

NOTE for calculating stock price

To calculate the stock price, as you are asked to do in some questions, you need to know two things – how much of the total firm value of Interco is financed by debt (instead of equity) and how many shares of stock Interco has outstanding.

Value of equity = total firm value – net debt

Stock price = value of equity / number shares outstanding

Exhibit 9 (summary of takeover analysis) mentions that the **net debt that Interco has is \$318.5 million.**

Also, assume that **Interco has 37.5 million shares outstanding** (as Wasserstein, Perella & Co. did in Exhibit 13).

Question 1 (10 points)

Why is Interco a target of a hostile takeover attempt? Give two reasons.

ANSWER:

Question 2 (15 points)

As a member of Interco's board, you are presented a historical "Premiums Paid Analysis" in Exhibit 10. This "Premiums Paid Analysis" documents, for a sample of other companies over the past year, how large the takeover offer was relative to the target's stock price before the offer was announced.

As a member of Interco's board, you are also presented a "Comparable Transaction Analysis" in Exhibit 11 (I would call this a Market-Multiples or Comparables Analysis). You are presented various market multiples of competitors of Interco arranged by division (e.g., total firm value divided by sales).

Question 2, continued (15 points)

Which one of the two analyses is most useful (i.e., makes the most economic sense) in assessing whether to accept or reject the Rales' offer of \$70 per share? Answer either "Premiums Paid Analysis in Exhibit 10" or "Comparable Transaction Analysis in Exhibit 11".

ANSWER:

Question 3 (4 points)

Let's do a market-multiples valuation of Interco based on data on the "total value of the firm relative to firm sales" ratio. Exhibit 11.a gives the firm value-to-sales ratio for various competitors of Interco, across each of its four divisions. Exhibit 11.b gives the sales for Interco broken down across each of its four divisions.

Using this information, calculate **Interco's total firm value** using the **SMALLEST firm value-to-sales multiple** estimate for each division.

ANSWER:

Question 4 (4 points)

Continue with this market-multiple calculation. Now calculate **Interco's stock price per share** using the **SMALLEST firm value-to-sales multiple** estimate for each division. Round your answer to the nearest dollar.

To convert the total firm value of Interco into a stock price per share, you first need to subtract net debt from your estimate of total firm value in Question 3, and then divide by the number of shares outstanding. Use the assumptions for net debt and shares outstanding given at the beginning of the assignment.

ANSWER:

Question 5 (4 points)

Let's do a second market-multiples valuation of Interco based on data on the "total value of the firm relative to firm sales" ratio. Exhibit 11.a gives the firm value-to-sales ratio for various competitors of Interco, across each of its four divisions. Exhibit 11.b gives the sales for Interco broken down across each of its four divisions.

Using this information, calculate **Interco's total firm value** using the **LARGEST firm value-to-sales multiple** estimate for each division.

ANSWER:

Question 6 (4 points)

Continue with this second market-multiple calculation. Now calculate **Interco's stock price per share** using the **LARGEST firm value-to-sales multiple** estimate for each division. Round your answer to the nearest dollar.

To convert the total firm value of Interco into a stock price per share, you first need to subtract net debt from your estimate of total firm value in Question 5, and then divide by the number of shares outstanding. Use the assumptions for net debt and shares outstanding given at the beginning of the assignment.

ANSWER:

Assumptions for Questions 7-9

Forecasts for Interco's free cash flows over the next ten years are given to you on the next page as the bottom-row item called "Cash Flow". Use these free cash flow estimates to value Interco.

Assume that these cash flows all occur at the end of the year.

Assume that the terminal value of Interco at the end of year ten (i.e., the total firm value of Interco at the end of year ten) is estimated to be 14 times its year ten cash flow of \$339 million.

Assumed Free Cash Flows years 1-10

Example of a Discounted Cash Flow Analysis (\$ millions)

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Sales ^a	3582	3840	4116	4413	4730	5071	5436	5828	6247	6696
Operating Income ^b	330	357	387	419	454	492	533	577	625	676
Other income -										
Corporate expenses ^c	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
EBIT	316	343	373	405	440	478	529	563	611	662
Net Income ^d	186	202	220	239	260	282	312	332	360	391
Change in NWC	0	0	0	0	0	41	42	45	49	52
Cash Flow	186	202	220	239	260	242	270	287	311	339

a. Growing at 7.2% a year.

b. Operating margin improving from 9.2%-10.1% over ten years. Here operating income does not reflect other income, interest expense or corporate expense.

c. FY 1988: \$29.2 - \$42.8 = -\$13.6

d. Tax rate = 41%

Source: Interco Case Study

Question 7 (4 points)

Let's value Interco using a discounted free cash flow valuation. Given our assumptions, calculate **Interco's total firm value** using a discount rate for Interco's free cash flow (**WACC**) of 10%.

Hint: Exhibit 12 reveals that, under these assumptions and a discount rate of 10%, Interco's stock price per share is estimated to be \$80. Thus, you can check whether your calculation of total firm value is correct by seeing whether your total firm value answer implies a stock price of \$80 per share!

ANSWER:

Question 8 (5 points)

Let's value Interco a second time using a discounted free cash flow valuation. Given our assumptions, calculate **Interco's total firm value** using a discount rate for Interco's free cash flow (WACC) of 15%.

ANSWER:

Question 9 (5 points)

Continue with this second discounted free cash flow valuation. Given our assumptions, calculate **Interco's stock price per share** using a discount rate for Interco's free cash flow (**WACC**) of **15%**. Round your answer to the nearest dollar

To convert the total firm value of Interco into a stock price per share, you first need to subtract net debt from your estimate of total firm value in Question 8, and then divide by the number of shares outstanding. Use the assumptions for net debt and shares outstanding given at the beginning of the assignment.

ANSWER:

Question 10 (20 points – 13 for first part and 7 for why)

Using CAPM logic, if you had to pick either 10% or 15% in the summer of 1988 as the rate to discount Interco's future cash flows, which is the most reasonable/appropriate choice? Answer either "10%" or "15%". Briefly explain why.

ANSWER:

Question 11 (5 points)

What long-term growth rate “g” for free cash flows is implicitly assumed when the terminal value of Interco at the end of year ten is set equal to 14 times year ten free cash flow and a **discount rate of 10%** is used? As before, assume cash flows occur at the end of the year. Express your answer in percentage points rounded to the nearest tenth (e.g., 1.1% or 15.7%).

ANSWER:

Question 12 (5 points)

What long-term growth rate “g” for free cash flows is implicitly assumed when the terminal value of Interco at the end of year ten is set equal to 14 times year ten free cash flow and a **discount rate of 15%** is used? As before, assume cash flows occur at the end of the year. Express your answer in percentage points rounded to the nearest tenth (e.g., 1.1% or 15.7%).

ANSWER:

Question 13 (15 points)

Should the Interco board accept the offer of \$70 per share? In your answer, clearly discuss at least one pro and one con to the Interco board accepting the \$70 offer and then discuss what your team would ultimately decide.

ANSWER:

Question 13, continued (15 points)

ANSWER (continued):