

Solution Manual for Corporate Finance 3rd Edition by Berk DeMarzo

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Chapter 2

Introduction to Financial Statement Analysis

2-1. What four financial statements can be found in a firm's 10-K filing? What checks are there on the accuracy of these statements?

In a firm's 10-K filing, four financial statements can be found: the balance sheet, income statement, statement of cash flows, and statement of stockholders' equity. Financial statements in form 10-K are required to be audited by a neutral third party, who checks and ensures that the financial statements are prepared according to GAAP and that the information contained is reliable.

2-2. Who reads financial statements? List at least three different categories of people. For each category, provide an example of the type of information they might be interested in and discuss why.

Users of financial statements include present and potential investors, financial analysts, and other interested outside parties (such as lenders, suppliers and other trade creditors, and customers). Financial managers within the firm also use the financial statements when making financial decisions.

Investors. Investors are concerned with the risk inherent in, and return provided by, their investments. Bondholders use the firm's financial statements to assess the ability of the company to make its debt payments. Stockholders use the statements to assess the firm's profitability and ability to make future dividend payments.

Financial analysts. Financial analysts gather financial information, analyze it, and make recommendations. They read financial statements to determine a firm's value and project future earnings, so that they can provide guidance to businesses and individuals to help them with their investment decisions.

Managers. Managers use financial statements to look at trends in their own business, and to compare their own results with that of competitors.

2-3. Find the most recent financial statements for Starbucks' corporation (SBUX) using the following sources:

- a. From the company's Web site www.starbucks.com (*Hint: Search for "investor relations."*)
- b. From the SEC Web site www.sec.gov. (*Hint: Search for company filings in the EDGAR database.*)
- c. From the Yahoo! Finance Web site <http://finance.yahoo.com>.
- d. From at least one other source. (*Hint: Enter "SBUX 10K" at www.google.com.*)

Each method will help find the same SEC filings. Yahoo! Finance also provides some analysis such as charts and key statistics.

- 2-4. Consider the following potential events that might have taken place at Global Conglomerate on December 30, 2012. For each one, indicate which line items in Global's balance sheet would be affected and by how much. Also indicate the change to Global's book value of equity. (In all cases, ignore any tax consequences for simplicity.)**
- Global used \$20 million of its available cash to repay \$20 million of its long-term debt.**
 - A warehouse fire destroyed \$5 million worth of uninsured inventory.**
 - Global used \$5 million in cash and \$5 million in new long-term debt to purchase a \$10 million building.**
 - A large customer owing \$3 million for products it already received declared bankruptcy, leaving no possibility that Global would ever receive payment.**
 - Global's engineers discover a new manufacturing process that will cut the cost of its flagship product by over 50%.**
 - A key competitor announces a radical new pricing policy that will drastically undercut Global's prices.**
- Long-term liabilities would decrease by \$20 million, and cash would decrease by the same amount. The book value of equity would be unchanged.
 - Inventory would decrease by \$5 million, as would the book value of equity.
 - 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.
 - Accounts receivable would decrease by \$3 million, as would the book value of equity.
 - This event would not affect the balance sheet.
 - This event would not affect the balance sheet.

- 2-5. What was the change in Global Conglomerate's book value of equity from 2011 to 2012 according to Table 2.1? Does this imply that the market price of Global's shares increased in 2012? Explain.**

Global Conglomerate's book value of equity increased by \$1 million from 2011 to 2012. 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.

- 2-6. Use EDGAR to find Qualcomm's 10-K filing for 2011. From the balance sheet, answer the following questions:**

- How much did Qualcomm have in cash and short-term investments?**
 - What were Qualcomm's total accounts receivable?**
 - What were Qualcomm's total assets?**
 - What were Qualcomm's total liabilities? How much of this was long-term debt?**
 - What was the book value of Qualcomm's equity?**
- \$5,462 million (cash) and \$6,190 million (short-term investments/marketable securities) for a total of \$11,652 million
 - \$993 million
 - \$36,422 million

- d. \$9,450 million, nothing.
- e. \$26,972 million.

2-7. Find online the annual 10-K report for Peet's Coffee and Tea (PEET) for fiscal year 2011 (filed in January, 2012). Answer the following questions from their balance sheet:

- a. How much cash did Peet's have at the end of the fiscal year?
- b. What were Peet's total assets?
- c. What were Peet's total liabilities? How much debt did Peet's have?
- d. What was the book value of Peet's equity?

- a. At the end of the fiscal year, Peet's had cash and cash equivalents of \$30.755 million.
- b. Peet's total assets were \$215.27 million.
- c. Peet's total liabilities were \$37.32 million, and it had no debt.
- d. The book value of Peet's equity was \$177.96 million.

2-8. In early 2009, General Electric (GE) had a book value of equity of \$105 billion, 10.5 billion shares outstanding, and a market price of \$10.80 per share. GE also had cash of \$48 billion, and total debt of \$524 billion. Three years later, in early 2012, GE had a book value of equity of \$116 billion, 10.6 billion shares outstanding with a market price of \$17 per share, cash of \$84 billion, and total debt of \$410 billion. Over this period, what was the change in GE's:

- a. market capitalization?
- b. market-to-book ratio?
- c. enterprise value?

- a. 2009 Market Capitalization: 10.5 billion shares \$10.80/share = \$113.4 billion. 2012 Market Capitalization: 10.6 billion shares \$17/share = \$180.2. The change over the period is \$180.2 – \$113.4 = \$66.8 billion.
- b. 2009 Market-to-Book $\frac{113.4}{105} = 1.08$. 2012 Market-to-Book $= \frac{180.2}{116} = 1.55$. The change over the period is: $1.55 - 1.08 = 0.47$.
- e. 2009 Enterprise Value = \$113.4 – 48 + 524 = \$589.4 billion. 2012 Enterprise Value = \$180.2 – 84 + 410 = \$506.2 billion. The change over the period is: \$506.2 – \$589.4 = –\$83.2 billion.

2-9. In mid-2012, Abercrombie & Fitch (ANF) had a book equity of \$1693 million, a price per share of \$35.48, and 82.55 million shares outstanding. At the same time, The Gap (GPS) had a book equity of \$3017 million, a share price of \$27.90, and 489.22 million shares outstanding.

- a. What is the market-to-book ratio of each of these clothing retailers?
- b. What conclusions can you draw by comparing the two ratios?

- a. ANF's market-to-book ratio = $\frac{35.48 \cdot 82.55}{1,693} = 1.73$.
GPS's market-to-book ratio = $\frac{27.90 \cdot 489.22}{3,017} = 4.52$.

- b. For the market, the outlook of Abercrombie and Fitch is less favorable than that of The Gap. For every dollar of equity invested in ANF, the market values that dollar today at \$1.73 versus \$4.52 for a dollar invested in the GPS. Equity investors are willing to pay relatively less today for shares of ANF than for GPS because they expect GPS to produce superior performance in the future.

- 2-10. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.
- What is Mydeco's market capitalization at the end of each year?
 - What is Mydeco's market-to-book ratio at the end of each year?
 - What is Mydeco's enterprise value at the end of each year?

2009–2013 Financial Statement Data and Stock Price Data for Mydeco Corp.

| Mydeco Corp. 2009–2013 | (All data as of fiscal year ends, \$ in millions) | | | | |
|---|---|--------------------|--------------------|--------------------|--------------------|
| Income Statement | | | | | |
| Revenue | 404.3 | 363.8 | 424.6 | 510.7 | 604.1 |
| Cost of Goods Sold | (120.9) | (129.1) | (200.1) | (240.1) | (291.4) |
| Gross Profit | 216.0 | 190.0 | 218.4 | 263.9 | 310.7 |
| Sales and Marketing | (66.7) | (66.4) | (82.8) | (102.1) | (120.8) |
| Administration | (60.6) | (59.1) | (59.4) | (66.4) | (78.5) |
| Depreciation & Amortization | (27.3) | (27.0) | (34.3) | (38.4) | (38.6) |
| EBIT | 61.4 | 37.5 | 41.9 | 57.0 | 72.8 |
| Interest Income (Expense) | (33.7) | (32.9) | (32.2) | (37.4) | (39.4) |
| Pretax Income | 27.7 | 4.6 | 9.7 | 19.6 | 33.4 |
| Income Tax | (9.7) | (1.6) | (3.4) | (6.9) | (11.7) |
| Net Income | 18.0 | 3.0 | 6.3 | 12.7 | 21.7 |
| Shares outstanding (millions) | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 |
| Earnings per share | \$0.33 | \$0.05 | \$0.11 | \$0.23 | \$0.39 |
| Balance Sheet | | | | | |
| Assets | | | | | |
| Cash | 200.9 | 201.9 | 201.1 | 201.2 | 201.3 |
| Accounts Receivable | 88.6 | 69.8 | 69.8 | 76.9 | 86.1 |
| Inventory | 33.7 | 30.9 | 28.4 | 31.7 | 35.3 |
| Total Current Assets | 171.1 | 169.6 | 184.5 | 186.1 | 206.4 |
| Net Property, Plant & Equip. | 245.3 | 243.3 | 309.0 | 345.6 | 347.0 |
| Goodwill & Intangibles | 361.7 | 361.7 | 361.7 | 361.7 | 361.7 |
| Total Assets | 778.1 | 774.6 | 855.2 | 893.4 | 915.1 |
| Liabilities & Stockholders' Equity | | | | | |
| Accounts Payable | 18.7 | 17.9 | 22.0 | 26.8 | 31.7 |
| Accrued Compensation | 6.7 | 6.4 | 7.0 | 8.1 | 9.7 |
| Total Current Liabilities | 25.4 | 24.3 | 29.0 | 34.9 | 41.4 |
| Long-term Debt | 500.0 | 500.0 | 575.0 | 600.0 | 600.0 |
| Total Liabilities | 525.4 | 524.3 | 604.0 | 634.9 | 641.4 |
| Stockholders' Equity | 252.7 | 250.3 | 251.2 | 258.5 | 273.7 |
| Total Liabilities & Stockholders' Equity | 778.1 | 774.6 | 855.2 | 893.4 | 915.1 |
| Statement of Cash Flows | | | | | |
| Net Income | 18.0 | 3.0 | 6.3 | 12.7 | 21.7 |
| Depreciation & Amortization | 200.9 | 201.0 | 201.1 | 201.2 | 201.3 |
| Chg. in Accounts Receivable | 3.9 | 18.8 | 0.0 | (7.1) | (9.2) |
| Chg. in Inventory | (2.9) | 2.8 | 2.5 | (3.3) | (3.6) |
| Chg. in Payables & Accrued Co | 2.2 | (1.1) | 4.7 | 5.9 | 6.5 |
| Cash from Operations | 48.5 | 50.5 | 47.8 | 46.6 | 54.0 |
| Capital Expenditures | (25.0) | (25.0) | (100.0) | (75.0) | (40.0) |
| Cash from Investing Activities | (25.0) | (25.0) | (100.0) | (75.0) | (40.0) |
| Dividends Paid | (5.4) | (5.4) | (5.4) | (5.4) | (6.5) |
| Sale (or purchase) of stock | - | - | - | - | - |
| Debt Issuance (Pay Down) | - | - | 75.0 | 25.0 | - |
| Cash from Financing Activities | (5.4) | (5.4) | 69.6 | 19.6 | (6.5) |
| Change in Cash | 18.1 | 20.1 | 17.4 | (8.8) | 7.5 |
| Mydeco Stock Price | \$7.92 | \$3.30 | \$5.25 | \$8.71 | \$10.89 |

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------------------------|----------|----------|----------|----------|----------|
| Shares Outstanding (millions) | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 |
| Mydeco Stock Price | \$7.92 | \$3.30 | \$5.25 | \$8.71 | \$10.89 |
| a. Market Capitalization (millions) | \$435.60 | \$181.50 | \$288.75 | \$479.05 | \$598.95 |

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------------------------|----------|----------|----------|----------|----------|
| Market Capitalization (millions) | \$435.60 | \$181.50 | \$288.75 | \$479.05 | \$598.95 |
| Stockholders' Equity | 252.7 | 250.3 | 251.2 | 258.5 | 273.7 |
| b. Market-to-book | 1.72 | 0.73 | 1.15 | 1.85 | 2.19 |

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------------------------|----------|----------|----------|----------|----------|
| Market Capitalization (millions) | \$435.60 | \$181.50 | \$288.75 | \$479.05 | \$598.95 |
| Cash | 48.8 | 68.9 | 86.3 | 77.5 | 85.0 |
| Long-term Debt | 500.0 | 500.0 | 575.0 | 600.0 | 600.0 |
| c. Enterprise Value | 886.80 | 612.60 | 777.45 | 1,001.55 | 1,113.95 |

2-11. Suppose that in 2013, Global launches an aggressive marketing campaign that boosts sales by 15%. However, their operating margin falls from 5.57% to 4.50%. Suppose that they have no other income, interest expenses are unchanged, and taxes are the same percentage of pretax income as in 2012.

- What is Global's EBIT in 2013?
- What is Global's income in 2013?
- If Global's P/E ratio and number of shares outstanding remains unchanged, what is Global's share price in 2013?

a. Revenues in 2012 = $1.15 \times 186.7 = \$214.705$ million.

EBIT = $4.50\% \times 214.705 = \9.66 million (there is no other income).

b. Net Income = EBIT – Interest Expenses – Taxes = $(9.66 - 7.7) \times (1 - 26\%) = \1.45 million.

1.45

c. Share price = (P/E Ratio in 2005) \times (EPS in 2006) = $25.2 \times \overline{3.6} = \10.15 .

Note: Differences from spreadsheet solutions due to rounding.

2-12. Find online the annual 10-K report for Peet's Coffee and Tea (PEET) for fiscal year 2011 (filed in January, 2012). Answer the following questions from their income statement:

- What were Peet's revenues for fiscal year 2011? By what percentage did revenues grow from the prior year?
- What was Peet's operating income for the fiscal year?
- What was Peet's average tax rate for the year?
- What were Peet's diluted earnings per share in fiscal year 2011? What number of shares is this EPS based on?

a. Revenues = \$371.919 million. Revenue growth = $\frac{371,919}{333,808} - 1 = 11.42\%$.

b. Operating Income = \$27.607 million.

c. Average tax rate = $\frac{9,828}{27,615} = 35.59\%$.

d. The diluted earnings per share in 2011 was \$1.33. The number of shares used in this calculation of diluted EPS was 13.37 million.

2-13. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- By what percentage did Mydeco's revenues grow each year from 2010 to 2013?
- By what percentage did net income grow each year?
- Why might the growth rates of revenues and net income differ?

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------|-------|---------|--------|--------|--------|
| Revenue | 404.3 | 363.8 | 424.6 | 510.7 | 604.1 |
| Revenue growth | | -10.02% | 16.71% | 20.28% | 18.29% |

a.

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|------|---------|---------|---------|--------|
| Net Income | 18.0 | 3.0 | 6.3 | 12.7 | 21.7 |
| Net Income growth | | -83.33% | 110.00% | 101.59% | 70.87% |

b.

- c. Net Income growth rate differs from revenue growth rate because cost of goods sold and other expenses can move at different rates than revenues. For example, revenues declined in 2010 by 10%, however, cost of goods sold only declined by 7%.

2-14. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp. Suppose Mydeco repurchases 2 million shares each year from 2010 to 2013. What would its earnings per share be in 2013?

A repurchase does not impact earnings directly, so any change to EPS will come from a reduction in shares outstanding. 2013 shares outstanding = $55 - 4 \times 2 = 47$ million, $EPS = \frac{21.7}{47} = \0.46 .

2-15. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp. Suppose Mydeco had purchased additional equipment for \$12 million at the end of 2010, and this equipment was depreciated by \$4 million per year in 2011, 2012, and 2013. Given Mydeco's tax rate of 35%, what impact would this additional purchase have had on Mydeco's net income in years 2010–2013?

The equipment purchase does not impact net income directly, however the increased depreciation expense and tax savings changes net income.

| Year | 2010 | 2011 | 2012 | 2013 |
|-------------------------|------|------|------|------|
| Net Income | 3.0 | 6.3 | 12.7 | 21.7 |
| Additional Depreciation | | -4.0 | -4.0 | -4.0 |
| Tax Savings | | 1.4 | 1.4 | 1.4 |
| New Net Income | 3.0 | 3.7 | 10.1 | 19.1 |

2-16. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp. Suppose Mydeco's costs and expenses had been the same fraction of revenues in 2010–2013 as they were in 2009. What would Mydeco's EPS have been each year in this case?

If Mydeco's costs and expenses had been the same fraction of revenues in 2010–2013 as they were in 2009, then their net profit margins would have been equal.

$$2009 \text{ net profit margin} = \frac{18}{404.3} = 4.45\%$$

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------------|--------|--------|--------|--------|--------|
| Revenue | 404.3 | 363.8 | 424.6 | 510.7 | 604.1 |
| Net Profit Margin | 4.45% | 4.45% | 4.45% | 4.45% | 4.45% |
| New Net Income | 18.0 | 16.2 | 18.9 | 22.7 | 26.9 |
| Shares Outstanding | 55.0 | 55.0 | 55.0 | 55.0 | 55.0 |
| New EPS | \$0.33 | \$0.29 | \$0.34 | \$0.41 | \$0.49 |

- 2-17. Suppose a firm's tax rate is 35%.**
- What effect would a \$10 million operating expense have on this year's earnings? What effect would it have on next year's earnings?**
 - What effect would a \$10 million capital expense have on this year's earnings if the capital is depreciated at a rate of \$2 million per year for five years? What effect would it have on next year's earnings?**
- 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 million . Thus, earnings would decline by $10 - 3.5 = \$6.5 \text{ million}$. There would be no effect on next year's earnings.
 - 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.
- 2-18. Quisco Systems has 6.5 billion shares outstanding and a share price of \$18. Quisco is considering developing a new networking product in house at a cost of \$500 million. Alternatively, Quisco can acquire a firm that already has the technology for \$900 million worth (at the current price) of Quisco stock. Suppose that absent the expense of the new technology, Quisco will have EPS of \$0.80.**
- Suppose Quisco develops the product in house. What impact would the development cost have on Quisco's EPS? Assume all costs are incurred this year and are treated as an R&D expense, Quisco's tax rate is 35%, and the number of shares outstanding is unchanged.**
 - Suppose Quisco does not develop the product in house but instead acquires the technology. What effect would the acquisition have on Quisco's EPS this year? (Note that acquisition expenses do not appear directly on the income statement. Assume the firm was acquired at the start of the year and has no revenues or expenses of its own, so that the only effect on EPS is due to the change in the number of shares outstanding.)**
 - Which method of acquiring the technology has a smaller impact on earnings? Is this method cheaper? Explain.**
- 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 $\$0.05$ — $\frac{\$325}{6500}$ to \$0.75. (Assume the new product would not change this year's revenues.)
 - If Quisco acquires the technology for \$900 million worth of its stock, it will issue $\$900/18 = 50 \text{ million}$ new shares. Since earnings without this transaction are $\$0.80 \times 6.5 \text{ billion} = \5.2 billion , its EPS with the purchase is $\frac{5.2}{6.55} = \$0.794$.
 - 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.
- 2-19. Find online the annual 10-K report for Peet's Coffee and Tea (PEET) for fiscal year 2011 (filed in January, 2012). Answer the following questions from their cash flow statement:**
- How much cash did Peet's generate from operating activities in fiscal year 2011?**
 - What was Peet's depreciation and amortization expense?**

- c. **How much cash was invested in new property and equipment (net of any sales)?**
- d. **How much did Peet's raise from the sale of shares of its stock (net of any purchases)?**
- Net cash provided by operating activities was \$12.42 million in fiscal year 2011.
 - Depreciation and amortization expenses were \$17.89 million.
 - Net cash used in new property and equipment was \$10.83 million.
 - Peet's raised \$25.70 million from the sale of shares of its stock, while it spent \$51.28 million on the purchase of common stock. Peet's raised -\$25.58 million from the sale of its shares of stock (net of any purchases).
- 2-20. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.**
- From 2009 to 2013, what was the total cash flow from operations that Mydeco generated?**
 - What fraction of the total in (a) was spent on capital expenditures?**
 - What fraction of the total in (a) was spent paying dividends to shareholders?**
 - What was Mydeco's total retained earnings for this period?**
- Total cash flow from operations = $48.5 + 50.5 + 47.8 + 46.6 + 54 = \247.4 million.
 - Total fraction spent on capital expenditures = $(25 + 25 + 100 + 75 + 40)/247.4 = 107.1\%$.
 - Total fraction spent on dividends = $(5.4 \times 4 + 6.5)/247.4 = 11.4\%$.
 - Retained earnings = Net Income – Dividends = $(18 + 3 + 6.3 + 12.7 + 21.7) - (5.4 \times 4 + 6.5) = \33.6 million.
- 2-21. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.**
- In what year was Mydeco's net income the lowest?**
 - In what year did Mydeco need to reduce its cash reserves?**
 - Why did Mydeco need to reduce its cash reserves in a year when net income was reasonably high?**
- In 2010 (net income was \$3 million).
 - 2012 (cash was reduced from 86.3 to 77.5).
 - Mydeco needed to reduce cash (it also issued debt) to pay for large capital expenditures in 2011 and 2012. In addition, even though net income was reasonably high, cash from operations was at the lowest amount in the five-year period due to a reduction in accounts receivable and inventories.
- 2-22. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp. Use the data from the balance sheet and cash flow statement in 2009 to determine the following:**
- How much cash did Mydeco have at the end of 2008?**
 - What were Mydeco's accounts receivable and inventory at the end of 2008?**
 - What were Mydeco's total liabilities at the end of 2008?**
 - Assuming goodwill and intangibles were equal in 2008 and 2009, what was Mydeco's net property, plant, and equipment at the end of 2008?**
- 2008 Cash = 2009 Cash – 2009 Change in Cash = $48.8 - 18.1 = \$30.7$ million.
 - 2008 Accounts Receivable = $88.6 - 3.9 = \$84.7$ million.
 - 2008 Total Liabilities = $525.4 - 2.2 = \$523.2$ million.

- d. 2008 property, plant, and equipment = 2009 property, plant, and equipment – 2009 capital expenditures + 2009 depreciation = $245.3 - 25 + 27.3 = \$247.6$ million

2-23. Can a firm with positive net income run out of cash? Explain.

A firm can have positive net income but still run out of cash. For example, to expand its current production, a profitable company may spend more on investment activities than it generates from operating activities and financing activities. Net cash flow for that period would be negative, although its net income is positive. It could also run out of cash if it spends a lot on financing activities, perhaps by paying off other maturing long-term debt, repurchasing shares, or paying dividends.

2-24. Suppose your firm receives a \$5 million order on the last day of the year. You fill the order with \$2 million worth of inventory. The customer picks up the entire order the same day and pays \$1 million upfront in cash; you also issue a bill for the customer to pay the remaining balance of \$4 million in 30 days. Suppose your firm's tax rate is 0% (i.e., ignore taxes). Determine the consequences of this transaction for each of the following:**a. Revenues****b. Earnings****c. Receivables****d. Inventory****e. Cash**

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 \$3 million (earnings) – \$4 million (receivables) + \$2 million (inventory) = \$1 million (cash).

2-25. Nokela Industries purchases a \$40 million cyclo-converter. The cyclo-converter will be depreciated by \$10 million per year over four years, starting this year. Suppose Nokela's tax rate is 40%.**a. What impact will the cost of the purchase have on earnings for each of the next four years?****b. What impact will the cost of the purchase have on the firm's cash flow for the next four years?**

a. Earnings for the next four 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 four years.

b. Cash flow for the next four years: less \$36 million ($-6 + 10 - 40$) this year, and add \$4 million ($-6 + 10$) for the three following years.

2-26. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.**a. What were Mydeco's retained earnings each year?****b. Using the data from 2009, what was Mydeco's total stockholders' equity in 2008?**

a. Retained earnings = Net Income – Dividends Paid

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|-------------------|------|------|------|------|------|
| Net Income | 18.0 | 3.0 | 6.3 | 12.7 | 21.7 |
| Dividends Paid | 5.4 | 5.4 | 5.4 | 5.4 | 6.5 |
| Retained Earnings | 12.6 | -2.4 | 0.9 | 7.3 | 15.2 |

b. 2008 stockholders' equity = 2009 stockholders' equity – 2009 retained earnings = 252.7 – 12.6 = \$240.1 million.

2-27. Find online the annual 10-K report for Peet's Coffee and Tea (PEET) for 2011 (filed in January, 2012). Answer the following questions from the notes to their financial statements:

- What was Peet's inventory of green coffee at the end of 2011?
- What property does Peet's lease? What are the minimum lease payments due in 2012?
- What was the fair value of all stock-based compensation Peet's granted to employees in 2011? How many stock options did Peet's have outstanding at the end of 2011?
- What fraction of Peet's 2011 sales came from specialty sales rather than its retail stores? What fraction came from coffee and tea products?
 - Peet's coffee carried \$43.671 million of green coffee beans in their inventory at the end of 2011.
 - Peet's leases its Emeryville, California, administrative offices, its retail stores, and certain equipment under operating leases that expire from 2012 through 2022. The minimum lease payments due in 2012 are \$17.862 million.
 - The fair value of all stock-based compensation Peet's granted to its employees in 2011 is \$3.546 million. Peet's had 1,028,361 stock options outstanding at the end of 2011.
 - 42.4% of Peet's 2011 sales came from specialty sales rather than its retail stores. 15.7% of Peet's 2011 sales came from coffee and tea products.

2-28. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- What were Mydeco's gross margins each year?
- Comparing Mydeco's gross margin, EBIT margin, and net profit margin in 2009 and 2013, which margins improved?

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------|--------|--------|--------|--------|--------|
| Revenue | 404.3 | 363.8 | 424.6 | 510.7 | 604.1 |
| Gross Profit | 216.0 | 190.0 | 218.4 | 263.9 | 310.7 |
| Gross Margin | 53.43% | 52.23% | 51.44% | 51.67% | 51.43% |

- None of the margins improved from 2009 to 2013

| Year | 2009 | 2013 |
|-------------------|--------|--------|
| Revenue | 404.3 | 604.1 |
| Gross Profit | 216.0 | 310.7 |
| EBIT | 61.4 | 72.8 |
| Net Income | 18.0 | 21.7 |
| Gross Margin | 53.43% | 51.43% |
| EBIT Margin | 15.19% | 12.05% |
| Net Profit Margin | 4.45% | 3.59% |

2-29. In fiscal year 2011, Starbucks Corporation (SBUX) had revenue of \$11.70 billion, gross profit of \$6.75 billion, and net income of \$1.25 billion. Peet's Coffee and Tea (PEET) had revenue of \$372 million, gross profit of \$72.7 million, and net income of \$17.8 million.

- Compare the gross margins for Starbucks and Peet's.
- Compare the net profit margins for Starbucks and Peet's.
- Which firm was more profitable in 2011?

a. Starbucks' gross margin = $\frac{6.75}{11.70} = 57.69\%$; Peet's gross margin = $\frac{72.7}{372} = 19.54\%$.

b. Starbucks' net margin = $\frac{1.25}{11.70} = 10.68\%$; Peet's net margin = $\frac{17.8}{372} = 4.78\%$.

- c. Starbucks was more profitable in 2011.

2-30. In mid-2012, Apple had cash and short-term investments of \$27.65 billion, accounts receivable of \$14.30 billion, current assets of \$51.94 billion, and current liabilities of \$33.06 billion.

- What was Apple's current ratio?**
- What was Apple's quick ratio?**
- What is Apple's cash ratio?**
- In mid-2012, Dell had a cash ratio of 0.67, a quick ratio of 1.11 and a current ratio of 1.35. What can you say about the asset liquidity of Apple relative to Dell?**

$$\text{a. Apple's current ratio} = \frac{51.94}{33.06} = 1.57.$$

$$\text{b. Apple's quick ratio} = \frac{27.65+14.30}{33.06} = 1.27.$$

$$\text{c. Apple's cash ratio} = \frac{27.65}{33.06} = 0.84.$$

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

2-31. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- How did Mydeco's accounts receivable days change over this period?**
- How did Mydeco's inventory days change over this period?**
- Based on your analysis, has Mydeco improved its management of its working capital during this time period?**

$$\text{a. 2009 accounts receivable days} = \frac{88.6}{404.3 / 365} = 80.0.$$

$$\text{2013 accounts receivable days} = \frac{86.1}{604.1 / 365} = 52.0.$$

$$\text{b. 2009 inventory days} = \frac{33.7}{188.3 / 365} = 65.3.$$

$$\text{2013 inventory days} = \frac{35.3}{293.4 / 365} = 43.9.$$

- c. Between 2009 and 2013, Mydeco improved its working capital management by reducing both accounts receivable days and inventory days.

2-32 See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- Compare accounts payable days in 2009 and 2013.**
- Did this change in accounts payable days improve or worsen Mydeco's cash position in 2013?**

$$\text{a. 2009 accounts payable days} = \frac{18.7}{188.3 / 365} = 36.2.$$

$$\text{2013 accounts payable days} = \frac{31.7}{293.4 / 365} = 39.4.$$

- b. Accounts payable days increased from 2009 to 2013, which improved the cash position of Mydeco

2-33. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- By how much did Mydeco increase its debt from 2009 to 2013?
- What was Mydeco's EBITDA/Interest coverage ratio in 2009 and 2013? Did its coverage ratio ever fall below 2?
- Overall, did Mydeco's ability to meet its interest payments improve or decline over this period?

a. Mydeco increased its debt from \$500 million in 2009 to \$600 million in 2013 (by \$100 million).

$$\text{2009 EBITDA/Interest coverage ratio} = \frac{61.4 + 27.3}{33.7} = 2.6$$

$$\text{2013 EBITDA/Interest coverage ratio} = \frac{72.8 + 38.6}{39.4} = 2.8$$

Mydeco's coverage ratio fell below 2 in 2010, where it was 1.96.

- Overall Mydeco's ability to meet its interest payments improved over this period, although it experienced a slight dip in 2010.

2-34. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- How did Mydeco's book debt-equity ratio change from 2009 to 2013?
- How did Mydeco's market debt-equity ratio change from 2009 to 2013?
- Compute Mydeco's debt-to-enterprise value ratio to assess how the fraction of its business that is debt financed has changed over the period.

$$\text{2009 book debt-equity ratio} = 252 \frac{500}{252.7} = 1.98$$

$$\text{2013 book debt-equity ratio} = 273 \frac{600}{273.7} = 2.19$$

$$\text{2009 market debt-equity ratio} = 435 \frac{500}{435.6} = 1.15$$

$$\text{2013 market debt-equity ratio} = 599 \frac{600}{599.0} = 1.00$$

$$\text{2009 debt-enterprise value ratio} = 886 \frac{500}{886.8} = 0.56$$

$$\text{2013 debt-enterprise value ratio} = 1113 \frac{600}{1113} = 0.54$$

2-35. Use the data in Problem 8 to determine the change, from 2009 to 2012, in GE's

- book debt-equity ratio?
- market debt-equity ratio?

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a. 2009 book debt-equity ratio = 105

$$= 4.99 .$$

$$\text{2012 book debt-equity ratio} = \frac{410}{116} = 3.53.$$

$$b. \text{ 2009 market debt-equity ratio} = \frac{524}{\$10.80 \times 10.5} = 4.62.$$

$$\text{2012 market debt-equity ratio} = \frac{410}{\$17 \times 10.6} = 2.28.$$

2-36. You are analyzing the leverage of two firms and you note the following (all values in millions of dollars):

| | Debt | Book Equity | Market Equity | Operating Income | Interest Expense |
|--------|------|-------------|---------------|------------------|------------------|
| Firm A | 500 | 300 | 400 | 100 | 50 |
| Firm B | 80 | 35 | 40 | 8 | 7 |

- What is the market debt-to-equity ratio of each firm?
- What is the book debt-to-equity ratio of each firm?
- What is the interest coverage ratio of each firm?
- Which firm may have more difficulty meeting its debt obligations? Explain.

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

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

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

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

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

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

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

2-37. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- Compute Mydeco's PE ratio each year from 2009 to 2013. In which year was it the highest?
- What was Mydeco's Enterprise Value to EBITDA ratio each year? In which year was it the highest?
- What might explain the differing time pattern of the two valuation ratios?

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|--------------------|--------|--------|--------|--------|---------|
| Price | \$7.92 | \$3.30 | \$5.25 | \$8.71 | \$10.89 |
| Earnings per share | \$0.33 | \$0.05 | \$0.11 | \$0.23 | \$0.39 |
| PE Ratio | 24.21 | 60.55 | 45.80 | 37.73 | 27.60 |

a.

The PE ratio was highest in 2010.

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------------------|--------|--------|--------|----------|----------|
| Enterprise value | 886.80 | 612.60 | 777.45 | 1,001.55 | 1,113.95 |
| EBITDA | 88.70 | 64.50 | 76.20 | 95.40 | 111.40 |
| b. Enterprise value/EBITDA | 10.00 | 9.50 | 10.20 | 10.50 | 10.00 |

The enterprise value/EBITDA ratio was the highest in 2012.

- c. The different time patterns are caused by increasing debt in 2012 and 2013 that increased the enterprise value of the Mydeco and reduced the earnings per share due to increased interest expense. In addition, very small earnings per share in 2010 increased the PE ratio even though the price decreased as well.

2-38. In mid-2012, United Airlines (UAL) had a market capitalization of \$6.8 billion, debt of \$12.4 billion, and cash of \$7.3 billion. United also had annual revenues of \$37.4 billion. Southwest Airlines (LUV) had a market capitalization of \$6.6 billion, debt of \$3.3 billion, cash of \$3.3 billion, and annual revenues of \$17.0 billion.

- Compare the market capitalization-to-revenue ratio (also called the price-to-sales ratio) for United Airlines and Southwest Airlines.
- Compare the enterprise value-to-revenue ratio for United Airlines and Southwest Airlines.
- Which of these comparisons is more meaningful? Explain.

- a. Market capitalization-to-revenue ratio:

$$= \frac{6.8}{37.4} = 0.18 \text{ for United Airlines.}$$

$$\frac{6.6}{17}$$

$$= 0.39 \text{ for Southwest Airlines.}$$

- b. Enterprise value-to-revenue ratio:

$$= \frac{6.8 - 7.3 + 12.4}{\text{Airlines. } 37.4} = 0.32 \text{ for United}$$

$$= \frac{6.6 - 3.3 + 3.3}{\text{Airlines. } 17} = 0.39 \text{ for Southwest}$$

- 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 firm's leverage is quite different, as it is here.

2-39. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp.

- Compute Mydeco's ROE each year from 2009 to 2013.
- Compute Mydeco's ROA each year from 2009 to 2013.
- Which return is more volatile? Why?

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|----------------------|-------|-------|-------|-------|-------|
| Net Income | 18.0 | 3.0 | 6.3 | 12.7 | 21.7 |
| Stockholders' Equity | 252.7 | 250.3 | 251.2 | 258.5 | 273.7 |
| a. ROE | 7.12% | 1.20% | 2.51% | 4.91% | 7.93% |

| Year | 2009 | 2010 | 2011 | 2012 | 2013 |
|-----------------------------|-------|-------|-------|-------|-------|
| Net Income+Interest Expense | 51.7 | 35.9 | 38.5 | 50.1 | 61.1 |
| Book Value of Assets | 778.1 | 774.6 | 855.2 | 893.4 | 915.1 |
| ROA | 6.64% | 4.63% | 4.50% | 5.61% | 6.68% |

b.

- c. ROE is more volatile. Mydeco's debt level causes a large portion of EBIT to go to interest expense. This magnifies the volatility of earnings left over for shareholders through net income. ROA adjusts net income by the interest expense, and thus is less sensitive to leverage.

2-40. See Table 2.5 showing financial statement data and stock price data for Mydeco Corp. Was Mydeco able to improve its ROIC in 2013 relative to what it was in 2009?

$$2009 \text{ ROIC} = \frac{61.4(1-0.35)}{252.7+500-48.8} = 5.67\%.$$

$$2013 \text{ ROIC} = \frac{72.8(1-0.35)}{273.7+600-85} = 6.00\%.$$

Mydeco was able to improve its ROIC in 2009 relative to 2013.

2-41. For fiscal year 2011, Peet's Coffee and Tea (PEET) had a net profit margin of 4.78%, asset turnover of 1.73, and a book equity multiplier of 1.21.

- Use this data to compute Peet's ROE using the DuPont Identity.
- If Peet's managers wanted to increase its ROE by one percentage point, how much higher would their asset turnover need to be?
- If Peet's net profit margin fell by one percentage point, by how much would their asset turnover need to increase to maintain their ROE?

a. Peet's ROE (DuPont) = $4.78\% \times 1.73 \times 1.21 = 10.00\%$.

b. Peet's new asset turnover = $\frac{11.00\%}{4.78\% \cdot 1.21} = 1.90$ or an increase of $1.90 - 1.73 = 0.17$.

c. Peet's new net profit margin = $\frac{10.00\%}{1.73 \cdot 1.21} = 3.78\%$ or an increase of $4.78\% - 3.78\% = 1.00\%$.

2-42. For fiscal year 2011, Starbucks Corporation (SBUX) had total revenues of \$11.70 billion, net income of \$1.25 billion, total assets of \$7.36 billion, and total shareholder's equity of \$4.38 billion.

- Calculate Starbucks' ROE directly, and using the DuPont Identity.
- Comparing with the data for Peet's in problem 41, use the DuPont Identity to understand the difference between the two firms' ROEs.

a. Starbucks' ROE = $\frac{1.25}{4.38} = 28.54\%$.

$$\text{Starbucks' net profit margin} = \frac{1.25}{11.70} = 10.68\%.$$

$$\text{Starbucks' asset turnover} = \frac{11.70}{7.36} = 1.59.$$

$$\text{Starbucks' equity multiplier} = \frac{7.36}{4.38} = 1.68.$$

Starbucks's ROE (DuPont) = $10.68\% \times 1.59 \times 1.68 = 28.53\%$ (difference due to rounding).

- b. Starbucks has a superior profit margin and a greater equity multiplier (which could represent higher leverage). However, it has a lower asset turnover. Its greater ROE is driven by its profit margin and its leverage.

- 2-43. Consider a retailing firm with a net profit margin of 3.5%, a total asset turnover of 1.8, total assets of \$44 million, and a book value of equity of \$18 million.
- What is the firm's current ROE?
 - If the firm increased its net profit margin to 4%, what would be its ROE?
 - If, in addition, the firm increased its revenues by 20% (while maintaining this higher profit margin and without changing its assets or liabilities), what would be its ROE?
- a. $3.5 \times 1.8 \times 44/18 = 15.4\%$.
- b. $4 \times 1.8 \times 44/18 = 17.6\%$.
- c. $4 \times (1.8 \times 1.2) \times 44/18 = 21.1\%$.
- 2-44. Find online the annual 10-K report for Peet's Coffee and Tea (PEET) for fiscal year 2011 (filed in January, 2012).
- Which auditing firm certified these financial statements?
 - Which officers of Peet's certified the financial statements?
- a. Deloitte & Touche LLP certified Peet's financial statements.
- b. The CEO, Patrick J. O'Dea, and the CFO, Thomas P. Cawley certified Peet's financial statements.
- 2-45. WorldCom reclassified \$3.85 billion of operating expenses as capital expenditures. Explain the effect this reclassification would have on WorldCom's cash flows. (*Hint: Consider taxes.*) WorldCom's actions were illegal and clearly designed to deceive investors. But if a firm could legitimately choose how to classify an expense for tax purposes, which choice is truly better for the firm's investors?

By reclassifying \$3.85 billion operating expenses as capital expenditures, WorldCom increased its net income but lowered its cash flow for that period. If a firm could legitimately choose how to classify an expense, expensing as much as possible in a profitable period rather than capitalizing them will save more on taxes, which results in higher cash flows, and thus is better for the firm's investors.