CROSS HOLDINGS: THE BLACK HOLE OF VALUATION

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 Juno Enterprises is a publicly traded company that owns 60% of Vellum Inc., another publicly traded company. They are both stable growth companies, growing 2% a year in perpetuity, with a cost of capital of 10%. The table below lists key numbers for Juno (consolidated) and Vellum:

	Juno	Vellum
	(consolidated)	(stand
		alone)
Operating income (after-	\$110 million	\$20
tax) \$		million
Book value of Equity	\$ 1000 million	\$ 100 million
Debt	\$225 million	\$ 50 million
Cash	\$100 million	\$ 25 million

Assuming that Juno has 100 million shares outstanding, estimate the value per share for Juno.

Problem 1: Solution (1)

Approach 2: Value June consolidated and subtract out 40% of equity value in Vellum (minority interests)			
	Juno (consolidated)	Vellum	
Operating income (after-tax)	\$110	\$20	
Book Equity	\$1,000	\$100	
Debt	\$225	\$50	
Cash	\$100	\$25	
Invested Capital	\$1,125	\$125	
Return on capital	9.78%	16.00%	
Expected growth rate	2.00%	2.00%	
Reinvestment Rate	20.45%	12.50%	
Cost of capital	10.00%	10.00%	
Value of business	1093.75	218.75	
+ Cash	\$100	\$25	
- Debt	\$225	\$50	
Value of equity	\$969	\$194	
Value of equity in Juno = 969 - 0.4 (194) =	1	i	\$891.25
Value of equity per share =			\$8.91

Problem 1: Solution (2)

Approach 1: Value June parent and add 60% of value of Vellum			
	Juno		
	(consolidated)	Vellum	Juno (Parent)
Operating income (after-tax)	\$110	\$20	\$90
Book Equity	\$1,000	\$100	\$900
Debt	\$225	\$50	\$175
Cash	\$100	\$25	\$75
Invested Capital		\$125	\$1,000
Return on capital		16.00%	9.00%
Expected growth rate		2.00%	2.00%
Reinvestment Rate		12.50%	22.22%
Cost of capital		10.00%	10.00%
Value of business		218.75	875
+ Cash		\$25	\$75
- Debt		\$50	\$175
Value of equity		\$194	\$775
Value of equity in Juno = 775 + 0.6 (194) =		\$891.25
Value of equity per share =			\$8.91

Gerlach Chemicals is a chemical company that owns 70% of Adler Steel, a publicly traded steel company.

- Using the <u>consolidated financial statements for</u> <u>Gerlach Chemicals</u>, you have estimated a <u>present</u> <u>value of the free cash flows to the firm of \$ 1500</u> <u>million;</u> the firm reported \$ 200 million in cash, \$ 300 million in debt and \$ 150 million as a minority interest on its (consolidated) balance sheet.
- Assuming that steel companies trade at 1.6 times book value, estimate the value of equity in Gerlach Chemicals.

Problem 2: Solution

Value of operating assets =	\$1,500
+ Cash	\$200
- Debt	\$300
- MV of minority interests	\$240
Value of Equity =	\$1,160

You are reviewing the valuation of Simca Inc., a beverage company with a 75% cross holding in a LightEat Inc, a restaurant chain. Using Simca's <u>parent</u> <u>company financials (not consolidated)</u> and LightEat's financials, you have obtained the following:

	Simca (Parent)	LightEat
DCF value of the operating assets	\$1,500.00	\$600.00
Debt	\$500.00	\$300.00
Cash	\$200.00	\$100.00
Number of shares	100.00	50.00

Estimate the value per share in Simca.

Problem 3: Solution

	Simca (Parent)	LightEat
Value of the operating assets	\$1,500.00	\$600.00
Debt	\$500.00	\$300.00
Cash	\$200.00	\$100.00
Number of shares	100.00	50.00
Value of equity (independent)	\$1,200.00	\$400.00
Value of equity with cross holdings	\$1,500.00	
Value of equity per share =	\$15.00	

You have been asked to assess the value/share in Veritas Inc., a company with a 10% holding in Haversack Inc. (recorded as a minority holding) and with a 75% holding in Samson Inc. (consolidated in Veritas financials). You have completed intrinsic valuations of all three companies and the results are summarized below, with the cash and debt at each of the companies (in millions of US\$):

	Veritas		<u> </u>
	(Consolidated)	Haversack	Samson
Value of operating assets (PV			
of FCFF at WACC)	\$1800	\$900	\$800
Cash	\$200	\$100	\$100
Debt	\$500	\$200	\$300

 If there are 100 million shares outstanding in each of the three companies, <u>estimate the value per share in Veritas Inc.</u>

Problem 4: Solution

	Veritas	Haversack	Samson
Value of operating assets	\$ 1,800.00	\$ 900.00	\$ 800.00
+ Cash	\$ 200.00	\$ 100.00	\$ 100.00
- Debt	\$ 500.00	\$ 200.00	\$ 300.00
Value of equity	\$ 1,500.00	\$ 800.00	\$ 600.00
Value of equity in Veritas	\$ 1,500.00		
+ 10% of Haversack Equity	\$ 80.00		
- 25% of Samson Equity	\$ 150.00		
Value of equity in Veritas	\$ 1,430.00		
# Shares	100)	
Value per share	\$ 14.30		