**Discussion Problems WEEK 4 Financial Ratios and Financial Growth 1/31/2020**

**1.**Samuelson's has a debt-equity ratio of 40%, sales of $8,000, net income of $600, and total debt of $2,400. What is the return on equity?

Return on equity = $600 ÷ ($2,400 ÷ .40) = .10 = 10%

**2.** The most recent financial statements for Bradley, Inc. are shown (no income taxes):

Income statement Balance sheet

Sales $ 5,700 Assets $ 14,100 Debt $ 6,300

Costs 3,820 Equity 7,800

Net income $ 1,880 Total $ 14,100 Total $ 14,100

Assets and costs are proportional to sales. Debt and Equity are not. No dividends are paid. Next year’s sales are projected to be $6,669. What is the external financing need(EFN)?

An increase of sales to $6,669 is an increase of ($6,669 – 5,700) / $5,700

Sales increase = .17 or 17%

Assuming costs and assets increase proportionally, the pro forma financial statements will look like this:

Pro forma income statement Pro forma balance sheet

Sales $ 6,669 Assets $ 16,497 Debt $ 6,300

Costs 4,469 Equity 10,000

Net income $ 2,200 Total $ 16,497 Total $ 16,300

If no dividends are paid, the equity account will increase by the net income, so:

Equity = $7,800 + 2,200 =10,000

EFN = Total assets – Total liabilities and equity = $16,497 – 16,300 = $197

**3.**A firm has a return on equity of 15%. The debt-equity ratio is 50%. The total asset turnover is 1.25 and the profit margin is 8%. The total equity is $3,200. What is the amount of the net income? 

Using the Du Pont identity: Total assets = (1 + .50) × $3,200 = $4,800; Total sales = $4,800 × 1.25 = $6,000; Net income = $6,000 × .08 = $480

Or using ROE = Net Income/Equity, Net income = (0.15)\*(3200) = $480

**4.** Suppose a firm calculates its external funding needs and finds that it is negative. What are the firm's options in this case?

*With a negative external financing need, the firm has a surplus of funds that it can use to reduce current liabilities, reduce long-term debt, buy back common stock, or increase dividends. If acceptable opportunities exist, firms might also use the extra funds to add assets.*

**5.** Profit margins tend to differ in different industries. An example is that grocery stores have notoriously low profit margins. Albertson’s Profit Margin is 1.2% compared to Pfizer’s Profit Margin of 15.6%, a pharmaceutical company.

Then, why invest on grocery stores instead of pharmaceutical companies?

*Investors are mostly interested in Return On Equity (ROE) which can be decomposed as*

*ROE = Profit Margin x Asset Turnover x Equity Multiplier. Therefore, Profit Margin, albeit important from an investor’s point of view, constitutes only one of the components to consider.*

*A low profit margin does not necessarily mean a low ROE. For example the Asset management of the company maybe so efficient (high Asset Turnover) that it compensates for a low profit margin. For example, for grocery stores, sales volume is expected to be comparatively high for the amount of assets needed to support those sales.*

**6.** Yahoo is not happy with its ROE number. Considering DuPont identity, what would you recommend they do to improve their ROE? The interest rates are historically at a very low level these days. Would this affect your recommendation?

*Profit Margin, ROA, or Asset Turnover Ratio improvements will help to boost ROE*.

*For the Equity Multiplier, one needs to be careful. Even though increased Equity Multiplier would help ROE, it would mean increased leverage(debt) at the same time causing the interest payments to go up, and possibly the costs to go up and profit margin to go down.*

*When interest rates (borrowing cost) is very low then the effect of increased Equity Multiplier (hence, increased debt) on the Profit Margin may not be significant. Therefore, with interest rates being low, we would be less willing to avoid raising Equity Multiplier to boost ROE.*

**7.** FINANCIAL PLANNING: VisageLivre Inc. is a young company founded by a UCLA graduate. Annual Balance Sheet and Income Statement of VisageLivre are provided below (as of Dec 31st 2017).

Company would like to grow its sales by 25% from 2017 to 2018. Given the following conditions, produce VisageLivre’s proforma statements for 2018:

1. Sales and Costs(COGS&Adm&Dep) grow at 25%.
2. Interest for 2018 is 10% of 2018 Long Term Debt. (You can check to see that Interest was 10% of Long Term Debt for 2017 as well.)
3. Tax rate is 20%.
4. Company would like to preserve its dividend policy as in 2017.
5. Company would like to purchase back $50 worth of its own stock in 2018.
6. All accounts on the Assets side grow at the same rate as sales.
7. Accounts Payable grows at the same rate as sales.
8. No new stock will be issued in 2018.
9. Company meets half of its external financing need by borrowing short term and half of it by borrowing long term.

*Solution: Let x be the addition to long term debt in 2018. Then addition to short term debt in 2018 is also x.*

|  |  |  |
| --- | --- | --- |
| Company ZNAP, Pro Forma Income Statement | | |
|  | 2017 | 2018  (Projected) |
| Sales | $1,000 | 1,250 |
| Costs (COGS&Adm&Dep) | 700 | 875 |
| Interest | 160 | 0.10(1600+x) |
| Taxable Income | 140 | 1250-875-0.10(1600+x) |
| Taxes | 28 | 0.2(1250-875-0.10(1600+x)) |
| Net Income | 112 | 0.8(1250-875-0.10(1600+x)) |
| Dividends | 0 | 0 |
| Additions to Retained Earnings | 112 | 0.8(1250-875-0.10(1600+x)) |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Company ZNAP, Pro Forma Balance Sheet | | | | | | |  |
|  | 2017 | 2018  (Projected) |  | 2017 |  | 2018  (Projected) | 2018  (Projected) |
| Current Assets |  |  | Current Liabilities |  |  |  |  |
| Cash | 160 | 200 | Accounts Payable | 300 |  | 375 | 375 |
| Accounts Receivable | 440 | 550 | Notes Payable | 100 |  | 100+x | 388 |
| Inventory | 600 | 750 | Total Current Liabilities | 400 |  | 475+x | 763 |
| Total Current Assets | 1,200 | 1,500 | Long-Term Debt | 1,600 |  | 1,600+x | 1,888 |
| Net Fixed Assets | 1,800 | 2,250 | Owners’ Equity |  |  |  |  |
|  |  |  | Stock | 888 |  | 838 | 838 |
|  |  |  | Retained Earnings | 112 |  | 112+0.8(1250-875-0.10(1600+x)) | 261 |
|  |  |  |  |  |  |  |  |
| Total Assets | 3,000 | 3,750 | Total Liabilities and Owners’ Equity | 3,000 |  | 3,750 | 3750 |