

# BOSTON COLLEGE

## S U M M E R S E S S I O N

**MFIN102201, Fundamental of Finance  
Boston College Summer Session 2018  
Monday and Wednesday 6:00 PM-9:15 PM**

### Solution to Problem Set 2. Additional detail in Excel Spreadsheet

**You must read Chapter 3 and 4 before attempting to solve the problem set. The content from the class presentation will not be sufficient to answer the problem set. All questions were selected from the before mentioned chapters.**

- 1) Suppose that Home Depot borrows \$500 million by issuing new long-term bonds. It places \$100 million of the proceeds in the bank and uses \$400 million to buy new machinery. What items of the balance sheet would change? Would shareholders' equity change? Use the balance sheet provided in page 57 (it's the same we used in class)  
**Cash and equivalents would increase by \$100 million. Property, plant, and equipment would increase by \$400 million. Long-term debt would increase by \$500 million. Shareholders' equity would not increase: Assets and liabilities have increased equally, leaving shareholders' equity unchanged.**
- 2) Would the following activities increase or decrease the firm's cash balance? **Explain.**
  - a. Inventories are increased.  
**An increase in inventories uses cash, reducing the firm's net cash balance.**
  - b. The firm reduces its accounts payable.  
**A reduction in accounts payable uses cash, reducing the firm's net cash balance.**
  - c. The firm issues additional common stock.  
**An issue of common stock is a source of cash. Investors buy the new share from the company, the company receives cash.**
  - d. The firm buys new equipment.  
**The purchase of new equipment is a use of cash, and it reduces the firm's net cash balance.**
- 3) What is the difference between market and book values?  
**Book values are historical measures based on the original cost of an asset. For example, the assets in the balance sheet are shown at their historical cost less an allowance for depreciation. Similarly, the figure for shareholders' equity measures the cash that shareholders have contributed in the past or that the company has reinvested on their behalf. In contrast, market value is the current price of an asset or liability.**

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## S U M M E R S E S S I O N

4) Why does accounting income differ from cash flow?

Income is not the same as cash flow. There are two reasons for this: (1) Investment in fixed assets is not deducted immediately from income but is instead spread (as charges for depreciation) over the expected life of the equipment, and (2) the accountant records revenues when the sale is made, rather than when the customer actually pays the bill, and at the same time deducts the production costs even though those costs may have been incurred earlier.

5) Shares of Notung Cutlery Corp. closed 2013 at \$75 per share. Notung had 14.5 million shares outstanding. The book value of equity was \$610 million. Compute Notung's market capitalization, market value added, and market to-book ratio.

Market Cap =  $14.5 \times \$75 = \$1,087$  million

Market Value Added = Market Cap - Book Value =  $\$1,087 - \$610 = \$477$  million

Market to Book ratio = Market Cap / Book Value =  $\$1,087 / \$610 = 1.78$

6) Roman Holidays Inc. had operating income of \$30 million on a start-of-year total capitalization of \$188 million. Its cost of capital was 11.5%. What was its EVA?

Cost of capital x total capitalization =  $11.5\% \times \$188 \text{ million} = \$21.62 \text{ million}$

EVA = Operating Income - (CoC x TC) =  $\$30 \text{ million} - \$21.62 \text{ million} = \$8.32 \text{ million}$

7) Even within an industry, there can be a considerable difference in the type of business that companies do, and this shows up in their financial ratios. Here are some data on assets, sales, and income for two companies. Calculate for each company the asset turnover, the operating profit margin, and the return on assets. In each case the values are expressed as a percentage of sales. One of these two companies is Walmart. The other is Tiffany. Which one is which? Explain.

	Company A	Company B
Sales	100	100
Assets	41.2	109.6
Net income + after-tax interest	4.1	12.0

# BOSTON COLLEGE

## S U M M E R S E S S I O N

	Company A		Company B
Sales	100		100
Assets	41.2		109.6
Net Income + After tax interest	4.1		12
Asset Turnover (Sales/Assets)	2.43		0.91
Operating profit margin ((NI + ATI)/Sales)	4.1%		12%
Return on Assets ((NI + ATI)/Assets)	10.0%		10.9%

Company A has low margins and high turnover, more likely to be Walmart.  
Company B has high margin and low turnover, more likely to be Tiffany.

- 8) Financial Ratios. Use the following financial statements for Phone Corporation to calculate:
- Return on equity
  - Return on assets
  - Return on capital
  - Days in inventory
  - Inventory turnover
  - Average collection period
  - Operating profit margin
  - Long-term debt ratio
  - Total debt ratio
  - Times interest earned
  - Cash coverage ratio
  - Current ratio
  - Quick ratio

INCOME STATEMENT (Figures in \$ millions)	
Net sales	13,193
Cost of goods sold	4,060
Other expenses	4,049
Depreciation	2,518
Earnings before interest and taxes (EBIT)	2,566
Interest expense	685
Income before tax	1,881
Taxes (at 35%)	658
Net income	1,223
Dividends	856

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BALANCE SHEET (Figures in \$ millions)		
	End of Year	Start of Year
<b>Assets</b>		
Cash and marketable securities	\$ 89	\$ 158
Receivables	2,382	2,490
Inventories	187	238
Other current assets	867	932
Total current assets	\$ 3,525	\$ 3,818
Net property, plant, and equipment	19,973	19,915
Other long-term assets	4,216	3,770
Total assets	\$27,714	\$27,503
<b>Liabilities and shareholders' equity</b>		
Payables	\$ 2,564	\$ 3,040
Short-term debt	1,419	1,573
Other current liabilities	811	787
Total current liabilities	\$ 4,794	\$ 5,400
Long-term debt and leases	7,018	6,833
Other long-term liabilities	6,178	6,149
Shareholders' equity	9,724	9,121
Total liabilities and shareholders' equity	\$27,714	\$27,503

**Remember to use balance at the start of the year in the ratios calculation**

After tax interest	445.25
Net Income + after tax interest	1667.9
Return on equity	18.3%
Return on assets	6.1%
Return on capital	10.5%
Days in inventory	21.40
Daily cost of goods sold	11.12
Inventory turnover	17.06
Average collection period	68.89
Daily sales	36.15
Operating profit margin	13%
Long term debt ratio	0.43
Total debt ratio	0.67
Times interest earned	3.75
Cash coverage ratio	7.42
Current ratio	0.71
Quick ratio	0.49

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## S U M M E R S E S S I O N

**Bonus question: If you answer this correctly, you get 10 additional points in your lowest score problem set. All problem sets are graded in a 0-100 point scale.**

Could you provide an example of a company that generates high cash-flows but is unprofitable (doesn't have to be a real company)? **Be specific regarding why (operationally) this could happen.**

Could you provide an example of a company that generates high profits but little to none cash-flow (doesn't have to be a real company)? **Be specific regarding why (operationally) this could happen.**