Spreadsheet Case 3

Stephens & Clark Investment Advisers

Problem:	Analyze financial ratios
Management skills:	Deciding
PC skills:	Formulas Spreadsheet control Reporting

File: Steph_q.xls

Stephens & Clark Investment Advisers is a small investment advisory firm which has just opened in Pittsburgh, Pennsylvania. It is trying to take market share from large brokerage houses by offering custom advice to clients, rather than recommending the "stock of the week" touted by large firm research departments.

Clients may call or visit to seek expert advice about particular stocks they are interested in. Paula Morgan, a prospering attorney, has expressed an interest in two firms in the transportation sector and she wants to know if either make good investments. These firms are the Union Pacific Corporation and the Norfolk Southern Corporation. Both Union Pacific and Norfolk Southern are listed on the New York Stock Exchange.

Union Pacific Corporation is a leading transportation and logistics company, with operations in all 50 United States, Canada and Mexico. It comprises four operating companies: Union Pacific Railroad, Overnite Transportation, Skyway Freight Systems, and Union Pacific Technologies. The Union Pacific Railroad operates a 36,000 mile rail network linking 23 states from the midwest to the Gulf Coast. Overnite Transportation is one of the largest freight trucking companies in the United States, specializing in less-than-truckload shipments throughout the United States and Canada. Skyway Freight Systems creates innovative logistical programs for shippers and other companies. Union Pacific Technologies provides computer and telecommunications support to the corporation and markets its systems and services to the transportation industry.

Norfolk Southern Corporation is a Virginia-based company that owns the Norfolk Southern Railway Company, a major freight railroad; North American Van Lines, Inc., a motor carrier; and Pocahontas Land Company, a natural resources company. The Norfolk Southern Railroad's lines extend over 21,000 miles of road in 20 states, primarily in the southeastern and midwestern United States and in the province of Ontario, Canada. North American provides household moving and specialized freight handling services in the United States and Canada, along with certain motor carrier services worldwide. Pocahontas Land manages over 900,000 acres of coal, natural gas, and timber resources in Alabama, Illinois, Kentucky, Tennessee, Virginia, and West Virginia.

In order to make a sound recommendation, Stephens & Clarks' analysts must look at a company's financial statements. The purpose of financial statements is to identify the major

sources, uses, and flows of funds within an organization. The three principal financial statements used in business are income statements, balance sheets, and cash flow statements.

Income statements (also called operating statements) summarize the income, expenses, and profits of businesses for a specified period of time. The purpose of income statements is to show the profitability or unprofitability of firms during the specified period of time, usually a year, a quarter or a month.

Balance sheets identify the assets, liabilities and equity of a firm at a particular point in time. The difference between assets and liabilities is net worth or equity (literally what the organization is worth net of all other factors). Cash flow statements provide detailed information on total receipts and disbursements of cash. Cash flow statements are like checking account registers for individuals. The 2000 income statements and balance sheets of Union Pacific and Norfolk Southern will be used for this case.

Certain financial ratios based on figures from financial statements have been traditionally used to assess a company's financial health and performance. There are five kinds of financial ratios that can be applied to assess the financial position of a firm.

1. Liquidity Ratios

Various liquidity ratios measure a firm's liquidity, its ability to draw on cash and other current assets to pay its financial obligations. Two commonly used liquidity ratios are the *current ratio* and the *quick ratio*, or *acid test*.

(a) Current Ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

(b) Quick Ratio, or Acid Test = $\frac{\text{Current assets - Inventory}}{\text{Current liabilities}}$

The current ratio is the most commonplace measure of short-term solvency. If current liabilities are rising faster than current assets, this may be a harbinger of financial difficulty. The quick ratio measures the firm's ability to pay off short-term obligations without relying on the sale of inventory, which is the least liquid of the firm's current assets.

2. Asset Management Ratios

Another group of ratios measures how effectively a firm is managing its assets. One of these is the *total assets utilization ratio*, which measures the utilization or turnover of all of the firm's assets.

(c) Total assets utilization= $\frac{\text{Sales}}{\text{Total assets}}$

3. Debt Management Ratios

These ratios determine the extent to which a firm uses debt financing. If equity, or owner-supplied funds, accounts for only a small portion of a firm's total financing, the risks of the

firm are borne mainly by creditors. On the other hand, by raising funds through debt, owners can control the firm with a smaller investment of their own. If the firm returns more on the borrowed funds that it pays in interest, the return on the owner's capital is magnified, or leveraged. An important ratio is the *debt ratio*, which measures the percentage of a firm's total funds provided by creditors.

$$\text{(d) Debt ratio} = \frac{\text{Total liabilities}}{\text{Total assets}}$$

Creditors prefer low debt ratios, whereas it may be advantageous for owners to seek higher debt to leverage their money and earnings. However, a debt ratio that is too high signals trouble repaying loans and too much reliance on borrowed money to pay for the firm's operations.

4. Profitability ratios

Profitability ratios illustrate the combined effects of liquidity, asset management, and debt management on profits. Important profitability ratios measure the *return on total assets (ROA)*, the *return on common equity (ROE)*, or return on stockholders' investments, and the *profit margin on sales*.

$$\text{(e) Return on Total Assets (ROA)} = \frac{\text{Net profit after taxes}}{\text{Total assets}}$$

$$\text{(f) Return on Equity (ROE)} = \frac{\text{Net profit after taxes}}{\text{Net worth (equity)}}$$

$$\text{(g) Profit Margin} = \frac{\text{Net profit after taxes}}{\text{Sales}}$$

5. Market Value ratios

These ratios are an indication of what investors think of the company's past performance and future prospects. The market value ratios (and stock price) will be high if a firm has strong liquidity, asset management, debt management, and profitability ratios. The most widely used market value ratio is the *price/earnings ratio*.

$$\text{(h) Price/Earnings Ratio} = \frac{\text{Price per share}}{\text{Earnings per share}}$$

To evaluate a firm's financial ratios properly, they must be compared to ratios for comparable businesses. Financial ratio data on comparable businesses can be found in Dun and Bradstreet's *Industry Norms & Key Business Ratios* and *Annual Statement Studies* by Robert Morris Associates. Both publications group businesses by standard industry classification codes and provide financial ratio data by standard industry classification code.

Tasks

There are 5 tasks to this case:

1. Examine the 2000 income statements and balance sheets of Union Pacific and Norfolk Southern, which can be found by loading the file Steph_q.xls from your data diskette. All data are based on the publicly available 2000 annual reports of these firms.

2. Print out the financial statements so you have a hard copy to work with. Look at them very closely.

3. Assign range names to the income statement data, the balance sheet data, and the area of the worksheet containing the financial ratios. Create a table of range names below the worksheet. Format the ranges with the income statement and balance sheet data to display a comma with zero decimal places. Format the ranges with the financial ratios, earnings per share, and stock price to display 2 decimal places.

4. Calculate the eight financial ratios outlined above for each company at the end of the financial statements. Print out the ratios for both companies.

5. Write an analysis of both companies in a single paragraph. If possible, find statistics on financial ratios for comparable businesses using either the Dun and Bradstreet or Robert Morris publication. On the basis of the information provided in this case, is each financially sound? Which would make the better investment? Review the financial statements of both companies for any items that might help explain their financial position.

Additional Problems

1. Obtain the current stock price for each of these companies and recalculate the Price/Earnings ratio.

2. Use the Web to search the EDGAR database [http://www.sec.gov/edgar.shtml] maintained by the Securities and Exchange Commission. This database contains companies' quarterly financial reports and other documents filed with the SEC. Use this information to recalculate the financial ratios for both companies. Would that make a difference in your decision?

Time Estimates

Expert: 45 minutes
Intermediate: 1 hour
Novice: 1.5 hours

Excel Tutorial For Spreadsheet Case 3

You do not need to use range names for the solution to this case, but they can be used if you wish when you use different formats for different ranges in your worksheet.

Let's name the range in Course.xls with the student grade data GRADES and name the range with the percentages used in the Assumptions section PERCENT.

Naming Ranges

You can name a range the with the **Insert/Name/Define** command. To name the range with the percentages PERCENT, you would do the following: firstly, highlight the three cells B9:B11; then select **Name** from the **Insert** menu; and then select **Define** from the sub-menu. A Define Name dialog box will appear, already containing the percentage range reference. Type the name PERCENT and press the OK Button.

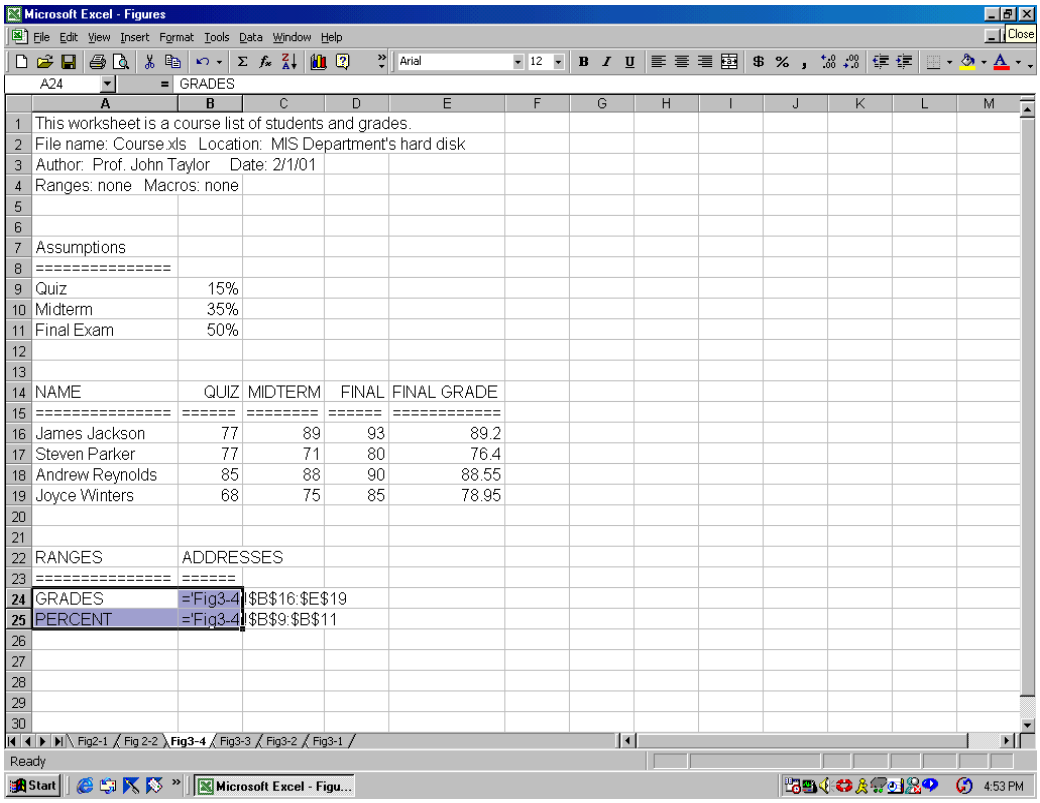
You can alternatively select **Insert/Name/Define** and then select the range once within the dialog box and type the name. Use either procedure to name the range B16:E19 GRADES.

Creating a Table of Range Names

You can document your range names in a table in your worksheet using the **Insert/Name/Paste** command. The table should be placed in an unused portion of the worksheet where it will not overlay any data. The spreadsheet design principles introduced in Chapter 2 suggest placing the range name table below the leftmost portion of the worksheet.

To create the range name table, move to the cell where you want the table to appear and select the **Insert/Name/Paste** command. A dialog box appears, listing the named ranges. The purpose of this dialog box is to paste a selected Name in the formula bar. However, we are using the alternative purpose of the dialog box: pasting a list of range names and their references onto the worksheet. To do this select the Paste List Button. This will result in a worksheet resembling that in Figure 3-4.

Figure 3-4


Microsoft Excel - Figures
File Edit View Insert Format Tools Data Window Help
A24 = GRADES
This worksheet is a course list of students and grades.
File name: Course.xls Location: MIS Department's hard disk
Author: Prof. John Taylor Date: 2/1/01
Ranges: none Macros: none
Assumptions
Quiz 15%
Midterm 35%
Final Exam 50%
NAME QUIZ MIDTERM FINAL FINAL GRADE
James Jackson 77 89 93 89.2
Steven Parker 77 71 80 76.4
Andrew Reynolds 85 88 90 88.55
Joyce Winters 68 75 85 78.95
RANGES ADDRESSES
GRADES ='Fig3-4'!$B$16:$E$19
PERCENT ='Fig3-4'!$B$9:$B$11
Fig2-1 Fig 2-2 Fig3-4 Fig3-3 Fig3-2 Fig3-1
Ready
Start
Microsoft Excel - Figu...
4:53 PM