

Example of optimal structure is that point of capital structure where eps of the ...

[Business](#), [Company](#)



**Answer 1)**

Since at 40% debt and 60% equity, WACC is minimized and stock price is maximized, the 40(debt): 60(equity) is the optimal capital structure for Jackson.

**Answer 2)**

a. Expected EPS for Firm C:

$$E(EPSC) = 0.1(\$2.40) + 0.2(\$1.35) + 0.4(\$5.10) + 0.2(\$8.85) + 0.1(\$12.60)$$

$$= \$0.24 + \$0.27 + \$2.04 + \$1.77 + \$1.26 = \$5.58.$$

b) According to the standard deviations of EPS, Firm B is the least risky, while C is the riskiest. However, this analysis does not consider portfolio effects—if C's earnings increase when most other companies' decline (that is, its beta is low), its apparent riskiness would be reduced. Also, standard deviation is related to size, or scale, and to correct for scale we could calculate a coefficient of variation (/mean):

$$E(EPS) CV = /E(EPS)$$

$$A \$5.10 \$3.61 0.71$$

$$B 4.20 2.96 0.70$$

$$C 5.10 4.11 0.81$$

**Answer 3)**

$$- WACC = K_d * W_d(1 - \text{tax rate}) + K_e * W_e$$

$$= .08 * .20(1 - .40) + .125 * .80$$

$$= .0096 + .100$$

$$= 10.96\%$$

- Following CAPM Model:

$$K_e = RFR + \text{Beta}[E(r_M) - RFR]$$

$$.125 = .05 + \text{Beta}[\cdot 06]$$

$$\text{Beta} = 1.25$$

$$b_L = b_U[1 + (1 - T)(D/E)]$$

$$1.25 = b_U[1 + (1 - 0.4)(0.2/0.8)]$$

$$1.25 = b_U(1.15)$$

$$b_U = 1.086957.$$

d) To find new cost of Equity we have to find new beta using the unlevered beta from part-c:

$$b_{L, 40\%} = b_U[1 + (1 - T)(D/E)]$$

$$b_{L, 40\%} = 1.086957 [1 + (1 - 0.4)(0.4/0.6)]$$

$$b_{L, 40\%} = 1.086957(1.4)$$

$$b_U = 1.521739.$$

**The firm's cost of equity, as stated in the problem, is derived using the CAPM equation.**

$$r_s = r_{RF} + (r_M - r_{RF})b$$

$$r_s = 5\% + (6\%)1.521739$$

$$r_s = 14.13\%$$

- Again, the standard formula for the weighted average cost of capital is used. Remember, the WACC is a marginal, after-tax cost of capital and hence the relevant before-tax cost of debt is now 9.5% and the cost of equity is 14.13%.

$$WACC = w_d r_d(1 - T) + w_c r_s$$

$$= (0.4)(9.5\%)(1 - 0.4) + (0.6)(14.13\%)$$

$$= 10.76\%.$$

- The firm should be advised to proceed with the recapitalization as it causes the WACC to decrease from 10.96% to 10.76%. As a result, the recapitalization would lead to an increase in firm value.

### **Answer 14)**

Capital budget : \$3000000

Target Capital Structure: 70%Debt and 30% Equity

Forecasted Net Income: \$2000000

$$\text{Equity Retained} = .30(3000000) = \$900000$$

Thus, with net income of \$2000000, there is more than enough equity to fund the capital budget. Amount left to be distributed as dividend =  
 $\$2000000 - \$900000 = \$1100000$

$$\text{Dividend Payout Ratio: } 1100000/2000000 = 55\%$$

### **Answer 14-2)**

Following stock split, the number of shares outstanding will increase, however the share price will decrease proportionately:

$$\text{New Stock Price} = \$90 \times \frac{3}{2} = \$135$$

### **Answer 14-3)**

Beta Industries would require  $200000 \times 32 = \$640000$  of the total cash available with the company.

Thus, share price after the repurchase = Market Value of Equity after the repurchase of \$640000 divided by the shares outstanding after the

repurchase:

$$= (1000000 \times 32) - 6400000 / (1000000 - 200000) = \$32$$

## **Thus, the stock repurchase had no effect on share price**

EP 15-6) (Study Help)

Answer 15)

Sales = \$15, 000, 000; Inventory = \$2, 000, 000; A/R = \$3, 000, 000; A/P = \$1, 000, 000; COGS = 0. 8(Sales); Interest on bank loan = 8%

CCC = Inventory conversion period + Average collection period – Payables deferral period.

Inventory conversion period=

=

=

= 60. 83 days.

Average collection period =

=

= 73 days.

Payables deferral period=

=

= 30. 42 days.

Cash Conversion Cycle = 60. 83 + 73 – 30. 42 = 103. 41 days.

## **Part 2)**

Inventory = \$2, 000, 000 0. 9 = \$1, 800, 000.

A/R = \$3, 000, 000 0. 9 = \$2, 700, 000.

A/P = \$1, 000, 000 1. 1 = \$1, 100, 000.

Inventory conversion period =

= 54.75 days.

Average collection period =

= 65.70 days.

Payables deferral period =

= 33.46 days.

New CCC = 54.75 + 65.70 - 33.46 = 86.99 days  $\approx$  87 days.

### Part 3)

Cash freed up:

Inventory = (60.83 - 54.75)  $\times$  \$32,876,7123 = \$199,890.41.

Receivables = (73 - 65.70)  $\times$  \$41,095.8904 = \$300,000.

Payables = (33.46 - 30.42)  $\times$  \$32,876,7123 = \$99,945.2055.

Cash freed up = \$199,890.41 + \$300,000 - \$99,945.2055 = \$399,945.

2045  $\approx$  \$400,000.

\$400,000  $\times$  0.08 = \$32,000 increase in pre-tax profit.

### Answer 15-2)

DSO = \$2,000,000 / (\$10,000,000 / 365) = 73 days

If all customers paid on time, then the firm's DSO = 30 days. If customers paid on time, the firm's A/R = 30  $\times$  (\$10,000,000 / 365) = \$821,917.81

### Answer 15-6)

CCC = Inventory conversion period + Average collection period - Payables deferral period.

= 22 + 40 + 30

= 92 days

\*\*\*\* Chapter 16 problems:

### Answer 16)

$$AFN = (A_0^*/S_0)S - (L_0^*/S_0)S - MS_1(RR)$$

$$= (3000000/5000000)*1000000 - (500000/5000000)*1000000 - 0.05*($6,000,000)(0.3)$$

$$= (0.6)($1,000,000) - (0.1)($1,000,000) - ($300,000)(0.3)$$

$$= \$600,000 - \$100,000 - \$90,000$$

$$= \$410,000$$

### Answer 16-2)

$$AFN = (A_0^*/S_0)S - (L_0^*/S_0)S - MS_1(RR)$$

$$AFN = (4000000/5000000)*1000000 - 0.1(1000000) - 300000*0.30$$

$$= (0.8)($1,000,000) - $100,000 - $90,000$$

$$= \$800,000 - $190,000$$

$$= \$610,000.$$

The ratio of assets to sales (capital intensity) is higher now, hence we'll need more assets to support the anticipated growth of sales.

### Answer 16-3)

$$AFN = (0.6)($1,000,000) - (0.1)($1,000,000) - 0.05($6,000,000)(1)$$

$$= \$600,000 - \$100,000 - \$300,000$$

$$= \$200,000.$$

We now have more retained earnings, so we need less additional funds.

## **Works Cited**

Robinson, Mark. " Capital Structure." Institute, CFA. Corporate Finance.  
Boston: Custom, 2011. 187-230.