89.4 / 100.

Name: Elaine Shyu 0.67 ID#:

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 respectfully. 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.

debt/equity = 1

└ TAT (total asset turnover). ↳ profit margin

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

As an investor, I would be interested in the ROE (return on equity).

Based on the Dupont identity, ROE = EM(PM)(TAT). EM = $1+\frac{D}{E}$ = 1.67 for company X, 1+1 = 2 for company Y. TAT for Y is 2x that of X, and profit margin is 1.2x that of X. Y: 2(2)(1.2) = 4.8, X: 1(1)(1.67) = 1.67. Y's ROE is $\frac{4.8}{1.67}$ = 2.87x greater than X's. X: 1.67ab, Y = 4.8ab, where a = X's TAT, b = X's PM.

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

I would invest in company Y, since ROE gives me, as an investor, how many $ in income is earned on equity, which is the portion of the balance sheet pertinent to the investor.

ROE is most important, so will focus on that for investor.

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?

ROE = EM · TAT · PM = $\frac{assets}{equity}\left(\frac{sales}{assets}\right)\left(\frac{net\ income}{sales}\right)$

It is likely not a good idea, since interest will have to be paid on the debt, so net income, and effectively the profit margin will go down. If interest rates are low, then it may be a good idea, since net income made by going into debt may overall increase despite more interest on the debt. If the company is sure it will raise net income, then it would be a good idea, but it has to factor in interest and risk increase as well (since they will have to pay it off eventually).

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).

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?

profit: 800,000 → net income → no dividends → all into accumulated

assets: 4,550,000 ↓ doesn't grow

$$\frac{0.44(4{,}550{,}000)}{0.56(4550000)+800{,}000+800{,}000} = \boxed{0.48}$$

└ 2 years of profits

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 it wants to keep the D/E ratio constant, and maintain a 0% growth rate, it must increase its debt. It can do this by increasing long term debt or short term debt (notes payable) to offset additions to retained earnings for equity.

long term debt ↑ OR short term debt ↑

Rowan Company
Comparative Balance Sheet
(dollars in millions)

	Ending Balance	Beginning Balance
Assets		
Current assets:		
Cash and cash equivalents	$ 70	$ 91
Accounts receivable	536	572
Inventory	620	580
Total current assets	1,226	1,243
Property, plant, and equipment	1,719	160 1,656
Less accumulated depreciation	640	← 480
Net property, plant, and equipm	1,079	1,176
Total assets	$2,305	$2,419
Liabilities and Stockholders' E		
Current liabilities:		
Accounts payable	$ 205	$ 180
Accrued liabilities	94	105
Income taxes payable	72	88
Total current liabilities	371	373
Bonds payable	180	310
Total liabilities	551	683
Stockholders' equity:		
Common stock	800	800
Retained earnings	954	936
Total stockholders' equity	1,754	1,736
Total liabilities and stockholders' equity	$2,305	$2,419

property loses 160 valle

→ net income: 18

-4

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?

Income statement

Sales	
- COGS	
gross profit	187.27
- depreciation	160
EBIT	?
- interest	?
pretax	27.27
- taxes	9.27
net income =	18

depreciation is same each year on income statement; it will always be $160. Given all else equal, the difference will be +3

Based on this, we can calculate how much more net income its competitor makes. Given a gross profit of 187.27, and a tax rate of 0.34, it makes 0.66 (187.27) per year, which is 123.60. 123.60 (3) = $370.80

✓ +3

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:

Maximum control over company, only have to payoff debt once

Debt versus Equity Financing	Good	Bad
DEBT	• Since interest is subtracted from revenues to get taxable income, you pay less in taxes.	• will have to pay back legally • have to pay interest in addition
EQUITY	• Not legally obliged to pay back people who bought shares. • Gives market value to company which generates hype around it (especially when IPO-ing).	• Eventually may pay more if you're expected to give dividends (i.e. if competitors are giving them, you should too), or if you're a mature company. • Also, giving control to more people; have to answer to stockholders.

250,000 interest

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?

C(B) = 250,000

C(S) = 0 − (0 − 12000000) = 12,000,000

C(A) = 250,000 + 12,000,000 = 12,250,000

= OCF − ΔNWC − cash flow fixed = OCF − (2,000,000) − 0

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
ASSETS		
Cash and equivalents	190	200
Accounts Receivable	560	600
Inventory	410	440
Total Current Assets	1,160	1,240
Gross Fixed Assets	2,200	2,600
Accumulated Depreciation	(900)	(1,200)
Net Fixed Assets	1,300	1,400
TOTAL ASSETS	2,460	2,640
LIABILITIES AND EQUITY		
Accounts Payable	285	300
Notes Payable	200	250
Accrued Taxes and Expenses	140	150
Total Current Liabilities	625	700
Long-term Debt	865	890
Common Stock	200	200
Additional Paid-in-Capital	200	200
Retained Earnings	570	650
Total Shareholder's Equity	970	1,050
TOTAL LIABILITIES AND EQUITY	2,460	2,640

Income Statement		2018
Total Revenues		3,000
Cost of Goods Sold	40%	1,200
Gross Profit		1,800
Operating Expenses	33%	1,000
EBITDA	27%	800
Depreciation	10%	300
EBIT (Operating Income)	17%	500
Interest Expense	3%	100
EBT (Pre-tax Income)	13%	400
Taxes	40%	160
Net Income		240
Dividends		160
Change in Retained Earnings		80
Shares Outstanding		500
EPS		0.48
Dividends per Share		0.32

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

OCF − ΔNWC − cash flow to fixed assets

500 + 300 − 160 − (540 − 535) − 400

$235 ✓

Check

160 + 75 = 235 ✓

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

interest − (ending LTD − beg LTD)

100 − (890 − 865) = $75 ✓

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

Dividends − (stock sold − stock purchased)

$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 — only book value on sheet

UBER's Market Share X

Future Growth Opportunities — i.e. not operating at capacity × -1.6

Patents that UBER holds — intangible assets

Price that is paid to image and future potential for the companies UBER acquired to date. — speculative, can't infer from financial statements -3.4

Human Capital used by UBER — administrative expenses on income × -1.6

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.

	% sales	
total revenue	100	
COGS	60	6x
Depreciation	10	x
EBIT	30	
Interest	10	
pretax income	20	
taxes	10	0.5(0.2)
net income	10	

Gross profit 40

	% sales
Total revenue	100
cost of goods sold	60
GROSS PROFIT	40
depreciation	10
EBIT	30
interest	10
pretax income	20
taxes	10
net income	10

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.

Not necessarily; you could have used cash to buy the fixed asset, in which case no changes would have to be made to liabilities / stockholders' equity.

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 = $\frac{COGS}{Inventory}$ ↑, profit margin = $\frac{\text{Net income}}{\text{Sales}}$

Since profit margin is stable, then net income & sales are likely either the same or increasing. Since a company has CONSISTENT increasing inventory turnover, it's implied high sales or low inventory, or both. If there are high sales, then net income has to increase, likely meaning that COGS has to increase too, or stay the same. However, we cannot say anything about the costs other than COGS, since they could be going up as well, with sales and

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.

The company may purchase inventory with money gained from equity, and if inventory > NWC, then the end of year net working capital can be positive, since current liabilities will not have changed.

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.

This is false because the definition of EFN is extra financing needed in order to reach a sales projection. It can be debt OR EQUITY, not just debt.

13. Which one of the following is a capital budgeting decision?

A. determining how much debt should be borrowed from a particular lender
B. deciding whether or not to open a new store — long term investment
C. deciding when to repay a long-term debt
D. determining how much inventory to keep on hand
E. determining how much money should be kept in the checking account

B

14. Which one of the following statements concerning a sole proprietorship is correct?

A. A sole proprietorship is the least common form of business ownership.
B. The profits of a sole proprietorship are taxed twice.
C. The owners of a sole proprietorship share profits as established by the partnership agreement.
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.

D