

# *The Basic Financial Statements*

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*After studying this chapter, you should be able to:*

1. *Explain the purpose and understand the format of the firm's three basic financial statements: the income statement, the balance sheet, and the statement of cash flows.*
2. *Construct each of these statements in Excel with data for any company.*
3. *Link worksheets together so that formulas in one worksheet can reference data in another and update automatically when changes are made.*
4. *Use Excel's Outline tool to selectively display or hide parts of a financial statement.*

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Much of financial analysis takes as its starting point the basic financial statements of the firm. It is therefore crucial that the analyst have a strong fundamental understanding of these statements. There are three basic financial statements:

1. The *income statement* summarizes the results of the firm's operations over a period of time. The income statement tells us the total revenues and expenses for the time period and also contains several different measures of the accounting profits earned by the firm. Typically, income statements are prepared for different time periods, usually monthly, quarterly, and annually.

2. The *balance sheet* describes the assets, liabilities, and equity of the firm at a specific point in time. Assets are the (tangible or intangible) things that a firm owns. Liabilities are the firm's debts. Equity is the difference between what the firm owns and what it owes to others. Because the balance sheet is specific to a point in time, it is much like a photograph. What it shows was true when the snapshot was taken, but is not necessarily true when it is viewed.
3. The *statement of cash flows* outlines the sources of the firm's cash inflows and shows where the cash outflows went. Activities that bring cash into the firm are referred to as *sources* of cash, while those that take cash out of the firm are referred to as *uses* of cash.

In this chapter, we will build each of these three statements for Elvis Products International, a small producer of Elvis memorabilia. Each financial statement will be created in its own worksheet in the workbook, and we will create links between the sheets as necessary. Before beginning, open a new workbook.

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### *The Income Statement*

The income statement is a fairly simple document that begins by listing a firm's revenues (perhaps by sources or in total) followed by all of the firm's expenses. The result of the income statement is the net income for the period. Net income represents the accounting profit left over after all expenses and taxes have been paid from the revenue for the period.

#### **Principle 1:**

Make Excel do as much of the work as possible. Whenever possible, a formula should be used rather than entering numbers. In the long run this will minimize errors.

#### **Principle 2:**

Format the worksheet so that it is easy to understand. Borders, shading, and font choices are more than just decorations. Properly chosen, they can make important numbers stand out and get the attention they deserve.

#### **Building an Income Statement in Excel**

Exhibit 2-1 presents the income statement for Elvis Products International (EPI) for the year ending December 31, 2011. We will build this income statement first and then use it as a base for creating the 2010 income statement.

While we are building the income statement, we want to keep a couple of general principles in mind. Principle 1 says that we want to make Excel do as much of the work as possible. Any time a value can be calculated, we should use Excel to do so. The reasoning behind this principle is that we want to avoid mistakes and increase productivity. A little thought before beginning the design of a worksheet can help minimize data entry errors and increase productivity by reducing the amount of data that needs to be entered.

Principle 2 says that we should format the worksheet in such a way as to make it easy to comprehend. There are many times that you will create a worksheet for others to use or for your own use at a later date.

**EXHIBIT 2-1**  
**EPI'S INCOME STATEMENT FOR 2011 AND 2010**

	2011	2010
<b>Elvis Products International</b>		
<b>Income Statement</b>		
<b>For the Year Ended Dec. 31, 2011</b>		
	<b>2011</b>	<b>2010</b>
Sales	3,850,000	3,432,000
Cost of Goods Sold	3,250,000	2,864,000
<b>Gross Profit</b>	<b>600,000</b>	<b>568,000</b>
Selling and G&A Expenses	330,300	240,000
Fixed Expenses	100,000	100,000
Depreciation Expense	20,000	18,900
<b>EBIT</b>	<b>149,700</b>	<b>209,100</b>
Interest Expense	76,000	62,500
<b>Earnings Before Taxes</b>	<b>73,700</b>	<b>146,600</b>
Taxes	29,480	58,640
<b>Net Income</b>	<b>44,220</b>	<b>87,960</b>
Notes:		
Tax Rate	40%	

Properly organizing the data and the judicious use of color and fonts can make the worksheet easier to use and modify.<sup>1</sup> Worksheets that are disorganized and sloppily formatted do not engender faith in their results.

It is usually helpful when working with multiple worksheets in a workbook for each sheet to be given a name other than the default. Worksheets can be renamed using the Format button on the Home tab or by right-clicking the sheet tab. Right-click “Sheet1,” choose **R**ename, and then type *Income Statement* over the existing name. This step is important because when we later begin referencing data on this sheet, the references will require the name of the sheet in addition to the cell reference. Note, however, that you can always rename the sheet later and any formulas referencing it will automatically be updated.<sup>2</sup>

1. We would like to emphasize the word “judicious.” Some people overuse fonts and end up producing documents with a definite ransom note appearance. Do yourself, and others, a favor by limiting your use of fonts to one or two per document.
2. This is always true for references within the same workbook. However, suppose that we have two workbooks called X and Y. If X contains a reference to a cell in Y, it will be updated automatically as long as both workbooks are open. If X is closed when the sheet name is changed in Y, then you will see a #REF! error the next time you open X and will have to manually change the reference.

We will begin building the income statement with the titles in A1:A3. Remember, if the need arises, we can always insert new rows or columns into the worksheet at a later time. In A1 type: `Elvis Products International`; in A2: `Income Statement`; in A3: `For the Year Ended Dec. 31, 2011`. The first line of the title identifies the company, the second identifies the type of statement, and the third identifies the time period that the statement covers. Now center the titles by selecting A1:C3, choose **F**ormat Cells, select the Alignment tab, and then select “Center Across Selection” under Horizontal. Note that Excel provides an icon in the Alignment group of the Home tab that is titled “Merge and Center” and accomplishes a similar alignment. However, in addition to centering the titles over the selected columns it also merges the cells into one. This sometimes creates a problem if we later decide to insert a new column. In general, you should never use the Merge and Center icon.

How to proceed from this point is largely a matter of preference. We could move line by line through the income statement, entering a label followed by the value. An alternative is to enter all of the labels and then all of the numbers. The second method seems preferable at this point so that we may concentrate on the numbers. The labels are going to be in column A and the numbers in column B. It is good practice to enter a label indicating the end of the period above the data, so move to B4 and type: `2011`.

Beginning in A5, enter the labels exactly as they appear in Exhibit 2-1. Once you have entered the labels, it is likely that you will find that some of these labels are too long to fit in only one cell. To remedy this problem, we need to change the width of column A. There are several ways to accomplish this in Excel. The slowest method is to select a cell in column A and then click the Format button on the Home tab. Next, choose Column **W**idth and enter: 30 in the edit box. If you are using some font other than 12 point Times New Roman, you will have to experiment with different numbers to find the appropriate width for the column. Alternatively, instead of entering a specific number for the column width, we can also let Excel determine the appropriate width. Select column A, and click the Format button. Now choose **A**utofit Column Width and Excel will automatically make the column wide enough to accommodate the longest text in the column.



As usual, there is a shortcut available. If you slowly move the mouse pointer over the column headers, you will notice that the pointer changes its shape (to that pictured at left) as it passes over the boundary between columns. Press the left mouse button while the pointer is over this boundary and drag until the column is wide enough to accommodate the text. You can also double-click on the column boundary and Excel will set the column width to the best fit for the data. Each of these techniques can also be used to change the height of a row.

When entering data for large companies, it is often preferable to display the numbers in thousands or millions of dollars, rather than the full amount. For EPI, we will enter the numbers in full precision and later apply a custom number format. Move to B5 and enter: `3,850,000`.<sup>3</sup> Keeping principle 2 in mind, we would like the numbers to display with

commas and no decimal places. Because each cell can maintain a number format, regardless of whether it contains any numbers, we will pre-format the cells that we are going to use. Select cells B5:C15 and click the Comma Style button in the Number group. Now click the Decrease Decimal button twice so that no decimal places are displayed. When we enter numbers into these cells, they will automatically take on the format that we want.

Move to B6 and type: 3,250,000 for cost of goods sold. This is the total cost of the products sold to customers, including inventory shrinkage and write-downs for damaged or outdated products. Notice that, as promised, the number in B6 appears with commas.

*Gross profit* is the amount left over after paying for the goods that were sold. To calculate gross profit, we subtract cost of goods sold from sales. Again, we want Excel to make all of the calculations, so in B7 type: =B5-B6. Selling, general and administrative (SG&A) expense is an input, so enter: 330,300 in B8. Fixed expenses (rent, salaries, etc.) for the period are an input, so enter: 100,000 in B9. Depreciation is also an input in this case, so in B10 enter: 20,000.

*Earnings before interest and taxes* (EBIT) is gross profit less all remaining expenses other than interest and taxes. Any of several formulas could be used for this calculation, for example the obvious formula for EBIT in B11 is: =B7-B8-B9-B10. However, obvious formulas aren't always the best. We could simplify this equation somewhat by making use of the **SUM** function. The new formula would be: =B7-SUM(B8:B10). **SUM** is a built-in Excel function that returns the summation of the arguments. **SUM** is defined as:

$$\text{SUM}(\text{NUMBER1}, \text{NUMBER2}, \dots)$$

where *NUMBER1* is the first number (or cell address), *NUMBER2* is the second, and so on. Excel will also accept ranges in place of any individual cell reference. There are two advantages of using the **SUM** function in this case: (1) It is faster and more compact; and (2) the range will automatically expand if we insert a new row. The second advantage is the most important. If we add another category of expense by adding another row above row 9, for example, our formula would automatically incorporate the new row by changing to: B7 – Sum (B8:B11). If we used the original formula, we would have to remember to change it after adding the new row.

**SUM** is one of the more commonly used built-in functions, so common that Microsoft has included the AutoSum button (pictured at left) in the Editing group on the Home tab to automate the summation of rows or columns of numbers. To use the AutoSum button, simply select the cell where you want the formula to be placed and then click the button. Or,



3. There is no need for you to type the commas. We are showing them here for clarity. However, Excel will accept the numbers with commas if you wish to type them in. If you don't enter them, then you will need to apply a number format that includes commas.

you can use the Alt+= keyboard shortcut. Excel will make an intelligent guess about which cells you want included, and it is usually correct. If it guesses wrongly, merely select the range you wish to include and Excel will make the change. Note that the AutoSum button doesn't work when you are editing a formula in the formula bar.

The AutoSum button has proved so popular that its functionality has been improved. If you click the little arrow to the right of the AutoSum button, it will drop down a list of alternative functions. Now you can more quickly use the **AVERAGE**, **COUNT**, **MAX**, or **MIN** functions just by choosing a function from the menu.

In B12 enter 76,000 for the interest expense. Next, we will calculate earnings before taxes with the formula: =B11-B12 in cell B13. EPI pays taxes at the rate of 40% on taxable income, so in B18 type 40%. We will calculate the dollar amount of taxes in B14 with: =B13\*\$B18. Note that this lets us easily change the tax rate without having to edit formulas. Finally, *net income* is the profit earned by the firm after all revenues and expenses have been taken into account. To calculate net income, enter =B13-B14 in cell B15.

As you can see, EPI's net income for the fiscal year 2011 was \$44,220. However, for analysis purposes, we normally are not overly concerned with net income. Net income does not accurately represent the funds that a firm has available to spend. In the calculation of net income, we include depreciation expense (and/or other noncash expenses such as depletion or amortization), which ostensibly accounts for the decline in the value of the long-term assets of the firm. Because nobody actually wrote a check for the depreciation expense, it should be added back to the net income number to give a better, though not complete, picture of the cash flow for the period. Cash flow is the number one concern for financial analysts.

Creating EPI's income statement for 2010 doesn't take nearly as much work. First, select B4:B15 and copy the cells using the Copy button on the Home tab. Select C4 and click the Paste button. Don't forget to change C4 to: 2010. Now you have an exact copy of the 2011 income statement. Enter the numbers from Table 2-1 into the appropriate cells.

**TABLE 2-1**  
**EPI'S 2010 INCOME AND EXPENSES**

<b>Category</b>	<b>Value</b>
Sales	3,432,000
Cost of Goods Sold	2,864,000
SG&A Expenses	240,000
Depreciation Expense	18,900
Interest Expense	62,500

Notice that you only had to enter the new numbers. The formulas are updated and recalculated automatically. So instead of entering 11 cells of formulas or numbers, you only had to enter six numbers and no formulas at all. Your worksheet should now resemble the one in Exhibit 2-1, page 45.

The layout of the income statement that we have seen is the one normally used by analysts outside the firm. Those inside the firm will have more information and may find that Excel's Outline display will make the worksheet easier to understand and maintain. To learn about outlining, see page 62.

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## *The Balance Sheet*

The balance sheet is usually depicted in two sections: the assets section at the top or left side, and the liabilities and owner's equity section at the bottom or right side. It is important to realize that the balance sheet must balance (thus the name). That is, total assets must equal the sum of total liabilities and total owner's equity. Each of these sections is usually further divided into subsections.

On the asset side, there are two subsections. The *current assets* section describes the value of the firm's short-term assets. Short-term, in this case, is defined as one year or the time it takes for the asset to go through one cash flow cycle (i.e., from purchase to sale to collection). Typical current assets are cash, accounts receivable, and inventories. *Fixed assets* are those assets with lives longer than one year. Examples of fixed assets include vehicles, property, and buildings.

Like assets, liabilities can be subdivided into two sections. *Current liabilities* are those liabilities that are expected to be retired within one year. Examples are items such as accounts payable and wages payable. *Long-term liabilities* are those that will not be paid off within the current year. Generally, long-term liabilities are made up of various types of bonds, bank loans, and so on.

*Owner's equity* represents the difference between the value of the total assets and liabilities of the firm. This part of the balance sheet is subdivided into contributed capital and retained earnings. *Contributed capital* is the investment made by the common and preferred stockholders of the firm. *Retained earnings* is the accumulation of the undistributed profits of the firm.

### **Building a Balance Sheet in Excel**

The process of building a balance sheet in Excel is very similar to building the income statement. EPI's 2011 and 2010 balance sheets, as shown in Exhibit 2-2, will serve as an example.

We will keep EPI's balance sheets in the same workbook, but on a different worksheet, as the income statement. Keeping related data in the same workbook allows for easy referencing. Using separate worksheets allows us to keep the worksheets uncluttered and makes it easier to design the worksheets. Click on the Sheet2 tab with the right mouse button and select **R**ename from the menu. Type *Balance Sheet* as the new name for this worksheet.



Enter the labels from Exhibit 2-2 into the blank worksheet. Notice that many of the labels in the balance sheet are indented. There are two ways to accomplish this effect. The method that we usually use, and are using here, is to first type the text into the cell and then click the "Increase Indent" button (pictured at left) in the Alignment group of the Home tab.

An alternative method would be to insert the indented labels into column B instead of column A. This way, by controlling the width of column A, we could control the depth of the indentation. The labels in column A will simply overlap into column B as long as there is no text in the cell to the right. However, this method can cause problems if a new column is inserted between A and B, so the increase indent button method is a better choice.

In EPI's balance sheet, nearly everything is a direct input so we won't discuss every cell. The italicized entries are formulas that we will discuss for 2011. The formulas for the 2010 balance sheet can be copied from the 2011 balance sheet. As with the income statement, you should enter the numbers as shown and apply the same number format.

In the asset section, the first formula is for total current assets in B8. This is simply the sum of all of the current asset accounts, so the formula is:  $=SUM(B5:B7)$ . Next, we calculate EPI's net fixed assets. This is equal to plant and equipment less accumulated depreciation, so in B11 enter:  $=B9-B10$ . Finally, calculate total assets by adding the current assets and net fixed assets with the formula:  $=B8+B11$ .

The liabilities and owner's equity section is similar. We will calculate several subtotals and then a grand total in B23. Total current liabilities in B17 is calculated with:  $=SUM(B14:B16)$ . Total liabilities is calculated with the formula:  $=B17+B18$  in B19. Total shareholder's equity is calculated in B22 with:  $=B20+B21$ . And, finally, we calculate the total liabilities and owner's equity in B23 with:  $=B19+B22$ . Copy these formulas into the appropriate cells in column C and enter the numbers from Exhibit 2-2 to create the 2010 balance sheet.



**EXHIBIT 2-2**  
**EPI'S BALANCE SHEET**

<b>Elvis Products International</b>		
<b>Balance Sheet</b>		
<b>As of Dec. 31, 2011</b>		
<b>Assets</b>	<b>2011</b>	<b>2010</b>
Cash and Equivalents	52,000	57,600
Accounts Receivable	402,000	351,200
Inventory	836,000	715,200
<b>Total Current Assets</b>	<b>1,290,000</b>	<b>1,124,000</b>
Plant & Equipment	527,000	491,000
Accumulated Depreciation	166,200	146,200
<b>Net Fixed Assets</b>	<b>360,800</b>	<b>344,800</b>
<b>Total Assets</b>	<b>1,650,800</b>	<b>1,468,800</b>
<b>Liabilities and Owner's Equity</b>		
Accounts Payable	175,200	145,600
Short-term Notes Payable	225,000	200,000
Other Current Liabilities	140,000	136,000
<b>Total Current Liabilities</b>	<b>540,200</b>	<b>481,600</b>
Long-term Debt	424,612	323,432
<b>Total Liabilities</b>	<b>964,812</b>	<b>805,032</b>
Common Stock	460,000	460,000
Retained Earnings	225,988	203,768
<b>Total Shareholder's Equity</b>	<b>685,988</b>	<b>663,768</b>
<b>Total Liabilities and Owner's Equity</b>	<b>1,650,800</b>	<b>1,468,800</b>

To achieve the underlining and shading effects pictured in the exhibits, select the cells and then choose **F**ormat Cells from the shortcut menu and then click on the Border tab. To set the type of border, first click on the line style on the left side of the dialog, and then click on the location of the line in the Border area of the dialog. If you want to shade the selection, click on the Fill tab and then select the color and pattern for the shading. It is usually best to make the text in a shaded cell bold so that it can be clearly seen. Before continuing, make sure that your worksheet looks like the one in Exhibit 2-2.

*Improving Readability: Custom Number Formats*

When the dollar amounts on a financial statement are very large they can be a little confusing and hard to read. To make the numbers easier to read, we can display them in thousands of dollars using a custom number format. For example, EPI's sales for 2011 were 3,850,000. We can apply a custom number format that will display this amount as 3,850.00. This is commonly done in annual reports or any other report that lists large dollar amounts.

**EXHIBIT 2-3**  
**THE INCOME STATEMENT WITH A CUSTOM NUMBER FORMAT**

	2011	2010
<b>Elvis Products International</b>		
<b>Income Statement</b>		
<b>For the Year Ended Dec. 31, 2011</b>		
	<i>2011</i>	<i>2010</i>
Sales	3,850.00	3,432.00
Cost of Goods Sold	3,250.00	2,864.00
<b>Gross Profit</b>	<b>600.00</b>	<b>568.00</b>
Selling and G&A Expenses	330.30	240.00
Fixed Expenses	100.00	100.00
Depreciation Expense	20.00	18.90
<b>EBIT</b>	<b>149.70</b>	<b>209.10</b>
Interest Expense	76.00	62.50
<b>Earnings Before Taxes</b>	<b>73.70</b>	<b>146.60</b>
Taxes	29.48	58.64
<b>Net Income</b>	<b>44.22</b>	<b>87.96</b>

Return to the Income Statement worksheet and select B5:C15. To create the custom number format, choose Format Cells from the shortcut menu. On the Number tab, choose the Custom category. This will allow us to define our own number format. We can begin by choosing a predefined number format. Here we will choose the “#,##0.00” format from the list. If we add a comma after the format, Excel will display the numbers as if they have been divided by 1,000. Two commas would display the number as if they had been divided by 1,000,000, and so on. In the Type edit box add a single comma after the chosen format so that it looks like “#,##0.00,”. You will see an example of what your formatted numbers will look like in the Sample area of the dialog box. The numbers that you have entered will appear to have been divided by 1,000, but this affects only the appearance of the numbers. You should always enter the full number and then format it to look the way that you wish. The manner in which Excel displays numbers will not affect any calculations. Regardless of the format, numbers are always saved with full precision. The format only changes what we see on the screen, not what is kept in memory. To see the full number, select the cell and look in the formula bar.

Before continuing, edit cell A3 so that it says: For the Year Ended Dec. 31, 2011 (\$ in 000's). This will allow anyone looking at your worksheet to instantly understand that the numbers are displayed in thousands of dollars. Your income statement should now look like the one in Exhibit 2-3.

Because the income statement has been reformatted, it makes sense to use the same number format on the balance sheet for consistency. Switch to the Balance Sheet worksheet and select cells B5:C23 (see Exhibit 2-2, page 51). Now, choose **F**ormat Cells and go to the Custom category. Select the format that you just created from the list (it should be at the bottom of the list). Finally, change the title in A3 so that it indicates that the dollar amounts are shown in thousands. Your balance sheet should now look like the one in Exhibit 2-4.

**EXHIBIT 2-4**  
**THE BALANCE SHEET WITH A CUSTOM NUMBER FORMAT**

Elvis Products International		
Balance Sheet		
As of Dec. 31, 2011 (\$ in 000's)		
Assets	2011	2010
Cash and Equivalents	52.00	57.60
Accounts Receivable	402.00	351.20
Inventory	836.00	715.20
<b>Total Current Assets</b>	<b>1,290.00</b>	<b>1,124.00</b>
Plant & Equipment	527.00	491.00
Accumulated Depreciation	166.20	146.20
<b>Net Fixed Assets</b>	<b>360.80</b>	<b>344.80</b>
<b>Total Assets</b>	<b>1,650.80</b>	<b>1,468.80</b>
Liabilities and Owner's Equity		
Accounts Payable	175.20	145.60
Short-term Notes Payable	225.00	200.00
Other Current Liabilities	140.00	136.00
<b>Total Current Liabilities</b>	<b>540.20</b>	<b>481.60</b>
Long-term Debt	424.61	323.43
<b>Total Liabilities</b>	<b>964.81</b>	<b>805.03</b>
Common Stock	460.00	460.00
Retained Earnings	225.99	203.77
<b>Total Shareholder's Equity</b>	<b>685.99</b>	<b>663.77</b>
<b>Total Liabilities and Owner's Equity</b>	<b>1,650.80</b>	<b>1,468.80</b>

Creating your own number formats in Excel is easy, if you understand a few key points. The number format code is a series of wildcard characters. Both the # sign and 0 work as a stand-in for any digit. The difference between them is how leading and trailing zeros to the right of the decimal point are handled. The # sign will not display leading or trailing zeros, while 0 will. Generally, use # signs to the left of the decimal point and 0 to the right. For example, to display 1542.2 with a thousands separator and two decimal places, we might use a format code of “#,###.00” and see 1,542.20. If we left off the last 0 in the code, the result would be 1,542.2 (notice that the trailing zero is missing). If some of your numbers will be less than one, then using “#,##0.00” would be better because that will preserve the zero to the left of the decimal point.

Custom formats can do many other tricks. You can add color, have different formats for positive and negative numbers, and add text. To learn more about creating custom formats search for “create or delete a custom number format” in the online help.

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### *Common-Size Financial Statements*

A technique widely used by financial analysts is to examine *common-size financial statements*, which display the data not as dollar amounts, but as percentages. These statements provide the analyst with two key benefits:

1. They allow for easy comparisons between firms of different sizes.
2. They can aid in spotting important trends which otherwise might not be obvious when looking at dollar amounts.

As we’ll see, common-size financial statements are easy to create and make it simple to glean important insights that are not immediately obvious when looking at dollar amounts.

### **Creating Common-Size Income Statements**

A common-size income statement is one that shows all of the data as a percentage of the firm’s total revenues. Before beginning, remember that we want to make full use of Excel’s capabilities to be as productive as possible. Instead of creating a new, blank worksheet and re-typing all of the labels, we will make a copy of the Income Statement worksheet. Right-click on the sheet tab and choose **M**ove or Copy... from the shortcut menu. To create a copy, be sure to click on “**C**reate a copy” at the bottom of the dialog box. Note that the copy can be placed anywhere in the current workbook, in a new workbook, or any other open workbook. Place it before the Balance Sheet workbook. Right-click on the sheet tab and rename the worksheet to *Common-size Income Statement*.

We now have a perfect copy of the income statement that we can convert into a common-size income statement. The formulas that we use will reference data from the Income Statement worksheet, so it is helpful to understand how these references are created. In order for Excel to know where to get the data it has to be told the location and name of the file, the name of the worksheet, and the cell address. For example, a reference to a cell in another workbook would look like the following:

```
=C:\[Filename.xlsx]Sheet1!A1
```

Notice that the path to the file is listed first, then the name of the file is in brackets. This allows Excel to find the file on your computer. The file name is followed by the name of the worksheet, then an exclamation point, and then the cell address. If the path, file name, or worksheet name contains spaces, then everything after the equals sign and before the

exclamation point will be enclosed in single quotes. Fortunately, you won't have to type all of this. Instead, just type an equals sign and then switch to the appropriate worksheet and click on the cell you want to reference. Excel will fill in all of the details. If the data in the original worksheet changes, then the data will be updated automatically in the worksheet with the reference.

We can now create the common-size income statement with only two simple changes. First, in B5 type = and then switch to the Income Statement worksheet. Now click on B5 and type / and then click on B5 again. Finally, press the Enter key and your formula will be: = 'Income Statement' !B5 / 'Income Statement' !B5. Now, change the number format to a Percentage format with 2 decimal places. You should now see that the result is 100.00%.

We are going to copy that formula to every cell in the income statement, so we need to use a mixed reference (see page 18) in the denominator so that it will update appropriately. Therefore, you will need to edit the reference in the denominator so that it will always reference row 5. Change the formula by adding a \$ before the 5, so that it becomes: = 'Income Statement' !B5 / 'Income Statement' !B\$5.

At this point, we want to copy this formula to every other cell in the worksheet. However, if we do a normal copy and paste, our underline formatting will be destroyed. To get around this problem, copy the cell and then select all of the other cells (B6:C15 and C5). Now, instead of pasting, choose Paste Special from bottom of the Paste menu on the Home tab. As shown in Figure 2-1, this allows us to choose exactly what and how to paste the data. In the list of options, choose Formulas and number formats.



**FIGURE 2-1**  
**THE PASTE SPECIAL DIALOG BOX**



You have now created a common-size income statement with a minimum number of steps. It should resemble the one shown in Exhibit 2-5. You can easily see why this is a useful tool for analysts. At a glance, you can see that Cost of Goods Sold has risen by about 1% and that

Selling and G&A expenses has risen by about 1.5% in 2011 relative to sales. Also, looking at row 15 instantly shows that the firm's net profit margin (see page 119) has decreased by more than half. This technique also makes for easy comparisons to other firms or to an industry average income statement.

**EXHIBIT 2-5**  
**EPI'S COMMON-SIZE INCOME STATEMENTS**

	2011	2010
Sales	100.00%	100.00%
Cost of Goods Sold	84.42%	83.45%
<b>Gross Profit</b>	<b>15.58%</b>	<b>16.55%</b>
Selling and G&A Expenses	8.58%	6.99%
Fixed Expenses	2.60%	2.91%
Depreciation Expense	0.52%	0.55%
<b>EBIT</b>	<b>3.89%</b>	<b>6.09%</b>
Interest Expense	1.97%	1.82%
<b>Earnings Before Taxes</b>	<b>1.91%</b>	<b>4.27%</b>
Taxes	0.77%	1.71%
<b>Net Income</b>	<b>1.15%</b>	<b>2.56%</b>

**Creating a Common-Size Balance Sheet**

The common-size balance sheet can be created just as we did for the income statement. The only difference is that the balance sheet entries are displayed as a percentage of the firm's total assets instead of total revenues.

To make the common-size balance sheets for EPI, proceed in the same manner as for the common-size income statements. Create a copy of the existing Balance Sheet worksheet, and rename the sheet to Common-size Balance Sheet. In B5 enter: ='Balance Sheet'!B5/'Balance Sheet'!B\$12. That will calculate the cash balance as a percentage of total assets. We want to do the same for every item, so copy the formula and then select all of the cells on the balance sheet. Use Paste Special to paste only the Formulas and number formats. Your common-size balance sheet should look like the one in Exhibit 2-6.

**EXHIBIT 2-6**  
**EPI'S COMMON-SIZE BALANCE SHEET**

Elvis Products International Common size Balance Sheet As of Dec. 31, 2011		
Assets	2011	2010
Cash and Equivalents	3.15%	3.92%
Accounts Receivable	24.35%	23.91%
Inventory	50.64%	48.69%
<b>Total Current Assets</b>	<b>78.14%</b>	<b>76.53%</b>
Plant & Equipment	31.92%	33.43%
Accumulated Depreciation	10.07%	9.95%
<b>Net Fixed Assets</b>	<b>21.86%</b>	<b>23.47%</b>
<b>Total Assets</b>	<b>100.00%</b>	<b>100.00%</b>
Liabilities and Owner's Equity		
Accounts Payable	10.61%	9.91%
Short-term Notes Payable	13.63%	13.62%
Other Current Liabilities	8.48%	9.26%
<b>Total Current Liabilities</b>	<b>32.72%</b>	<b>32.79%</b>
Long-term Debt	25.72%	22.02%
<b>Total Liabilities</b>	<b>58.45%</b>	<b>54.81%</b>
Common Stock	27.87%	31.32%
Retained Earnings	13.69%	13.87%
<b>Total Shareholder's Equity</b>	<b>41.55%</b>	<b>45.19%</b>
<b>Total Liabilities and Owner's Equity</b>	<b>100.00%</b>	<b>100.00%</b>

### *Building a Statement of Cash Flows<sup>4</sup>*

Boiled down to its essence, a firm participates in two kinds of financial transactions: those that increase the cash balance (cash inflows, or *sources* of funds) and those that decrease the cash balance (cash outflows, or *uses* of funds).

One way that a financial analyst can determine how well a firm's management is performing is to examine how they are managing the shareholder's money. The accounting profession has developed the *Statement of Cash Flows*, which is useful for this type of analysis. The

4. We present the "indirect method" of constructing the statement of cash flows because this method is used by most companies. As of this writing, there are ongoing discussions that may ultimately require that the direct method be used. These discussions may also result in a requirement that a "reconciliation schedule" be provided to reconcile the income statement and the statement of cash flows.

statement of cash flows summarizes the causes of changes in the firm's cash balance. Changes in the cash balance can be determined as follows:

**TABLE 2-2**  
**DETERMINING THE CHANGE IN THE CASH BALANCE**

	Beginning Cash Balance
+	Cash inflows (sources)
-	Cash outflows (uses)
=	Ending Cash Balance

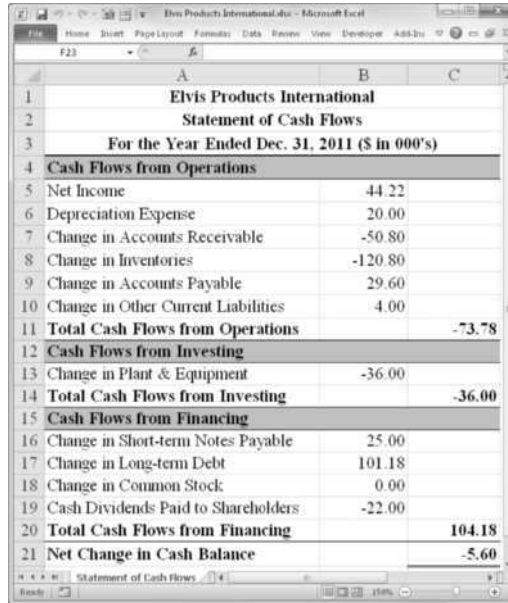
The statement of cash flows is organized into three sections according to how the cash flows were generated. The first section is “Cash Flows from Operations,” which describes the cash flows generated by the firm in the ordinary course of conducting its business. The next section, “Cash Flows from Investing,” describes cash flows due to the firm altering its mix of fixed assets. The final section, “Cash Flows from Financing,” describes the cash flows generated in the course of financing the firm.

The most obvious source of operating cash flow is sales and other revenues. Similarly, the most obvious uses of cash are the firm's expenses. However, we already have this information on the income statement and don't need to repeat it in the statement of cash flows. Therefore, instead of putting nearly the entire income statement into the Cash Flows from Operations section, we will only enter net income, which is a summary of the entire income statement. In addition, we will add back the depreciation expense (and other noncash charges) because, in reality, there was no cash outflow associated with depreciation. The rest of the entries on the statement of cash flows will be *changes* in balance sheet items, though a few will be left out for reasons that we will discuss later.

Unlike the income statement and balance sheet, which are mostly exercises in data entry, the statement of cash flows is primarily composed of formulas. Because these formulas reference many different cells in the workbook it is generally easiest to use Excel's pointer mode when entering them. To begin, insert a new worksheet and rename it to *Statement of Cash Flows*. Enter the labels as shown in Exhibit 2-7 and then apply our custom number format to the cells in B5:C21.



**EXHIBIT 2-7**  
**STATEMENT OF CASH FLOWS FOR EPI**



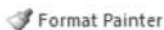
	A	B	C
1	<b>Elvis Products International</b>		
2	<b>Statement of Cash Flows</b>		
3	<b>For the Year Ended Dec. 31, 2011 (\$ in 000's)</b>		
4	<b>Cash Flows from Operations</b>		
5	Net Income	44.22	
6	Depreciation Expense	20.00	
7	Change in Accounts Receivable	-50.80	
8	Change in Inventories	-120.80	
9	Change in Accounts Payable	29.60	
10	Change in Other Current Liabilities	-4.00	
11	<b>Total Cash Flows from Operations</b>		<b>-73.78</b>
12	<b>Cash Flows from Investing</b>		
13	Change in Plant & Equipment	-36.00	
14	<b>Total Cash Flows from Investing</b>		<b>-36.00</b>
15	<b>Cash Flows from Financing</b>		
16	Change in Short-term Notes Payable	25.00	
17	Change in Long-term Debt	101.18	
18	Change in Common Stock	0.00	
19	Cash Dividends Paid to Shareholders	-22.00	
20	<b>Total Cash Flows from Financing</b>		<b>104.18</b>
21	<b>Net Change in Cash Balance</b>		<b>-5.60</b>

The first two items under Cash Flows from Operations are Net Income and Depreciation Expense. As previously mentioned, these are unique items because they are the only ones on the statement of cash flows that come from the income statement and are also the only items that are not represented as changes from a previous period.<sup>5</sup> Also realize that Net Income summarizes every other item on the income statement. Therefore, if we were to include Sales, for example, we would be double counting. To enter the net income first type an = in B5 and then (before pressing the Enter key) click on the sheet tab for the Income Statement. Excel will change to the worksheet containing the income statement. Now click on B15 and press Enter. At this point, Excel will switch back to the Statement of Cash Flows worksheet and your formula in B5 should read: = 'Income Statement' !B15. This formula directs Excel to pull the value from cell B15 on the Income Statement worksheet into B5. If we change some values in the income statement, any change in net income will automatically be reflected in the statement of cash flows.

5. Actually, we could calculate depreciation expense as the change in accumulated depreciation.

We can actually make referencing other sheets slightly easier if we display two or more sheets on the screen at once. We will use this technique to complete the statement of cash flows.

First, switch to the Income Statement sheet and then click the New Window button on the View tab. This will open a second copy of the workbook. Click the Arrange All button and then choose Horizontal from the dialog box. You should now see two identical copies of the workbook. In one of the copies, click on the sheet tab for the Statement of Cash Flows. In B6, type = and then click anywhere on the income statement. Now scroll down so that cell B10 is visible and click on it and press the Enter key. The formula in B6 of the Statement of Cash Flows should read: = 'Income Statement' !B10, and the value should be 20,000. If you didn't already apply the custom number format that we used on the income statement, then you will need to apply it now. Select B5:C21 and then select Format Cells from the right-click menu and apply the same custom format. Alternatively, you can click on any cell in the Income Statement worksheet and then click the Format Painter icon on the formatting toolbar (pictured at left) to copy the format. Now, select B5:C21 on the Statement of Cash Flows worksheet to paste the format. Regardless of the method you use, the value in B6 will be displayed as 20.00, though the actual value in the cell is 20,000.



The rest of the statement of cash flows can be completed in a similar manner. Because we are done with the income statement, we now want to display the balance sheet in that workbook. Click on the sheet tab labeled Balance Sheet. You should now have both the Statement of Cash Flows sheet and the Balance Sheet displayed.

At this point, we must be careful with respect to the signs of the numbers entered into the statement of cash flows. In general, when an asset increases that represents a cash outflow (i.e., a use of funds). An asset that decreases represents a cash inflow (i.e., a source of funds). Liability and equity items are exactly the opposite. We represent uses of funds as negative numbers and sources of funds as positive numbers on the statement of cash flows.

**TABLE 2-3**  
**SIGNS OF CASH FLOWS FOR THE STATEMENT OF CASH FLOWS**

Type of Item	Direction of Change		Order of Subtraction
	Increase	Decrease	
Asset	-	+	Older – Newer
Liability or Equity	+	-	Newer – Older

Table 2-3 shows how to always get the sign correct. As an example, EPI's accounts receivable balance increased from \$351,200 in 2010 to \$402,000 in 2011. Because the firm invested in accounts receivable by making more loans to customers, it represents a use of funds and should be indicated with a negative sign on the statement of cash flows. On the

other hand, the accounts payable balance increased and, because it is a liability, represents a source of funds. It will have a positive sign on the statement of cash flows.

The formula for the change in accounts receivable in B7 should be: `= 'Balance Sheet'!C6 - 'Balance Sheet'!B6`. Because it is an asset, we are subtracting the newer value from the older value as shown in Table 2-3. The change in inventories can be found by simply copying this formula down to B8. For liability and equity items the direction of the subtraction will be reversed. This will ensure that the sign is always correct no matter how the numbers change.

The formula to calculate the change in accounts payable in B9 is: `= 'Balance Sheet'!B14 - 'Balance Sheet'!C14`. In B10, to get the change in other current liabilities, we use the formula: `= 'Balance Sheet'!B16 - 'Balance Sheet'!C16`. Now we calculate the total cash flows from operations in C11 with: `=SUM(B5:B10)`. Note that we have skipped over the short-term notes payable. That is because notes payable is not an operating current liability. Generally, any interest-bearing liability is included in the Cash Flows from Financing section.

If you are paying close attention, then you probably noticed that we haven't included the change in the cash balance in this section. The reason is that the change in the cash balance is the final result of the statement of cash flows. We will calculate that by summing the subtotals from each of the three sections (see C21 in Exhibit 2-7). Remember, the purpose of the statement of cash flows is to explain the actions that resulted in the new cash balance, so including the change in cash would be double counting.

Cash flows from investing are those cash flows generated from investments (or dis-investments) in long-term assets. In the case of EPI, that means plant and equipment.<sup>6</sup> This change can be calculated in B13 by the formula: `= 'Balance Sheet'!C9 - 'Balance Sheet'!B9`. For consistency, we will calculate the total cash flows from investing in C14 with: `=B13`.

For the final section, our first item is the change in notes payable. This item increased from \$200,000 in 2010 to \$225,000 in 2011, representing a cash inflow of \$25,000. In B16 enter the formula: `= 'Balance Sheet'!B15 - 'Balance Sheet'!C15`. Next, we can calculate the change in long-term debt with the formula: `= 'Balance Sheet'!B18 - 'Balance Sheet'!C18`. Even though common stock didn't change during the year, it is a good idea to include it. In B18, enter: `= 'Balance Sheet'!B20 - 'Balance Sheet'!C20`.

---

6. Note that we do not use Net Fixed Assets, as that would result in double-counting depreciation expense.

Cash dividends paid to shareholders in 2011 were \$22,000. This is calculated with the formula:

$$\text{Dividends Paid} = \text{Net Income} - \text{Change in Retained Earnings}$$

Dividends paid are always a use of funds so in B19 enter the formula: `=-( 'Income Statement'!B15-( 'Balance Sheet'!B21-'Balance Sheet'!C21) )`. Note that the parentheses are important in this case and that the result should be  $-22,000$ . Again, we can total the cash flows from financing in C20 with: `=SUM(B16:B19)`.

Finally, in C21 we calculate the net change in the cash balance by adding up the subtotals, so the formula is: `=SUM(C11:C20)`. Note that this should exactly equal the actual change in the cash balance from 2010 to 2011, otherwise you have made an error. The most common errors are likely to be either a wrong sign or an omitted item.

Because you no longer need the second copy of the worksheet, you may close either copy by clicking the Close button in the upper right corner of the window. Choosing Close from the File tab would also work, but that will close both copies. Note that if you save the workbook with more than one view, it will retain that setting and both views will be visible when you reopen the workbook.

Before continuing, make sure that your worksheet resembles that pictured in Exhibit 2-7 on page 59.

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### *Using Excel's Outliner*

Most people were first introduced to outlining as a tool to help organize a paper by considering the major ideas first and progressively moving to the details. Excel's outliner works similarly, except that it is not really a tool for organizing ideas, but a tool to show or hide whatever level of detail is appropriate in a spreadsheet. It is reminiscent of the "directory tree" that is used in Windows Explorer for browsing through directories.

Excel can automatically build an outline based on the formulas that you have entered. It looks for cells that summarize information in other cells and considers those to be top level. For example, consider the statement of cash flows that we created in Exhibit 2-7. Once an outline is applied to this sheet, we can collapse it so that it appears like the screen fragment in Exhibit 2-8.

**EXHIBIT 2-8**  
**STATEMENT OF CASH FLOWS WITH ONLY LEVEL 1 DISPLAYED**

Click here to show both levels

Click here to show level 1 only

Click these buttons to expand any section

	A	B	C
1	<b>Elvis Products International</b>		
2	<b>Statement of Cash Flows</b>		
3	<b>For the Year Ended Dec. 31, 2011 (\$ in 000's)</b>		
11	<b>Total Cash Flows from Operations</b>		-73.78
14	<b>Total Cash Flows from Investing</b>		-36.00
20	<b>Total Cash Flows from Financing</b>		104.18
21	<b>Net Change in Cash Balance</b>		-5.60

Excel is sometimes smart enough to apply an outline automatically, but we will do it manually to get exactly the result that we want. Select A4:C10 on the Statement of Cash Flows worksheet and then press Shift+Alt+Right arrow (or click the top half of the Group button on the Data tab). In this case we want to group by rows, so just press Enter when the dialog box appears. You will see an outline symbol appear at the left of the selected cells. If you click on the symbol, the outline will collapse so that it shows only the summary cell. Clicking the outline symbol again will restore the display. To create the other parts of the outline, select A12:C13 and A15:C19 and repeat the above steps for each range. If you make a mistake or decide that you don't like the outline feature, you can clear the outline by clicking the lower half of the Ungroup button and choosing Clear Outline from the menu.



Outlining is especially useful for presentations to people who don't need to see all of the details. It frees you from creating a separate summary worksheet. For example, we could create an outline of an income statement. Suppose that the income statement worksheet that we use inside the firm contains a breakdown of sales by product, several categories of cost of goods sold, and so on. When we need to provide the income statement to those outside the firm we may not wish to provide all of that detail. Instead, simply print a copy from the outline with the appropriate level of detail. Note that if you print an outlined worksheet, only the levels displayed on-screen will print. However, if you copy an outlined worksheet, all of the details will be copied and will be visible to anybody who has the copy.

Distributing workbooks with "hidden" data has been the source of many embarrassing, and potentially costly, stories. For example, a lawyer working for Barclays Capital on its agreement to purchase some of the assets of Lehman Brothers reformatted a worksheet and accidentally exposed 179 hidden rows before creating a PDF file for submission to the

bankruptcy court. Those previously hidden rows contained information regarding contracts that Barclays did not want to purchase, but that were inadvertently included in the offer.<sup>7</sup>

Excel 2010 has a feature designed to avoid this and similar errors. Before distributing a workbook use the **I**nspect Document feature to search for and remove, if necessary, hidden data. This feature can be found in the Info tab under the File tab. Click the Check for Issues button and choose **I**nspect Document.

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### *Summary*

In this chapter, we discussed the three primary financial statements: the income statement, the balance sheet, and the statement of cash flows. You should have a basic understanding of the purpose of each of these statements and know how to build them in Excel.

We demonstrated how worksheets can be linked so that formulas in one worksheet can reference data on another sheet. Custom number formatting was introduced, and we saw how outliner can be a useful tool for selectively displaying or hiding data.

Make sure that you have saved a copy of the EPI workbook because we will be making use of this data in future chapters.

**TABLE 2-4**  
**FUNCTIONS INTRODUCED IN THIS CHAPTER**

<b>Purpose</b>	<b>Function</b>	<b>Page</b>
Total numbers or a range of numbers	<b>SUM</b> ( <i>NUMBER1</i> , <i>NUMBER2</i> ,...) )	47

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7. See [http://abovethelaw.com/Barclays Relief Motion.pdf](http://abovethelaw.com/Barclays%20Relief%20Motion.pdf).

## Problems

1. Using the data presented below:

**Stetson Skydiving Adventures**  
**Income Statements**  
**For the Years 2010 and 2011**

	2011	2010
Sales	\$3,500,000	\$3,230,000
Cost of Goods	2,273,300	2,162,500
<b>Gross Profit</b>	<b>1,226,700</b>	<b>1,067,500</b>
Depreciation	84,000	71,000
Selling & Admin. Expense	869,800	835,000
Lease Expense	65,000	65,000
<b>Net Operating Income</b>	<b>207,900</b>	<b>96,500</b>
Interest Expense	112,000	68,000
<b>Earnings Before Taxes</b>	<b>95,900</b>	<b>28,500</b>
Taxes	33,565	9,975
<b>Net Income</b>	<b>\$62,335</b>	<b>\$18,525</b>

**Notes:**

Tax Rate	35.00%	35.00%
Shares	50,000	40,000
Earnings per Share	\$1.25	\$0.46

**Stetson Skydiving Adventures**  
**Balance Sheet**  
**For the Year Ended December 31, 2011**

	2011	2010
<i>Assets</i>		
Cash	\$52,000	\$41,000
Marketable Securities	2,435	21,000
Accounts Receivable	420,000	372,000
Inventory	515,000	420,000
<i>Total Current Assets</i>	989,435	854,000
Gross Fixed Assets	2,680,000	2,170,000
Accumulated Depreciation	569,000	485,000
<i>Net Plant &amp; Equipment</i>	2,111,000	1,685,000
<b>Total Assets</b>	<b>\$3,100,435</b>	<b>\$2,539,000</b>
<i>Liabilities &amp; Owner's Equity</i>		
Accounts Payable	\$505,000	\$290,000
Accrued Expenses	35,000	30,000
<i>Total Current Liabilities</i>	540,000	320,000
Long-term Debt	1,171,100	1,061,000
<i>Total Liabilities</i>	1,711,100	1,381,000
Common Stock (\$2 par)	100,000	80,000
Additional Paid-in-Capital	691,000	542,000
Retained Earnings	598,335	536,000
<i>Total Owner's Equity</i>	1,389,335	1,158,000
<b>Total Liab. &amp; Owner's Equity</b>	<b>\$3,100,435</b>	<b>\$2,539,000</b>

- a. Recreate the income statement and balance sheet using formulas wherever possible. Each statement should be on a separate worksheet. Try to duplicate the formatting exactly.
  - b. On another worksheet, create a statement of cash flows for 2011. Do not enter any numbers directly on this worksheet. All formulas should be linked directly to the source on previous worksheets.
  - c. Using Excel's outlining feature, create an outline on the statement of cash flows that, when collapsed, shows only the subtotals for each section.
  - d. Suppose that sales were \$3,800,000 in 2011 rather than \$3,500,000. What is the 2011 net income and retained earnings?
  - e. Undo the changes from part d, and change the tax rate to 40%. What is the 2011 net income and retained earnings?
2. Using the data from the previous problem:
- a. Create a common-size income statement for 2010 and 2011. This statement should be created on a separate worksheet with all formulas linked directly to the income statement.
  - b. Create a common-size balance sheet for 2010 and 2011. This statement should be created on a separate worksheet with all formulas linked directly to the balance sheet.
3. Download the file named "Chapter 2 Problem 3.xlsx" from the text support Web site.
- a. Fill in the blanks on the financial statements for Winter Park Web Design with formulas. Some of the formulas will require links to data given in other worksheets in the workbook.
  - b. Create a common-size income statement and balance sheet using your answers from above. Using the techniques you have learned in this chapter, you should be able to do these statements in less than one minute each with formatting that is identical to that in the original worksheets.



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*Internet Exercise*

1. Choose your own company and repeat the analysis from Problems 1 and 2. You can get the data from MSN Money at <http://money.msn.com/investing>. To retrieve the data for your company, go to the Stocks area and enter the ticker symbol. Finally, choose Financials and then the statement type.
  - a. On the page that appears, click on the link for the Income Statement and copy the data to a new worksheet. Reformat the data so that it is more readable, and insert formulas in place of the numbers where possible.
  - b. Repeat part a for the Balance Sheet.
  - c. Create a common-size income statement and balance sheet based on the data from parts a and b.

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