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.

ROE for X is much lower than ROE for Y

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

I would be more interested in the return on Equity. The Dupont Identity says $ROE = \frac{Assets}{Equity} \times \frac{Sales}{Assets} \times \frac{Net\ Income}{Sales}$.

So, ROE for $Y = \frac{1}{0.5} \cdot 2 \cdot \left(\frac{X\ sales}{X\ assets}\right) \cdot 1.2 \left(\frac{X\ net\ income}{X\ sales}\right)$

ROE for $X = \frac{1}{0.6} \cdot \left(\frac{X\ sales}{X\ assets}\right) \cdot \left(\frac{X\ net\ income}{X\ sales}\right)$

$\Rightarrow \frac{ROE\ for\ X}{ROE\ for\ Y} = \frac{\frac{1}{0.6}}{\frac{1}{0.5} \cdot 2 \cdot 1.2} = 0.347$

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

I would invest in company Y since it has higher sales per assets, more net income per sales, and a higher assets to equity ratio. This means that company Y has greater ROE which makes it the clear choice to invest on.

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?

Yes because this would increase the equity multiplier $\left(\frac{assets}{equity}\right)$ which would then result in a higher ROE. This would be a good idea since a higher ROE means that investors are more likely to invest in the company.

4

D↑ → EM↑, PM↓, TAT? sales? → may or may not work

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).

$0.56 \cdot 4550000 = E = 2548000$ (1000000)

$D = 2002000$

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?

$\frac{Debt}{Equity}$ after 2 years $= \frac{2002000}{2548000 + 2(800,000)} = 0.483$

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.

The company could gain more short-term debt or buyback stocks

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	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

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?

Net Income = 954 − 936 = 18 ✓

Difference in accumulated retained earnings
= 123.6 · 3 − 18 · 3
= $316.8 million ← multiply by 3 for 3 years

Rowan Income Statement
EBITDA 187.272727
Depreciation 160
Pretax 27.272727
Tax 9.272727
NI 18

Competitor Income statement
EBITDA 187.272727
Tax 63.672727
NI 123.6

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	• Can increase shareholders equity by increasing ROE • allows for more money to invest in more growth	• Can run into problems due to high levels of debt • decreases NWC if short-term and increase interest
EQUITY	• Having less debt means that company is less likely to have credit problems • pay less interest and also results in increased NWC	• May be forgoing growth opportunities by being reluctant to go into debt • results in lower ROE because of financing by equity results in greater equity

D=5 I=0.25

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?

$\Delta(A) = \Delta(B) + \Delta(S)$

$\Delta(B) = 0.25 - 0 = 0.25$

$\Delta(S) = 0 - (0 - 12) = 12$

$\Delta(A) = 0.25 + 12 = 12.25$

$\Delta(A) = OCF - \text{change in NWC} - \text{cash flow to fixed assets}$

$OCF = \Delta(A) + \text{change in NWC} + \text{cash flow to fixed assets}$

Change in NWC = 2

Cash flow to fixed assets = 0

$OCF = 12.25 + 2 + 0$

= $14.25 million ✓

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:

CF to Assets = OCF − Capital Expenditure − addition to NWC

OCF = EBIT + Depreciation − Tax = 800 − 160 = 640

Capital Expenditure = (ending fixed assets − beginning fixed assets) + depreciation = 1400 − 1300 + 300 = 400

addition to NWC = (1240 − 700) − (1160 − 625) = 5

CF to Assets = 640 − 400 − 5 = 235 ✓

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

CF to creditors = Interest paid − (end − beg long term debt)

= 100 − (890 − 865) = 75 ✓

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

CF to Stockholders = Dividends − (end stock − beg stock)

= 160 − (200 − 200) = 160 ✓

-3.3

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) since you know debt and equity numbers, this can be calculated

UBER's Market Share

Future Growth Opportunities

(Patents that UBER holds) -3.3

(Price that is paid to image and future potential for the companies UBER acquired to date.) Good will tells us how much the image is worth

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.

Let's say Sales = 1000

Common-size Income statement

example numbers

Sales	1000	100%
COGS	600	60%
Depreciation	100	10%
EBIT	300	30%
Interest	100	10%
Pre-tax Income	200	20%
Tax (50%)	100	10%
Net Income	100	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.

-3

Since Assets = Liabilities + Equity, if assets goes up, then there must be a corresponding increase in liabilities and/or equity to balance out the equation.

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.

profit margin = net income / sales

We know that inventory turnover = COGS / Inventory. If we are consistently increasing inventory turnover, that means either COGS is increasing or inventory is decreasing. As such, we cannot conclude that costs other than COGS are going down since those other costs don't affect inventory turnover

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.

It may be possible that the increase in inventory is enough to offset the existing negative net working capital. Thus, it is possible that end of year net working capital is non negative.

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.

After calculating the Pro Forma Statement, our right hand side of the balance sheet may be greater than the current debt + equity. As such, EFN tells the company how much more debt must be gained or stocks must be sold. As such, EFN can also be fulfilled by selling stocks to maintain objective stock growth.

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
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

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.