Exercise 1. [5]

1) **An increase in which one of the following accounts increases a firm's current ratio without affecting its quick ratio.**
   a) Account payable
   b) cash
   c) Account receivable
   d) inventory

2) **DuPont Analysis deals with:**
   a) Analysis of Current Assets
   b) Analysis of Profit
   c) Capital Budgeting
   d) Analysis of Fixed Assets

3) **A ratio that compares investors' and creditors' stake in a company.**
   a) Debt ratio.
   b) Debt-Equity ratio.
   c) Equity ratio.
   d) Investor creditor ratio.

4) **Ratios that measure a firm's financial leverage are known as ……. Ratios.**
   a) asset management
   b) long-term solvency
   c) short-term solvency
   d) profitability

5) **Firm A has an ROE equal to 24%, while Firm B has an ROE of 15% during the same year. Both firms have a total debt ratio equal to 0.8. Firm A has an asset turnover ratio of 0.9, while Firm B has an asset turnover ratio equal to 0.4. From this we know that:**

   a) Firm A has a higher profit margin than Firm B
   b) Firm B has a higher profit margin than Firm A
   c) Firms A and B have the same profit margin
   d) Firm A has a higher equity multiplier than firm B

Exercise 2. [8]

Smolira Golf Corporation reports the following information for 2008 and 2009.

SMOLIRA GOLF
2008 and 2009 Balance Sheets

Assets			Liabilities and Owners' Equity		
	2008	2009		2008	2009
Current assets			Current liabilities		
Cash	$21,860	$ 22,050	Accounts payable	$ 19,320	$ 22,850
Accounts receivable	11,316	13,850	Notes payable	10,000	9,000
Inventory	23,084	24,650	Other	9,643	11,385
Total	$56,260	$ 60,550	Total	$ 38,963	$ 43,235
			Long-term debt	$ 75,000	$ 85,000
			Owners' equity		
			Common stock and paid-in surplus	$ 25,000	$ 25,000
Fixed assets			Accumulated retained earnings	151,365	167,840
Net plant and equipment	234,068	260,525	Total	$176,365	$192,840
Total assets	$290,328	$321,075	Total liabilities and owners' equity	$290,328	$321,075

SMOLIRA GOLF, Inc.
2009 Income Statement

Sales		$305,830
Cost of goods sold		210,935
Depreciation		26,850
Earnings before interest and taxes		$ 68,045
Interest paid		11,930
Taxable income		$ 56,115
Taxes (35%)		19,640
Net income		$ 36,475
Dividends	$20,000	
Retained earnings	16,475	

1) Prepare the 2009 combined common-size, common–base year balance sheet for Smolira Golf Corp. (only assets side).
2) Calculate the following financial ratios for Smolira Golf Corp.:
    a. Quick ratio.

b. NWC to total assets ratio.
c. Debt–equity ratio and equity multiplier.
d. Profit margin
e. ROA
f. ROE

3) Construct the Du Pont identity for Smolira Golf Corp.

ANSWER

1)

Assets			Common size assets		Common Base Year Assets	Combined Common Size and Base-Year assets
	2008	2009	2008	2009		
Current Assets						
Cash	21,860	22,050	7.53%	6.87%	1.009	0.91
Account receivable	11,316	13,850	3.9%	4.31%	1.22	1.105
Inventory	23,084	24,650	7.95%	7.68%	1.07	0.97
Total	56,260	60,550	19.38%	18.86%	1.08	0.97
Fixed asset						
Net plant and equipment	234,068	260,525	80.62%	81.14%	1.11	1.006
Total asset	290,328	321,075	100%	100%	1.11	1

2) a) $=\frac{(60550-24650)}{43235} = 0.83$

b) $= \frac{60550-43235}{321075}=0.053$

c) debt-equity ratio=Equity Multiplier= 1.664-1=0.664

where Equity Multiplier=$\frac{321075}{192840} = 1.664$

d - Profit Margin= net income/sale= $\frac{36475}{305830} = 0.119$

e) ROA=net income/total asset=$\frac{36473}{321075} = 0.113$

f) ROE= net income/total equity= 0.189

3) Du Pont identity: ROE= Profit Margin x total asset turnover x equity Multiplier Total

0.189 = 0.119 x 0.952 x 1.664 =0.189

Where ROE from part 2 is equal to 0.189 which is the same

Exercise 3. [7]

You have the following information about Moose Tours Inc.:

MOOSE TOURS, INC. 2008 Income Statement		
Sales		$929,000
Costs		723,000
Other expenses		19,000
Earnings before interest and taxes		$187,000
Interest paid		14,000
Taxable income		$173,000
Taxes		60,550
Net income		$112,450
Dividends	$33,735	
Addition to retained earnings	78,715	

MOOSE TOURS, INC. Balance Sheet as of December 31, 2008			
Assets		**Liabilities and Owners' Equity**	
Current assets		Current liabilities	
Cash	$ 25,300	Accounts payable	$ 68,000
Accounts receivable	40,700	Notes payable	17,000
Inventory	86,900	Total	$ 85,000
Total	$152,900	Long-term debt	$158,000
Fixed assets		Owners' equity	
Net plant and equipment	413,000	Common stock and paid-in surplus	$140,000
		Retained earnings	182,900
		Total	$322,900
Total assets	$565,900	Total liabilities and owners' equity	$565,900

Suppose that Moose Tours, Inc., sales 2009 are projected to grow by 20% percent. Interest expense will remain constant; the tax rate and the dividend pay-out rate will

also remain constant. Costs, other expenses, current assets, and accounts payable increase spontaneously with sales.

a) Suppose the firm is operating at full capacity and no new debt or equity is issued. Give the pro forma statements and the external financing needed to support the 20 percent growth rate in sales.
b) Suppose the firm operated at only 90 percent capacity in 2008. What is EFN now?
c) Suppose the firm wishes to keep its debt-equity ratio constant. What is EFN now?

ANSWER

a)

Pro forma income statement		
Sales		**1114800**
Costs		**867600**
Other expanses		**22800**
Earning before interest		**224400**
Interest paid		**14000**
Taxable income		**210400**
Taxes (35%)		**73640**
Net income		**136760**
Dividends	**41028**	
Additional to retained earnings	**95732**	

Pro forma Balance Sheet

Current assets		**Current liabilities**	
Cash	**30360**	**Acc payable**	**81600**
Acc receivable	**48840**	**Note payable**	**17000**
Inventory	**104280**	**Total**	**98600**
Total	**183480**	**Long term debt**	**158000**
Fixed assets		**Equity**	
Net plant equip.	**495600**	**Common stock**	**140000**
		Retained earnings	**278632**
Total assets	**679080**	**Total liabilities and equities**	**675,232**

1

So, EFN=679,080 – 675,232 = 3,848

1

b) Current sales= percentage x Full Capacity= 92900/0.9= 1032222.2 <1,114,800

Then: Project sales are less than full-capacity sales

1

Capital intensity ratio=0.4

New fixed asset= 1,114,800x0.4=445,920

There is no need for fixed assets of 495600-445,920=49,680

New EFN=3,848 -49,680=-45,837 a surplus (no EFN need)

c) To maintain the dept-equity ratio constant, we use the sustainable growth rate:

SGR = ROE x b/ 1 – ROE x b

ROE = Net Income / Total equity = 0.3483

b=0.7

we deduce: SGR = 32.24%

Pro forma income statement	
Sales	1228509.60
Costs	956149.02
Other expanses	25184.45
Earning before interest	247176.13
Interest paid	**14000**
Taxable income	233176.13
Taxes (35%)	81611.65
Net income	151564.48
Dividends	45469.34
Additional to retained earnings	106095.14

Proforma balance sheet			
Current assets		Current Liabilities	
Cash	33415.46	Acc payable	89926.90
Acc receivable	53808.72	Note payable	17000
Inventory	114865.65	total	106926.90
Total	202089.83	long term dept	158000
Fixed assets		Owner's Equity	
Net plant	546195.37	Common stock	140000

	Retained earnings 288995.14
Total assets 748285.2	Total L and E 693922.04
So EFN =54363.16	

I. Short-term solvency, or liquidity, ratios	II. Long-term solvency, or financial leverage, ratios
$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}}$	$\text{Total debt ratio} = \frac{\text{Total assets} - \text{Total equity}}{\text{Total assets}}$
$\text{Quick ratio} = \frac{\text{Current assets} - \text{Inventory}}{\text{Current liabilities}}$	$\text{Debt–equity ratio} = \text{Total debt/Total equity}$
$\text{Cash ratio} = \frac{\text{Cash}}{\text{Current liabilities}}$	$\text{Equity multiplier} = \text{Total assets/Total equity}$
$\text{Net working capital to total assets} = \frac{\text{Net working capital}}{\text{Total assets}}$	$\text{Long-term debt ratio} = \frac{\text{Long-term debt}}{\text{Long-term debt} + \text{Total equity}}$
$\text{Interval measure} = \frac{\text{Current assets}}{\text{Average daily operating costs}}$	$\text{Times interest earned ratio} = \frac{\text{EBIT}}{\text{Interest}}$
	$\text{Cash coverage ratio} = \frac{\text{EBIT} + \text{Depreciation}}{\text{Interest}}$
III. Asset management, or turnover, ratios	**IV. Profitability ratios**
$\text{Inventory turnover} = \frac{\text{Cost of goods sold}}{\text{Inventory}}$	$\text{Profit margin} = \frac{\text{Net income}}{\text{Sales}}$
$\text{Days' sales in inventory} = \frac{\text{365 days}}{\text{Inventory turnover}}$	$\text{Return on assets (ROA)} = \frac{\text{Net income}}{\text{Total assets}}$
$\text{Receivables turnover} = \frac{\text{Sales}}{\text{Accounts receivable}}$	$\text{Return on equity (ROE)} = \frac{\text{Net income}}{\text{Total equity}}$
$\text{Days' sales in receivables} = \frac{\text{365 days}}{\text{Receivables turnover}}$	$\text{ROE} = \frac{\text{Net income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Assets}} \times \frac{\text{Assets}}{\text{Equity}}$
$\text{NWC turnover} = \frac{\text{Sales}}{\text{NWC}}$	**V. Market value ratios**
$\text{Fixed asset turnover} = \frac{\text{Sales}}{\text{Net fixed assets}}$	$\text{Price–earnings ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$
$\text{Total asset turnover} = \frac{\text{Sales}}{\text{Total assets}}$	$\text{PEG ratio} = \frac{\text{Price–earnings ratio}}{\text{Earnings growth rate (\%)}}$
	$\text{Price–sales ratio} = \frac{\text{Price per share}}{\text{Sales per share}}$
	$\text{Market-to-book-ratio} = \frac{\text{Market value per share}}{\text{Book value per share}}$
	$\text{Tobin's Q Ratio} = \frac{\text{Market value of assets}}{\text{Replacement cost of assets}}$