

82.4 / 100

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1. (15 points) Company X is financed 40% by debt and 60% by equity while Company Y is financed 50% and 50% by debt and equity respectively. Y has twice more sales per dollar in its assets compared to X. It also has 1.2 times more net income per dollar in sales compared to X.

a) As an investor, which number would you be more interested in? What is that number for X compared to Y?

X : Debt/Equity =  $\frac{2}{3} \Rightarrow EM = 1 + D/E = \frac{5}{3}$

TAT = x  
PM = y

Y : Debt/Equity = 1  $\Rightarrow EM = 1 + D/E = 2$

TAT = 2x

PM = 1.2y =  $\frac{12}{10}y = \frac{6}{5}y$

ROE<sub>x</sub> = PM \* TAT \* EM

= y \* x \*  $\frac{5}{3}$

ROE<sub>y</sub> =  $\frac{16}{5}y * \frac{5}{3}x * 2$

=  $\frac{24}{5}xy = \frac{12}{5}xy$

ROE is what investors interest. ROE for X is  $\frac{12}{25}$  times ROE for Y.

b) Based on only the information given in the question, which company would you invest on?

Since company Y has higher ROE, I would invest company Y.

c) The company that is not preferred by the investor increases its debt and its assets to attract investors. Do you think this is a good idea? Why or why not?

Increase debt  $\Rightarrow D/E \uparrow$   
 $\Rightarrow EM \uparrow$

But, TAT will go down at the same time. ROE may not increase.

Also, the company should check if they are available to pay interest and evaluate whether interest rate are high or low. So, I do not think it is a good idea.

2. (10 points) Zed Leppelin Inc. is a company that produces stairways by using its assets at full capacity. According to the end of 2018 financial statements, company has \$4,550,000 in assets and it is financed 56% by equity and 44% by debt. Its accumulated retained earnings is \$1,000,000. Company does not have any scheduled long term debt payments until 5 years from now. Assume Zed Leppelin has a profit of \$800,000 and does not have any depreciation (a blessing from heaven).

D/E =  $\frac{44}{56}$   
=  $\frac{22}{28}$   
Net Income =  $\frac{11}{14}$

D/E = 0.98

Requirement: Company is not planning on selling or buying back stocks or distributing dividends.

a) If Zed Leppelin maintains a growth rate of 0% per year, what would be the debt to equity ratio at the end of two years?

TA = \$4,550,000 (Not change)  
Debt = 44% \* TA = \$2,002,000  
Equity = 56% \* TA = \$2,548,000

After 2 years: Debt = \$2,002,000

Equity = \$2,548,000 + \$1,600,000  
= \$4,148,000

Profit will become retained earning each year  $\Rightarrow$  \$800,000 | D/E = 0.48

b) If the company wants to keep its D/E ratio constant, what are the options open to company given the above requirement is satisfied.

If the company want to keep D/E ratio constant, since new D/E ratio (part a) is lower than the desired D/E ratio, it can either increase debt or lower equity. To satisfy all the requirements, the company can borrow more long-term debt, increase the payment of interest, and lower the retained earnings, to keep D/E ratio constant.

Rowan Company  
Comparative Balance Sheet  
(dollars in millions)

	Ending Balance	Beginning Balance
<b>Assets</b>		
<b>Current assets:</b>		
Cash and cash equivalents	\$ 70	\$ 91
Accounts receivable	536	572
Inventory	620	580
<b>Total current assets</b>	<u>1,226</u>	<u>1,243</u>
Property, plant, and equipment	1,719	1,656
Less accumulated depreciation	640	480
<b>Net property, plant, and equipm</b>	<u>1,079</u>	<u>1,176</u>
<b>Total assets</b>	<u>\$2,305</u>	<u>\$2,419</u>
<b>Liabilities and Stockholders' E</b>		
<b>Current liabilities:</b>		
Accounts payable	\$ 205	\$ 180
Accrued liabilities	94	105
Income taxes payable	72	88
<b>Total current liabilities</b>	<u>371</u>	<u>373</u>
Bonds payable	180	310
<b>Total liabilities</b>	<u>551</u>	<u>683</u>
<b>Stockholders' equity:</b>		
Common stock	800	800
Retained earnings	954	936
<b>Total stockholders' equity</b>	<u>1,754</u>	<u>1,736</u>
<b>Total liabilities and stockholders' equity</b>	<u>\$2,305</u>	<u>\$2,419</u>

additional to retained earnings = 18 ✓ +3  
depreciation = 160

In come Statement

**Rowan**  
Pretax Income =  $x = \frac{900}{17}$   
TAX =  $34\% * x$  ✓ +1  
NI = 18

**Competitor**  
 $\frac{900}{17} + 160 = y$

NI =  $66\% * y$   
= -141

$\frac{34}{100} * x = 18$   
 $\Rightarrow x = 17 * \frac{100}{34}$

- 6 3. (10 points) Rowan just prepared its end-of-year Balance Sheet today. Its tax rate is 34% and is using a straight-line depreciation method. It does not distribute any dividends. Its competitor has exactly the same financials, except, it does not have any depreciation. What is the difference between the accumulated retained earnings of Rowan and its competitor 3 years from today?

For Rowan Company, addition to retained earning will be less than its competitor for each year since it has to subtract depreciation from its sales. Therefore, its accumulated retained earning will be less than its competitor after three years, which is  $\overset{\text{about}}{\wedge} 3 * (-141) = 423$  dollars lower.

4. (10 points) Give two positive and two negative aspects of financing a company via debt versus equity from the company's point of view:

Debt versus Equity Financing		
	Good	Bad
DEBT	<ol style="list-style-type: none"> <li>1. pay less taxes</li> <li>2. grab the chance to grow</li> </ol>	<ol style="list-style-type: none"> <li>1. pay high level of debt</li> <li>2. when debt is due, may not pay all of it.</li> </ol>
EQUITY	<ol style="list-style-type: none"> <li>1. less likely to have credit problem</li> <li>2. able to control the size of company</li> </ol>	<ol style="list-style-type: none"> <li>1. pay more taxes</li> <li>2. miss the chance to grow</li> </ol>

5. (10 points) It is the end of the year and a company has \$5 million in debt with an interest rate of 5%. Over the next year, no principal on the debt is due. Company does not want to get into more long term borrowing. However, a \$12 million stock repurchase is planned with no dividend distribution. Company does not plan to buy or sell any fixed assets, however, would like to increase its current assets by \$2 million more than it does its current liabilities. What is the operating cash flow of the company?

$$\text{Interest} = 5\% \times \$5,000,000 = \$250,000$$

$$C(B) = -\$250,000 - 0 = -\$250,000$$

$$C(S) = 0 - (0 - \$12,000,000) = \$12,000,000$$

$$C(A) = C(S) + C(B) = \$12,250,000$$

$$= OCF = \text{Capital Expenditure} - \text{Addition to NWC}$$

$$= OCF - \$2,000,000$$

$$\text{Beg NWC} = CA - CL$$

$$\text{End NWC} = (CA + \$2,000,000) - CL$$

$$\Rightarrow OCF = \$12,250,000 + \$2,000,000$$

$$= \$14,250,000$$

6. (10 points) Use the following table to answer this question:

Balance Sheet	2017	2018	Income Statement	2018
<b>ASSETS</b>				
Cash and equivalents	190	200	Total Revenues	3,000
Accounts Receivable	560	600	Cost of Goods Sold	40% 1,200
Inventory	410	440	Gross Profit	1,800
Total Current Assets	1,160	1,240	Operating Expenses	33% 1,000
Gross Fixed Assets	2,200	2,600	EBITDA	27% 800
Accumulated Depreciation	(900)	(1,200)	Depreciation	10% 300
Net Fixed Assets	1,300	1,400	EBIT (Operating Income)	17% 500
<b>TOTAL ASSETS</b>	<b>2,460</b>	<b>2,640</b>	Interest Expense	3% 100
<b>LIABILITIES AND EQUITY</b>				
Accounts Payable	285	300	EBT (Pre-tax Income)	13% 400
Notes Payable	200	250	Taxes	40% 160
Accrued Taxes and Expenses	140	150	Net Income	240
Total Current Liabilities	625	700	Dividends	160
Long-term Debt	865	890	Change in Retained Earnings	80
Common Stock	200	200	Shares Outstanding	500
Additional Paid-In-Capital	200	200	EPS	0.48
Retained Earnings	570	650	Dividends per Share	0.32
Total Shareholder's Equity	970	1,050		
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>2,460</b>	<b>2,640</b>		

a) (4 points) Calculate the cash flow to/from Assets:

$$\text{Operating Cash Flow} = \text{EBIT} + \text{Depreciation} - \text{Tax} = 500 + 300 - 160 = 640$$

$$\text{Capital Expenditure} = \text{End FX} - \text{Beg FX} + \text{Depreciation} = 1400 - 1300 + 300 = 400$$

$$\text{Addition to NWC} = \text{End NWC} - \text{Beg NWC} = (1240 - 700) - (1160 - 625) = 540 - 535 = 5$$

$$C(A) = 640 - 400 - 5 = 235$$

b) (3 points) Calculate the cash flow to/from Creditors:

$$C(B) = \text{Interest} - (\text{End Long-term Debt} - \text{Beg Long-term Debt})$$

$$= 100 - (890 - 865)$$

$$= 75$$

c) (3 points) Calculate the cash flow to/from Stock Holders:

$$C(S) = \text{Dividends} - (\text{End stock} - \text{Beg stock})$$

$$= 160 - (200 - 200)$$

$$= 160$$

-6.6

7. (10 points) For the first time, UBER will make its financial statements available to the public when they IPO. As we talked in class, some information can be inferred from these statements and some cannot. Here is a list of things that you would like to know about the company. Circle the ones that CAN BE inferred directly from the Financial Statements:

Debt/Equity Ratio

UBER's Market Share *x -1.6*

Future Growth Opportunities *x -1.6*

Patents that UBER holds

Price that is paid to image and future potential for the companies UBER acquired to date. *-3.4*

Human Capital used by UBER

8. (7 points) Draft a common-size income statement for a hypothetical firm using the following information: The tax rate is 50%. Net income, Depreciation, and Interest Expense are each 10% of Sales. Cost of Goods Sold is six times as big as Depreciation.

Income Statement	
Sales	$x$
COGS	$0.6x$
Depreciation	$0.1x$
<hr/>	
EBIT	$0.3x$
Interest	$0.1x$
<hr/>	
Pre-tax Income	$0.2x$
Tax (50%)	$0.1x$
<hr/>	
Net Income	$0.1x$

Let Sales be  $x$

*not in percentage*

The following questions are 3 points each. For the True/False questions, you need to provide an explanation with one or two sentences in order to get any points:

9. TRUE / FALSE: in order to keep the balance sheet balanced, an increase in the total fixed assets must be offset by an equal increase in total liabilities and/or stockholders' equity.

For balance sheet, left hand side (Total Assets) should be equal to right hand side (Total Liabilities + Stockholders Equity). So if we increase one side, the other side should increase same amount. *CA may ↓*

10. TRUE / FALSE: A company has a consistently increasing inventory turnover while having stable profit margin. This implies that the costs other than COGS are going down.

inventory turnover =  $\frac{COGS}{Inventory}$  ↑ ⇒ either  $COGS \uparrow$  or  $Inventory \downarrow$

PM =  $\frac{Net\ Income}{Sales}$  is stable ⇒ other costs, interest, taxes do not change a lot.

11. TRUE / FALSE: A firm has negative net working capital. Over the following year, company pays its long term debt and increases its inventory. Other accounts under the current assets stay the same. Then, end of year net working capital will still be negative.

$$NWC = CA - CL \rightarrow \text{paying long-term debt makes no change in CL}$$

increasing inventory make CA go up

If inventory increase a lot to make CA larger than CL, we will get positive NWC.

12. TRUE / FALSE: The External Funds Needed (EFN) measures the amount of debt the company needs to acquire in order to maintain its objective sales growth.

EFN means the amount of fund that the company need to find. It can be acquired by selling stocks as well.

13. Which one of the following is a capital budgeting decision?  $\rightarrow$  Fixed Assets

A. determining how much debt should be borrowed from a particular lender (Liabilities)

B. deciding whether or not to open a new store

C. deciding when to repay a long-term debt (Liabilities)

D. determining how much inventory to keep on hand (Current Assets)

E. determining how much money should be kept in the checking account (Current Assets)

14. Which one of the following statements concerning a sole proprietorship is correct?  $\rightarrow$  one owner

A. A sole proprietorship is the least common form of business ownership.

B. The profits of a sole proprietorship are taxed twice. (Corporation)

C. The owners of a sole proprietorship share profits as established by the partnership agreement. (partnership / corporation)

D. The owner of a sole proprietorship may be forced to sell his/her personal assets to pay company debts.

E. A sole proprietorship is often structured as a limited liability company. (partnership / corporation)

Market Value Measures	<p>Market Capitalization = Price per share * # Shares Outstanding</p> <p>P/E Ratio = Price Per Share / Earnings Per Share</p>
Financial Ratios	<p>Current Ratio = Current Assets/ Current Liabilities</p> <p>Quick Ratio = (Current Assets – Inventory) / Current Liabilities</p> <p>Cash Ratio = Cash / Current Liabilities</p> <p>Total Debt Ratio = (Total Assets – Total Equity) / Total Assets</p> <p>Debt/Equity = Total Debt / Total Equities</p> <p>Equity Multiplier = Total Assets / Total Equity</p> <p>Times Interest Earned = (Earnings Before Interest And Taxes) / Interest</p> <p>Cash Coverage = (EBIT + Depreciation + Amortization) / Interest</p> <p>Inventory Turnover = Cost of Goods Sold / Inventory</p> <p>Days' Sales in Inventory = 365 / (Inventory Turnover)</p> <p>Receivables Turnover = Sales / Accounts Receivable</p> <p>Days' Sales in Receivables = 365 / Receivables Turnover</p> <p>Total Asset Turnover = Sales / Total Assets</p> <p>Profit Margin = Net Income / Sales</p> <p>Return on Assets = Net Income / Total Assets</p> <p>Return on Equity = Net Income / Total Equity</p>
Financial Cash Flow	<p><math>C(A) = C(B) + C(S)</math></p> <p><math>C(A) = OCF - \text{Change in NWC} - \text{Cash Flow to Fixed Assets}</math></p> <p><math>OCF = EBIT + \text{Depreciation} - \text{Tax}</math></p> <p><math>\text{Change in NWC} = \text{Ending NWC} - \text{Beginning NWC}</math></p> <p><math>\text{Cash Flow to Fixed Assets} = \text{Ending NFA} - \text{Beginning NFA} + \text{Depreciation}</math> (if we use the gross fixed assets, then = Ending Gross Fixed Assets – Beginning Gross Fixed Assets)</p> <p><math>C(B) = \text{Interest} - (\text{Ending Long Term Debt} - \text{Beginning Long Term Debt})</math></p> <p><math>C(S) = \text{Dividends} - (\text{Stocks sold} - \text{Stocks purchased})</math></p>