Chapter

10 Creating a Successful Financial Plan

Ignorance is not bliss—it is oblivion.

—Philip Wylie

It is better to solve problems than crises.

—John Guinther

LEARNING OBJECTIVES



Upon completion of this chapter, you will be able to:

1. **UNDERSTAND** the importance of preparing a financial plan.
2. **DESCRIBE** how to prepare the basic financial statements and use them to manage a small business.
3. **CREATE** projected (pro forma) financial statements.
4. **UNDERSTAND** the basic financial statements through ratio analysis.
5. **EXPLAIN** how to interpret financial ratios.
6. **CONDUCT** a break-even analysis for a small company.

Learning Objective 1: Understand the importance of preparing a financial plan.

Fashioning a well-designed, logical financial plan as part of a comprehensive business plan is one of the most important steps to launching a new business venture. Entrepreneurs who fail to develop workable strategies for earning a profit within a reasonable time eventually will suffer the ultimate business penalty: failure. Potential lenders and investors demand a realistic financial plan before putting their money into a start-up company. More importantly, a financial plan is a vital tool that helps entrepreneurs manage their businesses more effectively, steering their way around the pitfalls that cause failures. Proper **financial management** requires putting in place a system that provides entrepreneurs with relevant financial information in an easy-to-read format on a timely basis; it allows entrepreneurs to know not only *how* their businesses are doing financially but also *why* their companies are performing that way. Smart entrepreneurs put their companies' numbers to work for them so they can make their businesses more successful.

financial management—*a process that provides entrepreneurs with relevant financial information in an easy-to-read format on a timely basis; it allows entrepreneurs to know not only how their businesses are doing financially but also why they are performing that way.*

Unfortunately, failure to collect and analyze basic financial data is a common mistake among entrepreneurs. According to one survey, one-third of all entrepreneurs run their companies *without any kind of financial plan*.[1] Another study found that only 11 percent of small business owners analyzed their financial statements as part of the managerial planning and decision-making process.[2] To reach profit objectives, entrepreneurs must be aware of their firms' overall financial position and the changes in financial status that occur over time.

This chapter focuses on some very practical tools that will help entrepreneurs develop a workable financial plan, keep them aware of their company's financial plan, and enable them to plan for profit. They can use these tools to help them anticipate changes and plot an appropriate profit strategy to meet them head on. These profit planning techniques are not difficult to master, nor are they overly time consuming. We will discuss the techniques involved in preparing projected (pro forma) financial statements, conducting ratio analysis, and performing break-even analysis.

Learning Objective 2: Describe how to prepare the basic financial statements and use them to manage a small business.

BASIC FINANCIAL STATEMENTS

Before we begin building projected financial statements, it would be helpful to review the basic financial reports that measure a company's financial position: the balance sheet, the income statement, and the statement of cash flows. The level of financial sophistication among small business owners may not be high, but the extent of financial reporting among small businesses is. Most small businesses regularly produce summary financial information, almost all of it in the form of these traditional financial statements.

The Balance Sheet

balance sheet—*a financial statement that provides a snapshot of a business's financial position, estimating its worth on a given date; it is built on the fundamental accounting equation: Assets = Liabilities + Owner's equity.*

current assets—*assets such as cash and other items to be converted into cash within one year or within the company's normal operating cycle.*

fixed assets—*assets acquired for long-term use in a business.*

liabilities—*creditors' claims against a company's assets.*

current liabilities—*those debts that must be paid within one year or within the normal operating cycle of a company.*

The **balance sheet** takes a "snapshot" of a business's financial position, providing owners with an estimate of its worth on a given date. Its two major sections show what assets the business owns and what claims creditors and owners have against those assets. The balance sheet is usually prepared on the last day of the month. Figure 10.1 shows the balance sheet for Sam's Appliance Shop for the year ended December 31, 200X.

The balance sheet is built on the fundamental accounting equation: Assets = Liabilities + Owner's equity. Any increase or decrease on one side of the equation must be offset by an increase or decrease on the other side; hence, the name *balance sheet*. It provides a baseline from which to measure future changes in assets, liabilities, and equity. The first section of the balance sheet lists the firm's assets (valued at cost, not actual market value) and shows the total value of everything the business owns. **Current assets** consist of cash and items to be converted into cash within one year or within the normal operating cycle of the company, whichever is longer, such as accounts receivable and inventory, and **fixed assets** are those acquired for long-term use in the business. Intangible assets include items that, although valuable, do not have tangible value, such as goodwill, copyrights, and patents.

The second section shows the business's **liabilities**—the creditors' claims against the company's assets. **Current liabilities** are those debts that must be paid within one year or within the normal operating cycle of the company, whichever is longer, and **long-term liabilities** are those that come due after one year. This section of the balance sheet also shows the **owner's equity**, the value of the owner's investment in the business. It is the balancing factor on the balance sheet, representing all of the owner's capital contributions to the business plus all accumulated (or retained) earnings not distributed to the owner(s).

FIGURE 10.1 Balance Sheet, Sam's Appliance Shop

Assets		
Current Assets		
Cash		$ 49,855
Accounts Receivable	$179,225	
Less Allowance for Doubtful Accounts	6,000	$173,225
Inventory		$455,455
Prepaid Expenses		$ 8,450
Total Current Assets		$686,985
Fixed Assets		
Land		$ 59,150
Buildings	$ 74,650	
Less Accumulated Depreciation	7,050	$ 67,600
Equipment	$ 22,375	
Less Accumulated Depreciation	1,250	$ 21,125
Funiture and Fixtures	$ 10,295	
Less Accumulated Depreciation	1,000	$ 9,295
Total Fixed Assets		$157,170
Intangibles (Goodwill)		$ 3,500
Total Assets		$847,655
Liabilities		
Current Liabilities		
Accounts Payable		$152,560
Notes Payable		83,920
Accrued Wages/Salaries Payable		38,150
Accrued Interest Payable		42,380
Accrued Taxes Payable		50,820
Total Current Liabilities		$367,850
Long-Term Liabilities		
Mortgage		$127,150
Note Payable		85,000
Total Long-Term Liabilities		$212,150
Owner's Equity		
Sam Lloyd, Capital		$267,655
Total Liabilities and Owner's Equity		$847,655

The Income Statement

The **income statement** (or profit and loss statement or "P&L") compares expenses against revenue over a certain period of time to show the firm's net profit (or loss). The income statement is a "moving picture" of a firm's profitability over time. The annual P&L statement reports the bottom line of the business over the fiscal/calendar year. Figure 10.2 shows the income statement for Sam's Appliance Shop for the year ended December 31, 200X.

To calculate net profit or loss, an entrepreneur records sales revenues for the year, which include all income that flows into the business from sales of goods and services. Income from other sources (rent, investments, interest) also must be included in the revenue section of the income statement. To determine net sales revenue, owners subtract the value of returned items and refunds from gross revenue. **Cost of goods sold** represents the total cost, including shipping, of the merchandise sold during the accounting period. Manufacturers, wholesalers, and retailers calculate cost of goods sold by adding purchases to beginning inventory and subtracting ending inventory. Service companies typically have no cost of goods sold.

long-term liabilities—*liabilities that come due after one year.*

owner's equity—*the value of the owner's investment in the business.*

income statement—*a financial statement that represents a moving picture of a business, comparing its expenses against its revenue over a period of time to show its net profit (or loss).*

cost of goods sold—*the total cost, including shipping, of the merchandise sold during the accounting period.*

FIGURE 10.2 Income Statement, Sam's Appliance Shop

Net Sales Revenue		$1,870,841
Credit Sales	$1,309,589	
Cash Sales	561,252	
Cost of Goods Sold		
Beginning Inventory, 1/1/xx	$ 805,745	
+ Purchases	939,827	
Goods Available for Sale	$1,745,572	
– Ending Inventory, 12/31/xx	455,455	
Cost of Goods Sold		$1,290,117
Gross Profit		$ 580,724
Operating Expenses		
Advertising	$ 139,670	
Insurance	46,125	
Depreciation		
Building	18,700	
Equipment	9,000	
Salaries	224,500	
Travel	4,000	
Entertainment	2,500	
Total Operating Expenses		$ 444,495
General Expenses		
Utilities	$ 5,300	
Telephone	2,500	
Postage	1,200	
Payroll Taxes	25,000	
Total General Expenses		$ 34,000
Other Expenses		
Interest Expense	$ 39,850	
Bad Check Expense	1,750	
Total Other Expenses		$ 41,600
Total Expenses		$ 520,095
Net Income		$ 60,629

gross profit margin—*gross profit divided by net sales revenue.*

Net sales revenue minus cost of goods sold results in a company's gross profit. Dividing gross profit by net sales revenue produces the **gross profit margin**, a percentage that every small business owner should watch closely. If a company's gross profit margin slips too low, it is likely that it will operate at a loss (negative net income). Many business owners whose companies are losing money mistakenly believe that the problem is inadequate sales volume; therefore, they focus on pumping up sales at any cost. In many cases, however, the losses their companies are incurring are the result of an inadequate gross profit margin, and pumping up sales only deepens their losses! Repairing a poor gross profit margin requires a company to raise prices, cut manufacturing or purchasing costs, refuse orders with low profit margins, or add new products with more attractive profit margins. Monitoring the gross profit margin over time and comparing it to those of other companies in the same industry are important steps to maintaining a company's long-term profitability.

operating expenses—*those costs that contribute directly to the manufacture and distribution of goods.*

Operating expenses include those costs that contribute directly to the manufacture and distribution of goods. General expenses are indirect costs incurred in operating the business. "Other expenses" is a catch-all category covering all other expenses that don't fit into the other two categories. Total revenue minus total expenses gives the net income (or loss) for the accounting period. Comparing a company's current income statement to those of prior accounting periods often reveals valuable information about key trends and a company's progress toward its financial goals. Figure 10.3 shows how long it typically takes small companies to become profitable.

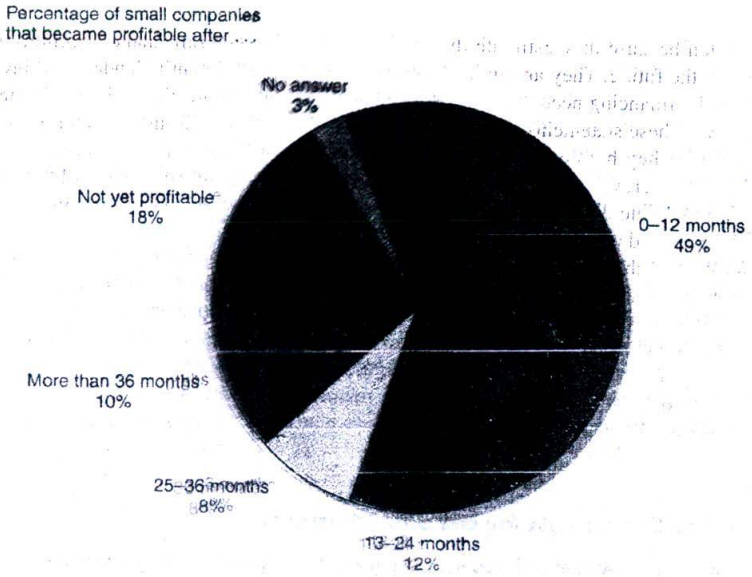


FIGURE 10.3 How Long to Profitability?

Source: New England Business Service, Inc., 1999.

The Statement of Cash Flows

The **statement of cash flows** shows the changes in the firm's working capital from the beginning of the year by listing both the sources of funds and the uses of these funds. Many small businesses never need to prepare such a statement, but in some cases creditors, investors, new owners, or the IRS may require this information.

statement of cash flows—*a financial statement showing the changes in a company's working capital from the beginning of the year by listing both the sources and the uses of those funds.*

To prepare the statement, the owner must assemble the balance sheets and the income statements summarizing the present year's operations. She begins with the company's net income for the period (from the income statement). Then she adds the sources of the company's funds—borrowed funds, owner contributions, decreases in accounts receivable, increases in accounts payable, decreases in inventory, depreciation, and any others. Depreciation is listed as a source of funds because it is a noncash expense that has already been deducted as a cost of doing business. But because the owner has already paid for the item being depreciated, its depreciation is a source of funds. Next the owner subtracts the uses of these funds—plant and equipment purchases, dividends to owners, repayment of debt, increases in accounts receivable, decreases in accounts payable, increases in inventory, and so on. The difference between the total sources and the total uses is the increase or decrease in working capital. By investigating the changes in the firm's working capital and the reasons for them, owners can create a more practical financial action plan for the future of the enterprise.

These financial statements are more than just complex documents used only by accountants and financial officers. When used in conjunction with the analytical tools described in the following sections, they can help entrepreneurs map a firm's financial future and actively plan for profit. Mere preparation of these statement is not enough, however; owners and employees must *understand and use* the information contained in them to make the business more effective and efficient.

CREATING PROJECTED FINANCIAL STATEMENTS

Learning Objective
3. Create projected financial statements

Creating projected financial statements helps the small business owner transform business goals into reality. Budgets answer such questions as: What profit can the business expect to obtain? If the owner's profit objective is x dollars, what sales level must she achieve? What fixed and variable expenses can she expect at that level of sales? The answers to these and other questions are critical in formulating a functional financial plan for the small business.

This section will focus on creating projected income statements and balance sheets for a small start-up. These projected (or pro forma) statements are a crucial component of every

business plan because they estimate the profitability and the overall financial condition of a company in the future. They are an integral part of convincing potential lenders and investors to provide the financing needed to get the company off the ground (the topic of Chapter 12). Also, because these statements project a firm's financial position through the end of the forecasted period, they help entrepreneurs plan the route to improved financial strength and healthy business growth. To be useful, however, these forecasts must be *realistic*! "A business plan is not complete until it contains a set of financial projections that are not only inspiring but also logical and defensible," says one business writer.[3]

Because an established business has a history of operating data from which to construct pro forma financial statements, the task is not nearly as difficult as it is for the beginning business. When creating pro forma financial statements for a brand new business, an entrepreneur typically relies on published statistics summarizing the operation of similar-size companies in the same industry. These statistics are available from a number of sources (described later), but this section draws on information found in *Robert Morris Associates' Annual Statement Studies*, a compilation of financial data on thousands of companies across hundreds of industries [organized by Standard Industrial Classification (SIC) Code].

Pro Forma Statements for the Small Business

One of the most important tasks confronting the entrepreneur launching a new enterprise is to determine the funds needed to begin operation as well as those required to keep going through the initial growth period. The amount of money needed to begin a business depends on the type of operation, its location, inventory requirements, sales volume, and other factors. But every new firm must have enough capital to cover all start-up costs, including funds to rent or buy plant, equipment, and tools, as well as pay for advertising, wages, licenses, utilities, and other expenses. In addition, entrepreneurs must maintain a reserve of capital to carry the company until it begins to make a profit. Too often entrepreneurs are overly optimistic in their financial plans and fail to recognize that expenses initially exceed income for most small firms. This period of net losses is normal and may last from just a few months to several years. Owners must be able to meet payrolls, maintain adequate inventory, take advantage of cash discounts, grant customer credit, and meet personal obligations during this time.

THE PRO FORMA INCOME STATEMENT. Although they are projections, financial forecasts must be based in reality; otherwise, the resulting financial plan is nothing more than a hopeless dream. When creating a projected income statement, an entrepreneur has two options: to develop a sales forecast and work down or set a profit target and work up. Developing a realistic sales forecast for a business start-up is not always easy, but with creativity and research it is possible. Talking with owners of existing businesses in the industry (outside of the local trading area, of course) can provide meaningful insight into the sales levels a company can expect to generate in its early years. For a reasonable fee, entrepreneurs can access published aggregated financial statistics that industry trade associations collect on the companies in their industries. Other organizations, such as Robert Morris Associates and Dun & Bradstreet, publish useful financial information for a wide range of industries. Web searches and trips to the local library will produce the desired information. Interviews with potential customers and test marketing an actual product or service also can reveal the number of customers a company can expect to attract. Multiplying the number of customers by projected prices yields a revenue estimate. One method for checking the accuracy of a sales revenue estimate is to calculate the revenue other companies in the same industry generate per employee and compare it to your own projected revenue per employee. A value that is out of line with industry standards is not likely to be realistic.

Many entrepreneurs prefer the other method of creating a projected income statement, targeting a profit figure and then determining the sales level they must achieve to reach it. Of course, it is important to compare this sales target against the results of the marketing plan to determine whether or not it is realistic. The next step is to estimate the expenses the business will incur in securing those sales. In any small business, the annual profit must be large enough to produce a return for the time the owners spend operating the business, plus a return on their investment in the business.

An entrepreneur who earns less in his own business than he could earn working for someone else must weigh carefully the advantages and disadvantages of choosing the path of entrepreneurship. Why be exposed to all of the risks, sacrifices, and hard work of beginning and operating a small business if the rewards are less than those of remaining in the secure employment of another? Although there are many nonfinancial benefits of owning a business, the net profit after taxes a company generates should be at least as much as an entrepreneur could earn by working for someone else.

An adequate profit must also include a reasonable return on the owner's total investment in the business. The owner's total investment is the amount contributed to the company at its inception plus any retained earnings (profits from previous years funneled back into the operation). If a would-be owner has $70,000 to invest and can invest it in securities and earn 10 percent, she should not consider investing it in a small business that would yield only 3 percent.

An entrepreneur's target income is the sum of a reasonable salary for the time spent running the business and a normal return on the amount invested in the firm. Determining how much this should be is the first step in creating the pro forma income statement.

An entrepreneur then must translate this target profit into a net sales figure for the forecasted period. To calculate net sales from a target profit, the owner needs published statistics for this type of business. Suppose an entrepreneur wants to launch a small retail bookstore and has determined that his target income is $29,000 annually. Statistics gathered from *Robert Morris Associates' Annual Statement Studies* show that the typical bookstore's net profit margin (net profit ÷ by net sales) is 9.3 percent. Using this information, he can compute the sales level required to produce a net profit of $29,000:

$$\text{Net profit margin} = \frac{\text{Net profit}}{\text{Net sales (annual)}}$$

$$9.3\% = \frac{\$29,000}{\text{Net sales (annual)}}$$

$$\text{Net sales} = \frac{\$29,000}{0.093}$$

$$= \$311,828$$

Now this entrepreneur knows that to make a net profit of $29,000 (before taxes), he must achieve annual sales of $311,828. To complete the projected income statement, the owner simply applies the appropriate statistics from *Annual Statement Studies* to the annual sales figure. Because the statistics for each income statement item are expressed as percentages of net sales, he merely multiplies the proper percentage by the annual sales figure to obtain the desired value. For example, cost of goods sold usually comprises 61.4 percent of net sales for the typical small bookstore. So the owner of this new bookstore expects his cost of goods sold to be the following:

$$\text{Cost of goods sold} = \$311,828 \times 0.614 = \$191,462$$

The bookstore's complete projected income statement is shown as follows:

Net sales	(100%)	$311,828
– Cost of goods sold	(61.4%)	191,462
Gross profit margin	(38.6%)	$120,366
– Operating expenses	(29.3%)	$91,366
Net profit (before taxes)	(9.3%)	$29,000

At this point, the business appears to be a lucrative venture. But remember: This income statement represents a sales goal that the owner may not be able to reach. The next step is to determine whether this required sales volume is reasonable. One useful technique is to break down the required annual sales volume into *daily* sales figures. Assuming the store will be open six days per week for 50 weeks (300 days), the owner must average $1,039 per day in sales:

$$\text{Average daily sales} = \frac{\$311,828}{300 \text{ days}}$$

$$= \$1,039 \text{ / day}$$

This calculation gives the owner a better perspective of the sales required to yield an annual profit of $29,000.

To determine whether the profit expected from the business will meet or exceed the target income, the entrepreneur should also create an income statement based on a realistic sales estimate. The previous analysis shows an entrepreneur the sales level needed to reach a desired profit. But what happens if sales are lower? Higher? The entrepreneur requires a reliable sales forecast using the market research techniques described in Chapter 6.

Suppose, for example, that after conducting a marketing survey of local customers and talking with nearby business owners, the prospective bookstore operator projects annual sales for the proposed business to be only $285,000. The entrepreneur must take this expected sales figure and develop a pro forma income statement.

Net sales	(100%)	$285,000
– Cost of goods sold	(61.4%)	174,990
Gross profit margin	(38.6%)	110,010
– Operating Expenses	(29.3%)	83,505
Net profit (before taxes)	(9.3%)	$26,505

Based on sales of $285,000, this entrepreneur should expect a net profit (before taxes) of $26,505. If this amount is acceptable as a return on the investment of time and money in the business, he should proceed with his planning.

At this stage in developing the financial plan, the owner should create a more detailed picture of the venture's expected operating expenses. One common method is to use the operating statistics data found in *Dun & Bradstreet's Cost of Doing Business* reports. These booklets document typical selected operating expenses (expressed as a percentage of net sales) for 190 different lines of businesses. Contacting potential vendors, suppliers, and providers to get estimates of expenses increases the accuracy of the expected expenses on a projected income statement. One entrepreneur who was preparing a business plan for the launch of an upscale women's clothing store contacted local utility companies, insurance agencies, radio and television stations, and other vendors to get estimates of her utility, insurance, advertising, and other general expenses.

To ensure that no business expenses have been overlooked in the preparation of the business plan, entrepreneurs should list all of the expenses they will incur and have an accountant review the list. Sometimes in their estimates of expenses entrepreneurs neglect to include salaries for themselves, which immediately raises a red flag among lenders and investors. Without drawing a salary, how will an entrepreneur pay her own personal bills? At the other extreme, lenders and investors frown on exorbitantly high salaries for owners of business start-ups. Typically, salaries are not the best use of cash in a start-up; one guideline is to draw a salary that is about 25 to 30 percent below the market rate for a similar position (and to make adjustments from there if conditions warrant). Also, as the company grows, executive salaries should be among the *last* expenses to be increased. Reinvesting the extra money back into the company for essentials will accelerate its growth rate even more. Figures 10.4 and 10.5 show two useful forms designed to help entrepreneurs estimate both monthly and start-up expenses. Totals derived from this list of expenses should approximate the total expense figures calculated from published statistics. Naturally, an entrepreneur should be more confident in his own list of expenses because it reflects his particular set of circumstances.

THE PRO FORMA BALANCE SHEET. In addition to projecting a small company's net profit or loss, an entrepreneur must develop a pro forma balance sheet outlining the fledgling firm's assets and liabilities. Most entrepreneurs' primary concern is profitability because, on the surface, the importance of a business's assets is less obvious. In many cases, small companies begin their lives on weak financial footing because entrepreneurs fail to determine their firms' total asset requirements. To prevent this major oversight, entrepreneurs should prepare a projected balance sheet listing every asset their businesses will need and all the claims against these assets.

ASSETS. Cash is one of the most useful assets the business owns; it is highly liquid and can quickly be converted into other tangible assets. But how much cash should a small business

Worksheet No. 2

Estimated Monthly Expenses

Your estimate of monthly expenses based on sales of $_____ per year

Your estimate of how much cash you need to start your business (see column 3)

What to put in column 2 (These figures are typical for one kind of business. You will have to decide how many months to allow for in your business.)

Item	Column 1	Column 2	Column 3
Salary of owner-manager	$	$	2 times column 1
All other salaries and wages			3 times column 1
Rent			3 times column 1
Advertising			3 times column 1
Delivery expense			3 times column 1
Supplies			3 times column 1
Telephone and telegraph			3 times column 1
Other utilities			3 times column 1
Insurance			Payment required by insurance company
Taxes, including Social Security			4 times column 1
Interest			3 times column 1
Maintenance			3 times column 1
Legal and other professional fees			3 times column 1
Miscellaneous			3 times column 1
Starting Costs You Have To Pay Only Once			Leave column 2 blank
Fixtures and equipment			Fill in worksheet 3 and put the total here
Decorating and remodeling			Talk it over with a contractor
Installation of fixtures and equipment			Talk to suppliers from whom you buy these
Starting inventory			Suppliers will probably help you estimate this
Deposits with public utilities			Find out from utilities companies
Legal and other professional fees			Lawyer, accountant, and so on
Licenses and permits			Find out from city offices what you have to have
Advertising and promotion of opening			Estimate what you'll use
Accounts receivable			What you need to buy more stock until credit customers pay
Cash			For unexpected expenses or losses, special purchases, etc.
Other			Make a separate list and enter total
Total Estimated Cash You Need To Start		$	Add up all the numbers in column 2

FIGURE 10.4 Anticipated Expenses

Source: U.S. Small Business Administration. *Checklist for Going into Business.* Small Marketers Aid no. 71, Washington, DC, 1982, pp. 6–7.

have at its inception? Obviously, there is no single dollar figure that fits the needs of every small firm. One practical rule of thumb, however, suggests that the company's cash balance should cover its operating expenses (less depreciation, a noncash expense) for one inventory

FIGURE 10.5 Anticipated Expenditures for Fixtures and Equipment

Source: U.S. Small Business Administration, *Checklist for Going into Business*, Small Marketers Aid no. 71, Washington, DC, 1982, p. 12.

Worksheet No. 3

List of Furniture, Fixtures, and Equipment

Leave out or add items to suit your business. Use separate sheets to list exactly what you need for each of the items below.	If you plan to pay cash in full, enter the full amount below and in the last column.	If you are going to pay by installments, fill out the columns below. Enter in the last column your down payment plus at least one installment.			Estimate of the cash you need for furniture, fixtures, and equipment
		Price	Down payment	Amount of each installment	
Counters	$	$	$	$	$
Storage shelves, cabinets					
Display stands, shelves, tables					
Cash register					
Safe					
Window display fixtures					
Special lighting					
Outside sign					
Delivery equipment, if needed					
Total Furniture, Fixtures, and Equipment (Enter this figure also in worksheet 2 under "Starting Costs You Have to Pay Only Once.")				$	

turnover period. Using this guideline, the cash balance for the small bookstore is calculated as follows:

Operating expenses = $83,505 (from projected income statement)

Less: depreciation (0.9% of annual sales) of $2,565

Equals: cash expenses (annual) = $80,940

$$\text{Cash requirement} = \frac{\text{Cash expenses}}{\text{Average inventory turnover}}$$

$$= \frac{\$80,940}{3.5 \text{ times a year}}$$

$$= \$23,126$$

*From *RMA Annual Statement Studies*.

Notice the inverse relationship between the small firm's average turnover ratio and its cash requirement. The smaller the number of inventory turns a company generates, the higher is its cash requirement.

Another decision facing the entrepreneur is how much inventory the business should carry. A rough estimate of the inventory requirement can be calculated from the information found on the projected income statement and from published statistics:

$$\text{Average inventory turnover} = \frac{\text{Cost of goods sold} = \$174,990 \text{ (from projected income statement)}}{\text{Inventory level}} = 3.5 \text{ times / year}$$

Substituting,

$$3.5 \text{ times / year} = \frac{\$174,990}{\text{Inventory level}}$$

Solving algebraically,

$$\text{Inventory level} = \$49,997$$

Entrepreneurs can use the planning forms shown in Figures 10.3 and 10.4 to estimate fixed assets (land, building, equipment, and fixtures). Suppose the estimate of fixed assets is as follows:

Fixtures	$17,500
Office equipment	2,850
Computers/Cash register	3,125
Signs	3,200
Miscellaneous	1,500
Total	$28,175

LIABILITIES. To complete the projected balance sheet, the owner must record all of the small firm's liabilities, the claims against its assets. The bookstore owner was able to finance 50 percent of the inventory and fixtures through suppliers and has a short-term note payable in the amount of $3,750. The only other major claim against the firm's assets is a note payable to the entrepreneur's father-in-law for $30,000.

The final step is to compile all of these items into a projected balance sheet, as shown in Figure 10.6.

RATIO ANALYSIS

4. Understand the basic financial statements through ratio analysis.

Once an entrepreneur has the business "up and running" with the help of a solid financial plan, the next step is to keep the company moving in the right direction with the help of proper financial controls. Establishing these controls—and using them consistently—is one of the keys to keeping a business vibrant and healthy. "If you don't keep a finger on the pulse of your company's finances, you risk making bad decisions," explains one business writer. "You could be in serious financial trouble and not even realize it."[4]

A smoothly functioning system of financial controls is essential to achieving business success. Such a system can serve as an early warning device for underlying problems that could destroy a young business. According to one writer:

> A company's financial accounting and reporting systems will provide signals, through comparative analysis, of impending trouble, such as:
>
> - Decreasing sales and falling profit margins.
> - Increasing corporate overheads.

Assets		Liabilities	
Current Assets		**Current Liabilities**	
Cash	$ 23,126	Accounts Payable	$ 24,998
Inventory	49,997	Note Payable	3,750
Miscellaneous	1,800		
Total Current Assets	$ 74,923	Total Current Liabilities	$ 28,748
Fixed Assets		**Long-Term Liabilities**	
Fixtures	$ 17,500	Note Payable	$ 30,000
Office equipment	2,850		
Computers/Cash register	3,125	Total Liabilities	58,748
Signs	3,200		
Miscellaneous	1,500		
Total Fixed Assets	$ 28,175	**Owner's Equity**	44,350
Total Assets	$103,098	**Total Liabilities and Owner's Equity**	$103,098

FIGURE 10.6 Projected Balance Sheet for a Small Bookstore

- Growing inventories and accounts receivable.

These are all signals of declining cash flows from operations, the lifeblood of every business. As cash flows decrease, the squeeze begins:

- Payments to vendors become slower.
- Maintenance on production equipment lags.
- Raw material shortages appear.
- Equipment breakdowns occur.

All of these begin to have a negative impact on productivity. Now the downward spiral has begun in earnest. The key is hearing and focusing on the signals.[5]

ratio analysis—*a method of expressing the relationship between any two accounting elements that allows business owners to analyze their companies' financial performances.*

What are these signals, and how does an entrepreneur go about hearing and focusing on them? One extremely helpful tool is ratio analysis. **Ratio analysis**, a method of expressing the relationships between any two elements on financial statements, provides a convenient technique for performing financial analysis. When analyzed properly, ratios serve as barometers of a company's financial health. "You owe it to yourself to understand each ratio and what it means to your business," says one accountant. "Ratios point out potential trouble areas so you can correct them before they multiply."[6] Ratio analysis allows entrepreneurs to determine if their companies are carrying excessive inventory, experiencing heavy operating expenses, overextending credit, taking on too much debt, managing to pay their bills on time, and to answer other questions relating to the efficient and effective operation of the overall business. Unfortunately, few business owners actually use ratio analysis; one study discovered that only 27 percent of small business owners compute financial ratios and use them to manage their businesses![7]

Clever business owners use financial ratio analysis to identify problems in their businesses while they are still problems, not business-threatening crises. Tracking these ratios over time permits an owner to spot a variety of "red flags" that are indications of these problem areas. This is critical to business success because business owners cannot solve problems they do not know exist!

A Company Example

*At **Atkinson-Baker & Associates**, a Los Angeles court-reporting service, every one of the firm's 50 employees is responsible for tracking every day a key financial statistic relating to his or her job. CEO Alan Atkinson-Baker believes that waiting until the month's end to compile financial ratios takes away a company's ability to respond to events as they happen. "Employees have statistics for their jobs, and it helps them see how well they are producing," he says. Because the statistics are linked directly to their jobs, employees quickly learn which numbers to track and how to compile or to calculate them. "Each day everybody reports their statistics," explains Atkinson-Baker. "It all goes into a computer . . . and we keep track of it all." A spreadsheet summarizes the calculations and generates 27 graphs so managers can analyze trends in a meeting the following morning. One rule the company developed from its financial analysis is "Don't spend more today than you brought in yesterday." Atkinson-Baker explains, "You can never run into trouble as long as you stick to that rule." He also notes that effective financial planning would be impossible without timely data. "When we have had problem areas, the statistics have helped us catch them before they become a bigger problem," he says.*[8]

Business owners also can use ratio analysis to increase the likelihood of obtaining a bank loan. By analyzing his financial statements with ratios, an owner can anticipate potential problems and identify important strengths in advance. And loan officers *do* use ratios to analyze the financial statements of companies applying for loans, comparing them against industry averages and looking for trends over time.

But how many ratios should the small business manager monitor to maintain adequate financial control over the firm? The number of ratios that an owner could calculate is limited only by the number of accounts on a firm's financial statements. However, tracking too many ratios only creates confusion and saps the meaning from an entrepreneur's financial analysis. The secret to successful ratio analysis is *simplicity*, focusing on just enough ratios to provide a clear picture of a company's financial standing.

12 Key Ratios

In keeping with the idea of simplicity, we will describe 12 key ratios that will enable most business owners to monitor their companies' financial positions without becoming bogged down in financial details. This chapter presents explanations of these ratios and examples based on the balance sheet and the income statement for Sam's Appliance Shop shown in Figures 10.1 and 10.2. We will group them into four categories: liquidity ratios, leverage ratios, operating ratios, and profitability ratios.

LIQUIDITY RATIOS. Liquidity ratios tell whether or not the small business will be able to meet its short-term financial obligations as they come due. These ratios can forewarn a business owner of impending cash flow problems. A small company with solid liquidity not only is able to pay its bills on time, but it also has enough cash to take advantage of attractive business opportunities as they arise. The primary measures of liquidity are the current ratio and the quick ratio.

liquidity ratios—*tell whether a small business will be able to meet its short-term obligations as they come due.*

1. CURRENT RATIO. The **current ratio** measures a small firm's solvency by indicating its ability to pay current liabilities (debts) from current assets. It is calculated in the following manner:

current ratio—*measures a small firm's solvency by indicating its ability to pay current liabilities out of current assets.*

$$\text{Current ratio} = \frac{\text{Current assets}}{\text{Current liabilities}} = \frac{\$686,985}{\$367,850} = 1.87{:}1$$

Sam's Appliance Shop has $1.87 in current assets for every $1 it has in current liabilities.

Current assets are those that an owner expects to convert into cash in the ordinary business cycle and normally include cash, notes/accounts receivable, inventory, and any other short-term marketable securities. Current liabilities are those short-term obligations that come due within one year and include notes/accounts payable, taxes payable, and accruals.

The current ratio is sometimes called the *working capital ratio* and is the most commonly used measure of short-term solvency. Typically, financial analysts suggest that a small business maintain a current ratio of at least 2:1 (i.e., two dollars of current assets for every one dollar of current liabilities) to maintain a comfortable cushion of working capital. Generally, the higher a company's current ratio, the stronger its financial position; but a high current ratio does not guarantee that a company is using its assets in the most profitable manner. For example, a business may have an abundance of accounts receivable (many of which may not even be collectible) or may be overinvesting in inventory.

With its current ratio of 1.87, Sam's Appliance Shop could liquidate its current assets at 53.5 percent (1 ÷ 1.87 = .535) of its book value and still manage to pay its current creditors in full.

2. QUICK RATIO. The current ratio sometimes can be misleading because it does not show the quality of a company's current assets. As we have already seen, a company with a large number of past-due receivables and stale inventory could boast an impressive current ratio and still be on the verge of financial collapse. The **quick ratio** (or the **acid test ratio**) is a more conservative measure of a company's liquidity because it shows the extent to which its most liquid assets cover its current liabilities. This ratio includes only a company's "quick assets," excluding the most illiquid asset of all—inventory. It is calculated as follows:

quick ratio—*a conservative measure of a firm's liquidity, measuring the extent to which its most liquid assets cover its current liabilities.*

$$\text{Quick ratio} = \frac{\text{Quick assets}}{\text{Current liabilities}} = \frac{\$686,985 - \$455,455}{\$367,850} = 0.63{:}1$$

Sam's Appliance Shop has 63 cents in quick assets for every $1 of current liabilities.

Quick assets include cash, readily marketable securities, and notes/accounts receivables, assets that can be converted into cash immediately if needed. Most small firms determine quick assets by subtracting inventory from current assets because they cannot convert inventory into cash quickly. Also, inventory is the asset on which losses are most likely to occur in case of liquidation.

The quick ratio is a more specific measure of a firm's ability to meet its short-term obligations and is a more rigorous test of its liquidity. It expresses capacity to pay current debts if all sales income ceased immediately. Generally, a quick ratio of 1:1 is considered satisfactory. A ratio of less than 1:1 indicates that the small firm is overly dependent on inventory and on future sales to satisfy short-term debt. A quick ratio of more than 1:1 indicates a greater degree of financial security.

leverage ratios—*measure the financing supplied by a firm's owners against that supplied by its creditors; they are a gauge of the depth of a company's debt.*

LEVERAGE RATIOS. **Leverage ratios** measure the financing supplied by a firm's owners against that supplied by its creditors; they are a gauge of the depth of a company's debt. These ratios show the extent to which an entrepreneur relies on debt capital (rather than equity capital) to finance operating expenses, capital expenditures, and expansion costs. As such, it is a measure of the degree of financial risk in a company. Generally, small businesses with low leverage ratios are less affected by economic downturns, but the returns for these firms are lower during economic booms. Conversely, small firms with high leverage ratios are more vulnerable to economic slides because their debt loads demolish cash flow; however, they have greater potential for large profits.

Over the past decade, American businesses have relied increasingly on debt financing to fuel their growth and expansion. Nonfinancial businesses in the United States have $4.9 trillion in outstanding debt, which is double the amount in 1995.[9]

A Company Example

Typical of these debt-laden companies is ***LodgeNet Entertainment Corporation****, which offers pay-per-view movies, video games, cable television, and express checkout to hotel customers. To finance attempts to reach new markets and to take on new partners in strategic alliances, LodgeNet has relied on debt financing so heavily that its debt load has risen twice as fast as its sales over the past six years. (The company's sales are less than $200 million per year, and its total debt is $262 million.) LodgeNet's interest expense eats up $23 million per year, limiting its ability to invest in a new direct Web access service it offers its customers.*[10]

debt ratio—*measures the percentage of total assets financed by a company's creditors compared to its owners.*

DEBT RATIO. A small company's **debt ratio** measures the percentage of total assets financed by its creditors compared to its owners. The debt ratio is calculated as follows:

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

$$= \frac{\$367,850 + \$212,150}{\$847,655}$$

$$= 0.68:1$$

Creditors have claims of 68 cents against every $1 of assets that Sam's Appliance Shop owns.

Total debt includes all current liabilities and any outstanding long-term notes and bonds. Total assets represent the sum of the firm's current assets, fixed assets, and intangible assets. A high debt ratio means that creditors provide a large percentage of a company's total financing and, therefore, bear most of its financial risk. Owners generally prefer higher leverage ratios; otherwise, business funds must come either from the owners' personal assets or from taking on new owners, which means giving up more control over the business. Also, with a greater portion of a firm's assets financed by creditors, the owner is able to generate profits with a smaller personal investment. Creditors, however, typically prefer moderate debt ratios because a lower debt ratio indicates a smaller chance of creditor losses in case of liquidation. To lenders and creditors, high debt ratios mean a higher risk of default.

According to a senior analyst at Dun & Bradstreet's Analytical Services, "If managed properly, debt can be beneficial because it's a great way to have money working for you. You're leveraging your assets, so you're making more money than you're paying out in interest." However, excessive debt can be the downfall of a business. "As we pile up debt on our personal credit cards our lifestyles are squeezed," he says. "The same thing happens to a business. Overpowering debt sinks thousands of businesses each year."[11]

4. DEBT TO NET WORTH RATIO. A small firm's **debt to net worth (or debt to equity) ratio** also expresses the relationship between the capital contributions from creditors and those from owners and measures how highly leveraged a company is. This ratio shows a company's capital structure by comparing what the business "owes" to "what it is worth." It is a measure of the small firm's ability to meet both its creditor and owner obligations in case of liquidation. The debt to net worth ratio is calculated as follows:

debt to net worth (debt to equity) ratio—*expresses the relationship between the capital contributions from creditors and those from owners and measures how highly leveraged a company is.*

$$\text{Debt to net worth ratio} = \frac{\text{Total debt (or liabilities)}}{\text{Tangible net worth}}$$
$$= \frac{\$367,850 + \$212,150}{\$267,655 - \$3,500}$$
$$= 2.20:1$$

Sam's Appliance Shop owes creditors $2.20 for every $1 of equity that Sam owns.

Total debt is the sum of current liabilities and long-term liabilities, and tangible net worth represents the owners' investment in the business (capital + capital stock + earned surplus + retained earnings) less any intangible assets (e.g., goodwill) the firm owns.

The higher this ratio, the more leverage a business is using, and the lower the degree of protection afforded creditors if the business should fail. Also, a higher debt to net worth ratio means that the firm has less capacity to borrow; lenders and creditors see the firm as being "borrowed up." Conversely, a low ratio typically is associated with a higher level of financial security, giving the business greater borrowing potential.

As a company's debt to net worth ratio approaches 1:1, the creditors' interest in the business approaches that of the owners'. If the ratio is greater than 1:1, creditors' claims exceed those of the owners', and the business may be undercapitalized. In other words, the owner has not supplied an adequate amount of capital, forcing the business to be overextended in terms of debt.

5. TIMES INTEREST EARNED RATIO. The **times interest earned ratio** is a measure of a small firm's ability to make the interest payments on its debt. It tells how many times a company's earnings cover the interest payments on the debt it is carrying. This ratio measures the size of the cushion a company has in covering the interest cost of its debt load. The times interest earned ratio is calculated as follows:

times interest earned ratio—*measures a small firm's ability to make the interest payments on its debt.*

$$\text{Times interest earned} = \frac{\text{Earnings before interest and taxes (or EBIT)}}{\text{Total interest expense}}$$
$$= \frac{\$60,629 + \$39,850}{\$39,850}$$
$$= 2.52:1$$

Sam's Appliance Shop's earnings are 2.5 times greater than its interest expense.

EBIT is the firm's profit *before* deducting interest expense and taxes; the denominator measures the amount the business paid in interest over the accounting period.

A high ratio suggests that the company would have little difficulty meeting the interest payments on its loans; creditors see this as a sign of safety for future loans. Conversely, a low ratio is an indication that the company is overextended in its debts; earnings will not be able to cover its debt service if this ratio is less than 1. "I look for a [times interest earned] ratio of higher than three-to-one," says one financial analyst, "which indicates that management has considerable breathing room to make its debt payments. When the ratio drops below one-to-one, it clearly indicates management is under tremendous pressure to raise cash. The risk of default or bankruptcy is very high."[12] Many creditors look for a times interest earned ratio of at least 4:1 to 6:1 before pronouncing a company a good credit risk.

Although low to moderate levels of debt can boost a company's financial performance, trouble looms on the horizon for businesses whose debt loads are so heavy that they must starve critical operations, research and development, customer service, and others just to pay interest on the debt. Because their interest payments are so large, highly leveraged companies find that they are restricted when it comes to spending cash, whether on an acquisition, normal operations, or capital spending.



Like dynamite, debt financing can be a powerful tool, but companies must handle it carefully, or it can be deadly.

Courtesy of Getty Images Inc. - Hulton Archive Photos.

Debt is a powerful financial tool, but companies must handle it carefully—just as a demolitionist handles dynamite. And, like dynamite, too much debt can be deadly. Unfortunately, some companies that have pushed their debt loads beyond the safety barrier (see Figure 10.7) are struggling to survive. Managed carefully, however, debt can boost a company's performance and improve its productivity. Its treatment in the tax code also makes debt a much cheaper means of financing growth than equity. When companies with AA financial ratings borrow at, say, 8 percent, the after-tax cost is about 5.75 percent (because interest payments to lenders are tax deductible); equity financing often costs twice as much.

Table 10.1 describes how lenders view liquidity and leverage.

operating ratios—*help an entrepreneur evaluate a small company's overall performance and indicate how effectively the business employs its resources.*

OPERATING RATIOS. **Operating ratios** help an entrepreneur evaluate a small company's overall performance and indicate how effectively the business employs its resources. The more effectively its resources are used, the less capital a small business will require. These five operating ratios are designed to help an entrepreneur spot those areas she must improve if her business is to remain competitive.

average inventory turnover ratio—*measures the number of times its average inventory is sold out, or turned over, during an accounting period.*

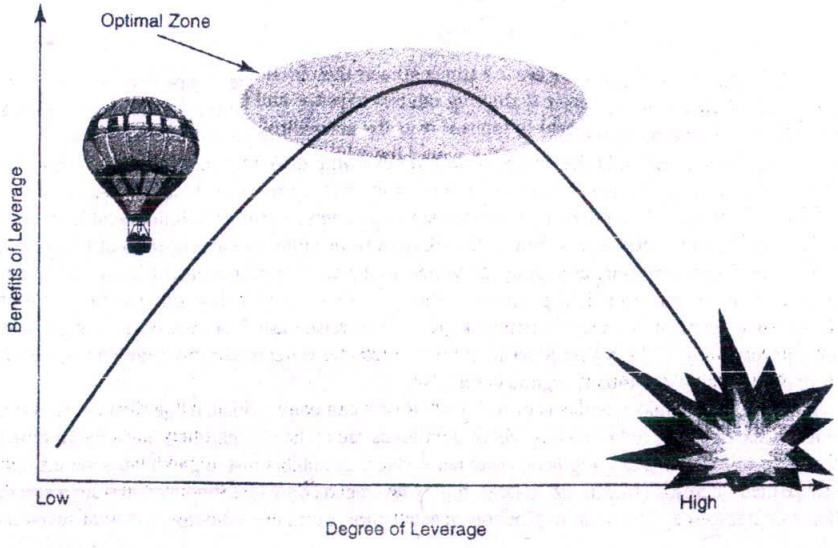
6. **AVERAGE INVENTORY TURNOVER RATIO.** A small firm's **average inventory turnover ratio** measures the number of times its average inventory is sold out, or turned over, during the accounting period. This ratio tells the owner whether or not an entrepreneur is managing inventory properly. It apprises the owner of whether the business inventory is understocked, overstocked, or obsolete. The average inventory turnover ratio is calculated as follows:

$$\text{Average inventory turnover ratio} = \frac{\text{Cost of goods sold}}{\text{Average inventory}}$$

$$= \frac{\$1,290,117}{(\$805,745 + \$455,455) \div 2}$$

$$= 2.05 \text{ times / year}$$

FIGURE 10.7 The Right Amount of Debt Is a Balancing Act



	Liquidity	Leverage
Low	If chronic, this is often evidence of mismanagement. It is a sign that the owner has not planned for the company's working capital needs. In most businesses characterized by low liquidity, there is usually no financial plan. This situation is often associated with last-minute or "Friday night" financing.	This is a very conservative position. With this kind of leverage, lenders are likely to lend money to satisfy a company's capital needs. Owners in this position should have no trouble borrowing money.
Average	This is an indication of good management. The company is using its current assets wisely and productively. Although they may not be impressed, lenders feel comfortable making loans to companies with adequate liquidity.	If a company's leverage is comparable to that of other businesses of similar size in the same industry, lenders are comfortable making loans. The company is not overburdened with debt and is demonstrating its ability to use its resources to grow.
High	Some lenders look for this because it indicates a most conservative company. However, companies that constantly operate this way usually are forgoing growth opportunities because they are not making the most of their assets.	Businesses that carry excessive levels of debt scare most lenders off. Companies in this position normally will have a difficult time borrowing money unless they can show lenders good reasons for making loans. Owners of these companies must be prepared to sell lenders on their ability to repay.

TABLE 10.1
How Lenders View Liquidity and Leverage

Source: Adapted from David H. Bangs, Jr., *Financial Troubleshooting*, (Dover, NH: Upstart Publishing, 1992), p. 124.

Sam's Appliance Shop turns its inventory about two times a year, or once every 178 days.

Average inventory is the sum of the value of the firm's inventory at the beginning of the accounting period and its value at the end of the accounting period, divided by 2.

This ratio tells the owner how fast the merchandise is moving through the business and helps her balance the company's inventory on the fine line between oversupply and undersupply. To



A healthy average inventory turnover ratio means that inventory is moving through a business at a brisk pace.

Courtesy of Corbis Bettman, © Keith Wood/Corbis.

determine the average number of days units remain in inventory, the owner can divide the average inventory turnover ratio into the number of days in the accounting period (e.g., 365 days ÷ average inventory turnover ratio). The result is called *days' inventory* (or *average age of inventory*). Auto dealerships often use the average age of inventory as a measure of their performance.

An above-average inventory turnover indicates that the small business has a healthy, salable, and liquid inventory and a supply of quality merchandise supported by sound pricing policies. A below-average inventory turnover suggests an illiquid inventory characterized by obsolescence, overstocking, stale merchandise, and poor purchasing or pricing procedures.

Businesses that turn their inventories more rapidly require a smaller inventory investment to produce a particular sales volume. That means that these companies tie up less cash in inventory that idly sits on shelves. For instance, if Sam's could turn its inventory *four* times each year instead of just *two*, the company would require an average inventory of just $322,529 instead of the current level of $630,600 to generate sales of $1,870,841. Increasing the number of inventory turns would free up more than $308,000 in cash currently tied up in excess inventory! Sam's would benefit from improved cash flow and higher profits.

The inventory turnover ratio can be misleading, however. For example, an excessively high ratio could mean the firm has a shortage of inventory and is experiencing stockouts. Similarly, a low ratio could be the result of planned inventory stockpiling to meet seasonal peak demand. Another problem is that the ratio is based on an inventory balance calculated from two days out of the entire accounting period. Thus, inventory fluctuations due to seasonal demand patterns are ignored, which may bias the resulting ratio. There is no universal, ideal inventory turnover ratio. Financial analysts suggest that a favorable turnover ratio depends on the type of business, its size, its profitability, its method of inventory valuation, and other relevant factors.

average collection period ratio—*measures the number of days it takes to collect accounts receivable.*

7. AVERAGE COLLECTION PERIOD RATIO. A small firm's **average collection period ratio** (or days sales outstanding, DSO) tells the average number of days it takes to collect accounts receivable. To compute the average collection period ratio, you must first calculate the firm's receivables turnover. Given that Sam's *credit* sales for the year were $1,309,589, then the company's receivables turnover ratio would be as follows:

$$\text{Receivables turnover ratio} = \frac{\text{Credit sales}}{\text{Accounts receivable}}$$

$$= \frac{\$1,309,589}{\$179,225}$$

$$= 7.31 \text{ times / year}$$

Sam's Appliance Shop turns over its receivables 7.31 times per year. This ratio measures the number of times the firm's accounts receivable turn over during the accounting period. The higher the firm's receivables turnover ratio, the shorter the time lag between the sale and the cash collection.

Use the following to calculate the firm's average collection period ratio:

$$\text{Average collection period ratio} = \frac{\text{Days in accounting period}}{\text{Receivables turnover ratio}}$$

$$= \frac{365 \text{ days}}{7.31 \text{ times / year}}$$

$$= 50.0 \text{ days}$$

The lower a company's average collection period is, the faster it is collecting its receivables. Sam's Appliance Shop's accounts receivable are outstanding for an average of 50 days. Typically, the higher a firm's average collection period ratio, the greater its chance of incurring bad debt losses.

One of the most useful applications of the collection period ratio is to compare it to the industry average and to the firm's credit terms. Such a comparison will indicate the degree of the small company's control over its credit sales and collection techniques. A healthy collection period ratio depends on the industry in which a company operates. For instance, a study by REL Consultancy Group found that the average collection period for companies selling technology hardware is 69

days; for retailers of food, it is just 10 days.[13] Perhaps the most meaningful analysis is comparing the collection period ratio to a company's credit terms. One rule of thumb suggests that a company's collection period ratio should be no more than one-third greater than its credit terms. For example, if a small company's credit terms are net 30, its average collection period ratio should be no more than 40 days. A ratio greater than 40 days would indicate poor collection procedures.

Slow payers represent a great risk to many small businesses. Many entrepreneurs proudly point to rapidly rising sales only to find that they must borrow money to keep their companies going because their credit customers are paying their bills in 45, 60, or even 90 days instead of the desired 30. Slow receivables are a real danger because they usually lead to a cash crisis that threatens a company's survival. Table 10.2 shows how to calculate the savings associated with lowering a company's average collection period ratio.

8. AVERAGE PAYABLE PERIOD RATIO. The converse of the average collection period, the **average payable period ratio,** tells the average number of days it takes a company to pay its accounts payable. Like the average collection period, it is measured in days. To compute this ratio, first calculate the payables turnover ratio. Sam's payables turnover ratio is as follows:

average payable period ratio—*measures the number of days it takes a company to pay its accounts payable.*

$$\text{Payables turnover} = \frac{\text{Purchases}}{\text{Accounts payable}}$$
$$= \frac{\$939,827}{\$152,580}$$
$$= 6.16 \text{ times / year}$$

To find the average payable period, use the following computation:

$$\text{Average payable period} = \frac{\text{Days in accounting period}}{\text{Payables turnover ratio}}$$
$$= \frac{365 \text{ days}}{6.16 \text{ times per year}}$$
$$= 59.3 \text{ days}$$

Sam's Appliance Shop takes an average of 59 days to pay its accounts with suppliers.

An excessively high average payables period ratio indicates the presence of a significant amount of past-due accounts payable. Although sound cash management calls for a business owner to keep her cash as long as possible, slowing payables too drastically can severely damage the company's credit rating. Ideally, the average payable period would match (or exceed) the time it takes to convert inventory into sales and ultimately into cash. In this case, the company's vendors would be financing its inventory and its credit sales. Amazon.com reaps the benefits of this situation; it does not pay its vendors until after it collects from its customers.[14]

One of the most meaningful comparisons for this ratio is against the credit terms suppliers offer (or an average of the credit terms offered). If the average payable ratio slips beyond vendors' credit terms, it is an indication that the company is suffering from a sloppy accounts payable procedure or from cash shortages, and its credit rating is in danger. If this ratio is significantly lower than vendors' credit terms, it may be a sign that the firm is not using its cash most effectively.

9. NET SALES TO TOTAL ASSETS RATIO. A small company's **net sales to total assets ratio** (also called the **total asset turnover ratio**) is a general measure of its ability to generate sales in relation to its assets. It describes how productively the firm employs its assets to produce sales revenue. The total assets turnover ratio is calculated as follows:

net sales to total assets (total asset turnover) ratio—*measures a company's ability to generate sales in relation to its asset base.*

$$\text{Total assets turnover ratio} = \frac{\text{Net sales}}{\text{Net total assets}}$$
$$= \frac{\$1,870,841}{\$847,655}$$
$$= 2.21:1$$

TABLE 10.2
How Lowering Your Average Collection Period Can Save You Money

Source: Adapted from "Days Saved, Thousands Earned," *Inc.*, November 1995, p. 98.

Too often, entrepreneurs fail to recognize the importance of collecting their accounts receivable on time. After all, collecting accounts is not as glamorous or as much fun as generating sales. Lowering a company's average collection period ratio, however, can produce tangible—and often significant—savings. The following formula shows how to convert an improvement in a company's average collection period ratio into dollar savings:

$$\text{Annual savings} = \frac{\text{(Credit sales} \times \text{Annual interest rate} \times \text{Number of days average collection period is lowered)}}{365}$$

where

credit sales = company's annual credit sales in $

annual interest rate = the interest rate at which the company borrows money

number of days average collection period is lowered = the difference between the previous year's average collection period ratio and the current one

Example:

Sam's Appliance Shop's average collection period ratio is 50 days. Suppose that the previous year's average collection period ratio was 58 days, an eight-day improvement. The company's credit sales for the most recent year were $1,309,589. If Sam borrows money at 8.75 percent, this six-day improvement has generated savings for Sam's Appliance Shop of

$$\text{Savings} = \frac{\$1,309,589 \times 8.75\% \times 8 \text{ days}}{365 \text{ days}} = \$2,512$$

By collecting his accounts receivable just six days faster on the average, Sam has saved his business more than $2,512! Of course, if a company's average collection period ratio rises, the same calculation will tell the owner how much that costs.

Sam's Appliance Shop is generating $2.21 in sales for every dollar of assets.

The denominator of this ratio, net total assets, is the sum of all of a company's assets (cash, inventory, land, buildings, equipment, tools, everything owned) less depreciation. This ratio is meaningful only when compared to that of similar firms in the same industry category. A total assets turnover ratio below the industry average indicates that a small firm is not generating an adequate sales volume for its asset size.

net sales to working capital ratio—*measures how many dollars in sales a business generates for every dollar of working capital.*

10. NET SALES TO WORKING CAPITAL RATIO. The **net sales to working capital ratio** measures how many dollars in sales the business generates for every dollar of working capital (Working capital = Current assets – Current liabilities). Also called the *turnover of working capital ratio*, this proportion tells the owner how efficiently working capital is being used to generate sales. It is calculated as follows:

$$\begin{aligned}\text{Net sales to working capital ratio} &= \frac{\text{Net sales}}{\text{Current assets} - \text{Current liabilities}} \\ &= \frac{\$1,870,841}{\$686,985 - \$367,850} \\ &= 5.86:1\end{aligned}$$

Sam's Appliance Shop is generating $5.86 in sales for every dollar of working capital.

An excessively low net sales to working capital ratio indicates that a small firm is not employing its working capital efficiently or profitably. On the other hand, an extremely high ratio may indicate an inadequate level of working capital to maintain a suitable level of sales, which puts creditors in a more vulnerable position. Monitoring this ratio over time is very helpful in maintaining sufficient working capital as the small business grows. It is critical for the small firm to keep a satisfactory level of working capital to nourish its expansion, and the net sales to working capital ratio helps define the level of working capital required to support higher sales volumes.

PROFITABILITY RATIOS. **Profitability ratios** indicate how efficiently a small company is being managed. They provide the owner with information about a company's bottom line; in other words, they describe how successfully the firm is using its available resources to generate a profit.

profitability ratios—*indicate how efficiently a small company is being managed.*

11. NET PROFIT ON SALES RATIO. The **net profit on sales ratio** (also called the *profit margin on sales* or *net profit margin*) measures a company's profit per dollar of sales. The computed percentage shows the portion of each sales dollar remaining after deducting all expenses. The profit margin on sales is calculated as follows:

net profit on sales ratio—*measures a company's profit per dollar of sales.*

$$\text{Net profit on sales ratio} = \frac{\text{Net profit}}{\text{Net sales}} = \frac{\$60,629}{\$1,870,841} = 3.24\%$$

For every dollar in sales Sam's Appliance Shop generates, Sam keeps 3.24 cents in profit.

Many small business owners believe that a high profit margin on sales is necessary for a successful business operation, but this is a myth. To evaluate this ratio properly, the owner must consider a firm's asset value, its inventory and receivables turnover ratios, and its total capitalization. For example, the typical small supermarket earns an average net profit of only one or two cents on each dollar of sales, but its inventory may turn over as many as 25 times a year. If a firm's profit margin on sales is below the industry average, it may be a sign that its prices are too low, that its costs are excessively high, or both.

If a company's net profit on sales ratio is excessively low, the owner first should check the gross profit margin (net sales minus cost of goods sold expressed as a percentage of net sales). Of course, a reasonable gross profit margin varies from industry to industry. For instance, a service company may have a gross profit margin of 75 percent, whereas a manufacturer's may be 35 percent. The key is to know what a reasonable gross profit margin is for your particular business. If this margin slips too low, it puts a company's future in immediate jeopardy. An inadequate gross profit margin cannot cover all of a company's business expenses and still be able to generate a profit.

Monitoring the net profit margin is especially important for fast-growing companies where sales are climbing rapidly. Unbridled growth can cause expenses to rise faster than sales, eroding a company's net profit margin. Success can be deceptive: Sales are rising, but profits are shrinking. Ideally, a company reaches a point at which it achieves **operating leverage**, a situation in which increases in operating efficiency mean that expenses as a percentage of sales revenues flatten or even decline. As a result, the company's net profit margin will climb as it grows.

operating leverage—*a situation in which increases in operating efficiency mean that expenses as a percentage of sales revenue flatten or even decline.*

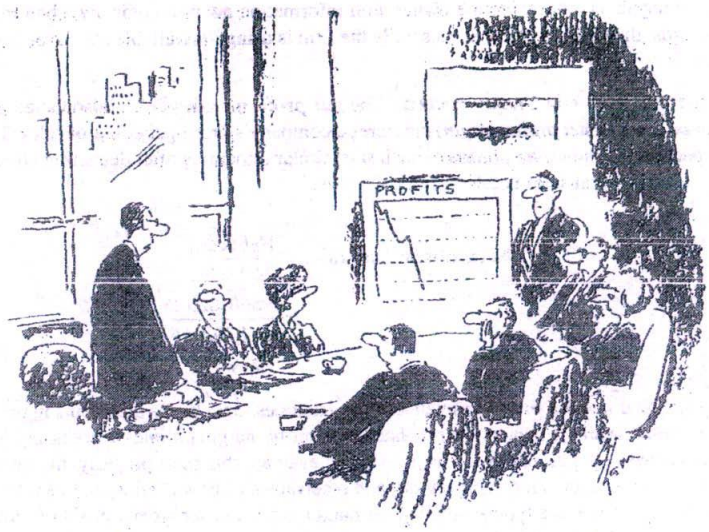
A Company Example

In 1994, when Rick Sapio launched ***Mutuals.com****, a mutual fund advisory and account management service, he was able to raise $14 million in equity capital from private and institutional investors. That largess and the ease with which he raised it gave Sapio an excuse for ignoring the importance of operating leverage. "We were not accountable to being a profitable company at the beginning," he says, "and our energies weren't focused on [analyzing] expenses. We were looking only at revenue." Even though Mutuals.com's sales were growing at an average of 113 percent a year, the company lost money consistently. Sapio decided to get serious about controlling costs. Every day at 4:37 P.M., just after the markets close, Sapio and his top managers gather to assess the company's financial results for that day, and each person is responsible for reporting one revenue item and one expense item. "Every line item on our financial statement has a name attached to it," says Sapio. Since 1999, the company's revenues have increased 190 percent and expenses are actually dropping about 4 percent a year, producing a solid net profit margin of 15 percent.*[15]

12. NET PROFIT TO EQUITY RATIO. The **net profit to equity ratio** (or *return on net worth ratio*) measures the owners' rate of return on investment. Because it reports the percentage of the owners' investment in the business that is being returned through profits annually, it

net profit to equity ratio—*measures the owners' rate of return on investment.*

"I SUGGEST A CANDLELIGHT VIGIL"
Source: FROM THE WALL STREET JOURNAL—PERMISSION, CARTOON FEATURES SYNDICATE



is one of the most important indicators of a firm's profitability or a management's efficiency. The net profit to equity ratio is computed as follows:

$$\text{Net profit to equity} = \frac{\text{Net profit}}{\text{Owners' equity (or net worth)}}$$
$$= \frac{\$60,629}{\$267,655}$$
$$= 22.65\%$$

Sam is earning 22.65 percent on the money he has invested in this business.

This ratio compares profits earned during the accounting period with the amount the owner has invested in the business at that time. If this interest rate on the owners' investment is excessively low, some of this capital might be better employed elsewhere.

INTERPRETING BUSINESS RATIOS

5. Explain how to interpret financial ratios.

Ratios are useful yardsticks when measuring a small firm's performance and can point out potential problems before they develop into serious crises. But calculating these ratios is not enough to ensure proper financial control. In addition to knowing how to calculate these ratios, entrepreneurs must understand how to interpret them and apply them to managing their businesses more effectively and efficiently.

A Company Example

For instance, with the help of financial ratios, Linda Nespole, a top manager at ***Hi-Shear Technology****, an aerospace subcontracting company in Torrance, California, noticed the company's performance beginning to slip. Given the signals her analysis revealed, she immediately devised a strategy to restore Hi-Shear's financial position, focusing first on cost-cutting measures. Simply charting the company's major costs led Nespole to discover leaking water pipes and inefficient lighting that were driving up costs unnecessarily. Some basic repairs lowered utility costs significantly, and a new, more efficient lighting system paid for itself in just six months. Nespole's cost-saving attitude took hold throughout the entire company, and soon all 125 employees were finding ways to keep costs down—from switching long-distance carriers to cutting the cost of its 401(k) retirement plan by 30 percent.*[16]

Not every business measures its success with the same ratios. In fact, key performance ratios vary dramatically across industries and even within different segments of the same

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Yes, But Are Those Profits Real?

It was so easy to do . . . and so easy to justify. Then things began to get out of control.

After years at the helm of the high-flying Comptronix Corporation, an Alabama electronics company, William Hebding admitted that he and two other top officers had improperly inflated the company's profits by engaging in fraudulent accounting practices. The managers disclosed that they had recorded as capital assets some expenses such as salaries and start-up costs and had overstated Comptronix's inventory holdings to decrease its cost of goods sold. The reason was to shore up a weakening balance sheet and to give the illusion that profits were holding at the levels to which investors had grown accustomed. After the scandal broke, Mr. Hebding and his two accomplices were quickly fired.

As headlines tell tales of illegal activities at major companies such as Enron and WorldCom, small companies get caught up in the fray. Comptronix's story has become all too common as fierce competitive conditions exert increasing pressure on companies' profits. "When companies are desperate to stay afloat, inventory fraud is the easiest way to produce profits and dress up the balance sheet," says one accounting expert. The tactic is so simple, yet so effective, primarily because detecting fraudulent adjustments to inventory is so difficult, even for auditors at top accounting firms. In a typical audit, accountants take a small sample of the goods and raw materials in stock and compare an actual count with the company's inventory records. One auditor claims that it is extremely difficult, if not impossible, for an outside auditor to spot inventory fraud "if top management is directing it." One accounting expert reports that inventory fraud has increased fourfold within the past five years.

Measurement Specialties, a maker of electronic sensors, scales, and fire gauges, saw its shares pummeled when the once-profitable company surprised investors with a sudden loss of $3.8 million that put the company in technical default on $29 million worth of loans. Shortly afterward, First Union, Measurement Specialties' lead lender, expressed doubts about the company's management. After the Securities and Exchange Commission launched an investigation into the company's accounting practices, the board of directors ousted CEO Joseph Mullen but allowed him to stay on as chairman of the board. Measurement Specialties brought in a new chief financial officer, who determined that the company had been overvaluing its inventory to make its cost of goods sold appear lower than it was. In just two years, the value of the company's reported inventory had climbed 578 percent! Further investigation also revealed that the company had misclassified a $5.8 million short-term loan as accounts payable.

Some companies, feeling the same pressure to perform, are engaging in a common practice known as "earnings management," in which managers modify allowances for warranty costs or returned items or reclassify expenses into other categories. Aware that one quarter of unexpected financial results can ruin a company's prospects for future growth, some managers are tweaking their companies' financial reports. Their goal? To make their companies' financial statements look as good as possible for investors. "We're painting a picture for investors," says one Silicon Valley accountant. "They want to know that it's business as usual."

Another questionable practice among some companies involves recognizing barter revenue. For instance, a Web-based company might barter $10,000 worth of banner ads to another company for $10,000 worth of computer equipment. It would report the $10,000 as revenue and then amortize the cost of the equipment over a span of several years. Recorded this way, the transaction artificially inflates the company's sales revenue and makes its income statement look stronger than it really is.

Another frequent technique used by Web-based businesses is categorizing the costs of storing, packaging, and shipping inventory (known as "fulfillment costs") under "sales and marketing expenses" rather than recording them as part of "cost of goods sold" on the income statement. Shifting these fulfillment costs to a company's cost of goods sold would lower *significantly* its gross profit margin, a number that investors watch very closely. Even though recording these expenses as part of its cost of goods sold would produce a more accurate picture of a company's financial position, a lower gross profit margin would most likely dampen investors' enthusiasm for its stock. "Companies are under a lot of pressure to keep current [financial statements] looking good," rationalizes one accountant. "The business may be trending in one direction or the other, but we have to always make it look good. Companies work hard to protect [their] margins. It's all about painting the picture."

1. Refer to the balance sheet and income statement for Sam's Appliance Shop (Figures 10.1 and 10.2) and do some "creative accounting" of your own. Inflate the inventory values by a significant amount and see what happens to net worth and profits.

2. Recalculate the 12 key ratios for Sam's Appliance Shop. Compare the results. Which version would look better to a banker? Why?

3. Who loses when the managers of a company commit inventory fraud? What are the ethical implications of such practices?

4. What dangers does the practice of "earnings management" hold for companies and their investors?

Source: Adapted from Nathan Vardi, "Mismeasurement," *Forbes*, September 2, 2002, pp. 202–203; David Raymond, "The Number Runners," *Forbes ASAP*, April 3, 2000, pp. 128–129; Tim Kendall, "Show Me the Money," *Forbes ASAP*, November 29, 1999, p. 36; Lee Berton, "Tech Concerns Fudge Figures to Buoy Stocks," *Wall Street Journal*, May 19, 1998, pp. B1, B2; Lee Berton, "Convenient Fiction," *Wall Street Journal*, December 14, 1992, pp. A1, A4; Eileen Buckley, "No Accounting for Internet Accounting," *The Industry Standard*, April 10, 2000, p. 58; Elizabeth MacDonald, "Are Those Revenue for Real?" *Forbes*, May 29, 2000, pp. 108–110; Daniel Roth, "Under the Microscope," *FSB*, July/August 2002, pp. 32–35.

industry. Entrepreneurs must know and understand which ratios are most crucial to their companies' success and focus on monitoring and controlling those. Sometimes business owners develop ratios and measures that are unique to their own operations to help them achieve success. Known as **critical numbers**, these indicators measure key financial and operational aspects of a company's performance. When these critical numbers are headed in the right direction, a business is on track to achieve its objectives. The owner of a delivery company breaks his business into four categories and tracks critical numbers for each one. Every Monday morning, he gets a report comparing the previous week's critical numbers to the previous 28 weeks and the same week for the previous three years. "In 30 seconds, I can see what's going on in every part of my delivery business," he says. "I get another sheet for my storage business because I need to track a different set of numbers there, but the idea is the same."[17] Examples of critical numbers at other companies include:

critical numbers—*indicators that measure key financial and operational aspects of a company's performance; when these numbers are moving in the right direction, a business is on track to achieve its objectives.*

- The gross profit margin of a manufacturer of pallets.
- Sales per labor hour at a supermarket.
- The utilization ratio, billable hours as a percentage of total hours worked at an Internet service provider.
- The load factor, the percentage of seats filled with passengers, at an airline.[18]

Critical numbers may be different for two companies that compete in the same industry. The key is knowing what *your* company's critical numbers are, monitoring them, and then driving them in the right direction. That requires communicating the importance of these critical numbers to employees and giving them feedback on how well the business is achieving them.

A Company Example

For instance, one California retail chain established the daily customer count and the average sale per customer as its critical numbers. The company organized a monthly contest with prizes and posted charts tracking each store's performance. Soon employees were working hard to improve their stores' performances over the previous year and to outdo other stores in the chain. The healthy rivalry among stores boosted the company's performance significantly.[19]

Another valuable way to utilize ratios is to compare them with those of similar businesses in the same industry. By comparing the company's financial statistics to industry averages, an entrepreneur is able to locate problem areas and maintain adequate financial controls. "By themselves, these numbers are not that meaningful," says one financial expert on ratios, "but when you compare them to [those of] other businesses in your industry, they suddenly come alive because they put your operation in perspective."[20]

The principle behind calculating these ratios and comparing them to industry norms is the same as that of most medical tests in the health care profession. Just as a healthy person's blood pressure and cholesterol levels should fall within a range of normal values, so should a financially healthy company's ratios. A company cannot deviate too far from these normal values and remain successful for long. When deviations from "normal" do occur (and they will), a business owner should focus on determining the cause of the deviations (see Table 10.3). In some cases, such deviations are the result of sound business decisions, such as taking on inventory in preparation for the busy season, investing heavily in new technology, and others. In other instances, however, ratios that are out of the normal range for a particular type of business are indicators of what could become serious problems for a company. Properly used, ratio analysis can help owners identify potential problem areas in their businesses early on—*before* they become crises that threaten their very survival.

Several organizations regularly compile and publish operating statistics, including key ratios, that summarize the financial performance of many businesses across a wide range of industries. The local library should subscribe to most of these publications:

Robert Morris Associates. Established in 1914, Robert Morris Associates publishes its *Annual Statement Studies*, showing ratios and other financial data for more than 350 different industrial, wholesale, retail, and service categories.

Dun & Bradstreet, Inc. Since 1932, Dun & Bradstreet has published *Key Business Ratios*, which covers 22 retail, 32 wholesale, and 71 industrial business categories. Dun & Bradstreet also publishes *Cost of Doing Business*, a series of operating ratios compiled from the IRS's *Statistics of Income*.

When comparing your company's ratios to your industry's standards, ask the following questions:

1. Is there a significant difference in my company's ratio and the industry average?
2. If so, is this a meaningful difference?
3. Is the difference good or bad?
4. What are the possible causes of this difference? What is the most likely cause?
5. Does this cause require that I take action?
6. What action should I take to correct the problem?

TABLE 10.3
Putting Your Ratios to the Test

Source: Adapted from George M. Dawson, "Divided We Stand," *Business Start-Ups*, May 2000, p. 34.

Vest Pocket Guide to Financial Ratios. This handy guide, published by Prentice Hall, gives key ratios and financial data for a wide variety of industries.

Industry Spotlight. Published by Schonfeld & Associates, this publication, which can be customized for any one of more than 150 industries, contains financial statement data and key ratios from more than 95,000 tax returns. *Industry Spotlight* also provides detailed financial information for both profitable companies and those with losses.

Bank of America. Periodically, the Bank of America publishes many documents relating to small business management, including the *Small Business Reporter*, which details costs of doing business ratios.

Trade Associations. Virtually every type of business is represented by a national trade association, which publishes detailed financial data compiled from its membership. For example, owners of small supermarkets could contact the National Association of Retail Grocers or check the *Progressive Grocer*, its trade publication, for financial statistics relevant to their operations.

Government Agencies. Several government agencies (the Federal Trade Commission, Interstate Commerce Commission, Department of Commerce, Department of Agriculture, and Securities and Exchange Commission) offer a great deal of financial operating data on a variety of industries, although the categories are more general. In addition, the IRS annually publishes *Statistics of Income*, which includes income statement and balance sheet statistics compiled from income tax returns. The IRS also publishes the *Census of Business*, which gives a limited amount of ratio information.

What Do All of These Numbers Mean?

Learning to interpret financial ratios just takes a little practice! This section will show you how it's done by comparing the ratios already computed from the operating data for Sam's to those taken from *Robert Morris Associate's Annual Statement Studies*. (The industry median is the ratio falling exactly in the middle when sample elements are arranged in ascending or descending order.)

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All Is Not Paradise in Eden's Garden: Part I

Joe and Kaitlin Eden, co-owners of Eden's Garden, a small nursery, lawn, and garden supply business, have just received their year-end financial statements from their accountant. At their last meeting with their accountant, Shelley Edison, three months ago, the Edens had mentioned that they seemed to be having trouble paying their bills on time. "Some of our suppliers have threatened to put us on 'credit hold,' " said Joe.

"I think you need to sit down with me very soon and let me show you how to analyze your financial statements so you can see what's happening in your business," Shelley told them at that meeting. Unfortunately, that was the beginning of Eden's Garden's busy season, and the Edens were so busy running the company that they never got around to setting a time to meet with Shelley.

"Now that business has slowed down a little, perhaps we should call Shelley and see what she can do to help us understand what our financial statements are trying to tell us," said Kaitlin.

"Right. Before it's too late to do anything about it . . ." said Joe, pulling out the following financial statements.

(continued on page 348)

Balance Sheet, Eden's Garden

		Assets
Current Assets		
Cash		$6,457
Accounts Receivable	$29,152	
Less Allowance for Doubtful Accounts	$3,200	$25,952
Inventory		$88,157
Supplies		$7,514
Prepaid Expenses		$1,856
Total Current Assets		$129,936
Fixed Assets		
Land		$59,150
Buildings	$51,027	
Less Accumulated Depreciation	$2,061	$48,966
Autos	$24,671	
Less Accumulated Depreciation	$12,300	$12,371
Equipment	$22,375	
Less Accumulated Depreciation	$1,250	$21,125
Furniture and Fixtures	$10,295	
Less Accumulated Depreciation	$1,000	$9,295
Total Fixed Assets		$150,907
Intangibles (Goodwill)		$0
Total Assets		$280,843
		Liabilities
Current Liabilities		
Accounts Payable		$54,258
Notes Payable		$20,150
Credit Line Payable		$8,118
Accrued Wages/Salaries Payable		$1,344
Accrued Interest Payable		$1,785
Accrued Taxes Payable		$1,967
Total Current Liabilities		$87,622
Long-Term Liabilities		
Mortgage		$72,846
Note Payable		$47,000
Total Long-Term Liabilities		$119,846
		Owner's Equity
Joe and Kaitlin Edens, Capital		$73,375
Total Liabilities and Owner's Equity		$280,843

Income Statement, Eden's Garden

Net Sales Revenue*		$689,247
Cost of Goods Sold		
Beginning Inventory, 1/1/xx	$78,271	
+ Purchases	$403,569	
Goods Available for Sale	$481,840	
– Ending Inventory, 12/31/xx	$86,157	
Cost of Goods Sold		$395,683
Gross Profit		$293,564
Operating Expenses		
Advertising	$22,150	
Insurance	$9,187	
Depreciation		
Building	$26,705	
Autos	$7,895	
Equipment	$11,200	
Salaries	$116,541	
Uniforms	$4,018	
Repairs and Maintenance	$9,097	
Travel	$2,658	
Entertainment	$2,798	
Total Operating Expenses		$212,249
General Expenses		
Utilities	$7,987	
Telephone	$2,753	
Professional Fees	$3,000	
Postage	$1,892	
Payroll Taxes	$11,589	
Total General Expenses		$27,221
Other Expenses		
Interest Expense	$21,978	
Bad Check Expense	$679	
Miscellaneous Expense	$1,248	
Total Other Expenses		$23,905
Total Expenses		$263,375
Net Income		$30,189

*Credit sales represented $289,484 of this total.

1. Assume the role of Shelley Edison. Using the financial statements for Eden's Garden, calculate the 12 ratios covered in this chapter.

2. Do you see any ratios that, on the surface, look suspicious? Explain.

	Sam's Appliance Shop	Industry Median

Liquidity Ratios—tell whether or not a small business will be able to meet its maturing obligations as they come due.

1. Current ratio = 1.87:1 1.50:1

Sam's Appliance Shop falls short of the rule of thumb of 2:1, but its current ratio is above the industry median by a significant amount. Sam's should have no problem meeting its short-term debts as they come due. By this measure, the company's liquidity is solid.

2. Quick ratio = 0.63:1 0.50:1

Again, Sam's is below the rule of thumb of 1:1, but the company passes this test of liquidity when measured against industry standards. Sam's relies on selling inventory to satisfy short-term debt (as do most appliance shops). If sales slump, the result could be liquidity problems for Sam's. Sam should consider building a cash reserve as a precautionary measure.

Leverage Ratios—measure the financing supplied by a firm's owners against that supplied by its creditors and serve as a gauge of the depth of a company's debt.

3. Debt ratio = 0.68:1 0.64:1

Creditors provide 68 percent of Sam's total assets, very close to the industry median of 64 percent. Although Sam's does not appear to be overburdened with debt, the company might have difficulty borrowing additional money, especially from conservative lenders.

4. Debt to net worth ratio = 2.20:1 1.90:1

Sam's Appliance Shop owes creditors $2.20 for every $1.00 the owners have invested in the business (compared to $1.90 in debt to every $1.00 in equity for the typical business). Although this is not an exorbitant amount of debt, many lenders and creditors will see Sam's as "borrowed up." The company's borrowing capacity is limited because creditors' claims against the business are more than twice those of the owners. Sam should consider increasing his owner's equity in the business through retained earnings or by paying down some of the company's debt.

5. Times interest earned = 2.52:1 2.0:1

Sam's earnings are high enough to cover the interest payments on its debt by a factor of 2.52, slightly better than the typical firm in the industry, whose earnings cover its interest payments just two times. Sam's Appliance Shop has a cushion (although a small one) in meeting its interest payments.

Operating Ratios—evaluate the firm's overall performance and show how effectively it is putting its resources to work.

6. Average inventory turnover ratio = 2.05 times/year 4.0 times/year

Inventory is moving through Sam's at a very slow pace, ***half*** that of the industry median. The company has a problem with slow-moving items in its inventory and, perhaps, too much inventory. Which items are they, and why are they slow moving? Does Sam's need to drop some product lines? Sam must analyze his company's inventory and reevaluate his inventory control procedures.

7. Average collection period ratio = 50.0 days 19.3 days

Sam's Appliance Shop collects the average account receivable after 50 days (compared with the industry median of 19 days), more than two-and-a-half times longer. A more meaningful comparison is against Sam's credit terms; if credit terms are net 30 (or anywhere close to that), Sam's has a dangerous collection problem, one that drains cash and profits and demands *immediate* attention! The owner must implement the cash management procedures pertaining to accounts receivable mentioned in Chapter 8.

8. Average payable period ratio = 59.3 days 43 days

Sam's payables are nearly 40 percent slower than those of the typical firm in the industry. Stretching payables too far could seriously damage the company's credit rating, causing suppliers to cut off future trade credit. This could be a sign of cash flow problems or a sloppy accounts payable procedure. This problem also demands *immediate* attention. Once again, Sam must implement proper cash management procedures to resolve this problem.

9. Net sales to total assets ratio = 2.21:1 2.7:1

Sam's Appliance Shop is not generating enough sales, given the size of its asset base. This could be the result of a number of factors—improper inventory, inappropriate pricing, poor location, poorly trained sales personnel, and many others. The key is to find the cause . . . *fast!*

10. Net sales to working capital ratio = 5.86:1 10.8:1

Sam's generates just $5.86 in sales for every $1 in working capital, just over half of what the typical firm in the industry does. Given the previous ratio, the message is clear: Sam's simply is not producing an adequate level of sales. Improving the number of inventory turns will boost this ratio; otherwise, Sam's is likely to experience a working capital shortage soon.

Profitability Ratios—measure how efficiently a firm is operating and offer information about its bottom line.

11. Net profit on sales ratio = 3.24% 7.6%

After deducting all expenses, 3.24 cents of each sales dollar remains as profit for Sam's—less than half the industry median. Sam's should check the company's gross profit margin and investigate its operating expenses, checking them against industry standards and looking for those that are out of balance.

12. Net profit to equity ratio = 22.65% 12.6%

Sam's Appliance Shop's owners are earning 22.65 percent on the money they have invested in the business. This yield is nearly twice that of the industry median and, given the previous ratio, is more a result of the owners' relatively low investment in the business than an indication of its superior profitability. Sam is using O.P.M. (other people's money) to generate a profit in the business.

When comparing ratios for their individual businesses to published statistics, small business owners must remember that the comparison is made against averages. The owner must strive to achieve ratios that are at least as good as these average figures. The goal should be to manage the business so that its financial performance is above average. As they compare their company's financial performance to those covered in the published statistics, they inevitably will discern differences between them. They should note those items that are substantially out of line from the industry average. However, a ratio that varies from the average does not *necessarily* mean that the small business is in financial jeopardy. Instead of making drastic changes in financial policy, entrepreneurs must explore *why* the figures are out of line.

A Company Example

Greg Smith, CEO of Petra Group, a systems integrator with $1.5 million in annual sales, once gave little thought to comparing his company's financial performance against industry standards. Then Petra Group's sales flattened and Smith's company faced the prospect of losing money for the first time. Smith worked with an accounting firm, using information from Robert Morris Associates and a nonprofit organization that provides similar studies, to analyze his company's financial position. Comparing his numbers to industry statistics, Smith quickly saw that his payroll expenses for his 15-person company were too high to allow the company to generate a profit. He also discovered that Petra Group's debt ratio was too high. To restore his company's financial strength, Smith reduced his staff by two and began relying more on temporary employees and independent contractors. He realigned Petra Group's financing, reducing the company's line of credit from $100,000 to just $35,000. The analysis also revealed several strengths for the company. For instance, the company's average collection period was 36.5 days compared to an industry average of 73 days! Smith continues to use ratio comparisons to make key decisions for his company, and he credits the initial financial analysis with getting his company back on the track to profitability.[21]

In addition to comparing ratios to industry averages, owners should analyze their firms' financial ratios over time. By themselves, these ratios are "snapshots" of a company's financial position at a single instant; but by examining these trends over time, an entrepreneur can detect gradual shifts that otherwise might go unnoticed until a financial crisis is looming (see Figure 10.8).

Learning Objective

4. Describe a break-even analysis for a small company.

BREAK-EVEN ANALYSIS

Another key component of every sound financial plan is break-even analysis. A small company's **break-even point** is the level of operation (sales dollars or production quantity) at which it neither earns a profit nor incurs a loss. At this level of activity, sales revenue equals expenses—that is, the firm "breaks even." By analyzing costs and expenses, an entrepreneur can calculate the minimum level of activity required to keep the firm in operation. These techniques can then be refined to project the sales needed to generate the desired profit. Most potential lenders and investors will require entrepreneurs to prepare a break-even analysis to assist them in evaluating the earning potential of the new business. In addition to its being a simple, useful screening device for financial institutions, break-even analysis can also serve as a planning device for the small business owner. It occasionally will show a poorly prepared entrepreneur just how unprofitable a proposed business venture is likely to be.

break-even point—*the level of operation (sales dollars or production quantity) at which a company neither earns a profit nor incurs a loss.*

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All Is Not Paradise in Eden's Garden: Part 2

Remember Joe and Kaitlin Eden, co-owners of Eden's Garden? Assume the role of Shelley Edison, their accountant. Tomorrow you have scheduled a meeting with them to review their company's financial statements and to make recommendations about how they can improve their company's financial position. Use the accompanying worksheet to summarize the ratios you calculated earlier in this chapter. Then compare them against the industry averages from *Robert Morris Associates' Annual Statement Studies*.

1. Analyze the comparisons you have made of Eden's Garden's ratios with those from Robert Morris Associates. What "red flags" do you see?
2. What might be causing the deviations you have observed?
3. What recommendations can you make to the Edens to improve their company's financial performance in the future?

Source: Robert Morris Associates' Annual Statement Studies.

RATIO COMPARISON

Ratio	Eden's Garden	Garden Supply Industry Median*	
Liquidity Ratios			
Current ratio		1.4	
Quick ratio		0.5	
Leverage Ratios			
Debt ratio		0.6	
Debt to net worth ratio		1.8	
Times interest earned ratio		2.6	
Operating Ratios			
Average inventory turnover ratio		5.6	
Average collection period ratio		9	days
Average payable period ratio		17	days
Net sales to total assets ratio		3.0	
Net sales to working capital ratio		16.6	
Profitability Ratios			
Net profit on sales ratio		7.5%	
Net profit to equity ratio		15.0%	

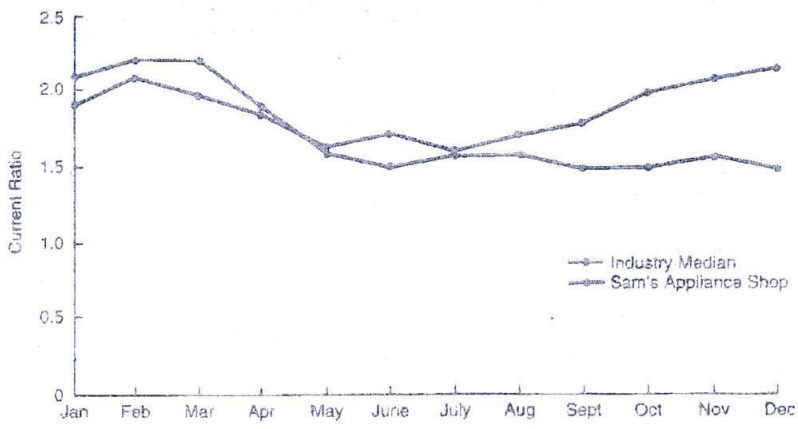


FIGURE 10.8 Trend Analysis of Ratios

Calculating the Break-even Point

fixed expenses—*expenses that do not vary with the volume of sales or production.*

variable expenses—*expenses that vary directly with changes in the volume of sales or production.*

A small business owner can calculate a firm's break-even point by using a simple mathematical formula. To begin the analysis, the owner must determine fixed costs and variable costs. **Fixed expenses** are those that do not vary with changes in the volume of sales or production (e.g., rent, depreciation expense, interest payments). **Variable expenses**, on the other hand, vary directly with changes in the volume of sales or production (e.g., raw material costs, sales commissions).

Some expenses cannot be neatly categorized as fixed or variable because they contain elements of both. These semivariable expenses change, although not proportionately, with changes in the level of sales or production (electricity would be one example). These costs remain constant up to a particular production or sales volume and then climb as that volume is exceeded. To calculate the break-even point, an entrepreneur must separate these expenses into their fixed and variable components. A number of techniques can be used (which are beyond the scope of this text), but a good cost accounting system can provide the desired results.

Here are the steps an entrepreneur must take to compute the break-even point using an example of a typical small business, the Magic Shop:

Step 1. *Determine the expenses the business can expect to incur.* With the help of a budget an entrepreneur can develop estimates of sales revenue, cost of goods sold, and expenses for the upcoming accounting period. The Magic Shop expects net sales of $950,000 in the upcoming year, with a cost of goods sold of $646,000 and total expenses of $236,500.

Step 2. *Categorize the expenses estimated in step 1 into fixed expenses and variable expenses. Separate semivariable expenses into their component parts.* From the budget, the owner anticipates variable expenses (including the cost of goods sold) of $705,125 and fixed expenses of $177,375.

Step 3. *Calculate the ratio of variable expenses to net sales.* For the Magic Shop, this percentage is $705,125 ÷ $950,000 = 74%. So the Magic Shop uses $0.74 out of every sales dollar to cover variable expenses, leaving $0.26 as a contribution margin to cover fixed costs and make a profit.

Step 4. *Compute the break-even point by inserting this information into the following formula:*

$$\text{Break-even sales (\$)} = \frac{\text{Total fixed cost}}{\text{Contribution margin expressed as a percentage of sales}}$$

For the Magic Shop,

$$\text{Break-even sales} = \frac{\$177,375}{0.26} = \$682,212$$

Thus, the Magic Shop will break even with sales of $682,212. At this point, sales revenue generated will just cover total fixed and variable expense. The Magic Shop will earn no profit and will incur no loss. We can verify this with the following calculations:

Sales at break-even point	$682,212
– Variable expenses (74% of sales)	–504,837
Contribution margin	177,375
–Fixed expenses	–177,375
Net profit (or net loss)	$ 0

Adding in a Profit

What if the Magic Shop's owner wants to do *better* than just break even? His analysis can be adjusted to consider such a possibility. Suppose the owner expects a reasonable profit (before taxes) of $80,000. What level of sales must the Magic Shop achieve to generate this? He can calculate this by treating the desired profit as if it were a fixed cost. In other words, he modifies the formula to include the desired net income:

$$\text{Sales (\$)} = \frac{\text{Total fixed expenses + Desired net income}}{\text{Contribution margin expressed as a percentage of sales}}$$
$$= \frac{\$177,375 + \$80,000}{0.26}$$
$$= \$989,904$$

To achieve a net profit of $80,000 (before taxes), the Magic Shop must generate net sales of $989,904.

Break-Even Point in Units

Some small businesses may prefer to express the break-even point in units produced or sold instead of in dollars. Manufacturers often find this approach particularly useful. The following formula computes the break-even point in units:

$$\text{Break-even volume} = \frac{\text{Total fixed costs}}{\text{Sales price per unit} - \text{Variable cost per unit}}$$

For example, suppose that Trilex Manufacturing Company estimates its fixed costs for producing its line of small appliances at $390,000. The variable costs (including materials, direct labor, and factory overhead) amount to $12.10 per unit, and the selling price per unit is $17.50. So, Trilex computes its contribution margin this way:

$$\text{Contribution margin} = \text{Price per unit} - \text{Variable cost per unit}$$
$$= \$17.50 \text{ per unit} - \$12.10 \text{ per unit}$$
$$= \$5.40 \text{ per unit}$$

So, Trilex's break-even volume is as follows:

$$\text{Break-even volume (units)} = \frac{\text{Total fixed costs}}{\text{Per unit contribution margin}}$$
$$= \frac{\$390,000}{\$5.40 \text{ per unit}}$$
$$= 72,222 \text{ units}$$

To convert this number of units to break-even sales dollars, Trilex simply multiplies it by the selling price per unit.

YOU Be the Consultant . . .

Where Do We Break Even?

Anita Dawson is doing some financial planning for her music store. Based on her budget for the upcoming year, Anita is expecting net sales of $495,000. She estimates that cost of goods sold will be $337,000 and that other variable expenses will total $42,750. Using the past year as a guide, Anita anticipates fixed expenses of $78,100.

Anita recalls an earlier meeting with her accountant, who mentioned that her store had already passed the break-even point eight-and-one-half months into the year. She was pleased but really didn't know how the accountant came up with that calculation. Now Anita is considering expanding her store into a vacant building next to her existing location and taking on three new product lines. The company's cost structure would change, adding another $66,000 to fixed costs and $22,400 to variable expenses. Anita believes the expansion could generate additional sales of $102,000.

She wonders what she should do.

1. Calculate Anita's break-even point without the expansion plans. Draw a break-even chart.

2. Compute the break-even point assuming that Anita decides to expand.

3. Would you recommend that Anita expand her business? Explain.

$$\text{Break-even sales} = 72{,}222 \text{ units} \times \$17.50 \text{ per unit} = \$1{,}263{,}889$$

Trilex could compute the sales required to produce a desired profit by treating the profit as if it were a fixed cost:

$$\text{Sales (units)} = \frac{\text{Total fixed costs} + \text{Desired net income}}{\text{Per unit contribution margin}}$$

For example, if Trilex wanted to earn a $60,000 profit, its required sales would be:

$$\text{Sales (units)} = \frac{390{,}000 + 60{,}000}{5.40} = 83{,}333 \text{ units}$$

which would require 83,333 units × $17.50 per unit = $ 1,458,328 in sales.

Constructing a Break-Even Chart

The following outlines the procedure for constructing a graph that visually portrays the firm's break-even point (that point where revenues equal expenses):

Step 1. On the horizontal axis, mark a scale measuring sales volume in dollars (or in units sold or some other measure of volume). The break-even chart for the Magic Shop shown in Figure 10.9 uses sales volume in dollars because it applies to all types of businesses, departments, and products.

Step 2. On the vertical axis, mark a scale measuring income and expenses in dollars.

Step 3. Draw a fixed expense line intersecting the vertical axis at the proper dollar level parallel to the horizontal axis. The area between this line and the horizontal axis represents the firm's fixed expenses. On the break-even chart for the Magic Shop shown in Figure 10.9, the fixed expense line is drawn horizontally beginning at $177,375 (point *A*). Because this line is parallel to the horizontal axis, it indicates that fixed expenses remain constant at all levels of activity.

Step 4. Draw a total expense line that slopes upward beginning at the point where the fixed cost line intersects the vertical axis. The precise location of the total expense line is determined by plotting the total cost incurred at a particular sales volume. The total cost for a given sales level is found by the following formula:

$$\text{Total expenses} = \text{Fixed expenses} + \text{Variable expenses expressed as a \% of sales} \times \text{Sales level}$$

Arbitrarily choosing a sales level of $950,000, the Magic Shop's total costs would be as follows:

$$\begin{aligned}\text{Total expenses} &= \$177{,}375 + (0.74 \times \$950{,}000) \\ &= \$880{,}375\end{aligned}$$

Thus, the Magic Shop's total cost is $880,375 at a net sales level of $950,000 (point *B*). The variable cost line is drawn by connecting points *A* and *B*. The area between the total cost line and the horizontal axis measures the total costs the Magic Shop incurs at various levels of sales. For example, if the Magic Shop's sales are $850,000, its total costs will be $806,375.

Step 5. Beginning at the graph's origin, draw a 45-degree revenue line showing where total sales volume equals total income. For the Magic Shop, point *C* shows that sales = income = $950,000.

Step 6. Locate the break-even point by finding the intersection of the total expense line and the revenue line. If the Magic Shop operates at a sales volume to the left of the break-even point, it will incur a loss because the expense line is higher than the revenue line over this range. This is shown by the triangular section labeled "Loss Area." On the other hand, if the firm operates at a sales volume to the right of the break-even point, it will earn a profit because the revenue line lies above the expense line over this range. This is shown by the triangular section labeled "Profit Area."

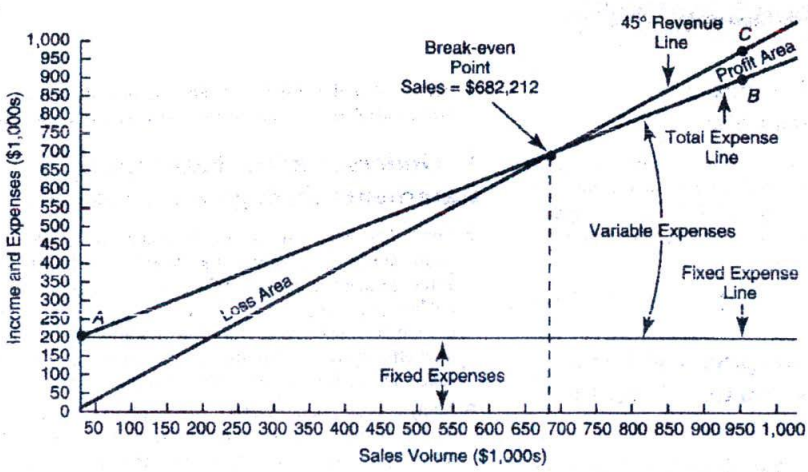


FIGURE 10.9 Break-Even Chart, The Magic Shop

Using Break-Even Analysis

Break-even analysis is a useful planning tool for the potential small business owner, especially when approaching potential lenders and investors for funds. It provides an opportunity for integrated analysis of sales volume, expenses, income, and other relevant factors. Break-even analysis is a simple, preliminary screening device for the entrepreneur faced with the business start-up decision. It is easy to understand and use. With just a few calculations, the small business owner can determine the effects of various financial strategies on the business operation. It is a helpful tool for evaluating the impact of changes in investments and expenditures.

A Company Example

For instance, before Steve Wynn opened the $630 million dollar ***Mirage****, an opulent casino–hotel complex in Las Vegas, a cost–revenue analysis showed that the complex needed revenues of $365 million a year—$1 million a day—just to break even! Although many people doubted the casino-hotel's ability to generate that level of revenue, the Mirage has done so consistently. In its first year of operation, the Mirage brought in an average of $1.97 million each day!*[22]

Although few small companies have break-even points as high as the Mirage's (much to the relief of entrepreneurs!), the break-even point can be just as useful. Greg Smith, for instance, knows that Petra Group's break-even point is $23,000 per week, and he compares sales to that figure every week.[23]

Break-even analysis does have certain limitations. It is too simple to use as a final screening device because it ignores the importance of cash flows. Also, the accuracy of the analysis depends on the accuracy of the revenue and expense estimates. Finally, the assumptions pertaining to break-even analysis may not be realistic for some businesses. Break-even calculations assume the following: Fixed expenses remain constant for all levels of sales volume; variable expenses change in direct proportion to changes in sales volume; and changes in sales volume have no effect on unit sales price. Relaxing these assumptions does not render this tool useless, however. For example, the owner could employ nonlinear break-even analysis using a graphical approach.

CHAPTER SUMMARY

1. Understand the importance of preparing a financial plan.

- Launching a successful business requires an entrepreneur to create a solid financial plan. Not only is such a plan an important tool in raising the capital needed to get a company off the ground, but it also is an essential ingredient in managing a growing business.
- Earning a profit does not occur by accident; it takes planning.

2. Describe how to prepare the basic financial statements and use them to manage the small business.

- Entrepreneurs rely on three basic financial statements to understand the financial conditions of their companies:

1. *The balance sheet.* Built on the accounting equation: Assets = Liabilities + Owner's equity (capital), it provides an estimate of the company's value on a particular date.

2. *The income statement.* This statement compares the firm's revenues against its expenses to determine its net profit (or loss). It provides information about the company's bottom line.

3. *The statement of cash flows.* This statement shows the change in the company's working capital over the accounting period by listing the sources and the uses of funds.

3. Create projected (pro forma) financial statements.

- Projected financial statements are a basic component of a sound financial plan. They help the manager plot the company's financial future by setting operating objectives and by analyzing the reasons for variations from targeted results. Also, the small business in search of start-up funds will need these pro forma statements to present to prospective lenders and investors. They also assist in determining the amount of cash, inventory, fixtures, and other assets the business will need to begin operation.

4. Understand the basic financial statements through ratio analysis.

- The 12 key ratios described in this chapter are divided into four major categories: *liquidity ratios*, which show the small firm's ability to meet its current obligations; *leverage ratios*, which tell how much of the company's financing is provided by owners and how much by creditors; *operating ratios*, which show how effectively the firm uses its resources; and *profitability ratios*, which disclose the company's profitability.
- Many agencies and organizations regularly publish such statistics. If there is a discrepancy between the small firm's ratios and those of the typical business, the owner should investigate the reason for the difference. A below average ratio does not necessarily mean that the business is in trouble.

5. Explain how to interpret financial ratios.

- To benefit from ratio analysis, the small company should compare its ratios to those of other companies in the same line of business and look for trends over time.
- When business owners detect deviations in their companies' ratios from industry standards, they should determine the cause of the deviations. In some cases, such deviations are the result of sound business decisions; in other instances, however, ratios that are out of the normal range for a particular type of business are indicators of what could become serious problems for a company.

6. Conduct a break-even analysis for a small company.

- Business owners should know their firm's break-even point, the level of operations at which total revenues equal total costs; it is the point at which companies neither earn a profit nor incur a loss. Although just a simple screening device, break-even analysis is a useful planning and decision-making tool.

DISCUSSION QUESTIONS

1. Why is developing a financial plan so important to an entrepreneur about to launch a business?
2. How should a small business manager use the 12 ratios discussed in this chapter?
3. Outline the key points of the 12 ratios discussed in this chapter. What signals does each give the manager?
4. Describe the method for building a projected income statement and a projected balance sheet for a beginning business.
5. Why are pro forma financial statements important to the financial planning process?
6. How can break-even analysis help an entrepreneur planning to launch a business?

Launch *The Business Disc* and return to the section where Harry describes business record keeping and monthly sales projections. From the "Go To" menu, select "Events from PART 1 - B," and click on "Harry Talks About: Record Keeping." Summarize the various types of financial records you must keep for your business. Why is it important to keep these records? How long should you retain these records? Do you plan to maintain these records by hand or will you use a computer?

From the "Go To" menu, select "Events from PART 1 - B," and click on "Harry Discusses Monthly Sales Projections." Describe the factors that will influence the pattern of monthly sales for your business. How will the monthly sales for your business fluctuate? If you have not done so already, complete the sales projection form using this information. How accurate did your sales forecast prove to be? What gross profit margin are you earning in your type of business? How does it compare to other companies in this same business? (Review the information in Chapter 10 to determine how you can estimate this percentage and get comparison figures.)

Develop a list of your company's start-up costs. If you have not done so already, complete the "Start-up Cost Form" on *The Business Disc* using this information. Including Harry's suggestions for the first few months' expenses, how much money will you need to launch your business? How much of this amount can you provide?

What is depreciation? Complete the "Depreciation Form" on *The Business Disc*. Should you include depreciation on your cash flow statement? Explain.

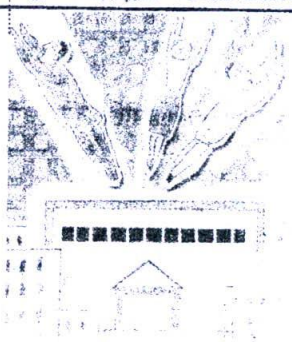
BUSINESS PLAN PRO

Business PlanPro

The material from this chapter will enable you to complete sections 7.1, 7.2, 7.3, 7.5, and 7.6 in the "Financial Plan" section of *Business Plan Pro*.

These sections will allow you to conduct a break-even analysis for the business; produce a projected balance sheet; and lastly, conduct key ratio analysis that investors expect to see.

BEYOND THE CLASSROOM . . .



1. Ask the owner of a small business to provide your class with copies of the firm's financial statements (current or past).
   - Using these statements, compute the 12 key ratios described in this chapter.
   - Compare the firm's ratios with those of the typical firm in this line of business.
   - Interpret the ratios and make suggestions for operating improvements.
   - Prepare a break-even analysis for the owner.
2. Find a publicly held company of interest to you that provides its financial statements on the Web. You can conduct a Web search using the company's name or you can find lists of companies at the Securities and Exchange Commission's EDGAR database at www.sec.gov/cgi-bin/srch-edgar. Analyze the company's financial statements by calculating the 12 ratios covered in this chapter and compare these ratios to industry averages found in *Robert Morris Associates' Annual Statement Studies* or *Dun and Bradstreet's Cost of Doing Business* reports.
3. Download the annual report for a company that interests you. Calculate the 12 ratios discussed in this chapter and then compare them to the industry median using *Robert Morris Associates' Annual Statement Studies* or a similar resource. Do you spot any problem areas? Strengths? What recommendations can you make to improve the company's financial position? What do you project the company's future to be?