


# Chapter 2

## Introduction to Financial Statement Analysis

*Note:* All problems in this chapter are available in MyFinanceLab. An asterisk (\*) indicates problems with a higher level of difficulty. For a breakdown of the difficulty ratings of all of the problems in this Solutions Manual, please see the Preface – Question Difficulty Ratings.

1. In a firm's annual report, four financial statements can be found: the balance sheet, the statement of comprehensive income (including the income statement), the statement of cash flows, and the statement of shareholders' equity. Financial statements in the annual report are required to be audited by a neutral third party, who checks and ensures that the financial statements are prepared according to GAAP (or IFRS) and that the information contained is reliable.
2. Each method will help find the same SEC filings. Yahoo! Finance also provides some analysis such as charts and key statistics.
  - a. Long-term liabilities would decrease by \$20 million, and cash would decrease by the same amount. The book value of equity would be unchanged.
  - b. Inventory would decrease by \$5 million, as would the book value of equity.
  - c. Long-term assets would increase by \$10 million, cash would decrease by \$5 million, and long-term liabilities would increase by \$5 million. There would be no change to the book value of equity.
  - d. Accounts receivable would decrease by \$3 million, as would the book value of equity.
  - e. This event would not affect the balance sheet.
  - f. This event would not affect the balance sheet.
4. Global Conglomerate's book value of equity increased by \$1 million from 2010 to 2011. An increase in book value does not necessarily indicate an increase in Global's share price. The market value of a stock does not depend on the historical cost of the firm's assets, but on investors' expectation of the firm's future performance. There are many events that may affect Global's future profitability, and hence its share price, that do not show up on the balance sheet.
5.
  - a. \$2717 million (cash) and \$8352 million (short-term investments/marketable securities) for a total of \$11,069 million
  - b. \$700 million
  - c. \$27,445 million
  - d. \$7129 million, nothing
  - e. \$20,316 million
6.
  - a. At the end of 2008, Peet's had cash and cash equivalents of \$4.719 million.
  - b. Peet's total assets were \$176.352 million.

- c. Peet's total liabilities were \$32.445 million, and it had no debt.
- d. The book value of Peet's equity was \$143.907 million.

7.  **Plan:** The problem presents us with some raw financial information for General Electric. While useful, this raw financial information is not well suited to support financial analysis of General Electric and answer such questions as: How has the stock market valued GE? How much debt does GE use relative to the equity financing that GE uses? How valuable, in today's dollars, is GE?

To answer these and other questions we must compute key ratios and current market values as opposed to historical cost values.

**Execute:**

- a. Market capitalization = 10.3 billion  $\times$  \$38 = \$391.4 billion

$$\text{Market-to-book ratio} = \frac{391.4}{117} = 3.35$$

- b. Book debt-equity ratio =  $\frac{467}{117} = 3.99$

$$\text{Market debt-equity ratio} = \frac{467}{391.4} = 1.19$$

- c. Enterprise value = 391.4 + 467 - 16 = 842.4

**Evaluate:** GE has a market-to-book ratio of 3.35. Over time, equity investors invested \$117B in GE; today that equity investment is worth \$391.4B (or 3.35 times more). This indicates that GE's management has run the firm well, and equity investors expect excellent results in the future.

GE has a book debt-equity ratio of 3.99. Over time, equity investors invested \$117B in GE and debt investors invested \$467B (or 3.99 times more). This would indicate that GE is very heavily financed with debt. But remember these are book values. In part (a) above, we calculated that GE's equity is valued at \$391.4B in today's dollars. A very different picture.

GE has an enterprise value of \$842.4B. In today's dollars investors value the entire company GE as having this value. This indicates a highly valued company.

8.



- a. Apple's current ratio =  $\frac{18.75}{6.99} = 2.68$

- b. Apple's quick ratio =  $\frac{18.75 - 0.25}{6.99} = 2.65$

- c. Apple has significantly more liquid assets than Dell relative to current liabilities.

9. **Plan:** The above table presents raw data about ANF and GPS. While useful, this information does not easily tell us how the stock market values each of these firms alone and by comparison. To accomplish this, we will compute the market-to-book ratio of each firm and then compare them.

**Execute:**

$$\text{a. ANF's market-to-book ratio} = \frac{46.7 \times 88.17}{1788} = 2.30$$

$$\text{GPS's market-to-book ratio} = \frac{25.00 \times 667.42}{4769} = 3.50$$

- b. The market looks more favorably on the outlook of The Gap than on Abercrombie & Fitch.

**Evaluate:** The market values, in a relative sense, the outlook of Abercrombie & Fitch less favorably than Gap. For every dollar of equity invested in ANF the market values that dollar today at \$2.30 versus \$3.50 for a dollar invested in the GPS. Equity investors are willing to pay relatively more today for shares of GPS than for ANF because they expect GPS to produce superior performance in the future.

10.



$$\text{a. Increase in Revenues} = \frac{284,822}{249,389} - 1 = 14.21\%$$

$$\text{b. Operating Margin (2007)} = \frac{11,606}{249,389} = 4.65\%$$

$$\text{Operating Margin (2008)} = \frac{17,001}{284,822} = 5.97\%$$

$$\text{Net Profit Margin (2007)} = \frac{8377}{249,389} = 3.36\%$$

$$\text{Net Profit Margin (2008)} = \frac{11,165}{284,822} = 3.92\%$$

Both margins increased compared with the year before.

- c. The diluted earnings per share in 2008 was \$0.80. The number of shares used in this calculation of diluted EPS was \$13.997 million.

11. **Plan:** We can use Eqs. 2.9, 2.10 and 2.11 to compute Local's margins. The problem gives us the necessary inputs.

**Execute:**

$$\text{a. Gross Margin} = \frac{\text{Gross Profit}}{\text{Sales}} = \frac{10 - 6}{10} = 0.4, \text{ or } 40\%$$

$$\text{b. Operating Margin} = \frac{\text{Operating Income}}{\text{Sales}} = \frac{10 - 6 - 0.5 - 1 - 1}{10} = 0.15, \text{ or } 15\%$$

$$\text{c. Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}} = \frac{(10 - 6 - 0.5 - 1 - 1)(1 - 0.35)}{10} = 0.0975, \text{ or } 9.75\%$$

**Evaluate:** Local is profitable. You can see how the margins decrease as you move down the income statement because each successive margin takes into account more costs.

12. **Plan:** Selling expenses do not affect the gross margin, but the increase in such expenses will decrease the other margins.

**Execute:**

Gross margin would not change

$$\text{Operating Margin} = \frac{\text{Operating Income}}{\text{Sales}} = \frac{10 - 6 - 0.8 - 1 - 1}{10} = 0.12, \text{ or } 12\%$$

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}} = \frac{(10 - 6 - 0.8 - 1 - 1)(1 - 0.35)}{10} = 0.078, \text{ or } 7.8\%$$

**Evaluate:** Gross margin only accounts for cost of good sold. The effect of the additional selling expenses can be seen in the reduced operating and net profit margins.

13. **Plan:** Only the net profit margin accounts for interest expense, so both the gross and operating margins will be unaffected.

**Execute:**

Gross margin would not change

Operating margin would not change

$$\text{Net Profit Margin} = \frac{\text{Net Income}}{\text{Sales}} = \frac{(10 - 6 - 0.5 - 1 - 1 - 0.8)(1 - 0.35)}{10} = .0455, \text{ or } 4.55\%$$

**Evaluate:** If you were focused only on the gross and operating margins, you would not see the impact of the increased interest expense, which shows-up in the net profit margin.

14. Using operating income as a multiple of interest to compute interest coverage, we have: operating income =  $0.10 \times \$30 \text{ million} = \$3 \text{ million}$ , so its interest coverage is  $\$3 \text{ million} / \$1 \text{ million} = 3 \text{ times}$ .

15. **Plan:** First, we must compute Ladders' net income using the fact that net profit margin is net income/sales. Then we can compute the ROE as net income/book equity and the ROA as net income/book assets.

**Execute:**

First, compute Ladders' net income:  $0.05 \times \$50 \text{ million} = \$2.5 \text{ million}$ .

ROE = Net Income/Book Equity =  $\$2.5 \text{ million} / \$40 \text{ million} = 6.25\%$

ROA = Net Income/Book Assets =  $\$2.5 \text{ million} / (\$30 \text{ million} + \$40 \text{ million}) = 3.57\%$

**Evaluate:** ROE measure the net income (to shareholders) as a percentage of the book value of their investment. ROA measures the net income (to shareholders) as a percentage of the book value of all the assets used to generate the income. A firm with positive book equity and some debt will always have a lower ROA than ROE. ROA and ROE will be the same for a firm with no liabilities.

16. **Plan:** Using the information provided and Eqs. 2.12 to 2.15, we can compute all the efficiency ratios for JPJ.

**Execute:**


$$\text{Accounts Receivable Days} = \frac{\text{Accounts Receivable}}{\text{Average Daily Sales}} = \frac{50,000}{(1,000,000 / 365)} = 18.25$$

$$\text{Fixed Asset Turnover} = \frac{\text{Sales}}{\text{Fixed Assets}} = \frac{1,000,000}{3,000,000} = .333$$

$$\text{(Total) Asset Turnover} = \frac{\text{Sales}}{\text{Total Assets}} = \frac{1,000,000}{5,000,000} = 0.2$$

$$\text{Inventory Turnover} = \frac{\text{Cost of Goods Sold}}{\text{Inventory}} = \frac{600,000}{150,000} = 4$$

**Evaluate:** These ratios allow you to evaluate how efficiently JPJ is utilizing its assets and how quickly it is collecting its accounts receivables.

17.  **Plan:** We are given some data about Global's financial results in 2010. Global launched a marketing campaign that increased sales but also decreased operating margins. We must calculate the effects of these changes on revenues, net income, and stock price.

**Execute:**

- a. Revenues in 2011 =  $1.15 \times 186.7 = \$214.705$  million  
 EBIT in 2011 =  $4.50\% \times 214.705 = \$9.66$  million (there is no other income)  
 Prior to changed assumptions, EBIT in 2011 =  $5.57\% \times 186.70 = \$10.39$  million

- b. Net income in 2011 = EBIT – interest expenses – taxes  
 $= (9.66 - 7.7) \times (1 - 24\%)$   
 $= \$1.49$  million.

Prior to changed assumptions, net income in 2011 = EBIT – interest expenses – taxes  
 $= (10.39 - 7.7) \times (1 - 24\%)$   
 $= \$2.04$  million.

- c. Share price = (P/E ratio in 2011)  $\times$  (EPS in 2011) =  $18.0 \times \left( \frac{1.49}{3.6} \right) = \$7.45$

Prior to changed assumptions, share price in 2011 = (P/E ratio in 2011)  $\times$  (EPS in 2011) =  $18.0 \times (2.04/3.6) = \$10.20$ .

**Evaluate:** The new aggressive marketing campaign succeeded in raising revenues by 15%. Unfortunately operating margins fell from 5.57% to 4.50%, which reduced EBIT and net income. As a result the stock price fell from \$10.20 to \$7.45. The new marketing campaign destroyed stockholder value and is therefore a failure.

\*18.



- a. A \$10 million operating expense would be immediately expensed, increasing operating expenses by \$10 million. This would lead to a reduction in taxes of  $35\% \times \$10 \text{ million} = \$3.5 \text{ million}$ . Thus, earnings would decline by  $10 - 3.5 = \$6.5 \text{ million}$ . There would be no effect on next year's earnings.
- b. Capital expenses do not affect earnings directly. However, the depreciation of \$2 million would appear each year as an operating expense. With a reduction in taxes of  $2 \times 35\% = \$0.7 \text{ million}$ , earnings would be lower by  $2 - 0.7 = \$1.3 \text{ million}$  for each of the next 5 years.

19. **Plan:** The above table presents raw data about Debt, Equity, Operating Income, and Interest Expense. While useful, this information does not easily tell us how much financial leverage each of these firms alone and by comparison is using. It also does not tell us how well each firm is able to support its debt. To accomplish this, we will compute various leverage ratios of each firm and then compare them.

**Execute:**

- a. **Firm A:** Market debt-equity ratio  $= \frac{500}{400} = 1.25$

$$\text{Firm B: Market debt-equity ratio} = \frac{80}{40} = 2.00$$

- b. **Firm A:** Book debt-equity ratio  $= \frac{500}{300} = 1.67$

$$\text{Firm B: Book debt-equity ratio} = \frac{80}{35} = 2.29$$

- c. **Firm A:** Interest coverage ratio  $= \frac{100}{50} = 2.00$

$$\text{Firm B: Interest coverage ratio} = \frac{8}{7} = 1.14$$

- d. **Evaluate:** Firm B has a lower coverage ratio and will have slightly more difficulty meeting its debt obligations than Firm A.

20. **Plan:** The table presents raw data about Sales, Accounts Receivable, and Inventory data for Walmart and Target. While useful, this information does not easily tell us how well each firm is managing its Accounts Receivable and Inventory in general and in comparison with each other. To accomplish this, we will compute the relevant ratios of each firm and then compare them.

**Execute:**

- a. Walmart: Accounts Receivable Days  $= \frac{4144}{\left(\frac{408214}{365}\right)} = 3.71$

$$\text{Target: Accounts Receivable Days} = \frac{6966}{\left(\frac{65357}{365}\right)} = 38.90$$

- b. Walmart: Inventory Turnover  $= \frac{304,657}{30,254} = 10.07$

$$\text{Target: Inventory Turnover} = \frac{45,583}{7179} = 6.35$$

- c. Walmart is managing its accounts receivable and inventory more efficiently, as shown by the above ratios.

**Evaluate:** Walmart is managing its accounts receivable and inventory more efficiently, as shown by the above ratios. Walmart collects its accounts receivable in 3.71 days as opposed to 38.90 days for Target. Likewise Walmart turns over its inventory 10.07 times a year, as opposed to 6.35 times for Target.

21. **Plan:** Quisco Systems wishes to acquire a new networking technology and is confronted with a common business problem: whether to develop the technology itself in house or to acquire another company that already has the technology. Quisco must perform a comprehensive analysis of each option, not just comparing internal development costs versus acquisition costs, but considering tax implications as well.

**Execute:**

- a. If Quisco develops the product in house, its earnings would fall by  $\$500 \times (1 - 35\%) = \$325$  million. With no change to the number of shares outstanding, its EPS would decrease by  $\$0.05 = \$325/6500$  to  $\$0.75$ . (Assume the new product would not change this year's revenues.)
- b. If Quisco acquires the technology for \$900 million worth of its stock, it will issue  $\$900/18 = 50$  million new shares. Since earnings without this transaction are  $\$0.80 \times 6.5 \text{ billion} = \$5.2 \text{ billion}$ , its EPS with the purchase is  $5.2/6.55 = \$0.794$ .

**Evaluate:** Acquiring the technology would have a smaller impact on earnings. But this method is not cheaper. Developing it in house is less costly and provides an immediate tax benefit. The earnings impact is not a good measure of the expense. In addition, note that because the acquisition permanently increases the number of shares outstanding, it will reduce Quisco's earnings per share in future years as well.

\*22.



- a. Market capitalization-to-revenue ratio

$$= \frac{1.7}{23.8} = 0.07 \text{ for American Airlines}$$

$$= \frac{2.2}{13.1} = 0.17 \text{ for British Airways}$$

- b. Enterprise value-to-revenue ratio

$$= \frac{(1.7 + 11.1 - 4.6)}{23.8} = 0.34 \text{ for American Airlines}$$

$$= \frac{(2.2 + 4.7 - 2.6)}{13.1} = 0.33 \text{ for British Airways}$$

- c. The market capitalization-to-revenue ratio cannot be meaningfully compared when the firms have different amounts of leverage, as market capitalization measures only the value of the firm's equity. The enterprise value-to-revenue ratio is therefore more useful when the firm's leverage is quite different, as it is here.

- 23. Plan:** Peet's Coffee and Tea management uses the well-known DuPont identity to measure ROE and the components of ROE. Management wants to know how much of an increase in asset turnover would be needed to raise ROE by a percentage point.



**Execute:**

a. Peet's Net Profit Margin  $= \frac{11,165}{284,822} = 3.92\%$

Peet's Asset Turnover  $= \frac{284,822}{176,352} = 1.62$

Peet's Asset Multiplier  $= \frac{176,352}{143,907} = 1.23$

b. Peet's ROE (DuPont)  $= 3.92\% \times 1.62 \times 1.23 = 7.81\%$

c. Peet's revised ROE  $= 3.92\% \times 1.8238 \times 1.225 = 8.758\%$ .

Peet's would need to increase asset turnover to almost 1.825 times.

**Evaluate:** Peet's current ROE is approximately 7.76% with an asset turnover of 1.62 times. To raise ROE to 8.76%, Peet's would have to increase its asset turnover to almost 1.84 times.

- \*24. Plan:** Starbucks hires a new financial analyst who used to work for Peet's. The analyst would like to perform the same type of DuPont analysis on Starbucks that was used at Peet's.

**Execute:**

Net Profit Margin  $= \frac{315.5}{10,383.0} = 3.04\%$

Asset Turnover  $= \frac{10,383}{5672.6} = 1.83$

Asset Multiplier  $= \frac{5672.6}{2490.9} = 2.28$

Starbucks's ROE (DuPont)  $= 3.04\% \times 1.83\% \times 2.28\% = 12.67\%$

The two firms' ROEs differ mainly because the firms have different asset multipliers, implying that the difference in the ROE might be due to leverage.

**Evaluate:** Starbucks has a higher ROE than Peet's. This is because Starbucks has a higher net profit margin, asset turnover, and asset multiplier

- 25. Plan:** Use the DuPont Identity to perform the analysis:  
Net Profit Margin  $\times$  Total Asset Turnover  $\times$  Total Assets/Equity

**Execute:**

a.  $3.5\% \times 1.8 \times 44/18 = 15.4\%$

b.  $4\% \times 1.8 \times 44/18 = 17.6\%$

c.  $4\% \times (1.8 \times 1.2) \times 44/18 = 21.1\%$

**Evaluate:** The analysis demonstrates different ways that a company can increase its overall ROE—by increasing its net profit margin or its asset turnover.

26.

- a. Net cash provided by operating activities was \$25.444 million in 2008.
- b. Depreciation and amortization expenses were \$15.113 million in 2008.
- c. Net cash used in new property and equipment was \$25.863 million in 2008.
- d. Peet's raised \$3.138 million from sale of shares of its stock, while it spent \$20.627 million on the purchase of common stock. Net of purchases Peet's raised  $-\$17.489$  million from the sale of its shares of stock (net of any purchases).

27.



- a. Heinz's cumulative earnings over these 4 quarters was \$918 million. Its cumulative cash flows from operating activities was \$1.19 billion.
- b. Fraction of cash from operating activities used for investment over the 4 quarters:

	29-Oct-08	30-Jul-08	30-Apr-08	30-Jan-08	4 Quarters
Operating Activities	227,502	-13,935	717,635	254,534	1,185,736
Investing Activities	-196,952	-35,437	-251,331	-96,848	-580,568
CFI/CFO	86.57%	-254.30%	35.02%	38.05%	48.96%

- c. Fraction of cash from operating activities used for financing over the 4 quarters:

	29-Oct-08	30-Jul-08	30-Apr-08	30-Jan-08	4 Quarters
Operating Activities	227,502	-13,935	717,635	254,534	1,185,736
Financing Activities	462,718	-13,357	-526,189	-96,044	-172,872
CFF/CFO	-203.39%	-95.85%	79.32%	37.73%	14.58%


28. **Plan:** Even a relatively simple transaction such as receiving an order to sell merchandise on credit and shipping the order promptly creates a series of changes within the firm. Map out the changes that would occur to a firm that engages in a relatively simple business transaction.

**Execute:**

- a. *Revenues:* increase by \$5 million
- b. *Earnings:* increase by \$3 million
- c. *Receivables:* increase by \$4 million
- d. *Inventory:* decrease by \$2 million
- e. *Cash:* increase by \$1 million

$[\$3 \text{ million (earnings)} - \$4 \text{ million (receivables)} + \$2 \text{ million (inventory)}]$


**Evaluate:** We can see that even a relatively simple credit sale has impacts on Revenues, Earnings, Accounts Receivable, Inventory, and eventually Cash.

29.  **Plan:** Nokela Industries plans to purchase a capital asset. In this case it is a \$40 million cyclo-converter. Any time a firm acquires a capital asset it is permitted to depreciate the asset for tax purposes. This has Depreciation Expense, Tax Expense, and Cash Flow effects that must be understood and analyzed.

**Execute:**

- a. Earnings for the next 4 years would have to deduct the depreciation expense. After taxes, this would lead to a decline of  $10 \times (1 - 40\%) = \$6$  million each year for the next 4 years.
- b. Cash flow for the next 4 years: less \$36 million ( $-6 + 10 - 40$ ) this year, and add \$4 million ( $-6 + 10$ ) for 3 following years.

**Evaluate:** For the next 4 years the investment in the cyclo-converter will increase Nokela's depreciation expense by \$10 million and will reduce after-tax earnings by \$6 million per year. Depreciation expense is a non-cash expense (it is an accrual that recognizes that the value of the asset, which has already been paid for, is declining in value) that the firm does not have to pay out. Since every dollar of depreciation expense lowers Nokela's taxable income by a dollar, its tax savings therefore are 40 cents on the dollar. The \$10 million in depreciation expense in the next 4 years will lower Nokela's tax bill by \$4 million ( $\$10 \text{ million} \times 0.4$ ) per year.

30.  **Plan:** You are presented with a large amount of financial information over several years about Clorox Company. You are asked to analyze this information around issues of profitability, and book and market values of equity for your boss.

**Execute:**

- a. The book value of Clorox's equity decreased by \$2.101 billion compared with that at the end of previous quarter, and was negative.
- b. Because the book value of equity is negative in this case, Clorox's market-to-book ratio and its book debt-equity ratio are not meaningful. Its market debt-equity ratio may be used in comparison.
- c. Information from the statement of cash flows helped explain that the decrease of book value of equity resulted from an increase in debt that was used to repurchase \$2.110 billion worth of the firm's shares.
- d. Negative book value of equity does not necessarily mean the firm is unprofitable. Loss in gross profit is only one possible cause. If a firm borrows to repurchase shares or invest in intangible assets (such as R&D), it can have a negative book value of equity.

**Evaluate:** Clorox issued debt to buy back \$2.11 billion in equity. Obviously that resulted in a large increase in outstanding debt and a large decline in outstanding equity. This resulted in the book value of Clorox's equity being negative. On the surface a negative book value of equity would suggest an unprofitable if not failed firm. The reality in this case is much more complicated.

31.

- a. Deloitte and Touche LLP audited these financial statements.
- b. Peet's chief executive officer and chief financial officer certified the financial statements.