ESTIMATING EQUITY VALUE PER SHARE

Problem 1
Value of operating assets = 250(1-0.4)(1-0.3333)(1.05)/0.05 = $1,049.90
+ Cash = $500.00
- Debt = $750.00
Value of equity = $799.90
Value per share = $4.00

Problem 2
Value of equity = $799.90 million
- Equity Options = $250.00 million
Value of equity in common stock = $599.90 million
Value per share = 599.90/200 = $3.00

Problem 3
Exercise proceeds from the options = 6 * 50 = $300 million
Treasury stock value per share = (Value of Equity + Exercise proceeds)/ (Number of shares + Number of options) = (799.9 + 300)/ (200 + 50) = $4.40 per share
A more conservative estimate would be obtained if we considered only in-the-money options for this calculation.

Problem 4
Market value of equity = $25,000 million
Market value of debt = $5000 million
Market value of firm = $30,000
- Cash = $3,000
Enterprise value = $27,000
Cost of capital = 12.5% (25/30) + 5% (5/30) = 11.25%
Enterprise value = EBIT (1-t) (1- Reinvestment rate) (1+g)/ (r –g)
27000 = EBIT (1-.3) (1 - .06/.15) (1.06)/ (.1125-.06)

Solving for EBIT,

EBIT = $3184 million

**Problem 5**

You would expect to see $1,200 million, which is the sum of the total operating earnings of the two firms. Consolidation requires that you show 100% of the operating earnings of the subsidiary.

**Problem 6**

Value of Genome Sciences = 300 (1.06)(1-.40)/(.12 - .06) = $3,180 million

Value of Gene Therapies = .10 ( 100 * 50) = $ 500 million

Value of Genome Sciences (with minority holding) = $ 3,680 million

- Debt = $ 800 million

Value of Equity = $ 2,880 million

Value per share = 2880/50 = $57.60

**Problem 7**

If the fund can never be liquidated,

Estimated value of $ 1 invested in fund at 9%(r = 12%) = .09/.12 = $0.75

The discount should be 25%.

If the fund will be liquidated in 10 years

Estimated value of $ 1 invested at 9% for 10 years (r = 12%) = $0.83

The discount should be 17%.

**Problem 8**

Analyst’s estimate of value of equity = 11*1.4 = $15.40 million

a. Estimated value with treasury stock approach

Value per share = (15.40 + 0.4*5)/1.4 = $12.43 per share

b. With option pricing approach
Value per option ($= 12.5, K=5, t=3, r=5\%, \text{Std dev}=80\%) = $9.32

Value of Equity = $15.40 \text{ million}

Value of options = 0.4 \times 9.32 = $3.73 \text{ million}

Value of equity in common stock = $11.67 \text{ million}

Value per share = $11.67/1 = $11.67/\text{share}

c. You could re-estimate the value of the options using the estimated value per share of $11.67 to arrive at a value of each option of $8.55. This would of course change the value per share to a slightly higher value. You could continue until you converge on a value per share.