Answers to Chapter Questions

CHAPTER 1

1) **What is the purpose of an income statement?**

   An income statement measures the profit or loss of an entity.

2) **What is the basic structure of an income statement? Provide a simple formula.**

   A company's revenue less expenses drives profit or loss.

   Revenue – Expenses = Profit (Loss)

3) **What are the nine major income statement components?**

   1. Revenue (sales)
   2. Cost of goods sold
   3. Operating expenses
   4. Other income
   5. Depreciation and amortization
   6. Interest
   7. Tax
   8. Non-recurring items
   9. Distributions

4) **How does cost of goods sold differ from other operating expenses?**

   Cost of goods sold are the costs most directly related to the product sold. This includes the material cost used in creating the product. Operating expenses are indirect expenses such as overhead or marketing costs.

5) **Please indicate whether the following expenses are most likely to be cost of goods sold or operating expenses.**

   a. Rent
   b. Raw material
   c. Salaries
   d. Marketing
   e. Finished goods

   Answer:
   a. Operating expenses
   b. Cost of goods sold

c. Operating expenses
d. Operating expenses
e. Cost of goods sold

6) **What does EBITDA stand for?**

Earnings before interest, taxes, depreciation, and amortization

7) **What is the formula for EBITDA margin?**

EBIDTA Margin = EBITDA / Revenue

8) **What does EBIT stand for?**

Earnings before interest and taxes

9) **What is other income? Please provide an example.**

Other income is earnings generated that is not core to the business or not related to everyday business activities. An example is income generated from financing the sale of a car. The actual sale of the car in a car business would be considered revenue, but the financing income could be considered other income.

10) **How could one determine if other income should be included or excluded from EBITDA?**

It depends. Although not core to revenue, if the other income is believed to be core enough to the company's operations and if it appears consistently, then it could be considered as part of EBITDA.

11) **What is depreciation?**

Depreciation is the accounting for aging of assets.

12) **What is the difference between interest expense and interest income?**

Interest expense is the expense related to company debt outstanding. Interest income is earnings generated from interest related to cash held in savings accounts, certificates of deposits, and other investments.

13) **What are non-recurring items?**

Non-recurring items are expenses or incomes that are either one-time or not pertaining to everyday core operations.

14) **What are distributions? Please explain specific types.**

Distributions are broadly defined as payments to equity holders. These payments can be in the form of dividends or non-controlling interest payments, to name the major two.

15) **Build and fully project the "Income Statement" tab located in the template entitled "NYSF_Practice_Template.xls."**

See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 2

1) **What is the purpose of a cash flow statement?**

The cash flow statement is a measure of how much cash a company has produced or spent over a period of time.

2) **How does a cash flow statement differ from an income statement?**

An income statement shows profit. However, that profit may not result in actual cash gain. This is because many income statement items that are recorded do not necessarily result in an effect on cash. The cash flow statement aims to determine how much cash was actually generated.

3) **What are the three major segments in a cash flow statement?**

a. Cash from operating activities
b. Cash from investing activities
c. Cash from financing activities

4) **What is the formula for cash from operating activities?**

Cash from Operating Activities = Net Income + Depreciation + Deferred Taxes + Other Non-Cash Items + Changes in Working Capital

5) **What are the major components of cash from investing activities? Name at least three.**

a. Capital expenditures: investments in property, plant, and equipment
b. Buying or selling assets
c. Buying, selling, spinning off, or splitting off businesses or portions of business entities
d. Investing in or selling marketable and non-marketable securities

6) **What are the major components of cash from financing activities?**

a. Raising or buying back capital or preferred securities
b. Raising or paying back debt
c. Distributions to equity holders (non-controlling interests and dividends)

7) **If accounts receivable increases by $10, please explain the effects on the income statement, cash flow statement, and balance sheet. Assume a 40% tax rate.**

Income Statement
a. Revenue increases by $10.
b. Taxes (assume 40%) are $4.
c. Net income increases by $6.

Cash Flow Statement
a. Net income increases by $6.
b. Accounts receivable decreases by $10.
c. Total cash decreases by $4.

Balance Sheet
a. Total cash decreases by $4.
b. Accounts receivable increases by $10.
c. Retained earnings increases by $6.

8) **If accounts receivable now decreases by $10, please explain the effects on the income statement, cash flow statement, and balance sheet.**

Income Statement
a. No change

Cash Flow Statement
a. Accounts receivable increases by $10.
b. Total cash increases by $10.

Balance Sheet
a. Total cash increases by $10.
d. Accounts receivable decreases by $10.

9) **If accrued expenses increase by $30, please explain the effects on the income statement, cash flow statement, and balance sheet. Assume accrued expenses are related to SG&A, and a 40% tax rate.**

Income Statement
a. SG&A increases by $30.
b. Tax savings (assume 40%) are (negative) $12.
c. Net income decreases by $18.

Cash Flow Statement
a. Net income decreases by $18.
b. Accrued expenses increase by $30.
c. Total cash increases by $12.

Balance Sheet

a. Total cash increases by $12.

b. Accrued expenses increase by $30.

c. Retained earnings decreases by $18.

10) If accrued expenses now decrease by $30, please explain the effects on the income statement, cash flow statement, and balance sheet.

Income Statement

a. No change

Cash Flow Statement

a. Accrued expenses decrease by $30.

b. Total cash decreases by $30.

Balance Sheet

a. Total cash decreases by $30.

b. Accrued expenses decrease by $30.

11) If depreciation expense increases by $20, please explain the effects on the income statement, cash flow statement, and balance sheet. Assume a 40% tax rate.

Income Statement

a. Depreciation increases by $20.

b. Taxes (assume 40%) are $8.

c. Net income decreases by $12.

Cash Flow Statement

a. Net income decreases by $12.

b. Depreciation increases by $20.

c. Total cash increases by $8.

Balance Sheet

a. Total cash increases by $8.

b. PP&E decreases by $20.

c. Retained earnings decreases by $12.

12) We are in the business of buying and selling projectors, and we have just started the company. We can purchase projectors for $100 each if we are buying in bulk of 20 and can be deferred as an account payable. We have not yet made any sales. What does the final balance sheet look like?

Balance Sheet

a. Cash—$0

b. Inventory—$2,000

c. Accounts payable—$2,000
d. Retained earnings—$0

13) **In the first period we have sold six projectors for $400 each. Four of the six sales are on credit. Assume the tax rate is 40 percent. Now what does the final balance sheet look like?**

Balance Sheet
a. Cash—$80
b. Inventory—$1,400
c. Accounts receivable—$1,600
d. Accounts payable—$2,000
e. Retained earnings—$1080

14) **Let's now assume we have incurred overhead costs of $1,500, of which 50 percent has been paid in cash and the rest deferred. If there is any cash shortage, we would need to raise a revolving line of credit. Now what does the final balance sheet look like?**

Balance Sheet
a. Cash—$0
b. Inventory—$1,400
c. Accounts receivable—$1,600
d. Revolver—$70
e. Accrued expenses—$750
f. Accounts payable—$2,000
g. Retained earnings—$180

15) **Build and project the "Cash Flow Statement" tab located in the template entitled "NYSF_Practice_Template.xls" as best you can. Note that without the depreciation and working capital schedules there will be a lot of missing line items. That is okay; just get the structure and total line items together for now.**

See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 3

1) **What is depreciation?**

Depreciation is the accounting for aging of assets.

2) **What is the purpose of accelerating depreciation?**

Accelerating depreciation allows a greater depreciation expense earlier in the life of the asset, producing a lower taxable net income and therefore lower taxes.

3) **What are the most common methods of accelerating depreciation?**

a. Declining balance
b. Sum of the year's digits
c. Modified Accelerated Cost Recovery System (MACRS)

4) **What is a deferred tax asset?**

A deferred tax asset is defined as an asset on a company's balance sheet that may be used to reduce income tax expense.

5) **How is a deferred tax asset most commonly created?**

A deferred tax asset is most commonly created after receiving a certain type of net operating loss (NOL) resulting in a carryover.

6) **What is a deferred tax liability?**

A deferred tax liability is caused by temporary accounting differences between the income statement filed for GAAP purposes and the income statement for tax purposes.

7) **How is a deferred tax liability most commonly created?**

One common cause of a deferred tax liability is by differing method of depreciation in a GAAP income statement versus that in a tax income statement. A company can produce a GAAP set of financials using straight line depreciation, for example, yet have a tax set of financials using the MACRS method of depreciation. This causes a deferred tax liability, reducing taxes in the short term.

8) **A company just purchased a $20MM asset that depreciates evenly over 20 years (straight line depreciation). Please explain the effects of the depreciation expense on the income statement, cash flow statement, and balance sheet. Just focus on the depreciation expense; do not worry about the actual asset purchase. Assume a 40% tax rate.**

Income Statement
a. Depreciation increases by $1MM.
b. Tax savings (assume 40%) are (negative) $0.4MM.
c. Net income decreases by $0.6MM.

Cash Flow Statement
a. Net income decreases by $0.6MM.
b. Depreciation increases by $1MM.
c. Total cash increases by $0.4MM.

Balance Sheet
a. Total cash increases by $0.4MM.
b. PP&E decreases by $1MM.
c. Retained earnings decreases by $0.6MM.

9) **Now let's assume the company has decided to accelerate the depreciation in order to create a deferred tax liability. Please explain the additional effects of accelerating the depreciation expense on the income statement, cash flow statement, and balance sheet. For simplicity assume the accelerated depreciation rate is 20 percent in this period, and the tax rate is 40%.**

   Straight line depreciation = $1MM
   Accelerated depreciation = 20% × $20MM = $4MM
   Deferred tax liability = $4MM—$1MM × 40% = $1.2MM

   Income Statement
   a. No change

   Cash Flow Statement
   a. Deferred tax increases by $1.2MM.
   b. Total cash increases by $1.2MM.

   Balance Sheet
   a. Total cash increases by $1.2MM.
   b. Deferred tax increases by $1.2MM.

10) **Build and project the "Depreciation" tab located in the template entitled "NYSF_Practice_Template.xls" as best you can. Use the given assumptions.**

   See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 4

1) **What is working capital?**

   Working capital is a measure of a company's current assets less its current liabilities.

2) **How does working capital differ from operating working capital?**

   Operating working capital is also defined as current assets less current liabilities, but does not include cash and cash equivalents or debts into the calculation.

3) **Why is operating working capital more useful than working capital in modeling and analysis?**

   Operating working capital focuses on those working capital line items that are most directly related to the company's operations.

4) **What is the formula for accounts receivable days?**

Accounts Receivable Days = Accounts Receivable / Revenue × 360 (basic answer); 2012 Accounts Receivable Days = Average (Accounts Receivable 2012, Accounts Receivables 2011) / 2012 Revenue × 360 (extended answer using the average)

5) **What is the formula for accrued expenses days? Assume the accrued expenses are related to operating expenses as a whole.**

Accrued Expenses Days = Accrued Expenses / Operating Expenses × 360 (basic answer); 2012 Accrued Expenses Days = Average (Accrued Expenses 2012, Accrued Expenses 2011) / 2012 Operating Expenses × 360 (extended answer using the average)

6) **What is the formula to project accounts receivables when given the days metric?**

Accounts Receivable = Accounts Receivable Days /360 × Revenue

7) **What is the formula to project accrued expenses when given the days metric? Assume the accrued expenses are related to operating expenses as a whole.**

Accrued Expenses = Accrued Expenses Days /360 × Operating Expenses

8) **If accounts receivable increases by $15, please explain the effects on the income statement, cash flow statement, and balance sheet. Assume a 40% tax rate.**

Income Statement
a. Revenue increases by $15.
b. Tax savings (assume 40%) are (negative) $6.
c. Net income increases by $9.

Cash Flow Statement
a. Net income increases by $9.
b. Accounts receivable decreases by $15.
c. Total cash decreases by $6.

Balance Sheet
a. Total cash decreases by $6.
b. Accounts receivable increases by $15.
c. Retained earnings increases by $9.

9) **If accounts receivable now decreases by $15, please explain the effects on the income statement, cash flow statement, and balance sheet.**

Income Statement
a. No change

Cash Flow Statement
a. Accounts receivable increases by $15.
b. Total cash increases by $15.

Balance Sheet
a. Total cash increases by $15.
b. Accounts receivable decreases by $15.

10) **Build and project the "Operating Working Capital" tab located in the template entitled "NYSF_Practice_Template.xls" as best you can. Use the given assumptions.**

See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 5

1) **What are the purpose and structure of a balance sheet?**

The balance sheet is a measure of a company's financial position at a specific point in time. The balance sheet's performance is broken up into three major categories (assets, liabilities, and shareholders' equity), where the company's total value of assets must always equal the sum of its liabilities and shareholders' equity.

Assets = Liabilities + Shareholders' Equity

2) **What are the two common modeling methods in relation to the cash flow statement and balance sheet? Explain each.**

a. Balance sheet drives the cash flow. The cash flow statement is derived from subtracting year over year balance sheet changes.
b. Cash flow drives the balance sheet. The balance sheet is projected based on how cash is being sourced or spent.

3) **What is the recommended method of modeling in relation to the cash flow statement and balance sheet? Why?**

Although both methods are utilized often, we strongly recommend the second method (using the cash flow to drive the balance sheet). It is a more logical approach and has been proven to be less prone to errors.

Further, the first method of back-solving into a cash flow statement can lead to an incomplete picture of each individual cash flow.

4) **If you had only one statement to choose in order to best review the overall financial health of the company, which statement would you choose?**

   You would use the cash flow statement because it gives a true picture of how much cash the company is actually generating, independent of all the non-cash expenses you might have. When analyzing the overall financial health of any business the cash flow is most important.

5) **If you could look at only two statements to assess the overall health of a company, which two would you choose?**

   You would pick the income statement and balance sheet, because you can create the cash flow statement from both of those.

6) **What is the core formula for making balance sheet projections?**

   2013 Balance Sheet Line Item = 2012 Balance Sheet Line Item +/– 2013 Related Cash Flow Statement Line Item

7) **Build and project the "Balance Sheet" tab located in the template entitled "NYSF_Practice_Template.xls" using the recommended methods.**

   See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 6

1) **What is the purpose of the debt schedule?**

   The debt schedule is designed to track every major type of debt a company has, and the associated interest and payment schedules for each. It also helps track the cash available, which could be used to pay down those debts and any interest income that could be generated from cash or cash equivalents available.

2) **What is the difference between mandatory and non-mandatory issuances and retirements?**

   Mandatory issuances or retirements are those that have been planned or scheduled. A non-mandatory issuance or retirement is a payment or issuance made that is beyond the contractual requirements of the debt.

3) **What is the cash available to pay down debt?**

   Cash flow before debt paydown is a measure of all cash generated or paid in a given period, excluding cash issued or paid from debts.

4) **What is the purpose of calculating cash available to pay down debt in a debt schedule?**

   It is important for us to get a proper measure of cash excluding debts because in the debt schedule we want to determine how much cash we can use to pay down debts.

5) **How is cash flow at the end of the year calculated in a debt schedule?**

   Cash at the Beginning of the Year + Cash Flow before Debt Paydown + Total Issuances and Retirements

6) **Explain the circular reference created once the debt schedule is linked into the rest of the model.**

   The circular reference is related to the debt and interest. Specifically, if debt is raised in the debt schedule, cash at the end of the year will increase and therefore interest income will increase. As interest income links to the income statement, net income is increased. That net income increase flows to the top of the cash flow statement and increases cash and, more importantly, cash flow before debt paydown at the bottom of the cash flow statement. This cash flow before debt paydown links to the debt schedule and increases the cash available to pay down debt, and therefore increases the cash at the end of the year, which increases the interest income, and so on.

7) **How is a circular reference #Value! Error resolved in the model?**

   To repair this, the loop needs to be broken, which will allow Excel to recalculate as normal, then re-link the loop. An easy way to do this is to delete the interest expense and interest income on the income statement, and then re-link.

8) **Build and project the "Debt Schedule" tab located in the template entitled "NYSF_Practice_Template.xls" using the recommended methods. Link the model completely through.**

   See solution in the template entitled "NYSF_Practice_Solution.xls."

CHAPTER 7

1) **What is the difference between book value and market value?**

   Book value is the shareholders' equity as listed on a company's balance sheet; market value is the market capitalization of a business (share price × shares outstanding).

2) **How is the market capitalization of a business calculated?**

Market capitalization is calculated by multiplying the number of shares outstanding by the current share price.

3) **How is the enterprise value of a business calculated?**

Enterprise value is calculated by adding total debts, capital leases, preferred securities, non-controlling interests, and other non-operating liabilities such as unfunded pensions less cash and cash equivalents to a company's market value.

4) **Why is it important to remove cash from net debt to arrive at an enterprise value of a business?**

Removing cash leaves us with a value that represents the core operating assets of a business.

5) **Why is Market Value / EBITDA not a good comparable multiple?**

Market value is the value of a business excluding lenders; EBITDA (before interest) is a metric including lenders.

6) **What are the three major methods of valuation?**

a. Comparable company analysis
b. Precedent transactions analysis
c. Discounted cash flow analysis

7) **What is the difference between a market multiple and a purchase multiple?**

A market multiple is a multiple based on the current valuation of a company; a purchase multiple is based on the price paid for a company.

CHAPTER 8

1) **What is the purpose of the discounted cash flow analysis?**

The discounted cash flow analysis values a company based on its projected unlevered free cash flows and an estimated terminal value.

2) **What is one major advantage of the discounted cash flow analysis?**

It is the most technical analysis of the three. It is based on the company's cash flows from the model projections, as opposed to the comparable company analysis, which is mainly driven by market data.

3) **What are the major disadvantages of the discounted cash flow analysis?**
   a. **Terminal value.** Although the first [*x*] projected years are based on modeled cash flows, the terminal value accounts for a very significant portion of the overall valuation. That terminal value is based on a multiple or a perpetuity.
   b. **Model projections.** The model projections could be inaccurate; they could be overstated or understated depending on what is driving the projections.
   c. **Discount rate.** The discount rate may be difficult to estimate. We will go through standard techniques, but these standards do not apply in all situations.

4) **What is the formula for calculating unlevered free cash flows?**

   EBIT + D&A +Deferred Tax + Other Non-Cash Items + Working Capital – CAPEX – Taxes

5) **What is the formula to properly discount a cash flow?**

   UFCF × (1 + Discount Rate) ^ period

6) **What is the weighted average cost of capital (WACC) formula?**

   WACC = Debt / [Debt + Equity] × Cost of Debt × (1 – Tax%) + Equity / [Debt + Equity] × Cost of Equity

7) **What is a typical WACC of a standard business?**

   A standard WACC can range from 9 percent to 12 percent.

8) **What is the cost of equity (COE)? Please include the formula.**

   The cost of equity is the expected return to equity investors relative to the investment risk.

   COE = rf + Beta × MRP

9) **What is the market risk premium for the United States?**

   6 percent (It can range from approximately 5 percent to 6 percent, depending on the source.)

10) **Please explain the terminal value and the two methods.**

   The terminal value of a company estimates the value of the business after the last estimated year. There are two major methods for calculating the terminal value of a company:

   - Multiple method
   - Perpetuity method

CHAPTER 9

1) **What is the purpose of the comparable company analysis?**

   The comparable company analysis ("comps") compares companies that are similar in product size, product, and geography to the company we are valuing.

2) **What is one major advantage of the comparable company analysis?**

   It is the most current of all three analyses. It gives a market perspective. The comparable company analysis is based on the most recent stock prices and financials of the company.

3) **What are the major disadvantages of the comparable company analysis?**

   a. It may be difficult to find companies to compare. If the company has a unique business model, is in a very "niche" industry, or is not the size of a public company, it may be difficult to find the right comparables.
   b. The markets may be undervalued or overvalued. We could be in a market environment in which the entire industry in overvalued or undervalued. If so, our analysis will be flawed.

CHAPTER 10

1) **What is the purpose of the precedent transactions analysis?**

   The precedent transactions analysis assesses relative value by looking at multiples of historical transactions.

2) **What is one major advantage of the precedent transactions analysis?**

   Purchase price includes a premium. This could be advantageous if we were looking to acquire a company. It would help us determine how much of a premium we would need to consider to convince the owner or shareholders to hand us over the company.

3) **What are the major disadvantages of the precedent transactions analysis?**

   a. Historical analysis. Precedent transactions by definition are historical transactions. The analysis may be irrelevant if we are in a completely different economic environment.

b. Difficult to find relevant transactions. Especially in an environment in which there are not many acquisitions, it may not be possible to find acquisitions similar to the one we are analyzing.

c. Difficult to get data. Even if we do find relevant transactions, it is not always easy to find the data to create the multiples.