Eng 111 – Winter 2014 Midterm Solutions

Multiple Choice Questions (3 points each)

1. Which of the following is NOT a mechanism that helps aligning management and owner interests?

a) Possibility of a hostile takeover
b) Possibility of a proxy fight
c) Manager's reputation within the financial community
d) Tying managerial pay to the stock price of the company
e) <u>Buying back company's stocks</u>

2. _____ refers to the firm's interest payments less any net new borrowing.

a) Operating Cash Flow
b) Capital Spending
c) Net working capital
d) <u>Cash flow to creditors</u>
e) Cash flow from shareholders

3. According to the guest lecturer, Tamra Johnson, which of the following was not a justification for becoming an entrepreneur right out of college?

a) Having fewer responsibilities
b) Being cheaper by the hour
c) Being ready to try things that would be found too adventurous by the establishment
d) Availability of resources for the young entrepreneurs
e) <u>Statistically proven scientific result indicating high success rate of young entrepreneurs</u>

4. Which of the following is NOT a reasonable action for a company that is trying to introduce a new product to the market (e.g. Tesla)?

a) Get ahead of the competition by borrowing.
b) <u>Until making positive profit, rely on internal funds.</u>
c) Increase the financial leverage as the market demand and the production process require.
d) Keep a high equity multiplier according to the needs of the company.
e) Allow borrowing a long as it helps boost company's market share.

5. If the dividend payout ratio is 1, you can say for sure that

a) Sustainable growth rate is at its maximum.
b) Internal growth rate is at its maximum.
c) External financing need is zero.
d) <u>Internal growth rate is zero</u>
e) Debt to Equity ratio cannot stay the same.

6. Given the tax rates as shown, what is the average tax rate for a firm with taxable income of $126,500?

Taxable Income	Tax Rate
$0 - 50,000	15%
50,001 - 75,000	25%
75,001 - 100,000	34%
100,001 - 335,000	39%

a) 21.38%
b) 23.88%
c) 25.76%
d) 34.64%
e) 39.99%

7. Thompson's Jet Skis has operating cash flow of $218. Depreciation is $45 and interest paid is $35. A net total of $69 was paid on long-term debt. The firm spent $180 on fixed assets and increased net working capital by $38. What is the amount of the cash flow to stockholders?

a) -$104
b) -$28
c) $28
d) $114
e) $142

Cash flow from assets = $218 - $38 - $180 = $0; Cash flow to creditors = $35 - (-$69) = $104; Cash flow to stockholders = $0 - $104 = -$104

8. Occasionally, companies buy back their own stocks. Which of the following is the least likely reason for a stock buyback?

a) Trying to hit earnings per share target
b) Not having a better investment opportunity
c) Sending a signal to the market that company is undervalued
d) Increase the value of the remaining shares
e) Increase growth rate

9. Which of the following is least likely to happen?

a) A big difference between the current ratio and quick ratio for a retailer
b) A high capital intensity ratio for a traditional oil producer
c) A high financial leverage for a startup
d) Stabilization of the growth rate for a well-established company
e) A low price to earnings ratio for a technology company having high growth potential

10. As seen on an income statement:

a) interest is deducted from income and increases the total taxes incurred.
b) the tax rate is applied to the earnings before interest and taxes when the firm has both depreciation and interest expenses.
c) depreciation is shown as an expense but does not affect the taxes payable.
d) depreciation reduces both the pretax income and the net income.
e) interest expense is added to earnings before interest and taxes to get pretax income.

11. Which two of the following represent the most effective methods of directly evaluating the financial performance of a firm?
I. comparing the current financial ratios to those of the same firm from prior time periods
II. comparing a firm's financial ratios to those of other firms in the firm's peer group who have similar operations
III. comparing the financial statements of the firm to the financial statements of similar firms operating in other countries
IV. comparing the financial ratios of the firm to the average ratios of all firms located in the same geographic area

a) I and II only
b) II and III only
c) III and IV only
d) I and IV only
e) I and III only

12. Which one of the following assets is generally the most liquid?

a) inventory
b) buildings
c) accounts receivables
d) equipment
e) patents

Short Answer Questions:

13. Income Statement for 2014 and Balance Sheets for 2013 and 2014 for Alsu Corporation are given below:

	Alsu Corp., Balance Sheet				
Current Assets	**2013**	**2014**	*Current Liabilities*	**2013**	**2014**
Cash	160	180	Accounts Payable	300	192
Accounts Receivable	440	560	Notes Payable	100	200
Inventory	600	700	*Total Current Liabilities*	400	392
Total Current Assets	1,200	1,440	*Long-Term Debt*	800	?
Net Fixed Assets	1,800	?	*Owners' Equity*		
			Stock	800	840
			Retained Earnings	1,000	?
Total Assets	3,000	?	*Total Liabilities and Owners' Equity*	3,000	?

Alsu Corp., Income Statement, 2014	
Sales	$1,600
Cost of Goods Sold	800
Depreciation	20
EBIT	780
Interest	60
Pretax Income	720
Taxes(40%)	288
Net Income	432
Dividends	144
Add. to Ret. Earnings	?

a) (3 points) What is the Cash Flow from Operations?

Cash Flow from Operations: EBIT+Depreciation-Tax = 780+20-288 = 512

b) (4 points) If the Cash Flow from Assets is $284, has the firm acquired or sold any fixed assets from 2013 to 2014? By how much?

Cash Flow from Assets = Cash Flow from Operations – Cash Flow to Net Working Capital (NWC) – Cash Flow to Capital Spending

284 = 512 – ((1440-392)-(1200-400)) – (Ending Net Fixed Assets-1800+20)
Ending Net Fixed Assets = 1760.
According to this, Fixed assets are reduced, hence the company has NOT acquired any new fixed assets but SOLD some.

c) (4 points) Has the company reduced or increased its long-term debt from 2013 to 2014? By how much?

There are several ways of finding this. One way would be:

Total assets in 2014 = 1440+1760 = 3200.
Total Owners' Equity in 2014 = 840+1000+(432-144) = 2128
Total Liabilities = Total Assets – Total Owners' Equity = 3200 – 2128 = 1072
Long-Term Debt = 1072 – 392 = 680
Long-Term Debt went down. This means, the company paid off some of its long-term debt from 2013 to 2014.

d) (2 points) What is the Retained Earnings number for 2014?

Accumulated Retained Earnings + Addition to Retained Earnings = 1000 + (432 – 144) = 1288

14. (5 points) A company is expecting to get $10,000 a year from today if it invests $8,600 now on project A. Alternatively, project B asks for twice the cost of A now and promises twice what A provides, but two years from today.

Should the company take any of these projects if the best return that can be obtained in the market is 15%?

We can calculate the Net Present Value (NPV) of each project.
$NPV_A = -8{,}600 + 10{,}000/1.15 = 96$
$NPV_B = -17{,}200 + 20{,}000/(1.15)^2 = -2{,}077$

*Alternatively, if the company invests in the market, in one year, investment would grow into $8,600*1.15=$9,890 which is less than what project A offers.*
In two years, 17,200 would grow into $17,200*1.15^2 =$22,747 which is more than what project B offers.

Take project A.

15. You are analyzing a consumer technology company with the following 2013 financial statements and want to determine the company's EFN for 2014. In 2013, sales were $150M, assets $100M, debt $75M, and total costs $100M. In 2014, sales are projected to be $225M. Assume assets and costs are proportional to sales. Assume debt will not change and dividend payout ratio is 1/3. (assume no interest, taxes or depreciation)

a) (4 points) Construct the company's pro forma balance sheet and income statement for 2014.

Pro Forma Income Statement

	2013	*2014*
Sales	*150*	*225*
Costs	*100*	*150*
Net Income	*50*	*75*
Dividends	*16.7*	*25*
Add. Ret. Earnings	*33.3*	*50*

Pro Forma Balance Sheet

	2013	*2014*
Assets	*100*	*150*
Liabilities	*75*	*75*
Owners' Eq.	*25*	*75*

b) (2 points) What is the external financing needed (EFN)?

EFN = 0

16. a) (4 points) Frederico's has a profit margin of 6%, a return on assets of 8%, and an equity multiplier of 1.4. What is the return on equity?

Profit Margin = Net Income / Sales = 0.06
ROA = Net Income / Assets = 0.08
Equity Multiplier = Total Assets / Total Equity = 1.4

Form Du Pont Identity:
ROE = (Net Income / Assets) x (Assets/Equity)
ROE = 0.08 x 1.4 = 11.2%

b) (3 points) The company has renegotiated the terms of its long-term debt payment plan. According to this, Frederico's interest payments will be lower per year but the time to pay off the debt will be extended. What kind of a short term and long term effect will this have on ROE?

Interest payments will go down in the short run, leading to a higher Profit Margin and higher ROE.
However, in the long run, there will be interest payments that wouldn't have been there, leading to lower Profit Margin and lower ROE.

17. (3 points) Apple Inc. shareholders are not in favor of company's holding a big cash account. What may be the shareholders' concern?

Any one of the following will do:

Company is out of growth opportunities
Company is not earning a higher return on its cash
Company is a candidate for a hostile takeover (very unlikely considering the size of the company)

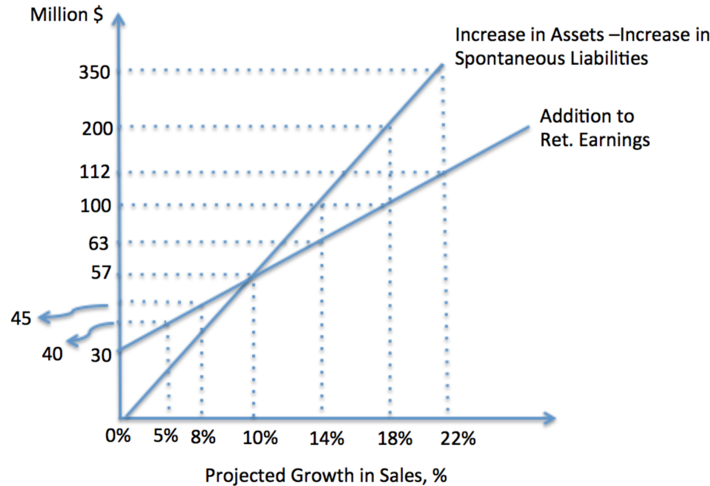
18. (1 point) You are the financial manager of ALCU Corporation. Company has a 9% ROE, and 12% sustainable growth rate when Debt to Equity ratio is kept at 2/3. What is the maximum growth rate ACLU can achieve if, going forward, ACLU wants to use only its internal funds?

*Sustainable Growth Rate = ROE *b/(1-ROE * b)*
.12-.12.09b=.09b*
.12=.1008b
b = 1.19 (this is an error and it is not possible for b to be higher than 1. Points are adjusted so as to make this question worth only 1 point. Any student who gets this number (b=1.19) and attempts to get the Internal Growth Rate should get the full point)

*Internal Growth Rate = ROA *b/(1-ROA * b)*
*ROE = ROA * Equity Multiplier*

*0.09 = ROA *5/3*
ROA = 0.054
*Internal Growth Rate =0.054*1.19 / (1-0.054*1.19) =0.069 = 6.9%*

19. The following graph shows the difference between the increase in assets minus the increase in spontaneous liabilities as well as the addition to retained earnings for Corporation X.



a) (3 points) What is the internal growth rate for Corporation X?

10% (Since at 10% Increase in assets and spontaneous liabilities equal to addition to retained earnings, hence providing a zero external financing need)

b) (4 points) If the sustainable growth rate is 18%, projected total stockholders' equity is \$800 Million, and projected total debt is \$400 Million, what is the total debt now (before the growth occurs)?

Sustainable growth rate occurs as the Debt/Equity ratio is kept constant. Then, before and after growth, this ratio, which is 400/800 = ½, should be the same.
At 18%, addition to retained earnings is \$100M. Then, before the growth, equity was, 800-100 =700 which corresponds to a total debt of \$350M.

c) (3 points) If, instead, the Corporation X management decides to keep the business as before and not to grow over the course of coming year, what will be the total stockholders' equity?

Before the growth the stockholders' equity was \$700M. Since there will be no growth, from the chart, one can read that \$30M is the additions to retained earnings that corresponds to 0% growth. Hence total stockholders' equity will be \$730M.

20. (5 points) The most recent Income Statement and the Balance Sheet for Tibet Corporation are given below:

Tibet Corp., Income Statement, end of year 2013	
Sales	$1,000
Cost of Goods Sold	800
Taxable Income	200
Taxes(34%)	68
Net Income	132
Dividends	44
Add. to Ret. Earnings	88

Tibet Corp., Balance Sheet, end of year 2013			
Current Assets		*Current Liabilities*	
Cash	160	Accounts Payable	300
Accounts Receivable	440	Notes Payable	100
Inventory	600	*Total Current Liabilities*	400
Total Current Assets	1,200	*Long-Term Debt*	800
Net Fixed Assets	1,800	*Owners' Equity*	
		Stock	800
		Retained Earnings	1,000
Total Assets	3,000	*Total Liabilities and*	3,000

Assuming that the company gets all of its supplies (raw materials etc. for the goods produced and sold) on credit, on average, how long does it take for Tibet Corp., to pay its suppliers?

During the course a year, Tibet Corp. got 800 worth of supplies on credit. Since accounts payable is 300, on average supplies are paid and reordered 800/300 = 2.7 times during the course of a year.

This corresponds to 365/2.7 = 137 days.

21. (5 points) *For this question, use the income statement and the Balance Sheet given in question 20.* Tibet Corporation would like to grow by 10% from 2013 to 2014. What is the External Financing Need?

$$EFN = \left(\frac{\text{Assets}}{\text{Sales}}\right) \times \Delta\text{Sales} - \frac{\text{Spon Liab}}{\text{Sales}} \times \Delta\text{Sales} - (PM \times \text{Projected Sales}) \times (1-d)$$

*EFN = (3,000/1,000) * 100 – (300/1,000) * 100 – [0.132 * 1,100 * (1-1/3)]*

= 300 – 30 – 96.8

= 173.2

22. (4 points) As a proxy, either the Stockholder's Equity or Market Capitalization is used to measure a company's value. Write down a disadvantage of using each.

Disadvantage of using Stockholders' Equity: In the balance sheet, everything is recorded at cost (the original price) and not at the market value. Hence, the numbers maybe outdated.

Disadvantage of using Market Capitalization: The stock price is affected by the company news as well as the news related to the broader economy. At any given time, it is not obvious whether the stock price is reflecting only what is related to company's stock or things that are irrelevant to the company but affect investor behavior.

23. (3 points) What does an unusually high P/E Ratio (Price to Earnings Ratio) indicate?

Market price of the stock is too high compared to the current earnings of the company. Then, either the company has very high earnings potential in the future to justify the high price now (1.5 points) , or the stock is simply overpriced (1.5 points).