.7%*
Operating Income (EBIT):	*$ M*	**386.8**	**580.3**	**355.7**	**379.4**	**461.2**	**566.3**	**660.0**	**789.2**
Operating Margin:	*%*	*5.2%*	*6.6%*	*4.7%*	*4.9%*	*5.5%*	*6.1%*	*6.5%*	*7.2%*
Growth Rate:	*%*	*(1.1%)*	*50.0%*	*(38.7%)*	*6.7%*	*21.6%*	*22.8%*	*16.5%*	*19.6%*
(-) Taxes, Excluding Effect of Interest:	*$ M*	(96.7)	(145.1)	(88.9)	(94.9)	(115.3)	(141.6)	(165.0)	(197.3)
Net Operating Profit After Taxes (NOPAT):	*$ M*	**290.1**	**435.2**	**266.8**	**284.6**	**345.9**	**424.7**	**495.0**	**591.9**
Adjustments for Non-Cash Charges:									
(+) Depreciation & Amortization:	*$ M*	230.9	263.3	294.6	246.9	269.0	268.5	293.7	308.2
% Revenue:	*%*	3.1%	3.0%	3.9%	3.2%	3.2%	2.9%	2.9%	2.8%
(+/-) Deferred Income Taxes:	*$ M*	30.7	(25.0)	(99.3)	23.7	23.1	21.2	16.5	19.7
% Income Statement Taxes:	*%*	30.9%	(34.2%)	102.5%	25.0%	20.0%	15.0%	10.0%	10.0%
Net Change in Working Capital:	*$ M*	**(129.9)**	**8.1**	**527.5**	**(6.1)**	**(34.5)**	**(42.7)**	**(43.4)**	**(44.0)**
% Change in Revenue:	*%*	(157.1%)	0.6%	(45.4%)	(5.0%)	(5.0%)	(5.0%)	(5.0%)	(5.0%)
% Revenue:	*%*	*(1.8%)*	*0.1%*	*6.9%*	*(0.1%)*	*(0.4%)*	*(0.5%)*	*(0.4%)*	*(0.4%)*
(-) Capital Expenditures:	*$ M*	**(186.8)**	**(111.8)**	**(114.5)**	**(246.9)**	**(269.0)**	**(268.5)**	**(293.7)**	**(308.2)**
% Revenue:	*%*	(2.5%)	(1.3%)	(1.5%)	(3.2%)	(3.2%)	(2.9%)	(2.9%)	(2.8%)
Unlevered Free Cash Flow:	*$ M*	**$ 235.0**	**$ 569.8**	**$ 875.1**	**$ 302.2**	**$ 334.5**	**$ 403.3**	**$ 468.1**	**$ 567.7**
Growth Rate:	*%*	*N/A*	*142.4%*	*53.6%*	*(65.5%)*	*10.7%*	*20.6%*	*16.1%*	*21.3%*

Which of the following is a PROBLEM with these projections?

a. The projection period may be too short, as UFCF is still growing very quickly by Year 8 (far above the perpetuity growth rate typically assumed in the Terminal Period).

b. Capital Expenditures equal D&A in each projected year, even though the company's Revenue is growing at 8-10% annually in most of the projected period.

c. EBIT and NOPAT are not properly adjusted for the Operating Lease Expense.

d. Deferred Income Taxes contribute far too much to UFCF in the projected period.

e. The Change in Working Capital as a % of the Change in Revenue is too consistent in the projected period; it has fluctuated significantly in the historical years, so it should do that going forward as well.

f. All of the above.

g. Answer choices 1 and 2.

h. Answer choices 1, 2, and 3.

i. Answer choices 1, 2, and 4.

j. Answer choices 1, 2, 4, and 5.

2. You have completed this DCF analysis and used the Multiples Method, based on EBITDA, to calculate the Terminal Value for this steel manufacturing company and its Implied Enterprise Value, as shown below:

Terminal Value - Multiples Method:	
Median EV / EBITDA of Comps:	9.0 x
Baseline Terminal EBITDA Multiple:	8.0 x
Baseline Terminal Value:	$ 12,094.2
Implied Terminal FCF Growth Rate:	3.6%
(+) PV of Terminal Value:	4,496.0
(+) Sum of PV of Free Cash Flows:	3,127.2
Implied Enterprise Value:	**$ 7,623.2**
% of Implied EV from Terminal Value:	*59.0%*

Would you recommend adjusting these baseline assumptions? If so, why? If not, why not?

a. No – the PV of the Terminal Value contributes a reasonable percentage to the Implied Enterprise Value, and the Implied Terminal FCF Growth Rate is also close to the expected long-term GDP growth rate in the U.S.

b. Yes – the Implied Terminal FCF Growth Rate is too high right now, as it should be below expected long-term GDP growth.

c. Yes – the Implied Terminal FCF Growth Rate is fine, but less than 50% of the Implied Enterprise Value should come from the PV of the Terminal Value.

d. Yes – the baseline Terminal EBITDA Multiple should be *equal* to the median EBITDA multiple from the comparable public companies, not below it.

3. You are now calculating WACC for this same company. You are planning to calculate the Cost of Equity with the standard method, i.e., Risk-Free Rate + Equity Risk Premium * Relevered Beta (based on the company's current capital structure and the median Unlevered Beta from the comparable companies).

   The Cost of Debt is based on the weighted average Yield to Maturity (YTM) on the company's outstanding Debt. These calculation are shown below:

WACC Analysis - Steel Dynamics Inc.

($ USD in Millions Except Per Share Amounts in USD as Stated)

Discount Rate Calculations - Assumptions:	
Risk-Free Rate:	1.55%
Equity Risk Premium:	7.00%
Pre-Tax Cost of Debt:	5.11%
Cost of Preferred Stock:	–

Comparable Companies - Unlevered Beta Calculation:									
Name	Levered Beta	Debt	% Debt	Preferred Stock	% Preferred	Equity Value	% Equity	Tax Rate	Unlevered Beta
United States Steel Corp.	2.49	$ 3,140.0	50.1%	$ -	–	$ 3,130.1	49.9%	25.0%	1.42
Nucor Corporation	1.50	4,357.5	21.8%	-	–	15,609.0	78.2%	27.0%	1.25
Commercial Metals Company	1.58	1,080.0	37.8%	-	–	1,776.7	62.2%	22.7%	1.07
AK Steel Holding Corporation	2.57	2,078.1	66.7%	-	–	1,036.2	33.3%	24.4%	1.02
Worthington Industries, Inc.	1.53	584.0	17.6%	-	–	2,732.3	82.4%	21.2%	1.31
Reliance Steel & Aluminum Co.	1.59	2,169.4	29.2%	-	–	5,259.1	70.8%	27.5%	1.22
Median:	**1.59**	**$ 2,123.8**	**33.5%**	**$ -**	**–**	**$ 2,931.2**	**66.5%**	**24.7%**	**1.24**

Steel Dynamics Inc.	1.72

Steel Dynamics Inc. - Levered Beta & WACC Calculation:									
	Unlevered Beta	Debt	% Debt	Preferred Stock	% Preferred	Equity Value	% Equity	Tax Rate	Levered Beta
Current Capital Structure:	1.24	$ 2,700.0	30.9%	$ -	–	$ 6,043.2	69.1%	25.0%	1.65

Besides these methods, which of the following represent other, VALID approaches for calculating the Cost of Debt and Cost of Equity that are commonly used for public companies?

a. Cost of Equity could also use Relevered Beta based on the median capital structure of the comparable public companies.

b. Cost of Equity could also use the company's historical Levered Beta, based on its stock-price performance against the most relevant index.

c. Cost of Equity could also be based on Net Income / Current Equity Value + Average Net Income Growth Rate.

d. Cost of Debt could also be based on the average YTM of the comparable companies' Debt issuances.

e. Cost of Debt could also be based on the Risk-Free Rate + a Credit Default Spread based on the company's credit rating.

f. All of the above.

g. Answer choices 1, 4, and 5.

h. Answer choices 1, 2, 4, and 5.

i. Answer choices 1, 3, 4, and 5.

4. You want to refine the set of comparable public companies used in this analysis and use a more specific screen. Which of the following is NOT an appropriate screen when selecting comparable public companies for this U.S.-based steel manufacturing company?

   a. U.S.-based steel manufacturing companies with Current Enterprise Values above $5 billion and Year 1 Projected Revenue between $5 billion and $10 billion.

   b. U.S.-based industrial companies with Year 1 Projected Revenue between $5 billion and $10 billion.

   c. North American industrial companies with Year 1 Projected Revenue above $5 billion.

   d. None of the above; i.e., these are all valid screens.

5. Which of the following is NOT one of the key differences between Comparable Public Companies and Precedent Transactions in a valuation?

   a. In theory, the valuation multiples produced by the Precedent Transactions should be higher because of the control premiums that acquirers pay for target companies.

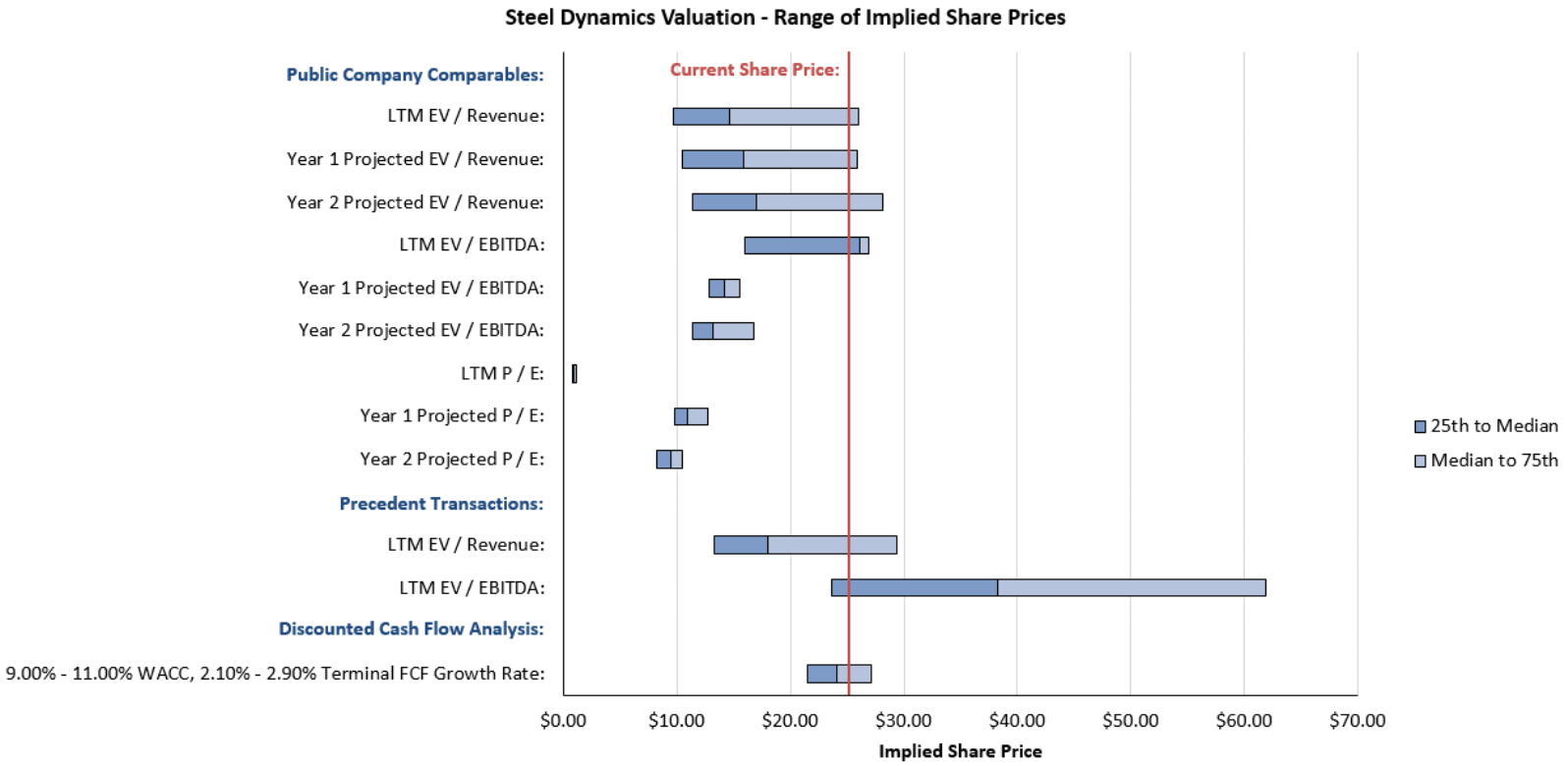
   b. The screening criteria are similar, but you must also restrict the Precedent Transactions by date and go back only a certain number of years.

c. The range of multiples produced by Precedent Transactions tends to be narrower than the one produced by Comparable Public Companies because few acquirers are willing to pay high premiums for targets.

d. In Precedent Transactions, you often focus on the historical multiples from the Last Twelve Months (LTM) before transactions were announced because projections *as of the announcement date* can be difficult to find.

e. It may be trickier to calculate the Transaction Equity Value and Transaction Enterprise Value in Precedent Transactions because of earn-outs and deals for less than 100% of other companies.

6. You have finished the valuation of this company and completed the "football field" valuation graph shown below:



Based on this graph, what is the MOST REASONABLE valuation range for this company?

a. $10.00 – $20.00 per share.

b. $5.00 – $60.00 per share.

c. $20.00 – $30.00 per share.

d. $15.00 – $30.00 per share.